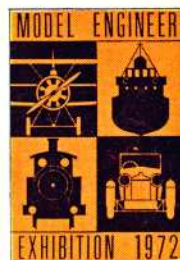


Aero Modeller

January 1972

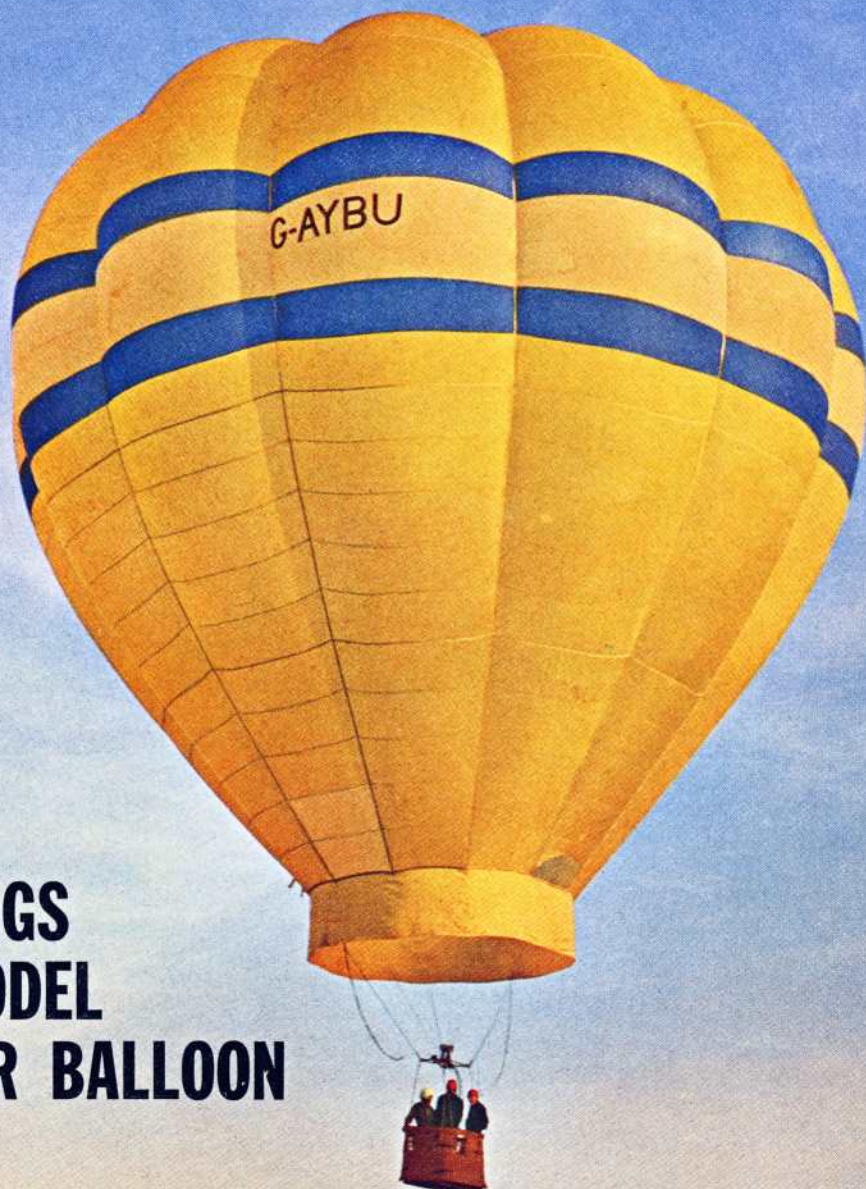


15p. (USA & Canada 75c.)

INCORPORATING
MODEL AIRCRAFT



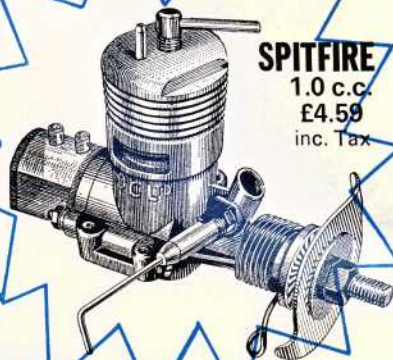
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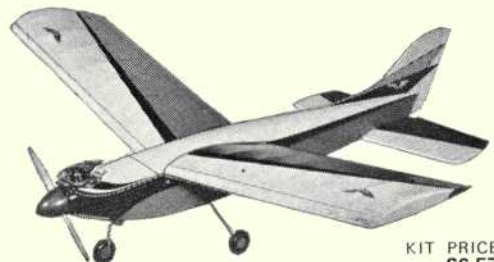


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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

January 1972

Volume XXXVII No. 432

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Editorial Director

D. J. LAIDLAW-DICKSON

Managing Editor

R. G. MOULTON

EDITOR

P. S. RICHARDSON

Advertisement Manager

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COMMENT

Another year ahead of us and one with a very full competition and rally programme already arranged. The S.M.A.E. will celebrate its 50th anniversary with special events, a reunion of the Fellows of the Society, and quite possibly International contests.

It is a year to look forward to in every aspect of our hobby with new equipment in the offing and manufacturers promising interesting new kits. For our own part we can promise continuation of the alternate month full-size plan feature, catering for the sports flying enthusiast, with a fine range of designs and, as ever, bright and original features for your enjoyment in every issue.

Here's to 1972, may it be a vintage year for Aeromodelling in every way with many happy and long flights for every one of our readers.

on the cover

Photographed at the last flying display of the season by the Shuttleworth Collection, Old Warden, the hot air balloon from the London Balloon Club takes to the air with no more noise than the occasional roar from the gas burner as the flame spurts into the envelope opening. Surely the most pleasurable mode of transport provided, of course, that the wind is favourable.

next month

TWO FREE PLANS! Control line Goodyear class team race versions of the Booray and Cassutt, as successfully flown by Dave Clarkson over the past season. Trevor Faulkner explains his introduction to single channel radio controlled gliders, while Eric Coates details the final aspects of trimming that errant free-flight scale model. Peter Chinn examines the Veco 19 in his Engine Test series. All the usual features, plus an article and plans for a model type not often seen today! On sale, January 21st.

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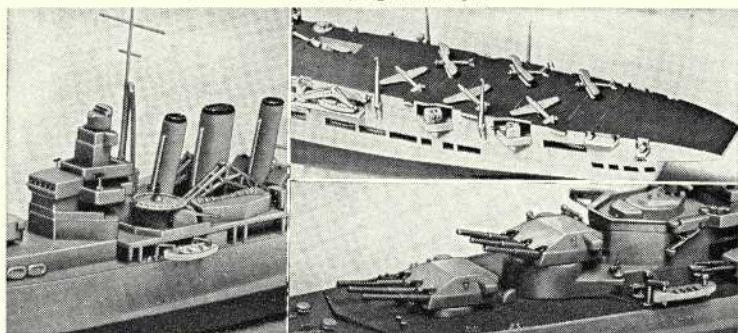
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Left: Suffolk. Bottom Right: Scharnhorst. Top Right: Ark Royal.



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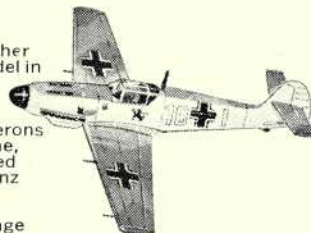


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24th Scale Messerschmitt Bf109E

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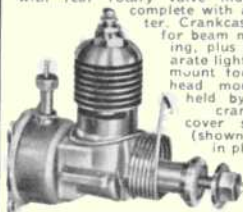
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Twin ball race main bearings, fully flexible throttle with coupled exhaust flap for precise speed control. Over 0.75 HP. 2,000 to over 3,000 rpm. Weight 10 oz.



ENYA 049 £3.25

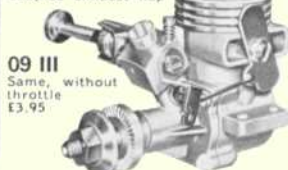
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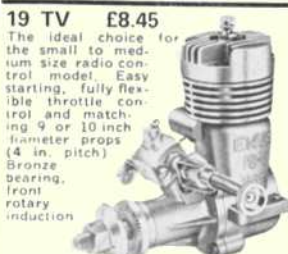
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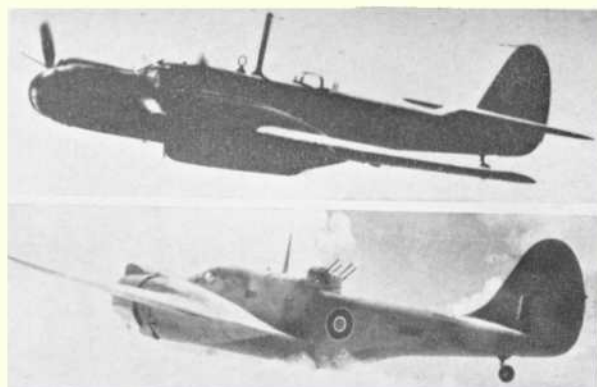
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Radio Models

Now - new enlarged size!



January edition of the already King Size Radio Control Models & Electronics will be an enlarged 72 page issue.

Main feature this month will be our plans for David Boddington's *Sopwith Tabloid*. David's model faithfully reproduces the 'wire and fabric' atmosphere of the full size. Spanning 51 in. the model is designed for 8-10 c.c. engines and employs rudder, elevator and throttle controls, ideal for the many sport proportional systems currently available.

What is the future of electric power in the radio control hobby. For boats, of course, it constitutes a common source of motive power and a popular contest class. R/C cars are also appearing with electric power. Model aircraft do, of course, present the real challenge to technical ingenuity where this form of motive power is concerned and even here, there are signs of the beginnings of practical application. This month, Phillip Connolly, an acknowledged expert on electric powered R/C boats, surveys the whole field of R/C electric power.

Kit Review this month examines two new kit offerings in widely differing fields. First we look at True-Line's kit for the Phaeton F.A.I. pylon racer designed by Frank van den Bergh, while noted scale glider man Roy Pitts builds the German Krick Grunua Baby IIB scale primary glider kit. Various sides of the R/C hobby are well catered for this month in our regular departments. *Throttle Benders Union* deals with the fast and furious field of pylon racing, while at the other end of the scale we'll have model glider news in *Soaring Scene*. David Boddington continues his *Sport & Single* round-up of not-so-frantic sport activity, while Peter Russell covers the contest and international scene in *Straight & Level*. On a quite different note Alec Gee provides news of final R/C car race meetings of the 1971 season, and we round out the issue with R/C engine news from Peter Chinn and readers' opinions in *Readers Letters*.

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At both our shops, the long established '308' and the new one at Potters Bar, we endeavour to serve all types of modellers whether R/C, F/F or C/L enthusiasts. This advert is devoted mainly to the F/F and C/L fraternity and we hope you will find something here to persuade you that a visit to one or the other is well worthwhile. Whichever shop you visit you will receive a warm modeller's welcome.

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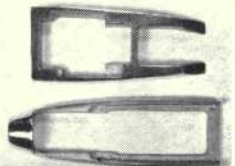
This handy resonance type revolution counter measures R.P.M. from 800 to 50,000. It is especially useful for measuring the low-end performance of R/C engines. Tickover speed can be measured accurately to ±50 r.p.m. Supplied in neat carrying cover. Price £1.97 1/2, p. & p. 7 1/2p.

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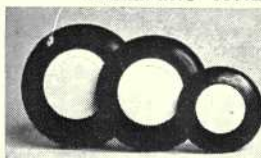
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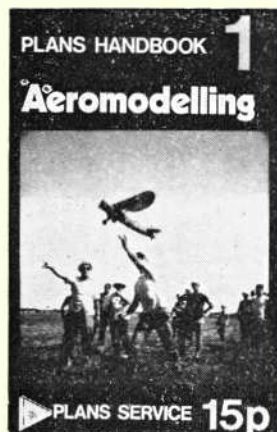
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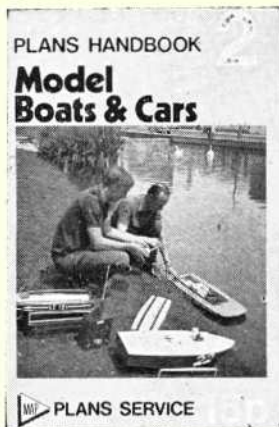
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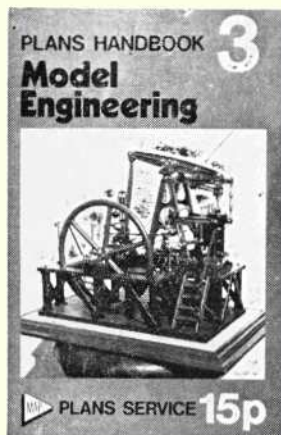
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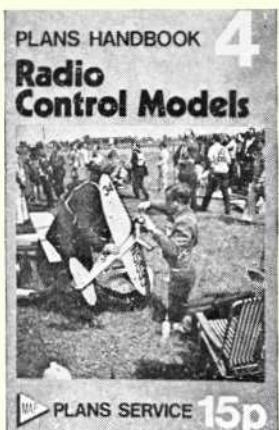
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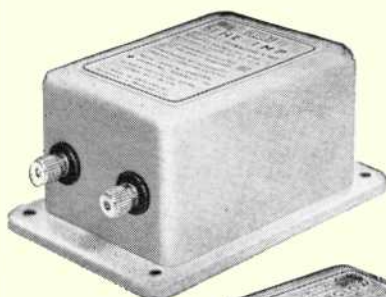
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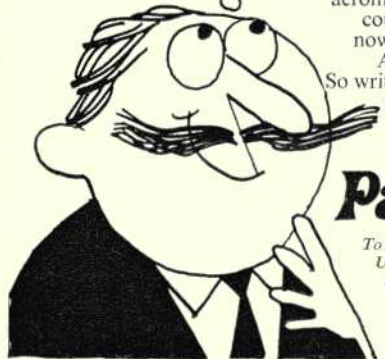
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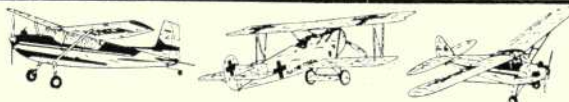
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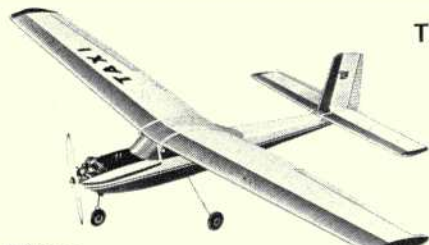
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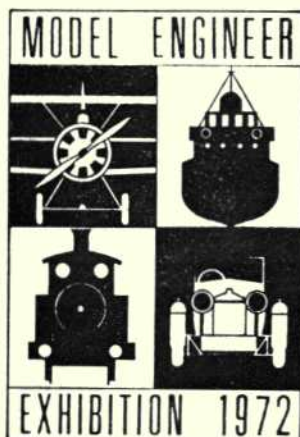
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41st GREAT SHOW

SEYMOUR HALL, LONDON, W.1.

4th January - 15th January 1972

Opening hours: Daily 10 a.m.-9 p.m.
(January 4th: Opens 2.30 p.m. January 15th: Closes 7 p.m.)

Model Aircraft, Locomotives Boats, Traction Engines Military Models, Crafts

WHAT WILL BE ON DISPLAY

THE MAIN HALL will be laid out in a completely different manner, offering a grand 'open plan' scheme with more room for models, which will be grouped under the gallery balcony and in the centre, with a WINNERS' PODIUM to display class champions. The popular S.M.E.E. PASSENGER RAILWAY enjoys its usual position, but with the added feature of the immense 2-8-4 Berkshire Superpower 10½ in. gauge locomotive based on its American prototype and destined to operate on Lord Gretton's Stapleford Park Railway. This is nearly 19 ft. long and will be on show alongside the track. Another locomotive specially built for Stapleford Park will also be on show at the entrance - The Hon. John Gretton's ROYAL SCOT - a fine scale model embodying many of his own design features.

A FLYING CIRCLE stretching right across the hall from balcony to balcony will be available for electric model aircraft flying. This will be at BALCONY LEVEL and provide splendid and spectacular sport with electric models doing nearly all that more powerful outdoor, i.e. engined models do - or so we hope!

TRADE STANDS - fewer in number than before, since 'club' and other special stands are in another hall - are tastefully grouped in three units, giving convenient access in the MAIN HALL.

Introduction of a MODEL ENGINEER WORKSHOP manned by the S.M.E.E. last year proved immensely popular and will be increased in size and scope, again with experts from S.M.E.E. in charge and assisted by M.E. consultants. Working models under compressed air will also be on show.

BRYANSTON ROOM will be operating as the CLUBMEN'S CORNER with stands manned by the principal governing model bodies of the country, plus club units demonstrating, and offering combined club 'little exhibitions'.

LECTURE HALL will be arranged as the BATTLEGROUND with three WARGAMES TABLES for regular miniature battles, where clubs will be invited to run wargames of all popular periods, with opportunities for running commentaries. MILITARIA entries will be displayed here.

BOATING MARINA: For the first time we have taken the SMALL SWIMMING POOL to operate as a nearly 100 ft. long indoor lake for boating activities. R/C boats will be demonstrated daily. Evenings will be given over to inter-club and individual contests. Pool will also be big enough for some steam powered boats to operate by arrangement.

GALLERIES will provide sitting out space, spectator room and house additional club displays including our favourite BOYS' EXHIBITION. Furniture and craft entries under the auspices of Woodworker will be on show.

Advance Booking and details from:

**EXHIBITION MANAGER,
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Snack Bar in the Balcony Cafe with teas, soft drinks, sandwiches, cakes. Restaurant Service (licensed) available on ground floor. Parties may book in advance.

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Price of admission at the door will be 25p adult, 15p child. A child is regarded as anyone at school. Children under 5 who have not started school and are accompanied will not be charged.

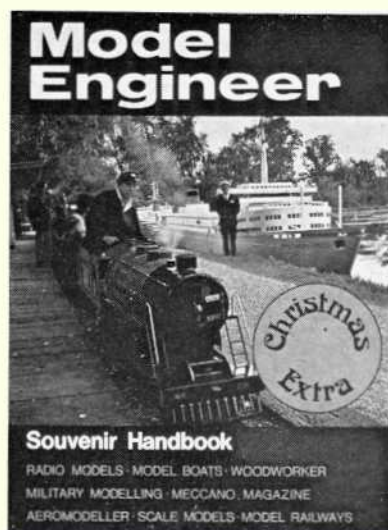
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Single and small number pre-booking tickets available from these offices. Adult 22½p, Child 12½p. Parties of more than 10: Adult 20p, Child 10p. Teachers i/c parties free - one per 10 in party.

A combined family ticket can also be bought in advance.

SOUVENIR GUIDE

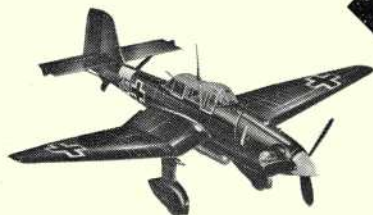
Another CHRISTMAS EXTRA issue of *Model Engineer* will be coming out 2nd Friday in December with entries, trade stands, articles galore to assist the visitor and solace the stay-at-home.



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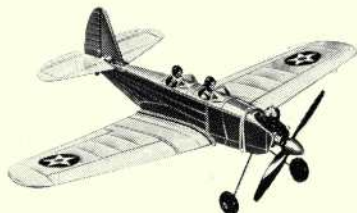
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PT-19

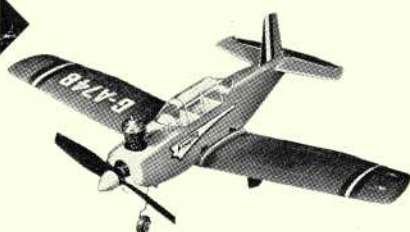
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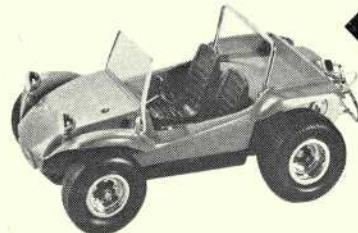
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CHOPPER MOTORBIKE

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BAJA BUG

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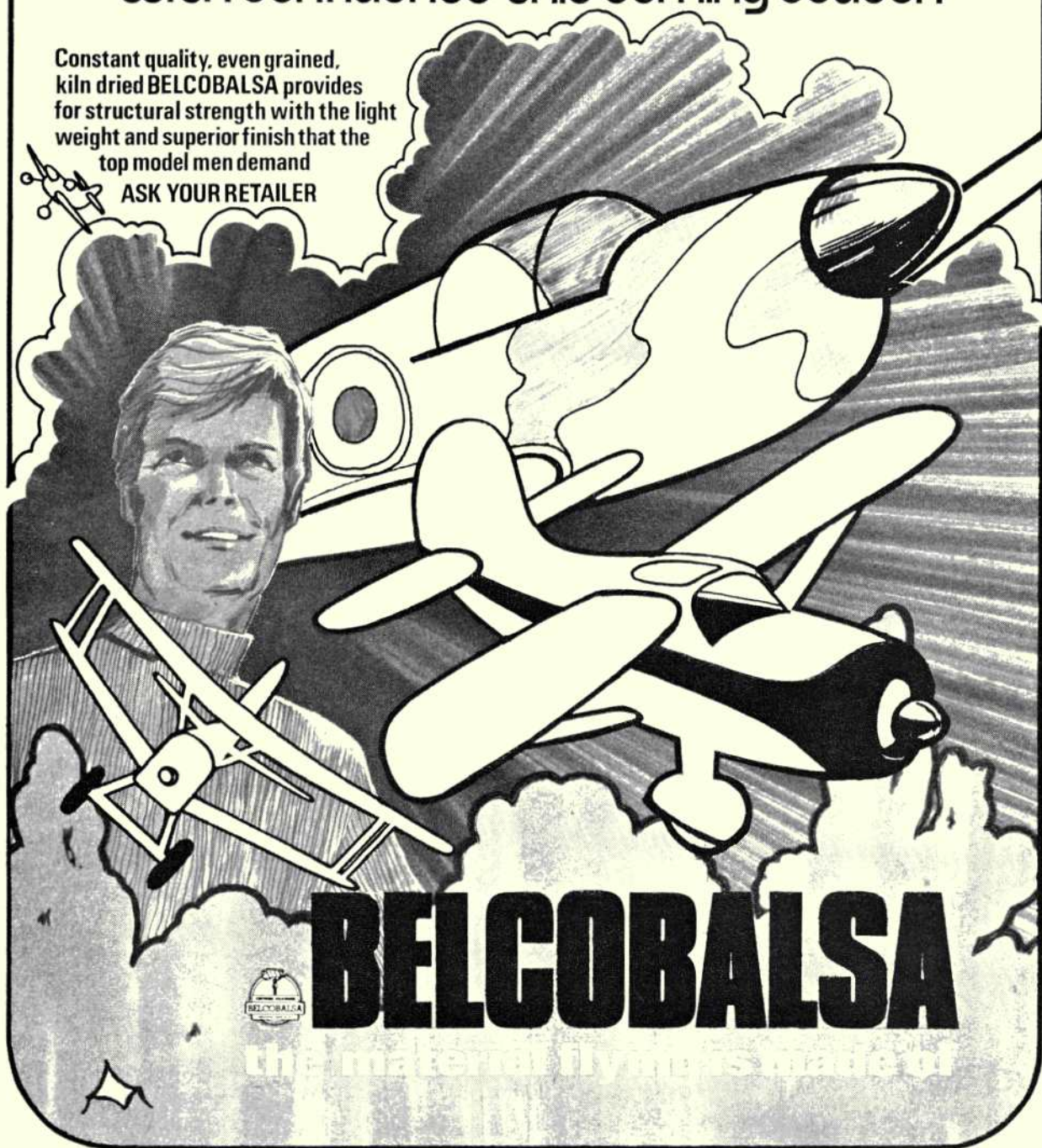
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The illustration is a composite image. On the left, a man with short, light-colored hair is shown from the chest up, looking upwards and to the right with a slight smile. He is wearing a dark, high-collared jacket. To his right and slightly behind him is a large, white biplane with a dark propeller and landing gear, flying upwards and to the right. In the foreground, overlapping the man's jacket, is a smaller, white monoplane with a dark propeller, also flying upwards and to the right. The background consists of stylized, dark, billowing clouds. The entire scene is framed by a thick black border.

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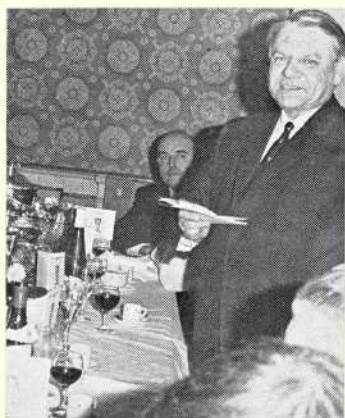
Heard at the HANGAR DOORS

THIS PAGE appears to be rapidly turning into a 'lost and found' column—but not without a certain degree of success we are pleased to say! Firstly, since reporting the theft of modelling equipment from Martin Dilly's van we are glad to state that the culprit is now under the protective eyes of the Police and most of the goods returned to their rightful owner. Secondly, the R/C model announced as found last month near Epsom has been reunited with its builder. Now for this month's cries of help!

UNUSUAL flyaway! A model with no name or address on it, was last seen climbing high above R.A.F. Odiham at the recent Southern Gala. However, in this case lack of an address label was excusable—for the model in question was a *combat* model complete with Copeman tuned Oliver, set of lines and control handle! Bricks on a string indeed... Anyone discovering this uncommon type of free-flight model, please notify the Editor.

PEOPLE rather than models lost in this instance. Vic Botta, Hon. Sec. of the *Northern Heights M.F.C.* is seeking the whereabouts of past members of this long established club so that a get-together can be organised early in the New Year. In order to assess the possibilities of this function, would interested past members please write to Vic at 60 Sandhurst Road, London, N9 8BJ.

SCOTTISH AEROMODELLERS Association secretary J. E. Glen has lost neither people nor planes. His problem lies in missing trophies. Over the years, records of people (and their addresses) who have been awarded cups etc., have been lost, and these cups have not been returned. Many of the people holding these prizes are no longer competitive modellers, so the S.A.A. have no means of tracing them. Therefore anyone holding, or knowing of the whereabouts of any of these trophies are requested to contact Mr. Glen at 5 Brownhill, View, Bonkle New-



Heading picture shows Alwyn Greenhalgh proposing the toast to the Society at the S.M.A.E.'s annual prizegiving ceremony.



Left, David Greaves on behalf of the Birmingham Club, receives the magnificent Plugge Trophy from Mrs. McMonagle for their victory in the National Club Championship.



Left, that well-known team racing pair, Malcolm Ross and Derek Heaton receive the R.A.F. M.A.A. and Knokke No. 1 Trophy for their team race activities during 1971.

Right, winner of the distinctive Quickstart Trophy for Free Flight 1/4A Power was Ray Collins.



main, Wishaw, Lanarkshire so that arrangements may be made to re-instate them. Anyone holding such a trophy must agree that it would be better employed encouraging future generations of modellers, rather than lying on a shelf.

LAST CHANCE for Coupe d'Hiver enthusiasts to join the AeroModeller party to the annual French organised International Meeting. Venue is near Paris and the event will be held towards the end of next February, although exact final details are not known at this moment. Interested parties please contact the Editor.

