# THE NORTHERN HEIGHTS GALA

Bob Copland releasing his Queen's Cup streamliner for its fourth deciding flight. Tempest Target Tugs in background.

John Howard receives the magnificent Queen's Cup from Lady Fairey, who, with Sir Richard Fairey, showed great interest in the Gala.

THEY'VE done it again ; lucky people—for the umpteenth year in succession, Northern Heights have picked a dream day for their annual Gala.

Held at Langley Airfield, Bucks, home of the Hawker organisation, this gala is becoming incredulous with its weather predictions. A glance at the results sheet will show just how good it was, all top three of the Flight (glider) Cup men, the top two in the Queen's Cup, and the top man in the Fairey (rubber) Cup—all with maximum possible durations of over five minutes for each of their flights.

Following Roy Yeabsley's outstanding one-hour flight with his giant sailplane at this gala two years back, 1950 brought hosts of the " whopper " types to the Langley thermal ; but this time the wind was from exactly the opposite quarter to that which favoured Roy, and most of this year's soarers disappeared in the Slough (but not slow) direction. One such big 'un from West Coventry had a couple of barn door flaps attached either side of its profile fuselage. Hinged at the rear edge, they present an extra 100 sq. ins. to the frontal area when the D/T fuse comes into action.

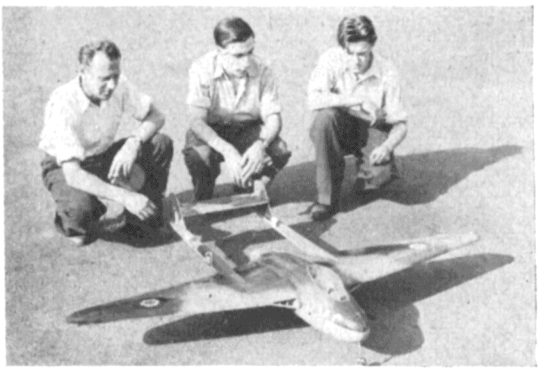
It was only after much wandering that we were able to locate the stunt circle : but there was no mistaking where Johnny Nunn was demonstrating his scale Vampire at the other end of the field. Now 2½ years old, the Vampire has been doing the rounds of Concours d'Elegance, propaganda exhibitions and the like, until at last Johnny and his Barking lads decided to use it as originally intended . . . to fly it.

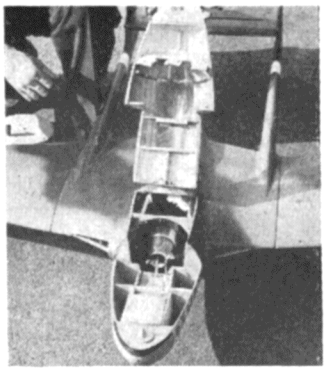
A Dynajet, a massive tank, and the backing of loads of jet experience were all that the model needed to put up the most spectacular display of the day. Timed at around 75 m.p.h., the roaring Vampire almost tempted stunting, but we think Johnny had enough to think about with what must be the toughest line-puller yet flown in public.

A shuffle in the usual names predominating at stunt contests found A. Piacentini (Salisbury) number one, with N. Butcher and R. Prentice close on his heels. Piacentini uses a fully flapped 300 sq. ins. model with Frog 500 and balloon tank.

With a 900 secs. tie for first place and proud temporary custody of the magnificent Queen's Cup, J. Howard of Kentish Nomads, and Bob Copland, chairman of Northern Heights, were asked to make a fourth deciding flight. Ironically, Bob was beaten by his own model as his rubber motor bunched, while sympathetic John Howard returned a comfortable 2 mins. 20·4 secs. to win.

Akin to the fashion created by Roy Yeabsley in sailplanes was the predominance of Tangney style helicopters following Jim's win at last year's Helicopter Trophy. But not to be





*On opposite page, bottom left : Jim Tangney (Croydon) launches his record breaking Helicopter for a 500' ascent. Centre : the twin Jetex 100 powered Helicopter by F. G. Bourne (Eastleigh) displayed perfect vertical ascent and descent. Right : Pete Cock launches his 50 m.p.h. heavyweight radio control model after a long run.*
*This page, top left : the now famous Vampire I by J. Nunn and the Barking Club. Model is 2½ years old, flies on 70 ft. lines. Next, the interior shows the Dynajet installation, massive tank and also how the jet intake is completely shielded. Without the theorists' "ram assistance" the 5 lb. model still maintains 75 m.p.h.*
*Right : a West Coventry entrant launches G. Barton's "Aristocrat" glider. Centre left : P. E. Norman's 4½ lb. Sopwith Pup flies realistically, but failed to return to base! News of its whereabouts is anxiously awaited from the Langley area. Engine is an E.D. IV. Centre right : John Howard puts on the final turns for his winning flight in the Queen's Cup. Model is similar to his Wakefield. Bottom : a "Goliath" of a model by Mr. Elliott, has a 16 c.c. Forster 99 petrol engine.*

outdone by copyists, the quiet Chicagoan, over here with the U.S. Navy and now an established competitor at all rubber contests, played a strategic game . . . and won easily. On medium turns, Jim's first flight of nearly two minutes included a natural vertical descent with some power left on the rubber, thus netting double points. Anticipating a good flight, Jim advised his timers of a possible record on his second winding—and made a terrific ascent lasting 2 min. 43·75 secs. to smash the existing record by 45 seconds. Another entry, though low in duration (approx. 30 secs. per flight), was realistic in appearance and performance with two Jetex 100 units for power.

As always at Club-organised gala days, the free-lance non-competitive fliers had a beanfeast of a day—just for the fun of it. Among them we spotted : several twin engined scale control-liners, two or three team racers, a very fast climbing Hornet 60 powered pylon job, which tried to demolish a block of flats on the Slough road, several power fliers using what they considered " expendable " motors of '48 vintage, a model that got mixed up with the Hurricane on a low-level pass, a 30-in. span Allbon Arrow powered radio model and lots of very nice, safe and conventional radio-controlled flying.

**NORTHERN HEIGHTS GALA RESULTS**

**HALTON Prize—P. Stanning.**

**AEROMODELLER Championship Cup—L. Barr, Pharos.**

**FAIREY (Rubber) Cup**

| | secs. |
|---|---|
| 1. A. G. Glennie, Streatham | 600 |
| 2. J. Tangney, Croydon | 540 |
| 3. L. Barr, Pharos | 533 |

**CORONATION (Power) Cup**

| | points |
|---|---|
| 1. A. Setchfield, Willesden | 487.2 |
| 2. R. Hill, Hillingdon | 366.6 |
| 3. P. Buskell, Surbiton | 298.4 |

**QUEEN'S Cup**

| | secs. |
|---|---|
| 1. J. A. Howard, Kentish Nomads | 1040.4 |
| 2. R. Copland, N. Heights | 1013 |
| 3. B. West, Yeovil (3 Flights) | 701 |

**FLIGHT (Glider) Cup**

| | secs. |
|---|---|
| 1. B. Gardner, Fulham | 900 |
| 2. L. Barr, Pharos | 696.75 |
| 3. P. A. Ward, Wayfarers | 691.75 |

**MODEL ENGINEER Cup (Control-line Stunt)**

| | points |
|---|---|
| 1. A. Piacentini, Salisbury | 335 |
| 2. N. J. Butcher, Croydon | 328 |
| 3. R. Prentice, Chingford | 326 |

**THURSTON (Helicopter) Trophy**

| | points |
|---|---|
| 1. J. Tangney, Croydon | 364.75 |
| 2. —. Dowsett, Brentford and Chiswick | 118.2 |

**CONCOURS D'ELEGANCE**

Section 1. (Power)—J. Newton, Blackheath.
Section 2. (General Flying Models)—N. Gregory, Harrow.
Section 3, 4. (Scale)—J. Nunn, Barking.
Special award to H. J. Towner, Eastbourne.

**Especially for the Beginner**

**PART VIII.**

# THE WALTHEW RUBBER MODEL

**By the REV. F. CALLON and ROLAND SCOTT**

**(Continued from p. 523 August issue.)**

*Top right and below:—Designer Roland Scott and his well tried prototype model show that the job has contest lines and performance and yet is simple enough to be your first model—a rare combination.*

### The Rubber Motor.

Measure off 14 feet of ¼×1/30 rubber strip, and tie the ends together in a reef knot. Then, while an assistant holds and pulls out the rubber on each side of the knot (each free end held against the main strip), bind and tie with soft thread close to the knot and on both sides of it. Put a few drops of rubber lubricant onto the motor, and work well in by rubbing between your hands. If there is too much oil, the excess may be wiped off with a soft, clean cloth. It is very important to see that no grit of any sort gets onto the rubber, or breaks will be caused.

Double the motor over itself, so that you now have two loops (or four strands). Pass the two loops of one end over any convenient hook, and those of the other end over the bobbin on the propeller shaft. Then, with the rubber drawn out evenly, and holding the nose-block in your left hand, put about 60 turns (clockwise) on the propeller. Now, without releasing the prop., remove the other end of the motor from its hook, and pass this also over the bobbin on the prop. shaft. The rubber will twist round itself and bunch up at first; pull it out evenly, allowing the prop. to turn as you do so. You now have an 8-strand "corded" motor.

(For a more detailed account of how to prepare your rubber motor, have a look at Ron Warring's excellent article on the subject, published in the March issue of the AEROMODELLER, page 155.)

Remove the motor from the bobbin, holding the strands tightly so that they do not untwist, and bind them with a small rubber band about ½ in. from the end. The other end of the motor should also be dealt with in the same way.

### Running in the motor.

The uncorded length of each strand of the motor is 21 ins., and when it is properly run in it will be capable of taking up to 560 turns without danger of breaking.

For the running in process you will need your hand drill.

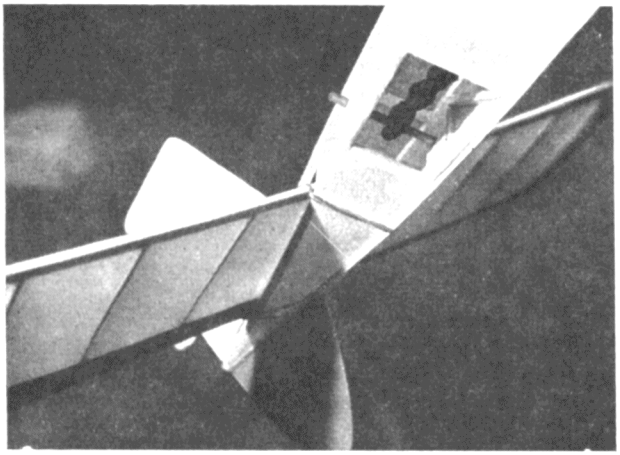
Insert a strong hook in the chuck, and make sure that it is being gripped firmly. The hook may be bent out of 14 gauge wire if a ready-made one is not available, and if it is at all rough, it should be covered with rubber valve tubing. Put one end of the rubber motor over this hook, and the other over another fixed hook, I use a coat hook on the back of a door. Pull out the motor to about four times its uncorded length—in this case about 7 feet—and put twenty turns on the prop.; add another twenty turns walking in towards the fixed hook, so that when you reach the total of 40 turns, the motor is back to its original length. Then release the winder, and allow the rubber to untwist. The 20 and 40 turns just referred to are actual turns on the rubber; since the drill is geared, the actual number of turns on the handle will be much less. Find out just how many times the chuck turns for one complete turn of the handle on your particular drill. It will probably be between three and four. If it has an awkward ratio, such as 3¾ : 1, you may find it useful to make out a little chart. All references to turns in this article refer to the actual turns of the chuck.

Carry on the running in process by putting on 30 turns with the rubber pulled out, and add another 30 as you walk in again. Then 40 out, 40 in; 50 out, 50 in, and so on until you reach the maximum of 280 out and 280 in. When you have done this, examine the strands to see if any of them are starting to split across the edges. If so, the motor will have to be uncorded, and the rubber cut right through at the split. Wash the lubricant off the last inch at the ends, tie and bind as described above. Then re-cord the motor.

### Inserting the motor.

Pass the four loops of one end over the bobbin, and slide the rubber band, with which you bound them, right up against it. Lower the motor's other end down inside the fuselage through the nose aperture. Push the rear peg through one side of the supports, and work it through the other four loops and out through the further side support. The uncovered panel at the rear will make this quite an easy job. See Fig. 5,

*Fig. 5 below:—This low angle shot of the tail unit shows the rear motor peg in place and the rubber motor passing round it. Elastic bands secure the tailplane against the centre longerons.*



Push the nose-block into position, slip the driving arm into the clutch " square ", and put on about 100 turns by hand. When the prop is released and the turns have run off, it will be found that the corded motor has taken up the slack in itself, and is now stretched evenly between the bobbin and the rear peg.

**Trimming and flying the Walthew rubber model.**

Fasten the tailplane and wing in position with rubber bands, and hand-glide the model in very calm conditions. If it stalls, move the wing further back ; if it sinks to the ground too quickly, move the wing further forward.

When a good glide has been obtained, put about 50 turns on the prop. by hand, and launch again, quite gently and level. The model should rise very slightly, level out, and glide down. Repeat the process with 100 hand turns. As the increased thrust drives the model forward and upward more quickly, the built-in right thrust should begin to take effect, and a slight right turn under power should appear, straightening out as prop. slows down. At this point set the trim-tab a little over to the *left*, and try more hand glides until a slight left glide is obtained. This is an unusual trim for rubber models, but has been found to be most successful with the WALTHEW, as the built-in right-thrust takes more and more effect as more turns are put on, and there is no danger of the torque turning the model in by the left.

**Stretch winding.**

From now on, the hand-drill, complete with wire hook should be used for winding up the motor. Pass the hook through the wire " square " in front of the prop., and while an assistant holds the model, pull out the rubber motor to four times its uncorded length and start putting on the turns. Figures 6 and 7 show the procedure. The best way to hold the model for winding is to put the thumb and first finger of the right hand against either end of the rear peg, and the first and second finger of the left hand across the aperture at the nose, one on each side of the rubber motor. The pull should be shared more or less evenly between the two hands.

For the first stretch-wound flight put enough winds on the drill to give 200 turns, half of them at full stretch and the rest walking in to the plane—just as you did when running in the motor. (If the ratio of your drill is 4 : 1, that will be 25 turns on the drill handle out, and 25 more walking in.) With this number of turns on, the model may be pointed slightly upwards when launching, as it will climb away quite quickly. If it turns too sharply to the right, more left trim must be put on the tab. The ideal to aim at is a *wide* climbing circle to the right under power, followed by a tighter left circle in the glide.

Gradually increase the number of turns, adjusting the trim tab if necessary. On 300 turns the prototype did 90 seconds in very cold non-thermal weather. As maximum turns are approached, the model should climb almost vertically to about 50 feet, level out slightly, then continue to climb more gently up to anything between 100 and 200 feet. In warm weather and with a slight breeze and a smooth motor run it will go much higher, so have your stop-watch handy, and look out for thermals !

**Faults and remedies.**

In normal conditions the model flies very smoothly. In a strong wind it tends to " waltz " from side to side somewhat, but this is not dangerous and does not affect the duration to any great extent.

There are only two real dangers to look out for, both of which will only appear when full turns are approached.

(i) The model may tend to climb too steeply when first released, the climb ending in a stall.

*Remedy :* Move the wing slightly further back. If this does not work, put some 1/16 packing under the L.E. of the tailplane.

(ii) The model turns too viciously to the right and loses height or even dives down.

*Remedy :* Put more left turn on the trim-tab.

