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INSIDE

SEPTEMBER 1960

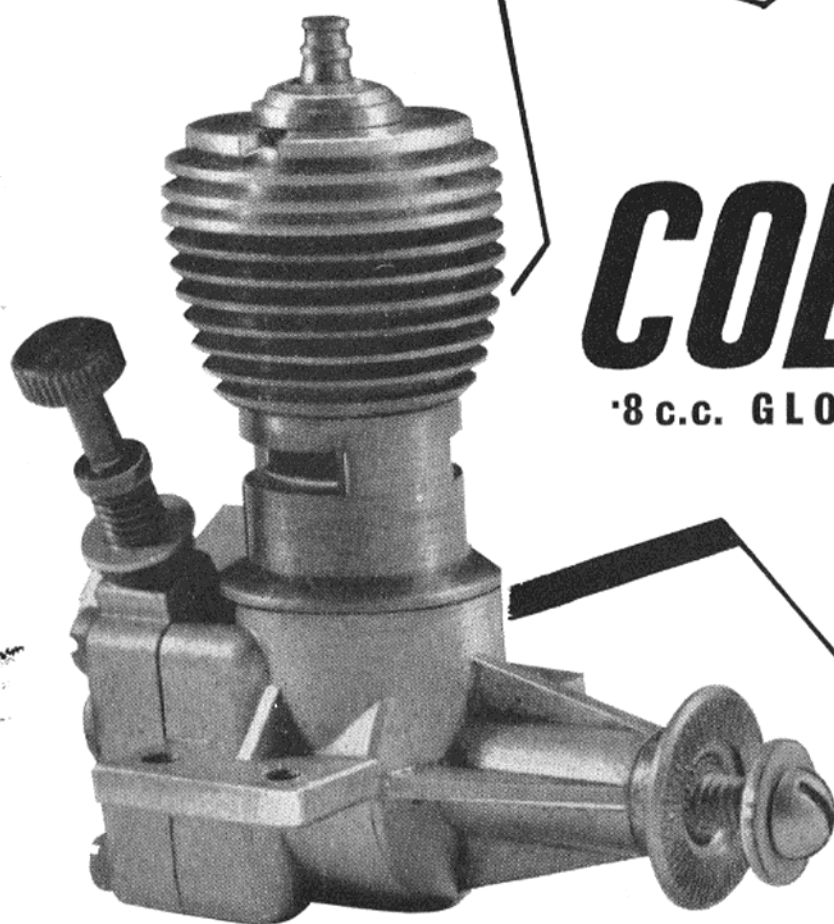
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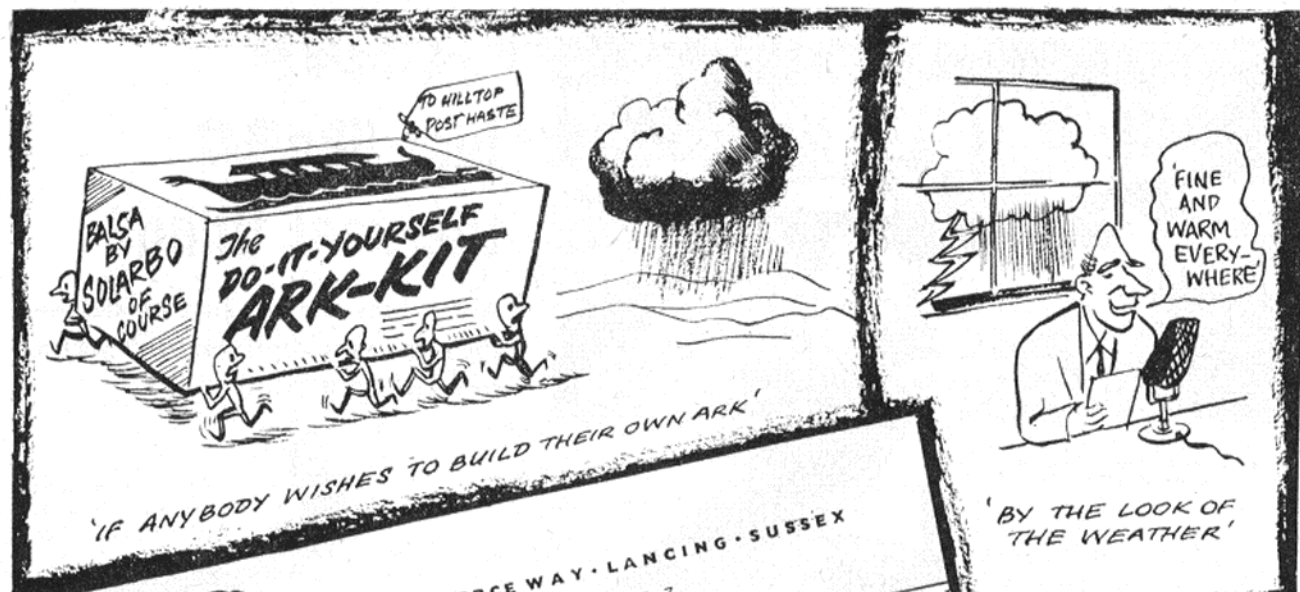
TECHNICAL DATA

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By the way, not only have they established fairly well that there were fantastic floods in the Middle East area in about Noah's time, but an American now claims to have found a fossilised ark on Mount Ararat.

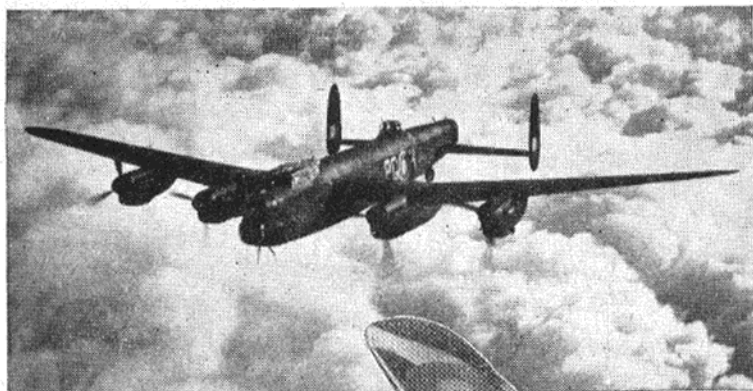
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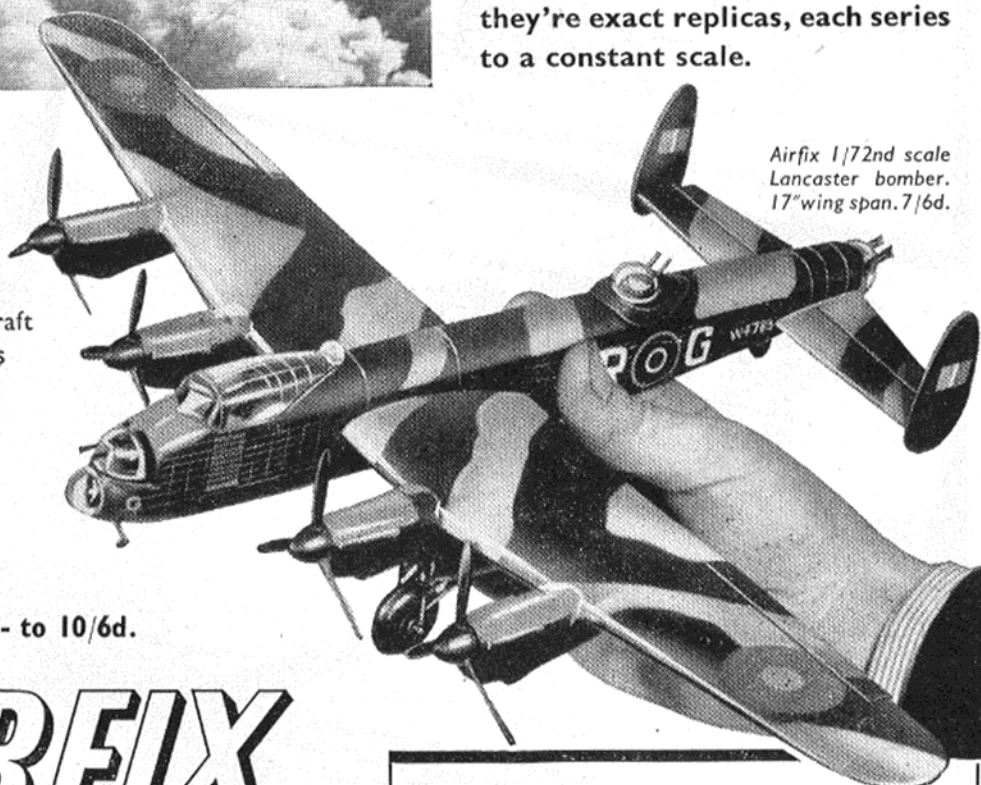
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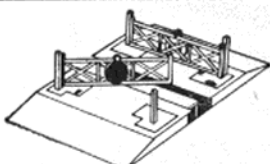


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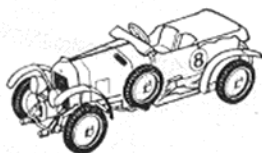
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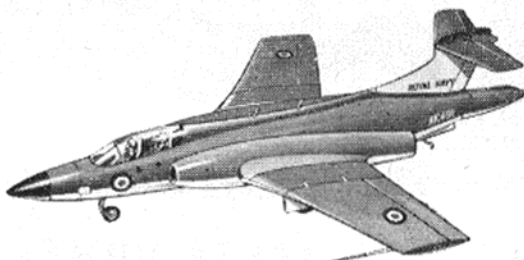


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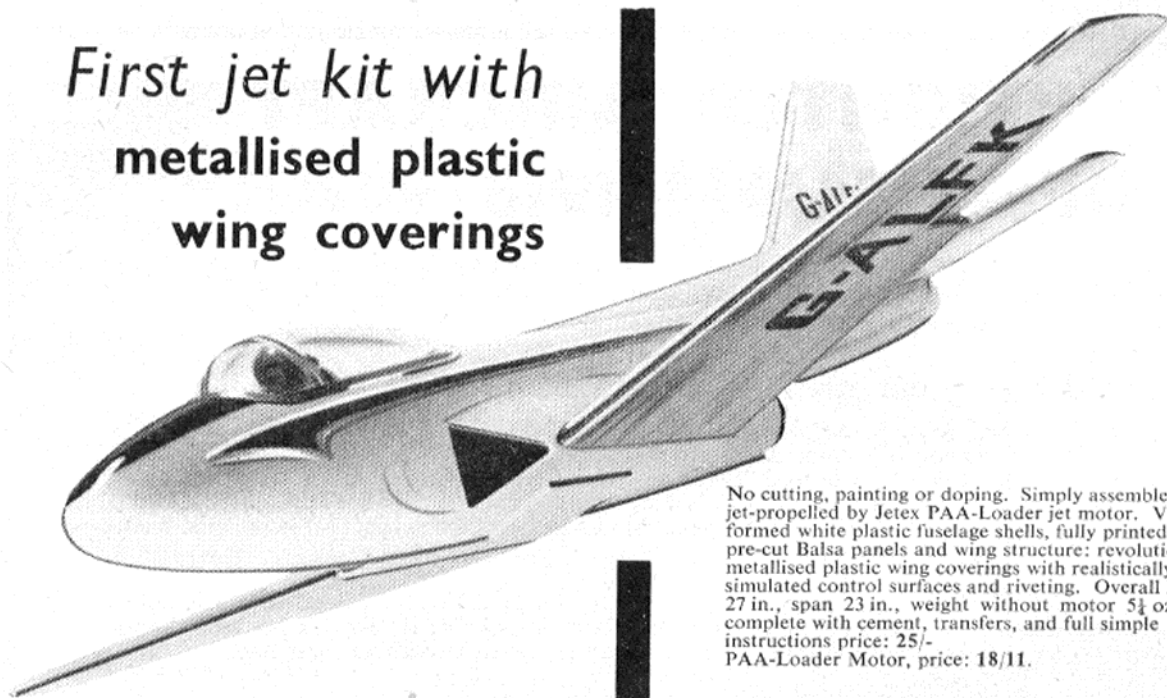
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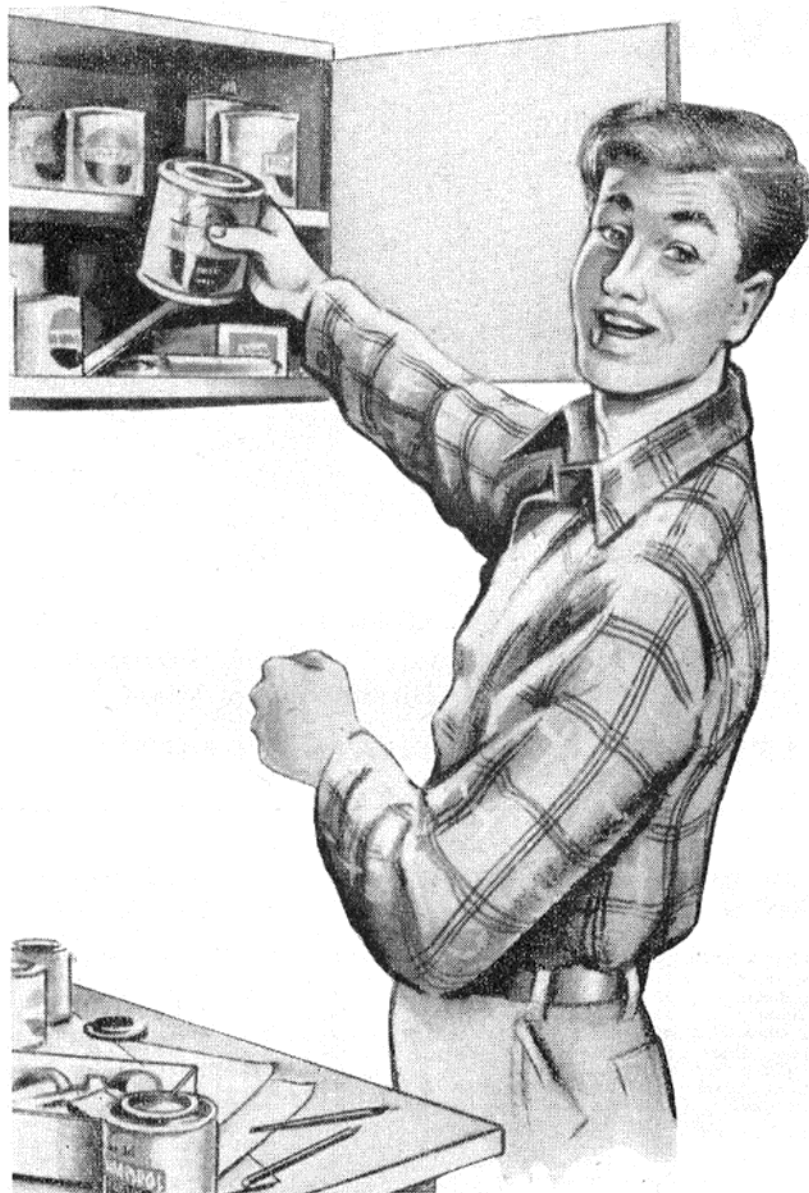
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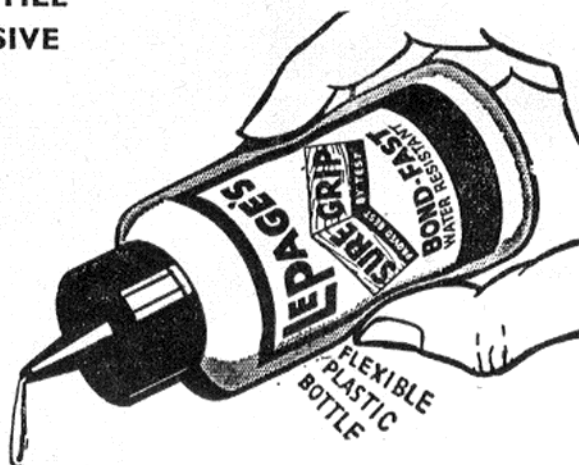
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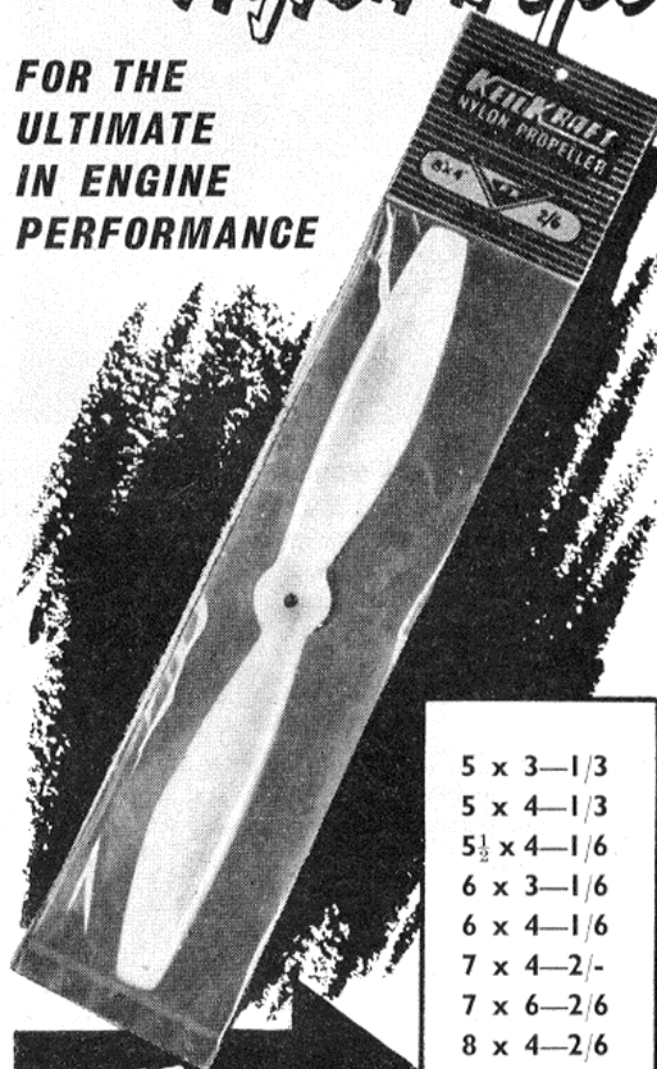
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MODEL *aircraft*

SEPTEMBER 1960

No. 231

VOLUME 19

The official Journal of the
SOCIETY OF MODEL
AERONAUTICAL
ENGINEERS

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Here and There

Carrying Cares

WHEN we aged souls at M.A. started our modelling careers, one could buy a very nice, fold flat, cardboard model carrying box, measuring some $40 \times 8 \times 8$ in., at any model shop for the munificent sum of 5s. While the wealthier enthusiast could show his superiority with a fibre box of similar dimensions which had cost him £1.

The immediate pre, and early post war, period brought forth a rash of beautifully finished wooden boxes fitted with all mod cons, and when these proved a little heavy on the shoulders, one could always fit pram wheels and tow same behind one's bicycle. [Led astray by glowing reports of this form of model transport in the model press, your Editor fitted wheels (unsprung) to a modified mahogany bookcase and sweated his bicycle the 15 miles each way to the flying field—once. Although,

in all fairness, a later trailer which was sprung, and on which several orthodox model boxes could be tied, was successfully used for some time.]

Suddenly someone realised the futility of carrying models weighing ounces, in boxes weighing pounds, and the era of the $\frac{1}{2}$ in. sq. balsa framework, covered in anything from brown paper to leather-cloth, box was with us. Then came C/L, and model boxes were out—all one could see arriving at meetings was the ubiquitous bicycle, the rider—except for the parts supplying motive power—being hidden behind his large stunter.

But the post war generation of young modellers were growing up and could afford motor cycles, and although control-liners were still carried lashed to the rider's back, the universal adoption of this branch of modelling was on the way out, the F/F devotees were returning to their earlier love. However, to carry a F/F model on a motor cycle required a box, and to withstand the high speed buffeting of travel it had to be fairly



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strong, but lo, industry was keeping up with modellers demands. The fluorescent tube had "caught on" and a "tube" box was the perfect shape—unless you wanted to carry several models.

Motor cycles were also meant to carry two people, and two modellers usually had four models. This led to the revival of the wooden box—in a greatly refined form. A lightweight frame covered with m/m ply was now worn, and perhaps the best known of these was Norman Marcus's which measured $48 \times 12 \times 12$ in. Anyone who followed him along a main road at high speed will never forget this era of model carrying!

Which brings us to the present day and cars. As everyone knows models fit most easily into a modern car "loose," although six modellers, plus models, into a four seater won't go—hence roof racks and bigger and better boxes.

What led us to these reminiscences? We almost forgot—it was the two photographs, on the previous page. Taken at the Northern Heights gala, they perhaps show the trend of things to come!

On the Cover

First World Radio Control Champion —Ed. Kazmirski with his now very well known *Orion*, which he flew into first place at the recent R/C Championships. See page 264 for a full report of the meeting.

Gala Posters

TO assist clubs with local publicity for their galas or flying displays, the Federation of Model Aeronautical Manufacturers and Wholesalers have prepared the poster shown below.



Attractively printed in three colours, the blank space is for the club to letter in details of the particular event.

The posters can be obtained from the Secretary of the Federation, 156, Marine Parade, Leigh-on-Sea, Essex, and up to 10 will be provided free, above this number a charge of 1s. for each poster will be made.

Mountain to Mohammed

WE have been particularly interested of late to notice the increasing number of trade members who are taking advantage of the opportunity provided by galas etc., to display their products.

The attractive "Veron Show," which



designer Phil Smith displays, attracts considerable interest at every meeting he attends, and draws attention to the many attractive models in the Veron range. In this way prospective customers can inspect completed models of designs in which they are interested, and often see designs which they did not even know were available.

A less obvious, but more common approach of manufacturer to modeller, is the use of new engines, equipment or designs in open competition with other fliers. This is virtually professionalism, but cannot be decried as such because the best of the amateurs frequently beat the professionals at contests, and, in any case, top amateurs often receive trade support by way of the loan of a new motor, etc., for evaluation.

The net result of this is of definite benefit to the average flier. The rigours of the contest field have ironed out many a bug in a new product which may not otherwise have become apparent until the item was in production.

Another way in which the "trade" is coming to the customer is the provision of model shop facilities on the flying field. The best known of these mobile shops is, without doubt, that of Sheen Models, whose well equipped Volkswagen is a familiar sight on flying fields throughout the country. This is a most useful trade service to modellers if the

queue of customers, waiting to purchase some item of equipment essential to their day's flying and which they have left at home, is anything to go by.

International Prize Draw

FEW people can resist the opportunity to win something for nothing, or at least something for very little, so we are sure the Draw organised by the S.M.A.E. in aid of the International Contest Fund will obtain the support of all modellers. Tickets are only 1s. each and with a first prize of £100, second £50, third £25, and five consolation prizes of £5, the "plunge" is well worthwhile.

Books of tickets are being sent to

clubs and areas, so individuals can obtain theirs from the appropriate local secretary, while to assist associate and non-members it is hoped to arrange distribution via certain model shops.

Clubs and areas can contribute greatly to the financial success of the draw by following the idea suggested by the London Area. In recent years this area has always donated all its spare cash, with the exception of that required for essential area expenses, to the Contest Fund. This year the money will go to purchase draw tickets, and in the event of them holding a winning number, the prize will be donated to the fund.

R/C Rally—change of date

The date of the Southern Counties R/C Rally at Middle Wallop has been changed from August 21st to September 4th, as the first date clashes with an I.R.C.M.S. meeting at Wellesbourne Mountford, Nr. Stratford-on-Avon.

Indoor HAND LAUNCH GLIDERS



HUGH O'DONNELL discusses the design, construction and flying of "chuck" gliders and the refinements that give a "contest" performance

HAND launch gliders give a vast return in enjoyment for the small amount of time and money involved in their construction; but in this country, due to the restricted venues for indoor meetings, interest in this field has hitherto been small. However, Cardington is once again available, and this article has been prepared to give a general outline of the techniques involved to those modellers who wish to fly there. This last sentence does not mean that only modellers with similar facilities to Cardington will find these notes of interest, as much of the material is applicable to outdoor as well as indoor "chuck" gliders.

The basic requirements are a good model and sound launching and trimming techniques, so let us discuss these in detail.

The Model

With this there are three essentials—design, quality of wood and workmanship.

Design. First of all, we must adjust the glider's size and weight to suit the thrower's arm and the available flying space. At Cardington, where space is no problem, we design for maximum duration regardless of model restrictions. In smaller halls, such as the Corn Exchange, Manchester, we must reduce both size and weight in order to circle within the space available and con-

siderations such as increased airfoil thickness and undercamber are important here.

For Cardington, a guide to the size of model for a person of about average strength is given by the accompanying full size plan of my own design. Weight is more critical than size—heavier models being best suited to stronger arms and it would seem that the "tolerance" range for indoor models is from 0.6 oz. to 0.9 oz.

The actual layout of the model is more or less standardised. Once a model has been designed which performs to our requirements, then it is doubtful whether further refinements in the layout are worthwhile. Having developed a sound design any substantial increase in duration is achieved only by improving the throw, obtaining a better finish, varying the weight, adding turbulators, etc.

Quality of wood. Due to the enormous stress which an H.L. glider must withstand both in flying and on impact, sound workmanship and best quality wood are essential. Since the outlay is small it is well worth while to select the best timber regardless of cost, and for this reason I prefer to use American "Indoor Balsa" for all flying surfaces. The wings should be made from light, even textured stock having a short or quarter-grain. Light, quarter-grained $1/32$ in. or $1/16$ in. sheet should be used for

tails and fins. Hard "English" balsa is suitable for the fuselage and should be chosen with a long straight grain. When finished, the fuselage should have an even flexure between wing and tail to reduce the risk of breakage on impact.

Workmanship. Not only does the model have to be built accurately, but joints must be carefully prepared and cemented firmly, while correct alignment is imperative. It is a mistake to attempt to finish a model in an evening; I prefer to allow a week for the construction of two models simultaneously.

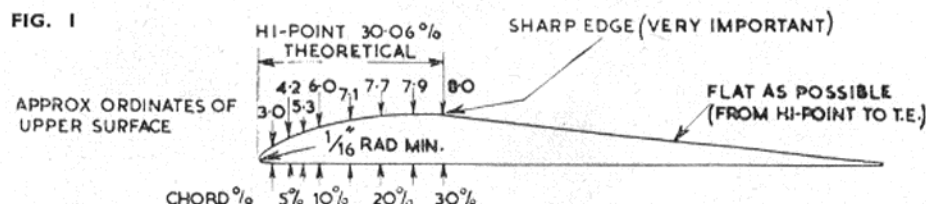
Having decided upon a suitable design, the model is best constructed in the following manner. Make card templates for the wing, tail and fin outlines. Starting with the wing, cut the planform accurately, mark the dihedral joints and cement the leading edge reinforcement in place securing with Sellotape. Tail surfaces are now made, and using a sanding block the sections are formed. Finish with "600" grade wet-or-dry paper.