UNFORTUNATE printers error on page 711 of the December issue resulted in the picture of the new M.E. Heron being captioned as a tachometer! The more observant will of course have noticed this already, so suffice is to say that this product of the Moore Engineering Company is in fact a 1 cc diesel engine, available in both aero and marine versions although an R/C carb is not at present available. Nor is the 1.5 c.c. version currently produced, despite our comments to the contrary.



A 1/12th scale, 45 in. span
control line

BEAGLE BASSET

using two 1.5 c.c. engines,
designed by IAN BARRETT

IT TOOK BRITISH EXECUTIVE AND GENERAL AVIATION LTD less than one year from the initial decision to design and build a twin-engined light executive aeroplane, until the prototype '206' flew for the first time in August 1961. This aircraft soon found popularity, with its ability to carry 5-7 persons, and it was not long before the Ministry of Aviation took an interest in it, with a view to adopting it as a communications and ferrying aircraft for the R.A.F. Indeed, in late 1964, twenty were ordered for these purposes, under the name of the Basset CC Mk 1.

The model presented here was inspired by the Airfix plastic kit of the *Basset*, and the designer can thoroughly recommend buying this kit if it is intended to finish the model in its military guise.

Construction should provide no difficulty to the modeler with some previous experience, as standard techniques are used throughout. The airframe is built in two main components, the fuselage and tail as one unit, the wings and engine nacelles as the other.

To build the fuselage, first cut out the 1/8" sheet keels (F10-14, 16 and 17), pin down over the plan, then add the port side half-formers, using a set square to check that they are truly vertical. When quite dry, add the 3/32" sheet balsa sides. As soon as this assembly is dry, remove from the plan and add the remaining half-formers, not forgetting to fit the nose leg bearer.

Fret out the 3/32" ply full-former F5 and place in position before adding the starboard fuselage side – but do *not* cement it to the lower keel piece. Check carefully at this stage that the basic fuselage is not distorted or warped in any way. If you intend to add full cockpit furnishings, then it should be done at this stage while the whole area is readily accessible.

Cut the tailplane and elevators from 3/16" sheet (duplicate parts are needed for lamination) and sand outside surfaces to shape. Laminate the two halves, remembering to include the tape hinges and elevator horn, and making sure that the elevator moves freely. Glue this assembly in position, checking carefully that it is at right-angles to the fuselage sides. Fit the push-rod to the elevator horn, leaving the forward end of the pushrod with sufficient excess length to enable it to be later connected to the bellcrank. Bend 14swg nose-leg to shape, add wheel, bind with fusewire then solder as indicated. Finally bind and epoxy to the hardwood mount.

Glue former F17 in place over the cockpit area, then proceed to plank the entire fuselage with strips cut from 3/32" balsa and using balsa cement as the adhesive. This is preferred as no other form of adhesive may be sanded down with ease of balsa cement, and blobs of glue on the outer surface could easily ruin the final finish. Note that the planking continues right under the centre section – this will be removed later to allow the wings to be fitted. With planking completed, add nose formers N1 and N2, then fill in with soft block before sanding the whole fuselage smooth. When satisfied with this, laminate the fin and rudder (complete with stiff aluminium hinges) before glueing securely in place.

Wing structure is concentrated around the main spar, which consists of two 1/8" sheet spars bonded to a plywood doubler – a P.V.A. glue is ideal for this task. Bond a 3/8" x 1/4" hardwood block to this spar at the centre section to provide a bellcrank support. Make the port wing structure first. Pin the mainspar over the plan, with 3/32" packing under it, followed by the trailing edge also with suitable packing to enable it to conform to the required wing section. Pin the leading edge directly over

Attractive shape of the Beagle Basset is evident from the heading picture of the R.A.F. Transport Command's replacement for the long-serving Anson as a general purpose, light communication aircraft. *Flight photograph.*



The model is made as two basic units before they are finally joined. This makes jobs such as planking the fuselage and sheeting the wings much easier, as well as making the model easier to handle – and less liable to knock items off the building board whilst building!

the plan - but not forgetting to pack up the last tip section to suit the dihedral. Now add all the ribs, noting that the centre section ribs must fit into the plywood fuselage former slots at a later stage. Remove from the board when quite dry, and repeat for starboard panel.

The lower engine bearers (with former C4) are now added to the wing frame cutting away the leading edge where necessary. These bearers transmit engine thrust and undercarriage loads, so take particular care over assembly. Cut out the remaining nacelle formers and glue in position (use an epoxy resin on formers C1 and C2) making sure that they are true and square. When dry, add the top bearers and sheet infill. Next bind and epoxy the undercarriage legs in position, install the fuel tanks and drill the engine mounting holes.

The bellcrank and leadout wires should now be installed, as should the 2 oz. wing tip weight. Add the $\frac{1}{4} \times \frac{3}{8}$ " doublers behind the landing lights on the leading edge, then cut the leading edge as shown. Cement all remaining gussets in place, then sheet upper and lower wing surfaces with medium-soft 3/32" sheet, using a P.V.A. glue as the adhesive.

A small slot will have to be cut in the top surface sheeting adjacent to the centre section ribs to clear the plywood fuselage former. Plank the nacelles up to the plywood bulkhead. Either install blind mounting nuts for the engine bolts, or else install the bolts with wire soldered across the heads to prevent them from turning. Build up the cowl from soft $\frac{1}{2}$ " sheet, hollowing the removable section to clear the engine, and securing it with press studs epoxied in position. Add the $\frac{3}{8}$ " sheet nose block and the wing tips, then carefully sand the entire wing/nacelle units smooth.

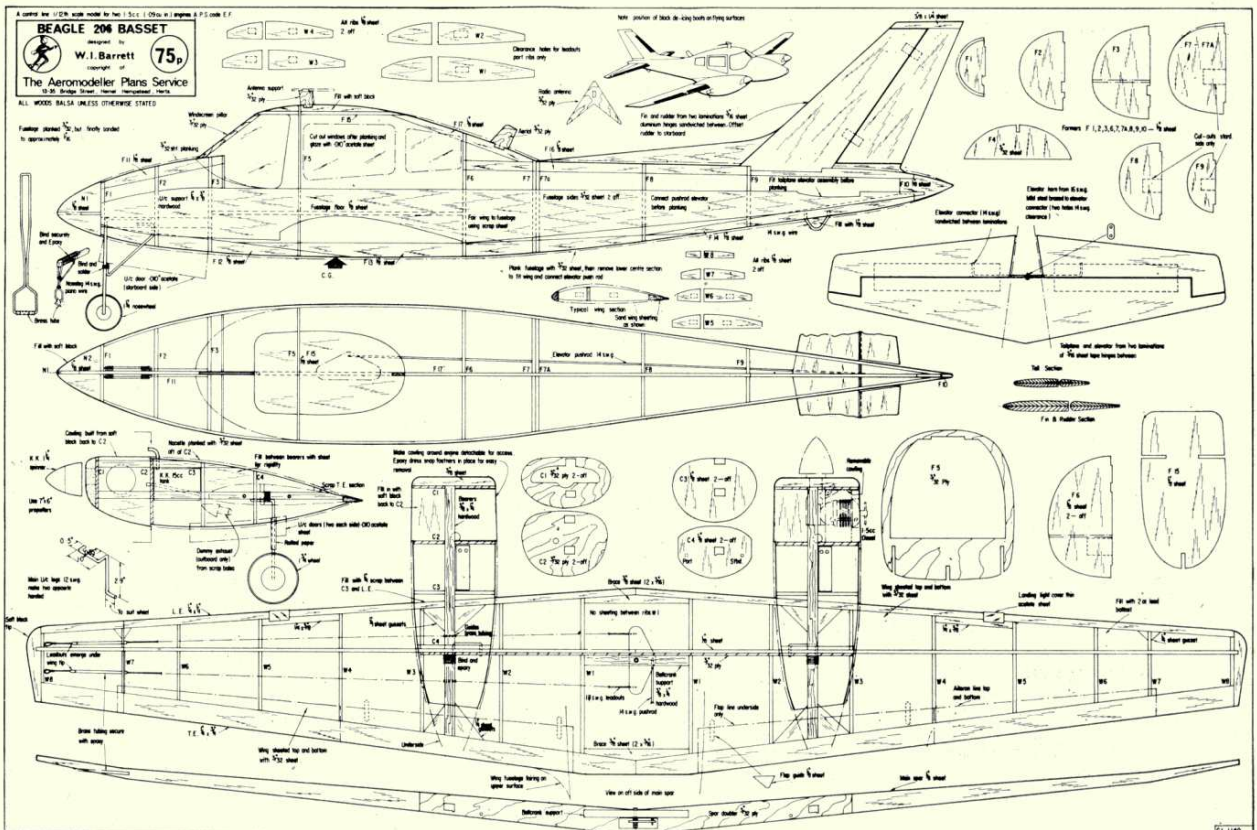
The next step is to join the two major components - this is done by carefully cutting away the lower fuselage sheeting at the centre section, and fitting the wing securely. Connect up the elevator pushrod, then replace the bottom sheeting.

All the final detail such as window glazing, landing lights, wing fillets, etc., may now be fitted, then give the entire model two coats of sanding sealer. Rub down and cover with heavyweight tissue before adding further coats of sanding sealer, rubbing down between each coat until a satisfactory finish is obtained. Now add the airdials and undercarriage doors (filling the grain with sealer as before) then paint the model in the colour scheme of your choice. The original model was painted with Humbrol gloss enamel, while the lettering was applied from "Letraset" sheets. The final finish was achieved with a coat of "egg-shell" (semi-matt) clear Polyurethane varnish, which also acts as a fuel proofer.

The *Basset* flies well on 45 foot lines, but needs rudder offset to overcome any swing or yaw that may develop should the inboard engine stop first. Once airborne, the model is quite nippy while the tricycle undercarriage makes the ground roll very stable - indeed the touch and goes would be a dream if a third-line throttle control system was incorporated!

The original model met its demise when the designer attempted to fly it on long lines without rudder offset, and of course, the inboard engine stopped without warning when the model was high. Two laps of "free flight" ensued, the resulting prang removing the nose most effectively! However, this was purely attributed to 'pilot error' and with the rudder offset shown, no troubles will be evident.

FULL-SIZE COPIES OF THIS 1/7th SCALE REPRODUCTION ARE AVAILABLE AS PLAN No. CL 1140, PRICE 75p POST FREE FROM AEROMODELLER PLANS SERVICE, 13-35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.



FLYING SCALE MODELS

by Eric Coates

Part XI: Initial test flying

The author gives the old 'heave ho' to his faithful Bucker Jungmann - plans of which are shortly to appear in 'Aero Modeller'. Judging by Eric's pained expression he is taking this opportunity to check once more that the tail is not warped!

LAST MONTH I came to the end of a somewhat detailed treatise of the construction of free-flight scale models. Readers who have closely followed the series will remember that in Part VII, published in the September '71 edition, I advocated that trimming should be carried out before the paintwork and details are applied. Some prominent modellers I know scorn such methods and completely finish the model before venturing forth to the flying field. This may be satisfactory for lightly loaded, inherently stable models such as two seaters of the First War period, but is courting disaster with more heavily loaded models of machines not blessed with so much stability. The one valid objection I can see to trimming an unfinished model is that fuel may soak into the airframe making it difficult to apply the finishing coats. But, taking into consideration that on average a dozen power runs of about 30 secs. duration is all that is required to roughly trim a model (and we are only roughly trimming it at this stage) the airframe is not likely to be subjected over much to fuel. Non castor based diesel fuel in any case will not attack cellulose dope and if the airframe is washed down with neat ether immediately after the trimming session,



then no problems from this score will occur. As mentioned in Part VII there are three distinct advantages in trimming a stark unpainted and undetailed model:

- a. The model is much lighter than when completed and, therefore, will fly slower and is less likely to damage itself if, as it very likely will, it hits the ground awkwardly.
- b. Any minor, or major, damage is more easily repaired and disguised by the final paint job.
- c. If you write it off or the thing just "... well won't fly, you haven't wasted all that time finishing it off!

Pre-Flight checks

Before proceeding to the flying field the model must be given a thorough check out to see if it is fit to fly.

1. Flying surfaces

View the model from a head-on position and observe for warps - the tail surfaces should be absolutely true to one another. If the sandwich construction method (outlined in Part VI) has been followed it is unlikely that the tail surfaces *will* have warped. However, if a flimsy open framework form of construction has been used then



Charles Essex of the S.V.A.S. model section has found a nice patch of long grass at Old Warden - ideal for those trimming flights. Slow flying models such as his Blackburn Monoplane are a joy to watch, particularly on those calm evenings. Note the prominence of the pilot in an aircraft of this type - certainly an essential feature of the model.

the chances are that the tail *will* have warped, and in that case they can be eliminated by holding close to an electric fire and twisting the surface in the opposite direction to the warp. With luck the tail may remain true for the trimming session! Almost certainly warps will have returned before the next flying session and the procedure must be repeated otherwise the flight pattern will have altered for the worse. I cannot emphasize enough the necessity for sound, warp-free tail surfaces – lack of appreciation of this point is the reason for the inconsistent performance of most scale models. If in doubt at this stage it is better to rebuild the tail surfaces before attempting to fly the model. Wing warps are usually not too critical from a trimming point of view on a slow flying model, and as it is on slow flying thin winged biplanes where they occur most we must be thankful. These warps usually occur very slowly, as the model ages, in a symmetrical pattern, the favourites being washout, i.e. tips twisting to give more incidence, or elliptical dihedral sets in. Apart from being unsightly, in any appreciable amount, both add to the lateral stability of the model and can usually be ignored from a basic trimming point of view; provided they are symmetrical that is. If they are asymmetrical then the electric fire must be called in again.

2. Hinges to control surfaces

Again as mentioned in Part VI the fishplate type hinges used to attach the rudder and elevators to their respective members should be stiff enough to prevent an incidence setting being lost due to their inertia in a heavy landing. One cannot make the hinge stiff enough to withstand a direct clout, nor is it desirable to do so, but nevertheless they have to be fairly stiff to overcome the inertia loading. Again if in doubt change them before going to the airfield.

3. Rigging wires and wing attachments

Check that the wing incidence and dihedral angles are correct and that all wires are tensioned properly and doing their correct amount of work. Do not overtighten the wires, though, otherwise the wing cell will not "give" in a prang, without tearing out all the wire anchorage points.

4. Check the centre of gravity

Ideally on a scale model the C.G. should lie somewhere between one-quarter and one-third chord length back from the leading edge, on a monoplane and about half chord length back from the leading edge of the upper wing of a biplane with an average amount of stagger. If more stagger is present, or the wings are sweptback, then due allowance for this must be made when determining the desirable position for the C.G. Now balance the model by supporting it, at the desired C.G. position, by the fingers resting beneath the upper wing just outboard of the centre section. At this stage it is desirable that the model should be nose heavy and so balance in a nose down attitude. When the colour dope and details are applied to the tail and rear fuselage it is surprising how much the C.G. will shift aft. If we have the desirable forward C.G. apply plasticine to the rear-end until the correct balance is achieved. Should the model balance level then almost certainly weight will have to be added to the nose when the model is completed. If it is necessary to add weight to the nose, even in the unpainted condition, then one is in mighty big trouble and a means by which the back end can be lightened should be looked into immediately. Having determined where the C.G. lies, after ballasting if necessary, mark the position with a pencil.

5. First engine run

Never leave this until you arrive on the field, as with a fully cowed motor there are bound to be little problems with fuel feed, cooling or control adjustment, etc. Replacing the cowling when the engine is running can be tricky

'Er, no sir, not quite like that.' Eric's S.E.5a in a rather undignified pose having found that 'terra firma' lives up to its name. Although the model looks a mess, no damage resulted – thanks to the use of 'knock-off' components. Note model is unpainted at this stage.



at first. Get yourself fully familiar with operating the engine, particularly at low revs, and check the fuel consumption so that you know at what level the fuel should be in the tank for runs of 10 seconds, 20 seconds, 30 seconds, 1 minute etc. A transparent tank is essential of course. Be completely happy about the motor before attempting to trim, you will have enough to bother you in getting the brute to fly without letting an awkward engine set-up annoy you! When you start worrying about the motor you start to do foolish things and throw the model in the air as soon as it starts without thinking properly, which is how 90% of trimming prangs occur.

Initial Test Glides

For the initial glide trimming, long grass is necessary – 9 inches long minimum, 18 inches long ideal. Generally most service airfields are kept cut pretty short and one should look elsewhere for the initial glides. A large field is unnecessary – a 50-yard square will do at a pinch although a bit longer is desirable. Overgrown waste ground is ideal although check that there aren't any old motorbikes, bathtubs, etc., concealed in it before you dash your pride and joy to destruction!

A Sopwith Pup, always a popular subject, makes a characteristic left-hand climb away from the owner's hand. Old Warden Scale Rally is always a popular meeting, bringing out all the 'fly for fun' enthusiasts, not just the competition fliers.





Rather more successful flight by the Eta 15-powered, 1/7th scale S.E.5a, thanks to the model now being fully trimmed and finished. It has just taken off from the runway and is making a characteristic left-hand climbing turn.

Now wait until it is flat calm or at least less than 4 m.p.h. One may have to be patient several weeks for this; particularly in the early part of the year—September or October is the best time for trimming scale models usually. Winds tend to be at their minimum in the early morning or late evening, when the grass is wettest! When conditions are right, launch the model in a slightly nose down attitude into wind (if there is any) and observe the glide. Try to launch with a long sweeping arm action, accelerating the model all the time so that it just flies out of your hand. If you throw too hard you will stall it, while if you do not throw hard enough the model will fall short into the grass. Try to keep the wings parallel to the ground at the moment of release — one should aim for a straight flat glide without any tendency for a wing to drop. Unless the model is obviously violently out of trim, repeat the glide about six times to check that the pattern is consistent and any stalling tendency is not due to incorrect launching. If the model is definitely stalling, and this is the most common condition at this stage, remove a little plasticine from the tail if the C.G. is in a reasonably aft position. If this is not possible then depress the elevators very slightly; 1/16" at a time is sufficient. Check this with a straight edge and rule. If the model is gliding too steeply, then the opposite treatment can be given. A word of warning here though: although biplanes can be made to glide quite flat they sink at a fairly high rate, due to the high drag of the bracing wires, so do not mistake sink for a steep glide. Turns can be straightened out by judicious application of opposite rudder — do not be confused by a stall though; very



Judges at work inspecting a club scale competition in the heyday of the Blackburn A/C club at Brough in 1966. Would be nice to see even this many entries at a rally next year . . .

often a wing will drop in a stall. Cure the stall before attempting to straighten the direction. If the model is out of trim the grass will prevent serious damage during these initial tests, but there is one snag, however, it tends to snag up flying wires and if any fly-off in a heavy landing it is the devil's own job to find them again! When picking the model up develop the habit of giving it the once-over to make sure everything is there, because if you have once left the spot you will never find it again! Continue this habit even when flying over short grass and train your 'fetcher mites' too, otherwise go for it yourself.

Before proceeding to the power stage, have a thorough examination of the model again and check that nothing has shifted or is working loose. The cabane should be examined closely at this time for signs of strain, then record in a notebook the exact settings of the rudder and elevators.

If the long-grassed field is large enough, one can proceed immediately on to the first power flights; if not, transfer to the flying field and power trim as soon as weather conditions permit.

Power Trimming

Start the engine and run it at about one quarter full power, and let it run for about two minutes to warm up. If one neglects this the engine may speed up after launching with disastrous results. Launch as before with about 20 seconds of fuel left — an extended powered glide should result, preferably with a slight left turn. If a slight right turn is evident, the flight path should be straightened by a slight application of left rudder. Increase the power for the next flight so that the model just loses height under power, any slight stalling tendency can be corrected with a small amount of down elevator. As the power is increased, the tendency to turn left is more pronounced and right rudder may be required to correct. Check that the glide turn to the right, which will almost certainly ensue, is not getting too tight or a spiral-in on glide will result when the engine stops.

If, as power is increased, the left turn cannot be corrected by right rudder then flying must cease immediately and the model taken back to the workshop for more right sidethrust to be applied. If, as recommended in Part IV, the engine is mounted on a plate

Terry Manley launches his AW FK8 on a low-power flight — note the follow-through of the launching arm.

then it is a relatively simple matter to make another plate with more side-thrust, displacing the engine sideways to allow the crankshaft to emerge from the same hole in the cowl. Do not attempt to continue flying by correcting the left turn with a lot of right rudder otherwise a smash is bound to occur. At this stage in the proceedings one must be prepared to see the model taking a few bashes, but if it has been built on the flexible principles outlined in previous articles and is reasonably light, the worst that will happen is as shown in the accompanying photograph of the S.E.5a taken during a trimming session. Everything was back together again and the model rerigged, within 20 minutes, without any damage occurring.

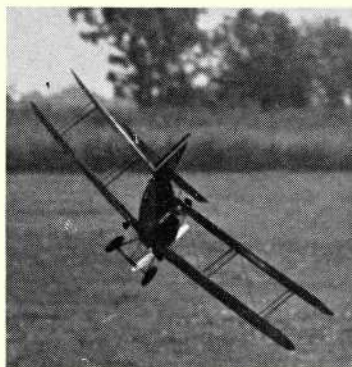
Very often as power is increased a stalling tendency develops which cannot be corrected by down elevator without steepening the glide too much. More downthrust is the answer here, best applied by packing washers between the rear engine lugs and the mounting plate.

After about a dozen flights, and much diligent adjustment, one should achieve a wide shallow, left-hand climbing turn, followed by a flat glide with a wide turn either to the left or right. Never allow the model to turn right under power in any circumstances! A pile-in is almost the certain result. Some very stable machines like the B.E.12b and the Jungmann will take a very wide right turn on low power but the tendency of the gyro-couple to stick the nose into the floor is always there. Never take any chances – always trim left on power.

When we are satisfied with the trim from a hand launch we can try a take off from the runway; if one's airfield is blessed with such a luxury. Make sure the engine is giving sufficient power for a reasonable climb and there is at least 30 seconds worth of fuel in the tank before releasing. Nothing is more disastrous than the engine cutting on the climb-out about 5ft above a hard runway! Face the model so that the wind is coming-on at about 15° from the left, *not* straight into it. When the model is released, not pushed in any way, it should swing left about this amount before gaining directional stability and so be pointing into wind at the moment of take off. Only practical experience with the model will determine the actual amount of swing, but 15° is about average.

Some prototypes take off better than others, and some I am afraid, are very loath to at all. It is very difficult to pinpoint what governs take off performance, ideally the model should swing slightly to the left on the initial acceleration, due to torque reaction, then as the tail surfaces gain aerodynamic power, the model should

'Ouch – this is going to HURT!' Terry Manley's FK8 'arrives' rather hard. Tight right spiral on the glide due to insufficient right sidethrust to counteract torque.



run straight for a few yards before lifting both wheels off simultaneously followed by a straight climb before commencing the left turn. Prototypes with forward disposed undercarriages, which are fine for preventing a nose over on landing, are prone to 'waltzing' on the runway before take off – if they ever manage it. W.W.1 single seaters tend to come into this category. Aeroplanes with low set undercarriages, just in front of the C.G., such as W.W.1 two seaters, are generally much better performers of the take off manoeuvre, while good suspension and free running wheels (oil them with a drop of fuel) are a big asset to a clean take off. Lightly loaded models are often worse at taking off than a heavier machine (within moderation that is) providing sufficient power is available. The reason for this being that the model has more forward speed and hence directional stability, from the tail, before the lift effects from the wings take charge of things. Very often angling the undercarriage so that one wheel leads, in the direction of the turn, helps cure a wayward take off tendency.

Once you have determined that the model will take off and produce a reasonable flight pattern, or come to the conclusion that take offs are impossible and it is to be a hand-launch-only model, pack up flying immediately and wash it down with ether. Do not be tempted to continue flying – you may only damage it and nothing further is to be gained; for a certain amount of re-trimming is bound to be necessary when the model emerges in its completed and heavier state.

Before taking the model home record in a notebook (a separate log book for each model is useful – I tend to use the folio containing the information presented to the judges) the following:

1. Port and starboard elevator settings. Place a straight edge along the top, or bottom, of a certain tailplane rib and measure the amount of droop, or rise, of each elevator between the straight edge and the centre line of the trailing edge.
2. Rudder setting – left or right in a similar manner.
3. Measure the C.G. position from the leading edge of the centre section.
4. Make a note of any warps that are in the wings.
5. Record propeller size, approx. amount of power for a normal flight and amount of fuel required for a 30 second engine run.

Do not wait until you get the model home before doing this, you may knock the tail surfaces in transit so destroying your whole evening's work.

Beautifully constructed 1/12th scale version of the Westland Wapiti by Vic Driscoll is the 46 in. span and uses M.E. Snipe for power. Model had not flown when this picture was taken at Old Warden . . .





Are you between 10 and 16 years of age? Then don't delay, join today

Dear John,

I have recently made a glider model which is designed to be launched via a catapult. However after repeated attempts I have never yet been rewarded with a successful flight, as the model refuses to climb.
Dunstable, Beds.

R. Mond

There is in fact a very simple idea which will overcome this problem, namely the use of an 'automatic' elevator. Add a small, hinged elevator to your catapult glider, with a 'stop' permitting approximately 15 deg. up-elevator and with no 'down' possible. Tension the elevator in this 'full-up' position with an elastic band - this need not be anything elaborate, just a pin in the tailplane and fuselage with the band looped over each. Now when you launch your model you will find that air pressure will keep the elevator flat when it is initially released but as the airspeed drops off, the elevator will rise and the model will climb, perhaps performing a tremendous loop. This flight pattern may be altered by adjusting the tension on the elastic band, and also by varying the amount of 'up' movement.

Dear John,

Please could you tell me if you know of any model aeroplanes that could be converted for the ducted fan system for small engines, of about 1c.c. or less. If so, could you tell me where I could get them and how much they cost. If they need to be converted could you please tell me how to do so please.
Morpeth, Northumberland.

D. Jennings

Although Veron used to produce kits for free-flight ducted fan scale models, these regrettably are no longer available. The only plan for a model using this type of propulsion which we can supply is P. E. Norman's Mig 15, (FSP/603) 30p. This is an extremely good flier, but is for more experienced modellers only and needs a radially mounted 2.5c.c. engine to power it. Details of the fan unit are printed on the plan.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a members of the 'Golden Wings Club'. With this application I enclose postal order (International Money Order) for 25p to cover cost of the enamel club badge, two coloured transfers and membership card.

NAME IN FULL

ADDRESS

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

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

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

A forthcoming issue of Aeromodeller will, however, contain a Ducted fan design based upon the English Electric Lightning and using .049c.c. engines which should be of great interest to you.

Dear John,

I recently bought a Bartels Glass Fibre propeller, and was surprised to see a heavy 'flashing' surrounding the moulding. The shopkeeper said that this was normal with all but the larger R/C Bartels props, but is this so? Could you please tell me how best to remove it.
Reading, Berks.