*Fig. 6 below:—Piling on the turns before a flight. Note the assistant is holding the model by the rear peg and the sides of the nose, making sure that the rubber cannot chafe on the fuselage.*

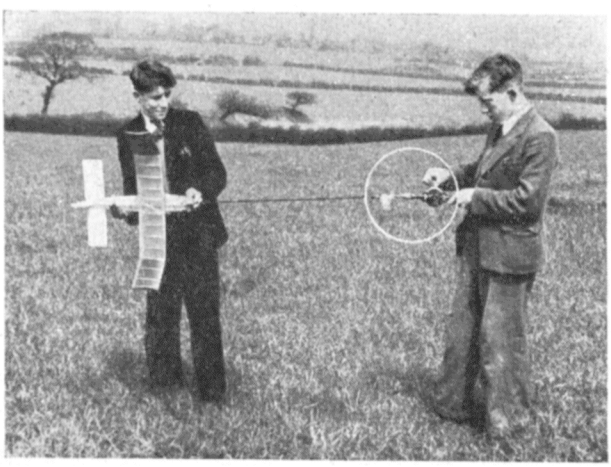
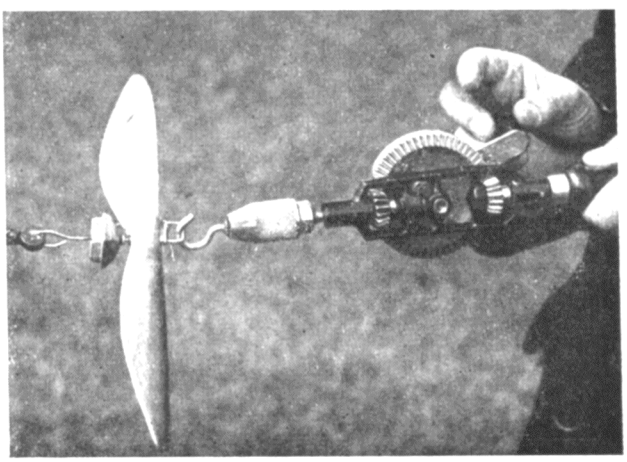
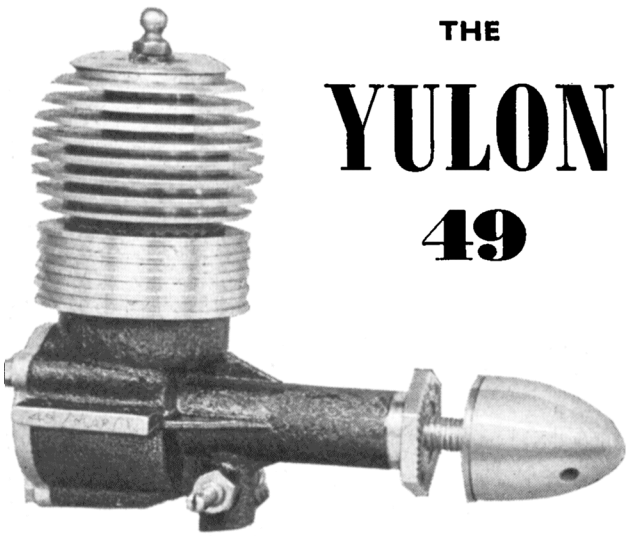


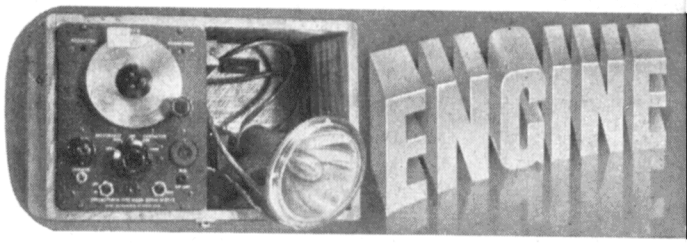
*Fig. 7 below:—Enlarged from the portion circled in the last photo, this view shows the winding system. A hook in the chuck of the hand-drill is passed through the wire "Square" on the propeller shaft.*





THE

# YULON 49




NUMBER TWENTY-EIGHT

IT is perhaps as well for the maintenance of good relationships with my neighbours that engines of the 8 to 10 c.c. class are comparatively rare. Used as they are to the unsuburban noises which emanate from my workshop-cum-lab. I fear that my popularity would show a steep decline were there a sudden influx of the larger engines on the market.

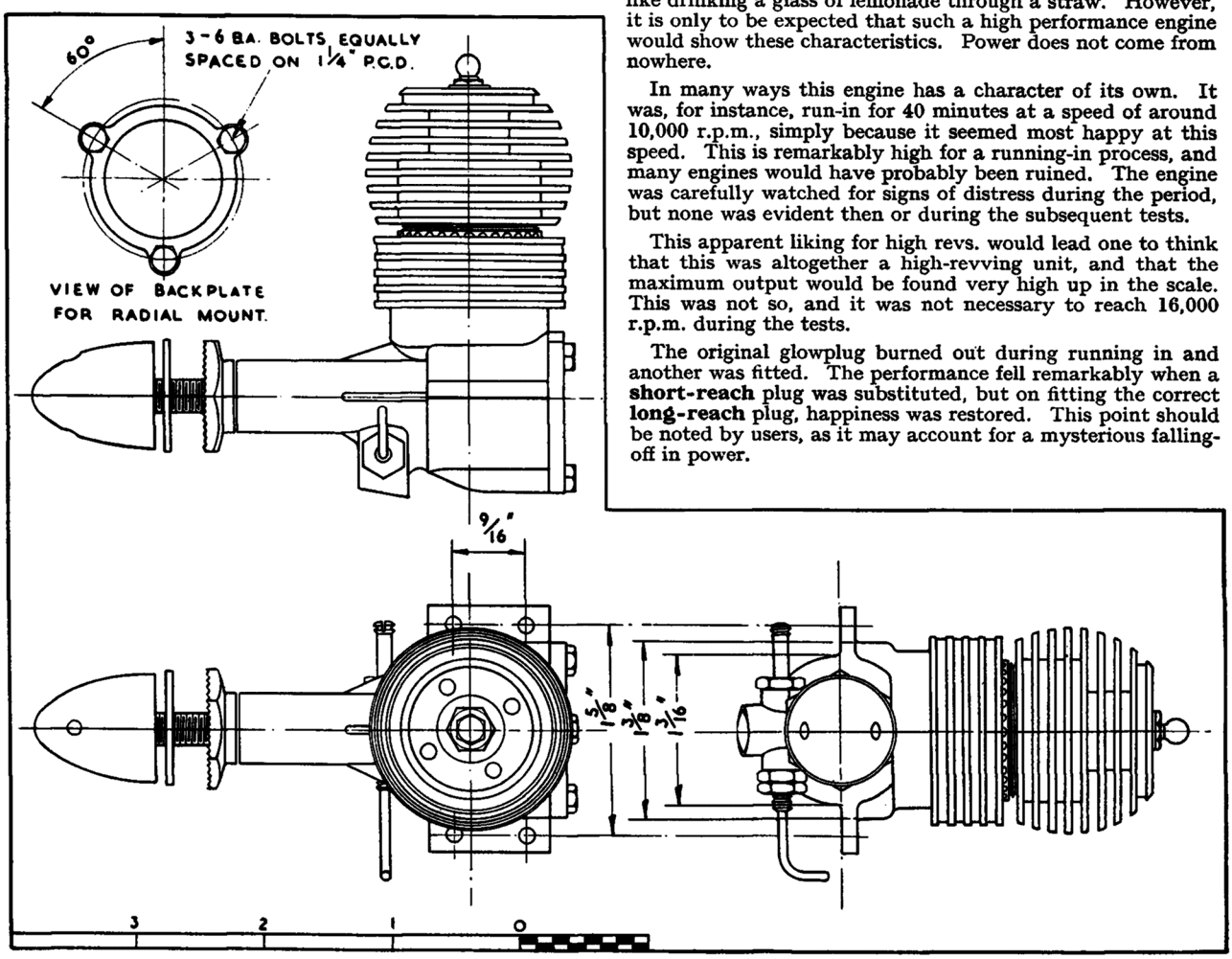
With an output of over ·800 b.h.p. at around 13,000 r.p.m. the Yulon, when in full blast, certainly sounds like it! Although my new workshop is lined throughout with soundproof material it was necessary to shut windows and door while the engine was performing—crawling into the open to breathe between runs.

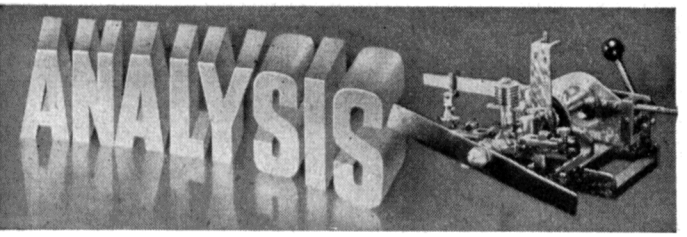
Apart from the noise and the excellent performance, the Yulon "49" is remarkable for its appetite for fuel, and one could see the level in the tank rapidly lowering—something like drinking a glass of lemonade through a straw. However, it is only to be expected that such a high performance engine would show these characteristics. Power does not come from nowhere.

In many ways this engine has a character of its own. It was, for instance, run-in for 40 minutes at a speed of around 10,000 r.p.m., simply because it seemed most happy at this speed. This is remarkably high for a running-in process, and many engines would have probably been ruined. The engine was carefully watched for signs of distress during the period, but none was evident then or during the subsequent tests.

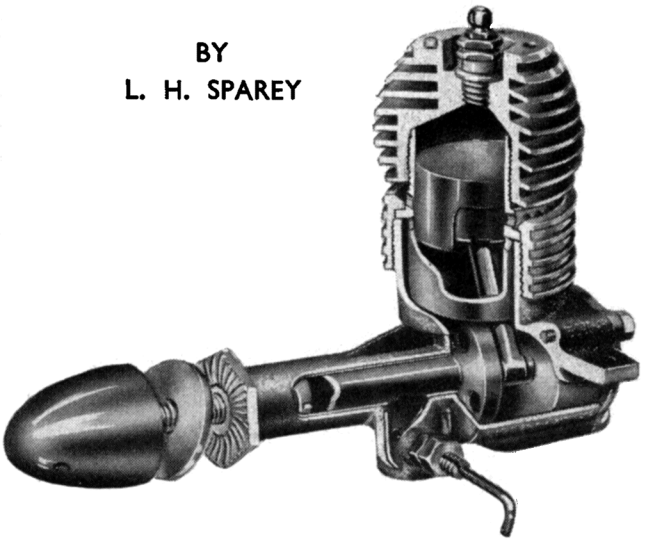
This apparent liking for high revs. would lead one to think that this was altogether a high-revving unit, and that the maximum output would be found very high up in the scale. This was not so, and it was not necessary to reach 16,000 r.p.m. during the tests.

The original glowplug burned out during running in and another was fitted. The performance fell remarkably when a **short-reach** plug was substituted, but on fitting the correct **long-reach** plug, happiness was restored. This point should be noted by users, as it may account for a mysterious falling-off in power.






BY
L. H. SPAREY



## TEST

**Engine :** Yulon " 49 " (approx. 8 c.c.) Glowplug.

**Fuel :** Mercury No. 7 Glowplug.

**Starting :** Good under all conditions.

**Running :** Good at all tested speeds, especially around region of maximum b.h.p. output. Carburettor control was excellent and responsive, due to the needle valve giving a positive fuel cut-off when tightened down, and a gradual jet opening. This gradual opening made it necessary to act quickly at times when adjusting for correct running.

**B.H.P. :** As the graph shows, a very fine performance was obtained, with a maximum of ·820 b.h.p. at 12,900 r.p.m. While the top of the curve is fairly flat—between 12,100 and 13,750 r.p.m.—a rather steep drop in output is seen on each side of these figures. Maximum output lies at a reasonable and convenient speed. The lowest figure recorded was ·320 b.h.p. at around 5,000 r.p.m. From the curve it would seem that this would also be about the figure at 16,000 r.p.m.

**Checked weight :** 6·5 ozs. (less tank).

**Power/Weight Ratio :** 2·2 b.h.p./lb.

**Remarks :** The Yulon is a typical modern, high-performance engine, with the highest power/weight ratio yet recorded in these pages. It has been pointed out before that power/weight ratio is always in the favour of large engines and the high ratios which have been recorded for some smaller, high-efficiency units would lead one to expect very high figures for large engines of the same type. In addition, particular attention has been given in the Yulon design to weight-saving, resulting in a particularly clean and business-like appearance. The black crackle-finish enamel of the crankcase contrasts pleasingly with the polished alloy parts.

In practice, the power weight ratio would be considerably lessened by the fact that a rather large fuel tank would be necessary to give a reasonable duration of flight.

**Recommended Airscrews :**
Free flight : 11×5 ins.
Control line : Stunt, 10×6 ins. or 9×8 ins.
Speed : 8×12 ins. or 9×12 ins.

**Bore :** 0·960 ins.

**Stroke :** 0·687 ins.

**Cylinder :** Meehanite, Alloy retaining ring 40 T.P.I.

**Cylinder Head :** Low expansion alloy, screwed 40 T.P.I.

**Crankcase :** Die Cast, Anodised Black crackle finish.

**Piston :** Plain Meehanite, flat top.

**Con-rod :** Light Alloy, no bushings.

**Crankshaft :** 55 ton tensile, finished with Hard Chrome deposit.

**Main Bearing :** Plain.

**Crankshaft Valve :** Rotary shaft inlet valve.

**Special features :** Duralumin crankshaft extension shaft is replaceable in the event of damage, has left hand thread. Threaded needle valve gives fine adjustment. Carburettor throat insert to improve carburretion.

## GENERAL CONSTRUCTIONAL DATA

**Name :** Yulon " 49 ".

**Manufacturers :** Yulon Engineering Co., 53, Woodland Road, Northfield, Birmingham 31.

**Retail Price :** 99/6d.

**Type :** Glowplug.

**Delivery :** Ex-stock.

**Spares :** Full spares and repair service at works.

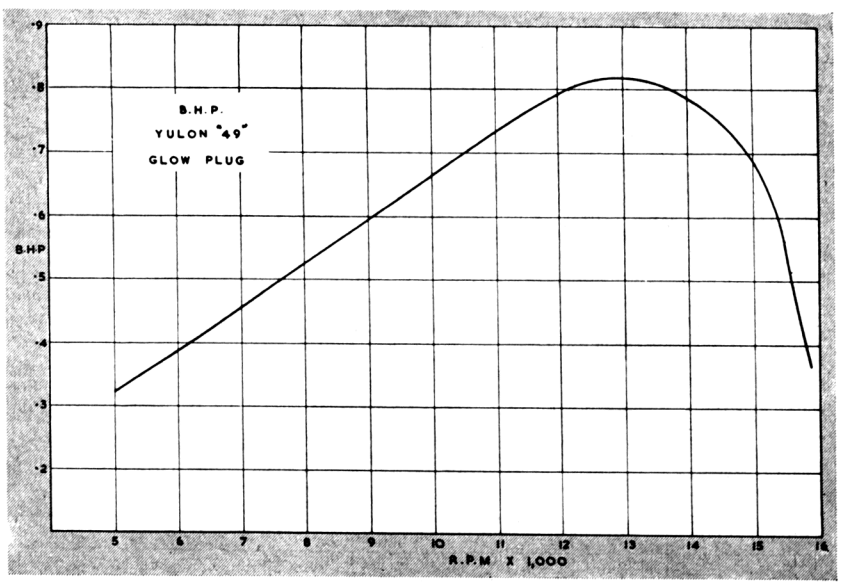
**Specified Fuel :** 37½% Dry Methanol, 37½% Nitro Methane, 25% Castor oil. Mercury No. 7 or Record Powerplus.

**Capacity :** 8·2 c.c., ·49 cu. ins.

**Weight (bare) :** 6¼ ozs.

**Compression ratio :** 8 : 1.

**Mounting :** Beam or Radial.



# It's DESIGNED for YOU!

NUMBER FIVE

## CONTROL LINE STUNT MODELS

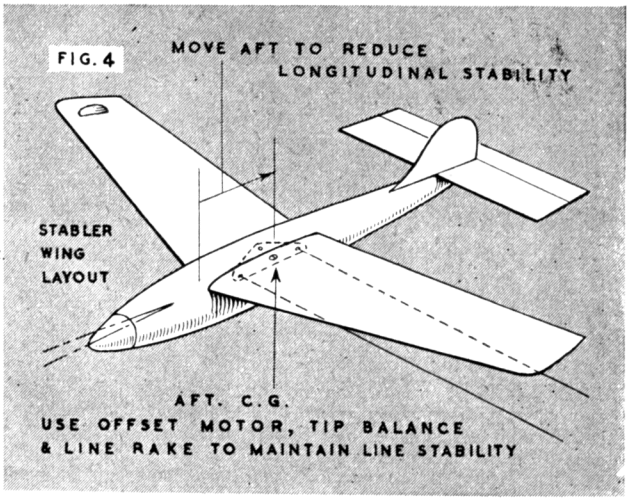
PART TWO

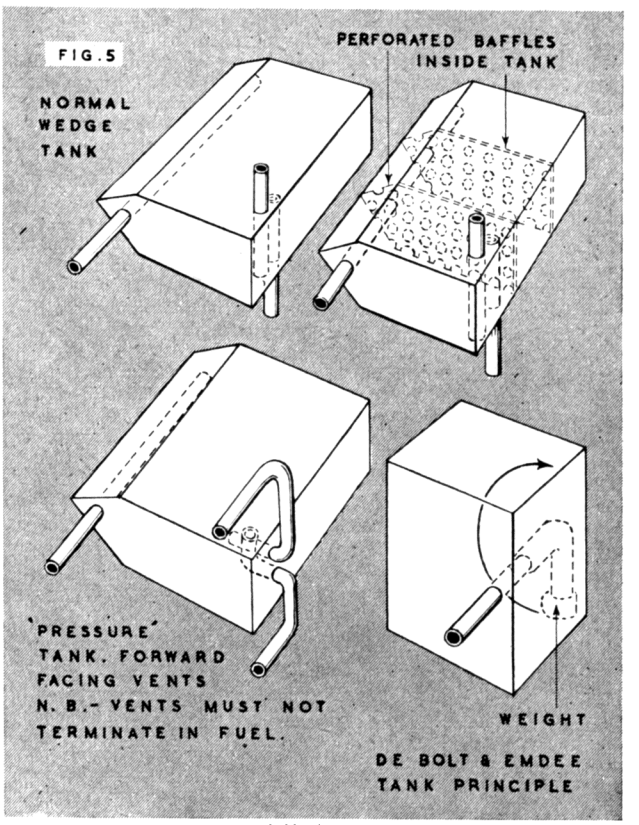
DESIGNS of this type generally employ a moment arm of about one and a half wing chords, or slightly less, and can be made particularly smooth in response to control handle movement, since no more than about 30 degrees elevator movement should be necessary and, consequently, a large control plate and long elevator control horn can be used. Usually, and particularly in the smaller sizes, they generate only a moderate pull on the lines, but provided the motor used is powerful enough for the job, they seldom get into trouble.