The fuselage should be marked out and the outline cut carefully. Ensure that correct zero-zero incidences have been obtained, and that the recesses for the wing, tail and fin are suitable. Round off the appropriate corners and after sanding with progressively finer papers, finish with "600" grade, and pre-cement the fin and tail surfaces in place. Make sure that these are correctly aligned with the fuselage before allowing to dry overnight.

When the L.E. reinforcement has dried, the wing section should be formed. If the wing planform is elliptical, the wing should be tapered spanwise and roughly sanded before the section is carved. Use a sharp knife to form the section roughly, finish off with a razor blade and sanding block. It is a bad policy to make the T.E. too thin; aim for a thickness of about $1/32$ in. at the centre, gradually becoming "knife-edged" towards the tips. Having achieved an accurate section at this stage, finish off with progressively finer sandpapers, down to "600" grade. It is a good plan to place several layers of newspaper on the work bench to avoid small scratches and dents.

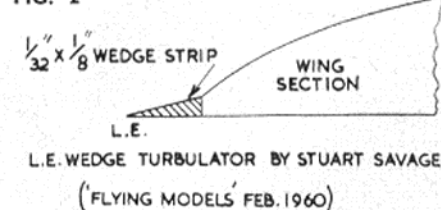
The wing is now cut along the dihedral breaks, and the tip joints formed and pre-cemented. When these are dry, the centre joint is made, and allowed to dry. Cement fillets are applied to all dihedral joints, both top and bottom. Give the centre joint an additional fillet. The wing should again be sanded lightly and is now ready for

FIG. 1



PRESENTED BY CURT STEVENS (FRANK ZAI'S YEAR BOOK 1957-58)

FIG. 2



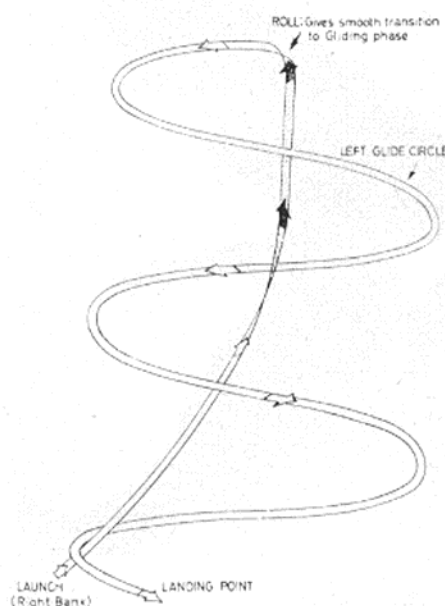
the final finish to be applied.

Finishing is largely a matter of individual preference. I recommend rubbing talcum powder into the wood with the fingers, wiping off any excess with a cloth, and applying a coat of thin dope to each ounce of which has been added one or two drops of castor oil. When dry, it should be sanded with "400" and "600" papers, and the process repeated two or three times until the required degree of smoothness is achieved. This method of finishing gives a light smooth surface which is ideal for indoor models.

Next, the wing is pre-cemented into the recess of the fuselage and correctly aligned. A cement fillet is applied to the wing-fuselage joint, and, after drying, the throw-tab is cut and sanded to shape and cemented in place. The notch in the throw-tab is cut to suit the first finger after the model has been assembled. A second fillet is now applied, and the fuselage finished (one coat of dope being sufficient here). Finally, the whole model is lightly sanded with "600" paper, S.M.A.E. numbers applied (preferably with indian ink and a stencil, to the upper surface of the wing), and the model rubbed with "Selvyt" finishing cloth.

Launching Technique

A certain amount of athletic ability is advantageous here and modellers who can throw a cricket ball, the discus, and in particular the javelin, will have no difficulty in developing their own



(often very!) individual launching style.

In order to counteract the glide circle, the model must be launched with bank, the degree of bank being opposed by the tightness of the glide circle. Thus, for right-handed modellers, a left glide turn is balanced by right bank. It is far better to adjust the model's circle to the natural bank of the launcher and not vice-versa. A 45 deg. bank requires an approximately 75 ft. diameter gliding circle.

The grip of the model for right-handers is illustrated in the heading photograph. Note the position of the first finger which should lie comfortably in the recess of the throw-tab. The fuselage is gripped between thumb and middle finger just behind the wing L.E. Some modellers prefer to place the first and second fingers behind the port and starboard wings respectively (two throw-tabs being required), the fuselage being gripped ahead of the wing L.E. by thumb and third finger.

Essentially, the thrower uses a short run to impart momentum to the model. In order to position himself correctly for the launch, a cross-over step (as used for throwing the javelin) is used, and is illustrated in the first photograph. In this position the body is turned to the side, and the next photograph illustrates

the beginning of the throw. Here the weight is over the half-bent right leg and the left leg is positioned forward and to the left. The next two photographs illustrate the drive from the right foot, the hips and shoulders turning, and the left arm held high. Just before the model is released the weight should be over the left foot, keeping the left leg as straight as possible and arching the body. The right arm thus delivers the model in a sideways manner (as opposed to the overhead delivery of the javelin), the drive from the right foot turning the hips, shoulders and arm in that order. Try the sequence of the launch slowly until the correct body positions are mastered. Next, numerous launches should be tried using an old model until the movements are automatic. Having mastered his style correctly, the launcher can concentrate on developing a hard and consistent throw using any desired length of run-up.

Fitness and strength will enable the thrower to launch better and harder, and since the launch is fundamentally the same action as throwing the javelin, then it would be helpful to consult any good book on athletics.

Trimming

Before attempting to fly the model, it should be checked for alignment and incidence settings, the fuselage steamed if necessary, and weight added to give the correct C.G. position. I prefer to recess the majority of the weight in the fuselage and add a small amount of plasticine for minor adjustments. Test glides should be carried out by adjusting the C.G. position until a glide just off the stall is obtained.

We are now ready for the first launch, which should be given at "three-quarter power" and banked to the right as just described. If the model flies straight up and down, warp the T.E. of the tail up slightly and re-adjust for the glide; if a loop results, warp the T.E. of the tail down and reduce the nose weight accordingly. The model can thus be adjusted until "full power" is given to the launch.

To obtain a good transition from the throw to the gliding phase, it might be necessary to "wash-in" (i.e. increase incidence) the tip panel of either wing.

(Continued on page 263)

The launch.—This series of photographs, reading anti-clockwise show—

The cross-over step.

The beginning of the throw. Note the weight over the half bent right leg and the position of the left leg forward—and to the left.

The drive from the right foot turning the hips and shoulders.

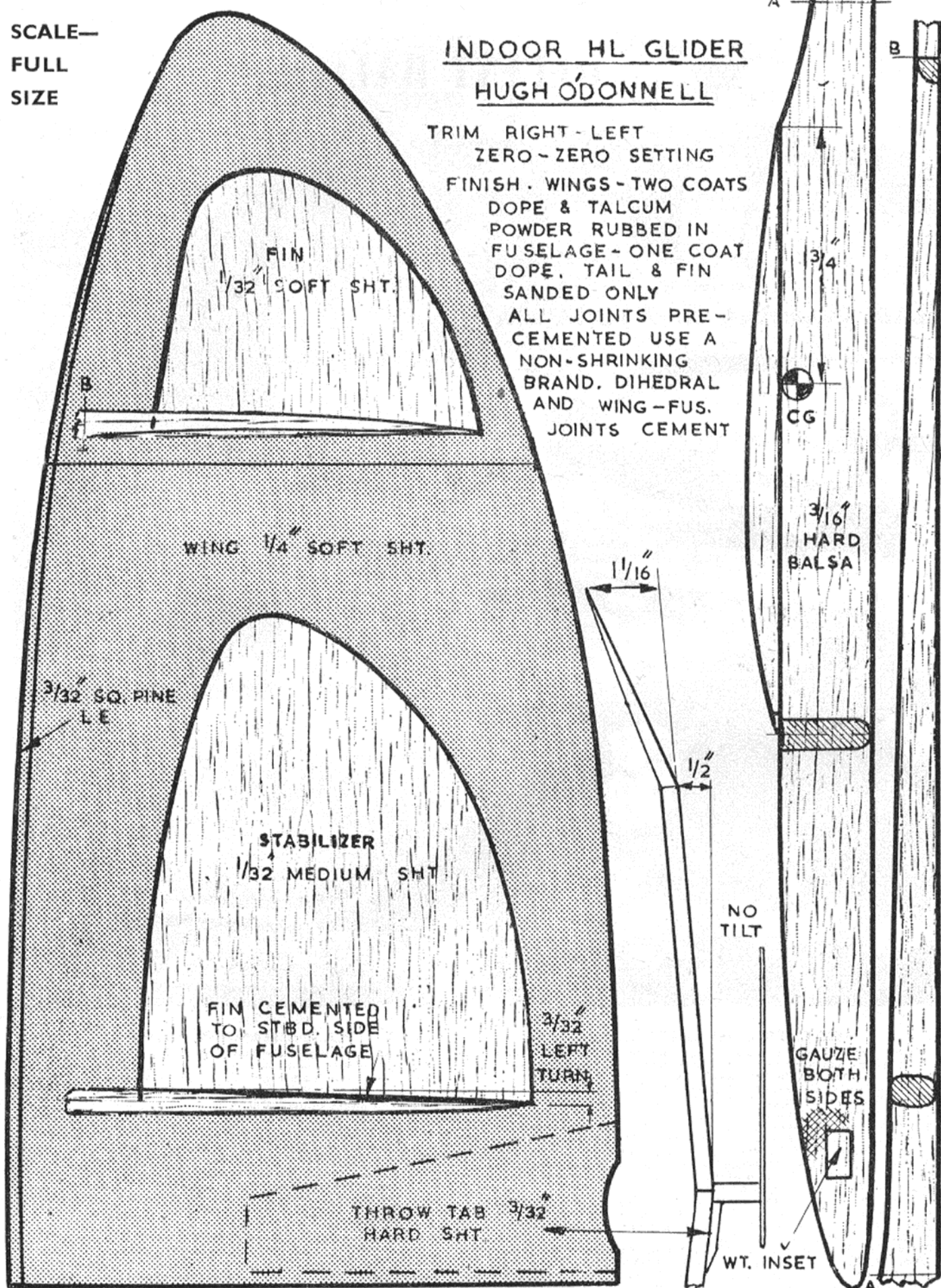
The left arm held high and the weight being transferred to the left foot. Before the model is released, the left leg straightens and the body is arched.

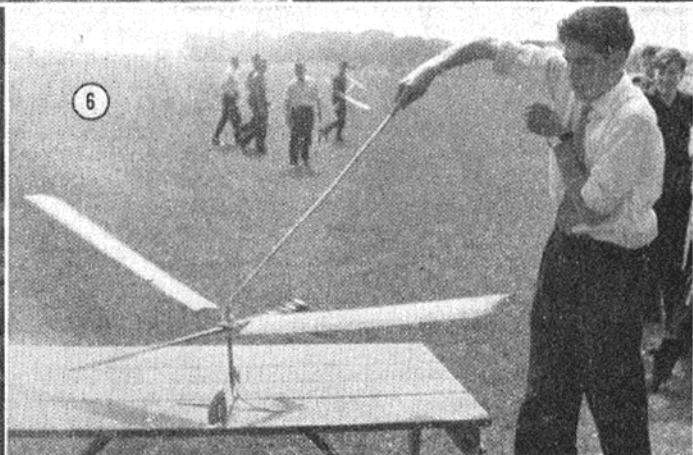
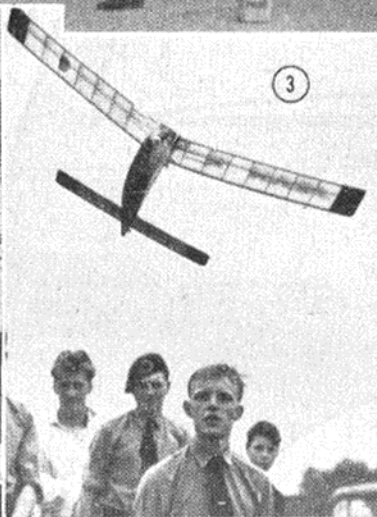
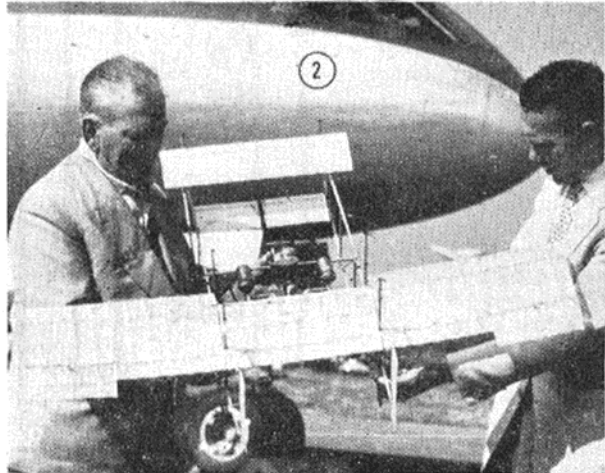


SCALE—
FULL
SIZE

INDOOR HL GLIDER HUGH O'DONNELL

TRIM RIGHT - LEFT
ZERO-ZERO SETTING
FINISH. WINGS - TWO COATS
DOPE & TALCUM
POWDER RUBBED IN
FUSELAGE - ONE COAT
DOPE. TAIL & FIN
SANDED ONLY
ALL JOINTS PRE-
CEMENTED USE A
NON-SHRINKING
BRAND. DIHEDRAL
AND WING-FUS.
JOINTS CEMENT





NORTHERN HEIGHTS GALA

THE traditionally good weather which always seems to accompany this event was once more well in evidence, although the wind was quite strong. Inside the hangar there was a fine selection of Concourse models, the eventual winner of this event being A. W. Evans' F/F Valkyrie (photo 2) which we featured on last month's cover. The two judges seen holding this "vintage" model, with Halton's Comet I in the background, are left C. A. Rippon, whose connection with models is almost as old as modelling itself, and George Hunt, who is "Chief Air Pilot" to the C. in C., U.S. Naval Forces, Europe. Following an even larger "vintage" entry in this year's concours, the organisers are seriously considering the possibility of running a separate section for such models next year.

One of the features of the N. Heights meeting is the Helicopter event and in photo 6, R. Dudley of Weston-super-Mare is seen restraining his creation with the aid of a stabilising pole, until the motor has achieved sufficient speed to lift the model.

The Kenton boys were to the fore again in the combat circle and in photo 4 the winners are seen after defeating the opposition.

The R/C event, although well patronised, was rather disappointing, due chiefly, to the poor penetration of the single channel models,

R.A.F. CHAMPIONSHIPS

DEBDEN was once again the venue for this, the highlight of the Service modellers' year, and once more the weather conditions were good, while the rather pleasant, light hearted approach that seems to characterise this meeting was much in evidence.

Our heading photo shows Aircraft Apprentice Gulliver's Junior 60 being launched during the radio event. This branch of R.A.F. modelling has still a long way to go before it reaches civilian standards.

The "scramble" produced 20 entrants and a tremendous amount of enthusiasm. The Mills 0.75 powered McCutchen flying machine, flown by S.A.C. Andrews of Cranwell (photo 1), was well in the running, but a fractured counterweight arm left him grounded for some minutes. The event was eventually won by Aircraft Apprentice Pete Sunnell of Halton (photo 3) whose well used model was driven so hard that the engine bearers nearly fell out!

One of the most original models seen was F/Lt. Lawrence's Cierva Autogiro, powered by an Amco 3.5 and fitted with an electric servo-powered throttle control. Unfortunately, the whirling rotor fouled the lines and destroyed an almost certain chance of a very deserving win.

A double test featuring two popular Japanese engines imported by Keilcraft



THE O.S. company, namely, the Ogawa Model Manufacturing Co. Ltd., of Osaka, are one of the world's oldest established model engine manufacturers, having marketed their first engine in 1937. Today, O.S. are also one of the largest, if not the largest, model engine firms outside the United States, with a staff of over 100 and a sizeable, well-equipped modern factory. A good deal of experimental work is continually in progress, as a result of which, design changes are made quite frequently: the present Max-III model is, in fact, the fourth development of the original Max-I which appeared in 1954. This policy, though sometimes unpopular with wholesalers and retailers, many of whom dislike recurrent changes, has resulted in the Max 35 being brought to an above-average stage of development.

Compared, for instance, with the average American "35" (the 35 class engine being, of course, American in origin), the Max-III is, in general, more powerful, better finished, more durable and has equal or superior handling characteristics. Not surprisingly, some of the improvements incorporated in the Max series, such as the large-journal big-port crankshaft, for example, are now beginning to find their way into other 35's.

Although the basic layout of the Max-III is essentially the same as that of the previous Max-I and Max-II models, the engine is, in fact, new throughout, including a new main casting, cylinder, cylinder-head, crankshaft, piston and connecting rod. The crankcase and main bearing unit, a beautifully produced pressure casting having an attractive and serviceable "satin" tumbled finish, incorporates heavier mounting lugs and a larger carburettor, transfer passage and exhaust

duct. The massive crankshaft with its over $\frac{1}{2}$ in. dia. journal, 9 mm. (0.354 in.) bore gas passage and $17/64$ in. dia. crankpin, has extra counter balancing (web flanks cut away, plus a machined-in crescent counter-weight). The induction period has, compared with earlier models, been reduced approximately 30 deg. to a more orthodox 180 deg. period (timed 45 deg. ABDC to 45 deg. ATDC), this being compensated by enlarging and squaring the induction aperture in the bearing. The cylinder

and head have greater cooling fin area and the joint between them is made by an aluminium gasket which offers better heat transference and is not prone to "blowing" or to damage from dismantling. The ignition plug is now offset to the transfer side.

At 8.3 oz., the Max-III is 24 per cent. heavier than the original Max-I of five years ago, but this is more than compensated by its extra high power output and greater durability. As with previous models, each Max-III is supplied with a rubber dust-plug for the exhaust and two interchangeable venturi inserts. A pressure nipple is available as an extra

to enable a crankcase pressurised fuel system to be employed if desired, in which case the venturi insert can be removed entirely for increased power at high r.p.m. The engine can also be easily converted to the Multispeed R/C version by fitting the special O.S. coupled throttle parts, mounting points being ready drilled and tapped for this purpose. A special cylinder-head is also made for this version.

Specification

Type: Single-cylinder, air-cooled, loop-scavenged two-stroke cycle, glow-plug ignition. Crankshaft rotary-valve induction. Baffle piston. Offset ignition plug.

Bore: 0.810 in. Stroke: 0.688 in.

Swept Volume: 0.3545 cu. in. = 5.809 c.c.

Stroke/Bore Ratio: 0.849 : 1.

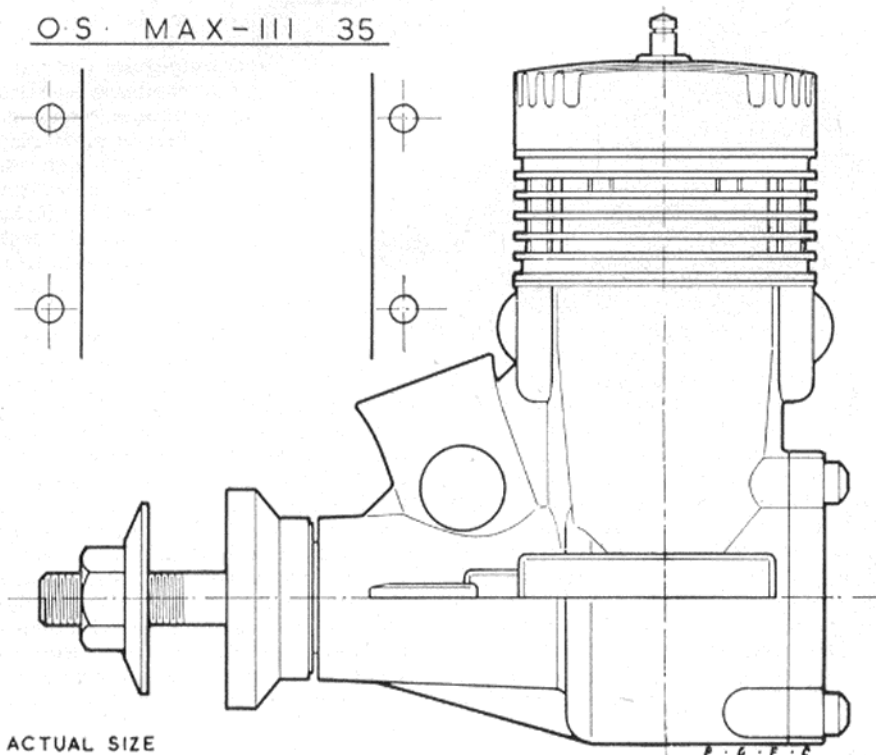
Compression Ratio: 8 : 1.

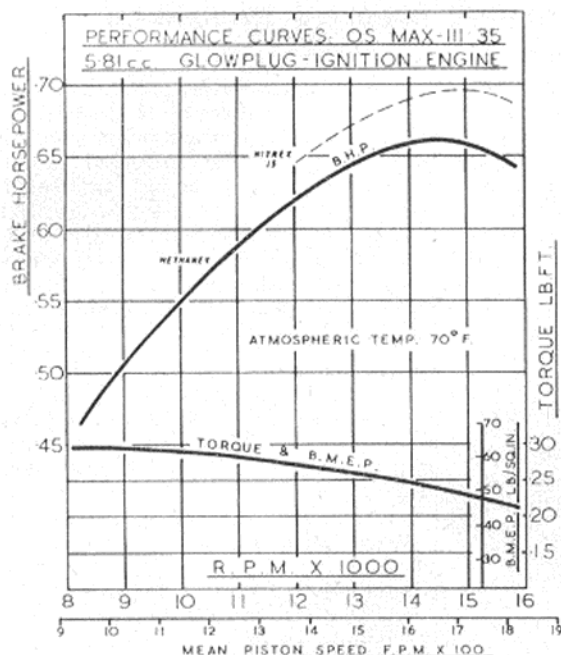
Weight: 8.3 oz.

General Structural Data

Pressure diecast aluminium alloy crankcase and main bearing unit with cast-in bronze main bearing bush. Hardened alloy steel crankshaft, fully counterbalanced with 13 mm. (0.512 in.) dia. journal and 6.7 mm. (0.264 in.) dia. hollow crankpin. Heavy diecast alloy prop driver, keyed to flat on shaft. One-piece steel cylinder with integral fins and blued anti-corrosion external finish. Diecast and machined alloy finned cylinder head with bronze insert for glowplug. Six Phillips type head screws, two extra long and securing complete cylinder assembly to crankcase. Lightweight Meehanite piston with two skirt ports, filleted baffle and 5 mm. (0.197 in.) dia. tubular gudgeon-pin

O.S. MAX-III 35





having brass end-pads. Heavy-duty die-cast aluminium alloy connecting-rod with bronze big-end bush. Plated brass needle valve assembly with flexible control extension and reversible for left- or right-handed control. Interchangeable machined-aluminium venturi inserts. Beam mounting lugs.

these latter have been tested on more expensive fuels of higher nitromethane content. Immediately prior to testing the Max-III, we checked one of the more moderately priced American 35's on the same fuel and it was revealing to find that the peak output of the Max bettered this engine by no less

Test Engine Data

Running time prior to test: four hours.

Fuel used: KK Record Methanex (3 per cent. nitromethane).

Ignition plug used: O.S. No. 3 (medium heat rating platinum filament, 1.5 volt).

Standard venturi insert retained for all tests.

Performance

To the modeller with limited funds but who likes to fly a lot, the snag to operating a big contest-type glowplug engine is the extra cost of fuel. This is where the Max-III scores to some extent as it delivers a high power output on the least expensive types of glow fuel, such as KK Methanex used for our test. The performance on this was in fact, higher than for any other 35 tested in this series, even though most of

than 40 per cent. Briefly checked on Nitrex-15 fuel, the Max-III's output rose to just on 0.70 b.h.p. at 15,000 r.p.m.

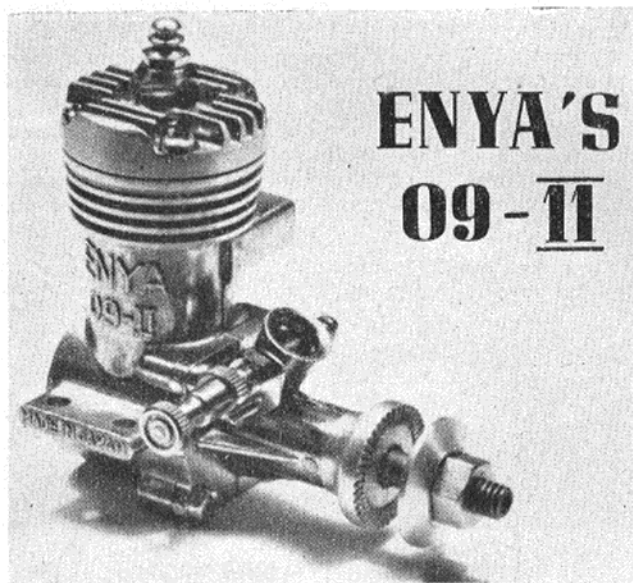
This performance has not been achieved at the expense of handling qualities: we found starting to be easy and trouble-free. A cold start was achieved quickly following port priming, while hot re-starts were virtually instantaneous after giving one preliminary choked flick of the prop. The needle-valve is one of the best we have encountered, having a ratchet which is just right for easy yet positive adjustment, plus a flexible stem that enables one to keep one's fingers safely back from the prop.

Power available to drive large props (e.g. 8,200-10,500 on 12 x 6-12 x 4) is surprisingly good, thanks to exceptionally high maximum torque. At around 8-9,000 r.p.m. this reached nearly 0.30 lb. ft.—about 15 per cent. above average for the 35 class and equivalent to a b.m.e.p. of approximately 64 lb./sq. in. Up to 13,000 r.p.m. can be expected on the popular 10 x 6 (stunt size) props.

There would seem to be little doubt that the Max-III must be rated as one of the world's best 35's at the present time.

Power/Weight Ratio (as tested): 1.27 b.h.p./lb.

Specific Output (as tested): 117 b.h.p./litre.