A. Lee

This flashing is perfectly normal - the reason for it being left on is that these props sell mainly to competition fliers who will 'rework' a prop as a matter of course, and if the manufacturer were to do this for him, the price would rise considerably, due to the length of time taken. To clean up the propeller use a file and glass paper, not a balsa knife or you run the risk of the blade cutting into the prop moulding. The blades can be thinned by glass papering while the hub is best smoothed off with glass paper wrapped around a piece of dowel. Having cleaned up the moulding it is now vital to balance the propeller correctly. To do this, a tightly fitting piece of dowel is inserted through the prop hub leaving an equal length either side. Obtain a block of balsa and half bury two ordinary double-edged razor blades approximately 2 in. apart so that the two blades are vertical and their edges parallel to the block. Balance the dowel and prop on top of these. If the left tip proves heavier, then remove some material from this tip, or vice versa until the propeller is truly balanced and lies horizontally on the jig.

This balancing jig will, of course, only work properly if the two razor blade edges are truly parallel, and a spirit level should be used to check this. However, if this is not possible, align the blades by eye, then when checking the prop for balance, fre-

quently reverse its direction on the jig to cancel out any errors.

When the prop is balanced to your satisfaction it should then be given a couple of coats of dope or fuel proofer to seal the edges of the glassfibre strands from fuel seepage. Re-balance by careful, light sanding when this is completed.

Dear John,

On my last stunt model I decided to finish it with a red and yellow sun-burst colour scheme, so I painted the whole wing red and masked off the contrasting area with Sellotape. However, when I peeled off the tape the red paint came away with it. Could you please tell me how to prevent this, as many people seem to use this tape successfully?
South Harrow, Middx.

C. Helliwell

Firstly, it would have been better to paint the wing yellow overall and then add the red - as red being a darker colour 'covers' better this way round. To prevent the tape from removing the paint, try pulling the sticky side of the tape through your fingers before applying it. This results in the natural oils in your fingers removing some of the strength from the adhesive. Another tip is when removing the tape, double it back on itself, and pull slowly but evenly. Too sharp a movement and the paintwork will, as you know, be ruined.

Dear John,

I have recently completed my first control line model, made from a kit. I found that the leadouts, although working perfectly smoothly initially, became very stiff after I had finished covering and doping the model. Can you tell me why this happened and how I can free them.
Potten End, Herts.

J. Graham

The controls of your model have become stiff due to dope seeping into the cloth hinges. The simplest way to clear this is to squirt a little fuel on to them before flying, and while activating the control surfaces. Another source of stiffness may be the leadouts themselves being coated in dope or paint so that they stick in the brass guide tubes. The solution here is simply to scrape this paint from the wire.

It is often better to use brass guide tubes of a considerably larger diameter than the leadout wires themselves, as should the leadouts become kinked, due to a prang, and subsequently re-straightened, there will still be sufficient clearance for them to move freely. If you are using the modern commercial hinges consisting of moulded nylon parts and with a wire pin then these may be lightly greased before the model is painted to prevent any stickiness occurring.



Team Race Accessories

Followers of F.A.I. team racing will have been intrigued by an advertisement in the November issue, placed by West German Konrad Kaul, offering a variety of team race ancillaries for sale. Kaul is of course well known from international contest flying (in conjunction with his pilot Bader), as well as for having pitted the winning F.A.I. team racer at the '71 British Nationals, when it was piloted by Karl Schwarz.

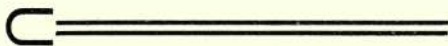
Team racing has recently become considerably more 'gadget-ridden' which must have had a deterring effect on potential competitors who lack either the machining facilities, or the skill to utilise them, in order to compete on even terms with the top men. With this in mind, Konrad has produced a range of *useful* accessories which will permit any enthusiast to keep abreast of modern techniques.

Heart of his range is the pressurised re-fuelling system. This consists of a metal container (equipped with a rubber bulb) which is worn on the left arm and which takes fuel under pressure to a finger valve - consisting of a ball valve mounted on a brass plate shaped to slip over a finger. Price of this reservoir is £4.00, the finger-valve - 85p.

From here one has three choices of letting the fuel into the tank. The simplest, and cheapest at £1.50, is purely a tank valve. We have not seen this item, but judging by the following variations, assume it to consist of a hollow, spring loaded plunger which when depressed admits fuel to the tank after operating the spring loaded ball on the finger-valve - the air pressure forcing the fuel into the tank. Remove the finger-valve, the plunger returns to 'normal', and the filler vent is sealed once more.

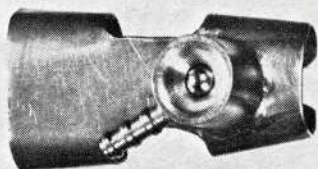
A more sophisticated version (which we do have) is also produced which while fulfilling the above function also primes the exhaust port of the engine while the tank is filled. This time, as the plunger is released it is prevented from travelling right home by a spring clip, which arrests it in the 'inflight' position, i.e. the auto prime vent and filler pipe are sealed while the feed pipe is unobstructed. A wire connection from the bellcrank or elevator is used then to pull back this spring clip, which thus allows the plunger to return fully home, cutting off the fuel supply to stop the engine. In principle it is thus similar to Paul Schipper's device illustrated in the October issue, but more than somewhat simplified. This unit is supplied ready-soldered to the base of a fuel tank, and a drawing is supplied for a recommended tank size. Very neat, very simple and well worth the £2.30 asked.

CONTROL LINE NEWS

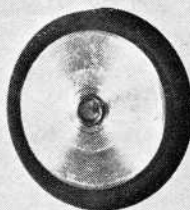


That little-known club of control line specialists, known as Feltham M.A.C., also has a junior section keen to uphold the club's tradition on the sporting scene. Pictured here is the Junior Combat Team comprising of (l to r) Johnny Clark, David Brewin, Adam King (standing), and John Wade. To be on the safe side, they took some 29 combat models to the London Gala . . .

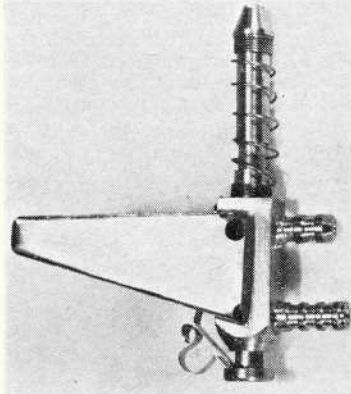
A further refinement of this system is its incorporation in an annular ring type of carburettor, designed to give greater efficiency by atomising the fuel/air mixture more finely - a system used by both Cox and K & B. Two carbs are available to fit either HP or Super Tigre motors, but no doubt they could be adapted to suit other rear induction motors. Cost of this assembly is £3.65 while a suitably machined narrow bore venturi costs an extra 79p and a very fine pitch needle valve assembly to suit is a further 73p.

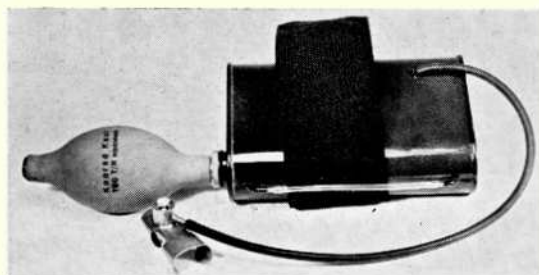


Tank filling valve by Konrad Kaul is fitted on brass plate designed to slide over a finger. Below it is the bushed wheel, with a tyre that will never come off its hub. Very slim and light.



Tank bottom including filler valve assembly - fuel flows down centre of valve stem for filling. Top vent pipe is for exhaust port prime, lower one is engine feed. Note spring keeping valve at 'inflight' setting - when pulled back by operating arm it allows the plunger to return fully home, cutting off the fuel supply.





From the exotic to the more mundane, but just as necessary, is the 1" diameter bushed wheel with hard rubber tyre that just will *not* come off its hub (73p) and a pair of glass fibre props. These are cleanly moulded with no 'flashing', but do require some degree of finishing to thin the blades and to balance them, etc. Sizes available are the 'Bader-Kaul' 7" x 7" and the deeply-cuffed Babichev 6½" x 9", both retailing at 85p.

A word about the prices. They may seem high at first glance, but when you see the items, then you will understand! When Konrad says they are made 'with love' he is not exaggerating – the quality is more than excellent, it is superb. The design of the cut-out systems is, like all good systems, clever but simple while the finish is first class – no machining 'scars' evident and all highly polished. All sliding parts move without binding, yet seal perfectly, while the machining of the venturi is a work of art. However, a worthwhile reduction in cost is possible if a complete refueling system is bought, but this naturally depends on the type of tank valve chosen.

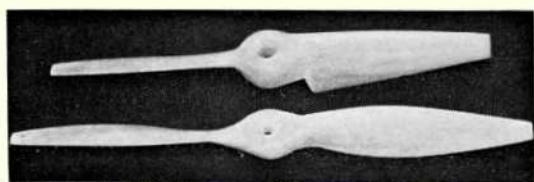
If you have been hovering on the brink of competition F.A.I. team racing, then write to Konrad Kaul at 7144 Asperg, Schlesierstr. 3, West Germany, and leap in!

Northern Area S.M.A.E. 'Goodyear Marathon'

Long-distance team race enthusiast John Horton sent us the following report of his experimental contest.

'The races, which were timed by an electric (battery) clock, started whenever three teams were ready for action and lap counters had been "press-ganged". Normal race procedure was used throughout except that only 50 laps between stops were counted (fuel "cut-outs" being an obvious advantage). The race finished after one hour had elapsed.

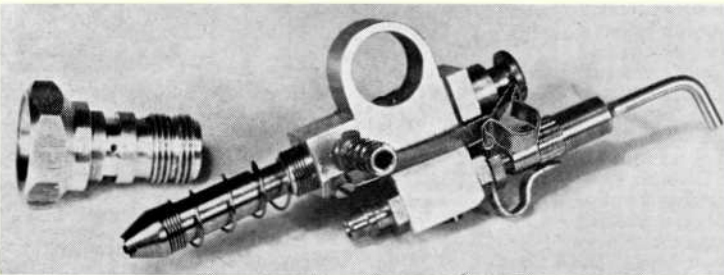
'The first three teams, all flying *Shoestrings*, were ready for take off at 12.20 p.m. This was an uneventful race until near the end when Crampton/Gray retired their P.A.W. 19D model and Brewster/Langworth, who had a slightly faster airspeed than Cooke/Everitt, dropped back with various problems. The Chester lads had a very consistent run using their cut-out to give exactly 50 laps from their Oliver Major 3.5cc (with 8" x 8" Tornado prop trimmed to 7½" dia.) for the whole race. Although the rest had yet to fly it was obvious their precise 1069 laps was going to take some beating.



Left, pressurised fuel reservoir is attached to arm by elastic bandage, while tubing carries the fuel to the finger valve. Rubber bulb pressurises the reservoir. Above, two glass-fibre props, also by Kaul. Top one is the deeply-cuffed Babichev 6½ in. x 9 in., lower the Bader/Kaul 7 in. x 7 in. Both require thinning and balancing before use.

Brewster/Langworth, who were doing 40/45 laps per tank with a Cox carburetted Oliver Tiger 3, often disputed the lead with Cooke/ Everitt until their lappage increased to 50 after about 45 minutes, resulting in a hot, difficult to start, engine. They 'over-ran' (60 laps) at 55 minutes, lost both prop blades at 56 minutes and finally missed a catch in the last minute. Without these setbacks they may have been second overall or even challenged Cooke/ Everitt for first place.

'The second race started at 1.15 p.m. between Daly/Clarkson, Goddard/Temporal and Heaton/Ross. During this race the wind changed direction and became quite strong, affecting the pit stops and contributing to Goddard/Temporal's disaster when a sudden vibration caused loss of control. The resulting prang broke their Kosmic's crankshaft and did not improve the appearance of their *Long Midget* either. Daly/Clarkson's M.V.V.S. 'whined' steadily on with its 'worn-down' 7" x 6" prop. into an eventual fifth place. They operated an uneven lappage of 50 (cut-out) then 40 (dry) with their 'Goodyear Heat' tank. Heaton/Ross also had a disaster when after a long stop at 35 minutes they came in early with a broken Eta crankcase. They immediately did an engine change, Oliver this time, and got back into the race to make seventh place with their *Ginny* racer. Before this happened they were going quite well and for 10 minutes had the overall lead. Another possible winner here? The 2.45 p.m. race turned out to be the 'comic turn' although Pickles/Rhodes did their best with a rather slow but consistent Oliver Mk4 powered *Long Midget* to get ninth place with 763 laps. Barker/Kirton started well but mechanic Barker was suffering with cut fingers so Horton took over and struggled with the rather old Oliver 2.5cc and cut down 7" x 8" Tornado nylon prop. At about 20 minutes, after a short run, the wretched thing would not re-start. Then someone noticed the backplate had unscrewed. Hammer it tight! Off again, but no laps. Engine loose this time. Only three screws? One sheared off flush. Tighten up. Off again. Still short of laps? Engine loose again. Third screw-hole stripped! Change engine. Engine held in with two screws and one wood screw. Off again. 50 laps now but Horton could not start this one either so Barker took over again. Over-ran to 60 odd laps... but they were running at the finish, 472 laps.



Most expensive accessory by Kaul is this annular ring carburettor design, incorporating the fuel shut-off/auto prime/auto fill device as used on the simpler tank unit. Machined venturi screws into H.P. rear casting. This carb is to suit an HP15D – another is available to suit the Super Tigre G15RV, differing only in the angles at which the various pipes emerge.

'Meanwhile at the Les Davy/Joe Devenish pit, another drama. Les had built the *Little Rebel* especially for this event, but he had slightly over-estimated his Oliver Major's thirst and they did not have a 'cut-out'. Solution: fill the tank with cored solder threaded down the vent. But it was still far too big so Joe had to measure out fuel between stops. At about the three-quarter mark he was just getting it right when they lost half of the 7" x 8" glass fibre prop blade on take-off. The *Rebel* rattled round for 50 laps without any apparent loss of speed while everyone stood at a discreet distance expecting the worst (no cut-out). When it eventually landed everything was loose or missing, the engine virtually held in by the fuel tube! That was it, the engine screws were sheared off flush!

'The 4.05 p.m. race was stopped at 23 minutes because only Clarkson/Daly were left running. It was a pity really because they were going well at 403 laps. Another possible challenge to the overall lead. Farrar/Ashby pranged their Veco 19 powered *Christensen Zipper* after a brief line tangle when pilot Farrar tripped and fell (on take off) over Langworth, who was also making a pit stop. Langworth/Muncaster pranged at 23 minutes when their down line came off.

'The last race at 4.45 p.m. was between Everitt/Cooke, Horton/Kirton and a re-run for Clarkson/Daly. This time Everitt/Cooke flew their *Long Midget* and put in another consistent performance with only one long stop for the Oliver 3.5 to cover 959 laps for fourth place. Clarkson/Daly also performed with efficient regularity with the same equipment as before to achieve 999 and second overall. They again lapped at 50 and 40 before re-fueling. Horton/Kirton produced their usual erratic performance with a poor starting engine (Veco 19 with 8" x 8" Bartels prop cut to 6 $\frac{3}{4}$ " dia.), but probably the fastest airspeed of the event to finish sixth overall with 949 laps. Kirton showed more pilot fatigue than others after the race, having done two hours in quick succession.

'To sum up, the event was a success, probably helped by the calm, mild weather. It is hoped to be repeated next year and may become an annual event like the 'Rufforth 1000'. The only problem was getting people to lap count, but if each team could produce an extra man themselves or volunteer before they fly, the event would run a lot more smoothly. How about someone else running a similar long-distance event. They are a lot more interesting than the usual sprints.'

Rufforth 1000

Another of John's pet interests is the *Rufforth 1000* which this year included not only Class B racers, but also F.A.I., Goodyear and A-class rat racers fitted with 30cc fuel tanks and flown on 60ft lines. Lack of John's usual graph for this event, and the absence of photographs is due to the fact that it was too wet and too cold to record anything! However, John sends us his following comments:

'This was a *Rufforth 1000* that will best be forgotten, except for the winners from Thurnscoe who were the only team to finish.

'The weather made up for all the good days this year particularly during the final. The runway was wet all day but at about 4.30 p.m. the small pools of water became great lakes several yards across. However, these conditions caused only one retirement when Don Haworth released his model (from his island). With only 127 laps to go, it plunged into the lake, turned sharp left and crossed the circle, breaking a line.

'Haworth/Place and Heaton/Ross (both using F.A.I. models, the former with a 2.6cc Eta) had a terrific scrap for the lead in the same circle as the eventual winners Hill/Orriss/Wright and their Eta 29 class B racer. The



Martin Radcliffe is really getting to grips with his Super Tigre 60 powered speed model, achieving 166.9 m.p.h. at the London Gala - good enough to win the handicap speed event with 99 per cent of the existing record. Martin is one of the best monoline pilots around in this country.

Leigh lads just managed to keep in front with their superior range from Wharfedale's slight speed advantage. The difference was never more than 10 laps, often only 2 or 3.

'In the other circle Davy/Devenish lasted longest until their Oliver 3.5 refused to start with no suck or compression. It was too wet, cold and dark to find out why so they packed it in. Ansell/James had hard luck, after travelling so far, when they broke the rod of their high revving HP.15. The gusty wind robbed the Chester team of a place in the final, when a heavy landing removed their under-carriage in the second round, which unfortunately they need not have flown.

'Two 'Class B' faces from the past were present at the meeting. Roy Yates (Hampson/Yates - Leigh), who helped with lap counting and Fred Bell (Dugmore/Bell - Novo.), who was teamed with Alan Laurie. Fred has nearly finished a new Class B job and still has some potent Eta 29s.

'Although everyone got soaked the spirit wasn't dampened and all hope to do battle again next year.'

U.S.S.R. Nationals

News has just reached us, via Konrad Kaul, of the Russian Nationals held at Charkov. Without a doubt, the most spectacular results achieved occurred in the team race category where Kramfsenko/Nuginij recorded an incredible best heat time of - wait for it - *three minutes fifty-eight seconds!* In comparison, Timofeev/Plotzinsh's best time of 4:07 seems positively slow, while Krasnorutsky/Evgechov at 4:18 were plain dawdling! The final was very close and very fast, but not spectacular to the same degree - Timofeev/Plotzinsh winning at 8:56 followed by Krasnorutsky/Evgechov at 9:05 with Kramfsenko/Nuginij trailing at 9:13. Not bad at all these lads, in fact, they show definite promise...

Speed was not nearly as impressive, Karpei emerging top with 232.4 Km./hr., followed by Walkow at 230 and Buruev at 222 Km./hr. In aerobatics, the order was Esnin, Plotzinsh and Kondratenko.

Incidentally, original source of this information is Babichev - the pilot half of the reigning team race World Champions Babichev/Krasnorutsky. He did not compete as he wishes 'to keep his mind clear for next year's World Championships'.

GADGET REVIEW

YES - IT'S BACK! Not since May 1968 have we featured a *Gadget Review*, for the simple reason - no gadgets! At last a degree of creativity and ingenuity has crept back into the lives of aeromodellers and we are able to present the accompanying ideas. If you have an easy way round an awkward job, or have made a special tool for a certain task, then send us your idea for publication on this page - and remember, all contributions are paid for!

Many modellers find great difficulty in drilling engine mounting holes accurately (how often have you seen engine lugs filed out to compensate for an out-of-place hole?), but Peter Miller of Sudbury, Suffolk, finds this an easy task. As shown in diagram A, he simply clamps the motor in place and drills through the holes in the lugs. Why doesn't the drill-chuck foul the cylinder fins? Simple, he uses 'Long Series' drills which are available in standard diameters, but are approximately 6" long, and available from any good tool factors or may be ordered from a reputable tool shop. They are reasonably priced, but take care when using them as their extra length makes them susceptible to bending or breaking, especially when used in a hand brace.

Sketch B shows a fairly popular idea, making a 'clunk' tank from a cheap polythene bottle, such as may be bought from the 'fancy goods' counter of the larger department stores. Barry Clay of Coventry who sent us this sketch uses filler and vent pipes made from broken spray-bars which are simply push-fits into the top of the tank. The feed pipe is made from a brass bush, available from any model shop, with the flanged end removed and bolted firmly to the bottle cap. Attach a piece of fuel tubing (rubber variety, not neoprene) to this bush and use a fuel filter as the fuel pick-up weight. Far cheaper than a commercial tank - and remember, should the cap leak, this may be cured simply by smearing a little silicon rubber compound around the threads before tightening.

Ever tried to make consistent and neatly formed hooks for rubber-powered models? Finchley reader P. A. Scorey uses a neat little tool (see figure C), originally made from an old cabinet stay, but any suitable sized piece of metal would do, plus a headless bolt, the size of which depends

a selection of readers' hints and tips

on the size of the eye required. Cut away a portion of the metal plate at 'C' then slit the bolt with a hacksaw to accept this plate. Insert the plate through the bolt and tighten up the nut. The gadget is now placed firmly in a vice, together with the piece of wire to be formed, flush with the top of the jaws at 'A-B'. The wire is now formed around the bolt and is returned through the gap at 'C'. Cut the wire at this point, and a perfect hook results.

Models which have light construction combined with sheeted areas cannot be sanded without localised thinning, so Trevor Faulkner (a frequent contributor to *Aero Modeller*) pre-covers the required sheet before cutting it to size. To do this he uses Polycell, applied over and through the tissue to adhere it to the sheet - **do not** paste the sheet wood first (see diagram D). This paper-covered sheet may then be kept flat, after surface drying, by weighting. When completely dry, give a coat of well-plasticized dope (i.e. a dope which will 'flex' with the surface without cracking. A dope may be plasticized, if necessary, by adding a few drops of castor oil). Again weight the wood after initial drying. When quite dry, sand lightly to remove slight surface roughness, then dope and weight again. For a 'superfinish', sand the sheet first, then the dried and pasted paper, then apply about three thin coats of dope, sanded between each with 400 wet or dry paper, used dry.

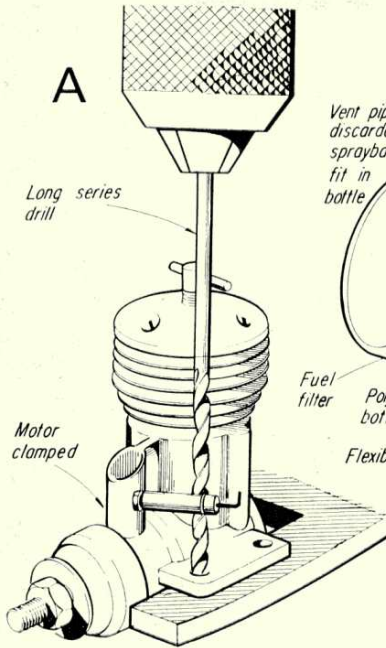
It is a well-known tip to utilise an aluminium teapot as the cowl for a radial-engined scale model, but what if something smaller is required? Peter Miller's idea (G) is to use the gas containers from *Bluet Camping Gas* stoves, which are 3½" diameter, as either the cowl itself, or as a female mould for making a glass fibre item. Unlike aerosols, these containers have no valves, so when they are removed from the stove there is no trapped pressure and therefore are quite safe to cut up.

Scale model radial engines are usually tricky to reproduce, but a further brainwave from Barry Clay makes this task considerably easier than normal (sketch F). Firstly, obtain a length of tube whose internal diameter is the same as that required for the engine's cylinder. Grease the tube and force into it a glass fibre filler, such as *Isopon* paste. When set, remove the moulded filler and cut off the surplus length. Now mix up some more filler, and smear over the length of the cylinder. Using a comb, drag it through the wet, tacky filler around the circumference of the cylinder to represent the fins. Repeat for each cylinder, then build up the crankcase from filler, using old Humbrol tins, etc., for the mould. This method is really quite simple when mastered, and looks very realistic when sprayed with a suitable paint.

Trevor Faulkner, always keen to improvise, has a neat 'do-it-yourself' clip for battery connections, illustrated in sketch G - in this particular case for a receiver power pack. Firstly, he removes the top from the appropriate disused battery, so that the fibre insulator is undamaged and complete with the brass clips. Leads from the receiver are soldered to the underside of these clips, and then a plywood backing piece is bound and glued (using an impact adhesive) to the fibre insulator, covering up the wire and contact bases. The result is a clip that fits the new receiver supply battery exactly, and costs nothing to make!



'If we carry on with this R.T.P. lark, we'll certainly need a new hut!'

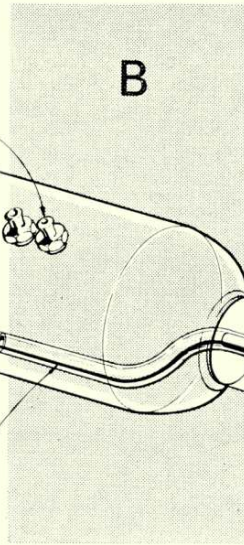


Vent pipes from discarded spraybars - push fit in bottle

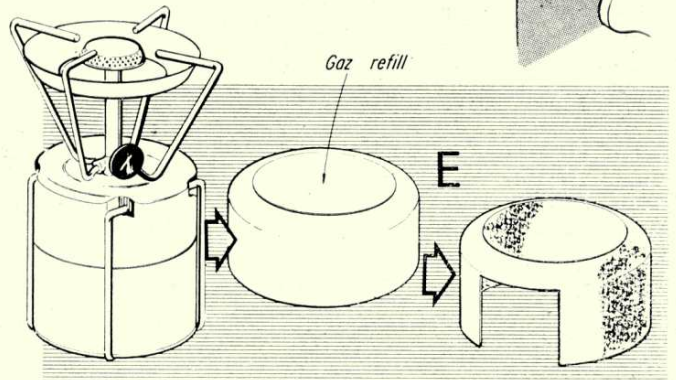
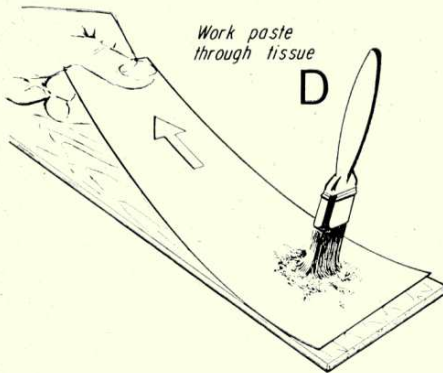
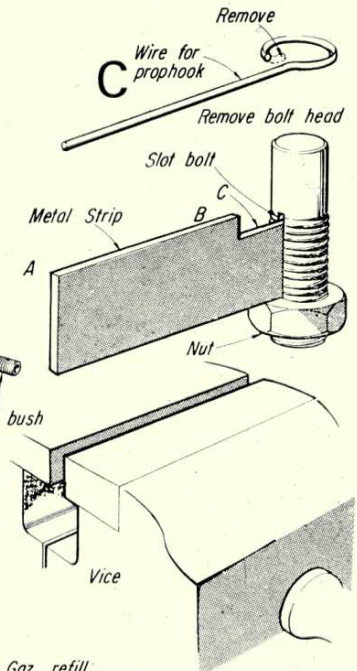
Fuel filter

Polythene bottle

Flexible fuel tubing



Brass bush

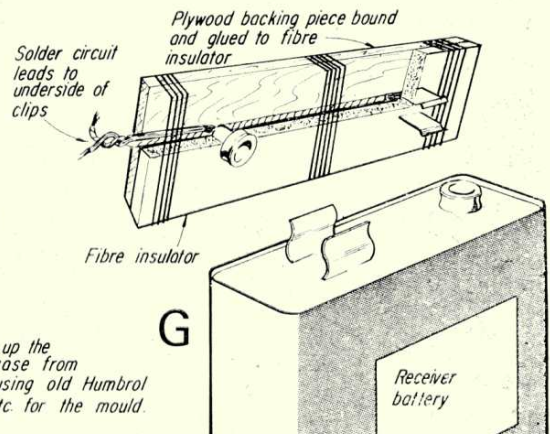
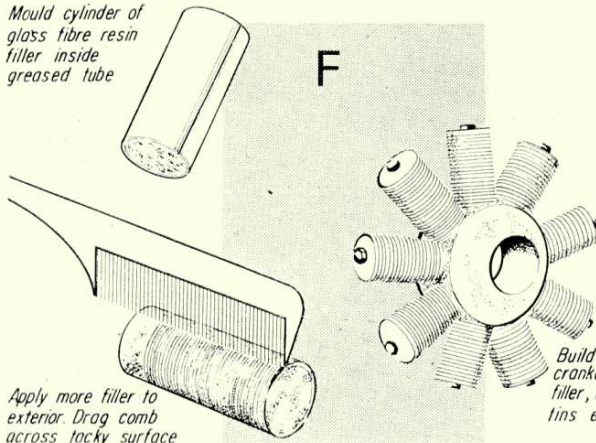


Camping Gaz stove

Use gas container either as Cowl or as female mould for glass fibre

Cut any openings etc. in cowl with hacksaw and file

Mould cylinder of glass fibre resin filler inside greased tube



Build up the crankcase from filler, using old Humbrol tins etc. for the mould.