The same remarks regarding C.G. position apply also to the short-coupled designs, although undoubtedly this arrangement, generally using a 50 per cent elevator area and generous movement (45 degrees up and down), is easier to displace and consequently makes it easier for the less experienced pilot to fly out a fairly advanced flight pattern. The less experienced in stunt work the pilot is, the more he would be advised to tackle a short-coupled stunter if he is after quick results. He will probably have to pay for manœuvrability either in a certain tendency to mush at the bottom of sharp radius manœuvres, which is still present to a certain degree on many of the best short-coupled stunters, or fuel feed troubles induced by the violence of the manœuvres.

The latter has become particularly noticeable with the increasing use of glow plug motors for stunt work, especially in the larger sizes. Violent manœuvres often momentarily upset the fuel feed, causing the motor to starve or run rich. It is difficult to generalise on this particular subject, since the individual characteristics of different glow motors can vary so considerably, and even motors of the same make behave differently in different models with, to all intents and purposes, similar tank systems. But for best results with glow motors it pays to give particular attention to tank design and layout.

A tank with a swivelling feed pipe, such as the De Bolt or EmDee type—Fig. 5—has proved satisfactory in many cases, but troubles do not appear to be so much a case of the fuel being thrown away from the feed pipe as of the fuel being aerated within the tank. Tanks with baffles have been used in America for some considerable time with glow motors, but the modern tendency is to use *pressure tanks*, either of the form where pressure is induced via two forward facing vents as in the Mercury tank, or a collapsible tank sandwiched between two plates. The simplest form of pressure tank is, of course, the balloon tank, introduced in the early days of control line flying, and still regarded as very efficient. Other systems which have been tried is the fitting of a compensator between the tank and the motor, the latest of these being again of Jim Walker




* Hardwood

**TABLE II. STRUCTURAL DESIGN**

| SIZE (Wing Area) | WINGS | | | | | FUSELAGE | | | | TAIL-PLANE | UNDERCARRIAGE | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type | L.E. | Spars | T.E. | Covering | Type | Sides | Fairings | Motor Mount | | Legs | Wheel dia |
| 125 | Sparless | $\frac{3}{16}$ sq. | — | 1 × $\frac{1}{4}$ | Tissue | Box | $\frac{1}{8}$ sq. | — | Ply | $\frac{3}{32}$ Balsa | — | — |
| 180 | Monospar | $\frac{1}{4}$ sq. | $\frac{1}{2}$ × $\frac{1}{4}$ | 1 × $\frac{1}{4}$ | Tissue | Faired Box | $\frac{3}{16}$ sq. | $\frac{1}{2}$ × $\frac{1}{16}$ | $\frac{3}{8}$ sq.* | $\frac{1}{8}$ ,, | 18 swg | 2 |
| 300 | Monospar | $\frac{3}{16}$ sq. | $\frac{3}{4}$ × $\frac{1}{4}$ | 1 × $\frac{1}{16}$ 'V' | Modelspan | ,, | $\frac{1}{8}$ Sheet | Block | $\frac{1}{2}$ × $\frac{3}{16}$* | $\frac{1}{8}$ ,, | 12 swg | $2\frac{1}{2}$ |
| 360 | Two-spar | $\frac{3}{8}$ sq. | $\frac{3}{8}$ × $\frac{1}{4}$ & $\frac{5}{8}$ × $\frac{1}{4}$ | $1\frac{1}{4}$ × $\frac{1}{16}$ 'V' | Modelspan | ,, | ,, | ,, | $\frac{1}{2}$ × $\frac{1}{4}$* | $\frac{3}{16}$ ,, | $\frac{3}{32}$ | $2\frac{3}{4}$ |
| 400 | ,, | $\frac{3}{8}$ sq. | $\frac{7}{8}$ × $\frac{1}{4}$ & $\frac{3}{4}$ × $\frac{1}{4}$ | $1\frac{1}{4}$ × $\frac{1}{16}$ 'V' | Modelspan | ,, | ,, | ,, | $\frac{5}{8}$ × $\frac{3}{8}$* | $\frac{1}{4}$ ,, | $\frac{3}{32}$ | 3 |
| 600 | ,, | $\frac{1}{2}$ sq. | 1 & $\frac{3}{4}$ × $\frac{1}{4}$ | $1\frac{1}{2}$ × $\frac{1}{16}$ 'V' | Sheet L.E. | ,, | $\frac{3}{16}$ Sheet | $\frac{1}{4}$ × $\frac{1}{8}$ | $\frac{3}{4}$ × $\frac{1}{2}$* | $\frac{3}{8}$ ,, | $\frac{1}{8}$ | 3-$3\frac{1}{2}$ |

origin and employing an ingenious ball-type spring-controlled valve for constant fuel feed from a pressure tank. Normally trick devices of this nature should not be necessary. A simple pressure tank coupled direct to the glow motor should provide the type of fuel feed required.

Regarding the design layout of the stunt model itself, the heading drawing to Part 1 again summarises the salient features. The type illustrated is based on a moderate moment arm which should give ample manœuvrability with the correct power available.

Correct size of model is rather important. It is generally better to err on the side of making the model too large (in wing area) rather than too small. It is then generally possible to get good manœuvrability without thrust power becoming critical, i.e. the model will generally be stuntable on a range of propellers instead of on one particular diameter and pitch matched to the motor. The smaller the size of the motor, the larger the wing area required, in proportion.

For the smaller sizes, about 100 to 125 sq. inches of wing area is required per c.c. of motor capacity. Thus a Mills-powered stunt model would have an area of about 125 to 150 sq. ins. Use of fairly generous wing area should enable the wing loading to be kept to a low figure, about 6 ounces per 100 sq. ins. wing area being the figure to aim at.

Roughly the same wing area and loading figures can be maintained up to 3.5 c.c. motor capacity (the Roadway Models Skylark typifies the 1·3 c.c. – 3·5 c.c. airframe). Exceptionally large wings present increasingly difficult structural problems to preserve the same degree of robustness, and for a 5 c.c. motor a wing area of 400 sq. ins. can be considered quite adequate. Smaller areas can be used—50 sq. in. per c.c. being about the minimum for motors of from 5 to 10 c.c. 80 sq. ins. per c.c. represents about the top limit for 5 c.c., decreasing to 60 sq. ins. for 10 c.c.

As far as possible, power loading should remain roughly the same throughout. The best figure appears to be between 4·5 and 5 ounces per c.c. 6 ounces per c.c. is about the top limit, but it is easier to get away with this higher loading in the smaller sizes of model than in the larger sizes.

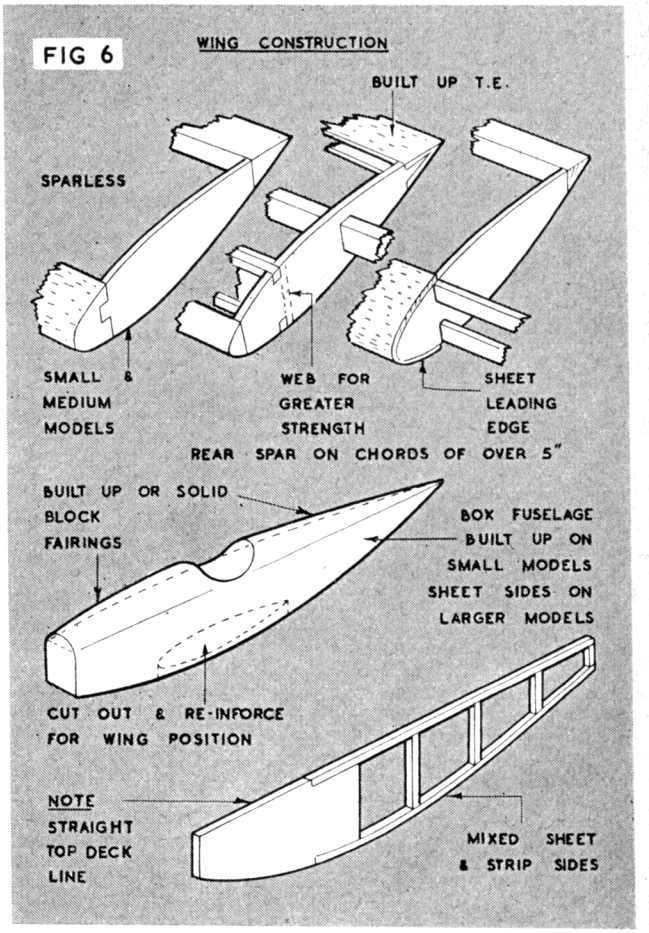
From these generalisations, then, it is possible to draw up a rough specification for a design to suit any size of motor. Designing for a 5 c.c. motor, for example, total weight of the model should not be more than 22·5 to 25 ounces. Subtracting the weight of motor from this gives the amount of weight available for the airframe unit complete. Wing area should be at least $5 \times 50 = 250$ sq. ins., up to $5 \times 80 = 400$ sq. ins. Corresponding calculated weights for these two limits of areas based on a loading of 5 ounces per 100 sq. ins. are :—12½ ounces and 20 ounces.

It will be difficult, or even impossible, to build down to the lower limit of area and weight and so the upper figure would appear to fit the bill well—400 sq. ins. area at a required weight of 20 ounces. The Musketeer is an ideal medium example.

Shapes and other sizes are not particularly critical. Certain generalisations hold true, such as the use of a symmetrical aerofoil section for the wings and a thin, flat-plate aerofoil for the tailplane and elevators. Since the drag of an aerofoil increases only slightly with increasing aerofoil thickness up to a thickness of 15 per cent of the chord, and the thicker symmetrical section has definite aerodynamic and structural advantages, thin wing sections should be avoided. A 15 per cent thick symmetrical section, in fact, is generally accepted as about the best for stunt work, and sometimes an even thicker section such as NACA 0018 (18 per cent thick) is used.

For the wing planform a purely rectangular shape is quite adequate with blunt, raked or rounded tips. The latter are best constructed of sheet. Since the model will normally be operating at quite low angles of attack a blunt tip shape will not be inefficient, nor will appearance suffer greatly. There is little point in adding to the structural problem by using nicely shaped elliptic tips, and probably increasing the possibility of damage, unless appearance is considered one of the main features of the design.

Where appearance is part, at least, of the aim, there is no reason why moderately tapered wings should not be used. This can be confined to the leading or trailing edge only, or both edges tapered. Trailing edge taper only, e.g., the Monitor, is considered the best aerodynamically.




The fuselage is a purely functional unit in that it holds and locates the wings and tail unit in their correct positions, houses the control link-up and carries the power unit. A low or mid-wing layout is generally accepted as best practice, with the tailplane then mounted on the top line of the fuselage, slightly above the wing position. Tailplane position does not appear to be at all critical.

Side-mounting of the motor is used in most commercial designs. Stunt flying calls for inverted flying, and if the motor cuts in the inverted position the only solution is to land the model in the inverted position, a side-mounted motor will be far less liable to damage than an upright or inverted motor.

Most designers, however, prefer to mount their motors with the cylinder pointing outwards, i.e. away from the centre of the flight circle, independent of whether the motor itself originally runs best in the upright or inverted position. Theoretically, at least, a motor which runs best in the upright position, i.e. is normally designed for upright running, should be mounted with the cylinder pointing *inwards* towards the centre of the flight circle. A motor recommended for inverted running should point outwards when side-mounted. Centrifugal force then replaces gravity under flight conditions.

Some form of stunt tank is absolutely essential. For most models the normal wedge-type tank is adequate, but glow motors may need special attention, as noted previously. The whole success—and life—of a stunt model may depend upon having an efficient tank hook up, so it pays to experiment here for best results, if necessary. Never be satisfied with a tank type or location which gives occasional good results.

(*continued on page* 593

# RADIO CONTROL NOTES

By H. Boys

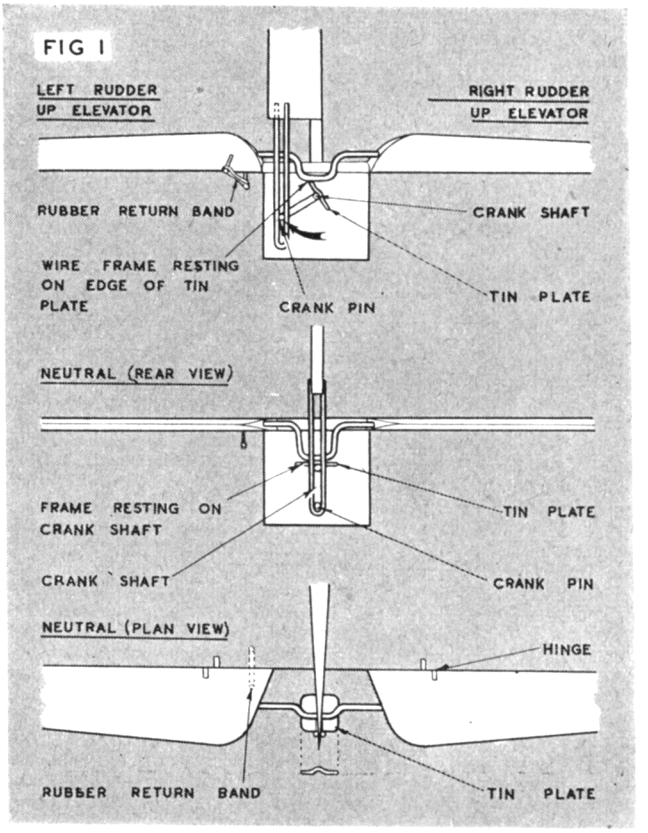
THERE has been quite an amount of correspondence this month, two people having written in within a few days about using elevator control in conjunction with the rudder to prevent loss of height in the turn. Here is the first letter from Mr. R. Miles :—

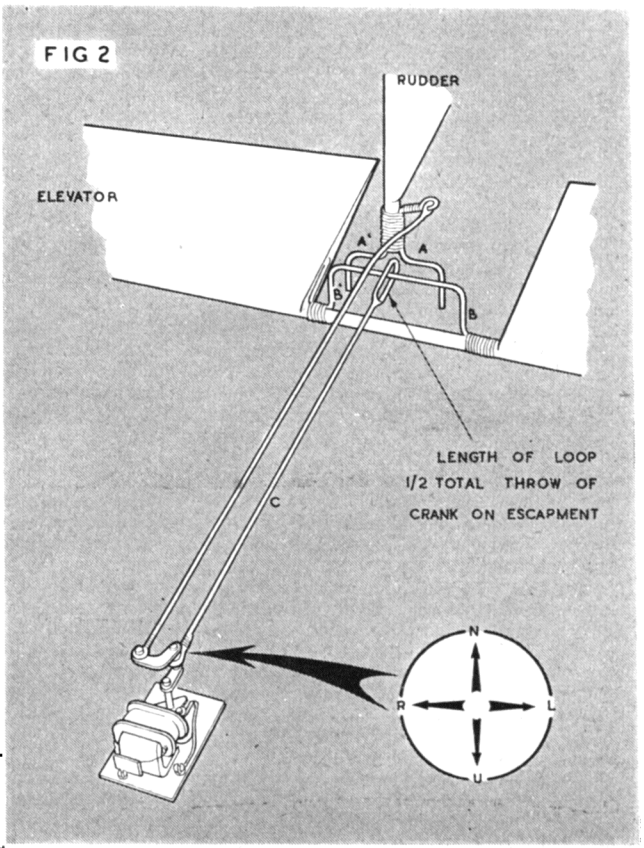
*" I started radio control flying not long ago and I have a gadget you may be interested in. I have witnessed a lot of R/C flying at Fairlop and also the inevitable spin to disaster out of control due to someone jamming or some mechanical failure which is quite a common occurrence. Well, as far as I know there has not been any safe control other than the self neutralising escapement offered to R/C aeromods, which even then is not a very good proposition due to the high battery drain. So, with my system, safe control can be relied upon providing the model is in reasonable trim. It gives up elevator with right or left turn, which means one can have a tight turn without the nose dropping, and the elevator returns to neutral with the rudder. Of course, the model will need initial trimming to get the right compromise of elevator and rudder, and once trimmed you can forget it. There are many advantages with this control, one can give a last minute signal on landing without the risk of pitching in, say for spot landings, etc. If, due to some radio trouble or what have you, the model goes out of control or someone jams your transmitter, there is no need to worry if your last signal was for a turn. Instead of spinning in, or flying O.O.S. the model will just keep flying round in tight circles until the motor cuts, so it should be pretty local when landing. Well, so much for its capabilities. Here is a brief description. It is very simple, and from personal experience I can assure you that the extra load on the rubber driven escapement is hardly noticeable. A small tin plate is soldered to the crankshaft as the drawing shows, the width of this controls the amount of up elevator, so it should be a little on the generous side, then it can be filed down whilst trimming, and if need be, you can have more up elevator with torque than you have against torque. A wire frame of 18 swg connected to the elevator rides on the tin plate and it goes up and down to neutral as the shaft rotates. There is a light rubber band (return band) stretched across the stabiliser to the elevator (see Fig. 1) which should just have enough tension to return the elevator to neutral, so as to ensure smooth operation and very little load. The drawing shown is self explanatory more or less. I hope you will find this idea worthy of publication as it will, I am sure, encourage beginners in R/C flying, and I can assure you that it is quite effective.*

This scheme has been used before, and it does work. The only thing against it seems to be that you cannot lose height when you want to. In the early stages you do not often want to lose height anyway, so it can be recommended for beginners.