ENYA'S 09-II

TWO previous Enya models dealt with in this series, the 15-D and 29-III, earned very favourable reports and our examination and test of the new 09-II was, in consequence, undertaken with the thought that this, too, might be an above average performer in its class. In this matter we were not disappointed, for the 09-II appears to be as good as anything yet seen in the 09 group.

The 0.099 cu. in. capacity limit is, of course, essentially an American category and, with most engines in this group

features several changes and somewhat altered external appearance. The same crankshaft and a similar front housing are retained but the main casting—now with the exhaust duct on the left-hand side—is of revised design, as are the cylinder-liner, transfer porting and cylinder head. Like the larger Enya glowplug engine, the 09-II features a unit crankcase and cylinder block with drop-in liner. Unlike the previous models, however, the loop-scavenged porting system now consists of a pair of internal transfer flutes in a

displacing around 1.6 c.c., is just outside the British 1.5 class. Except where contest rules may impose a 1.5 c.c. limit, however (such as in Half-A team racing), the 09 glow can be considered as an alternative power unit to the 1.5 diesel and in the case of the Enya 09-II, performance on a good fuel, can be equal to the high standards now being reached by the leading diesel 1.5's—possibly with a slight saving in weight.

Replacing the earlier Enya 09 design, the new 09-II

very thick liner, instead of the conventional external passage and rectangular intake port. One of the reasons why the Enya 09 was redesigned was the maker's desire to bring its cost down to a more competitive price without sacrificing performance or quality. The adoption of this revised cylinder design was, apparently, one of the steps taken to achieve this. In point of fact, there has been no "cheapening" of this engine: it still remains very much a scaled-down "big" engine. The hardened crankshaft retains its crescent counterbalance and drilled crankpin and runs in a bronze-bushed main bearing. Machined joint faces, including a metal-to-metal head joint, are still used and fits and finishes throughout, on our test sample, were excellent.

Specification

Type: Single-cylinder air-cooled, loop-scavenged two-stroke cycle, glowplug ignition. Crankshaft rotary valve induction. Baffle piston. Central ignition plug.

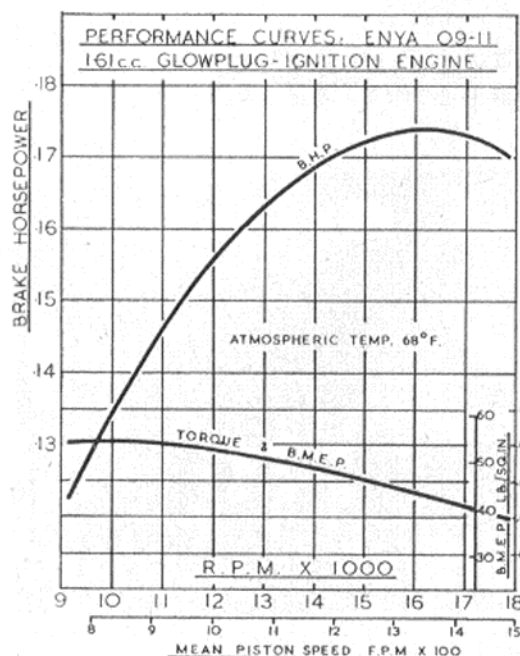
Bore: 0.500 in. Stroke: 0.500 in.

Swept Volume: 0.0982 cu. in. = 1.609 c.c.

Weight: 3.1 oz.

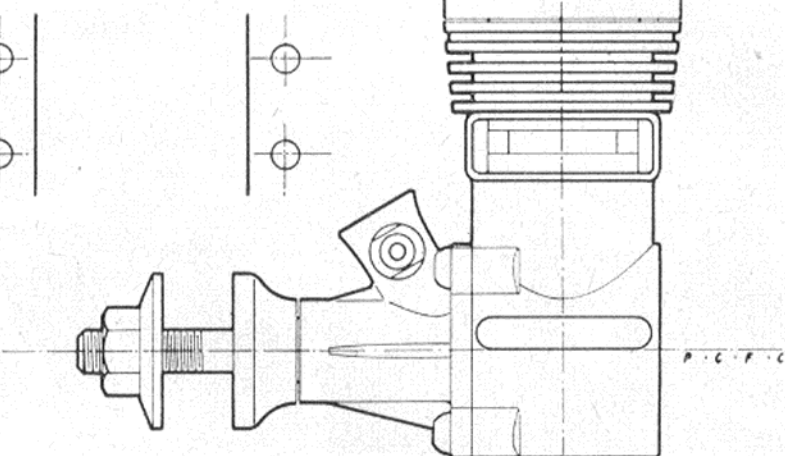
General Structural Data

Pressure diecast aluminium alloy crankcase and cylinder block with inserted liner having 0.095 in. wall thickness. Pressure diecast aluminium alloy front housing with bronze main bearing, supporting hardened counter-balanced crankshaft having 7.5 mm.



ENYA 09-II

ACTUAL SIZE



(0.295 in.) dia. journal, 5 mm. (0.196 in.) crankpin and 5.5 mm. (0.216 in.) bore gas passage. Lapped, lightweight piston with straight fence baffle and 3.5 mm. (0.138 in.) dia. fully-floating tubular gudgeon-pin with aluminium end pads. Diecast aluminium alloy connecting-rod. Finned and machined pressure diecast aluminium alloy cylinder head attached to cylinder with four screws. Machined alloy prop driver fitted to matching taper on shaft. Nickel-plated spraybar type needle-valve assembly. Beam mounting lugs, with provision for fitting radial mounting studs.

Test Engine Data

Running time prior to test: two hours.
Fuel used: Record Super-Nitrex (30 per cent. nitromethane).

Ignition plug used: Enya No. 3 (hot rating platinum rhodium filament, 1.5 volt).

Performance

Starting qualities of the 09-II on test were excellent and a beginner should have no difficulty in handling this engine after a short acquaintance. This ease of starting was maintained irrespective of the size of the prop used and the Enya was quite remarkable for the manner in which it coped with a wide variety of props, from 19,500 r.p.m. on a Frog 6 x 4 down to 8,000 on a 9 x 6. The performance at the lower speeds was equal to that of a top class 1.5 diesel—very unusual in a small glow engine, most of which are not especially noteworthy for their low-speed pulling power. At the highest speeds, the engine

was absolutely dead steady and seemed quite prepared to run indefinitely at speeds approaching 20,000 r.p.m. At all speeds it was smooth running and free from excessive vibration.

The maximum power recorded was 0.176 b.h.p. at a little over 16,000 r.p.m. To achieve the peaking speed in the air, something like a 7 x 4 would be desirable. Alternatively, a good 8 x 3 or 8 x 4 should also give an excellent F/F performance.

All these figures relate to a fairly heavily nitrated fuel. Performance will inevitably be appreciably lower on a straight methanol/castor mixture or on mild fuels.

Power/Weight Ratio (as tested): 0.908 b.h.p./lb.

Specific Output (as tested): 109 b.h.p./litre.

INDOOR GLIDERS

(Continued from page 258)

Thus, "wash-in" the port tip panel if the model over-rolls on the climb and vice-versa. Such warps should be applied with care, a little at a time. On no account use "wash-out." The best plan is to cut about $\frac{1}{8}$ in. in from the T.E. along the outer dihedral joint and bend the flap so obtained downwards. Cement permanently in place when the correct position is found.

The basic idea of the techniques involved in H.L. gliders has now been explained so it is appropriate to mention minor refinements and ideas which should be especially helpful to those modellers who wish to fly at Cardington.

Wing leading edge reinforcement, although not essential, is well worth while. An alternative to the hardwood strip is the use of C/L wire, cemented to the L.E. outline before carving the section. This not only prevents kinks

in the L.E., but gives a much smaller and more accurate nose radius to the section than is otherwise possible.

Curt Stevens recommends the airfoil illustrated (Fig. 1) with a sharp edge, and maximum camber at 30 per cent. For additional information see Frank Zaic's Year Book, 1957-58.

The use of sandpaper grips cemented to either side of the fuselage prevents the fingers slipping on launch. Avoid flying with long finger nails as these tend to dig-in when the model is released.

Elliptical planforms are desirable for two reasons. The stresses are greatest at the centre; we thus ensure a more economical distribution of material. Secondly, they afford greater resistance to warps and "fluttering."

Avoid fuselages which might flex on launch, resulting in a great loss of altitude at the top of the launch. If this is the case, a balsa "stiffener" (3/32 in. sq.) cemented along the bottom of the fuselage is very effective.

While aspect ratios for most H.L. gliders have remained at about five, Stuart Savage points out that an aspect ratio of 10 would halve the induced drag coefficient, and correspondingly increase the model's performance by 42 per cent. (*Flying Models*, February 1960).

Throw-tabs are an inherent source of trouble. From my own experience, I prefer one of generous size, cemented to the fuselage and the underside of the wing. Since the purpose of the throw-tab is to relieve the load on the T.E. of the wing, and to transfer part to the fuselage, a thick balsa throw-tab is preferable to a thin plywood one which distributes the load over the wing only.

In order to improve the model's performance appreciably, we must look further than minor changes in design. For example, it is far more important to determine the size and weight of a glider best suited to the available arm-power, than to modify a design which is too light or too large. For this reason, I suggest

(Concluded on page 281)

American wins first WORLD

RADIO CONTROL CHAMPS

Team win for Great Britain



Report and Photographs by J. D. McHard

RADIO-CONTROLLED model flying is now really on the map, for the first World R/C Championships were held in Switzerland on July 24th and 25th, at Dubendorf Airfield, just outside Zurich. Here 20 modellers from eight different countries, the cream of the world's R/C flyers, provided the 4,000 spectators with two days of really beautiful precision flying.

The eventual winner of this very hard-fought contest was Ed Kazmirski flying his *Orion*, and although none of our team were in the first three places, their consistent flying gained for Great Britain the team prize.

The evening before the start of the contest there was a gathering of all entrants and team managers, who spent some two hours ironing out ambiguities in the flying schedule. The U.S. team in particular were quite unfamiliar with the F.A.I. R/C schedule, their own A.M.A. flight pattern being completely different. To further confuse the situation each of the five judges seemed to interpret the rules in a different way, and this lack of unanimity was, understandably, very disturbing to many of the contestants.

The first day was decidedly gusty, with frequent showers, and except for the occasional patches of sunshine, rather cold. Many of the contestants were out at 6 a.m. testing and trimming their models in preparation for the start at 8.30, and during the course of this preliminary testing Chris Olsen crashed his No. 2 model—a reduced scale *Uproar*.



Heading photo shows Ed Kazmirski, the first world R/C Champion, standing in front of about 20 photographers as he brings his winning "Orion" model in to land over the "spot."

Chris Olsen casts a mysterious glance in the direction of Ed Kazmirski's "Orion." Perhaps next year we'll see a low wing "Uproar"?

The contest eventually got under way at 9 a.m. with Gobeaux of Belgium flying his standard low wing, tip-dihedral, model powered by a 9.6 Ruppert Twin diesel and with 10-channel radio (two vacuum and eight electric servos). Although his manoeuvres were obviously good, they were carried out much too high, and were generally poorly placed in relation to the judges. His sixth position at the end of the first round would undoubtedly have been higher had more attention been given to these points. This comparatively slow and lightly loaded model was considerably affected by the strong wind, which made his inverted flying erratic and he only completed two of the necessary three spins.

The Swiss hope—Bickel—who flew a development of his well-tried O.S. 35 powered design had motor trouble which, after faltering several times, eventually stopped altogether during a loop.

The next three models to fly all crashed in circumstances strongly suggesting the possibility of radio interference. First was Gast of Germany, whose elevator went "up" when inverted during a bunt at which the U.S. team elected him a member of the "Up-Elevator Club"! Then America's Harold De Bolt dived straight in following the stall, and finally the Italian, Corghi, lost control when his model dived disastrously to earth, half-way through the schedule. Suspicion fell upon some mysterious radio vans on the airfield perimeter!

It was therefore with considerable apprehension that we awaited the appearance of the eighth man, our own Frank van den Bergh. The thought that one's flight may at any time be abruptly ended due to outside interference does nothing towards calming the nerves of

any R/C flyer and, in an international event where so much is at stake, the effect on one's performance can be ruinous.

Frank, however, despite his obvious nervousness, gave us a fine flying demonstration which earned praise even from the U.S. team, and only the fact that he made a rather high floating landing approach, dropped a wing and nosed in, in an effort to avoid flying into the spectators prevented him from placing higher than fifth at the end of the first round. The positioning of his manoeuvres was really beautiful—sufficiently low for one to see them perfectly without straining one's neck and exactly in front of the five judges, who were able to stand on one spot throughout almost the whole of his performance.

There was considerable consternation among the British team when Frank's model was inspected following the heavy landing. The fuselage was cracked vertically, behind the wing and the wing tip was buckled. At first it was thought that he had suffered a bent engine crank-shaft, but the stiffness was due to the crank-shaft of his K & B .45 being pushed back slightly and the fault was quickly rectified.

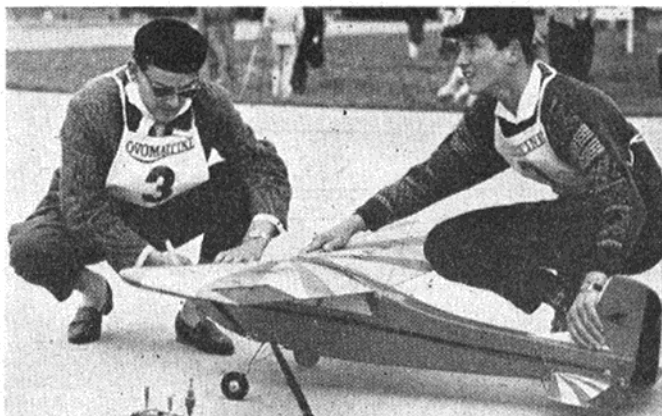
During Frank's flight, the U.S. team manager, Walt Good, kept a monitor in operation to detect any interference and there was none. With confidence now returning, the contest continued, the very worried looks gradually being replaced by the *normally* worried appearance which seems to be regular equipment with the black-box boys.

The Stegmaier family now appeared, complete with their standard 9.3 c.c. Ruppert Twin-powered shoulder wing model. The crowd were particularly enthusiastic about this entrant, and, apart from the fact that the loops were poor, the performance was generally excellent. The landing approach in particular was most impressive, with full advantage being taken of the almost instantaneous throttle response of the Ruppert to give several short bursts of power to flare out the landing. The principal difference between this and the previous Stegmaier models lay in the eight-channel radio equipment, which, while still employing the now familiar vacuum principle, incorporated an automatically blipped down elevator pulse during straight inverted flight. This device trimmed the model for the inverted pattern and avoided the complication of a further two channels.

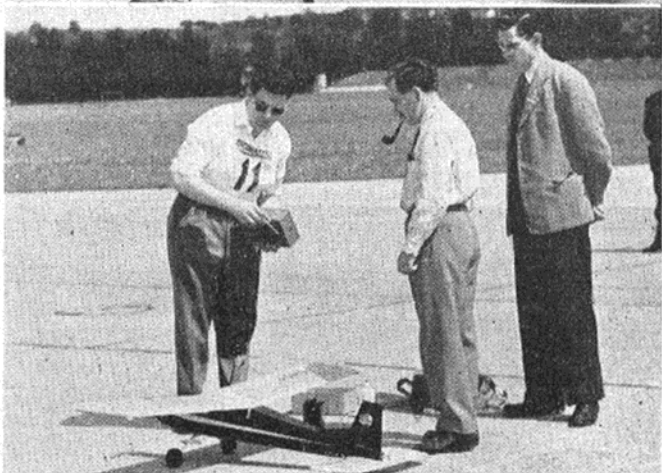
Last to fly before lunch was Ed Kazmirski, whose extremely slick, polished *Orion* model provided an equally slick and polished performance. Finished in white, with crisp red and black trim, the *Orion* looked as though it should really have been in a glass case instead of being propelled through 12 min. of really professional aerobatics at an average speed which we estimated to be around 60 m.p.h.

One of the outstanding features of the meeting was the incredibly high standard of construction and finish of all the American models. Their radio equip-

Unlucky Gast, of Germany, lost control of his 10-channel Graupner equipped "Smog Hog," which crashed into the runway and was completely written off—including the Ruppert twin diesel.



Stewart Uwins checks his aileron control, anxiously watched by George Honnest-Redlich and team manager Ed Johnson.



Maritz, of Switzerland choking his engine prior to his first round flight.



Dr. Walter Good, U.S. team manager, carries the transmitter for "Pappy" De Bolt as they walk out to the take-off area.



Hajic, of Czechoslovakia, checks the radio of his M.V.V.S. powered swept wing model.



ment is so reliable that they build, on an average, only one model per year and can thus afford to put a great deal of extra time and effort into their airframes, knowing that radio failure is unlikely to abruptly terminate their model's existence.

Ed Kazmirski uses standard Orbit 10-channel equipment and he was the only man in the U.S. team not professionally connected with the model trade. Having fitted the radio, he then forgets about it, and concentrates on the flying. This idyllic situation is, of course, what everyone has been aiming at for years; ever since U.S. team manager, Walt Good, made his pioneer radio flights back in 1935.

Unfortunately, although we in England are rapidly nearing a realisation of this ambition, there is still very little equipment available that can be "fitted and forgotten." There is still a tendency among manufacturers to build down to a price at the expense of reliability and robustness, and until we, the customers, are prepared to pay the higher price for trouble-free radio, we will continue to encourage the idea of the hurriedly built "expendable" model equipped with radio gear, the probable failure of which we have grown to accept as "part of the game"!

The smallest engines in the contest were the 2.5 c.c. M.V.V.S. diesels used by all the Czech team. Their models were very small and light and suffered badly when it came to performing really smooth manoeuvres. These Czech models were unique in another way too, for they all used home-built radio gear, and control surfaces were actuated by air pressure servos, power for which was derived from a small pump attached to a crank protruding from the rear of the engine crankcase.

Arnold Degan, of the Swiss Aero Club, upon whose shoulders the entire organisation of the meeting fell, was so anxious to please, that almost every amateur with a camera was given a Press armband and, of course, they immediately invaded the take-off area! The situation became so confused that Degan made a snap decision to ban all Press representatives from the vicinity of the models. For the remainder of the first day, therefore, virtually no pictures of any value were obtained either by MODEL AIRCRAFT or anyone else, and Press relations, to say the least, were very strained! Thanks to the initiative of M. Roussel of the F.A.I., the situation was resolved by the issue of a special badge to bona fide members of the model Press for the following day.

Chris Olsen's *Uproar*, using R.E.P. Octone radio and an E.T.A. 29 engine, made its first flight during Saturday afternoon. In the opinion of those of us who have seen him perform at home, his flying was a little below average and yet, despite this, he finished the first round in third place, with 5,317 points, just 294 behind Gustav Samann of Germany. Samann's model, of very Germanic appearance, was a considerably cleaned-up version of his last year's effort and again used the 9.7 c.c. Ruppert Twin. A garish red and yellow sunburst finish distinguished this model which employed 10-channel Graupner radio equipment.

Some doubt was expressed by competitors as

to the ethics of Samann's action during the first day. When his turn came, he decided that it was too windy, and without making any pretence that anything was at fault with the model, waited around in the take-off area until the statutory five minutes had elapsed, which technically passed as an "attempt." Thus he postponed his flight until later in the afternoon when conditions were much calmer. If this sort of thing is allowed (and according to the letter of the law it is) then radio contests could become merely a procession of contestants taking turns to stand for five minutes on the runway until their "attempts" ran out or the wind dropped!

Another point about Samann's flight which sparked off some controversy concerned his execution of the spin. In the rules it clearly states that there should be three turns during this manoeuvre, and that the model must emerge at the bottom of the spin travelling in the same direction as when it entered. On this basis the judging must be carried out, and any deviation from the laid-down pattern should be marked down. Samann did SIX turns during his spin, and although this raised a cheer from the crowd, it should have been ruthlessly marked down by the judges. Those of the judges with the greatest experience of carrying out this difficult job did, in fact, deduct a number of marks in this instance but others (more easily impressed?) gave almost top marks!

Bob Dunham, manufacturer of Orbit radio equipment, had a beautiful all sheet covered, white, low wing model, powered by a K & B .45. The tapered wing was only $\frac{1}{2}$ in. thick at the root giving a thickness chord ratio of about 19 and this, together with the extremely clean surface finish, combined to produce an extremely fast model that flew as though on rails. Bob was using his new Orbit receiver which measures only $2 \times 2 \times 1$ in., weighs 3 oz., and is completely transistorised, using no relays and employing servo amplifiers which weigh 1/5th oz. each! Altogether, the new receiver means that there is a total weight-saving of 8 oz. over the old 10-channel Orbit set-up.

After a really fine demonstration of the model's superlative handling qualities, Bob's motor cut following the spin and he was forced to execute a hasty landing thus forfeiting many precious points, to finish the first round in seventh place. The only fly-away came next when Michalovic of Czechoslovakia allowed his model to fly out of range. It disappeared with amazing speed downwind and also caught a thermal in the process, which took it up into cloudbase inside 1 min.

Stewart Uwins drew the last number of the day and he was not at all happy about his model. First of all he had aileron trouble and then the engine began to play up; however, he did eventually manage to get airborne, and was doing very well until the first sign of trouble showed during the third loop when the engine faltered badly, but recovered. Then on to the bunts and during the second one, the engine stopped completely, compelling him to make a hasty landing.

This ended the first day's flying, and although Kazmirski held a comfortable lead, Chris Olsen

and Frank van den Bergh still had a chance of catching up with him if they could retain their form during the second round.

Second Round

The boys were out again at 6 a.m. on the Sunday and during practice Olsen lost a wheel in the long grass along the edge of the field, but by pure good fortune this essential item was recovered before the second round commenced.

The day began fine and warm with virtually no wind and so it remained for the remainder of the contest. First man away was Bickel, who forgot to keep his eye on the large Mido alarm clock and overran his time by 30 sec., losing all his landing points.

We now had a unique opportunity to compare two of the most interesting models, for directly after the next man, Kazmirski, we were to see van den Bergh perform. Ed Kazmirski made a faultless take-off and although it seemed to onlookers that his motor was running a little roughly, it did not affect the brilliance of his performance which netted him 6,183 points and which he completed in the remarkably slick time of 10 $\frac{1}{2}$ min.! The crowd, now numbering about 4,000, gave him an enormous ovation which he richly deserved.

Frank van den Bergh now came along with his repaired and trimmed *Sky Duster*, to give what many considered to be an equally brilliant performance. Frank's greatest asset is his ability to place his manoeuvres where the judges can see them, and once more he did just that. Apart from the fact that he did four instead of three turns in the spin, the flight was as accurate an interpretation of the schedule as any we have seen, particularly the landing pattern, which was one of the very few recognisable as the rectangular flight path as drawn in the rules. Unfortunately, Frank once again came in too high on his approach and overshot the spot landing circle to score 5,932 points, only sufficient to gain him fourth place in the final marking.

One of the more amusing incidents occurred when Havlin of Czechoslovakia was making his second flight. The interference monitor was temporarily switched over to the loudspeaker system and whenever Havlin's model executed a loop, the tones transmitted produced a perfect rendering of the opening "Victory bars" of Beethoven's Fifth Symphony! Apart from this incident, the flight was uninspiring.