**The laws of Nature
decree that hot air rises.
Why not make some, then
harness it in a tissue
envelope called ...**

MIDAIR

**... a three-foot diameter,
24 cubic foot capacity
hot air balloon
designed by S. T. MIDSON**

Up, Up and Away! The designer, having felt the 'model' become first weightless, then lighter-than-air, as the methylated spirit burns in its chimney, releases his brightly decorated MIDAIR to the elements.

WITH THE PRESENT UPSURGE of public interest in hot air ballooning, the author feels that it is about time a similar interest be roused in *model* balloons. They are very simple, cheap and quick to make – a good fact when you remember that careless handling can cause your labours to disappear in flames in about 10 seconds. Normal commercial tissue paper, available in sheets of 30" x 20" is used to make the envelope and the numerous

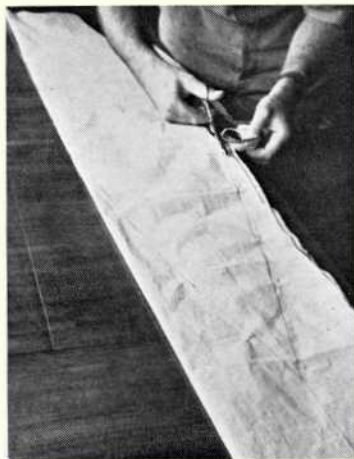
colours available can be used to advantage. The 12 panels are made from 6 sheets of tissue each formed by joining two standard sheets along the 20" length, to give a 59½" length by 20" wide. Tissue paste or PVA glue should be used for the envelope – the plastic spouts from the small size PVA glue containers are very handy when gluing seams.

Fold one sheet in half, lengthways, and mark out one

STAGE 1. Make up six tissue panels, each formed by joining two standard sheets along their 20 in. lengths. Having folded and marked out the top panel, cut out as shown.

STAGE 2. Lay the first panel flat on the table, then run a thin line of glue down the right-hand curved edge. Use of different coloured tissue aids appearance greatly.

STAGE 3. Gluing the second seam. Note how the second panel has been folded, the glue line, and the newspaper separating the first seam. Repeat until all twelve panels have been glued.



panel to use as a pattern. A free-hand smooth curve is adequate between the marked points, but at no time must the panel go outside the 30° inclusive angle at the point, or a pumpkin-shaped balloon will result. Fold the remaining sheets and pin the pattern to them, making sure that they are flat and all pins are in the waste material. Cut out carefully to ensure all panels are the same shape.

Lay the first panel flat on a table, then run a *thin* line of glue down the right-hand curved edge. Place the next panel on top of it and press the edge on to the glue. Fold this panel in half along its centre line, so that the left hand edge lies above the glued seam then run the next line of glue along the new right-hand side curved edge and repeat until all 12 panels have been glued into a concertina-like shape. The left hand edges of the top and bottom panels should then be glued to complete the envelope.

If you are heavy-handed with the glue it is likely that sufficient will have soaked through the tissue to fix adjacent seams together; in order to prevent this from happening some newspaper should be inserted to keep the layers apart.

Cut the last 1" of the point off, and when the glued seams are dry, open the balloon up and glue on a 3" diameter disc of tissue to make a neat cap. The impatient will find that a hair dryer can be used to inflate the envelope at this stage to give a taste of things to come! For neatness the envelope can be turned inside out, but the outside seams make very useful grips when handling and it is recommended to leave them as made.

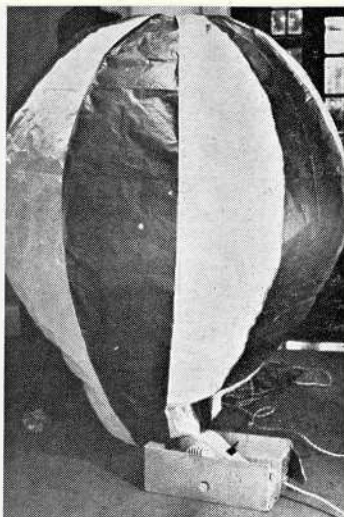
Make the opening framework from 1/8" square balsa, cut to length to match the panel, and glue to the edge of the tissue. Cut and add the angled joiners when dry – for this job a fast drying cement is best. All care must be taken to prevent the flame reaching the envelope, and the burner is enclosed in an aluminium foil chimney for this reason. Since this bears no load, cooking foil with folded seams is sufficient. With the blank flat on the table, start by folding the longitudinal seams as shown on the drawing, then press flat to give sharp edges. To make it into a cylinder fold in half to bring the ends together and fold over as at the edge. Open up and shape into a cylinder, then pierce four holes at 90° for the support wire in the middle fold.

The burner is made from a deep-drawn aluminium canister 1½" to 2" diameter and about 3" long which can be obtained from obliging chemists as old pill boxes. The only important dimensions are shown on the drawing – the position of the lowest hole being critical in controlling the burning time, the author's being set for a 1½ minute burn. A trial burn before installation in the balloon is recommended; if too long, file the hole lower to reduce the volume of fuel. Two pieces of 18 swg. soft steel wire 18" long should be used to hold the burner and chimney inside the opening framework. Start by twisting the two together at the centre and forming the loop for the burner hook – it should then be bent as shown on the drawing before easing it into the burner chimney. For this is must be squashed-up to fit inside the chimney, then fed out through the holes in the middle fold. After assembly both the support wire and chimney should be bent to the correct shape, before hooking into the opening framework.

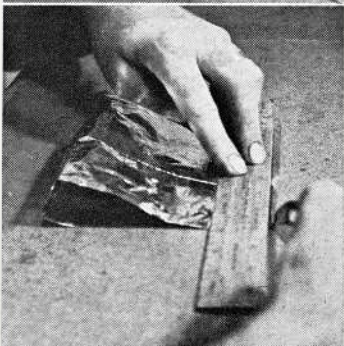
For the purist the basket could be made from scale size cane, but the author's is made from a simple balsa framework covered with thin paper. Inside the basket a lining of aluminium foil, as shown on the drawing, is fitted to prevent meths spilled from the burner from igniting the basket.

In order to give more clearance for filling and lighting the burner it is found best to string the basket direct to the

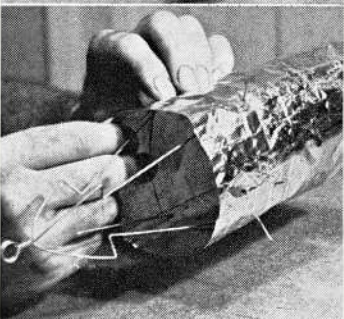
STAGE 4. Cut off the last 1 in. at the tip and when the cement is dry, open up the balloon and add the 3 in. diameter tissue disc cap. A hair dryer will show an impression of the finished article.



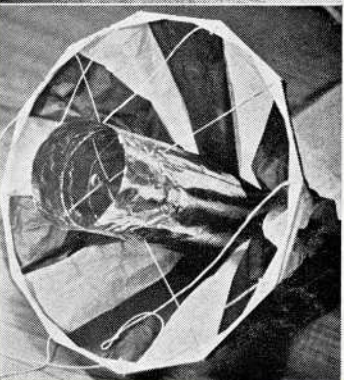
STAGE 5. The burner chimney is made from aluminium foil – here the final seam is made with the aid of a knife – all earlier seams were made similarly.

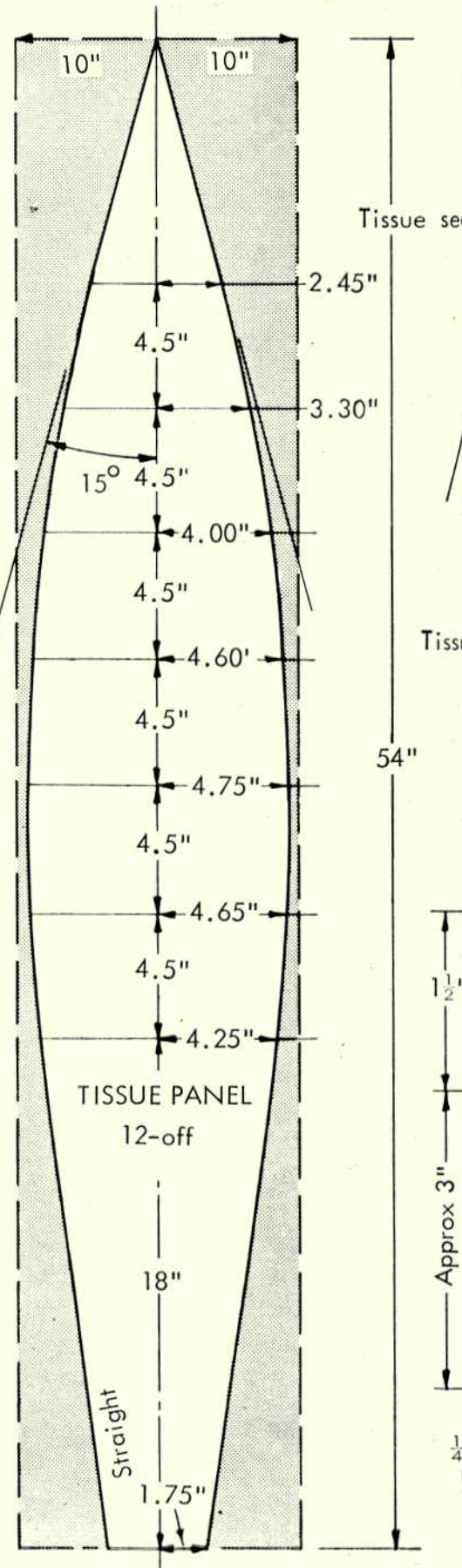
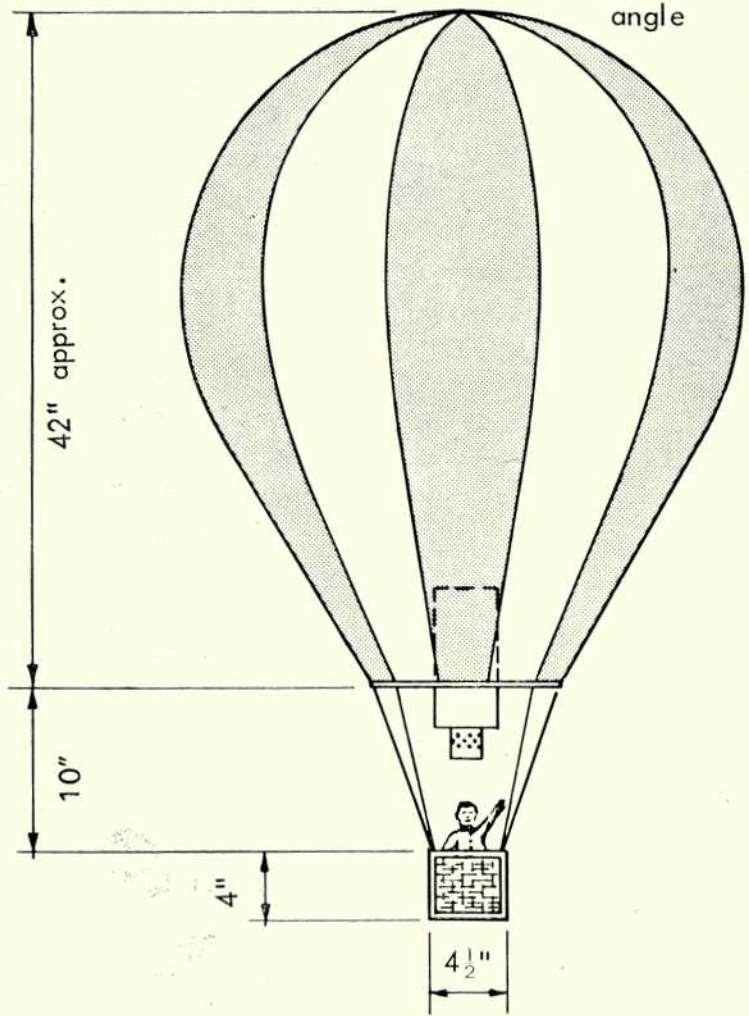
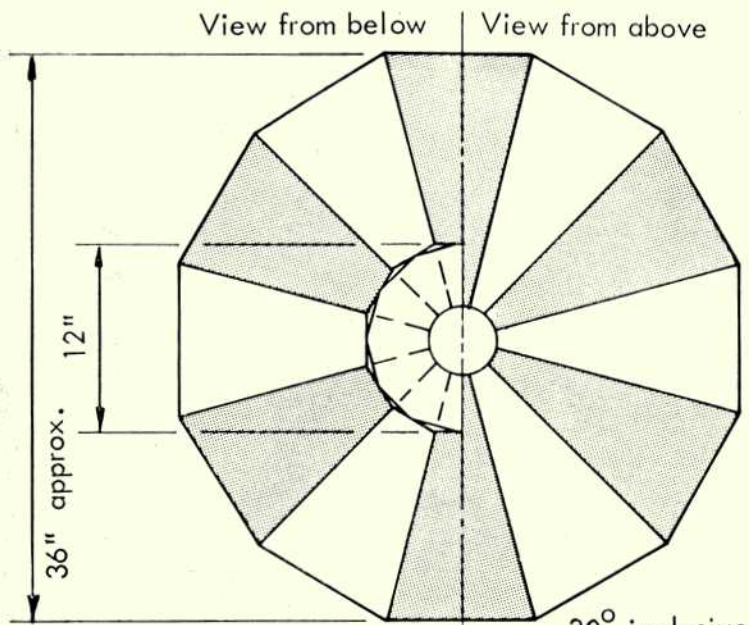


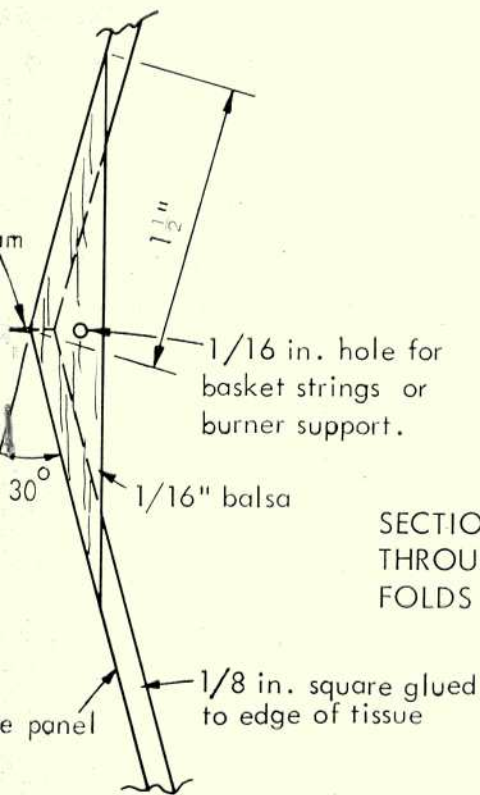
STAGE 6. The supporting wire for the burner is compressed to fit within the chimney, then expanded through the holes in the middle fold.



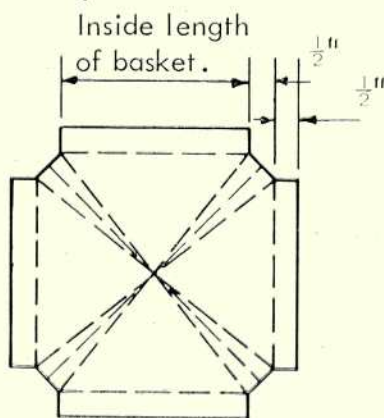
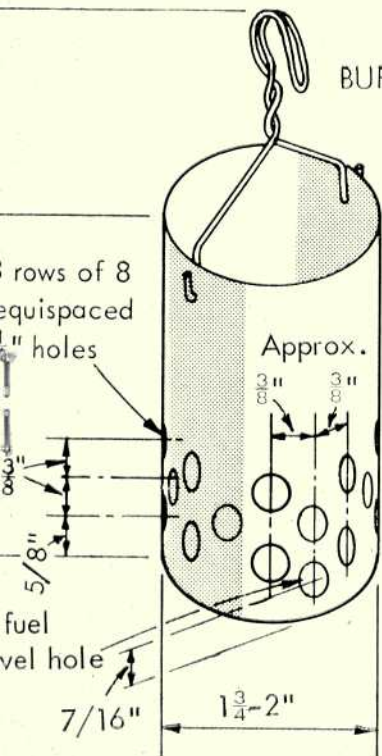
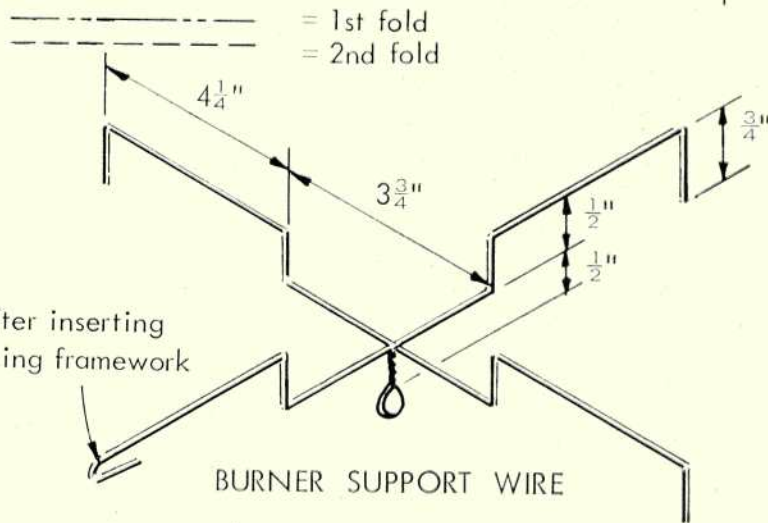
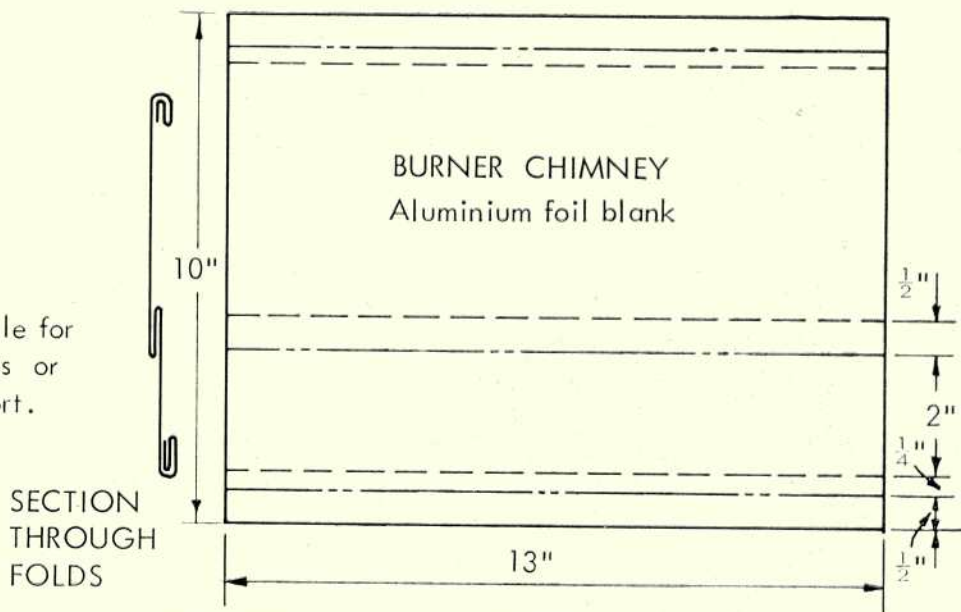
STAGE 7. The chimney and support wire assembled in the opening framework – made from scrap balsa as shown overleaf.







DETAIL OF ONE JOINT OF OPENING FRAMEWORK



Midair
HOT AIR BALLOON
S.T. MIDSON.



Full size balloons are inflated in a similar way – the flame from the propane gas being directed into the mouth of the balloon, held open by willing helpers who have to 'waft' the hot air to the apex.

Hold tight, folks! The 'pilot' gives a blast of flame to keep the retaining wires taut before setting off on his silent journey. Note the load-ring mounted burner used on the full size – and the oft-repaired underside!

opening framework rather than using an intermediate load ring, as on the real thing.

The 'balloonist' is up to you, but he must be light – thin card is the most suitable material. This size of envelope produces about $4\frac{1}{2}$ ozs. of lift, so the whole balloon must weigh less than $3\frac{1}{2}$ ozs. without fuel.

Use only methylated spirit in the burner – a plastic 'squeeze' bottle being useful giving the minimum spillage. Fill to the overflow level – any fuel that has dropped onto the basket must be soaked up before ignition. Never be tempted to use petrol or diesel fuel – a large sheet of flame and severely singed hair, if not worse, will be the certain result. Paraffin will not burn in this type of burner.

The balloon will rise at about 5 feet per second and will sink at about 4 feet per second in still air. Thus a $1\frac{1}{2}$ minute burn will take the balloon to some 300 feet, and assuming no thermal activity is met during the descent, will touch earth again about 85 seconds later. In a 3 mph wind it will have thus travelled 200 yards or so from its launching point. Unfortunately it is nearly impossible to pull the balloon into the wind, however slight, since the tension in the tether not only pulls the balloon down but tips it – something that must be avoided at all costs with the flame alight.

Flights on a short, fixed, tether in the open are therefore not practical. If, however, the operator carries the end of the tether along with the wind and balloon, it will remain in its safe correct flight attitude – a further method of controlling height and flight length is to attach a string tether which the balloon lifts until the weight of string

in the air balances the balloon lift, the length remaining on the ground being pulled along by the balloon. Lift produced varies with a number of factors and the length and weight of the string must be found by trial and error – a piece of wood on the end, fastened so that it cannot catch as it is pulled along, can also be used.

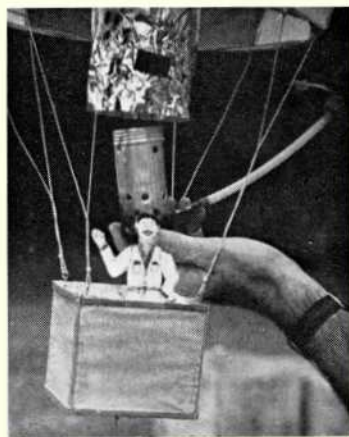
Launching the balloon requires two persons. Firstly, choose a still day and plenty of open space, then starting at the upwind edge of the area, pull the envelope open using the seams as grips, and hold in the flight attitude. Fuel the burner and (making sure the tissue is well clear of the flame) light the burner applying a match to the bottom. There is usually some meths spilt on the metal and this will give immediate ignition. Full flame will not develop for another 15 seconds and lift off will take place a few seconds later. As the flame builds up the balloon will fill completely until you find yourself holding something weightless; when lighter than air – release it to the mercy of the winds.

Hot air balloons present a tremendous range for experiment and individual design: they are obviously an excellent scale subject. Shapes other than the traditional can be made – airship, flying saucer, rocket, etc., and single channel radio control of the firing rate would give the operator the same control as a balloonist in the real thing. A smaller balloon with panels made 30" long and suitably scaled-down other dimensions will satisfactorily lift its own weight, but not with a basket attached, so in this case use a burner made from tissue paper soaked in meths and hung in the burner chimney.

One word of WARNING. You are playing with fire and you must never forget the fire risk. Once the burner has flamed out it is still very hot, but safe, and landing is not dangerous. However, spillage of burning fuel on dry grass during launching could cause trouble. Do not be frightened or put off by this though, however, since any fire can be quickly blown or stamped out, and if the whole envelope burns it will all be out in a few seconds. With such a rise rate a burn longer than say 3 minutes should never be used (unless radio controlled) since the balloon will quickly be in aircraft altitudes, not to mention who's back garden it might land in, miles away.

Guaranteed to draw spectators, I hope that brightly coloured balloons will now start rising from all flying fields. For those who must have competition as part of the model flying fun, the 'fox and hound' system used in real ballooning works well. Release one balloon – the winner is the one which lands nearest to it. A small trailed grapnel ensures that the balloon is not dragged along by the wind after landing.

Take care when fuelling the burner – use a plastic 'squeeze' bottle with extended spout as shown, for convenience. Fill through the holes in the burner until the meths reach the level hole.





INTERNATIONAL CONTESTS

reported by
HOWARD BOYS

**a pioneer of model
radio control who
enjoys his retirement
by visiting European
modelling meetings on his
home-built motorcycle.**

W. Junk of West Germany scaled this Arado 196 from a plastic kit. Resulting model is fully aerobatic despite the size and weight of its huge floats, and looks most elegant, particularly when it starts to gather speed upon the water, as shown in the lower picture.

DURING THE PAST THREE YEARS I had lost contact with friends in Czechoslovakia, and some contests for radio controlled models gave me the chance of renewing old acquaintances.

The first contest was for hydro model aircraft, and was held on the lake at Bezdrev near Ceske Budejovice, with competitors coming from West Germany and Austria, but none from the Eastern countries.

I arrived on the Friday evening, and after pitching my tent, heard engines running and found practice flying under way at the far end of the camping ground. Next morning there was more practice flying before the contest and I was delighted to find my old friend, Rudolf Cerny there.

The contest director Dr. M. Prokop welcomed me and gave me the freedom of the contest area. He spoke in English, and it seemed he was in a Czech Squadron of the Air Force during the War. A number of others who could speak English also came to talk to me and generally made me feel welcome.

Besides the International Contest there was another

for Czech modellers including those who had not gained their Sporting Licence. The rounds for both contests were run alternately.

The Czech contest was won by Jiri Dub, Hon. Sec. of the local club, who also flew in the International contest. Most models used twin floats, but two models of the same design were boat-type with outboard floats held on to the wings with rubber bands. One of these models had an O.S. Max 19 and the other a 2.5cc Jena engine. Both featured just engine and rudder controls, and they finished 6th and 7th out of 8 contestants, gaining about one third of the score of the winner, who had full proportional control. With only engine and rudder control they had no hope of doing all the contest manoeuvres, but it was nice to see the small 'boats' fly and 'having a go' with the big boys.