The next letter describes a scheme which, while it does not seem to have been tried out, looks quite practical. Here we have four positions, neutral, left, up and right, and any predetermined amount of up elevator can be added to the rudder control. Here then is the scheme described by Mr. B. J. Alcock.

*Heading photo shows Steve Fairbrass, designer of E.C.C. Radio Control equipment, checking current change on one of his Thyratron receivers. Model is Sid Allen's Rudderbug, powered by his converted ignition Frog 500.*



**Combined Rudder and Elevator control to prevent spiral dives resulting from large application of rudder.**

*" When rudder is applied, one of the arms (A) or (A'), Fig. 2, (depending upon which direction of rudder is used) moves the bar (BB') which is attached to the elevators and applies up elevator. The more rudder is applied the more up elevator is simultaneously produced. thus enabling horizontal turns over a reasonably large range of bank without resulting in a spiral dive.*

*Provision has been made, if required, for an up elevator control independent of the rudder by the push rod C which, owing to the loop at its end only pulls the elevator bar BB' when in one position. The system is shown in the neutral position, the next steps being right rudder, Neutral rudder and up elevator, left rudder. Up elevator also being applied to a degree in both left and right rudder ".*

The next letter is from Mr. Dews, :—

*" With reference to your article on Radio Control Notes* (AEROMODELLER, *May*, 1950), *I should like to point out a fault—minor perhaps—but definitely misleading, no discredit is meant to you but I should like to see the correct words used to avoid misunderstandings.*

*Incorrect phrase reads :—" The resistance of an inductance is called impedance ". Actually resistance is the power consuming component of impedance.*

*" P.S. The word ' Resistance ' is used very often by people who do not know any better, but it is not always their fault ! "*

Thank you, Mr. Dews. The writer is just as interested in the correction of any mistake of his own, as in others. Actually it is a bit difficult to explain in a simple manner what was meant. Impedance is complex, but it has much the same effect in a circuit with an oscillating current, as resistance has in a circuit with a direct current.

Now here is another letter which sounds a bit harsh, but is written with the intention of giving people the right ideas on radio.

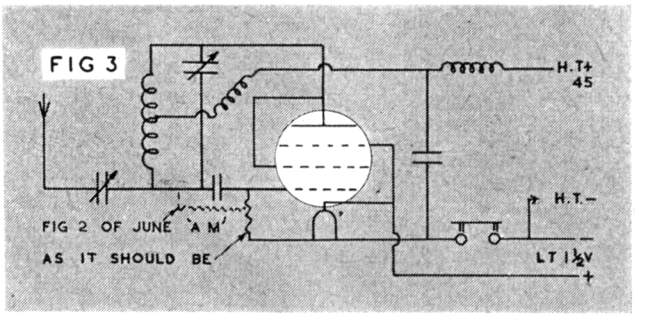
*" I refer to the June issue of the* AEROMODELLER *in which Howard Boys describes a transmitter and receiver for control. I do not infer that the model does not work, but I do refer to the misleading conceptions engendered by lack of thought. In Fig. 2, June* AEROMODELLER, *the 1.8 M grid-leak is shown joined across the blocking condenser. The circuit is of the well known Hartley type used in master oscillators and ' straight ' transmitter in which anode current flows through the oscillating circuit as well as the valve. Tracing it we find in Fig. 2 (June A.M.) that we get a complete circuit through the R.F.C. to the mid-point on the coil where it divides one part to the anode and the other, via the grid leak, TO THE GRID. I estimate there must be about 10 volts+ on the grid. Even the dumbest of amateurs would look askance at that, for the function of the leak is to allow electrons to leak away to the filament. Furthermore, how can the received impulses (of the order of micro-volts) affect the rush of electrons attracted by the high voltage already there ? Surely the grid-leak should be joined between grid and filament and not across the condenser ? See Fig. 3.*

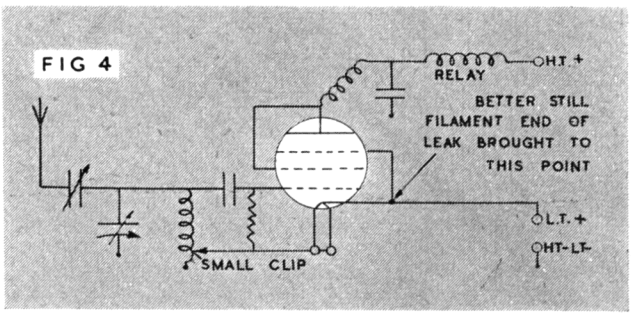
*Furthermore, the Hartley is a violent oscillator—due to the dividing of the circuit it will oscillate under the most starved conditions. When a valve circuit oscillates it takes the minimum current. How does the received voltage make this less ? Radio practice is to have the valve in a circuit where reaction can be fed back until it is just not oscillating and the received signal makes it oscillate or, if the receiver is allowed to oscillate, the signal is modulated by another frequency (super-regeneration) and the relay is tuned to this. The trouble with the pure Hartley is that, once it starts to oscillate, it is very reluctant to stop and usually will not stop on cessation of the signal voltages.*

*The best way to arrange a Hartley for receiving conditions is as in Fig. 4.*

*The coil should be of a wire containing a fair amount of resistance—or external resistance may be added. This flattens the response curve and so allows for " drift ". The whole is mounted on a thin aluminium base which acts as a lead connecting moving vanes of tuning condenser, bottom end of coil, bottom end of smoothing condenser and H.T. and L.T. – terminal.*

*Operation. Move tapping to centre of coil. Insert high resistance ear-piece across relay. Switch on transmitter and tune to dead-space. Now move clip towards " earth " end of coil until " mush " in ear-piece stops. Go back one turn (or less) until receiver starts to oscillate again. Insert milliameter and note reading. Stop transmitter and note if current rises. If so, see if transmitter responds to " on, off " of transmitter. Take transmitter to some distance. Try again, retuning and adjusting as necessary. Remove ear-piece and try again. Receiver should be unaffected by removal of ammeter if away from tuned circuit (under the base) and relay can be observed operating as transmitter comes on or off. Tuning should be done with a long handle of insulation.*




*For the serious experimenter, however, I recommend circuits of more stability and using tuned relays—a model can then be made to carry out all the stunts of the real thing—making perfect landings. This is easily done by miniture valves and " deaf aid " or " personal receiver " components. By all means use the Hartley circuit for the transmitter.* NEUTRON."

The position of the grid leak as shown by " Neutron " is usual for ordinary receivers of the " leaky grid " type as used for broadcast reception. For super-regenerative receivers, however, it is quite usual to return the grid leak to H.T., sometimes direct. There is no harm in trying the grid leak in the position shown by "Neutron ", even in a super-regenerative receiver. In fact one reader is getting better results this way using a 10 megohm grid leak and the Hivac XFG1 valve in a circuit that is otherwise similar to the one described by Henry Nicholls in the May AEROMODELLER.

Unfortunately, in his last paragraph " Neutron " engenders a misleading conception by saying it is " easily done ". The tuned relays he refers to, is no doubt the system used in tuned reeds, which because of its apparent simplicity has attracted experimenters for many years. Reports indicate that someone is at last achieving some results with this system. The principle is that a reed can be tuned to vibrate at a particular frequency. A mouth organ is full of such reeds, each with its own frequency giving a particular note. A reed tuned to a particular frequency can be used as the armature in an electro magnet system. and if the coil is fed with an intermittent or alternating current of the same frequency, the reed will vibrate. If a different frequency current is used, the reed may vibrate a little but nothing like as strongly. If two or more of these reeds and magnet systems are used in the output circuit of a suitable receiver, with the reeds tuned to different frequencies, and the transmitter fed with the same frequencies, the reeds will vibrate accordingly. The vibrating reed can be made to close a contact, and each separate frequency can be used to operate a different control.


# Frank Zaic MAKES A CLASSICAL EXPERIMENT

I WAS pretty happy in my ignorance; I knew how to make gliders work, and I had a Wakefield that practically ate out of my hand. This, I figured, takes care of gliders and rubber jobs . . . now to gas models. Well, it was like hitting the supersonic wall!

I made one job for ·29 power; used tremendous rudder to make sure I got 45 degree angle of climb. No twisting and spiralling for me! No pylons to confuse the issue; all forces concentrated around the C.G., which was 30 per cent. from the leading edge. Had planned to use gradual speed-up in power, but I lacked the touch to make the motor purr, so that by the time I got the motor going I was like any other kid—just threw the thing up and see what happened. Sure enough, it climbed straight up and over into some of the nicest, geometrically perfect loops you ever did see! Tried many things to see what had to be done to eliminate the looping, but the loops were either big or they were small!

One of the first things I did after returning from Europe was to get back to the gas model problem. The boys had a "hot" ·045 Cub, and I "designed" a ship around it. My brother Johnny and Frank Ehling were playing around with high thrust Jetex models that climbed the way I wanted the gas jobs to do; something like the "Grumman Bearcat" when it is in a hurry to get up. So the motor was set at high zero thrust to base line, high up over the wing, so that its force would be through the wing centre of lift and drag. I laid out an airfoil that would be best at 5 degrees plus and set the wing at this angle. Used 20 per cent. streamlined stabiliser to keep the wing in the groove, or no load on the stabiliser to follow full scale practice of having C.G. at about 25 per cent. spot on the wing. (Fig. 1).

The model had a smooth flight without any corrections. When time came for power flight I figured that with such a high thrust line I would see a nice power dive out of my hands, or at least a fast shallow flight across the field, as I had no turn adjustments.

Launched the ship. It is a good job I have fast reactions, otherwise I would have been conked in the back of my head! Soon as I let the model go it went into a loop, and kept looping till the fuel was exhausted, when it swung into a nice right handed glide. (Remember, it was not supposed to have done this.)

Maybe I had too much incidence on the wing! Took some out to get the wing to more normal 3 degrees difference between wing and tail. Still the model would do nothing but loop and loop. By now I was determined to eliminate looping at all costs; however the next flight washed out the motor so I had to quit.

Overnight the model was repaired and the motor mounted on a cabane in front of the fuselage as shown (Fig. 2) I didn't even bother to find out how it glided when I took it out next day—just power flight. Model looped as usual! I was prepared for this, and looped a couple of inches of soldering wire around the pod . . . I was determined to keep adding weight until the loop was cured. Had about six looping flights and brick-like glides before something gave way, and I had to pack up and go home.

Checked the model. I had 3 degrees incidence in the wing, thrust line zero setting and about 1 inch above the C.G., stabilizer zero, total weight (including ballast) 7½ oz. for 150 square inch wing. But what made me sleepless for the next few nights was the fact that the C.G. was ½ inch IN FRONT of the leading edge!! (Fig. 2). Can you figure why something like this should loop, when everything pointed to a disintegrating power dive?

That night I set up a new force arrangement. Figured that the model flew at high angles so that the thrust line had an upward component. So I raised the wing to 5 degrees plus and the stabiliser to 2 degrees. This should put the thrust line in the flight path and all my troubles would be solved. I was already dreaming about the 45 degree climbs. Came the next day. Yep—just about the prettiest loops you ever did see! Messed around again till something gave way.

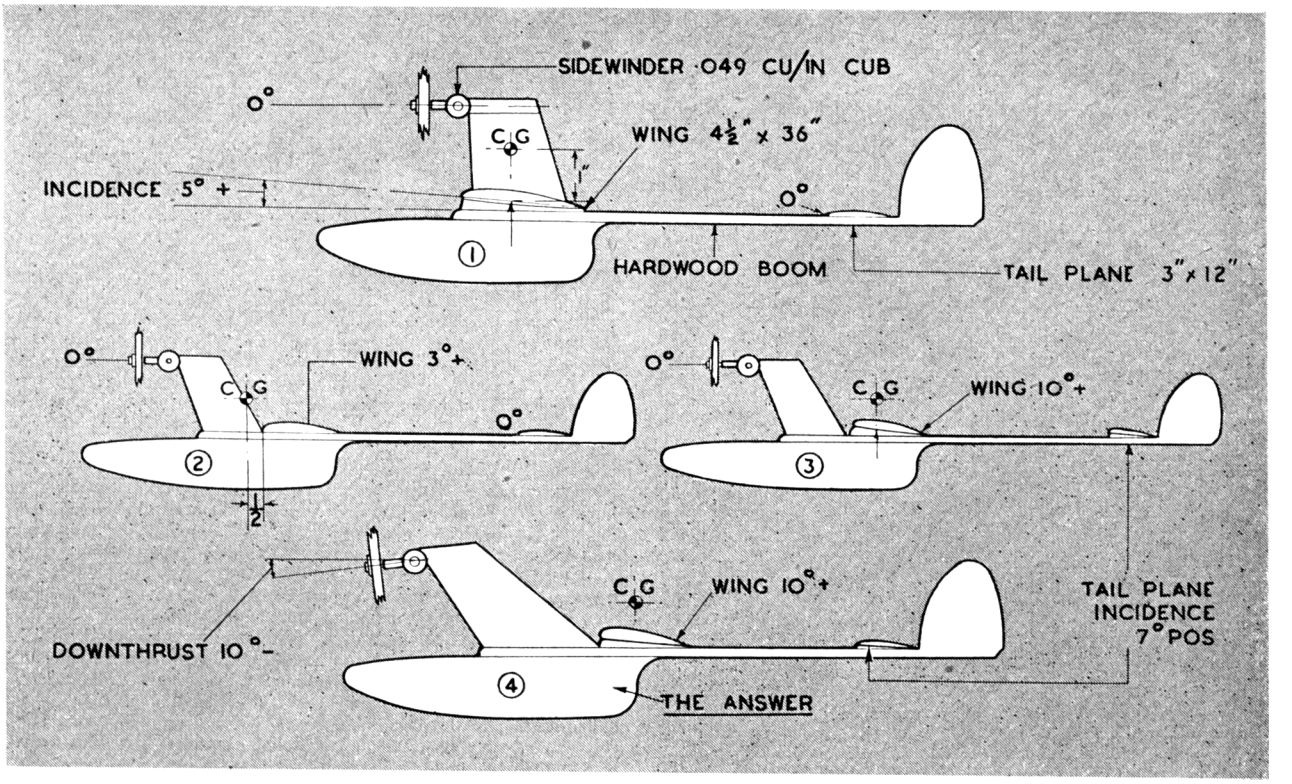
What next? Well, set the wing up to 10 degrees and stabiliser to 7 degrees. (Fig. 3) to make sure that the thrust line had no chance to get anywhere beyond the flight path. It was a sort of built-in down thrust with vengeance! The test flight? It was getting monotonous. Glide was very nice, the loops still had that clean and trim look. After power ran out, the model would go into a very nice right glide. Tried cutting down rudder area, but it made no difference. The design simply had a mind of its own. How did I feel? What do you think!