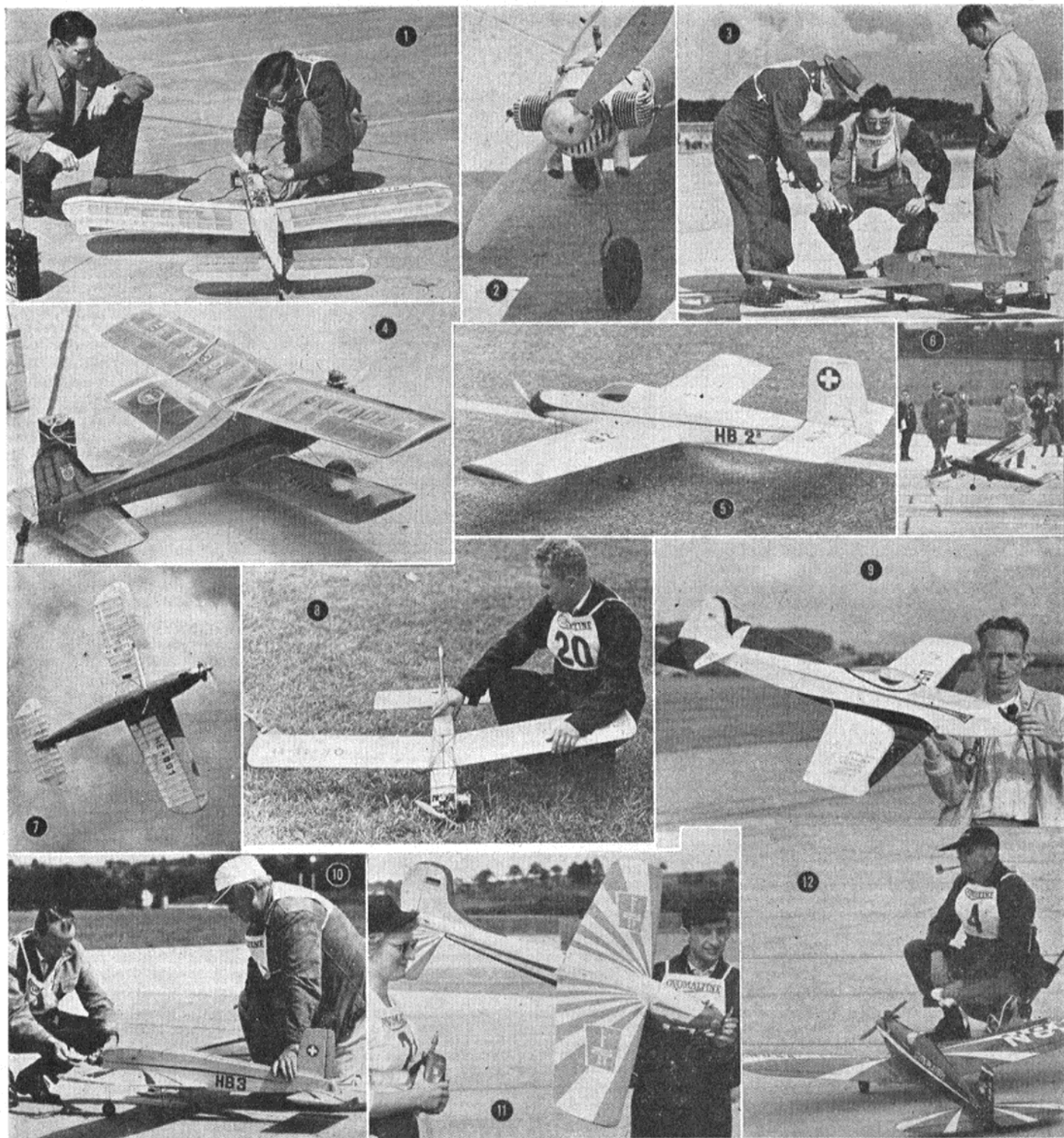
Harold De Bolt, who had been so unlucky on the previous day, brought out his second model, a *Live Wire Bipe*, immaculately built and finished in brilliant crimson with blue and white stars and stripes. Using a 5.7 c.c. Super-Tigre for power, Harold employed a K & B .45 barrel throttle over the intake, but no exhaust valve. He gave us a fine demonstration, our only observations being that the model was loath to spin, and that it definitely had a tendency to stick its nose up during inverted flight. The marking for this performance was only beaten by Ed Kazmirski, but his unhappy first flight relegated Harold to seventh place. We had the pleasure of seeing a further flight by the De Bolt model during the lunch break, whilst awaiting the late return of

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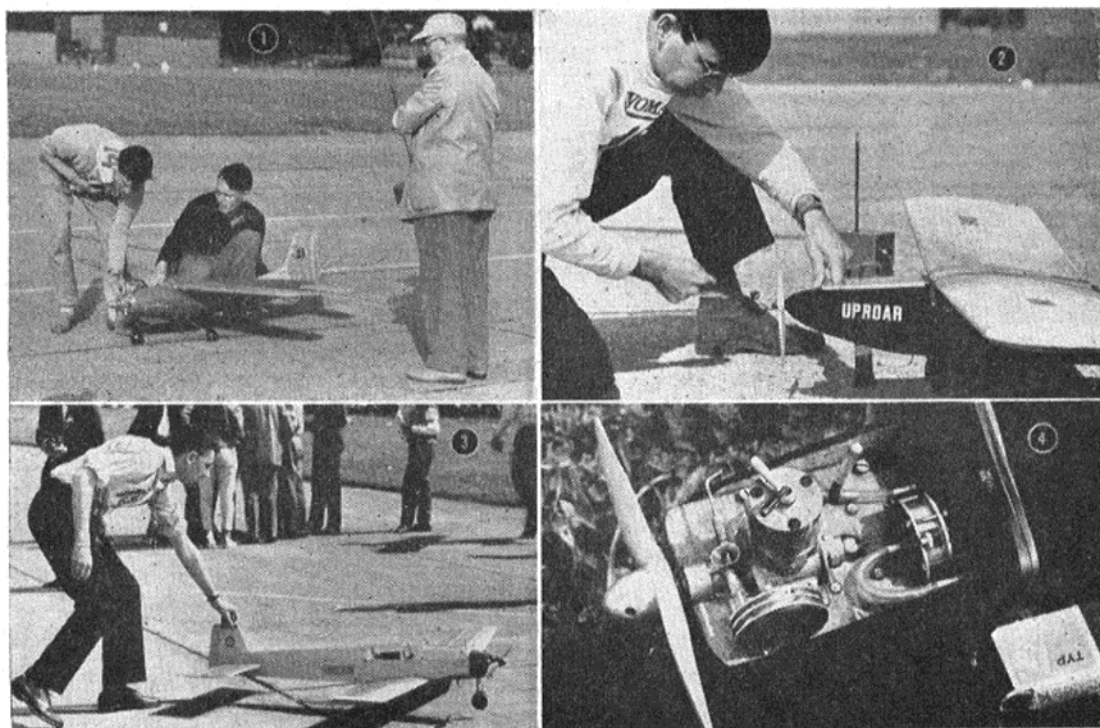
Left: British team manager, Ed Johnson, receives his scroll from F.A.I. secretary general, M. Gilman.

Below: The U.S. team, complete with bells, at the banquet. Ed Kazmirski (left) holds the Championship trophy.





1. Ed Johnson watches as Frank van den Bergh makes final adjustments to his Orbit equipped "Sky Duster."
2. The extremely neat engine cowling of Stegmaier's Ruppert twin is well shown in this photo. The model is almost unchanged since last year.
3. Another model which is virtually identical to his earlier efforts is this low winger belonging to Jean Pierre Gobeaux, here seen with fellow members of the Belgian team.
4. Eliasson's Swedish altitude record holding De Bolt "Bipe," which did not quite come up to expectations.
5. Bickel's sleek low wing O.S. 35 powered model over-ran its flight time by 15 sec.
6. Stegmaier's well-known Ruppert twin powered model is seen here making a very bouncy landing after its flight in the second round.
7. The same model airborne on its second flight. The low aspect ratio and tubby appearance are well shown in this view.
8. The simple compact design of Hajic's model is clearly shown in this photo. All the Czech models used 2.5 c.c. M.V.V.S. diesels.
9. Orbit manufacturer Bob Dunham proudly holds his latest masterpiece for the benefit of an admiring bevy of photographers. His flying demonstration after the contest was truly brilliant although motor trouble dogged him during the champs. Model featured steerable nose wheel and brakes.
10. Ernst Klauser, of Switzerland, whose model struck a photographer with its wingtip during the landing approach in the second round.
11. Happy smile from Gustav Samann, whose 10-channel Graupner equipped and Ruppert powered model gained him second place.
12. Harold De Bolt, with inevitable pipe, awaits his turn to fly his ill-fated "Pursuit." Beautifully built, it was powered with a Super-Tigre (K & B 45 throttle) and used Bramco radio. The model was completely written-off shortly after this photo was taken.



1. Karl Heinz Stegmaier adjusts the compression of his Ruppert twin as dad stands by with the transmitter.
2. Chris Olsen is seen here, just before his second flight, which clinched the team prize for Great Britain.
3. Making certain that his model rolls "straight" is Jean Gobeaux, whose Ruppert powered low winger is a familiar sight at European model meetings.
4. Interesting close-up of one of the Czechoslovak M.V.V.S. engine installations. The crank driven pump on the rear of the engine crankcase can be clearly seen, together with the actuator "plumbing."

some of the judges! His most spectacular manoeuvre was to fly at head height until almost over the transmitter, then pull sharply up into a vertical climb and execute four rolls before levelling off!

Stewart Uwins was definitely below his usual form, lacking that little bit of finesse that is so essential if one is to be certain of the highest placing. Unusually for Stewart, who normally completes the schedule well within the stipulated 15 min., he found himself with only 45 sec. to go and still only up to the spin. Very wisely he cut out the intermediate manoeuvres and flew an abbreviated landing pattern to gain landing points. The placing of his manoeuvres throughout the contest was, like the rest of the British team, excellent. This compliment could not, I fear, be paid to the next flyer Karl Heinz Stegmaier who insisted on performing at very high altitude and much of the time almost directly overhead. In these circumstances accurate judging is impossible even though Stegmaier's manoeuvres were beautifully precise and executed much more slowly than most of the other contestants.

Eliasson of Sweden flew a De Bolt *Bipe* and this particular model is the present holder of the Swedish altitude record (886 m.). The model was particularly interesting in that it employed three Bonner Duramites—cascaded on single channel. A sticking wheel provided a few anxious moments for nearby spectators as the model careered wildly about the tarmac, it failed to get airborne.

Bob Dunham's second flight was nothing short of tragic, for after making a perfect copybook take-off and giving the crowd a thrilling

demonstration of high-speed, low-level straight and level flight, his engine stopped dead, there was no preliminary warning at all, and no chance even to make a landing attempt. Bob thought that his plug had burned out, but upon making a check later, the motor started without any trouble. No fault could be found, and the only feasible answer is that the failure was caused by a temporary fuel line blockage.

Later, after the contest, Bob gave us what must surely be the most impressive R/C flight yet seen in Europe, during which he repeatedly flew at around 70 m.p.h. at 6 ft. altitude for almost the full length of the runway—inverted! The way in which this model unwaveringly follows the direction in which it is pointed is really impressive and quite unequalled by anything we have previously witnessed.

Chris Olsen followed Bob into the air and provided sufficient points with his fine flying to give the British team the team prize. During his landing approach he, like van den Bergh, found himself too high, but went round again, thus losing at least 100 points, but saving the model from the possibility of damage following a rapid descent.

Last of the top men to fly was Samann, whose machine gracefully performed the schedule, but again in a very poor position, from the judges' point of view.

Following completion of contest flying, the leading men gave impromptu demonstrations. Bob Dunham's has already been mentioned, but the crowd went wild when Olsen and Uwins tied streamers to their *Uproars* and indulged in five minutes of R/C combat! Neither of them

managed to chop the other's streamer, but the aerobatics were out of this world, and first-class entertainment!

The banquet, held in Zurich during the evening, was most successful and Ed Kazmirski, besides the Championship Trophy, received, from the Mayor of Zurich, an enormous Swiss cow bell which he endeavoured to swing but which, in fact, almost swung him! All the contestants received smaller replica bells which were loudly rung in the most unlikely places until the early hours of Monday morning!

Summing up, we would say that this was, in general, a highly satisfactory, well-run contest with only one major black mark (that concerning poor Press relations, about which we have already commented) to be awarded. This only applied to the first day and the Press liaison on the second day was first class.

The modellers who attended the meeting all came away a little wiser, and with enough radio meat to digest, to keep the projects flowing for many months to come. Although the second and third places were taken by the Ruppert twin diesel, it was the almost unanimous opinion that the R/C power plant of the future is the .45 glow plug engine with a fine pitch prop, for in this field lies the greatest development potential.

The judges were, Maurice Bienvenu of Belgium, Norbert Trumpfeller of Germany, Guglielmo Barthel of Italy, Heinrich Pfandler of Switzerland and our own Henry J. Nicholls (whose excellent driving we must thank for the safe return of the MODEL AIRCRAFT Editorial staff!). They all did a grand job.

RESULTS AND SUMMARY OF ENGINES AND EQUIPMENT

	NAME	MOTOR	EQUIPMENT	FREQUENCY	SCORE		TOTAL
					1st Flt.	2nd Flt.	
1.	Kazmirski, U.S.A.	K & B .45 (7.3 c.c.)	Orbit	27.12	6,275	6,183	12,458
2.	Samann, Germany	Ruppert (9.7 c.c.)	Bellaphon	40.68	5,611	5,650	11,261
3.	Stegmaier, Germany	Ruppert (9.3 c.c.)	own	27.12	5,233	5,940	11,173
4.	Van den Bergh, Great Britain	K & B .45 (7.4 c.c.)	Orbit	26.995	5,082	5,932	11,014
5.	Olsen, Great Britain	ETA 29 (5 c.c.)	R.E.P.	27.12	5,317	5,327	10,644
6.	Gobeaux, Belgium	Ruppert (9.6 c.c.)	own	27.12	4,977	5,021	9,998
7.	De Bolt, U.S.A.	Super-Tigre (5.7 c.c.)	Bramco	27.12	2,702	5,668	8,370
8.	Uwins, Great Britain	Merco 35 (5.7 c.c.)	R.E.P.	27.12	1,678	5,394	7,072
9.	Klauser, Switzerland	FMO (6 c.c.)	own	27.12	2,651	3,951	6,602
10.	Dunham, U.S.A.	K & B .45 (7.3 c.c.)	Orbit	27.12	4,923	385	5,308
11.	Bickel, Switzerland	O.S. 35 (5.8 c.c.)	Nievergeld	27.12	610	3,844	4,454
12.	De Dobbeler, Belgium	Webra (7.6 c.c.)	Orbit	26.995	820	1,869	2,689
13.	Maritz, Switzerland	Ruppert (7.6 c.c.)	OMU	27.12	1,151	425	1,576
14.	Hajic, Czechoslovakia	MVVS (2.47 c.c.)	own	27.12	800	631	1,431
15.	Havlin, Czechoslovakia	MVVS (2.47 c.c.)	own	27.12	754	336	1,090
16.	Dilot, Sweden	K & B .45 (6.8 c.c.)	Bramco	27.25	105	850	955
17.	Gast, Germany	Ruppert (9.6 c.c.)	Stegmaier	27.12	632	0	632
18.	Michalovic, Czechoslovakia	MVVS (2.47 c.c.)	own	27.12	514	0	514
19.	Corgh, Italy	Super-Tigre (9 c.c.)	—	—	425	0	425
20.	Eliasson, Sweden	O.S. 29 (4.8 c.c.)	R.E.P.	27.12	95	0	95



TOPICAL TWISTS

by pylonius

Aw, Nats.

Just for the heck of it I had thought of making a special "T.T." award to the most gaga Gala of the year; the one that for sheer whackyness came nearest to observing those principles of fieldmanship laid down in the famous "T.T." manifesto, "Flight of the Bumbledon." In order to qualify the following basic conditions must be complied with:

Site: At least 10 miles from nearest habitation, surrounded by dense wood, and with no camping facilities or shelter. At least 60 per cent. of airfield to be out of bounds. Access to usable part of airfield by main gate only, ensuring minimal possibilities of retrieving wayward models.

Organisation: All officials recruited from Knitting Circle of local Townswomen's Guild. These should be security screened to ensure absolute nil knowledge of modelling. Timekeepers to be of the junior uniformed variety, skilled no doubt in various forms of fieldcraft, but deficient in optic power, aircraft recognition and the science of chronometer reading.

Catering: Sub snack bar fare at West End Grille prices.

Prizes: From surplus kit stock.

Unfortunately, these principles, which would imaginably be the height of perverse aspiration, have been put to shame by the "Phantom" and "Do-it-yourself" rallies of recent notoriety. But, as these came under the aegis of Student's Rag Week rather than the modelling movement they can be dismissed as irrelevant. This leaves our Nationals well in the running. The choice of airfield could hardly have been improved upon, with top marks for remoteness and a good out of bounds percentage. However, some loss of points must be recorded for the last minute decision to provide camping facilities, a weakness which ruined an otherwise laudable effort.

But, in more serious vein, what is the solution to our "Nationals" problem? What we need, of course, is an airfield. The most we seem able to get is a pocket handkerchief corner, for which we do our usual party piece grovelling act:

"Now you go over and fly your toy planes in that corner like good little boys."

"But it's so small. Our models will almost certainly stray outside the area."

"Then fly them on shorter lengths of string—and see you keep clear of that top secret Meteor."

Winch Wenches

A popular feature of the Nationals was the Glider event, which owed much of its appeal to the number of bright young things tripping daintily over the green sward. Some had models in tow, others just boy friends, but most were intent on courting the capricious favours of the elusive Max.

At least this makes for one good reason for satisfaction at the non-mechanical glider surviving into this technical age. Anything with a messy, brutish engine is unfit for delicate fingers, while that Popeye winding arm, peculiar to rubber modellers, is not considered an attribute to feminine charm.

Were I a cynic, however, I would not allow this display of frippery to allay the deep suspicion I would have towards all feminine intrusion into our hobby. I would, for instance, stick to the dark belief that the ultimate aim of the female predator is to make her intended give up playing with silly toy planes. And, if in playing the long game, she has to give him enough winch rope to hang himself, that is all part of her treacherous design. Fortunately, I am not such a cynic, but if anyone would care to mind the baby while I slip over to the airfield. . . .

Pre-Vintage

I will say one thing for the operational vintage type (as opposed to the armchair ditto), in his historic rummaging he can certainly dig up some crazy crates for us to dig. Take, for example, last month's cover model, which caused a sensation at the Nationals and some of the most bizarre wreckage ever to strew a modern runway. At first sight it would appear to be a piece of modernistic wire sculpture, having the symbolic ingredients of a coachless pram, a catamaran, two and a half windmills, a donkey engine and the entrance to a trolley bus depot, but the give away is the little openwork seat, which identifies it as Victorian type conveyance and gives some idea of the direction of travel. It also reveals that the early pilot didn't mind the odd draught, in his begoggled face, or elsewhere. But, I for one, wouldn't have fancied a ride in that Valkyrie—not even in my winter combs.

Incidentally, this exploded view type model, is reminiscent of one of my own earlier creations. This was greatly admired as a perfect scale replica of a 1903 Huntz-Riser, but was in fact a 1950 Wakefield which had suffered a burst motor.

What I admire about the super scale modeller is not so much the perfection of his craftsmanship, but the ingenious way he utilises all those homely bits and pieces to get his amazing detail. Now and again one of the experts will reveal some of his trade secrets in an article, from which I will quote a typical extract:

"... For spoked wheels I use plastic hairpins cut into suitable lengths and fitted into the eyepieces of National Health spectacle frames. Realistic tyres can be made from paper doilies. These should be first rolled around a concrete lamp standard and then dipped in a boiling solution of one part asphalt and three parts dripping. Cows can be readily formed from cigarette filters. These should be carefully unrolled and then soaked in lukewarm lime to remove flavour blur. . . ."

Aping our Betters

Radio flying is still so very much of a novelty that it is hard to believe that the bleep boxes have been bleeping and the bang-bang rudders bang-banging for more than a quarter of a century. But we are assured that this is the historic fact, and the proof comes in the overblown shape of an archetypal relic which rejoiced in the lyrical name of "Big Guff," and which has been preserved for posterity, or will be if a suitable airship hangar can be found to house it.

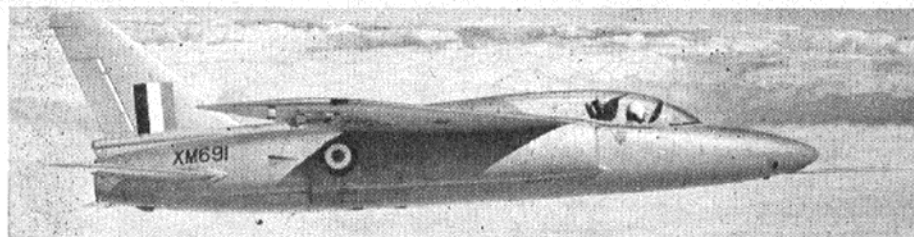
But if any of you have doubts about the progressive nature of our hobby, then how right you are. "Big Guff" (meaning, in Red Indian language, "Bird with Twitching Tail") is depressingly similar in outline to any radio job you might see staggering about our 1960 skies or waltzing around our equally modern runways. Even more depressing is the fact that this gargantuan pioneer has survived into posterity all in one huge unbroken piece. Thus, when we contemplate the progress we have made in terms of airfield wreckage, it would seem that someone is trying to make a monkey out of us—if you get the Darwinian inference.

Perhaps the only bright spot on the evolutionary scene is that radio jobs have shrunk in size to more or less dodgable proportions. Getting out of the way of an aerial litter bomb the size of a bull elephant might not be too easy for anyone engaged in the primitive and immobilising business of winding a rubber motor.

Collective Enterprise

I don't know if there are any published statistics on the subject, but I should imagine that, for every 10 model engines sold, only one is given the honour of squatting on the business end of a model. The fate of the other nine is largely a matter of conjecture. Mostly they seem to live out a crude sort of existence in the playground jungle, where they seem to have superseded the fag card as the schoolboy currency, but now we read of a more noble setting for these non-starting pieces of ironmongery, in the glass cases of the Model Engine Collector's Association.

This, at least, should be a partial answer to the muffler problem. You couldn't wish for a more effective silencer than a glass case.



J. W. R.
TAYLOR

AVIATION NEWSPAGE

GOOD NEWS FOR FOLLAND, and for all the youngsters who will learn to fly with the R.A.F. in the sixties, is that the Air Ministry has ordered another 30 *Gnat* T.Mk. 4 two-seat trainers. Flying Training Command decided at least two years ago that it wanted *Gnats* to replace its *Vampires*, but every spare penny was needed to re-equip Transport Command and it was able to order only an evaluation batch of 14. The new contract means, almost certainly, that it has won its fight and will be able to plan a future *Jet Provost/Gnat* training sequence.

The *Gnat* fighter, a trifle "hot" at full A.U.W., but the trainer has superb flying qualities, as a result of its increased wing and tail area. Use of a thinner 7 per cent. wing section and a 4,230 lb. thrust Bristol Siddeley Orpheus 100 turbojet (only 290 lb. less than the fighter engine) ensures a sparkling performance, with a transonic top speed and take-off run of only 1,560 ft. Of great importance operationally are the long overhaul life and comparatively low fuel consumption of the Orpheus, and the trainer has an endurance of over two hours with underwing tanks.

WHILST ON THE SUBJECT of trainers, I wonder how many of you can name the monoplane below? The "windmill" type of control on the front of the constant-speed airscrew identifies it as an Argus unit and the engine also is a 465 h.p. Argus As410A-2. This indicates a West European manufacturer and the aircraft is, in fact, one of the P-2 advanced trainers built for the Swiss Air Force by Pilatus Flugzeug-

werke of Stans, near Lucerne, in about 1948-50.

The P-2 is of composite construction, with plywood-covered wooden wing and a metal fuselage and tail unit. The main undercarriage is retractable and, like the entire airframe, was made especially rugged for operation from airfields in mountainous regions. The prototype (serial No. A-101) flew in 1946 and was followed by 19 day and night flying trainers, plus a smaller number of weapon trainers. The latter version, one of which is illustrated, has a machine-gun in the upper part of the engine cowl and underwing racks for light bombs and rockets. Data include a span of 36 ft., length of 29 ft. 9 in., loaded weight of 4,335 lb. and max. speed of 211 m.p.h.

COMPETITION for Hawker's P.1127 VTOL fighter will come from the Fiat

G.95, which is due to fly at any moment. Based on the familiar G.91 tactical strike fighter, it has a lightweight high-thrust Rolls-Royce turbojet mounted on each side of the tailpipe from its main engine. These auxiliary turbojets are inclined downward at 30 deg. to act as boosters for take-off and the G.95 is expected to get airborne in under 400 yd.

The P.1127 will take off vertically. But Fiat claim this advantage is more than offset by the fact that the G.95 has no transition problems from vertical to horizontal flight, can be flown without any special training and offers higher performance than a comparable VTOL type.

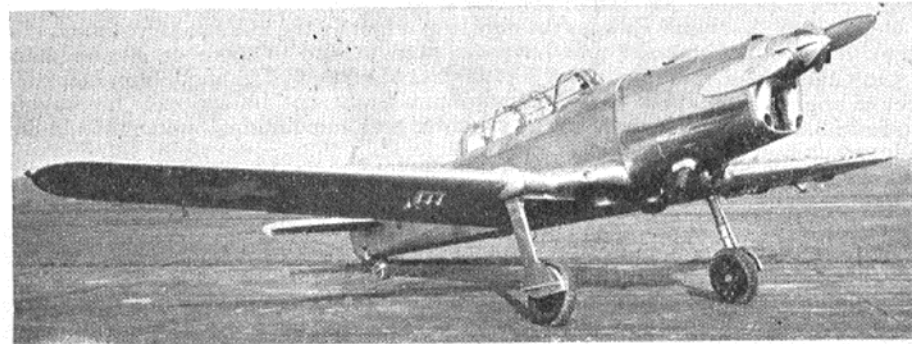
MOST WORLD WAR II warplanes still in military service look as if they are held together with string and sealing wax and could do with a good coat of paint. So it was a pleasant surprise to receive this photograph of a North American B-25J *Mitchell* bomber of the Venezuelan Air Force.

Not only is it immaculately painted; it is still classed as a first-line attack bomber, side-by-side with the V.A.F.'s *Canberras*. Power plants are 1,700 h.p. Wright Cyclones and full armament is fitted. This consists of 13 point-five machine-guns, three in the nose, two in packages on each side of the flight deck, two in a top turret, one each side in waist mountings and two in the tail



Heading photo—the Folland "Gnat" trainer
Above—North American B25J "Mitchell" bomber.

Below (Top)—Swiss Air Force "Pilatus."
Below—Italy's "Picchio" light plane.



turret. At least one B-25J is also in use as a high-speed transport, with its armament removed.

NO PHOTOGRAPH can do justice to the surface finish of the little Italian Procaer *Picchio*, which combines the traditional racey lines of a design by Stelio Frati with a completely new type of skinning. The all-wood structure is covered with plywood, over which is bonded highly-polished thin-gauge aluminium sheet. Apart from a small pin in each corner of the metal panels, there are no rivets, "quilting" or anything else to spoil the perfectly smooth outer skin. With bright yellow trim, it is a real joy to see.

A roomy four-seater, with a 180 h.p. Lycoming O-360 engine, the *Picchio* is fully-aerobatic and has a top speed of 192 m.p.h. Seeing it in flight makes one realise anew how nice it would be if our own industry occasionally thought of making aeroplanes rather than making money.

plane of the month

The UTVA 56



SOME aeroplanes inspire confidence at first sight. It is just as well that the Yugoslav UTVA 56 comes into this category, because I found myself in one of its back seats recently, a mere 2,000 ft. over the lagoon at Venice, while a pilot who had never seen it before tested its behaviour in a series of stalls.

Lest this should sound rather a neck sticking-out business, I had better add that UTVA's chief test pilot, Vukobratovik Lazar, a rugged silver-haired veteran of 28 years' flying, was there as check pilot. Furthermore, I had watched a demonstration of the aircraft in the previous day's air display, which had left no doubt of its sturdiness and superb handling qualities.

In appearance the UTVA 56 looks something like a Cessna L-19 *Bird Dog*, but is larger and more versatile. Construction is all-metal, with a strut-braced single-spar wing, steel-tube centre-fuselage structure and semi-monocoque rear fuselage. Powerful flaps are fitted and the ailerons droop together up to 15 deg. when the flaps are at a full 38 deg. down, giving a remarkable low-speed performance.

The cabin trim is not elaborate on the prototype in which I flew; but there is plenty of room and an excellent all-round field of vision, which are far more important than padding and pansy

colours. Dual controls are standard, and although the instruments on YU-BAF bore a cosmopolitan mixture of British, German and Yugoslav dials, this will no doubt be remedied on production models.

A large door on each side gives normal access to the individual front seats and bench-type rear seat. In addition the entire rear part of the hooding hinges upward for stretcher loading when the aircraft is used in an ambulance role.

Two stretcher patients can be carried fore-and-aft on the starboard side of the cabin, in addition to the pilot and medical attendant. Alternatively, the three passenger seats can be removed to make room for freight or chemical hoppers for crop spraying and dusting.

My 20 min. flight left no doubt that the UTVA 56 has the necessary short-field and tight turn qualities essential for agricultural work. We took off after a very short run over the grass strip of Nicelli Airport, which was just as well as a large ship happened to be going past the end of the runway at the time. Our climb of around 1,140 ft./min. took us well clear of it and we headed out over the lagoon for our practice stalls. With or without flaps the UTVA stalled cleanly at 50 m.p.h., dropping its nose gently and pulling out quickly.