The International Contest was won by Herr W. Junk (W. Germany) who flew a model of his own design in a masterly way. This model on twin floats did everything I've seen any aerobatic model do, and just as competently too. Herr Junk also had a model Arado 196, which he

Bittner's aerobatic entry at Bezdrev has a typical European appearance with its 'Dolphin'-like fuselage and tapered flying surfaces. Large floats employed but the design of these does not seem critical, there being ample power (in this case a Rossi 60) to haul the machine into the air. Graupner proportional R/C used.





Left, Czech modeller Pavla used a Tono 35 cu. in. engine in his high-winged model which was equipped with home-made six-channel R/C equipment, driving Bellamatic servos. Most entrants favoured conventional twin floats.

Below, Billy of Melnik solves the problem of getting water in the engine by mounting his O.S. 19 on a tall pylon, while similar treatment is applied to the tailplane. Only two 'boat type' models were flown, this one with Graupner Variophon controlled motor and rudder.

had scaled up from a plastic kit which could also 'do the book', though being a more cumbersome model, the performance was naturally not quite so slick. On one flight, the engine stopped with the model on the water about 10 yards off shore. Twenty-two spectators waded out to retrieve, look closer, or to photograph it!

The contest secretary Pavel Horan deserves mention, because he not only marked up the scoreboard, and gave a running commentary, but was also the first man to fly in the contest.

Weather for the contest was mostly very good, hot sunny and calm on the Saturday, but Sunday morning began wet and cold, fortunately improving considerably later, once more becoming hot and sunny.

The different float designs were interesting, some throwing up more water than others, but it seemed that as so much 'brute force' power was available, the float shape did not matter over much. The floats that behaved best were those on the Arado, which is not surprising since full size seaplane floats are developed from tests on models. The contests were well run, and there was plenty of time for test flights between rounds. The local army provided a public address system, plus two men and a boat for recovering models. It looked as though these two men also slept on the spot to guard any models left overnight.

The second contest visited was at Kraiwiesen near Salzburg, Austria. Actually two competitions were again intended although the first was missed through forgetting the date! This was for motorised gliders - points were scored by dividing the total flight time by the engine run. Two of these models were flown in free periods later, and one was surprisingly aerobatic.

The main contest was for the *Igo Etrich Cup*, and attracted entries from Austria, Germany, Italy, Lichtenstein and Switzerland. There was one round each morning, Friday, Saturday and Sunday. The afternoons were given over to practise, exhibition and fun flying. On the Friday night there was a firework display, and one model with navigation lights, the work of Herr Werner Creutzig of Frankfurt, took off with electrically ignited Catherine wheels on the wing tips! Unfortunately it did not get far due to transmitter battery failure.

On Saturday evening a party with a dance band was held at a nearby guesthouse where a presentation of souvenirs to officials and wives was held. Here, the president of the *Austrian Model Aero Clubs*, Georg Kopp, gave everyone a drink from his own special cup. On Sunday afternoon the prizes were presented at the flying ground by the president of the Aero Club.

In the powered glider section, first place was taken by Herbert Weixler, St. Viet, second Alfred Schwarzl, Graz, and third Peter Scherbaum, Wien, all Austrian.

In the aerobatic contest, first was Hanno Pretzner, Klagenfurt, second Ferdinand Schaden, both of Austria,

and third Wolfgang Matt of Lichtenstein.

Since returning to England the September issue of *R.C.M. & E.* has been received with a report of the International Meeting at Koblach, Austria at Whitsun. It is noted that the first three places in both these contests are held by the same three men, though not quite in the same order. They were also more than a little successful at the recent World Championships! Fourth and fifth men from the Whitsun contest were also at Kraiwiesen, though farther down the list.

The contest was very well run, the organiser being Johann Niederwimmer of Salzburg, whose permanent smile created a happy atmosphere. The International Jury consisted of Ing Edwin Krill, Austria, Adolf Brand, Germany, and Werner Koelliker, Switzerland. The latter I first met at Arosa in Switzerland in 1954, and again in Zurich in 1960. He saw me arrive, came to welcome me and acted as interpreter.

Kraiwiesen was too small to be shown on the map, but the Austrian Tourist Office in London told me where to find it. The flying ground is nearly a mile out of the village, and has a permanent take-off strip, and buildings. There is the office with control tower above, workshop, snack bar, shelter area and hangar. A petrol-electric generating set provides power and light, and a public address system is built in with connecting sockets in a cone near the take off strip. Drinking water is available from a pump, while there is a camping area and WC.

Such contests are very enjoyable affairs, and can be included in a holiday, and there is usually plenty for a contestant's family or friends to do should they not wish to watch the contest. The Czech programme quoted some interesting local sights. After the contest at Darmstadt in 1958 I called at the Brussels Exhibition, and after Hirzenhein the following year, Cologne and Bruges were visited. This year Herr Eckmann of Regensburg was a contestant at Bezdrev, and with his wife and daughter were spectators at Kraiwiesen, where they met other friends. If you travel by road or rail there is plenty of pretty scenery on the way.

The welcome and friendly atmosphere of both contests has made me want to plan a similar trip next year.



topical twists

by 'Pylonius'

illustrated by 'Sherry'



'What's all this about a new colour code?'

Simply Monstrous

Looking at a large agglomeration of models of yesterday being held proudly aloft by devotees of the time machine cult, it occurred to me that what the models lacked in gracefulness they made up for in sheer bulk; the fuselage cross sections almost equalling in amplitude those of the somewhat spreading owners.

The beefiest beast of all the oldies was undoubtedly the early gassie. Significantly made back in the days when *King Kong* was in his prime, it was as ponderous and fearsome as any prehistoric monster. The scourge of the skies of its day, it lost flying fields even more rapidly than the unsilenced, unlicensed, uninsured, low flying radio models of today, coming within an ace of being banned altogether throughout the States; an honour no doubt being reserved for the radio model.

All in all it comes as a shock to realise just how ghastly looking were the models in the days when models really looked like models; when they couldn't be likened to anything else. Surely it must be the sheer monstrousness of the brutes that has such an appeal to people over-exposed to the sleek perfection of the models of today.

Personally, though, I prefer to stick to the present rather than wallow in nostalgia – and can some of those nostalgic old models wallow! If models had to be so hideous in the cause of evolution surely we should have the decency to keep these well nourished skeletons firmly locked away.

Kites – Without Strings

One thing, though, about the old style model: it just went up, did its stately circuit or two and then came down. Just as simple as that, all very clean and uncomplicated. But take its modern counterpart, simply dripping with gadgets. Things are popping throughout the whole length of the flight; tails magically shift, rudders turn, engines cut, D/T's flip, and even wings split and reshape. And to get all these systems going requires a festoon of control wires that would do justice to a Bleriot monoplane.

Personally, I find all this complication rather frightening. I grew up in the 'razor blade and scissors' era, when mechanical knowledge required in the building of a model was limited to those simple instruments. The charm of model flying lay in its very simplicity, just one remove from a box kite. If you wanted the mechanical life there was always the model of the *Royal Scot* or *Queen Elizabeth* to get cracking on. You could spend a year and a day perfecting a bogey or getting a davit to work, but the miracle of flight could be yours for a few brief hours at the kitchen table.

Alas, the day of the impractical old duffer seems to be past; model flying now being the particular sphere of the amateur engineer who has given up bogeys and davits for the flying gadget, and gone is the time when the Wakefield could be won by anyone who could stick two bits of 1/8th square together.

Borne Free

There is a tribe in the South Seas, or somewhere, who believe that all the material wealth of our affluent society comes from the cargo inside the bellies of the silver birds homing in from the white mans' ju-ju land. They give practical demonstration to this belief by setting up totems to entice the bulging birds to disgorge some of the loot in the village clearing.

This, on the face of it, might seem laughable, but generally approximates to the attitude the impractical duffers of the model world, like myself, have towards Radio. Ask any of us what goes on inside these cute commercial packages, and you would get as blank a stare as you would if you tried to explain to a South Sea Islander the principles of division of labour. It's just our luck that the silver birds happen to land in our hobby centres.

Now all our happy-feller ignorance of Radio is being brought into question by some ghastly complication which, for some reason that entirely baffles me, makes it necessary for the simple aerial waver to know what frequency he is working on and if he's likely to cut up the bloke on the next colour code. It has something to do with the way they are splitting up the frequencies into finer colour shades, and could well lead to a wholesale, if somewhat reluctant, return to the glories of free flight.

Hell's Angels

If there is one group of people from whom the highest standards are demanded it is the model flyer. To keep a toehold on that bit of much abused open space they have to keep their noses so clean that they are tempted to change the club name to Kleenex. Just one departure from a record of absolute impeccable behaviour – perhaps a rather noisy model or one a bit wayward in its flight path – and out goes the order of the boot.

Having a club field on public sufferance is like sitting on a time bomb: the detonator being the fallibility of the human animal. I often feel that permission to fly under the conditions so often laid down should be reserved for angels, who not only have the desired sort of silent power equipment, but also the right non-human temperament.

F.A.I. ⚡ COMBAT HANDLE

designed & drawn by F.A. Smart

GLEVUM · M.A.C

simple do-it-yourself
control line handle

THE CHIEF ADVANTAGE of this control line handle (apart of course from its low cost) is the ease with which lines can be changed, and also the avoidance of using split rings or fishing swivel clips as line connectors. What is so wrong with these usual connectors? Remember, this handle was designed for combat use (it meets the F.A.I. combat regulations, but of course is suitable for *any* type of control line model) and when flying this class of model extraordinary conditions can, and do, occur. During some hectic manoeuvres, especially those that terminate near, or even in, the ground, lines can become linked together by the split rings, with disastrous results – this has often been the downfall of a combat 'ace'. A glance at the drawing opposite will show how the designer has overcome this problem entirely, and as a side benefit, lines have found to be lasting longer than when used with commercial handles and clips/split rings.

Construction is very simple, and as is shown in the drawing opposite consists basically of two plywood blanks with bicycle spokes/nipples sandwiched between.

Firstly, fret out two profile blanks from 5mm birch 4 ply, then pin the pieces together accurately. The grain should be vertical on the outside face for a more attractive finished product. Mark the outside faces, then on the inside, cut away one lamination of ply on each blank

to allow the hook to be withdrawn – note that the cut-out shown is deep enough to permit up to 5/16" adjustment to each line length.

The next stage is to put four saw cuts to the depth of one lamination, on the inside face, to take the bicycle spokes – make sure that they are a loose fit between the two blanks. Roughen up the joint faces and epoxy the blanks together making sure that the epoxy does not block the channels; this may be prevented by inserting two lightly greased full length spokes in position temporarily. When dry, remove the spokes and clean up the basic outline with a file, then counterbore and countersink to take the spoke nipples. Round off the edges of the blanks, but do not overdo this as the handle may become difficult to hold in a bout should you get fuel on your hands.

The spokes should now be cut exactly to length – this will allow the lines to be removed without the nipples being completely disengaged. Finally, apply two coats of clear polyurethane varnish and the handle is completed. A further refinement by the author is to colour code his control system, i.e. the top of the handle is marked green, the bottom red. The line ends are sleeved with appropriately coloured electric cable covering, while the model's wing-tips have the leadouts marked with red and green spots – no excuses for the pit-crew making a mistake!

For a combat bout, Frank recommends that three sets of lines are made up to the exact length, two sets with handles and models attached with the remaining one just having the handle fitted at the ready on a reel.

READERS' LETTERS

Dear Sir,

I would like to make some comments regarding Jim Mannall's letter on Stunt entries.

The problem of entry is one of dedication to achieve a reasonable standard of flying.

In September '70, P. Galloway and myself decided to enter Stunt competitions for improving Club competition spirit. The first problem was to learn the F.A.I. Schedule, a process that took 12 months of weekly or twice weekly flying sessions, plus several gallons of fuel. The other main problem was in the selection of a model. It soon became obvious that the expert's model was not at all suitable for the man learning square eights and hourglasses etc. The result has been that we have had to go back 20 years to early Palmer lightweights to obtain a suitable model. (We could write a long article on this.) It has therefore taken us 12 months to achieve the F.A.I. pattern and suitable model/engine/tank combination. We are now nearing completion of four models to enable us to compete in next year's competitions and we would expect to fly in competition for 5-6 years before being classified as experts.

There have been several occasions during the last 12 months when all but the most persistent of fliers would have given up and turned to combat or some other form of flying. I feel that some form of intermediate event would help to bridge the gap between Sport Stunt flying and F.A.I. schedule events.

One thing, however, that should please J. Mannall is that he will have at least two new entries chasing him next year.

South B'ham M.F.C. K. S. Burton

Dear Sir,

I read with interest J. O'Donnell's report on the World Champs (*Aero Modeller* October, 1971) and the remarks about Bartels glassfibre props, and I do not dispute the fact that they are safe to 50,000 r.p.m.

The point that worries me is – what happens to the unfortunate person who gets in the way of one of these – often razor sharp, harder than steel, finger-removing tools revolving at 25,000 r.p.m. (Ray Collins still bears the scars of an encounter, which cut his fingers to the bone).

Steel propellers were banned before metal fatigue was understood, and although I fully realise the benefits of using this type of propeller, I am all for

some careful looking into the issue by the F.A.I. – S.M.A.E. and insurance companies to decide whether glassfibre is a suitable surgical instrument to use in this already insurance-claim plagued hobby.

Chelmsford, Essex David H. Stapleton

Dear Sir,

Although the series has not finished yet, I would like to express thanks to Mr. Eric Coates on his excellent articles on flying scale models.

His enthusiasm has re-kindled my own interest after a long absence. (I thought people only flew R/C models nowadays!)

This summer, the Zaunkönig which I built in 1950-51 has been taken out of mothballs and has now completed its test flying. The plane was originally flown only a few times before being put away but is as good as new. The flight trials proved to be rather rough and tumble and the plane is now 2oz. heavier after having the weak points repaired with epoxy – unheard of in those days! The Amco .87 has had the cobwebs blown out of it and has been buzzing in the evening air – great fun.

Mr. Coates' enthusiasm for biplanes has caught on and this winter I am endeavouring to apply some of his ideas to Mr. Watkins' beautiful Thomas-Morse S4C.

I must get to Old Warden next summer.

David Carpenter
Bartley, Southampton.

15.92 METRES (52FT.3INS) TO
CENTRE LINE OF MODEL.

4CM (15/16")
MAX.

GREEN
UP

CUT AWAY ONE
LAYER OF PLY TO
FORM RECESS.

10.3CM
(4 1/16")

TO CHANGE LINES
UNSCREW AND TURN
SPOKE TO THIS
POSITION.

RED
DOWN

5.8CM (2 5/16")

TWO LAMINATIONS
5MM BIRCH 4-PLY

5MM.

12.5CM
(4 5/16")

BICYCLE SPOKE
AND NIPPLE

SAW CUT

VIEW OF HALF HANDLE
SHOWING INSIDE FACE.

USE RED AND GREEN ELECTRIC CABLE
SLEEVING TO LINE ENDS FOR
COLOUR CODING AND TO PREVENT
CHAFFING.

SCALE: FULL SIZE
CONFORMS TO F.A.I
DIMENSIONS





LATEST ENGINE NEWS

by Peter Chinn

American engine manufacturer Duke Fox recently visited the U.K. He is seen here (left) examining the piston of Mike Billington's 10 c.c. racing special, while Gordon Farnsworth looks on.

K&B TWA 15

The engine which, six years ago, set the standards for today's ultra high-performance 2.5 c.c. racing engines was, of course, the TWA 15. Developed from Bill Wisniewski's 'WART' 15 which had powered his World C/L Speed Championship winning model in 1964, at a speed of 141 mph, the TWA (Theobald-Wisniewski Association) 15 appeared in the U.K. for the 1966 World Championships, preceded by reports of 150-155 mph speeds, performances which some people on this side of the Atlantic were sure could not be repeated under European conditions. In fact, as things turned out, Wisniewski thoroughly confounded the sceptics by winning the contest at an all-time record of 161 mph.

The TWA introduced two features which, familiar enough to followers of full-scale two-stroke racing engine

practice, were new to the model aircraft world, namely Schnuerle-loop scavenging and the tuned expansion-chamber exhaust system. Today (with the sole exception of the Super-Tigre which, thus far, has retained its familiar ST crossflow ports) all 2.5 racing units have both these features and since we have, in these columns, looked at most of these motors (to wit, Kosmic K-15, Moki S-6T, Natalenko 'Start', Rossi R-15 and Super-Tigre G.15RV) it is, perhaps, appropriate to also examine the current TWA 15.

The TWA 15 is made in small numbers (50 or so at a time) at the K&B plant in Downey, California under the supervision of Roger Theobald. The engine is not advertised as one of K&B's regular production items and is sold on a manufacturer-to-user basis rather than through the normal dealer network.

This is because these motors are largely hand-built, very expensive to make and, even at a hundred dollars (£40) apiece, are no more than a break-even financial proposition for the company. K&B have thus far manufactured the TWA 15 primarily as a service to the F.A.I. speed community, regarding it, at most, as something that is good for K&B's prestige.

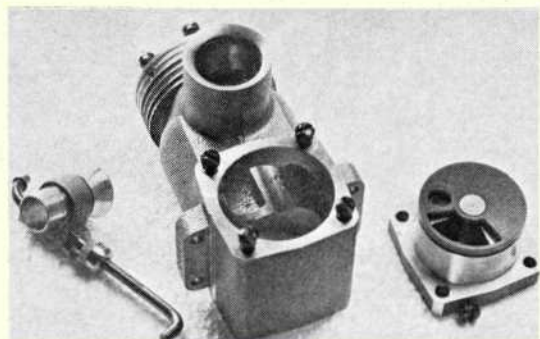
The actual engine described here is one of the most recent batch produced and was very kindly donated to the writer's personal engine 'museum' by our old friend John Brodbeck Sr., president of the K&B Manufacturing division of the Aurora Plastics Corporation.

In order that the main characteristics of the engine may be directly compared with those of the racing 2.5's previously dealt with, we are including a specification table with data arranged under the same headings as given for the piped G.15RV, Kosmic, Rossi and Start (see September and October issues). Somewhat less detailed information on the Moki was included in the August issue.

The pedigree of the TWA 15 goes back beyond the 'Wart' engine to the first K&B 15R designed by Bill Wisniewski in 1960 and which first went into production in March 1961 as the K&B Torpedo 15R 'Series 61', superseded three years later by the improved 'Series 64' version.

Some K&B 15R connections are still visible in the TWA 15. It has, for example, the K&B 15R bore and stroke dimensions and, in consequence, has a lower stroke/bore ratio than that produced by the stock 15 x 14 mm. combination used by its European rivals. Structurally, too, there remains more than a vestige of K&B 15R about the front-end components. The internally

Nominal Bore and Stroke:	0.600x0.537in (15.24x13.64mm)	Crankshaft	
Nominal Swept Volume:	0.1518cu.in— 2.488cc	Main journal dia.:	1/4in (6.35mm)
Stroke/Bore Ratio:	0.895:1	Crankpin dia.:	5/32in (3.97mm)
Checked Weight, less pipe:	165gr—5.82oz	Piston/Conrod Assembly	
Checked Weight, with pipe:	187gr—6.60oz	Total Weight:	8.5gr
External Dimensions		Piston only:	5.9gr
Length, prop driver to intake:	75mm	Gudgeon-pin only:	0.9gr
Overall Height (less plug):	65.2mm	Connecting-rod only:	1.7gr
Crankcase width:	26.9mm	Gudgeon-pin dia.:	5/32in (3.97mm)
Width across mounting lugs:	38.1mm	Porting	
Bearings		Scavenging System:	Schnuerle, rear exhaust
Main (ball journal):	1/4x1/8in 8-ball (front)	Induction System:	Rear rotary disc valve
	1/4x1/8in 8-ball (rear)	Exhaust opens:	80 deg. BBDC
Big end:	Plain, aluminium, with oil slit	Exhaust closes:	80 deg. ABDC
Small end:	Plain, aluminium, with oil slit	Transfer opens:	62 deg. BBDC
Disc valve:	Tufnol disc on hardened steel pin	Transfer closes:	62 deg. ABDC
		Third port opens:	60 deg. BBDC
		Third port closes:	60 deg. ABDC
		Rotary valve opens:	40 deg. ABDC
		Rotary valve closes:	65 deg. ATDC
		Carburettor choke dia.:	1/4in (6.35mm)
		Effective choke area:	26sq.mm

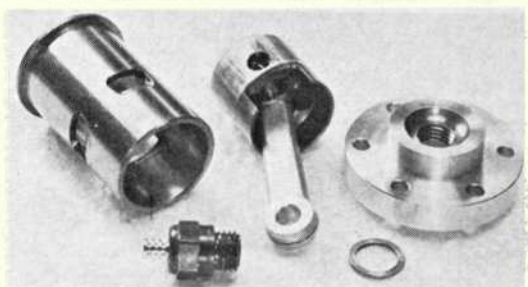


counterbalanced crankshaft is much the same except for a smaller crank-pin and still runs in two small ($\frac{1}{4}$ in x $\frac{5}{8}$ in.) ball bearings. The prop drive and spinner assembly is exactly the same as on the 15R. The carburettor assembly is likewise made up from 15R parts but has a single jet projecting into the choke instead of a series of peripheral jets.

Unquestionably, the most distinctive feature of the TWA 15 is its excellently turned out sandcast crankcase/cylinder-block unit. This imparts a very 'solid' appearance to the engine, giving the impression that it might be heavy. In fact, complete with spinner assembly, the engine weighs only 165 grammes and, if one includes the tuned pipe, it shares, with the Rossi 15, the distinction of being the lightest of current pipe equipped 2.5's. In overall dimensions, the TWA is shorter and lower than any of its rear-induction rivals. The need to keep fuselage cross-sectional area to a minimum has obviously been considered since the TWA's width across its mounting lugs is a great deal less than that of any contemporary 2.5.

In the matter of port areas and timing there is, at present, some difference of emphasis between the various 2.5 Schnuerle port engines. The TWA and Rossi both use very

The TWA15 main casting, back plate assembly and carburettor is shown above. Above right is the same engine's crankshaft, bearing assembly and spinner unit, basically similar to the original K&B Torpedo 15. At right is the TWA's Schnuerle scavenged cylinder and piston assembly plus cylinder-head.



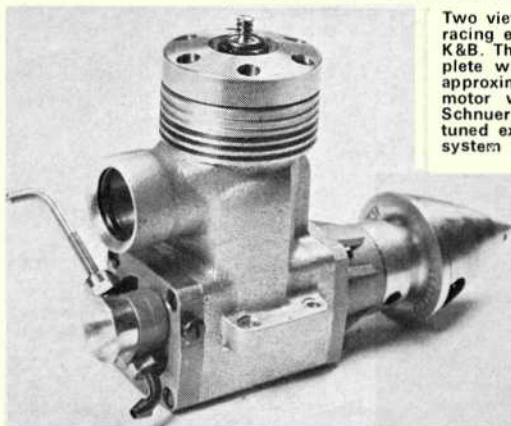
large exhaust ports, the TWA port being the larger of the two but remaining open for a fairly standard (for piped engines) 160 degrees of crank angle, against the Rossi's 168 degrees. The main transfer ports on the TWA are smaller than those of the Rossi but are impressive for the way in which they are carefully shaped on their outer-lower, outer-rear and front-inner edges to promote smooth gas flow from the transfer channels and across the piston crown away from the exhaust port. They are open for a fairly moderate period: 124 degrees of crank angle, compared with 126 deg. for the Moki and Start, 128 deg. for the Kosmic and 130 deg. for the Rossi.

The real difference comes with designers' treatment of the third or so-called boost port. On the TWA this is quite small and opens two

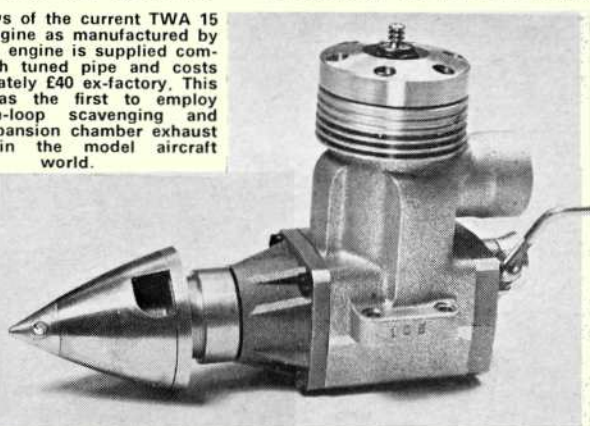
degrees later than the main transfers. On the Rossi, it is very large, is inclined to direct gas well up into the cylinder and opens simultaneously with the main transfers. With the Start and the Moki, however, the third port actually opens before the main transfers, 2 degrees earlier on the Start and 5 degrees earlier on the Moki.

Rotary-valve timings likewise vary somewhat. With the exception of the Start, which begins its induction period very early at 20 deg. ABDC, the valve usually opens within a couple of degrees either side of 40 deg. ABDC. On the TWA, however, the rotary-valve closes very late at 65 deg. ATDC compared with 48 deg. for the Rossi, 50 deg. for the Moki and 55 deg. for the Kosmic, Start and Super-Tigre.

A feature of the TWA 15 is the



Two views of the current TWA 15 racing engine as manufactured by K&B. The engine is supplied complete with tuned pipe and costs approximately £40 ex-factory. This motor was the first to employ Schnuerle-loop scavenging and tuned expansion chamber exhaust system in the model aircraft world.





The new Taipan Tyro diesel from Australia. This and other new Taipan engines will be described in our next L.E.N. article.

small volume of the primary compression chamber. A small i.d. crankcase, full circle crankweb, deep close-fitting backplate with thin valve disc and a narrow big-end are contributory factors here and allow the use of deep transfer channels for free gas flow to the cylinder ports. The cylinder head, unlike the various conical and trumpet shapes more usually favoured for the 2.5 c.c. racing class, is of a hemispherical pattern with a 2.5 mm. wide squish band and a conventional glowplug. The piston has, of course, a flat, deflectorless crown. It is of slightly above average weight but includes an annular stiffening web above the gudgeon-pin. The skirt has a big cutaway at the front to avoid masking the entry to the third transfer channel and to aid the release of gas from the piston interior.

Unlike the Rossi, Kosmic and Super-Tigre, all of which use adaptors, the TWA tuned pipe plugs straight into the exhaust stub that is an integral part of the main casting and is fitted with an O-ring for the purpose. The pipe has an inlet i.d. of 11.5 mm. and an outlet i.d. of 6.8 mm. It is of the orthodox double cone pattern with a maximum o.d. of 29 mm. and has a matt black finish for maximum heat dissipation.

Readers will have noted that we have not attempted, in these analyses of top 2.5 c.c. racing engines, to compare power outputs. The main reason for this is that unless one has unlimited time at one's disposal (which we have not) to indulge in an exhaustive series of tests on each motor (and, preferably, on more than one example of each) under varying conditions and in different states of tune, the results are bound to be inconclusive and give rise to offence in one quarter or another. One must bear in mind that speed flyers do not, as a rule, use an engine in a strictly stock condition and, as a result, any attempt at comparing standard en-

gines is bound to result in complaints that Engine A is much better under B conditions if fitted with a C cylinder-head raised to X compression ratio, on a Y propeller and with pipe modified in accordance with the recommendations of Z.