It was time to start doodling with forces and resultants, and I wrote to my friend Hewitt Phillips at the N.A.C.A. Laboratories. The diagrams were simple as long as I had lift equal to weight. I kept thrust force same as weight—figured that if the model was able to loop it must have had enough pull to lift the model. Then came the idea that lift must be greater since the model flew faster under power than on the glide. There was nothing to change the glide or high angle setting when flying at high speed.

Using greater lift than weight I got an upward resultant. Maybe this was the baby that was causing me so much trouble! In the meanwhile I was remembering hearing how Rombo used a tremendous difference between wing and thrust line. I also saw a Joosten design in Belgium which had at least 20 degrees downthrust. And Hal Roth wrote how some on the Coast used a timer to control the stabiliser setting whilst under power. Let's see what 20 degrees downthrust would do on my design. It just about cleared the upward resultant! Since I already had 10 degrees in the wing, I only had to change the thrust line 10 degrees that night. (Fig. 4) It was midnight, so I couldn't go out then and try the new set-up.

The next day was mean looking, and by the time I was half way to the flying spot it was drizzling, but I was too tensed up to let a little thing like that spoil my fun. Besides, the model was practically waterproofed with having so much fuel spattered all over it! Glided the model, and it had a smooth glide. Nothing to lose, so I launched the model. Sure enough, it drove into the ground! I was a bit disappointed—it shouldn't have given up so easily. Looked like I took all the flight (fight!) out of it by now.

Then I noticed I had launched it down wind!! You do these things even after twenty years of telling others not to do so! The next launch was into wind. It did not have that usual eagerness to get out of my hands, but it did climb into a left circle, and kept it up without any tendency to straighten out and go looping. With power out it swung into a right circle.




I had many flights after, and the flight characteristics were similar. At times it would get into a straight up climb, but never looped; when it reached its peak, it would swing over to the left.

The situation was now reversed. I tried to make it loop by setting rudder for straight flights, but nothing of the sort happened. Started to cut down rudder area so that it would not circle to the left, but there must have been something built in by now with all the repairs, for it just would not change. Finally I took the entire rudder off, which naturally made the model barrel roll to the right. The extreme downthrust did slow it down some, but its behaviour was smoother, although I did not achieve a straight 45 degrees flight.

A few days later I received a letter from Hewitt. He mentioned many things that could cause looping, and that the problem is not as simple as we model builders try to make out. However, of immediate interest was his statement that lift should be low under high power! He mentioned several corrective factors, one being to provide a down nose force. So, it looks like we are on the right lines.

Just how does the high power and high lift produce loops? Well, first of all we adjust models for slow glide, which means high lift. No matter what we do, if we leave the C.G. and wing-tail layout alone, the result under high speed will be the development of an excessive amount of lift. This will produce an upward resultant as you can see from the heading diagram. This resultant will tend to pull the model along its new force line. Draw a couple of lines parallel to it to represent the new airflow. You can see that the wind and tail combination will tend to " face " this new airflow. However, this new airflow is never of the magnitude or from the direction as shown. As soon as the model is launched the lift builds up, and with it the upward resultant. While still in formation stage, the resultant will try to change the airflow; the stabiliser will follow its natural function, and nose the model upwards. Since speed remains constant, and wing and tail remain at their fixed relationship, the airflow will constantly change due to the lift resultant. The result is a perfect loop, just as though someone was pulling back on the stick.

Now that we " know " what makes models loop-happy, we can have a lot of fun working out ways and means for correcting the situation. At present many use spiral climb—this being nothing more than a loop in a more horizontal plane. If you are lucky you'll get a helical " loop ". An adjustable stabiliser to positive under power is one answer. Downthrust will always work, if you don't mind losing the power. Or we can make models to fit the power—meaning a big model for a small engine. Take your choice!

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**(Continued from page 589).**

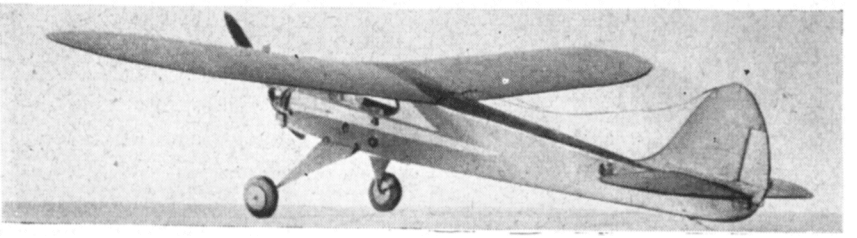
Raising or lowering the tank, or shifting it sideways relative to the centre line of the fuselage, may make all the difference between good and bad running. Shifting the tank away from the centre of the circle is a cure for a motor which tends to richen up in flight; shifting the tank in towards the centre of the circle is a cure for a motor which leans out in flight, unless the fuel feed trouble is due to some other cause, e.g. aeration of the fuel.

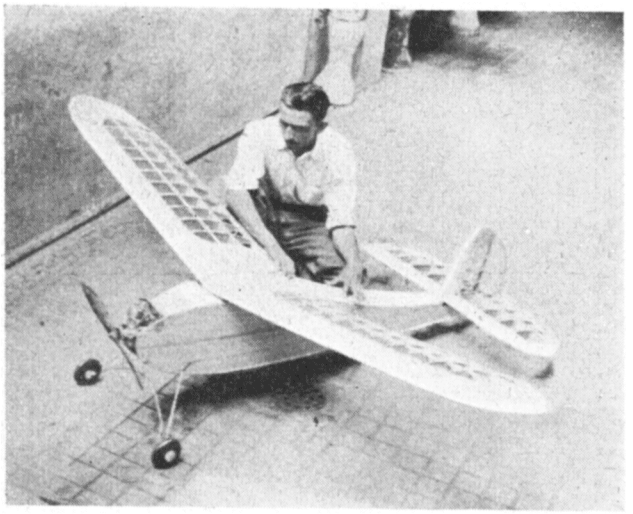
Structural details recommended for different sizes of models are summarised in Table II. with some details of construction illustrated in Fig. 6. Particularly in the larger sizes of models, advantage should be taken of the light weight and great rigidity of built up trailing edge sections. Sheet webbing between (top and bottom) wing spars also greatly adds to the overall strength of the structure and it is often advisable, again in the larger sizes, to provide additional local strengthening across the sentre section of the wings.

Fuselage construction may be simple box, basic box with upper and/or lower fairings, monocoque or semi-monocoque, or even hollow-log. Weight is usually the deciding factor and where there is the minimum of weight to spare, as in the smaller sizes of models the simplest structure will work out the lightest. Simple box-type fuselages, with or without fairings, are therefore the general rule for the smaller models. The built-up box may be of strip (orthodox box fuselage construction) or mixed sheet and strip. Extensive use is made of sheet sides in the larger sizes of fuselages.

# WORLD NEWS

by ARIEL





THE request for interesting items from readers in all parts of the World has had some interesting results, among which is that of receiving letters and photographs from two independent aeromodellers in Mexico. This is a completely new country to us, as far as news of the mutual hobby is concerned, and we had no idea that a magazine, exclusive to model aeroplanes, is published in this country. So, here is the first news from . . .

**Mexico.** The first letter came from Ben Dutton, proprietor of a small model shop in Merida, Yucatan, who keeps the local boys supplied with the essentials of their favourite sport (and ours). He tells us that, while activities have been very limited, the future looks brighter. British engines are being imported and are competing so favourably with the American engines that they are gaining popularity rapidly. As far as kits are concerned, however, the United States has the market " as they are better for the same price than the British ".

Due to limited flying space, the accent is on Control Line, any model flying out of the limits of the airfield being lost in dense bush. Weather problems they have, also ; for three months of the year a forty to fifty miles per hour wind is blowing all day, while, during the remaining nine months, the good flying weather is restricted to three hours per day (6 a.m. to 9 a.m. !) with occasional afternoons and evenings.

Mr. Dutton sent us three photos from which we have chosen one of his radio control model as being the most interesting. It is a Frog 45 powered with a Frog 180, the radio equipment being American Aero-Trol. This Anglo-American combination seems to give the desired results, despite the restricted area of the fuselage interior which called for some ingenuity in accommodating the radio, as the model has a fast climb and flat glide. Despite early " teething " crashes, the model has made over thirty successful flights up to the time of the letter ; with an additional tank, the motor has an eight minute run.

We hope for further news from Yucatan where the early birds get most of the flying.

Our second Mexican correspondent is Senor Jesus Salazar, Editor of the magazine Motor y Alas (Motor and Wings) of Sabino. We have had several copies of this journal sent over and, as far as our somewhat doubtful knowledge of Spanish allows, have studied them with interest. It comprises some twenty-five pages and, although still in its early issues, shows promise with a variety of articles and plans.

Sr. Salazar tells us that large groups of modellers meet regularly on Sundays, at the Balbuena Military Training Camp, some twenty-five miles from Mexico City, where they do their flying. In spite of the fact that Mexico City is some 7,100 feet above sea level, air conditions are favourable and, when the weather is good, averages of seven minutes are easily attained. Two or three models fly O.O.S. every Sunday, generally free flight power jobs.

Two contests are held each year, one in the Spring for rubber models, the other in the Winter for Power.

Production of building materials in Mexico is very low, so almost everything required has to be imported, and, up to now, the United States has been the sole supplier. However, the low rate of exchange between Mexican currency and the American dollar has slowed down the progress in aero-modelling. Efforts are now being made to introduce British

*Heading photo : Ben Dutton's R.C. Frog 45.*
*Top : Senor Salazar with his own design, Forster powered R.C. model.*
*Centre : The Bucio Club team at a rubber contest.*
*Bottom : Major Roberto Luna, Mexican Army, winner of many contests, with his Goldberg Sailplane.*

goods to the Mexican enthusiast and our correspondent feels that they would certainly meet with approval. They have, of course, some experts and designers, but look forward to a general improvement in the standard when increased supplies are available.

They are fortunate in having Government support and are given every facility to assist their progress.

From a batch of interesting photographs, we have picked out those showing Mexican aeromodellers in action.

**U.S.A.** We had a couple of letters from Seattle, giving the story of the development of a Wakefield model, from its designer Charles R. Wood. A useful-looking model with a consistent performance, it prompts us to reproduce a photo of it and pass on a few points from the story.

A modeller of seventeen years' experience, Mr. Wood tells us that he has built and flown every type except Radio Control and that his preference is for rubber powered models. As he says, " I think that they give the most fun and least trouble, per dollar and time invested, of all models ".

During the past year he has been concentrating on the development of the ultimate in Wakefield design and has built a succession of this type of model. Whether his goal has yet been reached, he has not yet ascertained, but he believes that his latest design, Yankee IV, comes very near.

This model has a " skyrocket " power climb, which gets it upstairs without undue drifting in windy weather. The motor of twenty two strands of three sixteenth Dunlop swings a prop. 17¼ ins. × 1¾ ins. × 2 ins. and a mechanical tensioner is used. Mr. Wood thanks the Dunlop rubber for the 50 second power run without a " zoom " at the initial burst of power.

Yankee IV is 39½ ins. overall and incorporates a fuse-released retracting landing gear, which method eliminates premature retraction. As the designer says, the lines are as clean as he could make them and the prop. is a folder, of course. The glide is very smooth and the sinking speed low and he has found that the shoulder mounting of the wing is far superior to the conventional high mounting. There are other Wakefield designers who will endorse this opinion.

As to performance, Yankee IV averages better than four minutes consistently in still air ; best time to date is 37 : 23, under ideal conditions in seventy degree weather.

**Germany.** Some time ago, Helmut Bruss of Westfalen, Germany, sent us photographs and data of one of the most unorthodox models we have seen. At that time it had not flown, but we have since heard again and publish one of the latest shots of the model in action.

Herr Bruss calls his oddity " Outsider " because it is such an obscure design, and he tells us that he designed and built it solely to show that it is possible to make the most peculiar layout fly. The main constructional data are : span of wings—71 ins., chord of wings—7 3/32 ins., area of each wing—2.9 sq. ft., tailplane span—43¾ ins., chord—6 ins. and area 1·4 sq. ft. The model is 65 ins. long and weighs 32 ozs.

The designer does not consider that the design is the best possible for this layout, as, although the glide is flat, trimming is difficult and there are stability troubles in windy weather. However, it does fly, so he has proved his theory and he is now trying to make the design more practical.

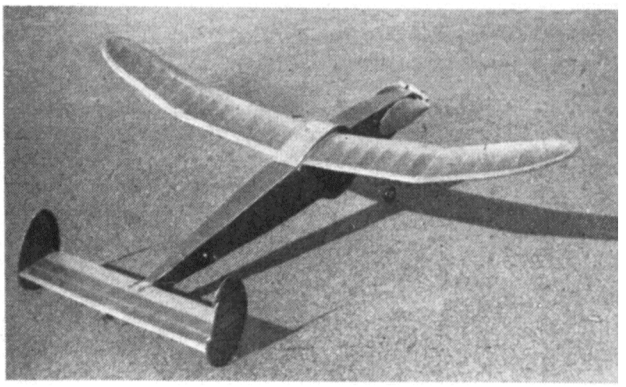
**Pakistan.** Latest news of our old friend, the Mauripur Modelling Club, established several years ago, is that it has recently been reformed. It is again actively engaged in keeping alive the spirit of aeromodelling in Pakistan, and, although the membership is small, keenness and enthusiasm are not lacking.

The chaps who found the time and took the trouble to form the Club may be interested to know of its rebirth and that the present Secretary is Sgt. J. McCafferty of Sect. No. 1, R.A.F. Staging Post, Mauripur.

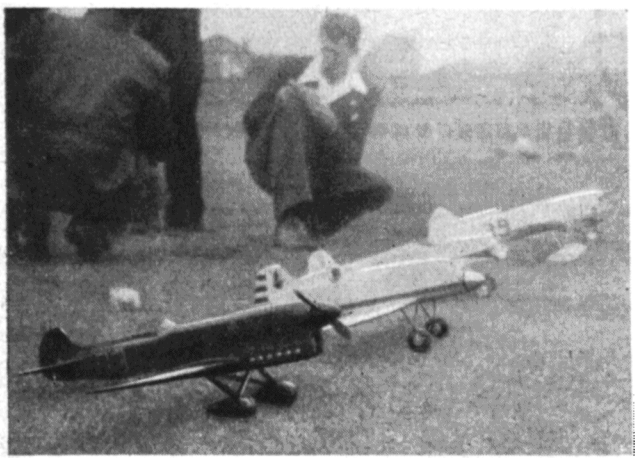
Sgt. McCafferty hopes to keep us posted with news of Pakistan model aero activities, which at the moment are still in their infancy.

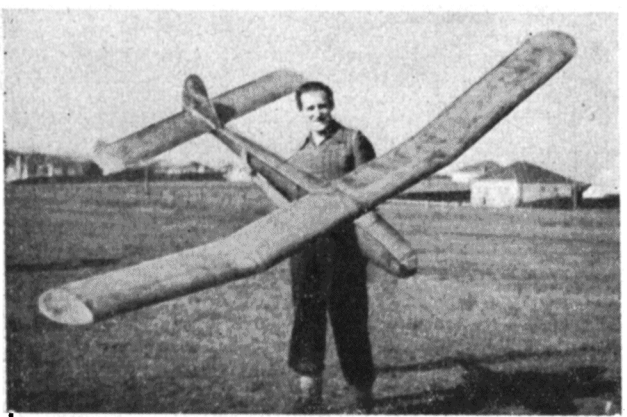
**Australia.** The 1950 New South Wales Nationals were flown on the 20th and 21st of May, the Control Line events at Pratten Park, Ashfield, on the first day, Free Flight at Wilson Park, Auburn, on the second.

Eric Nicolle of Waratah sent us a full report and a list of



*Top : Yankee IV, by Charles R. Wood, of Seattle.*
*Centre : Outsider is launched by designer Helmut Bruss.*
*Bottom : Roger Aubertin, second from right, with four members of the Monaco team which will be at this year's International week, at Eaton Bray.*



*Top : Arthur Meader, left, top man of the 1950 Australian Wakefield team, and Max Cummings, N.S.W. Control Line Champion.*

*Centre : Line up of team racers at the N.S.W. Nationals. The outstanding Miss Los Angeles is nearest to the camera.*

*Bottom : Cess Walker with his own design 10 ft. span sailplane. A good performer, but hard work to get "upstairs".*

of results certified by two Contest Directors.