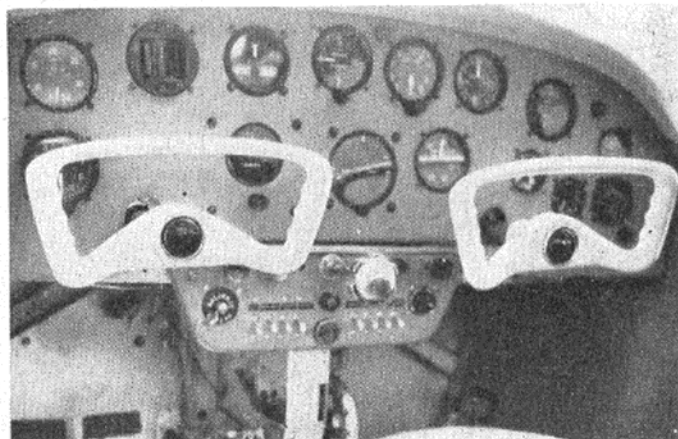
We cruised around the perimeter of Venice at about 135 m.p.h. at 2,000 ft. while I shot some cine-film of the scenery below, and then headed back to Nicelli. In the flying programme Mr. Lazar had shown the UTVA's ability to land very slowly. This time the emphasis was on a steep approach, as might be essential in built-up, mountainous or forested regions. We dropped towards the grass runway with full flap at a rate of descent of around 1,500 ft./min. and although this, combined with the heat, produced a fairly heavy touch-down, the aircraft took it easily in its stride.

In the UTVA 56 Yugoslavia has, therefore, produced a thoroughly workmanlike, easy-to-fly and efficient general-purpose aeroplane, which can hold its own with its counterparts anywhere else in the world. With such wares to sell, we can expect to see much more of the Yugoslav aircraft industry at future air shows in Western Europe.

Data: Span 37 ft. 5 in.; length 27 ft. 3 in.; height 8 ft. 6 in.; wing area 194.5 sq. ft.; weight loaded 2,865 lb.; max. speed 155 m.p.h.; cruising speed 112-143 m.p.h.; take-off run 360 ft.; landing run 460 ft.; ceiling 16,400 ft.; range 370 miles.

Loading a stretcher into a UTVA 56.

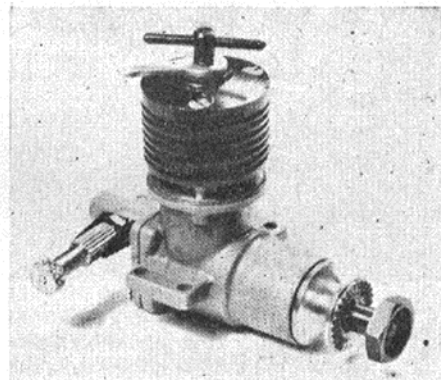
The instrument panel.





WINGS WORD WINNERS

Congratulations to Wingman Geoffrey Clarke of 14, Beales Road, Great Bookham, Surrey, winner of the Wings-word Competition in the July issue of *MODEL AIRCRAFT*. Geoffrey receives as his first prize the E.D. Super Fury 1.5 c.c. diesel engine shown in the photograph.



Consolation prizes are won by M. Chadwick, of York; James Allen of Styvechale, Coventry; K. N. Frayn, of Mill Hill, London; Neil Inglis, of Howth, Co. Dublin; S. Newbury, of Loughton, Essex; and Keith Yule, of Spalding, Lincs., whose solutions were the next to be opened. Each will receive his copy of *MODEL AIRCRAFT* free until the end of this year.

WINGS PALS WANTED

Calling Australia or New Zealand. Barry Weare, of 23, Southview Avenue, Neasden, London, N.W.10 is 13 years old and would like to exchange notes on C/L and F/F with someone "down under."

F. Ladd, of 2, Pear Tree Road, Pilsley, Near Chesterfield, Derbyshire, is 11 years old and builds C/L models. He is also interested in rubber powered models and, would like a pen pal.

Christopher Morton is a F/F and scale enthusiast and would like to hear from fellow modellers. His address is 67, Walter Street, Draycott, Derby.

DO you live in Newcastle upon Tyne or anywhere near that thriving city? If you do, you may like to note the invitation issued by the Newcastle upon Tyne MAC. Members of the Wings Club, says this progressive society, are especially welcome.

The Wings Club has not been in existence long, and already—because of the prestige enjoyed by *MODEL AIRCRAFT*—its attractive badge is recognised as the sign of the serious and responsible young modeller. It is this type of enthusiast that the clubs want. They know that anyone who joins the Wings Club is almost certain to have the right kind of interest. He is not the type that takes up a hobby with tremendous verve only to drop it a few months later in favour of another diversion which will absorb his enthusiasm—again for a few months.

In short, the Wingman is not a fly-by-night. His interest will grow. He will build rational models. He will fly them with care for himself and others. He will take pride in belonging to a movement which brings the generations together and creates good fellowship throughout the world.

Why not join a local club, if there is one in your area? Alternatively you can try to form your own—perhaps a Wings Club group composed of members who live within meeting distance. Our Wings Club, as most of you will have realised, does not set itself up as a rival to the local clubs; on the contrary, it seeks to encourage and help them, mainly by stimulating and directing the enthusiasm of beginners. A local club offers advantages which can be enjoyed in no other way. If there is one in your district, you are sure of a welcome from the secretary.

ALAN WINTERTON

WINGMEN WRITE . . .

I am at the moment experimenting with short wingspan planes. They are only chuck-gliders but are good fun to fly. The shortest span I have got so far is one-half of the fuselage length. This plane flies very fast and reaches quite as high a speed as my K.K. *Slicker Mite* does.

I should like to make contact with other *Slicker Mite* fans, and know what engines they use.—J. Broughton, Belchers Farm, Stadhampton, Oxon.

I thought fellow Wings Club members would be interested in this photograph of my Keil-Kraft *Luscombe Silvaire*, which is powered by a Davis Charlton Bantam 0.75 c.c.



I have also built a *Phantom Mite* powered by a Davis Charlton Spitfire Mk II, and a *Champ* powered by a Sabre. I have had much success with the

Champ in my back garden fixed to a home made pylon which is made out of a garden roller.

I have recently designed a control-line wing which is also powered by a Sabre. It has only flown once but with quite surprising results.

There has been such a demand for *MODEL AIRCRAFT* in our district that I have unfortunately missed two issues because my local model shop sold out within the first four days of publication.

Yours sincerely,

London, S.E.4. M. ARNOLD.

There's a moral here—place a regular order with your local model shop or newsagent and make sure of your copy of MODEL AIRCRAFT.—A.W.

Dear Alan Winterton,

I would like to become a member of the Model Aircraft Wings Club. With this coupon I enclose a postal order for 1/- to help cover the cost of the badge transfers and membership book. All membership applications must be on this form.

Name in full.....

(Underline christian name normally used)

Address.....

Date of birth.....

School or College.....

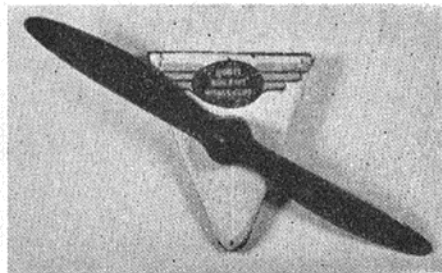
Name of other club or clubs to which I belong (if any).....

Send to—*MODEL AIRCRAFT WINGS CLUB, 19-20, NOEL STREET, LONDON, W.1.*



Wings Club Wall Plaque

A neat idea for a wall plaque to decorate your workroom comes from Wingman Graham Smith of Bideford, N. Devon. Painted balsa wood is used for backing and the propeller is fixed with a woodscrew. A repaired propeller is quite suitable and it is painted to contrast with the plaque. A small Wings Club transfer completes the job.



WINGS CLUB WORKBENCH—Basic construction

WE receive numerous letters from Wingmen who have experienced difficulty during construction of their model airframes. There are many different types of structure—too many to explain all of them in detail. However, nearly every fuselage type is a variation, or development of the "classical box" form of structure, and once you have mastered the art of building this "slab sided" type of fuselage you will find little difficulty in progressing to the more complicated designs.

This month we commence construction of just such a "classic" model—the Keil Kraft Junior 60. Although it is rather larger than the model we would recommend to the absolute beginner, the method of assembly is typically basic, and large enough for you to see from the photographs exactly what we are doing!

The first essential is to obtain a flat building board which is soft enough to enable pins to be pushed into it, and yet hard enough to hold them firmly. Draughtsmen's drawing boards are exactly right but expensive, and a piece of pine approximately 48 x 9 x 1 in., batted across its back with four pieces of 2 x 1 in. timber is quite suitable. Your local timber yard can supply suitable wood at a nominal cost.

Lay the plan over the board and rub a wax candle all over the part of it on which the model will be assembled. This prevents the cement from sticking to the plan and simplifies removal of the completed assemblies.

Select four pieces of stripwood of equal hardness for the longerons (these are the long outside strips which run from nose to tail). It is very important that all four strips are of similar hardness since if the longerons on one fuselage side are softer than the other it will be impossible to obtain an evenly tapering framework and your model will probably

look rather like a banana in plan view!

Pin down two of these longerons over the fuselage side view, being careful to place the pins on *either side* of the strips and not through them. Our Junior 60 uses 1/4 in. sq. balsa longerons which are rather too springy for ordinary household pins, and so we are using 1 in. panel pins.

Now cut the upright spacers to the correct length. Cut two of each, as this saves a lot of time and ensures that when you build the second side it is exactly the same as the first one. The 1/4 in. sq. spacers are most easily cut to length with a small saw to keep the ends "square," but smaller sizes may be cut quite successfully with a sharp balsa knife.

These uprights should be an "easy" fit between the longerons. If they are too tight the cement will be forced out of the joint, on the other hand a loose fit results in a weak joint.

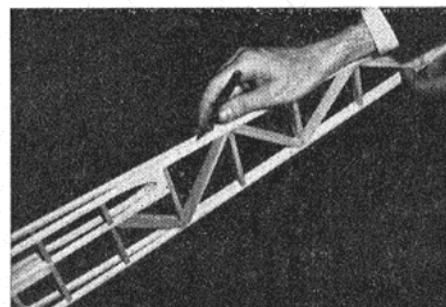
The efficiency of a cemented joint largely depends upon the adhesive being able to "take root" slightly in the porous wood. But when cementing an end grain, such as the ends of the fuselage spacers, the adhesive tends to soak away into the wood, and thus leaves insufficient on the surface to make a sound joint. This is why beginners often find that their fuselage joints spring apart when they remove the frame from the plan. This weakness can be cured, or rather avoided by "pre-cementing" the joints, which simply means that all parts (particularly end grains) to be joined, are first coated with cement and *allowed to dry*, this "fills" the grain. A second application of cement is then made and the parts joined up in the normal way. By pre-cementing the strength of a joint may be almost doubled.

It may be that there are some parts Left—longerons pinned to plan, "two" each spacers cut—now the first spacers are glued in place. Right—correct way to use a fret-saw—note saw held upright and work firmly held in left hand. Below—completed basic structure—rubber bands hold spacers in place until cement dries.

to be cut out from a printed sheet, and if this sheet is balsa over 1/4 in. thick, or plywood, then a fretsaw should be used. A well-made saw frame which will give many years of service and will be useful for other jobs besides modelling, can be bought from Hobbies Ltd., for a few shillings. Fine toothed saw blades should be used.

When the first fuselage side has been completed, the second one should be built *over the top of it*, this will ensure that both sides are exactly the same. If possible, leave these frames pinned down overnight so that all joints have time to harden. When removed from the plan, and before separating them, the frames should be thoroughly sanded all over using a medium grade abrasive paper wrapped around a flat wooden block. Pay particular attention to the outside edges of the longerons and carefully sand them until both frames are identical in outline. The frames are now carefully separated, using a long bladed knife.

There are several methods of fitting the cross fuselage spacers. A reliable one is, first to fit any front formers (with undercarriage wires already fixed in place) between the fuselage sides so that the frames are held "squarely." Rubber bands are placed around the front end of the fuselage, and the rear ends are drawn together, pinned and cemented. Here, the careful selection of the

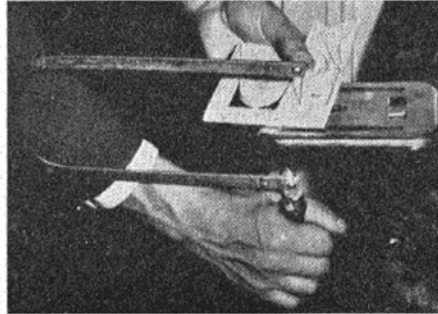
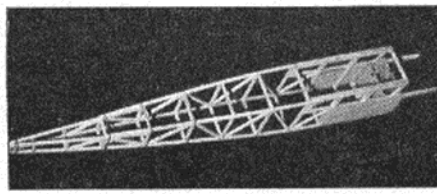
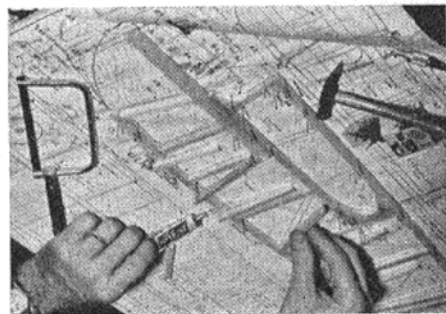


Separate sides with long bladed knife.

longerons will begin to pay dividends, for if one side is softer than the other, it will assume a greater curve and produce an unevenly tapered fuselage.

When the tail post joint is dry, the spacers between the rear fuselage sides can be cemented in place, carefully lining up each piece as it is positioned.

This completes the basic fuselage frame and next month we will start on the wing assembly, and perhaps commence the sheet covering.



Marathon fly-off at 1960 World Power Champs!



Report and
Photographs by
J. D. McHard
and
N. J. Butcher

After 17 consecutive maxima it was still not possible to select an individual winner, so top honours were shared by (read left to right), John Sheppard (New Zealand), Sandy Pimenoff (Finland), Larry Conover (U.S.A.), Giovanni Guerra (Italy), and Rolf Hagel (Sweden), who are seen here, tired but happy, at the close of the contest.

Hungary again wins Team Award

THE 1960 World Power Championships, held at Cranfield over August Bank Holiday, will always be remembered as the first, and, we hope, last World Championships at which it was impossible to decide an individual winner. At the end of the five-round contest, 13 fliers had returned maximum scores and thus became eligible for the first fly-off to be flown to the new F.A.I. ruling of continuing to fly to a 3 min. maximum until a decision was reached. Fine in theory, this idea was proved, by the fantastic performance of current top class models, to be completely impractical. At the end of the *twelfth* fly-off round five fliers still had perfect scores, and looked as if they could keep on returning them until it became too dark to see the models!

Cranfield has, of course, been the venue for every World Championship held in this country, but this year there was a departure from the usual procedure in that competitors were met at Bedford Station and taken to Cranfield, instead of there being a reception at Londonderry House. Most competitors had arrived by lunchtime Saturday and early in the afternoon processing was well under way.

We have commented in the past upon the number of modellers who insist on building right to the limits of the formula, and then, when the models are accurately checked, find that they have to make slight alterations—usually the addition of weight—to bring the model within the rules. This year was no different and some

25 per cent. of the models had to be "ballasted," which caused some frantic test flying to see if the trim had been affected. Surely it is better to build that fraction within the rules which will ensure that no last minute changes, that can affect the vital trim of the model, have to be made,



The victorious Hungarian team. Left to right: Meczner, Simon, team manager Beck and Frigyes.

but apparently many fliers don't think so!

Full use was made by all the competitors of the excellent testing weather during Saturday evening and early Sunday morning. Inevitably, there were the usual one or two lost models and prangs; however, in general the models were on trim, although some of the proxies had trouble with warps that had developed in their charges during the long period they were in transit to the contest. Vic Jays, in particular, had repair work, some of it extensive, to do on Winn's models, but despite this he coaxed one of them right through to the fly-off.

Processing continued Sunday morning and afternoon, but finished in ample time for everyone to have tea before assembling at the take-off point for the start of the contest at 6 p.m. One advantage of only having a single contest to run, is that the whole affair can be conducted in a more leisurely manner than that to which we have recently become accustomed, allowing ample time for competitors to get to know each other. An even greater advantage is that the contest itself can be split up into late evening and early morning sessions, which although in Great Britain seldom supply the desirable "still air" conditions, do, at least, provide a reasonable surety that competitors will be able to take advantage of the best available weather.

Rounds 1 and 2

Contrary to the official forecast, the weather throughout the contest, until the time came for the start of the fly-off, was good—rather cool but very little wind—and as the start of the contest was signalled promptly at 6 p.m., the heavy afternoon showers had cleared and the sun shone strongly. The drift was down the full length of the runway, but even so strong thermals were taking some of the models sufficiently high for them to be carried out of the 'drome into the surrounding fields, where Dick Edmonds and his willing band of helpers did sterling recovery work. In fact, with the exception of two models lost test flying (when the recovery service was not in operation), only one model was completely lost, the farmer refusing to allow a search to be made of the cornfield in which it descended. Several were "misaid" for an hour or so but Dick's boys, aided by one or two local lads, always located them eventually. No competitor could pay sufficient praise to the entire recovery team.

Within minutes of the starting signal, Grappi of Switzerland, had his model airborne to record the first fly, and first max, of a contest

in which only four of the 54 competitors did not score at least one maximum. He was quickly followed by a rush of other fliers, all eager to get their flights in early in case the weather deteriorated. This caused short queues of competitors waiting for timekeepers, but at no time were there any undue delays and the hour and a half allowed for each round proved ample time for the three competitors in each team to get a flight in, even allowing for over-runs.

Of these latter there were plenty, as fliers tried to squeeze the nth of a second from their allotted 15 and ended up with 15.1! The unluckiest sufferer in this respect was Tom Smith, proxy flying Suzuki's model—he had two over-runs in the first round to return a zero score, then followed this with four max's in a row.

Watching the test flying earlier, it was obvious that the standards were going to be extremely high, and this was borne out very quickly as model after model put its nose up to reach a height that could only be described as staggering. Glo-motors, all the best of which had wide open intakes and were pressure fed, are now very widely used and their distinctive howl often gave the impression that they were climbing faster than their diesel counterparts.

In two cases this was true. Larry Conover's *Lucky Lindy* was being pulled to an incredible height by its modified O.S. Max, while Guerra of Italy's latest Super-Tigre was turning its 8 x 3 1/2 in. prop at a speed beyond the range of an audio tachometer which was calibrated to 18,000 r.p.m. However, his model was still not getting as high as Conover's.

By now the max's were coming in thick and fast until, by the end of the round, 29 had been recorded, although on the team side, there was only one perfect score—the 1959 winners, Hungary.

As the round proceeded the weather was changing, the sun disappearing behind the heavy clouds, but if anything flying conditions improved.

Whereas earlier, although there were plenty of thermals, there were equally as many down-draughts. Now, with the wind dropping right away, there appeared to be a slight, steady, overall lift which was maintained up to the end of the second round.

This started promptly at 7.30 p.m. and again there was no shortage of competitors eager to take advantage of the excellent conditions. In this round 41 maximums were scored but three of the first round scorers, Grappi, Schenker and Mecznar, dropped a few seconds bringing the number of doubles down to 26. Mecznar, by only returning 167 sec. spoilt Hungary's perfect team total and this made the final team results completely open.

The old saying that a contest is never over until it is won, is so true that thus early in an

Those "knocked out" of the fly-off were—

1. Jean Fontaine of France, down in round 2 for 177 sec.
2. T. Johannessen of Norway—over-run in round 2.
3. B. Bulukin also of Norway—147 sec. in round 3.
4. Vic Jays, proxy flying for J. Winn of New Zealand, came in under power for 8 sec. in round 1.
4. 1958 individual winner Erno Frigyes of Hungary, whose auto rudder stuck in round 4 bringing him down for 156 sec.
6. Dave Posner—his model stalled out of the climb in round 5 and did not recover until too near the ground—score 156 sec.
7. Z. Sulisz of Poland—0.1 sec. over-run in round 9.
8. American E. Miller stalled down in round 1 for 86 sec.—his comment, "It had to be sooner or later, it was sooner."

event it would have been silly to make predictions, particularly when so many models were obviously capable of a consistent 3 min. barring the human element. However, it was anticipated that the next two early morning rounds would sort things out a bit—we were wrong!

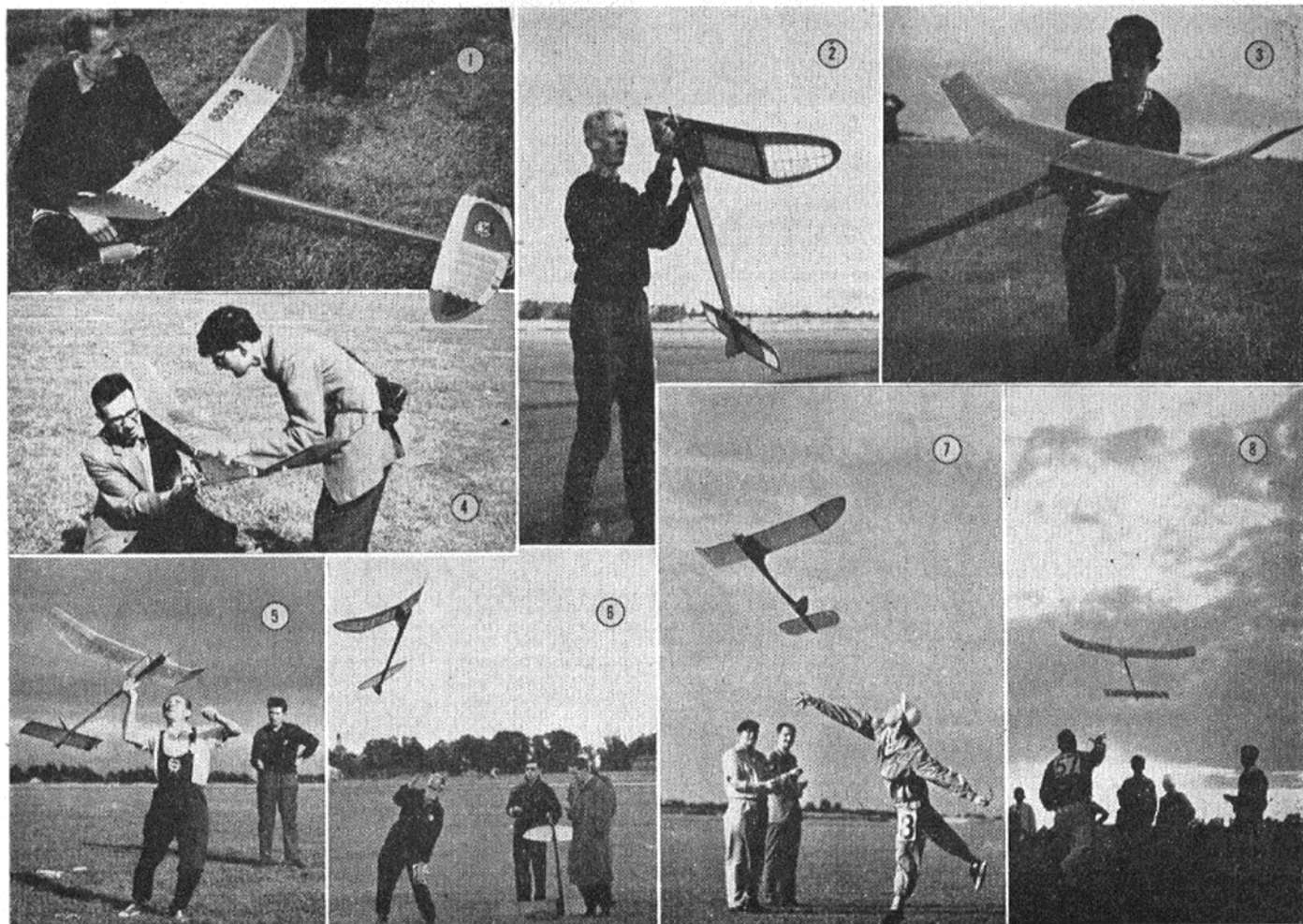
Rounds 3 and 4

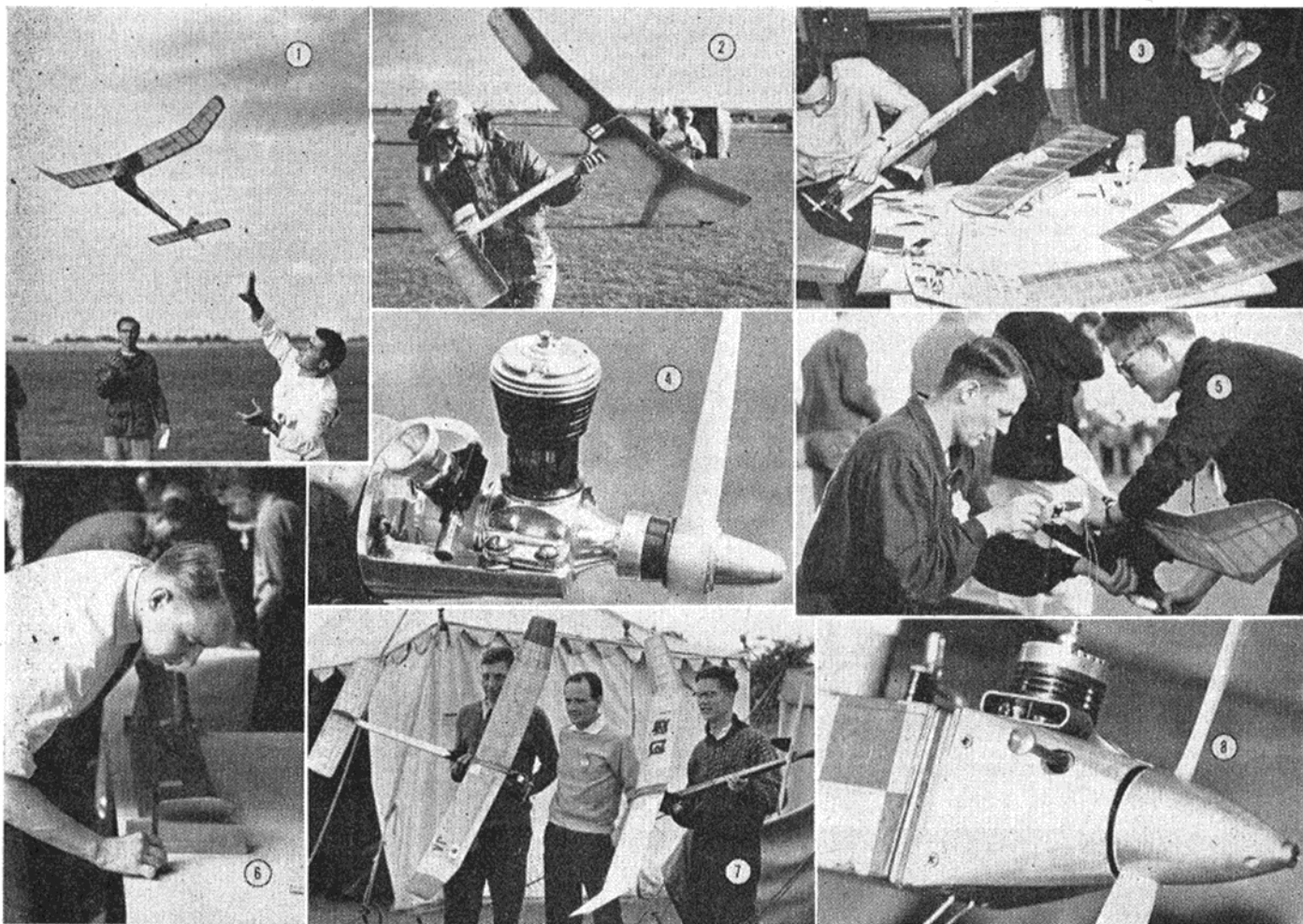
After the unexpectedly fine first rounds, most people were prepared for the weather to catch up with the forecasters; such was not to be the case and Monday morning dawned, if anything, warmer and calmer than ever!