One thing that does appear to be important with the TWA 15 however, is not to overload it with too much prop. The engine seems to have a somewhat more peaky power curve than, for example, the Rossi (which has higher maximum torque) and it will not give its best unless allowed to hit this peak in the air. That the TWA can still be competitive (in the right hands) against more recently designed opposition, does appear to be confirmed by the fact that the top qualifying speeds in both the U.K. and the U.S.A. for the 1972 World Championships went to TWA powered models. It has to be admitted, however, that the Rossi challenge is an extremely strong one. The future of the TWA will probably depend therefore on how much further development can be put into it.

Günther Bodemann

We have been asked to say a few words about an old friend, Günther Bodemann, who died at his home in

Berlin on October 21st, a victim of cancer.

Günther was Germany's leading model engine designer. His best-known creation, the World R/C Championship winning Webra Blackhead 61, made his talents particularly well appreciated by the radio-control fraternity, but many older readers will remember his powerful Webra 'Mach-I' diesel of the early 'Fifties that proved so successful in 2.5 c.c. class free-flight. Günther was, in fact, responsible for practically all the more successful Webra engines made during the past two decades, the exceptions being those manufactured during a period away from the Webra company. At that time he was at the Hans Hörnlein factory where he produced two of the best Taifun engines, the 'Bison' and the 'Orkan'. In 1963 he returned to Webra at the invitation of Martin Eberth, the new owner, and began a programme of modernising the existing engine range and designing new models. Over the next few years he developed five new engines and his prestige and that of the Webra company reached a new peak, particularly in the United States, following the introduction of the Webra 61. His last design was the excellent Webra 40 engine released a few months ago.

Günther Bodemann was a clever designer and a first-rate engineer but was never one to seek personal recognition and was content to remain very much in the background. To those of us who knew him he was also a most engaging personality. A modest man, he could be both serious and humorous, always interesting, yet ready to tell a joke against himself.

To Günther's widow Christel and his daughter Marina, we offer personal sympathies and we are sure that Günther's friends in this country and many other British modellers will join with us in expressing sorrow at the loss of someone who contributed so much to our hobby.

The late Günther Bodemann, seen here with a marine version of the Webra Blackhead 61 at the Nuremberg Toy Fair.





FREE FLIGHT COMMENT

by

John O'Donnell

If that motor breaks now, there's going to be a few sore fingers! Paul Masterman holds for Pete Williams of Richmond as he winds on the turns for his Wakefield.

MODELLER'S DREAMS must include a vision of an airfield crowded with enthusiasts flying a variety of models in the plentiful thermals of a calm and sunny day. Such a scene became a reality at Cranfield on September 19th, 1971. The South Midland Rally had much more than well supported contests. There was an abundance of sport and vintage flying in mid-airfield – plus the sort of attendance that should have benefited more than just the treasury.

The contest programme was a little different to previous years. A Wakefield event, for the Ted Evans Memorial Trophy had been added – but 1/2A Power and Coupe d'Hiver had been dropped. Nevertheless, Tailless and helicopter were retained, presumably for their novelty (or experimental) value. These two events were in fact the only free-flight events to be decided without the need for fly-offs.

Even the size of the 'open' fly-offs was hardly a surprise in view of the amount of thermal lift in evidence, plus the widespread tactical approach that made the most of it. The real surprise, as far as I was concerned, came in Wakefield – I certainly did not expect either so many people to enter, or for 10 to manage a perfect five maxs apiece.

The flyoffs themselves commenced quite early – a procedure that meant that the early flyoffs were held in lift. This situation has been decried, but it seems better to me than leaving the flyoffs so late that visibility and poor light are deciding factors. With several flyoffs and numerous qualifiers, some category has to be flown first, and sensibly enough this was chuck glider – with Albert Fathers being the only one to find any helpful air, and hence prove the winner.

Open Rubber was next, with many models contacting widespread but quite gentle lift. Winner was John Carter with over 11 minutes in sight – the model being seen almost down. This was the same model that he had lost at Lindholme a fortnight before, and that I had found for him the following day. Moreover I had only returned the model to him at Cranfield! It was a quite conventional diamond pylon layout – if large and bulky, with 300 sq. in. wing area and an 18 strand motor driving a 24 in. x 28 in. propeller. Second place went to Gordon Hannah who was still searching for his model at nightfall. Third was Pete Harris with a complete flyaway – but timed O.O.S. that bit too soon.

The Open Power flyoff was not quite the same story as scores fell off much quicker. This was despite a number of models being launched close together into what appeared very good air. Winner by quite a margin was Dick Johnson flying the Super Tigre 40 powered model depicted last month. It was quite a bit larger than the standard Dixielander that it superficially resembles – but it is ridiculously small for a 40 by American standards! Runner-up was Ray Monks with an elliptical tipped ETA 29 model – new this year but little used in competition. Third was John Hook with an O.S.40 model built from the published drawing of Russell Peers' Woodpecker – but which doesn't look quite the same! Next two places went to the Chiltons with young Andrew beating his father by just five seconds.

Conditions for the glider flyoff were remarkably dead in comparison. As most contestants were using normal A/2 designs, it would seem that their level of performance (around 2:10 to 2:20) is a lot less than that claimed abroad. The eventual winner was Pete Oliver who patiently watched nearly everyone else fly, before towing under the most promising – and then finding just a trace of lift from somewhere. His model had Humplehound surfaces mounted on a conventional glass-fibre rod fuselage – and a quite rearward CG position compared with usual practice. Runner-

up was Elton Drew just a few seconds ahead of Terry Dilks and Gerry Ferer. These two fliers started off with Terry's 1½ size Caprice gliding into Gerry's line whilst he was towing – and hence giving them both the chance to retake their flyoffs. Gerry elected to count his 2½ minutes flight – only to have Terry reply and beat him by four seconds. It is appropriate to point out that collisions do not count as attempts unless so declared and hence are not necessarily the only chance a flier has for his flyoff.

Final event was Wakefield, flown off in failing light – but in calm and very fair conditions. Scores were generally higher than I expected, with a 'bunch' very close together. Winner was Laurie Barr flying his Championships model – now fitted with a timer-operated auto-rudder in addition to V.I.T. The only other flier to clear three minutes was Dave Greaves who has put a lot of work into Wakefields recently. Surprise entrants (and very well placed at third and fifth) were the Hayes A/2 exponents, Jim Baguley and Jim Punter. In between them came Birmingham's Graham Walker with a rear finned aluminium tube design.

The following Sunday saw a choice of attractions, admittedly well separated geographically. There was the well advertised London Area Gala (sponsored by the Richmond club in an apparent contradiction of status) held at Basingstoke Old Airfield, near Royston. This meeting was primarily, although certainly not exclusively, an F.A.I. Gala and the following is a brief report from Jim Baguley:

The day started damp with a very light wind but a later increase in wind cleared the damp drizzle away leaving bright sunny spells with good lift conditions evident. Nearly half the entrants in glider and about one third in both Rubber and Power maxed. A round by round score and

'One last puff on my ciggy, and I'll let go of the beast!' Ian Bracken from the Northwood club with his Oliver Tiger-powered Dixielander – two old favourites join forces.



position was kept for all the F.A.I. events.

The wind slowly strengthened during the day to a maximum during the fourth and fifth rounds of about 10-15 mph where lift was still active but difficult to find.

At the end of the fourth round it looked as though the flyoff (progressive) would be necessary between F. G. Sharp, C. James and M. Coombs, but both Cliff James and Mike Coombs clanged badly in the fifth round. It was said that Mike with his 37 second flight was so cross that his language created a large thermal for some of the luckier ones! This allowed J. McNeill and P. Stewart into second and third places with F. G. Sharp on top with a full house.

Ray Monks in F.A.I. Power flew the 5 maxes necessary to give him first place since nobody else maxed out. It was interesting to note that the following five all did just four maxes each, due to various mishaps. It would appear that F.A.I. power models design-wise are capable of in excess of three minutes, but due to their complexity it is all too easy to make a mistake.

F.A.I. rubber looked as though Jim Punter with his four maxes at the end of the fourth round was all set to win, but due to breaking a propeller blade he only did 1:12, dropping him to 3rd place. Bob Wells ultimately won with 13:41 mins. Several other people who were doing well in earlier rounds fell back due to various reasons, like Ian Kaynes who lost his best model up a tree.

The small Open events were well supported though a large number of the entry obviously used these as 'fill in' events, as had been anticipated - hence only 3 x 2 min. for 'Coupe' and best '3 of 5' in chuck glider.

M. Lambert won 'Coupe' with the only full score and M. Keevil did a creditable 3:20 in chuck glider (1½ min. max.) to give him first place. The only other full score was by A. Chilton in ½A power. A/1 glider was won by M. B. Cowley with 7:35. C. Morris coming second with only two flights of three mins.

A similar event will be run next year, with the addition of a 'Stag' cup being added to the prizes for F.A.I. rubber. It is felt that, for a competition to be successful, the organisation should be thorough and the prizes, cups and trophies worthwhile. Since this will be the aim it is hoped to see more fliers next year.

The other event, and the one that I attended, was the Leeds Rally at Topcliffe. The day commenced overcast and misty, and never really cleared. Visibility was marginal for three-minute flights for most of the day. Naturally enough, lift though present, was generally weak.

Scores reflected the conditions. The main event (at least on the basis of having the most prize money at stake) was A/2 glider, flown to the full F.A.I. compliment of seven flights. It was quickly apparent that no-one was likely to max-out, although the eventual winner (Brian Baines) managed six very good flights out of seven. His top place was secured on a re-entry, and he had little time to waste when a shower curtailed flying in late afternoon. Brian's A/2 was illustrated last month, and looks typical of many similar designs using the ubiquitous glass-fibre rod. Nevertheless it won two major events in September.

Runner-up in A/2 was Dave Barnes of Liverpool - still under 16 yet able to compete on equal terms. He usually flies an Accipiter modified to suit a glass-fibre rod - but also has a more conventional model with an even better glide.

Surprisingly the Mini-comp proved an A/1 benefit - with

Tony Cordes managing yet another win in this category. His model is due to be featured shortly as an Aeromodeller plan. I just beat A. Cooper to secure second place flying a very ancient A/1. On the face of it this event should be dominated by the ½A models - even on seven seconds run to suit the two minute max - but it has yet to happen.

Open Power saw Russell Peers record a treble quite early in the day - too early to be safe as his first flight was only just in sight on a very cautious engine run of seven or eight seconds - and then caught ground level lift to squeeze a max.

Chuck glider saw seven out of the eight scorers come from the N.W. area including winner Barry Kershaw. He was almost beaten by the Northern Area entrant Ewan Jones, who made the only thermal flight of the event. Incidentally, this flier is left handed, and is the first person who I have seen able to throw really hard.

The sole flyoff necessary came in Open Rubber with seven out of 12 fliers recording trebles. I was one of the 'others', thanks to catching lift when I didn't want it - and disappearing upwards for only a minute and a bit! I then wasted a lot of time searching the downwind fields before returning with the model - but rather too late to re-enter and re-fly.

It was very calm and misty when the actual flyoff was held. John Carter had broken both the wing and fuselage of his '300' in a collision with a tree. He stuck these together with much 'five minute epoxy' and flew off with undoped tissue patches and with pins still in longerons and the like. It didn't fly very well - but well enough and by being fairly low it stayed in sight longer than anyone else. Second place went to Pete Harris who added Rubber to his repertoire in mid-season. Ron Holland flew his 360 sq. in. wing area monster but still disappeared too soon. The best flyoff of all was made by Henry Tubbs - and received the lowest official score of only just over two minutes. As it D/T'd well past the hangars, Henry's model must have done six or seven minutes in the air. This was a poor reward for his having spent most of the day in the organiser's chair!

Sixth and last in the series of S.M.A.E. Area-centralised meetings was the one held on October 3rd. From what I hear the weather was far from constant throughout the country - even though the top positions were quite widely distributed.

Naturally enough the largest entry was in the ever-popular A/2 contest - this time for the S.M.A.E. Cup. There were only two perfect scores of seven maxs - from Pete Oliver and myself flying with the N.W. Area at Chetwynd. It was calm all day but early morning mist restricted visibility, thermal activity, and participation until well into the afternoon. Then the sun broke through, and for a couple of hours there was plenty of lift. Flyoffs were held in very dead conditions and even with pilot models there was no help to be had. Pete had the glide circle of his Cranfield winner tighten up and hence let me collect the S.M.A.E. Cup (and incidentally the N.W. Area glider event as well).

In comparison, weather at Beaulieu, where Jim Baguley and Tony Young scored third and fourth positions, was windy enough for protracted towing. This seemed the way to fly as those who tried tactics were not too successful.

On the East side of the Pennines the Northern Area reported that the day was dead calm - but that the mist never cleared, and lift was sparse enough to make glider flying into a real struggle. East Anglia started well - but had a light,

Pete Freebrey, recent convert to Coupe d'Hiver models, prepares to wind his entry which won the event at the London Area Gala.

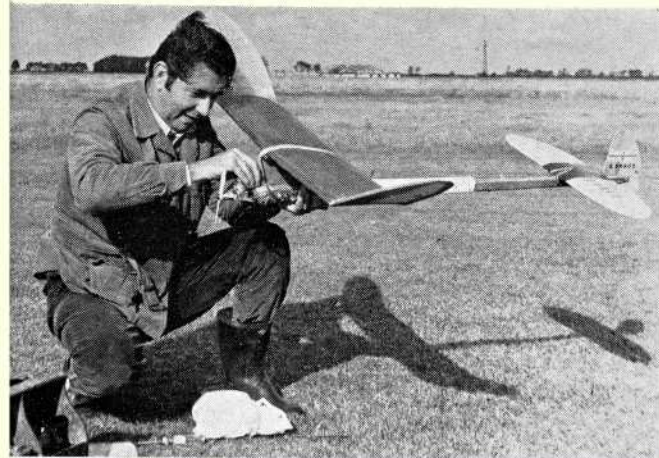


Bob Wells looks none too happy as he surveys the damage to his Wakefield after exposure to the elements downwind at R.A.F. Wyton.



St. Albans member Roger Manville checks the engine run on his potent Eta.29 Open Power model - rather a familiar design is it not?





cold wind' in mid-afternoon.

Even more extreme weather variations were experienced by the Western Area, where Bristol and West made a determined and successful onslaught on the Team Rubber Contest for the Farrow Shield. Elton Drew wrote with the complete story. Although the morning started very calm (and liftless) only John Bailey made his official flights and recorded an easy treble with the same Wiseman-influenced model that he used prior to his three-year spell in Zambia. The other three team members needed to turn on arrival at Merryfield – and were forced to make their contest flights in strong wind and turbulence, and in between frequent rainstorms. Dave Miatl maxed out with a model that sounds just like one of mine. His was diamond pylon, polyhedral, underfin, and used a 22 in. x 30 in. folder with 5.3 oz. of rubber in the 16 strand motor.

The other two members had one nerve-wracking flight apiece. Hamish Gunn had a bad draught on his final flight, but just scraped the max. He was flying a 2½ minute motor run model, using 12 strands, 68 in. long and 1,400 turns. The model was unusual in having a very prominent low 'pylon' extending some 6 in. fore and aft of the wing – and intended mainly as a visibility aid. Final Team member, Richard Cummins, must have been very upset by his second flight which stalled on both power and glide, and finally flew behind trees at 2:58! This model has 1963 wings and prop on a new diamond fuselage. A different model was used for his third flight!

This effort gave Bristol and West first place in the Farrow, 20 seconds in front of Birmingham whose team of Monks, Walker, Dixon and Greaves flew at Barkston Heath. There was then a two minute drop in totals to the 33 minute level where Northampton just beat Norwich, St. Albans and Leeds.

Individual scores saw Richmond members Bruce Edwards and Mike Fantham in first and third positions with Ray Monks separating them. These three were the only ones to exceed (or at least be seen for) six minutes.

Final event at the area meeting was the trophy-less event for ¼ Power. This was topped by John West – who is not normally associated with this class. He did a 3½ minute flyoff for a comfortable lead over Andy Crisp.

The six area meetings each had one event count towards the National Club Championship for which the Plugge cup is awarded. It was apparent right from the start that Birmingham were making a determined effort to retain the trophy. They jumped straight into the lead and held it all year, and finally won by a substantial margin. This was clearly a team win in every sense of the word, especially as it involved some members neglecting their specialities; not to mention the persuading of Dave Wiseman to fly when needed!

In comparison Croydon lay second right through the first four events – and then ignored the team Power and Rubber contests. This enabled Norwich to struggle up to second place despite a very bad start in the dreadfully windy A/2 contest in March.

For the past couple of years the Northern Gala has been conspicuous by its absence from the contest calendar. With a change in the National policy regarding prizes, the meeting became viable again. Difficulties arose in obtaining an airfield on the right date or any reasonable alternative Sunday. Consequently it was decided to stage a rather bold experiment, and hold the meeting on a Saturday. There was considerable speculation as to how this would affect attendance. In the event the situation was complicated by the staging of a club gala at Chobham on the next day – and hence discouraging Southern fliers from making 'the long trip North'. Publicity was also late and sparse.

It would be futile to pretend that entries were high, or that they all materialised. Nevertheless the events were hard fought, and perhaps this is as good a measure of success. The day started overcast with quite a definite breeze. Con-

Fred Chilton flew this elliptically tipped model, powered by Super Tigre G15 in the F.A.I. power event at London Area meeting.

ditions brightened and became windier – but not sufficiently to cause undue trouble. The wind direction caused problems as Rufforth is 'humped', and time-keeping from the most upwind position had obvious problems. Launching and timing from the 'high spot' was general policy – but resulted in maxs landing off the airfield.

Lift was tricky, and sparse for much of the afternoon. This situation was reflected in the numbers qualifying for the flyoffs. There were only two trebles in glider, three in power and six in rubber. The really significant fact is that the latter two figures represented 50 per cent and 67 per cent of the scores in those events.

Running the contests until 5.30 p.m. meant that the flyoffs were performed rather late. To save the delays implicit in moving control and the modellers to the best vantage point, it was decided to flyoff the rubber and power events from the upwind peritrack, and to time from there. Whilst low flights would inevitably disappear over the nearby 'horizon' it was hoped that the winners would be high in lift.

In practice this worked out fairly well. Rubber was held first with John Boon launching a little before the others, and finding better air. His model was timed O.O.S. still well up at nearly six and a half minutes. It was the same model with which he won the Model Aircraft Trophy at the Nationals. Essential details include a 50 in. x 5 in. wing, a 24 in. x 30 in. non-helical prop, and 18 strands of Pirelli.

The rest of the rubber flyoff failed to find lift and were clocked off when their models disappeared 'over the hill'. Scores were quite close and unrelated to distance flown. I managed to place second, just in front of Pete Harris. The Tynemouth representatives felt they had been robbed when they discovered how they had placed – as they went further than everyone except John Boon.

Power was the next event to be flown off. Russell Peers went first but got little help for his ETA29 Woodpecker. Dave Miller launched his OS15 Climax for a fast, if rolly, climb into lift. His OOS score of only 4:31 reflects the rapidly failing light. Third place went to Trevor Payne who was forced to use a Cox powered model that was slightly off trim and which suffered from a short run. He had qualified with an ETA 29 model, but could not locate it after its third flight. Most likely resting place was a healthy-looking beet field. It certainly wasn't Trevor's day as he had a horse bite quite a large piece out of his A/2 wing!

From towing considerations it had been agreed to flyoff glider from the runway where the contest flights had been made. Only five minutes were allowed for making the final flight. As the light was going fast, I towed immediately and released into what proved to be poor air. In the process I dropped my line over that of Pete Whitehead who had followed me. Fortunately it proved possible to disentangle without affecting Pete kiting his model, and he continued to tow for some moments longer. His model worked into slightly better air low down, and recorded some 10 seconds more than mine to give him the C.M.A. Cup. Third place in glider went to Tony Cordes whose final flight oscillated between lift and sink, and ended up at 2½ minutes. Jim Baguley at fourth provided the sole London representative.

The prizegiving included not only the cash awards already mentioned – but the S.M.A.E. plaques due to the top three in each event. Although unengraved these made a most welcome change from the traditional system of posting them many months afterwards. I am sure that for prizes to be appreciated by the recipient, it is essential for them to be awarded without delay. Prizes mean something 'on the day' and very little when time has elapsed.

The Chobham gala, already mentioned as being held on the Sunday, was the Crookham F.A.I. Rally. I decided against making a round trip embracing both contests – and was able to appreciate having the Sunday to recuperate from the Northern Gala.

George Welsh wrote with results and details from his club's gala, so perhaps I can quote some extracts from his letter: 'Weather started fine, but became windy as the day progressed. Most of the maxs were made in the first two rounds, and several well-known names dropped out of the running after (their) models were lost in the Tank factory. Some were located and returned by the F.V.R.D.E. staff later in the day. Lift detection appeared difficult and thermals were hard to hold. There was an area of turbulence immediately downwind of control that "brought in" several models including two of Laurie Burrow's Wakefields.

Eight timekeepers were available all day, scoreboards were kept up-to-date and line checks were made. Although it was a friendly, pleasant day the competition "edge" was somehow missing. Plaques were awarded for the F.A.I. events, and the meeting, in fact, lost money as entries were below expectation.'

Continued on page 48



AIRCRAFT DESCRIBED No. 210

GEORGE OWL'S OR-65-2 "OWL" RACER

described and drawn by A. A. P. LLOYD

GEORGE OWL's design of racing aeroplanes dates back to 1947 when he produced his unconventional, high wing racer *Midget Monocoupe*, which although fast, was somewhat erratic. Later came the *P.A.R. Special*, a Y-tailed pusher projectile, featuring a completely 'buried' engine driving the prop via an extension shaft, and with a variable incidence wing. Unfortunately the extension shaft proved to be a major problem, and so the *Special* was retired, to reappear recently with a conventional engine position, but sporting a large single float!

However, now began a more successful era, for together with John Alford, an aircraft builder, his 1965 design of *Owl Racer* reached completion in August 1969. This aircraft in common with its predecessors was also unconventional, although to a much lesser degree. Most people had the impression of a rather portly-fronted little aircraft - this being caused by the appearance of the all-enveloping cowl, which replaced the almost traditionally used applecheek cowls. The designer, of course, had his reasons for this, based on sound aerodynamic principles, and the machine (later called *Pogo*) more than proved itself, when Bud Pedigo of Redding, California flew it to fifth place in the St. Louis Consolation, fifth in the Reno Finals and turned in the fastest speed of 208.9 mph

when qualifying at St. Louis.

Since then, detail improvements have been incorporated which have increased the *Owl's* success as a really 'new' racer - in fact, it is the first newly designed Formula 1 racer since 1966.

Late in 1970 the World's second *Owl* (later renamed *Ricochet*), was under construction at Farm Aviation Ltd.'s aerodrome at Rush Green by the chief engineer, Bill Bowker. Early in 1971 I was privileged to meet both *Ricochet* and its proud builder in a corner of a hangar housing crop-dusting *Piper Pawnees* in both airworthy and otherwise condition. The presence of these 'giants' only served to accentuate the small but chubby *Owl*. After a cursory walk-round examination, it became obvious what a simple, clean design it was. How extremely unfortunate that *Ricochet* should be destroyed in such tragic circumstances while being ferried to Redhill by Terry Eggert after its promising start to the season's racing programme at North Weald, Essex on August 30th, 1971.

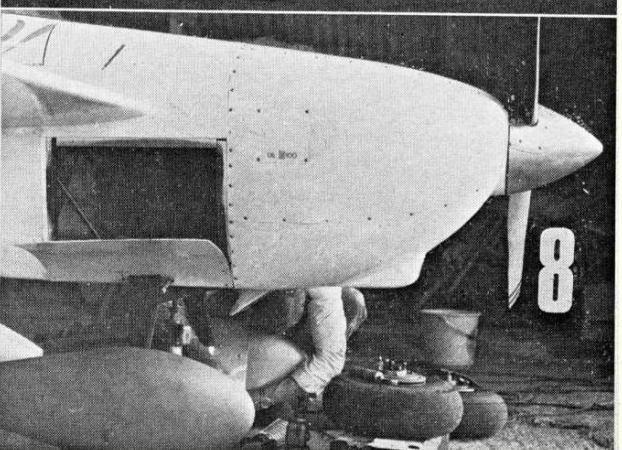
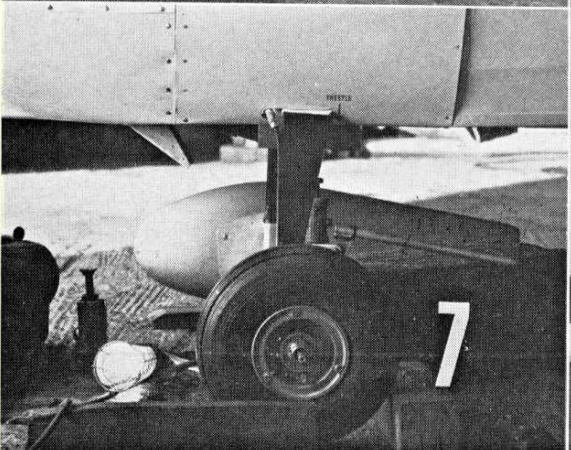
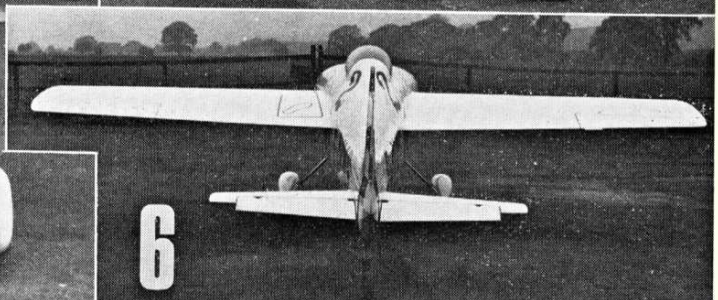
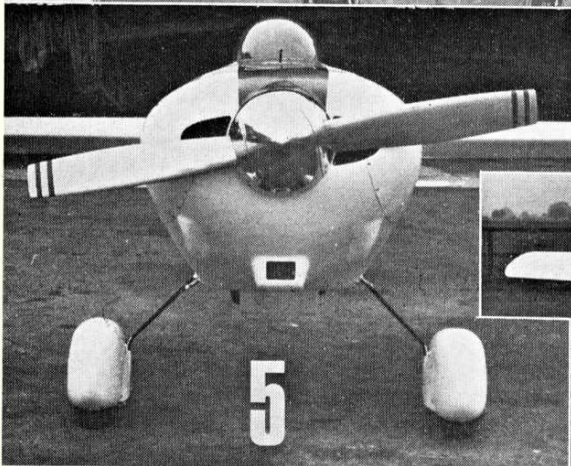
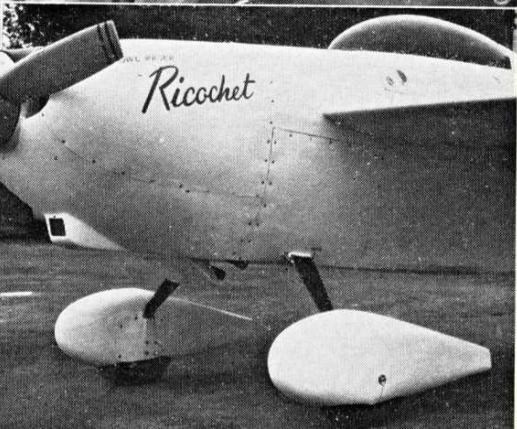
Looking at the aircraft, one notes that the cowl is straight tapered back to the sternpost, which results in a fairly spacious cockpit, almost commodious compared with a *Rivets* or *Cassutt*!