Organised by the Model Aeronautical Association of N.S.W., these were the State's first Annual Championships.

The first day opened with Speed events, in excellent Control Line weather, and there were so many entries that two circles were set aside for these events all day. Despite this, results were disappointing, ½A (up to 2 c.c.) being won at 59·61 m.p.h. by F. Ampson ; A, at 90·44 by J. Leighton ; B, at 104·06 by J. Finneran. There were no contests for Classes C and D, but Harold Stevenson put up 107·2 with his home-made Class D motor. Best Jet Speed was L. Hopkins' 118·4.

In the stunt event, flying was, generally, disappointing, only one contestant putting up a really good show. He is Max Cummings, who won both the Junior and Senior Stunt and was Control Line Champion of the meeting ; a noteworthy feat, and he is under 18. Oddly enough, the first three in the Junior Stunt placed likewise in the Senior, with slight alteration of order.

Of the small entry in the scale event, the outstanding models were a Nieuport Scout and an all-red Miss Los Angeles, of superb finish. First place was shared by G. Whymark and H. Shennan.

The Team Racing appealed to the spectators, as it always does, and the excitement was intense when W. Waugh's McCoy 29 powered " Key ", with a good lead on the field, ran out of fuel with only two laps to go. His luck was out, for the mechanics could not restart the motor, and he was beaten home by the other two, Harold Stevenson winning with his own design powered by his home-made glowplug 23 motor.

The lesson to be learnt from this is that the pits end of the teams must have plenty of practice in getting models airborne with the least possible delay.

On Sunday the 21st, the Free Flight Contests were also flown in good weather, although there was a shortage of thermals.

The first and second events, Wakefields and Hand-launch Gliders, were won by the same contestant, Arthur Lonergan. His three-flight total in the former event was 800 seconds and in the latter 188·3.

Biggest surprise of the day was the failure of Arthur Meader, top man in the Australian team, to gain a place in the Wakefield event. There is a good chance that he will be competing personally in Finland.

First item after lunch was the Precision and Reliability Contest. The Rules are, briefly : model must be R.O.G., contest to occupy one hour, maximum duration of any one flight, two minutes ; minimum duration 15 seconds, total flying time determines winner.

P. Cox's Southerner Mite was just " pipped at the post " by Bob Rowe and D. Hegarty, the winner's total being 20 minutes 9 seconds.

The winner's model was probably the best performer on the field, powered with an Elfin 1·8 and using a single-bladed prop. Climb and glide were as near perfect as could be desired.

F.A.I. Sailplanes next brought forth two ten-footers along with the 50-inch span entries. The winning model, flown by K. Wheeler, was an ancestor of the A.P.S. " Fugitive ". 186·9 was the winning three-flight average.

Reg. O'Brien's second place getter was the flier's own design and had swept-forward wings and a V tail. It flew o.o.s. on a flight of 4 : 58·1. Featured the designer's own aerofoil. section, too, which for 15 years of age and only a second sailplane, shows promise, to say the least.

After this came the Free Flight Power event in which a marked leaning toward the smaller capacity motors was noted. Our correspondent's Elfin 2·49 was one of the largest engines entered. 8 ozs./c.c. was specified and the models had to R.O.G. As this was flown off late in the afternoon, the ratios were very low, the winner, R. Everett, putting up only 7·63. Although Bob Rowe's model was, again, the best performer, it pranged after take-off in the third flight.

So ended the First N.S.W. Championships, in which the standard of modelling was high, and which, from the spectators' viewpoint, was a very good show. For the contestants it was marred only by bad organisation and those who entered look forward to the results of the experience gained being put into effect for a bigger and better-organised affair next year.

# Society of Model Aeronautical Engineers

## LIST OF

# British National Model Aircraft Records

**as at June 30th, 1950**

### OUTDOOR
(Minimum F.A.I. Loading)

| | | | | |
|---|---|---|---|---|
| **RUBBER DRIVEN** | | | | |
| Monoplane | BOXALL, F. H. | Brighton | 15/5/1949 | 35 : 00 |
| Biplane | YOUNG, J. O. | (Deceased) | 6/6/1940 | 31 : 05·125 |
| Wakefield | BOXALL, F. H. | Brighton | 15/5/1949 | 35 : 00 |
| Canard | PAVELEY, D. | | 17/5/1936 | 1 : 37·1 |
| Scale | MARCUS, N. G. | Croydon | 18/8/1946 | 5 : 21·75 |
| Tailless | BOYS, H. | Rugby | 1939 | 1 : 24·5 |
| Helicopter | RICHMOND, J. S. | Wolves | 3/7/1949 | 1 : 58·4 |
| Rotorplane | CROW, S. R. | Blackheath | 23/3/1936 | : 39·5 |
| Floatplane | PARHAM, R. T. | Worcester | 27/7/1947 | 8 : 55·4 |
| Flying Boat | RAINER, M. | North Kent | 28/6/1947 | 1 : 09 |
| **SAILPLANE** | | | | |
| Tow-Launched | BEST, F. | Leeds | 20/7/1948 | 63 : 46 |
| Hand-Launched | FIELD, P. E. | Belfairs | 7/5/1950 | 7 : 05·2* |
| Tailless T.L. | HARRIS, L. C. | Croydon | 15/9/1946 | 10 : 30 |
| Tailless H.L. | WILDE, H. F. | Chester | 4/9/1949 | 3 : 17 |
| A/2 Nordic T.L. | WILLMOTT, D. | Belfairs | 13/5/1950 | 10 : 52* |
| A/2 Nordic H.L. | O'DONNELL, J. | Whitefield | 4/6/1950 | 2 : 07·5* |
| **POWER DRIVEN** | | | | |
| A. (0–2·5 c.c.) | SPRINGHAM, H. E. | Saffron Walden | 12/6/1949 | 25 : 01 |
| B. (2·51–5 c.c.) | DALLAWAY, W. E. | Birmingham | 17/4/1949 | 20 : 28 |
| C. (5·01–15 c.c.) | LUND, D. S. | Wakefield | 26/3/1950 | 6 : 46 |
| Tailless | MARSHALL, J. | Hayes | 13/2/1949 | 1 : 50·8 |
| Scale | TINKER, W. T. | Ewell | 1/1/1950 | 1 : 36·5 |
| Floatplane | STAINER, J. R. | Canterbury | 14/8/1949 | 2 : 59·4 |
| Flying Boat | GREGORY, N. | Harrow | 18/10/1947 | 2 : 08·5 |
| **CONTROL-LINE SPEED** | | | | |
| I (0–1·5 c.c.) | BUTLER, D. C. | Surbiton | 18/4/1949 | 58·5 m.p.h. |
| II (1·51–2·5 c.c.) | FREE, D. W. | Surbiton | 19/6/1949 | 80·3 ,, |
| III (2·51–3·5 c.c.) | CARTER, J. G. | Croydon | 25/9/1949 | 89·1 ,, |
| IV (3·51–5 c.c.) | WRIGHT, P. | St. Albans | 18/6/1950 | 103·2 ,, * |
| V (5·01–8·5 c.c.) | SHAW, C. A. | Zombies | 19/6/1949 | 118·4 ,, |
| VI (8·51–15 c.c.) | TAYLOR, N. G. | Wimbledon | 10/4/1950 | 132·6 ,, |
| VII (Jet) | STOVOLD, R. V. | Guildford | 25/9/1949 | 133·3 ,, |

### LIGHTWEIGHT
(Below F.A.I. minimum Loading)

| | | | | |
|---|---|---|---|---|
| **SAILPLANE** | | | | |
| Tow-Launched | MACE, J. A. | Upton | 16/4/1950 | 28 : 17·2* |
| Tailless T.L. | JOHNSON, H. G. | York | 25/6/1950 | 10 : 44* |
| **POWER DRIVEN** | | | | |
| Class C | WARD, R. A. | Croydon | 25/6/1950 | 5 : 33* |

NOTE.—Lightweight categories were instituted January 1st, 1950.

### INDOOR

| | | | | |
|---|---|---|---|---|
| **FREE FLIGHT** | | | | |
| Stick (H.L.) | COPLAND, R. | Northern Heights | 22/1/1937 | 18 : 52 |
| Stick (R.O.G.) | MACKENZIE, R. | (Deceased) | | 8 : 42 |
| Fuselage (H.L.) | PARHAM, R. T. | Worcester | 19/2/1950 | 6 : 55 |
| Fuselage (R.O.G.) | PARHAM, R. T. | Worcester | 19/2/1950 | 6 : 42 |
| Tailless (H.L.) | THOMAS, M. R. | Oldham | 23/12/1949 | 1 : 25·8 |
| Tailless (R.O.G.) | THOMAS, M. R. | Oldham | 20/1/1950 | 1 : 46·2 |
| Helicopter | WARD, S. A. | Ashton | 19/2/1950 | 2 : 00 |
| Rotorplane | MAWBY, L. | | | : 32·2 |
| **ROUND-THE-POLE** | | | | |
| Class A | MUXLOW, E. C. | Sheffield | 10/12/1948 | 6 : 05 |
| Class B | PARHAM, R. T. | Worcester | 20/3/1948 | 4 : 26 |
| Speed | JOLLEY, T. A. | Warrington | 19/2/1950 | 42·83 m.p.h. |

All records marked * are subject to ratification.

C. S. RUSHBROOKE,
Records Officer.
5th July, 1950.


## AIRCRAFT DESCRIBED
### No. 34.

By G. A. CULL

*Our heading photo shows the Zaunkonig flying in her characteristic tail-down attitude near Redhill, her home aerodrome. The pilot is Mr. Welch of the Surrey Gliding Club who, although having flown many hours in gliders and other aircraft, was making his first flight in the Zaunkonig and did not find it difficult to place his new mount well within camera range of Miss Jean Bird's Moth Minor, from which this photograph was taken.*

*Below and bottom left the the Zaunkonig is seen at one of Eaton Bray's Air Displays during last year when she was flown by John Fricker who also demonstrated her at the 1950 R.Ae.S. Garden Party; the subject of this month's cover painting. Bottom right shows the original German colour scheme with R.A.F. markings worn by the machine on the occasion of Group Captain Mole's spirited slow-flying display at Hendon in September, 1948.*

*Photos by G. A. Cull.*

AFTER World War II a number of captured German aircraft were brought to this country for investigation and for many months the R.A.E. at Farnborough accommodated all manner of dangerous and once belligerent machines. One captured aircraft, however, was very much an odd man out, being anything but dangerous, and its grey-green dope was all it had in common with fellow prisoners.

This aeroplane bore the name Zaunkönig on its fuselage, which translated, means "Wren" and so was appropriate to its diminutive size. Designed by Professor Dr. Ing. H. Winter, the Zaunkönig was built as an essay by the aeronautical students of the Technical University of Brunswick on similar lines to the pre-war T.K. designs built by students of the D.H. Aeronautical Technical School. From the first flight in April 1945, this aircraft evidenced a great ability in controlled and safe slow flying, which reflected its designer's connection with the Fieseler Storch of slow flying fame.

Tests soon after its first flight were made from a 164 yds. × 22 yds. area, and it was found that 141 yds. was enough for a safe landing, but after practice 88 yds. was all that was necessary. With brakes full on, the Zaunkönig has stopped after a run of only four times its own length, and the take-off performance is equally impressive. With flaps up, 110 yards is needed to unstick, which is reduced to half by the use of flap. While at Farnborough the upper surface of the wing was fitted with an array of wool tufts and by observation of these, it was found that the wing could only be stalled at the centre, the outboard sections continuing to lift. This resulted in a "semi-stalling" speed of 31 m.p.h. followed by a steady sink with all controls remaining effective and with no tendency for either wing or nose to drop. These qualities are due to the full-span slat and slotted flaps and ailerons which, are applied to a degree in this case, that gives the Zaunkönig and outstanding low-speed performance. This is enhanced by the preservation of longitudinal control due to the tailplane and elevators location high above the downwash from the wing, The airframe presents a contrast in design, featuring a finely streamlined fuselage more fitting to a racing machine, whereas the flying surfaces are of angular parallel chord with the exception of the fin. Although

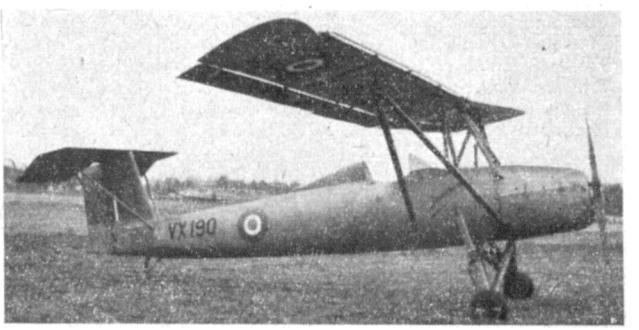
originally intended to have a variable incidence wing and tailplane, the necessary fittings were never installed.

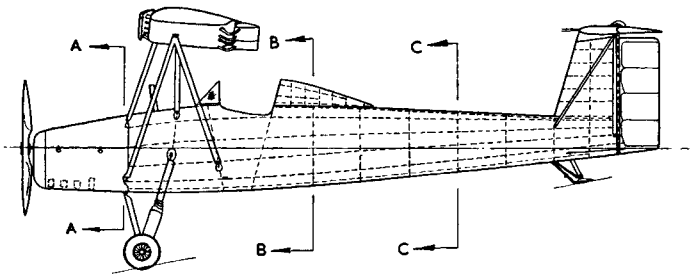
Construction is of wood except for the metal L.E. slat, and the undercarriage is able to absorb near-vertical shocks.

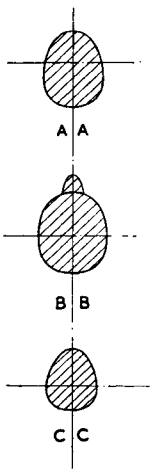
The Zaunkönig is now in the appreciative hands of the Ultra Light Aircraft Association, and has flown many hours in the hands of novice pilots—proof of its docile, easy-to-fly characteristics, and is one of the three captured types still flying in this country.

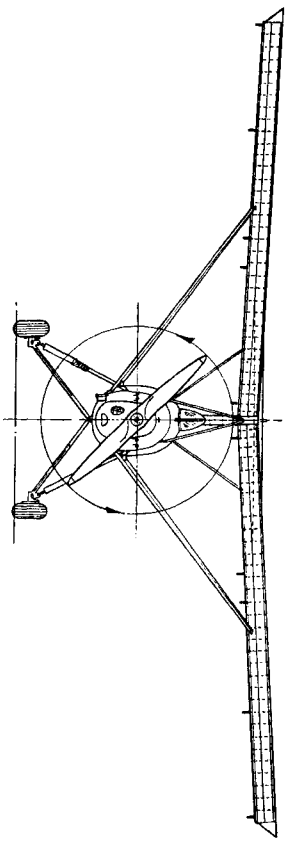
**Colour:** Originally German grey-green camouflage on side and upper surfaces with crosses on fuselage and wings and swastika overlapping fin and rudder. After capture, R.A.F. roundels and fin flash replaced German markings and the serial VX190 appeared under wings and on tail of fuselage. Currently doped dark blue all over with civil registration G-ALUA on fuselage and wings in duck egg blue.

**Construction:** All wood construction throughout. Fuselage: Ply covered semi-monocoque with longerons and stringers. Wing is ply covered back to single spar, remainder is fabric. Tailplane and fin are ply covered, elevator and rudder fabric covered. All struts tubular with adjustable screw end-fittings. **Specification:** Span 26 ft. 1 in. Length: 19 ft. 10 ins. Height: 7 ft. 11 ins. Weight Empty: 553 lbs. Max. Weight: 776 lbs. Max. Speed: 87.3 m.p.h. Climb: 562 ft. per minute. Ceiling: 12,550 ft. A 51 h.p Zundapp Z9-92 4 cylinder in-line inverted air cooled engine drives a 2 bladed wooden airscrew.

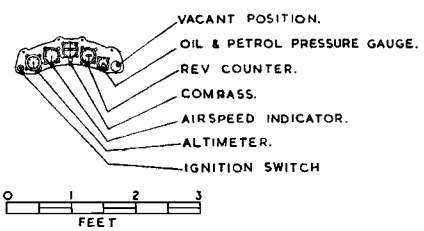










INSTRUMENT PANEL.

ZAUNKÖNIG

FT.

# THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

**New Record Classes.** As from the 5th April, 1950, British Record Classes are recognised for A/2 Gliders in both Tow-Launched and Hand-Launched categories.