Following coffee and rolls at 5.30 a.m., the third round commenced at 6 a.m. Despite the fact that the ground was wet with dew, there appeared to be a certain amount of thermal assistance in evidence, even at this early hour. Or perhaps it was merely the absence of down-draughts that was responsible for the glut of maximums, that continued to be recorded with almost monotonous regularity.

It was fairly obvious that unless there was a sudden deterioration in the weather conditions, there would be the biggest and longest fly-off yet seen. During the course of the third round, no fewer than 42 maximums were effortlessly returned—more than in either of the preceding rounds. Indeed, the present F.A.I. class model has to be really off trim or have a "sick" motor, not to record 3 min. under these conditions.

The conditions at the start of the fourth round were still excellent, although quite a lot of lumpy cloud heralded the possibility of rain later in the day. The wind speed had increased during the morning but most of the models still dethermalised within the airfield boundary, and Dick Edmonds' much praised recovery service continued to operate without a hitch. At the end of the round there were no fewer than 18 fliers with a perfect score, including Britain's remaining hope, Dave Posner, who, it will be remembered, was placed second in 1956





and topped last year's practice trials. The other British team members, John Simeons and Tony Young, were both having trouble finding the form which took them to the top of the Trials list. At 9 a.m. everyone returned from the field to a welcome breakfast and a short rest, before commencing the fifth and last round, which was to end at mid-day.

Round 5

During the fifth round only five of the 18 top men failed to make a further 3 min. flight and in nearly every case the cause was a direct result of competition nerves. Hasty timer adjustments resulted in over-runs and the subsequently corrected mechanism was often over-corrected to return a pitifully short burst of power for the second and last attempt. Posner caused a few missed heart beats when he overran for an easy max, but he made no mistake for his second attempt and again scored 3 min. from his more usual motor run.

The Fly-Off

Scheduled to start at 2 p.m. this was delayed for half an hour because of the long forecast rain had at last reached Cranfield and was accompanied by a change in the wind direction. However, at 2.30, the lucky (?) 13 assembled in a light drizzle for the start of what was to become a fly-off marathon.

At first all Press photographers were excluded from the launching site and the one or two competitors (and even one official) who attempted to infiltrate into the forbidden zone were quickly removed by the organisers. After about the fifth fly-off round, these gentlemen seemed to lose interest in the proceedings, and it was possible to wander to and fro as one pleased! This situation was aggravated by the fact that many of the fly-off men launched a considerable distance up wind of the control van, and in the prevailing bad weather it would have been very difficult to enforce the regulations.

It was decided that the fly-off rounds would each be of 30 min. and that competitors could fly at any time during the round, but once he had collected his timekeepers from control he was required to have his model airborne within 4 min. These fly-off rounds eventually became so numerous that they were reduced to 15 min. each.

The Hungarian team manager objected to the 4 min. ruling and wanted to retain the time-keeper for the whole of the round, so that his team could launch at very short notice. This idea was not accepted.

As we have already mentioned, each model in the fly-off was subject to the standard contest 3 min. maximum, and as each of these 13 models had already effortlessly put up this duration five times, there seemed no reason why they should not continue to score maximums indefinitely. In fact, that is just about what happened, and it was chiefly contest nerves resulting in silly mistakes being made by the flyers that slowly reduced the number of competitors.

In the first fly-off round, the American, Miller, who lost his No. 1 model during the early part of the contest, had too straight a glide trim, and stalled all the way down in 86 sec. The other man to be eliminated during this round was our own Vic Jays (flying proxy for N.Z. modeller J. Winn) whose slightly under-elevated job failed to climb away following minor trim adjustments, and dived in to the right. Fortunately, the model seemed to be only slightly damaged. No "attempts" were allowed during the fly-offs so these two fliers were eliminated leaving 11 for the second fly-off round.

Johannessen of Norway dropped out this round following an engine over-run, and the serious-looking Frenchman, Jean Fontaine, was unfortunate in being only 3 sec. short of a maximum. Had the wind not veered towards the hangars he would, perhaps, just have made it, for the model disappeared as it went out of

1. First flight, and first max, in the contest was by Rene Grappi of Switzerland with a 1.5 model.

2. Woody Blanchard (U.S.A.) flew this high thrustline model, was let down by 134 sec. flight in first round.

3. Vic Jays and John Sheppard do some repair work on Winn's models. No. 1 was most badly damaged, but Vic thought No. 2 was better anyway!

4. Blanchard's motor—a Cox Olympic with rear drum induction—likely to be put into production.

5. Probably oldest model in contest belonged to Gerold Holmann of Austria (left). Helper is team manager Peter Grunbaum, who was a competitor in 1958.

6. International atmosphere of meeting was heightened by presence of Swedish C/L flyer Kjell Rosenlund, who was one of processing team. He is temporarily working in G.B.

7. The two Japanese models of Ono and Suzuki were proxy flown to good effect by A. W. Spurr and T. W. Smith. Spurr was let down by poor last flight after four max's, Smith had two over-runs in first round but followed with four perfect max's.

8. Neat front end of Conover's "Lucky Lindy" showing modified O.S. Max.

sight behind the control tower buildings.

During fly-off 3, the 1958 Hungarian Champion, Frigyes, who had been doing just over 3 min. per flight, was eliminated after a 2 min. 9 sec. flight. His auto rudder did not immediately neutralise after the power run and the model lost a lot of height before finally regaining its trim.

Continued overleaf

RESULTS

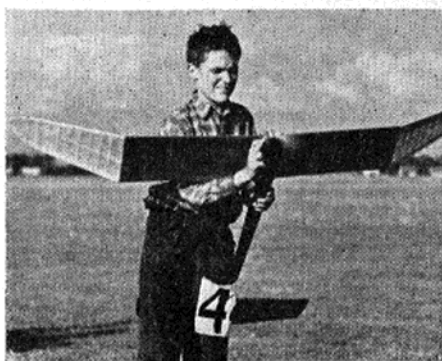
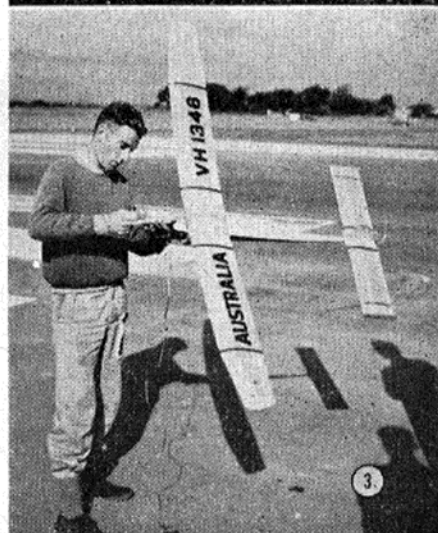
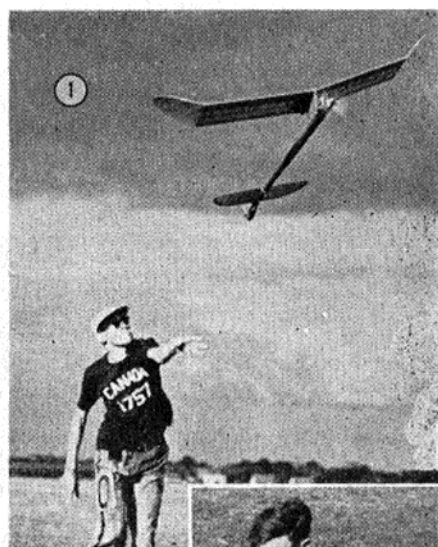
VICTOR TATIN CUP—INDIVIDUAL PLACINGS

1. Pimenoff, S.	Finland	180	180	180	180	180	900+12	max's
Guerra, S.	Italy	180	180	180	180	180	900+12	max's
Sheppard, J.	New Zealand	180	180	180	180	180	900+12	max's
Hagel, R. E.	Sweden	180	180	180	180	180	900+12	max's
Conover, L. H.	U.S.A.	180	180	180	180	180	900+12	max's
6. Sulisz, Z.	Poland	180	180	180	180	180	900+8	max's
7. Posner, D. S.	Great Britain	180	180	180	180	180	900+4	max's+156
8. Frigyes, E.	Hungary	180	180	180	180	180	900+3	max's+129
9. Bulukin, B. W.	Norway	180	180	180	180	180	900+2	max's+147
10. Fontaine, J.	France	180	180	180	180	180	900+1	max+177
11. Johannessen, T.	Norway	180	180	180	180	180	900+1	max
12. Miller, E. W.	U.S.A.	180	180	180	180	180	900+86	sec.
13. Winn, J. (Jays, V.)	New Zealand	180	180	180	180	180	900+8	sec.
14. Grappi, R.	Switzerland	180	176	180	180	180	896	
15. Giudici, G.	France	173	180	180	180	180	893	
16. Beck, H.	Germany	180	180	173	177	180	890	
17. Czerny, J.	Czechoslovakia	168	180	180	180	180	888	
18. Meczner, A.	Hungary	180	167	180	180	180	887	
19. Bousfield, K.	Canada	180	180	175	171	180	886	
20. Simon, G.	Hungary	180	180	180	180	165	885	
21. Scott, J.	Canada	180	180	180	180	164	884	
22. Czepa, O.	Austria	180	180	180	162	180	882	
23. Schilling, H. G.	Germany	180	180	161	180	180	881	
24. Green, K. W.								
(West, J.)	Australia	160	180	180	180	180	880	
Padovano, E.	Italy	180	180	165	175	180	880	
26. Hagberg, M.	Sweden	180	180	180	157	180	877	
27. Thompson, J.	Ireland	178	180	180	180	152	870	
28. Eng, E.	Switzerland	157	180	180	160	180	857	
30. Falecki, J.	Poland	167	179	170	161	180	857	
31. Blanchard, W. S.	U.S.A.	134	180	180	180	180	854	
Jokinen, I.	Finland	180	180	180	180	127	847	
Simeons, J. R.	Great Britain	164	180	180	143	180	847	
33. Groves, K.	Canada	126	180	180	180	180	846	
34. Czerny, R.	Czechoslovakia	180	180	180	180	125	845	
Hajek, V.	Czechoslovakia	140	180	180	165	180	845	
36. Guilloteau, R.	France	180	180	180	121	180	841	
37. Hörmann, G.	Austria	180	180	110	180	180	830	
38. Ono, H. (Spurr, A. W.)	Japan	180	180	180	180	105	825	
39. Morelli, A. (Woods- worth, G.)	Ireland	171	180	180	180	112	823	
40. Schenker, R.	Switzerland	180	120	180	180	148	808	
41. Rizzo, S.	Italy	178	180	180	106	160	804	
42. O'Sullivan, J.	Ireland	134	180	180	122	180	796	
43. Eriksson, M.	Sweden	146	139	128	180	180	773	
44. Dalseg, G.	Norway	114	180	180	119	173	766	
45. Baker, R. S. B.	Australia	125	163	180	156	131	755	
46. Suzuki, H.								
(Smith, T. W.)	Japan	0	180	180	180	180	720	
47. Young, A. G.	Great Britain	169	174	179	116	76	714	
48. Hewitson, N.								
(Glynn, K. J.)	New Zealand	52	180	180	180	111	703	
49. Sorensen, H. S.	Denmark	127	139	180	0	180	626	
50. Schwend, T.	Germany	0	152	180	167	92	591	
51. Gerstrom, C.	Denmark	92	172	72	120	118	574	
52. Niemi, O.	Finland	5	0	115	180	180	480	
53. Niedermayr, F.	Austria	75	22	61	102	146	406	
54. Christensen, N. C.	Denmark	59	130	101	0	0	290	

Proxy fliers in parenthesis.

FRANJO KLIZ TROPHY—TEAM AWARD

1. Hungary	2,672	10. New Zealand	2,501
2. U.S.A.	2,654	11. Ireland	2,489
3. France	2,634	12. Great Britain	2,461
4. Canada	2,616	13. Germany	2,362
5. Italy	2,584	14. Finland	2,227
6. Czechoslovakia	2,578	15. Austria	2,118
7. Norway	2,566	16. Poland	1,757
8. Switzerland	2,561	17. Australia	1,635
9. Sweden	2,550	18. Japan	1,545
19. Denmark	1,490		



1. John Scott of Canada flew Oliver powered model which featured circular fuselage finished in polychromatic blue.

2. Rapidly gaining in popularity is E.T.A. 15. John Sheppard was using one and it certainly hauled his day-glo decorated model up fast.

3. Australian Kevin Green's model was proxy flown by J. West—20 sec. dropped in first round spoils his chances.

4. Efficient recovery service in action during fly-off. Model belongs to Guerra.

Left: Youngest competitor was 15-year-old Gudbrand Dalseg of Norway but he handled his model with a calm efficiency that many older flyers could well copy.



Next to go was top British entrant, Dave Posner, whose *Dream Weaver*, now approaching its 30th mark number, stalled during the entire glide in round 4 to return only 2 min. 36 sec. During the sixth fly-off, New Zealander, John Sheppard's E.T.A. 15 faltered during the climb and he stalled off the top, losing quite a lot of height, but he still made 3 min.!

Nobody was eliminated during rounds seven and eight but in round nine Zygfryd Sulisz's motor over-ran by a fraction of a second and this left the five eventual joint winners to fight it out.

By this time everyone was rather impatiently awaiting the end of the day's enjoyment. Most people were well and truly wet, and it was now obvious that the five top men were capable of repeating their 3 min. flights for as long as daylight lasted. Larry Conover's *Lucky Lindy* continuously roared skywards, climbing vertically and gently turning. Giovanni Guerra from Italy repeatedly hurled his 18,000 r.p.m. Jubilee Super Tigre powered model into its earsplitting climb and maximum flight times were clocked with monotonous regularity, despite the weather.

After three further rounds, by which time these five men had each flown 17 consecutive maxima, the contest was declared a tie, each of the finalists being equally worthy of the individual award. This was the only possible decision and should have been reached earlier. Although the general opinion was that Conover's model was the best, reaching an appreciably greater height than any of the others, so that come what may he would be the moral victor, all the fly-off men had machines that, within the framework of the rules, could win the contest.

Prizegiving

In spite of the late finish of the fly-off the Prizegiving Banquet was only delayed half an hour and looking very spick and span in their suits the competitors and officials assembled for the social highlight of the meeting. After an excellent meal and commendably brief speeches the winning teams were presented with traditional British pewter beer tankards and every competitor, and some of the officials, received an extremely nice commemorative pennant. It not being anticipated that there would be five individual winners to cope with, no special individual awards were made, and as, obviously, the Victor Tatin Cup could not be given to all five, it will be returned to the F.A.I. for safekeeping.

This was an exceptionally well organised and well-run meeting, spoilt only by the fly-off fiasco, for which the S.M.A.E. can in no way be blamed. We hope the F.A.I. will take immediate steps to ensure there is no repetition.

We know that everyone at Cranfield enjoyed themselves, the meeting being almost completely free of those small complaints which have marred so many World Championship events. The only thing that does amaze us is that so few British modellers turned up as spectators to watch some of the finest power flying yet seen.

1. Tony Young was out of luck with his high thrustline, under finned, model.
2. Shall we dance? S. Risso of Italy is launching side wind according to the direction indicated by team mate Padovano's arms.
3. John Simeons achieved three max's but his first and fourth round flights let him down.
4. Larry Conover carries "Lucky Lindy" out for a flight. This is the design that Silvio Lanfranchi proxy flew for Larry into third place in '56, and which Conover himself flew to 38th place in '58.
5. Chief Processing Officer, H. J. Nicholls checks Frigyes' models.
6. I. Jokinen of Finland waits with team manager, Seppo Takko for his fifth round flight.
7. Geoff Woodward proxy flew for Tony Morelli who was unable to attend.
8. Extremely neat tissue lining was characteristic of Hungarian models. Here Meisner assisted by Rudi Beck prepares for his first flight.
9. Rudi Schenker of Switzerland flew same model as in '58. Assisting him here is team manager Maurice Dufey.

OVER the COUNTER



A section of the Keilcraft Trade Fair, with (left to right) Eddie Keil, sales manager Jimmy Haddock and general manager Eddie Cosh.

OUR singularly appropriate heading photo this month shows Roy Lever (centre) behind the counter of his well stocked shop, the **Leigh Model Centre**. Roy's business, and his attentive postal service, have become internationally known during the past 12 months or so, particularly to radio modellers. We are consequently very interested to learn of his forthcoming merger with that other well-known model shop proprietor Roland Scott whose long established postal service needs no introduction to our readers. Between them they are certain to offer their customers a service second to none and we offer our best wishes to what promises to be a partnership beneficial to all concerned.

The ratification of the Dance/Skeels R/C distance record of 73 km. is a boost not only to British modelling, but also to British manufacturers, providing, as it does, practical proof of the reliability of equipment bought over the counter. The Taplin Twin powered model was controlled by the **E.D. Black Prince** six-channel tone equipment which, in the words of the fliers, "never missed a beat."

We have recently examined the latest E.D. range of R/C Tone equipment and found it extremely neat and workmanlike in design and construction. There are four sets available—one-, four-, six- and eight-channel—all called Black Prince, which could be confusing except that in each case the name is suffixed with a numeral representing the number of channels. Prices are extremely competitive ranging from £18 13s. for the single, to £36 8s. 11d. for the eight-channel transmitter/receiver. We expect to conduct practical tests with some of this equipment in a model shortly, and a report of our results will appear in M.A.

The earlier Airtrol and Boomerang single-channel receivers are still in production and can be used with the well-established P.C.1 transmitter on the

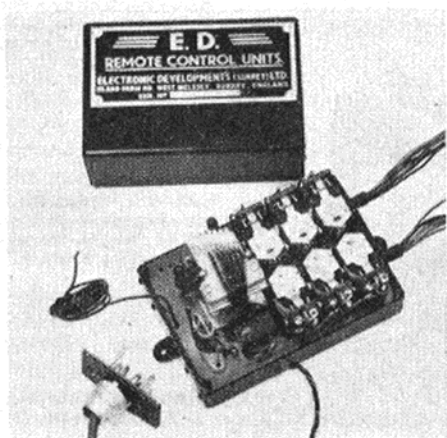
new Black Knight carrier, hand held, transmitter.

The Octave eight-reed tuned relay which is used in the "multi" Black Prince receivers can be bought separately (£3) as can also the Bleep relay, which is available with either fixed or adjustable contacts (£1 4s. and £1 8s. respectively). In addition sundry escapements, servo units, etc., are produced—no space to mention everything here, so why not drop a line to Electronic Developments, Island Farm Road, West Molesey, Surrey, for a copy of their detailed price list?

During a recent visit to Manchester, we paid a visit to the first **Keilcraft** Trade Fair which, we understand, is to be repeated in other provincial centres during the coming months.

The picture on this page shows only a small part of this amazingly comprehensive show, and although we are all familiar with Keil's own products, it was quite an eye opener to see the vast range of other manufacturers' model goods that are handled by this enterprising firm.

The purpose of the Fair is to show local suppliers just what they can buy from **The E.D. Black Prince** receiver (below) and transmitter (right).

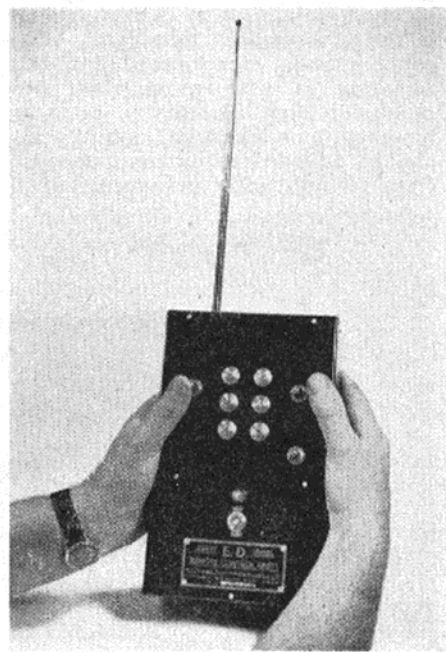


Keilcraft. Those who made the journey were well rewarded by being able to closely examine both new and established lines, and to discuss with the manufacturers the finer points of kit design, presentation and distribution.

Even the most lavish catalogue is but a poor substitute for first hand inspection and we strongly recommend dealers to avail themselves of the opportunity to visit the Fair when it is in their area.

Boat modellers will be particularly pleased with the new K.K. catalogue of marine models, costing 2s. it has 96 illustrated pages devoted to boats and accessories.

Due to shortage of space caused by the stop press inclusion of TWO world championship reports, details of Performance Kit's Pinnacle stunt model, Revell's new plastics, Ed. Johnson's latest R/C imports, Jetex's unique F/F Lynx and Harleyford's terrific new book *Fighter Aircraft of the 1914-18 War*, have had to be held over until next month.



RADIO TOPICS

RECENT convert to radio flying is George Fletcher, Frog engine designer, using a Frog Tutor, Frog 150 power and Reptone equipment. Total weight of the model is 27 oz., resulting in a very snappy performance—too fast, in fact, for the motorised servo to keep pace, rather bearing out our comments on this unit in a previous "Topics." Where a faster control movement is required, however, the Reptone servo can be modified to work on 6 volts instead of 3 and we await further flight tests of Fletcher's model with interest to see if this is the answer.

This does raise a rather basic question as to whether motorised servos are fast enough for ordinary single-channel rudder-only operation. To say that they work on rudder with multi all right is no answer. With elevators, rudder and ailerons the rudder control is rarely used, turns being done on ailerons. The motorised servo is inherently slower than the bang-bang action of a rubber driven escapement and with rudder as the *only* control, a minimum control on time is usually required because rudder action is more vicious than that of any other control. Which, of course, also ties up with response time or the lag between pressing the button and observing a positive response.

You can, obviously, fly satisfactory rudder only with a motorised servo—people do; but to get some more positive information on the differences involved we aim to try out two systems in the same model. First flying with a rubber-driven escapement and then replacing it with a variable speed motorised servo, in order to determine how easily, or otherwise, control action can be adjusted to different operating times for full rudder movement. If the

model lasts long enough we will tender a full report in due course.

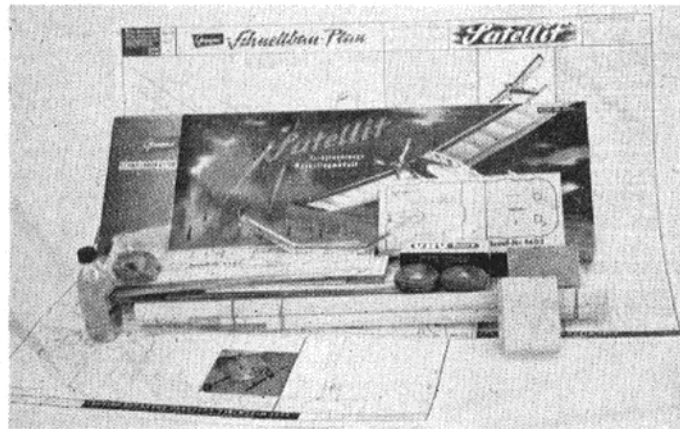
Model chosen for this work-out is the Graupner *Satellit*. Being a fully pre-fabricated kit with every sheet part die cut, pre-formed undercarriage, etc., building time is reduced to a minimum. The *Satellit* is a de Bolt design, which will be better recognised under its original name of *Live Wire Trainer*. Basically the two are identical, although the German kit version has been improved in detail over the original American kit, presented with a magnificent set of plans and illustrated instructions, making it a real pleasure to build. Span is 48 in. and intended power 1.5 to 2.5 c.c. (the smaller motors for "training"). Harold de Bolt himself always said that the Mills 1.3 diesel was the best motor he ever found for the *Live Wire Trainer*, but we have seen up to 3.5 c.c. used. Adequate power for single-channel operation is 1 to 1.5 c.c. diesel or 0.09 glow and we can endorse the really wonderful handling qualities as a basic

R/C trainer—coupled with a reasonable degree of penetration. Kit price in this country is £5 5s. od.—rather a lot for a 4 ft. model but we reckon it worth it for the time saved in assembly.

Still on kit designs, the aforementioned Frog Tutor is quite a popular choice, although only a small model. Eric Hook has only just completed flight tests of his new miniature all-transistor tone receiver and he is using 0.49 Bantam power. Total weight of the model is around 16 oz., we believe, which is not far off normal F/F standards. It's much easier to make small R/C models these days with moderate loadings—thanks to transistor receivers—but we still regard them as "vulnerable" near the ground as they are always more likely to be disturbed by gusts just at the wrong moment.

Latest British product in the motorised servo market is the new Remtrol multi-servo, developed by Chris Olsen. This uses a Mighty Midget (or alternatively Jap. Orbit) motor driving through a train of nylon gears and brass pinions and a printed circuit switching base. Wiping contacts are phosphor bronze mounted on a Paxolin plate. Total weight of the unit, 3 oz. Control arm movement gives $\frac{1}{2}$ in. or $\frac{3}{4}$ in. motion each side of neutral and neutral position is adjustable. Operates either as self-centring or progressive, according to the way it is connected.