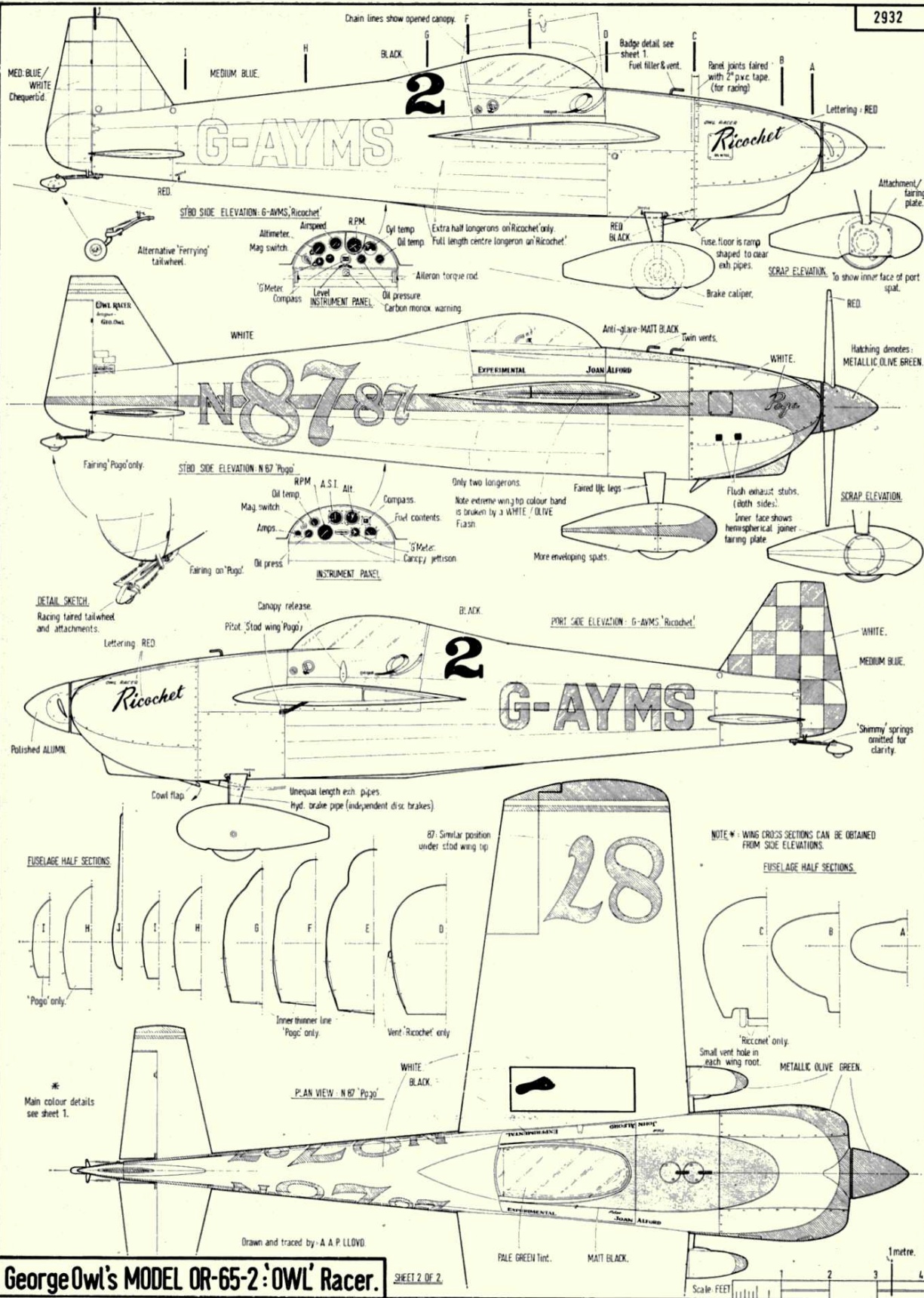
The laminated mainspar crosses the cockpit and is



Heading picture shows aircraft at North Weald getting away to a race-horse start. Bill Bowker in the tubby *Owl* is struggling to get between the two Rollason Betas, while an Airmark Cassutt brings up the rear. At left, the short stubby wings look barely adequate to carry the bulky fuselage!

Opposite, neat wheel spats seen in photo 1 are from the Airmark Cassutt racer. No. 2 shows the throttle lever mounted on the port fuselage side and aileron torque rod, mounted on the main spar, and passing beneath the instrument panel - shown in photo 3 to be simple and uncluttered. Sheet dural undercarriage legs are displayed in photo 4, while the racer's smooth frontal outline is emphasised in photo 5. Note the cowl flap in its fully open position on the underside of the cowl and the square tipped prop. Photo 6 displays the straight tapered fuselage perfectly, while No. 7 reveals the spat mounting bar behind the undercarriage leg. Closely faired in-spinner and access panel are illustrated in photo 8.





COLOUR NOTES:

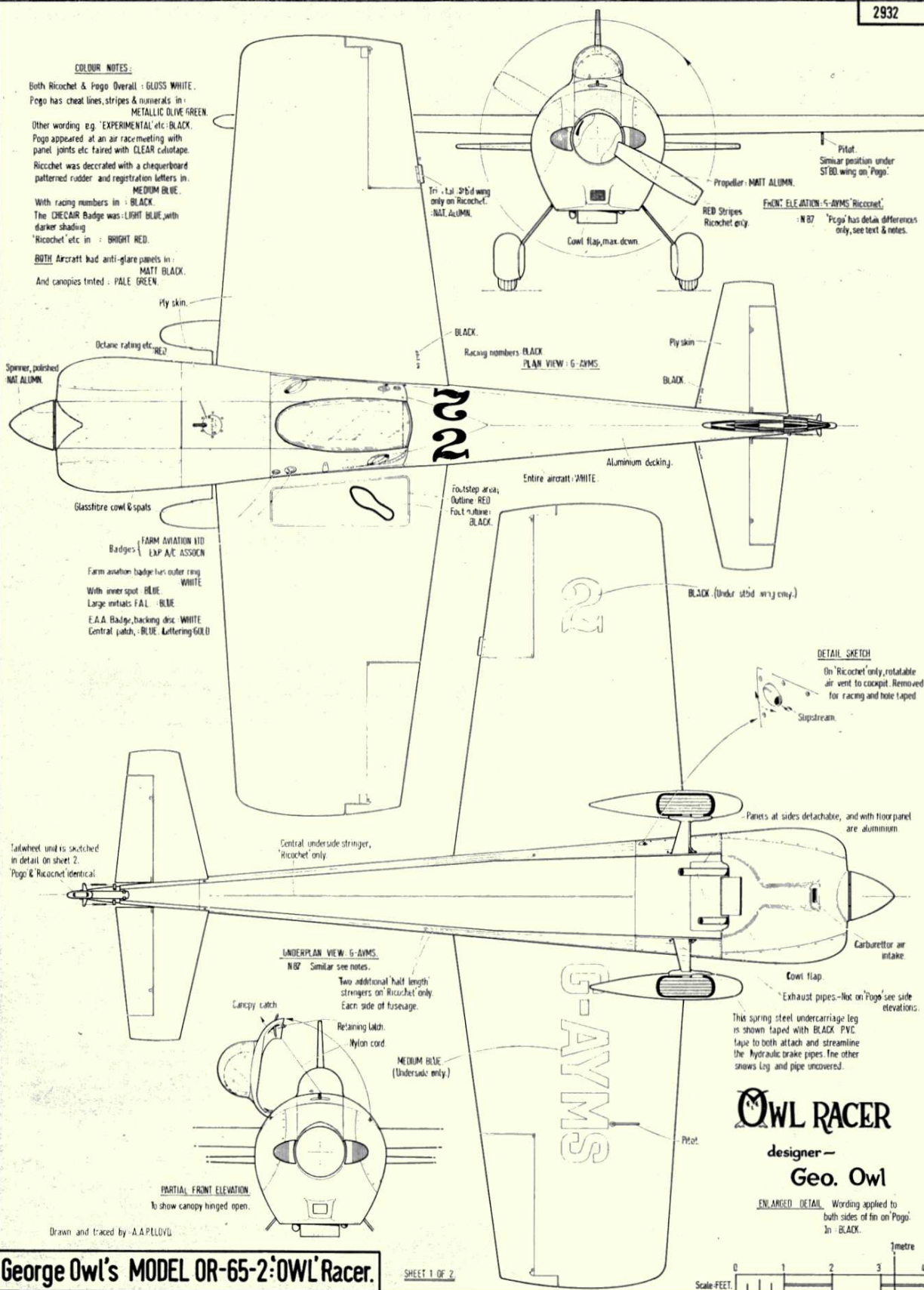
Both Ricochet & Pogo Overall : GLOSS WHITE.
Pogo has cheat lines, stripes & numerals in :
METALLIC OLIVE GREEN.

Other wording e.g. 'EXPERIMENTAL' etc : BLACK.
Pogo appeared at an air racemeeting with
panel joints etc faired with CLEAR cellophane.

Ricochet was decorated with a chequerboard
patterned rudder and registration letters in :
MEDIUM BLUE.

With racing numbers in : BLACK.
The CHECKER Badge was : LIGHT BLUE, with
darker shading.
'Ricochet' etc in : BRIGHT RED.

NOTE Aircraft had anti-glare panels in :
MATT BLACK.
And canopies tinted : PALE GREEN.



Aero Modeller

Rather more attractive than its back cloth, Bill Bowker's Ricochet is distinctive for its lack of apple cheek cowl, mid wing layout and low profile cockpit.

attached to the top longerons, just above the pilot's knees, while his back rests against the rear spar. By detaching the canopy and side fairings the wing can be quickly removed in one piece for easy transportation on a trailer. Very little disturbance is caused by this dismantling due to lack of complex root fairings. The one-piece wing, which also has quickly-detachable aileron linkages, consists of conventional built-up ribs, skinned with plywood. The tail units are similar. Fuselage construction is a straightforward steel tube space-frame arrangement, being fabric-covered below the thrust line and with ply decking in front of the cockpit. Aluminium sheet is for the rear decking and there is a steel tube crash pylon hidden inside the headrest fairing. An unusual feature for this type of aircraft is the variable cowl flap at the base of the cowl, operated by a lever on the floor in front of the control column. This gill enables the engine to be kept at the optimum temperature.

There are small differences between the Pogo and Ricochet and these are listed as follows:

Pogo has a longer spinner, more enveloping spars,



together with more rounded wing tip planform, and flush exhaust stubs terminating at the cowl sides. There are two small static vents in each leading edge. Ricochet has a single fuel tank vent pipe, two additional stringers on the fuselage sides extending from leading edge to trailing edge, and a single centre stringer on the fuselage underside from leading edge to sternpost.

There are other Owls under construction in the States, and we hope that another may appear in the U.K. eventually.

REPRINTS OF THE FEATURE PLUS FULL SIZE DYE LINE PRINTS OF THE 1/12th SCALE ORIGINAL ARE AVAILABLE AS PLAN PACK A2932, PRICE 50p FROM AEROMODELLER PLAN SERVICE, 13-35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

FREE FLIGHT COMMENT

Continued from page 43

Perusal of the results will reveal that Albert Fathers had a very busy and successful day. He won A/2 and placed third in Wakefield - and must have organised his retrieving very well!

I was unable to attend the London Rally at R.A.F. Wyton on October 17th, but Jim Baguley has kindly supplied us with the relevant details.

'Proceedings were delayed until after mid-day by pouring rain. It was probably hoped that the following weather would have been calm and settled, as is often the case after rain. Such, however, was not to be as although the skies cleared it also became very windy. From the retrieving point of view this hardly mattered as the 'drome was huge and had excellent retrieving areas outside, but it did cause a lot of model wreckage as we were flying just down-wind of some hangars which caused turbulence.

Various misfortunes overtook people and of those that come to mind were Gordon Hannah's missing fourth flight caused by two attempts, Pete Williams' lost flight caused by letting go of the winch, and John Blount's missing flight which spoilt an otherwise perfect score.

Garry Madelin's very creditable win was in his first Wakefield contest, while Fred Chilton had a fairly easy time, being the only F.A.I. Power entrant. Cliff James' A/2 glider win was a little dampened by his being presented downwind with a shattered model by a car owner who also pointed out a dent in his car roof. My own A/1 win, after wrecking three A/2's, was only notable by the use of a Wakefield triplane on a reverse A/1 whose tailplane had been forgotten and the fact that a hastily removed piece of packing resulted in quite a good trim! In Open Power, Dusty Miller repeated his win of the previous weekend.'

RESULTS:

SOUTH MIDLAND RALLY, Cranfield, September 19th, 1971

Open Rubber (43 entries, 20 in fly off): 1. J. Carter (Spitfires) M+11:10, 2. G. Hannah (St. Albans) M+10:44, 3. P. Harris (Evesham) M+10:42, **Open Glider** (79 entries, 27 in fly off): 1. P. Oliver (Whitefield) M+2:56, 2. E. Drew (Bristol & West) M+2:39, 3. T. Dilks (Spitfires) M+2:34, **Open Power** (51 entries, 14 in fly off): 1. R. Johnson (St. Albans) M+11:36, 2. R. Monks (Birmingham) M+8:57, 3. J. Hook (Southampton) M+8:23, **Wakefield** (37 entries, 10 in fly off): 1. L. Barr (Hayes) M+3:32, 2. D. Greaves (Birmingham) M+3:16, 3. J. Baguley (Hayes) M+2:54, **Chuck Glider** (4 in fly off): 1. A. Fathers (C/M) M+1:02, 2. B. Picken (West Lancs.) M+0:47, 3. D. Truluck (RAF MAA) M+0:40, **Tailless** 1. J. Walsall (Hayes) 5:26, 2. C. Simmons 5:12, 3. J. Gregory (Hayes) 3:00.

LONDON AREA GALA, Bassingbourn, 26th September, 1971

F.A.I. Glider (Stag Cup) 1. F. G. Sharp (Croydon) 15:00, 2. J. McNeill (Crookham) 14:07, 3. P. Stewart (Crookham) 13:48, **F.A.I. Power** (Stag Cup) 1. R. Monks (Birmingham) 15:00, 2. R. Collins (Anglia) 14:30, 3. P. Buskell (Surrey) 13:26, **F.A.I. Rubber** 1. A. Wells (Norwich) 13:41, 2. A. Grantham (E. Grinstead) 13:22, 3. J. Punter (Hayes) 13:12, **Coupe d'Hiver** 1. M. Lambert (N. Surrey) 6:00, 2. M. Fantham (Richmond) 5:51, 3. D. Truluck (RAF MAA) 5:31, **Chuck Glider** 1. M. Keevil (N. Surrey) 3:20, 2. D. Truluck (RAF MAA) 2:56, 3. J. Gregory (Hayes) 1:54, **A/1 Glider** 1. M. B. Cowley (Northants) 7:35, 2. J. Baguley (Hayes) 6:29, 3. C. Morris (St. Albans) 6:00, **1/2A Power** 1. A. Chilton (Crookham) 9:00, 2. R. Garner (Walsall) 5:40, 3. E. Vye (M. Harborough) 4:52.

LEEDS RALLY, Topcliffe, September 26th, 1971

A/2 Glider (7 flights, 36 entries) 1. B. Baines (RAF MAA) 19:21, 2. D. Barnes (Liverpool) 18:15, 3. P. Whitehead (York) 18:09, **Open Rubber** (7 in fly off) 1. J. Carter (Spitfires) M+4:00, 2. P. Harris (Evesham) M+3:55, 3. R. Pollard (Tynemouth) M+3:40, **Open Power** (12 entries) 1. R. Peers (Falcons) 9:00, 2. M. Hargreaves (Leeds) 8:09, 3. A. Brewster (Leeds) 8:03, **Mini Comp** (15 entries) 1. A. Cordes (Tynemouth) 9:32, 2. J. O'Donnell (Whitefield) 8:30, 3. A. Cooper (Wath) 8:27, **Chuck Glider** (11 entries) 1. B. Kershaw (Wigan) 3:42, 2. E. B. Jones (C/M) 3:38, 3. A. Evans (Liverpool) 3:30.

SIXTH S.M.A.E. AREA-CENTRALISED MEETING, October 3rd, 1971

S.M.A.E. Cup - A/2 Glider (107 entries) 1. J. O'Donnell (Whitefield) M+2:21, 2. P. Oliver (Whitefield) M+1:45, 3. J. Baguley (Hayes) 20:08, **Farrow Shield - Team Rubber** (29 team entries) 1. Bristol & West 35:58, 2. Birmingham 35:39, 3. Northampton 33:50, **Farrow Shield - Individual scores** (72 entries, 28 in fly off) 1. B. Edwards (Richmond) M+6:35, 2. R. Monks (Birmingham) M+6:16, 3. M. Fantham (Richmond) M+6:06, **1/2A Power** (31 entries) 1. J. West (Brighton) M+3:30, 2. A. Crisp (F.A.C.C.T.) M+2:13, 3. P. Miller (Market Harborough) 8:46, **Final PLUGGIE Cup Results** (Total of 6 events) 1. Birmingham 1,494 points, 2. Norwich 1,271, 3. St. Albans 1,210.

NORTHERN GALA, Rufforth, October 9, 1971

Open Glider (36 entries) 1. P. Whitehead (York) M+1:56, 2. J. O'Donnell (Whitefield) M+1:46, 3. A. Cordes (Tynemouth) 8:32, **Open Rubber** (14 entries) 1. J. Boon (Falcons) M+6:24, 2. J. O'Donnell (Whitefield) M+4:31, 3. P. Harris (Evesham) M+4:26, **Open Power** (16 entries) 1. D. Miller (Cambridge) M+4:31, 2. R. Peers (Falcons) M+3:32, 3. T. Payne (Northampton) M+2:02.

CROOKHAM F.A.I. RALLY, Chobham Common, October 10th, 1971

F.A.I. Power (7 entries) 1. P. Thompson (North Surrey Aero) 10:39, 2. M. Dilly (Croydon) 9:13, 3. J. Allen (Brighton) 9:01, **F.A.I. Rubber** (13 entries) 1. A. Grantham (East Grinstead) 11:05, 2. D. Digby (N.S.A.) 10:14, 3. A. Fathers (C.M.) 9:37, **F.A.I. Glider** 1. A. Fathers (C.M.) 13:33, 2. J. Punter (Hayes) 12:51, 3. C. P. Williams (Richmond) 12:37, **Coupe d'Hiver** (5 x 2 minutes, 7 entries) 1. M. Lambert (N.S.A.) 7:49, 2. P. Freebrey (Northwood) 5:59, 3. M. Brown (C.M.) 4:20.

LONDON GALA, R.A.F. Wyton, October 17th, 1971

F.A.I. Glider (22 entries) 1. C. James (Hayes) 11:03, 2. M. Woodhouse (Norwich) 10:34, 3. G. Hannah (St. Albans) 10:17, **F.A.I. Rubber** (9 entries) 1. G. Madelin (Crookham) 12:51, 2. D. Greaves (Birmingham) 12:36, 3. J. Blount (Croydon) 12:00, **F.A.I. Power** (1 entry) 1. F. Chilton (Crookham) 8:31, **A/1 Glider** (5 entries) 1. J. Baguley (Hayes) 5:31, 2. A. Crisp (F.A.C.C.T.) 5:02, 3. C. Morris (St. Albans) 4:58, **Chuck Glider** (3 entries) 1. P. Buskell (Surrey) 1:21, 2. J. Buskell (Surrey) 0:40, 3. M. Dilly (Croydon) 0:39, **Coupe d'Hiver** (5 entries) 1. P. Freebrey (Northwood) 5:03, 2. A. Crisp (F.A.C.C.T.) 4:46, 3. A. Wells (Norwich) 1:25, **Open Power** (5 entries) 1. D. Miller (Cambridge) 5:21, 2. I. Bracken (Northwood) 3:32, 3. T. Grey (Sidcup) 2:50.



CLUB NEWS

PRESERVATION OF A FLYING site can often hinge on a single untoward incident, often, alas, beyond the control of the more responsible users. Unfortunately it is often impossible to impose any sort of discipline over casual users of an open space even though it may be considered the domain of a particular club whose members fly with due regard to the problems of noise and danger. Perhaps even more unfortunate is the fact that many fliers of fast power models do not seem to realise the deadly potential of their mechanical missiles, and fly them at low altitude in an almost casual manner, quite indifferent to the risks to other users of the open space. If only other model flyers would draw the attention of these people to the possible consequences of their 'gallery' flying they would be doing themselves and the public a service.

Apropos to the above Mr. A. N. Searl, of the **Liverpool & D.M.A.C.**, expresses alarm at the way so many county councils and towns are banning our sport, by which I presume he means the flying of powered models, but is himself thankful that the Liverpool Recreation Committee has just signed with the club a yearly renewable contract for the use of a large area of green parkland; main proviso being that the club has a year free of obligation to prove itself, by which is inferred that the club model flying should demonstrate its social worthiness, and this of course means keeping noses very clean indeed. Mr. Searl has enclosed with his report a copy of the club newsletter, *Flypaper* - non-sticky type. Reference here to the way the club has expanded over the last two years - as many as 80 paying members now on the books (and double that number *in toto* if you count the non-paying guests). This should mean a lot of clamour for flying space, and apart from the flying site previously mentioned, the club has the use of R.A.F. Woodvale. Incidentally, the new site, which includes the use of the adjacent golf course, has given quite a fillip to the social side of things, a number of get-togethers being held in the club house. For particulars of the club phone Parbold 2000.

Mr. M. L. Wood, P.R.O. of the venerable **Croydon & D.M.A.C.**, sends us a report on recent club successes in the highly competitive world of free flight contest flying. Back in June, Bill McGarvey, the club's New Zealand member, lifted the *Weston Cup* right before our very eyes. Then there was the Wakefield win by John Mabey at the two-day meeting at Syerston, also a win for George Sharp in the A/2 event at the London Area Gala at Basingbourne. Later on came the annual invasion of French territory for the Criterium *Pierre Trebod*. Tony Young came second in Glider and Pete Jellis fourth, while John Mabey got a fourth place in Wakefield. And all this following three firsts at the Nationals: George Sharp in F.A.I. Glider, Dave Hipperson in Wakefield and Martin Dilly in A/1 Glider.

According to the October newsletter, the **Heswall M.A.C.** is in jubilant mood following the fantastic success of the Exhibition at Ellesmere Port. Over 2,500 people attended the Exhibition, coming from a radius of some 50 miles. Thanks are given to the model press for announcing the event, and

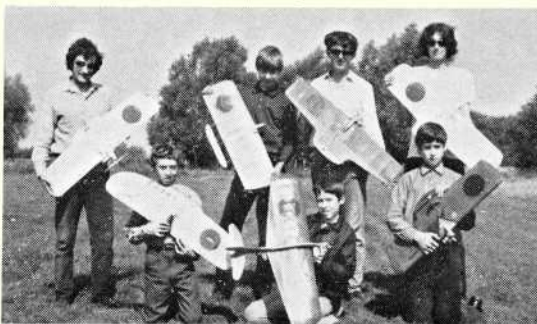
the profit of £170 is, to say the least, overwhelming. In common with many another club, Heswall has rented a piece of farmland for the use of its radio flyers. A set of rules have been worked out to cover the potential dangers of radio flying, and it is recommended that a Flight Marshall be on duty at all times to supervise the flying. Radio standards are improving all the time, and the winter building programme would seem to have some exciting stuff on its agenda, including a *Mustang*, *Stuka*, *Chipmunk* and a *Thunderbolt*.

From comment in the newsletter of the **Wolves M.A.C.**, it would seem that their flying field, Pendeford Airport, is due to go the way of all good things when the bulldozers (man's greatest enemy next to the H-bomb) move in. Meantime, flying goes on apace, but members are warned that the way they use the aerodrome could well influence their prospects for an alternative site. Reference in the newsletter to free flight scale activity; sufficient in the club for a contest for this inexpensive but highly rewarding branch of the hobby to be staged in late October. Getting these machines to fly well is quite an art, but a well trimmed scale model has a dramatic appeal that is quite unique. Yet another Scale contest, equally interesting, is for r.t.p. electric powered pre-1918 scale models. Plenty of scope for ingenuity here. And still more Scale contesting, with four models getting through the C/L qualifying flights for the static judging on November 16th. Models include a Fokker E V and a F.W. 190. Winner will receive the *S.B. Perry Scale Trophy*. And just to show that other aspects of the hobby are not being neglected recent club events have covered such diverse activities as Coupe D'Hiver, Radio Spot Landing and C/L Stunt.

Amazing the models that find their way to the end other than the C/L handle. Reference in the **Three Kings Aeromodellers'** newsletter is to a *Dusty* crop duster built by Trevor Pritchard. A third line releases the 'insecticide', but whether when flown, it will cover itself with glory and everything else in a fine dust is another matter. Suffice to say that it has a removable cowl, and a pilot and instrument panel. Another out-of-the-rut model is Vincent Day's *Kaman F/F Helicopter*. Powered by a Babe Bee, it has a contra-rotating torque reaction system. Yet to be flown. Design appeared in the January 1970 issue of *Aeromodeller*. A few words here from Derek Bird on that highly specialised field, C/L speed flying. Three Kings are fortunate in having a smooth tarmac surface to operate from, and that at least gives members the opportunity of practising the art. However, speed flying is expensive mainly because of the high cost of racing engines. These, says Derek, need extensive break-in and tuning, with a rev counter an absolute must. Then you need such refinements as special fuel proofer and engine pans. Little wonder that speed experts are few and far between. Yet another fine model to comment on: Stan Lloyd's semi Scale O.S.50 throttle controlled *Douglas Skyraider*. Finished in pale grey with USN markings.

The **East Anglian Area** is large but not excessively populated, and, at present, dotted with quite a few good model flying airfields, such as R.A.F. Watton and R.A.F. Wethersfield. The former, according to the latest newsletter, is threatened with conversion to a Detention centre, and it is hoped to develop Wethersfield, which people find more central, as the main Area venue. One contest has already been held on this site, and all were impressed by the fine facilities afforded. The next event to be held there, the Winter Gala, is scheduled for the 2nd January; the snows and storms of winter permitting. Moving into the new Radio era without completely abandoning the free flight flavour, the Area held its first Thermal Soaring event at yet another of the Area's venues, Little Henham, in September. The

A combat team celebrating its first anniversary is the Gloucester Gladiators, now better known simply as Glevum. Back row (l to r) is Frank Smart, Dave Cox, Mick Lewis and Derek Dowdswell, while in front are Marcus Ginter, Peter Fooks and Tim Court - who we are assured is the 'star' flyer. Distinctive black spot is the club emblem.



CONTEST CALENDAR

December 27th **CHOBHAM CHRISTMAS CRACKER** Open Power, Open Glider, C d'Hiver at Chobham Common. 10.00-14.30.