**Annual General Meeting.** The date for the 1950 Annual General Meeting has been fixed for the 5th November, with the usual function taking place the previous evening, at a venue to be decided.

**Team Managers.** Mr. A. F. Houlberg (Chairman) and Mr. R. F. L. Gosling (Vice Chairman) were appointed as Team Managers for the British Wakefield and A/2 Glider Teams respectively. Teams would travel by specially chartered planes to both venues, costs being defrayed from the special fund.

**British Record Applications.** Applications for British Records have been received as under, and will be ratified at a later date should no protests be upheld.

| | |
|---|---|
| (1) Rubber-driven HELICOPTER J. F. Tangney, 2/7/1950 (Croydon D.M.A.C.) | 2 min. 43·75 secs. |
| (2) A/2 GLIDER—Tow Launched W. S. Hancock, 2/7/1950 (Creswell & D.M.A.C.) | 26 min. 0·9 secs. |
| (3) A/2 GLIDER—Hand Launched J. O'Donnell, 4/7/1950 (Whitefield M.A.C.) | 2 min. 07·5 secs. |
| (4) LIGHTWEIGHT GLIDER—Hand Launched J. O'Donnell, 1/7/1950 (Whitefield M.A.C.) | 2 min. 56 secs. |
| (5) LIGHTWEIGHT TAILLESS GLIDER—T.L. H. G. Johnson, 25/6/1950 (York M.A.S.) | 10 min. 44 secs. |
| (6) CONTROL/LINE SPEED—Class IV P. Wright, 18/6/1950 (St. Albans M.A.C.) | 103.2 m.p.h. |
| (7) Class A POWER W. ARCHER, 2/7/1950 (Cheadle & D.M.A.S.) | 31 min. 05 secs. |
| (8) Class C POWER (LIGHTWEIGHT) R. A. WARD, 25/6/1950 (Croydon D.M.A.C.) | 5 min. 33 secs. |

### MERIT CERTIFICATE AWARDS

#### CLASS B

| No. | | No. | |
|---|---|---|---|
| 366 | Gorham, J A. (Ipswich) | 372 | Paxman, G. A. (Huddersfield) |

#### CLASS A

| No. | | No. | |
|---|---|---|---|
| 378 | Gordon, D. F. (Sheffield) | 385 | Denison, W. J. (Wakefield) |
| 379 | Airey, W. (Kendal) | 386 | Cropper, T. A. (Whitefield) |
| 380 | Jenkins, R. V. (Swansea) | 387 | Hedley, D. A. (West Yorks) |
| 381 | Faulkner, B. T. (Cheadle) | 388 | Berthelsen, P. (West Coven) |
| 382 | Kenward, H. N. (Sth. B'ham) | 389 | Archer, W. (Cheadle) |
| 383 | Cross, C. M. (Erdington) | 390 | Joyce, J. G. (Leeds) |
| 384 | Brodie, D. G. (Erdington) | 391 | White, S. M. (Evesham) |

### WESTON CUP

May 14th, 1950

| | | | |
|---|---|---|---|
| 1. | Holland, F. | Swansea | 753.4 |
| 2. | Smith, E | Icarians | 742. |
| 3. | Taylor, P. T. | Thames Valley | 673.5 |
| 4. | Warring, R. H. | Zombies | 667. |
| 5. | McKenna, J. | Park M.A.L. | 656.2 |
| 6. | Cole, R. | Swansea | 652. |
| 7. | Ryde, L. | Northern Heights | 647.2 |
| 8. | Montgomery, P. | Kirkcaldy | 629.5 |
| 9. | Dubery, V. | Leeds | 615. |
| 10. | Copland, R. | Northern Heights | 609.2 |
| 11. | Yale, A. A. | Bournemouth | 608.8 |
| 12. | Knight, J. B. | Kentish Nomads | 596.5 |

(290 entries)

### K. & M.A.A. CUP

May 14th, 1950

| | | | |
|---|---|---|---|
| 1. | Yeabsley, R. | Croydon | 736.6 |
| 2. | Teasell, R. | Northern Heights | 698.3 |
| 3. | Brain, J. | Park M.A.L. | 631.2 |
| 4. | Barr, L. | Pharos | 614.1 |
| 5. | Moore, H. E. | West Coventry | 598.1 |
| 6. | King, M. A. | Belfairs | 592.7 |
| 7. | Geesing, T. | Croydon | 583.2 |
| 8. | Marshall, J. | Hayes | 577.6 |
| 9. | Smith, D. C. | Loughborough Coll. | 572.4 |
| 10. | Wheeler, B. | Birmingham | 568.6 |
| 11. | Ward, R. A. | Croydon | 557.8 |
| 12. | Exley, C. | Sheffield | 549.6 |

### HAMLEY TROPHY

June 25th, 1950

| | | | |
|---|---|---|---|
| 1. | Cole, G. | Upton | 835. |
| 2. | Pepperell, D. F. | N-West Middlesex | 815.4 |
| 3. | Farrance, W. | West Yorks. | 783.5 |
| 4. | Field, P. | Belfairs | 477.6 |
| 5. | Hollobon, G. V. | N-West Middlesex | 655.2 |
| 6. | Tasker, R. | Blackpool | 634.5 |
| 7. | Atkinson, R. H. | Ipswich | 620.2 |
| 8. | Knight, H. J. | Kentish Nomads | 615. |
| 9. | Marcus, N. G. | Croydon | 610.8 |
| 10. | Eifflander, J. G. | Macclesfield | 580.3 |
| 11. | Noll T. | Wayfarers | 578.5 |
| 12. | Munday, P. | Grimsby | 513. |

# RADLETT RESULTS

**New 5 c.c. record to be claimed by F. Guest.**

RAINSTORMS marred the 1950 All Herts Rally on wet and windy July 23rd. Between drenchings, contestants rushed from shelter to turn in their flights, only to have to dash back to the hangar, tent or car, ready for the next rain-free period. But in spite of the bad choice of weather, the organizing St. Alban's club managed to run all the scheduled events.

Free-flight power models adopted weird attitudes of climb, rubber entries were often literally blasted out of the sky, and gliders disappeared fast over the railway embankment boundary—otherwise the rally showed great keenness from the many top-notchers present, and had they been supplemented by countless (and perhaps wiser) modellers who sheltered at home, it would have been the biggest meeting yet held.

Control-liners were least affected by the elements—once Ron Prentice was seen judging a competitor in a downpour, and twice the team-race heats were run in rain, though even their enthusiasm was drowned in a flood that set the runway swimming. Norman Butcher, who is pictured on page 579, with his "Lil' Lulu" model, won the team contest with his long range tactics, refuelling only once in the ten mile run,

In the waterless periods we noted . . . a Mallard making fair and square contact on the more delicate portions of a spectator who appeared to be emulating the ostrich's "bury the head" act . . . a tent 8 ft. by 10 ft. with 15 inside and more bodies tucked under flysheets . . . many un-waterproofed wings . . . two over six-foot scale models, one a Fieseler Storch, the other a Lancaster with two E.D.II c/s and two E.D. IV diesels . . . and a wonderful clear, dry sky on the journey home!

#### OPEN RUBBER

1. N. Marcus (Croydon) 300 s.
2. D. Eastwell (St. Albans) 259 s.
3. N. Revell, Northampton 251.7 s.

#### OPEN GLIDER

1. R. Harris (Regents Pk.) 267 s.
2. D. Eastwell (St. Albans) 263s.
3. G. Wilmot (Belfairs) 257 s.

#### FREE-FLIGHT POWER

| | agg. | ratio |
|---|---|---|
| 1. J. Gorham (Ipswich) | | 19·2 |
| 2. S. Kicks (Bushey Park) | | 19·01 |
| 3. K. Lloyd (Solih-II) | | 16·8 |

#### CONTROL-LINE STUNT

| | points |
|---|---|
| 1. A. Hewitt (S. Birmingham) | 322 |
| 2. P. Treadaway (Belfairs) | 321 |
| 3. K. Muscutt (W.E.A.) | 316 |

#### CONTROL-LINE SPEED

| | | |
|---|---|---|
| Class II. | J. Gorham (Ipswich) | 84 m.p.h. |
| Class III. | J. Claydon (E. London) | 80·5 m.p.h. |
| Class IV. | F. Guest (Country Member) | 113 m.p.h. |
| Class VI. | D. Evans (Weston-S-Mare) | 100·5 m.p.h. |

No returns in Classes I, V and VII.

#### TEAM RACE

1. N. Butcher (Croydon) 10 miles at 51 m.p.h. (E.D. Mk. IV "Lil' Lulu"
2. R. Moulton (W.E.A.) (Elfin 2·49 "Yadeno Wonder)."
3. D. Rowe (Country Member) (Amco 3·5 "Red Lightning").

ALL-HERTS CHAMPION.—D. Eastwell (St. Albans) for 3rd successive year.

#### CONCOURS D'ELEGANCE

RUBBER/GLIDER: T. Nachtman (Polish M.A.C.) with tail-less glider.
F. F. POWER: J. Newton ((Blackheath) with Reeves 3·5 Biplane.
CONTROL-LINE: P. Donavour-Hickie (Zombies) with Long Midget.
TROPHY FOR THE MOST OUTSTANDING MODEL: J. Nunn (Barking) with Vampire.

# CLUB NEWS BY CLUBMAN

*Furness clubsters out in force at the North Western rally.*

WITH some £600 collected in the 1950 Wakefield Draw, the attendance of the British representatives is assured. This is the largest sum of money ever collected WITHIN the club movement. Here undoubtedly is the solution to securing sums of money large enough to ensure British participation in International affairs, and now is not too soon to get cracking with a fresh scheme in readiness for 1951.

By the time you read this the results of the contests in Scandinavia will be known, but it is worth while at this stage to record appreciation of the efforts of those other stalwarts who upheld British aeromodelling in Eire and Belgium on the 9th July. With Copland and Dudley winning their respective classes at the Irish Nationals, and Eifflander bagging top honours in the Stunt class at Knocke, our prestige was well maintained. The speed boys did not have a happy time on the Continent, but the fact that we nominated and sent representatives has gone a long way to refute the old accusation that we fight shy of " outside " affairs.

A significant feature of recent Club Reports is the indication that control-line flying has passed its hey-day, and a strong come-back of rubber driven models is evident. Though their is room for all classes of flying in the game, I am sure that the return of rubber jobs to popularity will be a good thing for the movement, for it is no secret that power flying in its many forms has brought in its wake a great deal of unwelcome attention from local authorities and the uninformed section of the great General Public. Whatever our views, and however enthusiastic we may be in our support of our chosen hobby, we cannot close our eyes to the fact that we form a very small part of the community as a whole, and by and large general opinion is against us—particularly on the noise question. Time will tell!

Things appear all set for a really big day at the now well-known " **DAILY DISPATCH** " **RALLY**, due to take place at Woodford Aerodrome on the 13th August. This year the whole of the organisation has been handed over to the **NORTH-WEST AREA**, whose funds should be well and truly stable after this " do ", with all gate monies and entry fees finding their way into the kitty! Comps. meet all tastes, and everything will be as free and easy as possible, though the officials are prepared to clamp down on anyone who plays the fool. All the clubs in the country have been circularised with details, so here's to a good day, fine weather and good flying. I hope to get along there myself, so if anyone has any ideas of eliminating me—they can do it in front of a large audience!

A number of Areas appear critical of the arrangements made for the Wakefield and A/2 Glider Trials at Fairlop, the main bone of contention being that the flying took place at Fairlop at all. To give a proper picture, it should be pointed out that early on the unsuitability of Fairlop had been discussed, and approaches were made to Cranfield, venue of last year's finals. Unfortunately, the date came within term time, and as the pupils do most of their practical flying during the week ends, the authorities were compelled to turn down the suggestion of using that airfield.

With the No. 1 venue out, representations were then made to R.A.F. Wittering, and to all intents and purposes things were all buttoned up when word came through that the whole resident unit were being transferred, and in view of the fact that the future tenancy was an unknown factor, the Society was advised to secure another venue rather than find at the last minute that no flying could be permitted on the Service 'drome.

Thus, with no time in hand to search for another place, the Council were faced with the option of falling back on Fairlop as an (almost) certainty, or making other arrangements that may not have been successfully completed in the short time available. Most of us are aware of the general snags attendant at Fairlop, not the least of these being the surrounding district, which makes the possession of a street map of London practically essential! However, no scheme has yet—or ever will—meet with universal approval, but I am certain that 1951 will see a number of changes in this and many other matters. As a parting shot on this subject, it is amazing how many talk, and how few actually do! Seems axiomatic of the whole aeromodelling movement.

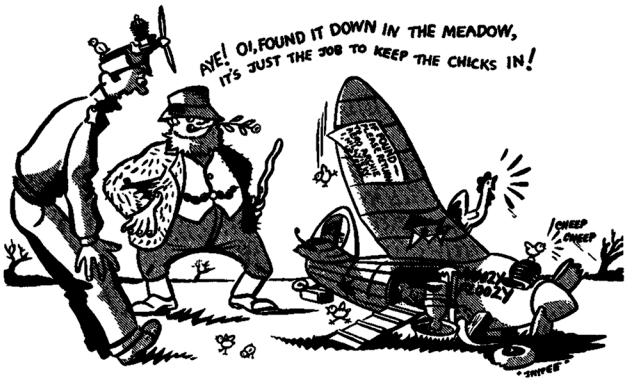
Mr. K. Skeats of 1, Mayow Road, Forest Hill, London, S.E.23 writes us in regard to a " Hermes " model, found on Epsom Downs by a gentleman living close by. Though N.G.M. transfers are on the tail, no name or address were evident, and the owner may claim the job by supplying Mr. Skeats with full details for identification purposes.

Flying in the Hamley Trophy at Affetside, M. O'Donnel of the **WHITEFIELD M.A.C.** lost his " Millstone " after a flight of 4 : 16 on a 16 second motor run, thus setting up a new club record. Model was a lightweight pylon job, featuring a Marquardt wing section, and 25 degrees downthrust! Slope soaring is coming in for a deal of attention from these chaps, though the site is not too good, being well wooded and having a large housing site in the vicinity. Best time to date is J. O'Donnell's 2 : 56 which is being claimed as a new British record in its class.

Two years old **WEST BROMWICH M.A.C.** is going strong, and members are getting more and more contest minded. Several members are building A/2 gliders, and S. Clark's " Norseman " recently put up a flight of 12 minutes which constitutes a new club record. The rubber record is held by R. Clarke who clocked 7 : 35 with a model of his own design featuring an Isaacson section and long, slim slabsided fuselage. Control-line flying has been completely eclipsed by free-flight in this group, but a couple of the members occasionally pick up the handle and go " through the book ".

Interest in free-flight has also increased in the **CHEADLE & D.M.A.S.**, with a marked tendency for rubber and glider. Club records have taken a beating lately, changing so fast that the Secretary is dizzy! Arch-enemies Foulkes and Faulkner continually beat each other out of the glider record, Faulkner's latest of 4 : 45 being beaten by Foulkes' 5 : 05. The latter raised many eyebrows when he clocked 17 : 17 with his Wakefield on July 2nd, but Bill Archer really went to town with a 31 minute flight from his "San de Hogan", the joke being that he had his LDC3M wing on backwards! There's a clue there somewhere. Best news is that they have obtained a new flying field which is a real Shangri-La, visibility 4 miles in all directions and no trees. Trouble is that visitors are strictly limited.

The former Kingsbury and Edgware clubs have amalgamated under the title of **NORTH-WEST MIDDLESEX M.F.C.**, with the contest moniker of " Thermaleers ". First comp. entered was the Hamley Trophy, in which members Pepperell and Hollobon placed 2nd and 5th. Pepperell was flying his Elfin powered " Firecracker " with which he earlier




won the Keil Trophy.

Hot flying was witnessed at the Wakefield Rally when first D. Ford of the **HUDDERSFIELD AIR LEAGUE M.A.C.** flew his A/2 glider for a distance of 45 miles (from Wakefield to Driffield), time taken being some 2¾ hours. Then G. Paxman set up a time of 13 : 18 after an 8 minute test flight, thus greatly helping the club to beat Rotherham in the Northern Area knock-out event by 966 seconds. Paxman put in a claim for the British Record, but unluckily for him another North-country bod from Creswell clocked over 26 minutes on the same day.