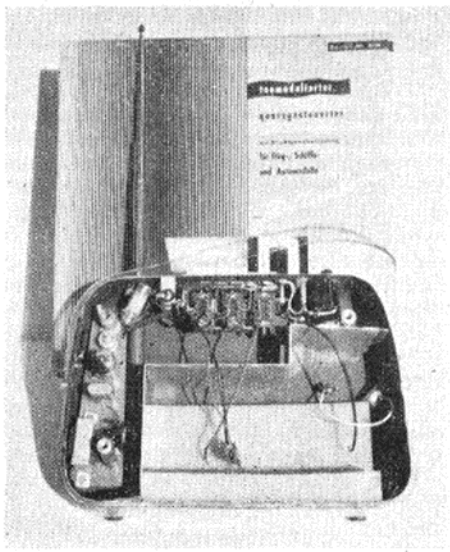
Our impressions: A thoroughly well engineered unit which is actually better than it looks at first examination.



Above—Graupners Bellamatic servo, built round the Micromax motor.

Left—the "Satellit" kit—European version of de Bolt's famous "Live Wire Trainer."

Right—the Bellaphon transmitter.



The only real criticism we have is that for really reliable operation surely it would have been worth the little extra expense of silver plating the printed circuit. Despite what some text books may say, bare copper is *not* really suitable for wiping contacts, even though the Remtrol does use high contact pressure. It is also a rather bulky unit and on the heavy side, but seems a very good buy at £3 10s. od.—especially with a “money back” guarantee. The “resistive over-run damper” to slow the motor rapidly when switched off is useful, but not surely a patentable feature? (Regenerative braking is almost as old as electric motors.)

Another servo which has come into our hands is the Graupner Bellamatic—a really diminutive unit built around the Micromax electric motor. Weight is only 1½ oz. and operating voltage 1.2 to 3 volts. A single miniature accumulator should provide ample power with current drain varying between 50 and 500 milliamps, according to load and battery voltage. It is produced in two versions, virtually identical except for switching, one self-neutralising for rudder, elevator or ailerons, and one progressive for engine control or elevator trim, etc. Switching contacts employ gold wire brushes.

Completing the range of Graupner R/C equipment which we have so far had is the Bellaphon transmitter and Ultratron receiver. The Bellaphon is produced in two versions, one with a 6 volt accumulator power feed (Bellaphon A) and one with conventional high tension and low tension battery power (Bellaphon B). Performance is virtually identical, although the power output of the Bellaphon A is slightly up. Circuit is crystal stabilised and can supply either carrier or tone modulated signal as required. The Bellaphon B in this country is virtually limited to 135 volts high tension supply (two 67½ volt batteries) by availability of suitable batteries although originally designed for 150 volts. Performance remains satisfactory down to 80 volts h/t, although of course with diminishing range. Another minor snag is the call for a 6 volt heater battery. Nevertheless it is a beautiful unit.

The all-transistor Ultratron receiver—single channel, tone operated—is enclosed in a sealed plastic case 2½ × 1½ in. sq. and weighs 2½ oz. complete with external leads and plug. The whole receiver is “potted” and should thus be virtually indestructible, although the Graupner relay is separately mounted inside the top of the case. Current change is 1 to 15 milliamps. Specified power feed, one 6 volt battery.

Without checking, it seems probable that maximum performance is realised with batteries with a low internal resistance—i.e. accumulators rather than dry cells, when Deac cells (five off welded

into one 6 volt battery) would appear to be the logical choice.

The Ultratron, incidentally, is also tunable to 40.68 megacycles/second by replacing the iron dust tuning core with an aluminium core—the latter being a second permitted frequency recently released by the German Federal Post Office. Normal operating frequency, to which the receiver is factory adjusted, is 27.12 megacycles/second.

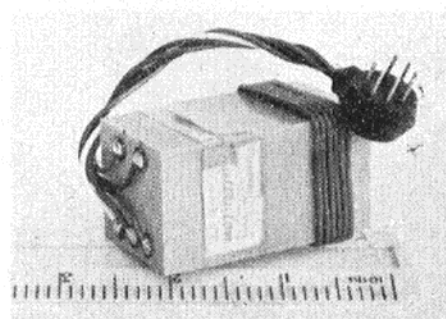
Recent problem put up to us was how do you ensure positive tuning adjustment with a flying boat? It is a known fact with R/C boats that a receiver may change its frequency slightly when put in the water, if it has been tuned out of the water. How do you tune a flying boat—in the water, or held in the air?

The complete answer should be to screen the receiver by enclosing in a suitable metal case. Even aluminium cooking foil should be quite satisfactory, wrapped round the normal receiver case—unless it is already in a screened case, of course. But don't wrap “bare” receivers in this way—unless you want some interesting, and damaging, shorts on the circuit!

Now that big models are really on the way back—and British motor manufacturers have consistently avoided the large glow engine market for the past decade—quite a change of mind is apparent in the commercial sphere. Apart from the Taplin Twin, which has already registered its success, the Merco “35” and the D-C “Tornado” twin which has only recently become available, at least two other engine manufacturers are seriously considering the “big twin” as a very saleable item. The twin will score on the count of vibration saved, even if it does weigh more, give less power for a given capacity and, inevitably, cost more. Merco, on the other hand, are intent on developing the larger single around the “49” size (8 c.c.).

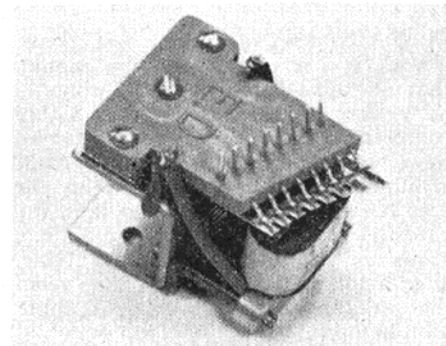
Noise problem will have to be combatted as more and more of these larger engines get around—the Merco in particular being one of the noisiest engines we have ever heard, even at a considerable distance. Since R/C can be accommodated in the smaller space flying fields with built-up areas not too far distant, unless the problem is tackled soon we shall have a similar state of affairs to what happened to the C/L movement in the late 1940's. It was virtually brought to a standstill because the noise element led to a ban on flying in almost every local park, etc., throughout the country—and in those days there was no Noise Abatement law!

Simple points which often get overlooked—or nobody seems to have a positive answer. Is it necessary to lubricate rubber motors for actuators? The indoor model experts who fly on two-strand motors say lubrication is not



Above—for use with the Bellaphon, the Ultratron transmitter—note size.

Below—The E.D. Octave 8 reed unit mentioned in Over the Counter.



necessary, and probably they are right. But a little rubber lubricant will do no harm—so why not play safe and use it? Just make sure that it is rubber lubricant or castor oil you use, though!

INDOOR HAND LAUNCH GLIDERS

Continued from page 263

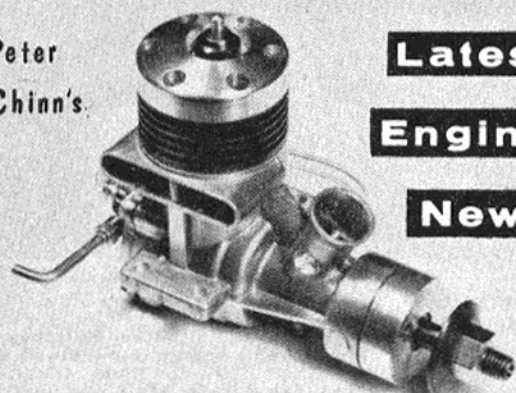
initially building a light glider (about 0.6 oz.) of average proportions and applying ballast in small stages to the C.G. Times can be checked with a stop watch as each increment of weight is added, the optimum weight thus being determined. A second glider can then be built, utilising the extra weight in the construction or in obtaining a better finish.

The addition of turbulators to H.L. gliders has great possibilities of increasing flight durations. Little research has been carried out in this field, but it is felt that definite improvements could be made if the best size and position of the turbulator could be found. By the addition of a 1/32 × 1/8 in. wedge to the L.E. of Savage's high aspect ratio glider (Fig. 2), performance increased by about 40 sec. (*Flying Models*, February, 1960).

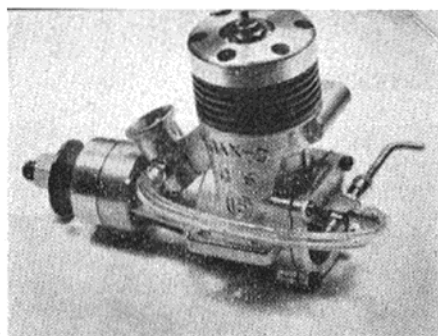
These notes have given some of the background information on the problems and techniques involved in the building and flying of H.L. gliders. To better 80 sec. indoors, development of techniques and refinements in design are imperative, and it is hoped that these suggestions will prove helpful.

Peter
Chinn's

Latest Engine News



Another M.A. "first." The remarkable O.S. Max 15 twin ball-race special which has topped 0.4 b.h.p. on test. Our sample, the second produced, is the only one in Europe at the present time.



MAIN news of interest this month is of several new 2.5 c.c. engines that indicate a definite "break through" in performance levels in this highly competitive class. For a long time we have waited for engines that would genuinely and consistently exceed the 0.30 b.h.p. maximum that has been the yardstick of performance in the 2.5 c.c. group for the past few seasons. Now, after a lot of false starts, it does seem that we can safely set our sights quite a bit higher.

Good reasons for this optimism come from at least three "commercial" quarters, quite apart from results being achieved with specialist racing 2.5's.

Firstly, we hear from A. E. Rivers Ltd. that the latest modified version of the new Mk. II Silver-Streak is getting to within 250 r.p.m. or so of the standard Silver-Arrow on an 8 x 4 prop—which could mean a peak output as high as 0.35 b.h.p. This is the engine with the

an increase in area of 36 per cent. over the modified Mk. I Silver-Streak and no less than 96 per cent. increase on that of the standard Mk. I.

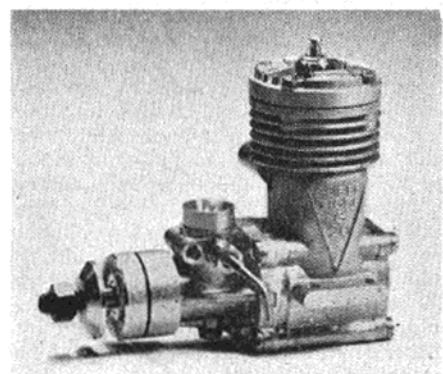
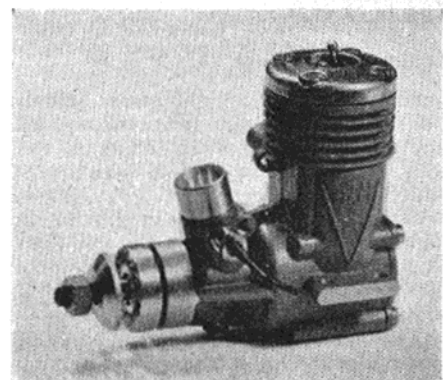
Secondly, there are suggestions of similar performance from the new 1960 Italian Super-Tigre G.20/15V which is being built in both glow and diesel versions. We have examined both models and hope to give some test figures on the diesel next month.

This new Super-Tigre design, while retaining the old G.20 designation that has been used for all the Super-Tigre 2.5 glow engines and the "V" suffix that has hitherto distinguished the redesigned engine introduced in 1958, is in fact, of an entirely fresh design and abounds with interesting features. The most startling of these concerns the transfer timing which is precisely the same as that of the exhaust—i.e. the exhaust and transfer ports open simultaneously. Moreover, despite the fact that the engine is of the loop scavenged type, no deflector is used and the piston crown is perfectly flat. Had anyone suggested such a step a few years ago he would undoubtedly have been howled down, it being considered axiomatic of two-stroke design that the exhaust port should open at least 10 to 15 deg. prior to the transfer in order to prevent, *inter alia*, exhaust gases being forced down the transfer passage, charge dilution, charge pre-heating, charge loss, crankcase explosions and what-have-you. In fact, several very successful engines of late have been using transfers which open only a matter of 6-8 deg. after the exhaust.

Now that Super-Tigre designer Jaures Garofali has given a lead, one can only speculate as to the reasons why this drastic departure from orthodox practice has proved successful. It should be

Left—the new and the old. The just-released 1960 Super-Tigre G.20/15V (top) compared with last year's model. New castings (with, for the first time in a G.20, an integral bearing housing) enlarged crankshaft and unprecedented transfer timing distinguish the potent new engine.

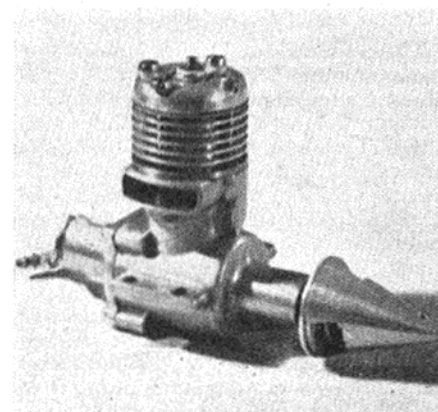
Right—another 2.5 racing glow, the Lindsey-Enya, based on Enya 15-D parts with rear induction and pressure feed to twin surface jets in a "wide open" intake; 17,500 plus on a 6 x 8 Tornado.

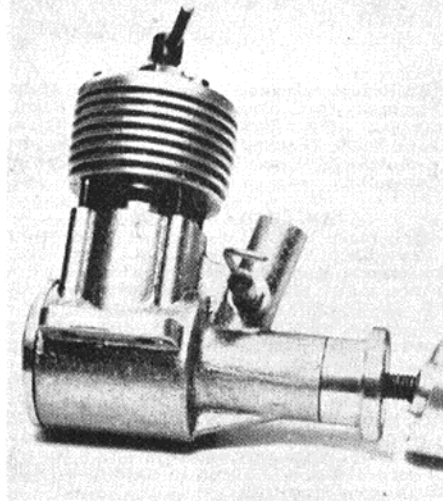


noted that the exhaust period (130 deg.) is less than on most other modern engines which, in theory, means that a little extra energy is gained from the expanding gases before they are released. The transfer ports do not, therefore, open "prematurely" rather the exhaust opens late and the compressed charge will, accordingly, be ready to enter the cylinder at more or less normal pressure. It is possible, of course, that some additional charge dilution may take place in the vicinity of the transfer port at the moment of port opening. On the other hand, the fact that the transfer remains open late may result in more complete scavenging at the expense of some charge wastage. This would, of course, be perfectly acceptable, where maximum power, irrespective of fuel consumption, is desired, such as for pure speed work or F/F.

The absence of a baffle or deflector on the piston is, apparently, partially explained by the special shape of the transfer port. This is actually divided into two ports, very large in area, with edges at 45 deg. to the cylinder axis to assist upward flow into the combustion chamber and actually extends further around the cylinder than does the exhaust port. Head design is quite simple, the internal contour being a simple flat curve from side to side (i.e. the direction of the scavenging loop) on the glow model, which has a central plug. On the diesel the contra-piston under-surface is perfectly flat.

On the induction side, the new G.20/15V shows an advance on the previous model and becomes the first West European 2.5 to have a 10 mm. dia. crankshaft. Hitherto, ball-bearing supported shaft sizes have been limited to a maximum of 9 mm. ($\frac{3}{8}$ in. in the case of British engines) with a consequent limitation on the size of the induction





Left—new West-German Schlosser 2.5 c.c. team race engine designed for low consumption. Has 9 mm. shaft with slot type valve port and a single ball bearing. Bore and stroke are 14.8 x 14.4 mm.

Right—superseding the Enya 15-1B is the new 15-II. Performance not yet known.



passage that could be tolerated in the interests of structural strength. First to break with this standard was the Japanese Enya 15-D, followed by the Czech MVVS 2.5 type 1958 and then, with a further increase to 10.5 mm. the O.S. Max-D. The Rivers, of course, got around the difficulty by switching to roller bearings. As a result of this change, the G.20/15V is able to accommodate a 7 mm. (0.276 in.) diameter gas passage (0.260 in. on diesel version) and a sizeable rectangular valve port. Again, in accordance with the latest trends, the valve aperture in the bearing has parallel sides to take advantage of quick valve opening and closing.

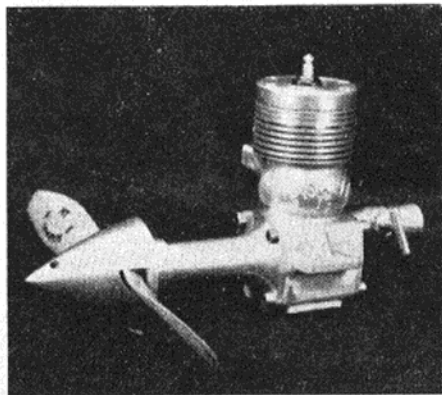
Briefly stated, other features of the new Super-Tigre include a complicated and finely executed main casting comprising crankcase, cylinder block and main bearing housing, interchangeable venturi inserts (the racing venturi for the glow version having a throat diameter equal to that of the McCoy 60!), a pressure take-off point below the main bearing for a pressurised fuel system and lugs on the cylinder block for the fitting of an exhaust throttle.

Our third engine is a real surprise package. This, briefly mentioned last month, is the special twin ball-bearing racing glow built by the experimental department of the O.S. factory and based on the Max-D 15 bottom end. Only two of these engines have so far been released. The first was acquired by

Australia's Tony Farnan while on a visit to Japan and the second was sent to us for evaluation. Farnan states that he saw his engine deliver 0.49 b.h.p. on the factory's dynamometer. Fantastic as this may seem, it is not completely beyond the bounds of possibility, given plenty of nitro and favourable climatic conditions. It is fairly obvious that to achieve near-140 m.p.h. speeds in recent international championship speed events, the Czechs, Hungarians and Italians must have been getting somewhere around this figure with their MVVS, Moki and special Super-Tigre 2.5's. The Hungarians have, in fact, published in their magazine *Modellezes* a figure of 0.51 b.h.p. at 21,000 r.p.m. for the state-sponsored Moki S-1 special when using 50 per cent. nitromethane. On 25 per cent. nitro, the same engine is credited with 0.435 b.h.p. at 20,600 r.p.m. and, on straight three to one methanol and castor, 0.31 at 19,000.

Whether the O.S. will be able to compete against this select competition remains to be seen. All we can say at the moment is that our sample, after one

A one-off 2.5 racing special from America, known as the Howler 15 and built by Craig Asher of Cincinnati.



hour of running-in, is by far the most powerful 2.5 we have ever handled, bettering the previous best commercially built motor tested by some 30 per cent. with a peak of around 19,000 r.p.m. on 30 per cent. nitro. Added to this, it has excellent handling characteristics, being wonderfully easy to start, easy to adjust (on the bench, at least) and is very smooth running—the latter in part due to a special balancing feature which is to be the subject of a patent application. The engine is built for pressure feed, there being a nipple below the bearing housing from which positive crankcase pressure is tapped, fuel being fed to a wide open (9 mm. throat) carburettor via a metering valve at the back. The massive (10.5 mm. journal) shaft has an immense valve port and gas passage (0.295 in. bore) and is connected via a machined dural rod to a Max-II 15 piston with relieved skirt. The cylinder is basically that of the Max-D with reworked transfer ports and a special machined alloy head with off-set plug.

This Max Special is not at present in regular production but will be available to special order. Apart from speed applications, it could make a potent F.A.I. F/F engine, being capable of turning 8 x 4 props at 16-17,000 r.p.m. static.

Two-point-five news from America is that the new Johnson Bulldog 15 should be on the market very shortly, but that the Fox contest 15 will not, after all, be produced this season. Cox are said to have a rotary valve version of the Olympic in the offing which will have more power.

LETTERS to the Editor

Lost . . .

DEAR SIR,—At the recent "Northern Heights" Gala, at R.A.F. Halton, I lost a power job in the surrounding countryside and I have doubts as to whether my name and address on the model will stand up to the elements.

If I am lucky enough to have it found by someone who cannot decipher the details of ownership, I would be very grateful if they would get in touch with me.

Details of model: *Dixielander* powered

by 2.5 O.S. Max 15-II, Tatone timer, model covered in jap tissue with yellow tips and tailplane, red centre section and black fuselage, S.M.A.E. number on wing 32956.

100, Derby Road, Yours faithfully,
Loughborough, Leics. C. S. WOOD.

. . . and stolen

DEAR SIR,—After having flown my combat model in the first round at the Northern Heights Rally, I left it with

the remainder of the Uxbridge models at the edge of the field. An hour later, all traces of the broken model, complete with Oliver Tiger had vanished. The lines had been deliberately taken off and left behind.

Could anyone who has any information regarding the theft, please contact me as soon as possible at 11, Lime Walk, Willowbank, Denham, Uxbridge, Middx.

Yours faithfully,
J. GREEN.

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

CLUB NEWS

NORTH KENT NOMADS

The C. H. Roberts Cup for flying boats is being held in Danson Park again this year on September 11th, and we invite all interested parties, with or without models, to attend this somewhat unusual competition.

COSMO A.C.

A demonstration at the Hurst Community Centre Fete, with line length limited to 30 ft. by trees, 6 ft. difference in the ground level and most of the boys using 2.5's, things were hectic to say the least. In spite of these hazards all went well and the flying was well received by the large crowd which included Edward Heath, M.P.

We visited the Northern Heights Gala in force, everybody thoroughly enjoying themselves. Only one club member, Irvin Ella, was early enough to enter Combat and won his first heat in spite of an opponent whose main object was to crash him, but was knocked out in the next round.

Fred Andrews caused some amusement when his *Debutant* landed almost on the R/C spot at the height of the contest. Stan Robinson created considerable interest with his prototype *Kentish Wind* (now over a year old) by doing a full schedule and square vertical eights in spite of the high wind.

At the 175th Anniversary Celebrations of J. & E. Hall Ltd., Dartford, we gave a 25 min. demonstration of T/R, combat, balloon bursting and stunt, which went down very well with the large crowd. Much to the boys' disappointment it was timed to coincide with the Miss J. & E. Hall competition. They would have preferred to watch the Concours d'Elegance of the female species rather than models.

MEXBORO & D.M.A.C.

We visited Scampton for the Nats, camping the night, and all members voted it a great weekend although we had cruel luck with our models, most of which we put down to model fatigue after a strenuous early season in which our club *Optimist* A.2 has proved quite effective.

Club interest is swinging slightly back to C/L with the new ETA .15 and Rivers Silver Arrow moving very fast in combat models. First issues of the club magazine should be out soon, it will have about 12 foolscap pages and will be offered for sale to anyone interested. Sales, we hope, will cover cost of production, if so we will continue with the project.

Meetings are held every Wednesday night above M. V. Cutts, Main Street, Mexboro—prospective members would be very welcome.

TAUNTON & D.M.A.C.

Although still finding our feet, having only just reformed the club after a break of three years, we were asked to give a flying display at a local Fete on Whit Monday. Despite a fairly high wind, and maybe a touch of "stage fright," a fairly reasonable showing of C/L flying was possible.

We have been fortunate in obtaining permission to fly in one of the local parks, the only draw-back entailed with this being the horde of young lads who seem to appear from nowhere. Still, they come in useful for holding fuel bottles, etc.!

1960 PAA FESTIVAL

Once again the PAA Festival of Model Aviation was held at the Royal Naval Station, Abbotsinch, Paisley, and was blessed with glorious sunny weather. Saturday was calm and very warm while Sunday had a slight breeze to offset the heat after a somewhat cloudy morning. Thermals were present both days causing "fly-offs" in both Power and Rubber.

The contests started on Saturday with J. O'Donnell putting in three max's in the first half hour in the Glider contest although most of the other flights were extremely poor.

This year the PAA Load Events were run to the new American rules using the Cox Pee-Wee engines specified and it was amazing the degree of climb achieved by the PAA Load Gas models when the engines were properly tuned. The Clipper Cargo models all seemed to suffer from take-off troubles and until J. Done and D. Yates

modified their Gas models, only R. Taylor had succeeded in making a flight.

The Jetex models were as usual very poor and only J. Barnes had any luck in catching lift. The Junior Jet was won by Allan Parsons using the same model he had used the year before.

On Sunday after the early morning cloud (which caused many down draughts) had cleared away the contest got underway with power and rubber models putting up good times, although only two triple max's in Power and three triple max's in Rubber resulted.

I. McPherson and I. Carruthers flew off in Power but both models stalled down in very poor flights. Rubber, however, was a very different story with a hard fight between J. O'Donnell, J. Barnes and B. Owston—J. O'Donnell just managing to pip the others with a flight of 6.25 min.

R. Fraser of Kirkcaldy was up to his usual high standard in R/C and thrilled the crowds with some of his manoeuvres, while team racing was the same hard fight between the top names with T. Pasco of Thornaby winning both classes. The five model final in Class "B" was really worth watching.

The prizes presented by Pan American Airlines were as usual excellent but a large number of modellers were disappointed when no second or third prizes were awarded in some events.

RESULTS

P.A.A. Load Senior Jet

1. J. E. Barnes	Liverpool	6.39
2. W. Douglas	Glasgow M.A.C.	2.32
3. J. Done	Wallasey	1.41

P.A.A. Load Junior Jet

1. R. A. Parsons	Prestwick	0.52
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P.A.A. Load Gas

1. J. Done	Wallasey	7.42
2. R. Angel	"	7.09

P.A.A. Clipper Cargo

1. D. Yates	Wigan	21 oz.
2. R. Taylor	Glasgow R.A.	8 oz.

Combat

1. C. Blair	S.A.S.M.C.	
2. D. Barour	Cadzw	

U/R Glider

1. J. O'Donnell	Whitefield	9.00
2. E. Black	Glasgow	6.44

U/R Rubber

1. J. O'Donnell	Whitefield	9.00+6.25
2. B. Owston	Glasgow	9.00+5.10
3. J. E. Barnes	Liverpool	9.00+4.56

U/R Power

1. I. McPherson	Glasgow	9.00+1.30
2. J. Carruthers	Glasgow	9.00+0.00

Class "A" Team Race

1. T. Pasco	Thornaby	5.40
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Class "B" Team Race

1. T. Pasco	Thornaby	8.54
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Radio Control

1. R. Fraser	Kirkcaldy	2,359 pts.
2. G. W. Parkinson	Kendal	758 pts.
3. J. Craig	Stirling	611 pts.

S. WESTERN AREA

The Area Championships, which were held on Woodbury Common, attracted a remarkable number of entries, the most notable being Bond Baker who now resides at Torquay.

The S.W. Area Shield, which is a team award, stays at Exmouth for the fifth year in succession as they scored 16 points to next placer Plymouth's two.

Dennis Baudet (Exmouth) won the area glider championship for the second year running, and club mates Ernie Mann and Alan Parker won the titles in the Power and Rubber classes respectively.

A lot of interest was shown in the 1958 World Championship Power and Wakefield models which Bond had with him, and in fact he flew the power model in the Area event.