CLUB SECRETARIES:

Please forward details of your forthcoming contests or rallies as soon as possible to avoid duplication of dates and/or interests in next season's Calendar. Items for insertion in the Calendar must be received at this office by the 20th of the month for publication in the next immediate issue. Details should be brief but explicit, and include exact location of venue.

meeting hardly got off to a good start, in fact hardly got off at all, as that enemy of the thermal flyer, fog, was present in all its windless, sightless frustration. A little wind did get up later on, though, albeit very variable in direction. Few models could get full height benefit on the tow, but lift was strong when located. Winner was J. Rush of Thetford. Other Thermal events held late in the season was one won by Dick Godden at R.A.F. Wethersfield, and one at Euston Park, near Thetford, won by G. Dallimer. Free Flight, the strong suit of the Area, not overlooked, however, with ideal weather for the 5th Centralised Contest held during September at Watton. Norwich won the Team Power event, and D. Smalley of Norwich the Wakefield.

Alan Forrest, Comp. Secretary of the **Cosmo M.A.C.**, is well pleased with the way the Cosmo club has acquitted itself in its first season in national contests. Its Goodyear team has done quite remarkably, scoring 2nd, 5th and 7th places at Cranfield, 4th and 7th at Fairfield, and 1st, 2nd, 7th and 8th places at Odiham. On this basis Mr. Forrest is not without confidence in issuing a challenge to a Goodyear contest with any club in the country. Cosmo can put up a team of six at any time. Any takers? Mr Forrest's address is 80 Belvedere Road, Bexleyheath, Kent.

J. Glen sends us a report on an F.A.I. R/C Aerobatic event held under the **Scottish A.A.** auspices at East Fortune on October 10th. Seems, though, that the S.A.A., and the weatherman are out of synchronisation, for this is another event that got the full wet force five treatment. Wonder was that anyone turned up at all, but at 2 p.m. five hardy types presented themselves for the ordeal. Luckily the larger radio models can fly in almost anything, and eventually three people got their models under way. Phil Wood, of Motherwell, who was first off, lost a lot of leeway on his Cuban eight, finishing with a forced landing well down wind. However, second man, J. Walter of Irvine, was quite undaunted by the conditions, putting his *Swinger* through the schedule in almost faultless fashion to amass a prodigious quantity of points. Too much, alas, for third man, I. Dunn, of Perth, who found the going rather rugged. He 'bent' his model on landing, but was somewhat consoled by taking second place.

The valleys may be green, but where are flyers in **South Wales**? Someone who would like to know is Mr. J. H. Bailey, of 98 Alexander Road, Rhyddings, Neath, Glamorgan. He is anxious to make contact with any free fliers interested in contest flying in the South Wales area. Just drop him a line enclosing a S.A.E.

Noel Adams, P.R.O., of the **Bath M.A.C.**, is thankful to the R.A.F. at Wroughton for the use of the drome for the club *Winter Gala* on October 10th. As he says, flying space is in scarce supply these days, and it is here that the aeromodelling movement can look upon the R.A.F. as one of its best friends. We echo the sentiment. Anyway, the choice of Wroughton, though a more rugged site, weatherwise, than calm old Hurlingham was opted for because of the uncertainty of obtaining the latter venue. And just to play safe the date of the meeting was brought forward to catch a little of the warmth of late autumn. Weather, though, was far from ideal, with a stiff breeze throughout the day keeping down entries far below that which might be expected from the appreciable attendance of modellers from Bath, Bristol, Cheltenham, Swindon and even Birmingham. No profit made but in terms of publicity value the meeting could be considered quite a success. Results: *Open Glider* - R. Green-slade (South Bristol). *Vintage* - J. Barton (South Bristol). *Chuck Glider* - B. Silcocks (South Bristol). *Coupe D'Hiver* - C. Hadland (R.A.F.M.A.A.).

Phil McAulroy of the **Sheffield S.A.A.**, has sent us a long report on the diverse activities to be seen round Sheffield way. A particular interest of the club is scale slope soaring. I'm not talking about 1 in. to 1 ft. slopes, but models of the sleek, full size gliders we see from time to time. Three

members are already at work on their 1972 projects. Although secrecy is the watchword at this stage, one that has leaked is John Coxon's *Grunau Baby*, and we are also told that 1971 Scale winner, Phil Scaife, has plans ready for a *Dart Tottenhoe*. And if you've never heard of that one, and others of equal scale promise, you are advised to equip yourself with a copy of *British Gliders 1922-70*, which is a goldmine of information. Phil is already giving much pleasure to himself and spectators operating his *T31 Tandem Tutor* on the slope. The club is lucky in having located a beautiful South facing slope with road access and a flat field behind to obviate excuses for bad landings. But the club is not wholly Slope orientated; other forms of radio abound, and the free flight group, though not too intensely contest minded, is undoubtedly keen. One success, though. Eight-year-old Andrew Gregory got a first in Junior Jetex. The winter programme looks forward to an auction and a couple of film shows and a possible club dinner. New members welcome. Drop in at Sandbeck Place at 7.30 on Friday or get in touch with our Secretary, Bob Nash at 1 St. Quintins View, Bradway, Sheffield.

Trouble on Croxley Moor. Local residents have complained of noise and nuisance; a matter which the **Watford Wayfarers Club** must take very seriously as human patience is short and the official boot large. Warning given to club members (who may not be to blame, as free lancers also use the site) to take heed of the flying rules if they want to avoid a 40 to 50-mile take-off run on Sundays. Other item of news in the newsletter is of a visit to the Hemel Hempstead club for a Spot Landing event.

Can I, for the benefit of some radio flyers I know, offer this extract from the **Leicester M.A.C.** newsletter on radio flying at Wymeswold: "... someone is flying very low over the spectators. Admitted he is very proficient, but hairy flying is never justified, as the gear can always let down the best pilot". In happier tone, the club has a whole spate of contests to report, covering seven free flight categories flown throughout the year, the club Gala and an R/C Scale event. Three models in the R/C event: A Noble's 57 in. span *Tiger Moth*, C. Tom's *Cherokee* and Lee Noble's 53 in. *Tiger Moth*. Winner, A. Noble. Free Flight winner on the very windy Gala day was G. Player, a junior, flying glider.

Much of the **Maidstone M.F.C.**'s current newsletter is taken up with the evergreen (when not ploughed up or built on) question of flying fields. West Malling is available, but looked at somewhat askance by the newsletter writer as model flyers have to compete with the glider people. Deemed suitable only for experienced multi flyers. Luckily, though, some intrepid explorer has discovered a vast field in the depths of nowhere, and this looks good for flying.

High spot of the South East Area's *Seadog* newsletter is a report on the Brighton club's annual Hydro event, held back in August. Only one non-Brighton entry, A. Grantham, of East Grinstead, who in perfect conditions did a full house to win the rubber event. Showpiece of the event was Ken Winstanley's rubber-powered flying boat. It made some fascinating take-offs. And plenty of news here of Thermal Soaring activity. There is no doubt that Thermal Soaring is providing the real competitive dimension to radio flying, and if the proposal for its inclusion in the Nationals comes to anything, a Free Flight Nationals could have a radio presence in this very acceptable form.

Another club with a strong Radio bias, or even monopoly, is the **Nuneaton Aeromodellers**, if we are to judge from the content of its very plush newsletter, *Aeronews*. Quite a large membership here, it appears, with a useful sprinkling of experts, such as Tony Hooper and Peter Baron, who came first and third respectively at the Kinver 'Eyeball' Scale meeting. And watch out for future dogfights: Tony is building a *Spitfire*, and Peter threatens to complement this with a *Messerschmidt 110*. These two flyers, incidentally, head the club championship table.

Lots of good things in Ron Firth's *Model Aeroplane Gazette*. This nobly covers the free flight scene, and sports no less than seven plans - all very interesting.

Doing a similar F/F cover job down under is *Free Flight* also full of good plans.

From Oregon, U.S.A., **W.M.C. Patter** announces its White Elephant Sale. Held in Albany City Hall, it sells off at all with an acquisitive urge that useless impedimenta, old models, engines, etc., that clutter up the loft or back addition. Perhaps we should try something on this scale over here. Think of all those abandoned projects, half-finished kits and never installed radios that must be hanging around.

From **New Zealand** comes Ron Magill's *News of the North*. This newsletter is unique as the editorial always opens with a few lines of verse libre poetry; usually with a vague, model flying flavour. The prose, however, is more down to earth, or rather up in the sky. Ron, incidentally, had some bad luck when his collection of 15 models was stolen and vandalised.

Why not send in a report on what your club is doing this winter?
Clubman



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Selected Items

RADIO

SKYLEADER CLUBMAN

3 Tx and Rx	£48.65
4 Tx and Rx	£59.20
6 Tx and Rx	£71.70
FB3 Servo	£11.95

MacGregor Digimac Radio, Three Channel Propo, MR 800 Tx and MR 80 Rx, AP04 Rechargeable Power Pack, Switch, Harness and Charger, £37.50
Single Channel Propo, MR 900 Tx and MR 90 Rx, Crystals and Dry Cell Battery Pack with Switch and Harness, £19.75
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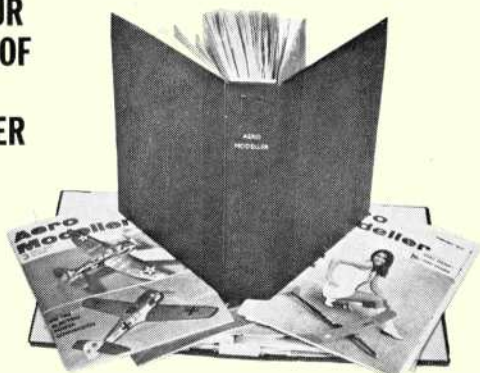
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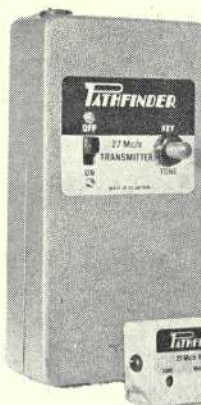


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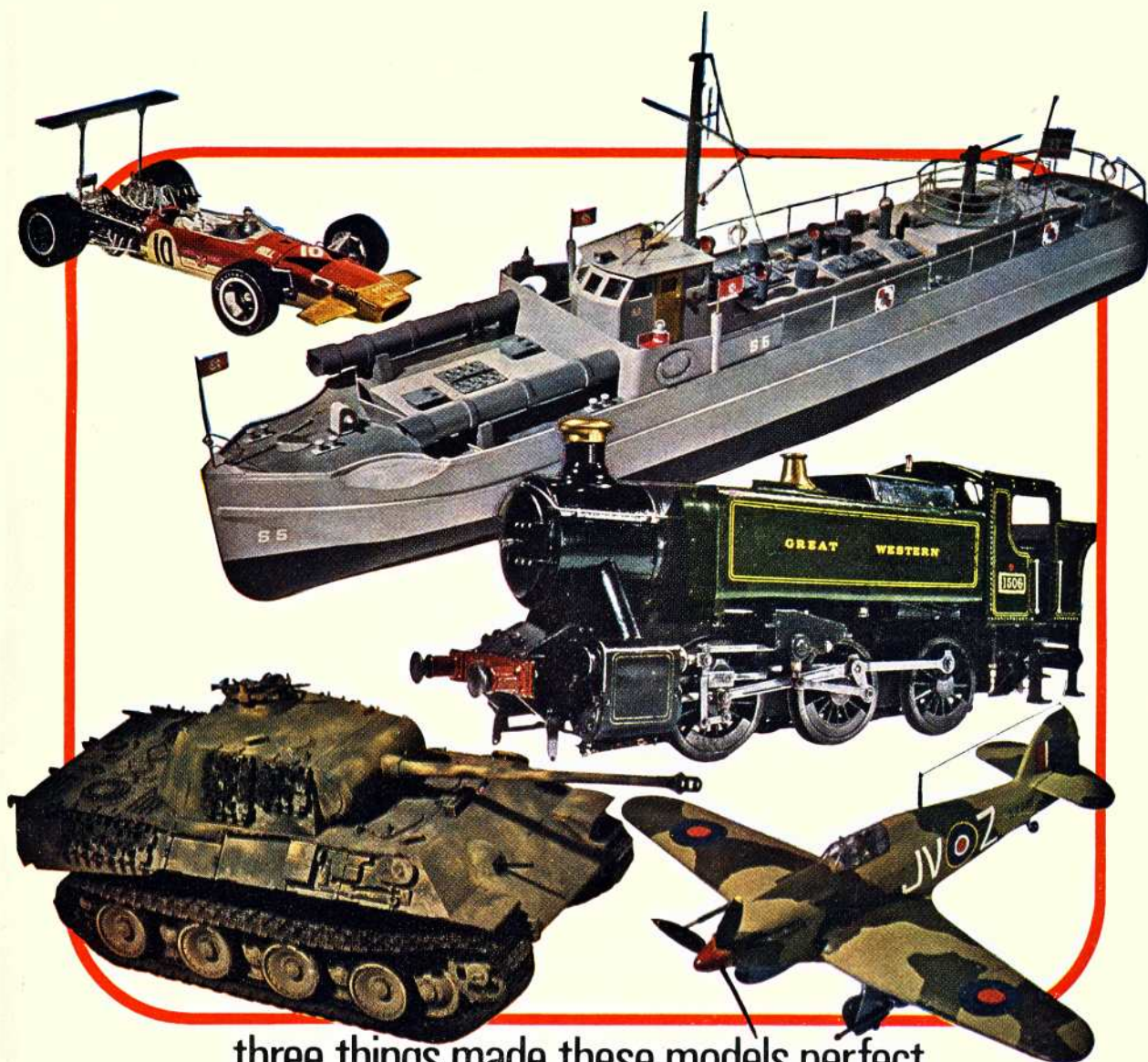
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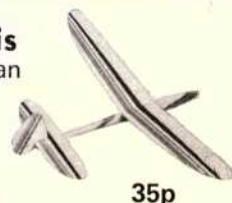
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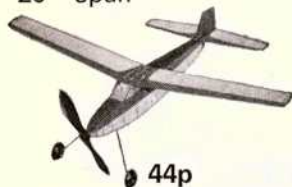
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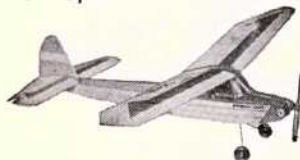
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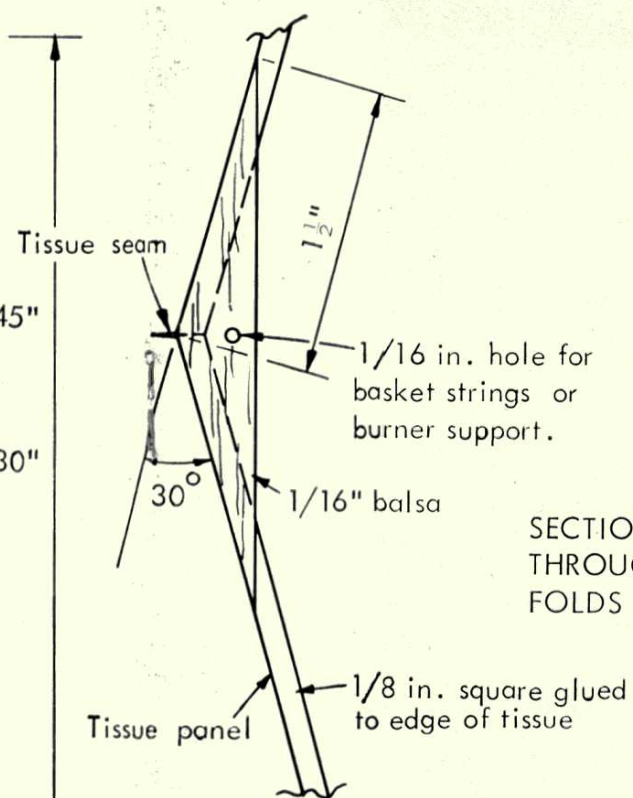
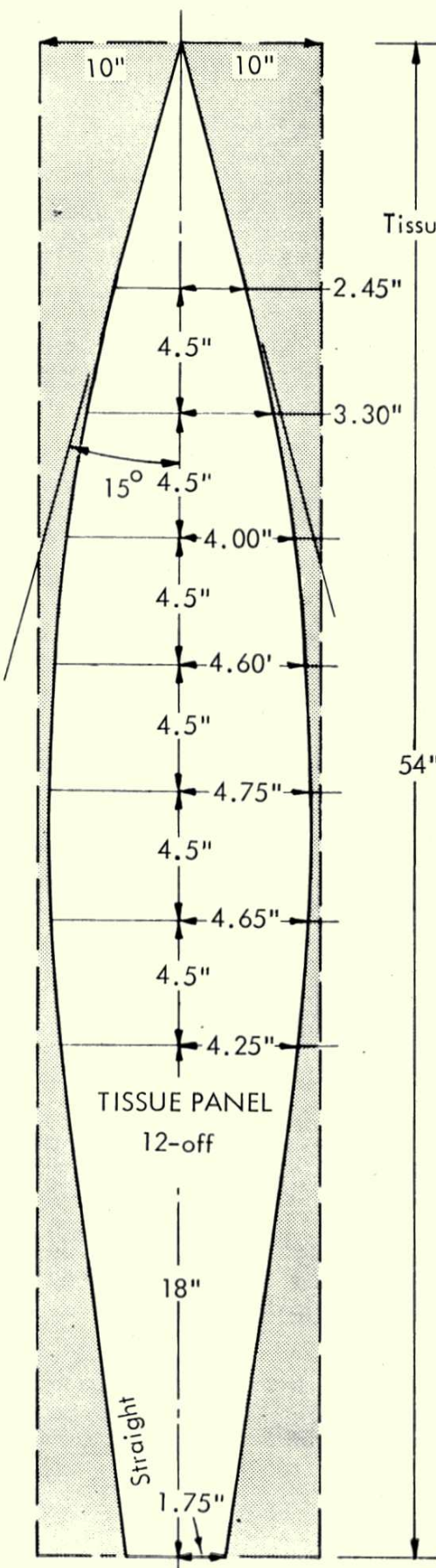
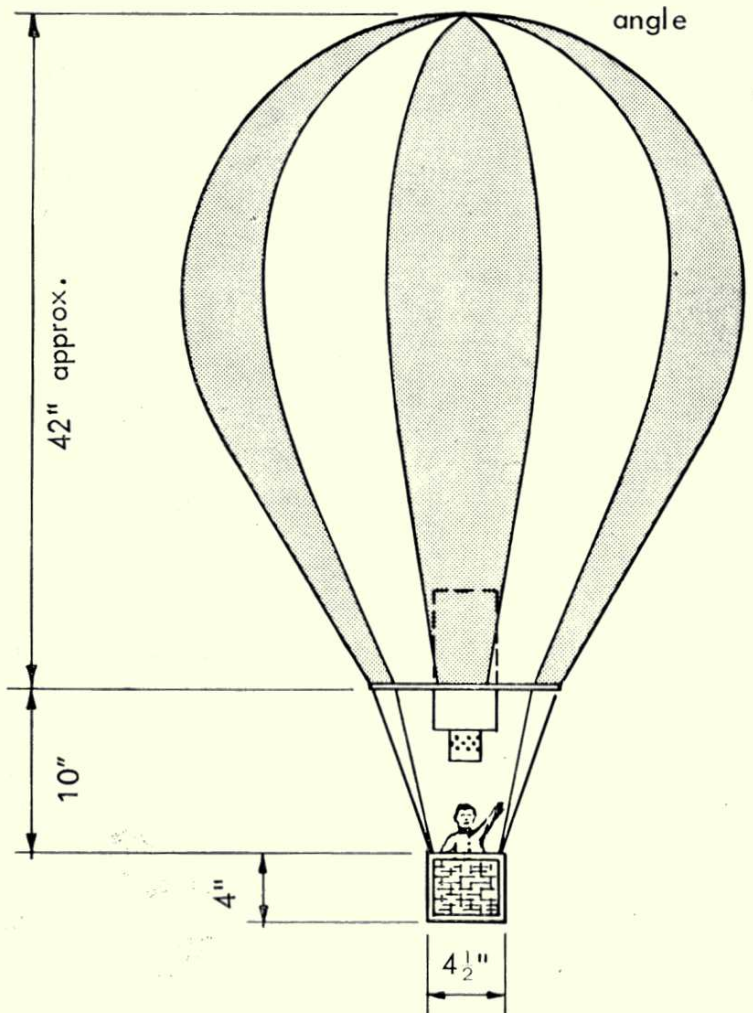
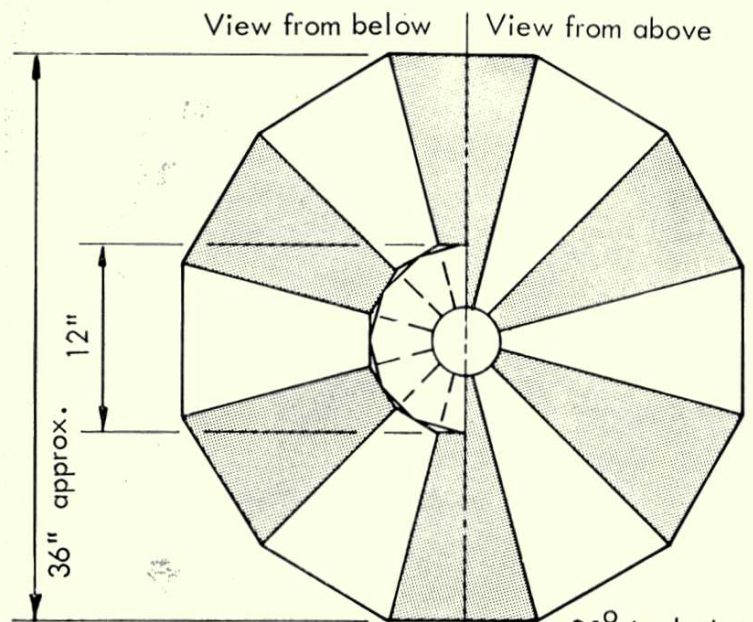
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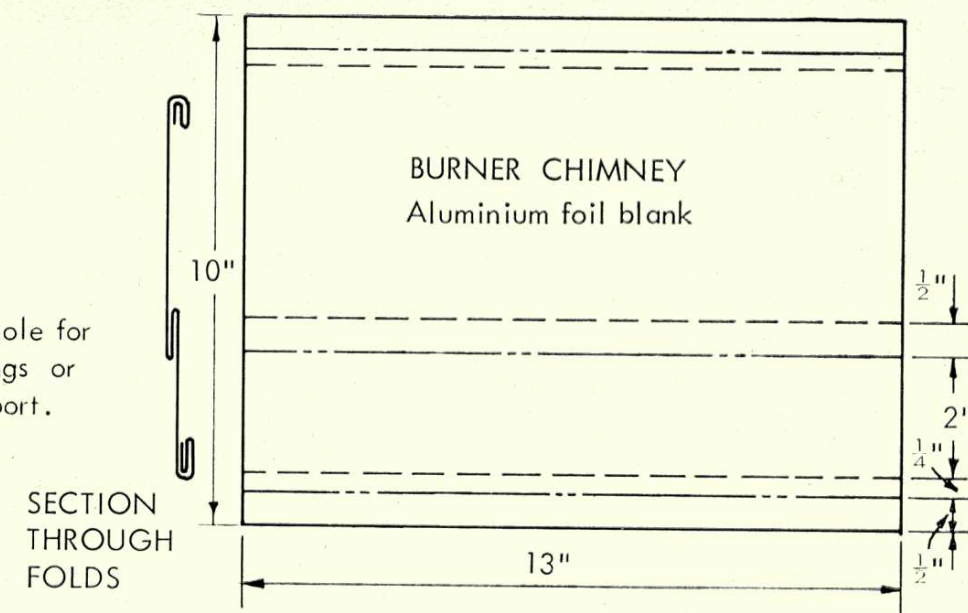
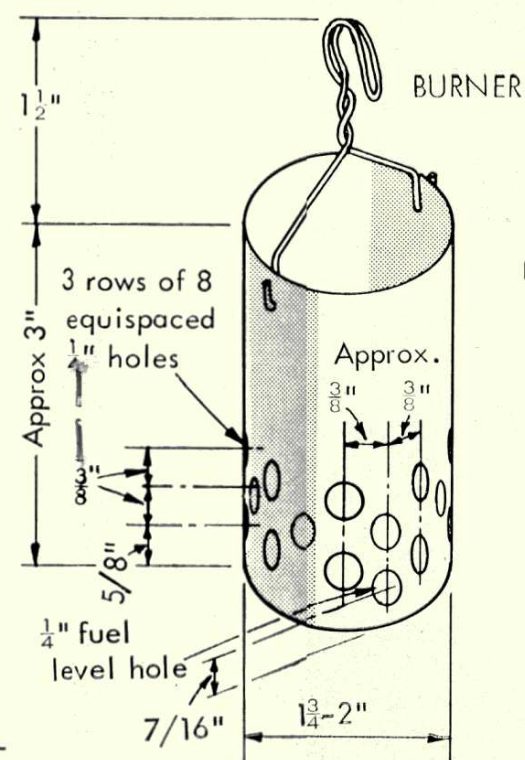
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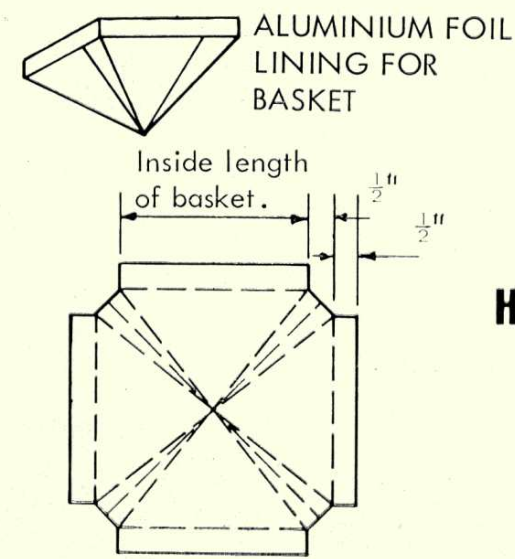
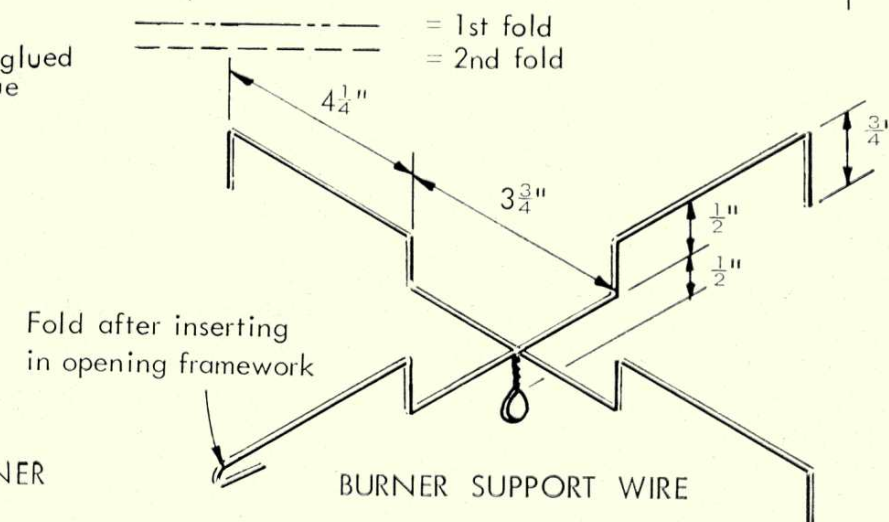
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