The annual Gala of the **BEVERLEY & D.M.A.C.** took place on July 2nd at Leconsfield Aerodrome in excellent weather. Best flight of the day was made by D. Twist's glider, being recovered from 10 miles away. Full results were :

| | | | |
|---|---|---|---|
| **Glider** | **D. Twist** | **(Scarborough)** | **9 : 4·95** |
| | **T. Moffatt** | **(Unattached)** | **6 : 4·04** |
| | **—. Joyce** | **(Unattached)** | **6 : 0·07** |
| **Rubber** | **V. R. Dubery** | **(Leeds)** | **7 : 32** |
| | **H. Tubbs** | **(Leeds)** | **5 : 54·8** |
| | **F. Warren.** | **(Goole)** | **5 : 23·7** |
| **Power** | **K. P. Jefferson** | **(Scarborough)** | **10·7 ratio** |
| | **R. O'Beirne** | **(Doncaster)** | **9·72 ratio** |
| | **W. Yates** | **(Scarborough)** | **6·16 ratio** |
| **C/L Stunt** | **W. Glaves** | **(Hull)** | **230 points** |
| | **C. Lambert** | **(Hull)** | **168 points** |
| | **—. Williams** | **(Hull)** | **166 points** |

Whilst brother Brian was in Belgium upholding British prestige, Alan Hewitt of the South Birmingham club won the stunt event at the **MIDLAND AREA** Control Line Rally at Dudley. Support for the meeting was not up to expectations, and many of the competitors had engine troubles, especially the speed merchants, which did not make for smooth running of affairs. However, one or two managed to start and cover the required distance.

For the second year running, B. Maxwell of the **PRESTON & D.M.A.C.** won the " Birkbeck Cup " with a total of 3 : 42.1, following up this success later on with a second place at the Lancaster Rally.

The fine weather of the past month (June) brought about come good times in the **COVENTRY & D.M.A.C.**, and enabled a good meeting to be held in competition with the West Coventry boys. Despite a heavy shower in the middle of the contests, good times were put up with honours fairly evenly shared. R. Abbey got a flight of 7 : 33.2 from an 18 second motor run with his Ohlson 29 powered job, Mr. Everitt's " Norseman " clocked 9 : 23 o.o.s., Clarke's " Jaguar " did 4 : 54, and junior member E. J. Coplin got 4 : 30 with a Jetex powered model, the job landing nearly an hour later on the same aerodrome !

Lightweight glider enthusiasts in the **ROCHDALE & D.M.F.C.** had a birthday on the 2nd July. B. Curtis started the ball rolling when his newly built " Roma " disappeared straight upwards for a flight of 10 : 12, and has not been seen since. Later in the afternoon Walter Linquard took his " Sunnanvind " up and succeeded in catching three mild thermals one after the other, which were just strong enough to hold the kite up till the last one sent it way up into the clouds for a time of 19 : 20, which time holds the club record at this date. Other records are rubber, 4 : 07 by J. Hodgkinson and power, 2 : 26 by J. Burke.

The first contest of the **SUNDERLAND & D.M.A.C.** this year for the " Potts Cup " was flown off in a gusty wind at R.A.F. Usworth, when a stiff breeze treated most models very roughly. A notable exception was W. Stores' "Sunnanvind " which vanished o.o.s. into the outskirts of Sunderland after clocking 2 : 15, and though followed by a full size 2-seater glider which was winched up at the same time, was not recovered. Final placings gave top to J. Robson with an aggregate of 2 : 35, Stores coming next, and T. Short third with 2 : 13.

A feature of recent **WAKEFIELD (Yorks.) M.F.C.** activities is the improvement of junior members, an example being K. Battye, who raised the club glider record to 21 : 29, no mean feat for a 15 year old. Sailplanes are most popular at the moment, but power flying has not been neglected as witness D. S. Lund's British Record flight of 6 : 46 with a Class C job, and a new club record by K. Leatherland with 11 : 38·4.

The affiliated clubs in the Isle of Wight held a rally at Lea Airport on July 2nd when sailplanes were the most popular class, with plenty of thermals in evidence. Ryde member T. Hodges put up a fine flight of 6 : 18. Interest in C/L flying has dropped to such an extent that the stunt and scale classes were merged, providing only four entries. Members of the Cowes club were so anxious to get there on time, they camped on the airfield the previous night, and then nearly got washed away by the rain the following night !

July 2nd seems to have been a real flying day in most parts of the country, and at the **HALL BOWER M.F.C.** field P. Easter clocked 13 : 10 with his 1·5 c.c. job from a 17 second run. The machine circled directly over the field for the whole of the time, eventually coming down not two hundred yards from the launching point. At an inter-club affair with the Lockwood club, the latter fellows showed the way home by cleaning up the first three places with " Lulu " gliders, top time being 2 : 37.

**DARLINGTON M.A.C.** also hit a fine patch, first indication being when W. Skelton did 12 : 30 o.o.s. on a 20 second run with his E.D. Bee powered " Streaker ". A little later, F. Kell flew his A/2 glider for 19 : 35·2 o.o.s. still going up. These flights are new club records. Owing to a series of circumstances " over which they have no control " this club has been forced to cancel its proposed Rally, but better luck next time.

The **KNUTSFORD & D.M.F.C.** announce a Model Engineer Exhibition to take place at the Egerton Boys School in August, where all classes of models will be eligible. Full details can be obtained from the secretary, and entries must be in by August 22nd.

A large crowd turned up for the first Gala Day of the **BATH M.A.C.** at Lansdowne Grass Track, and saw S/Ldr.


*Pete Cameron and his models—no prize offered for naming his club !*

*LOST—STOLEN—OR STRAYED! News of the whereabouts of the Aeromodeller Solid Model Challenge Cups No's 1 and 2, pictured above, would be welcomed at our editorial offices.*

Ellis lose his glider to win the Wills Glider Cup, other trophies going to K. Burt and M. Pocock.

Pleased with the results at their own Gala Day, **WEST ESSEX AEROMODELLERS** produced six team racers for the **ALL HERTS RALLY.** Weather and tank conditions limited the clubs' entry to two, but R. Moulton succeeded in taking second place in the final. Sid Sutherland's Amco-powered entry shed a wheel at each landing in its eliminating round and finished by landing and taking off on its axle stubs! Radio Control continues to be the most popular item and members are preparing for the Taplin Trophy at Fairlop on August 7th.

Despite poor conditions, some 400 competition flights were made at the **WAKEFIELD RALLY**, with entries from fourteen clubs. Best times were Power—9 : 00 by Preston (West Yorks), Glider—9 : 41·3 by C. Exley (Sheffield), and Rubber—9 : 04·3 by V. Dubery (Leeds). R. Cooke of Rotherham won the C/L stunt with his " Firebrand ".

Still in the formative stage, the **THAMESIDE & MEDWAY VALLEY** Radio Controlled Models Association is meeting monthly (first Tuesday) at Gravesend. Bods interested in R/C should get in touch with this group, address noted in the New Clubs section at the end of these notes.

In response to a heart-felt plea from the lady P.R.O. of the **SALFORD M.A.C.**, here is a report of their activities, main event being a concours d'elegance, in which all entries had to make a qualifying flight. Winners were F. Timmins, W. Oakes and J. Benyon, though no details of machines or times are given! Can we have such details in future Audrey . . . just to stop the boys from reversing the usual procedure and doing all the laughing!

S. Reynolds of the **UPTON M.F.C.** won the club's " Evans Glider Trophy " with an aggregate of 9 : 01·2, followed by J. Mace (junior member) who clocked 5 : 45·8 and M. Smith 4 : 03·5. Flying was very good considering the weather, and all entries actually flew. This must be something of a record in any club!

Following his lectures of R/C, Mr. J Aurep gave the **OLDHAM & D.M.A.C.** lads a practical demonstration with test equipment etc., and at least half a dozen members are now hard at it studying coils and tubes. At long last the club has found a new flying ground, and whilst not ideal for recovery is certainly tops for flying, as an unofficial 10 minutes plus H.L. glider flight for A. Lawton shows.

Tall Story this month comes from an overseas reader in India, Brian Norris of 6 Leonards Lane, Richmond Town, Bangalore. In his own words: " I launched my flying wing glider from the top of a sheer 20 ft. drop, the model being trimmed to fly in circles of about 20 ft. diameter. It circled out and came back over the bank and headed out again. When it reached the edge it was scarcely 2 inches from the ground, but it got over the edge and at that moment it flicked over and started spinning, continuing to do so until it had climbed to about 30 feet. It finally stopped spinning, and began a very tight spiral neither gaining nor losing altitude.

" This spiral continued for about one minute, then its old trim returned and it slowly drifted downwind, losing height until it was some 12 inches from the ground. Immediately the tight spiral returned, and it shot up spiralling all the time, then commenced gliding normally once more. The flight was now about 2½ minutes old, and the job was just about to touch down when the same thing happened again, the machine eventually touching down after 3 : 30 ". I've heard often enough of the Indian Rope Trick . . . seems the usual little boy was using the model for a yo-yo.

And there I leave you for a few weeks, being in the throes of getting ready for my Scandinavian trip. Perhaps I shall have some of my own Tall Stories to tell when I get back, but if I know the Censor . . . oh well!

THE CLUBMAN.

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W. Skinner, 57, Whistler Gardens, Edgware, Middx.

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BASINGSTOKE & D.M.F.C.
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ISLE OF THANET M.A.C.
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FOREST COTTAGE M.A.C.
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WOLVERHAMPTON M.A.S.
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BARKING M.A.C.
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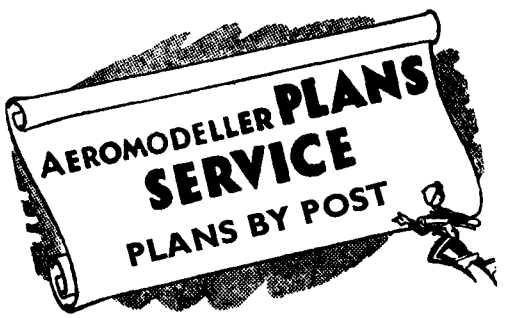


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**THIS MONTH**

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**AEROMODELLER PLANS SERVICE** *THE AERODROME, BILLINGTON RD. STANBRIDGE, Nr. LEIGHTON BUZZARD.*

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**PRESS DATE for October issue August 22nd. 1950**

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*Private* **Minimum 18 words 6s., and 4d. per word for each subsequent word.**

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**Box numbers are permissible—to count as 6 words when costing the advertisement.**

**COPY and Box No. replies should be sent to the Classified Advertisement Department, The "Aeromodeller," The Aerodrome, Billington Road, Stanbridge, Beds.**

### FOR SALE.

AEROMODELLERS, 1943–1949, complete £2. 10s. 0d. A.F.P. Volumes I to V 10/– each. Jane's All the World's Aircraft, 1941 and 1943/4, £1 each. All perfect condition. Adam, Warwick Lodge, Brockenhurst, Hants.

1 Allbon Arrow, excellent condition, 45/–, 1 American Bunch Mighty Midget 7·5 c.c. 30/– or offers. Box No. 286.

Brand new Eta 29, never in model, £6 10s. 0d. Gwyther, 28, Shackleton Road, Southall, Middlesex.

Excellent Mills I, props, airwheels, 80 Aeroplane Spotters, offers or part exchange microscope. Bailey, Brithdir, Rhydlewis, Llandyssul, Cardigan.

"Steadcraft" wood-turning lathe, £8. Frog 175 converted glo-plug, 30/–. Fraser, 9, Hagg Road, Johnstone, Renfrewshire.

Dual Super Cyclone, Smith coils, props, plugs excellent condition, £9 10s. 0d. Ohlsson 23 plus new rotary conversion, £4 10s. 0d. Bantam ·19, £2 0s. 0d. Frog 160, £1 10s. 0d. Both good. Faulkner, 10, Chestnut Avenue, Cheadle, Cheshire.

Aircraft of the Fighting Powers I–VII. Books, Miles, Westland Aircraft, £5. Welham, 54, Western Avenue, Brentwood, Essex.

AEROMODELLERS 10/42–5/46, A.T.C. Gazettes 8/43–8/47, 79 flights, 132 Aeroplanes 1943–1949, Aero Spotters, 23 issues, Vol. 4, Vol. 5, 6, two sets Vols. 7, 8 and 9. Any reasonable offer secures. Jane's Aircraft 1943/44 and 45/46, 33/– each. Mint clean condition. S.A.E. please. Holderness, 32, Elthorne Road, Uxbridge, Middx.

AEROMODELLERS July 1948 to March 1950, 42 Slicker and Airflo Mite kits. Offers. Payne, 65, West End, Westbury, Wilts.

Number of books for sale ranging from 4d. to 4/–. Send S.A.E. for lists. Post and packing free. C. H. Hicks, Sand, Wedmore, Somerset.

New Fox 59, Hi-speed £10. Super Cyclone Smith coil, ideal R/C £6. Box 289.

Speed model, magnesium alloy bottom, drop-out dolly, powered new Dooling 61, £19. Complete Anderson Spitfire ·64 £12. Ohlson 23, spark £3. Palin, 171, Kenley Road, Merton Park, London, S.W.19.

8' span Falcon, new Wildcat 5 c.c. diesel, airwheels, timer fitted. Flown twice, perfect condition, ideal for Radio Control. Offers over £10. Box 291.

Amco 3·5, Mills 2·4, 1·3 Mk. I, E.D. Bee, £8 lot or offers. Need cash photography. C. R. Evans, St. Catharine's College, Cambridge.

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### WANTED.

Kalper ·32 diesel. Good price offered for engine in good condition. Box No. 288.

Wanted urgently, copy of "Aircraft of the 1914-18 War" by Thetford and Riding. Will pay good price if in reasonable condition. Box No. 290.

### TRADE.

American Magazines, one year's supply post free. "Model Airplane News", 25/–; "Air Trails", 24/–; "Flying", 28s. 9d. For full list send Stamp to Willen Ltd. (Dept. 1), 101, Fleet Street, London, E.C.4.

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Staffordshire's Model Shop since 1936 interests the expert and helps beginners. J. W. Bagnall, South Walls Road, Stafford. 'Phone 420.

North East Engine Depot, 6, Victoria Street, Goole, Yorks. Engine part exchange specialists, every engine guaranteed. Prices from 10/–.

At last. Any kit, C/L, F/F constructed by experts. S.A.E. for leaflet. Dickinson, Vulcan, Askam-in-Fur, Lancs.

RETAILERS. Stock to clear at half price. Popular Aircraft and Racecar Kits, also Balsa. Perfect condition, cannot repeat. Box No. 287.

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# *Photographs in this issue . . Conditions of Sale . . . .*

Copies of all photographs appearing in "The Aeromodeller," which are marked "Aeromodeller Photograph" may be obtained from "The Studio," The Aerodrome, Billington Road, Stanbridge, Nr. Leighton Buzzard, Beds. (Cheques and P.O.'s to be made payable to the "Aeromodeller")

**Price 2/- Post free** Size 4 ins. × 6 ins.
**Price 3/- Post free** Size 6 ins. × 8 ins.




*Editorial Offices:*
***ALLEN HOUSE. NEWARKE STREET, LEICESTER. Tel. LEICESTER 65322***

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# 3 NEW KITS

## *Cheap to Buy—*
## FUN *to Fly*

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23″ SPAN SEMI-SCALE MODEL

Very simple construction methods have been used on this plane. In spite of its intricate fuselage shape, the Pixie is very little harder to build than the two duration models below. The design features knock-off wings, free wheeling prop, and most realistic appearance. Young modellers will really enjoy building and flying this beautiful little plane.

**4/-**

COMPLETE KIT INCLUDING SEMI-FINISHED PROP. & RUBBER MOTOR

TWO GRAND RUBBER POWERED DURATION PLANES

**5/-**

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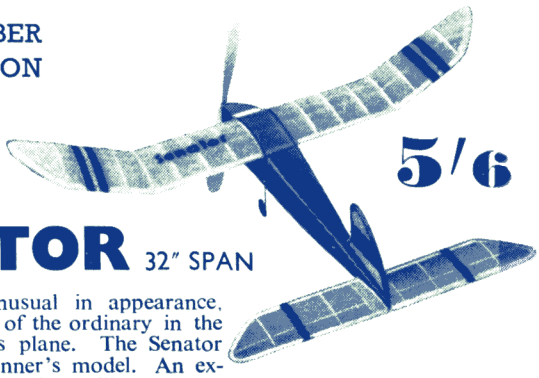
A 30″ wing span cabin model of very sleek lines and excellent performance. The Ace was designed with two factors in mind—to produce a kit that you would find no difficulty in building and one that would give good all round flying with the minimum of trouble. This model fills both conditions admirably.



**5/6**

## SENATOR 32″ SPAN

Although rather unusual in appearance, there is nothing out of the ordinary in the construction of this plane. The Senator is essentially a beginner's model. An exceptionally stable flyer that will encourage the novice by its fine performance.

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