Individual placings: Power. E. Mann (Exmouth), D. G. Baudet (Exmouth), R. Baker. Rubber. A. A. Parker (Exmouth), E. Drew, D. G. Baudet (Exmouth). Glider. D. G. Baudet (Exmouth), G. Lynn (Plymouth), P. M. Baudet (Exmouth).

SOUTH WALES AREA

This year's Welsh Rally, held at Llangynyddir Moors, Ebbw Vale, had classes for Open Glider, Power, and Rubber with three flights and a 2 min. max. Some very good flying by S. G. Morgan (Cardiff) resulted in him winning Power and Glider with perfect scores, and narrowly missing a treble victory (by only 5 sec.) in Rubber, which was won by F. Holland (Swansea).

Some very good R/C flying was staged by P. T. Waters (Port Talbot) flying an *Astro Hog* with eight-channel control. Each flight earning a round of applause from interested spectators.

Combat classes were cancelled owing to lack of support but it is hoped to stage an all C/L comp. at a later date.

WATFORD WAYFARERS M.A.C.

Six C/L enthusiasts made the long journey to Wigsley for the C/L Trials where John Lambert placed sixth, just missing the team, his fast ETA 15 racer putting up a time of 4.46 in practice which turned many a head.

A C/L display was put on by the club in conjunction with a fete held at Rickmansworth Grammar School. Stunt and combat flying was featured but team racing was again to the fore, with the best times being a 4.59 (twice) by T. French, whose model was turning in a consistent 92 m.p.h., and a 5.29 by Messrs. Cooper and Allan.

The following day a coach-load of members made the trip to R.A.F. Halton for the annual N. Heights Gala. The high wind and bad recovery area made flying a hazardous affair but Chris Webb, who deserted the C/L circles for the afternoon, coped with the conditions to win 1/4 A F/F power with 4.37, unfortunately losing his best model in the process. This has since inspired several members to start building 1/4 A models with the largest being around 400 sq. in. in area, the American glow motors being favoured.

LEICESTER M.A.C.

Our C/L Rally to be held on September 18th, at Stapleford Park, Melton Mowbray, Leics., has now been given S.M.A.E. sanction.

There will be pre-entry only for Combat at 1s. 6d. per person, and Stunt is pre-entry 1s. 6d., or on the day, 3s. All pre-entries to be sent to M. A. Colyer, 17, Turville Road, Leicester, to arrive before September 7th, with P.O. to cover fees. Combat will start at 10.30 a.m. prompt and Stunt at approx. 1 p.m. The Stapleford Park will be open for competitors at 9 a.m., and teas, etc., will be available at the Hall.

CITY OF NEWCASTLE A.M.

We would like any unattached but keen modellers in the Newcastle area to visit our clubroom at Cowgate School, Cypress Avenue, Newcastle, any Tuesday at 8 p.m. Everyone welcomed, novice or expert, and we would be pleased to meet any Wings Club members in our area.

A club model has been provided to give novices a try at C/L. It will be available to club members on a Sunday afternoon on Newcastle Town Moor.

For our next Chuck Glider comp. prize, we have an American C/L pre-fab kit, while the prize for our next P.D. comp. is an E.D. Bee.

OUTLAWS (CANNOCK) M.A.C.

The pilgrimage to Enfield came to an abrupt end some 92 miles from home with a blown cylinder head gasket half-way down the M1. One hired Consul and some £75 worth of modelling tackle was promptly deposited in the Buckinghamshire countryside and six dispirited bobs began a six hour trek back home via taxi, train and various erratic Sunday bus services.

Trials inspired mono-wheel team racers have really caught on. First experiments were carried out on a beat-up old relic in the process of being repaired—result, a genuine 10 m.p.h. increase in speed.

ENFIELD & D.M.A.C.

In spite of a lapse of one year, our C/L Rally was this year even more popular than ever, in spite of the unfortunate weather which turned the circles into mud baths, and even washed away the sawdust put down to try to improve

matters. A record entry of over 150 was received and particularly noteworthy was the keenness of the entrants who came, just for the day, from as far apart as the Isle of Wight and Glasgow, to say nothing of the chaps from Thornaby who came 250 miles on motorcycles and camped overnight ready for an early start!

In combat a few people put in some very good scores, but as seems to be the case in many comps recently, the standard of reliability was, with one or two notable exceptions, generally very poor.

Class B provided some extremely good flying, with all three models finishing only 3 sec. apart in one semi-final, followed by a final won in 7:8.2, a time which has only ever been beaten once before, as far as we know.

Class A also provided several good times, particularly Ken Long's heat in 4:49.8. Noticeable, however, was the need for much clarification and publicising of the international rules in this country, as many of the competitors were quite unaware of many of the rule requirements (one even turned up with no cockpit at all!), particularly in regard to fuselage blisters. A large number of the models were using these, despite the clause which quite clearly disallows them (Code Sportif 4.10.4).

Stunt did not have the expected entry, probably due to the tricky conditions, but speed showed a refreshing renewal of interest with 20 entries—and even more surprising, the majority of them actually recorded a time.

RESULTS

Class A T/R

1. Smith ..	High Wycombe ..	5:20.6
2. Yeldham ..	Belfaires ..	5:21.9
3. Davy ..	Wharfedale ..	6:34.8
4. Long ..	" ..	6:42.5

Class B T/R

1. Lucas ..	West Essex ..	7:8.2
2. Whitebread ..	" ..	8:9.8
3. Pasco ..	Thornaby ..	8:46.1

Combat

1. Tribe ..	Northwood ..	+17 pts.
2. John ..	Weston ..	
	Controliners ..	+7 pts.
3. Copeman ..	Kenton ..	-9 pts.

Stunt

1. Brown ..	Lee Bees ..	961 pts.
2. Day ..	Birmingham ..	950 pts.
3. Falcolner ..	Montrose ..	832 pts.

Speed (Handicap)

1. Gibbs ..	Hornchurch (class 2)	200.0 k.p.h. 113.6% hdep.
2. Stephens ..	Belfairs (class 4)	220.8 k.p.h. 102.2% hdep.
3. Drewell ..	West Essex (class 6)	250.0 k.p.h. 100.8% hdep.

WESTON CONTROLINERS

At the Northern Heights, R. Dudley, our helicopter expert, had quite a time as, on its first flight, his helicopter flew o.o.s. This was a great pity as we had good hopes of his winning. The model could not be found on the day but has subsequently been returned.

As many members of the club are in financial difficulties (!), only three members attended the Enfield rally. Those who did attend though did quite well. R. Foreman entered the speed but had troubles with his Olympic and did not fly; however, R. Johns came second in the combat and D. Christopher, who is fast becoming famous, came fourth in the Stunt.

WHARFEDALE M.A.C.

Eight members visited the Scottish PAA Rally and our entries in the T/R events received moderate success. In Class A the Baxter/Horton team were second with the Davy/Long team third, first places going to Pasco of Thornaby.

In Class B Tom Pasco again thrashed the Wharfedale entries with his ETA Mk. VIc model, ably assisted by Wharfedale club members Horton and Baxter who offered their services when the Thornaby contingent ran out of helpers. Second place went to the Long/Davy/Horwath team with their *Dalesman* racer.

Our staunch T/R enthusiasts battled their way through a mud bath at the Enfield C/L Rally and, in spite of the prevailing conditions, Ken Long succeeded in putting up the fastest Class A time of the day when his ETA 15 model twice topped 50 laps per tank.

Both Davy and Long succeeded in reaching the final, which presented a problem as it was decided

CONTEST CALENDAR

Aug. 28th †S.M. Gala Cranfield. R/G/P/‡AP. A&BRT/R. Combat, Stunt, R/C Single & Multi.

Sept. 4th **NORTHERN GALA.** GLIDER. U/R Glider. HAMLEY TROPHY. U/R Power. CATON TROPHY. U/R Rubber. AEROMODELLER TROPHY, R/C Multi.

TEAM RACING. ‡A, A & B. PAN AMERICAN CUP. P.A.A. Load (American Class). UNITED KINGDOM CHALLENGE MATCH.

.. 4th Southern Counties R/C Rally, Middle Wallop. Single, Intermediate, Multi.

.. 11th †Croydon Gala, Chobham, Open Glider.

.. 11th †C. H. Roberts Cup—Rubber driven flying boats. Danson Park, Welling, Kent.

.. 18th *KEIL TROPHY. Team Power. FROG JUNIOR TROPHY. U/R Rubber/Glider. Area Cent.

Sept. 18th S.A.A. Caledonian Shield.

.. 18th †Leicester C/L Rally, Stapleford Park, Melton Mowbray—see under Club News for details.

.. 18th †E. C. Muxlow Trophy (N. Area). R.A.F. Rufforth.

.. 24th/25th Indoor meeting, Cardington.

.. 25th †South Coast Gala. R.A.F. Tangmere. F/F all classes, R/C, C/L. To be fixed Surbiton Gala, Chobham. R/G/P and 0.049 Power.

Oct. 9th *FARROWSHIELD. Team Rubber. TEAM RACING. Classes ‡A, A & B. Area Centralised.

.. 16th FROG SENIOR CUP. U/R Power. C.M.A. Cup. U/R Glider. Decentralised.

.. 23rd †Croydon Gala. Chobham, Power. Open and 0.049.

Nov. 20th †Croydon Gala, Chobham, Open Rubber.

*Plugge Cup events.
†S.M.A.E. Sanctioned meetings.

that Les Davy could not be allowed to fly the final with a model in each hand! Luckily Bill Halley of Thornaby and Wharfedale club mate John Horton agreed to fly Ken Long's model.

The outcome was rather erratic but very encouraging, with Davy's model taking third place closely followed by the Horton (Long) Halley model (both models were powered by ETA 15's). We would like to thank both the Scottish and Enfield lads for two very enjoyable contests.

HAYES & D.M.A.C.

The T/R combination of Mike Smith (High Wycombe) and our Dave Belch have repeated their Nats. form by winning Class A at the Enfield C/L Rally.

The Combat men had a real Gala Day at Northern Heights when John Brailsford and Robin Greenaway both reached the semi-finals; however, only J. Brailsford went forward and even he came unstuck in the Final.

We recently put on a display at the National Physical Laboratories. Proceedings opened up with a "flight" by Roger Stone's scale 3 ft. SRN1 *Hovercraft* at 8 m.p.h. and ended up with R. McGladdery's McCoy 49 speedster at around 120 m.p.h. This display, which also included a Class A T/R, a Combat marathon, and a Stunt flight by "Prof" Fuller's Torp. 35 *Czarina*, drew very favourable comments from the local Press.

CLWYD SLOPE SOARING CONTEST

This year the Clwyd Slope Soaring Contest reached its majority. Originally organised by R. F. L. Gosling in pre-war days, the contest has been run for the past seven years by the Chester M.F.C. Conditions had been perfect until the eve of the contest when the wind changed and the southern slope of Moel Famau had to be used. This slope is very good for flying, but rather steep from the retriever's point of view.

In the Open, Nordic and Junior classes the winner was chosen by the best of four flights and the highest time put up in any class was awarded the Gosling Trophy. The entry was larger than usual, particularly in the R/C event which attracted 26 competitors. In earlier years Clwyd was the graveyard of worn out models including much modified power and rubber jobs. A complete change has taken place and models designed for the occasion are a common sight. The most outstanding models were a Nordic glider entered by J. Cole of Surbiton and a tailless model by B. Henshall of Heswall. The average flight time was the highest recorded for seven years and the number of no-flights the lowest.

The contest started at 11 a.m. and an eager pack of competitors soon had their models in the air. A blackboard outside the control tent displayed the best times in each class and to keep this board up to date with the records was a work of art. E. Shenton of Ashton-under-Lyne set up a time of 6 min. 13 sec. in the Nordic Class early in the afternoon, this time becoming a hotly contested but unbeaten target. Some two

hours later an impressive flight in the Open Class of 10 min. 32 sec. o.o.s. was put up by J. O'Donnell.

Radio Control. After a short meeting of judges and R/C competitors a postponement until 12.30 was announced, with a hope that the wind speed would increase. The rules for this event were quite simple, two flights were to be made with a nominated time of 5 min., points being lost for times above and below the specified time, the better flight counting. All types of models and equipment were seen, from complicated devices to simple models, but it was a combination of model and modeller that counted. The winner of this event, F. Knowles of Reigate, would have made a faultless flight but a slight detour around an interested spectator cost him two seconds. The most consistent flier was J. Mountain of Kidderminster who only lost 13 points in the first flight and seven in the second.

Flying ceased at 5.30 and a band of happy but weary competitors gathered around the control tent for the prizegiving. H. F. Wilde, Chairman and founder of the Chester M.F.C. presented the famous Clwyd Bronze Medals to the highest scorer in each class and the Gosling Trophy to J. O'Donnell for making the best flight of the day. After the presentation Dave McQue organised a spot landing contest for the radio men and an enjoyable time was had by all who participated, although a small boy who pirated into the contest with a chuck glider, was the only person to land a model on the target!

RESULTS

Gosling Trophy J. O'Donnell .. Whitefield .. 10.32

Open

1. J. O'Donnell .. Whitefield .. 10.32
2. J. Cole .. Surbiton .. 4.30
3. B. Henshall .. Heswall .. 3.57

Nordic

1. E. Shenton .. Ashton .. 6.13
2. J. Cole .. Surbiton .. 4.49
3. C. Wyatt .. Ashton .. 4.2

Junior

1. F. Hibbert .. Chester .. 3.47
2. A. White .. Chester .. 3.34
3. O. Ricketts .. Chester .. 2.11

Radio

1. F. Knowles .. Reigate 2 pts. error
2. C. King .. Cambridge 5 pts. error
3. J. Mountain .. Kidderminster 7 pts. error

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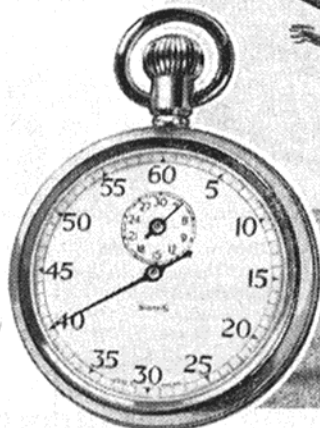
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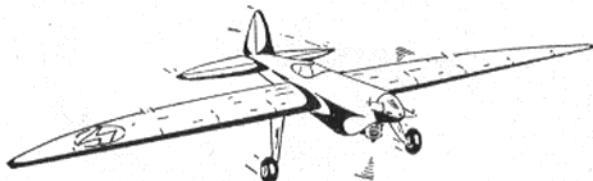
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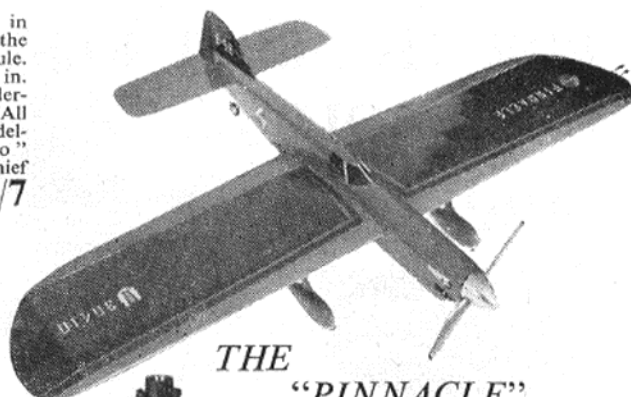
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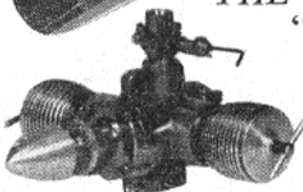
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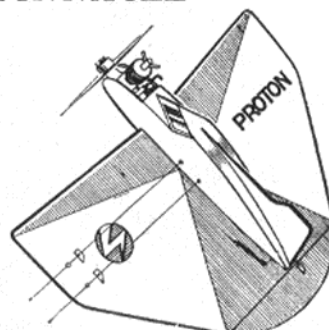
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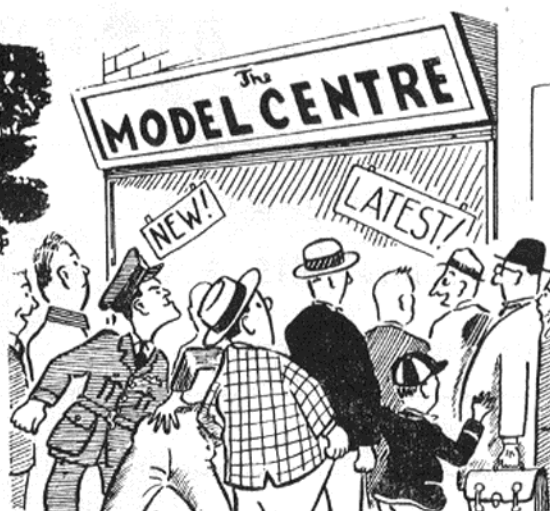
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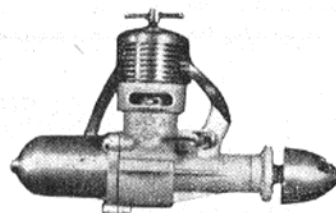
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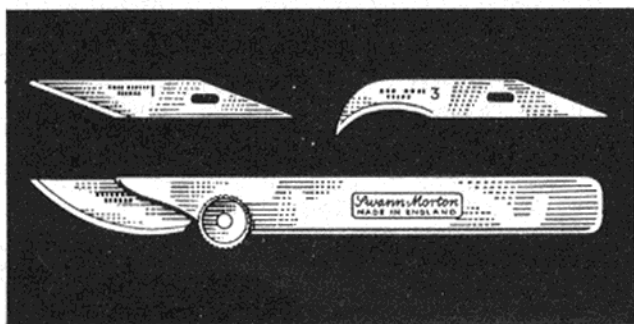
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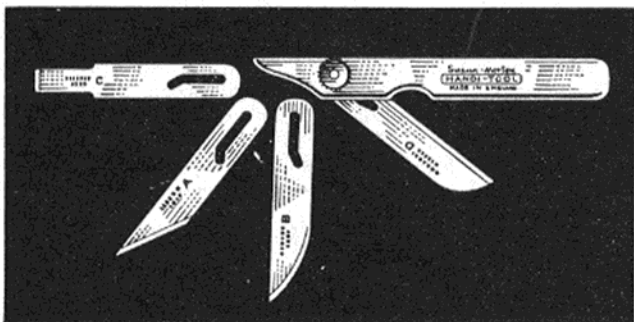
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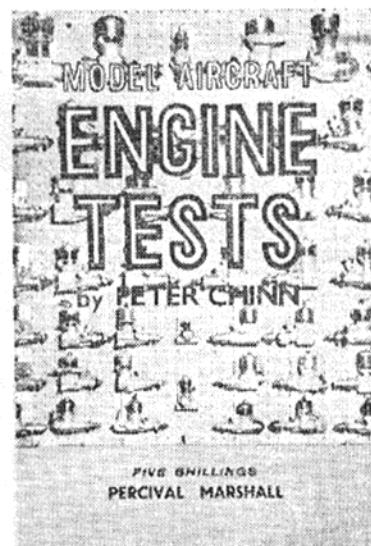
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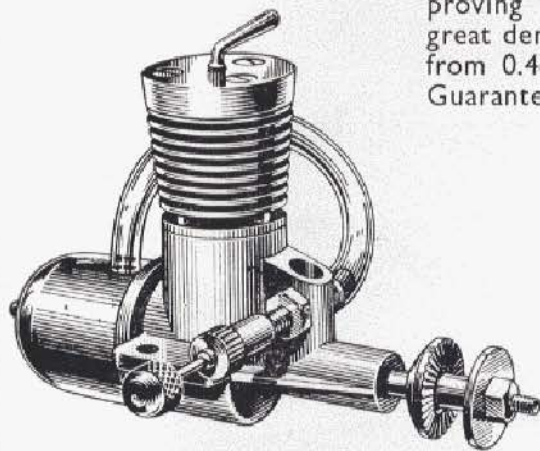
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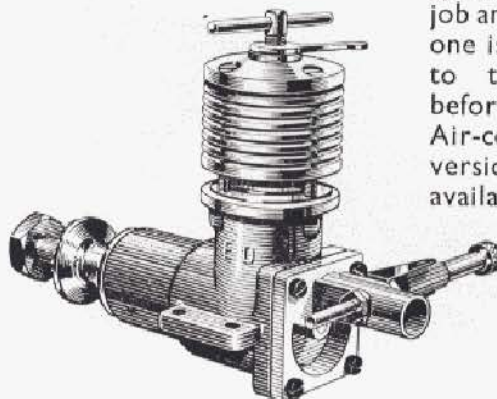
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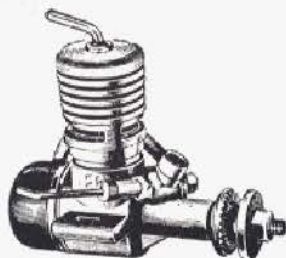


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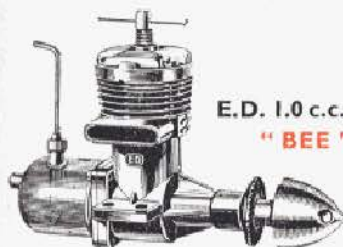
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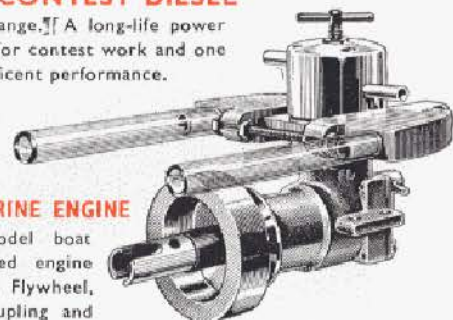
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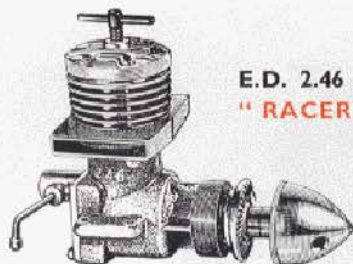


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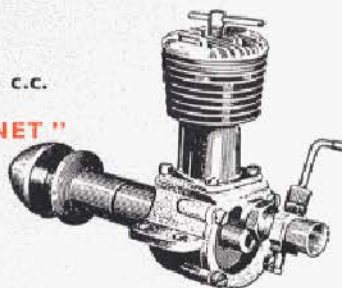
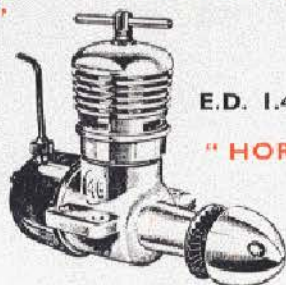
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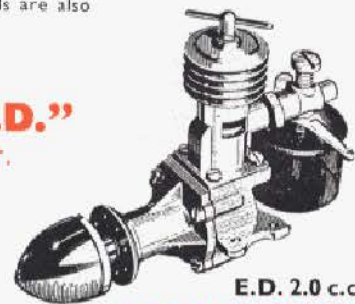
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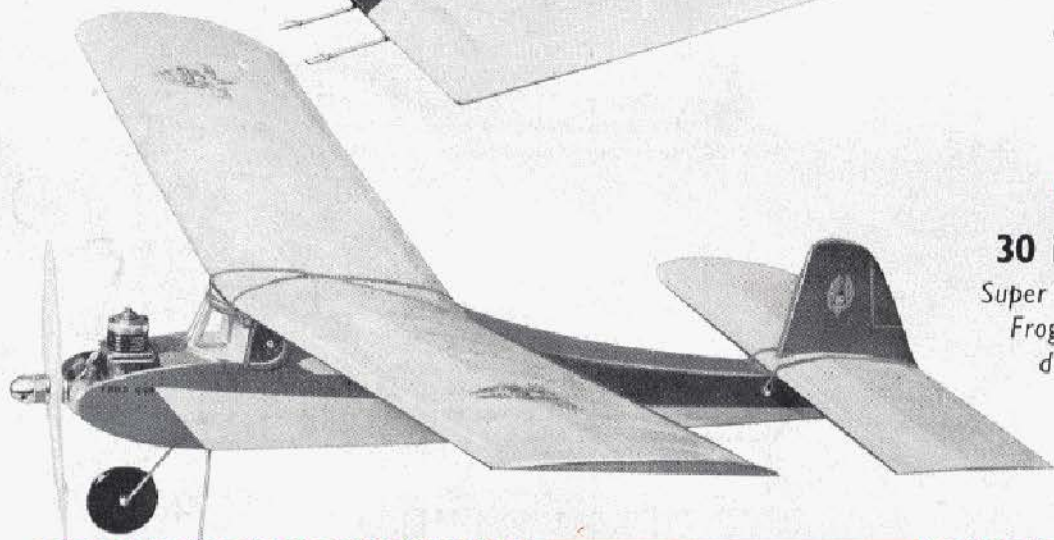
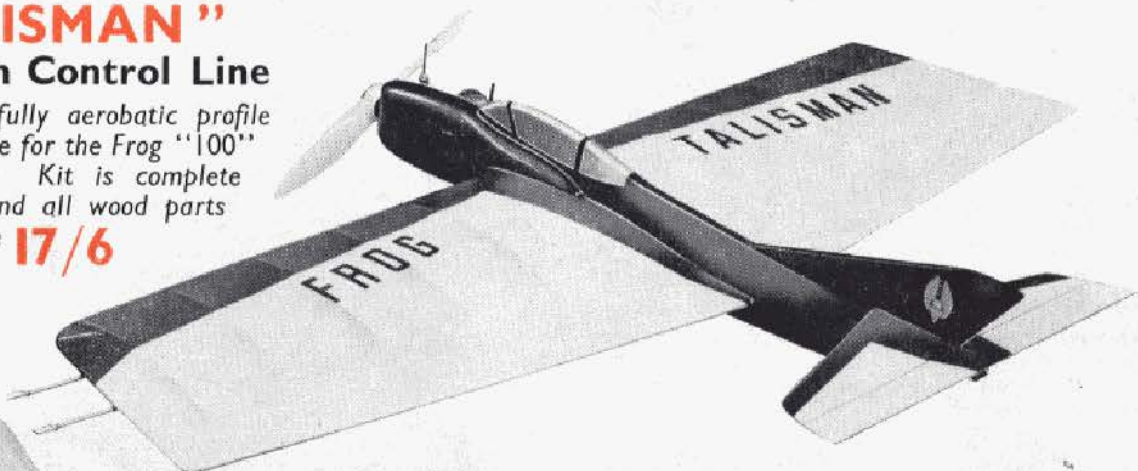
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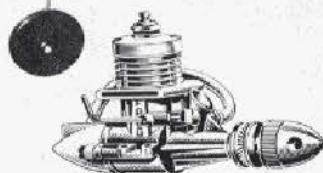
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