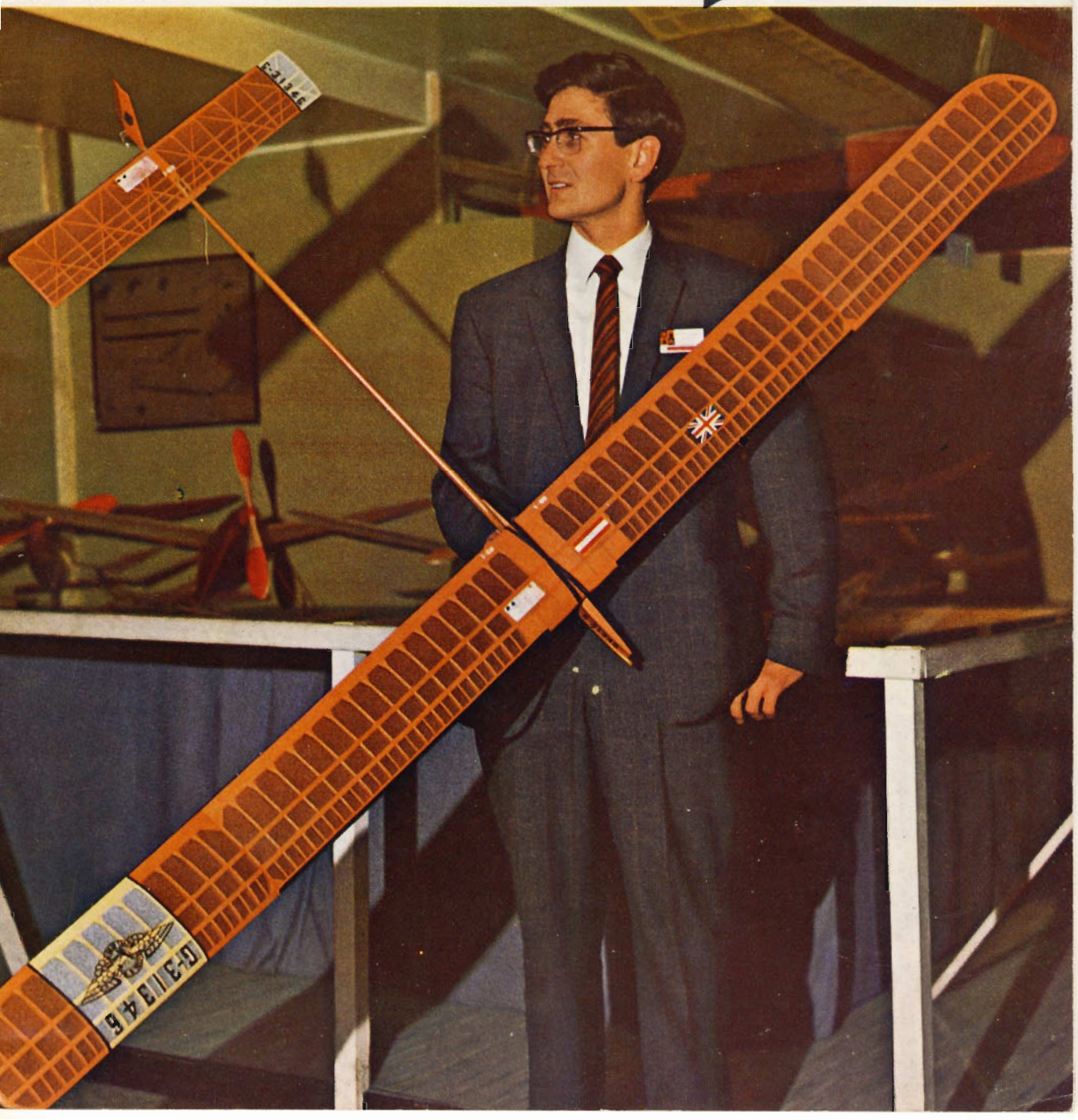
Aero Modeller

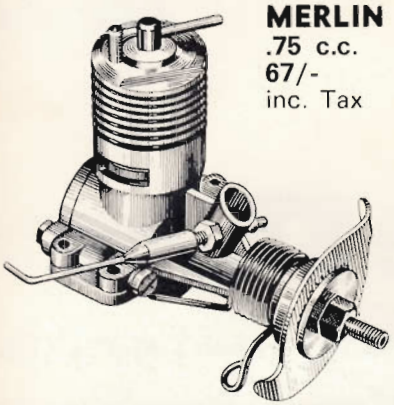
MAY 1970

INCORPORATING
MODEL AIRCRAFT

MAP HOBBY MAGAZINE

Three shillings. U.S.A. & Canada 70c.





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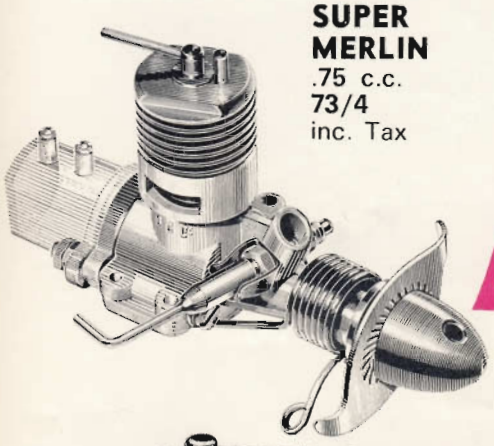

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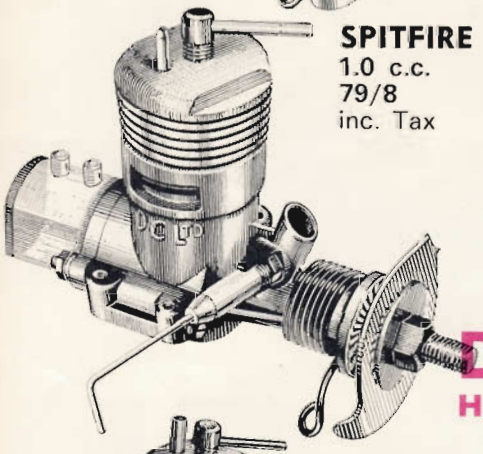

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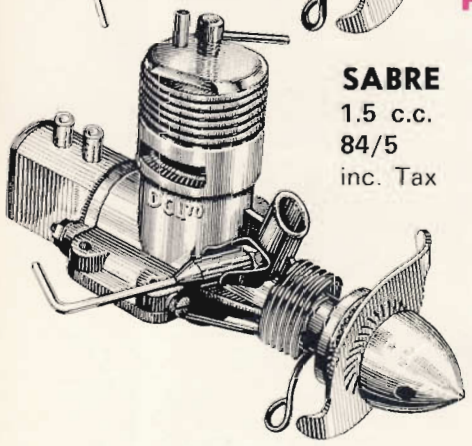

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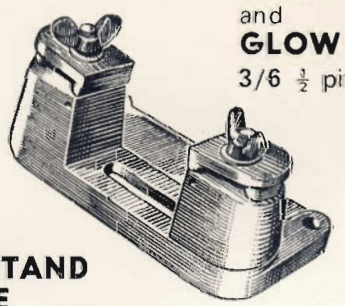

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and
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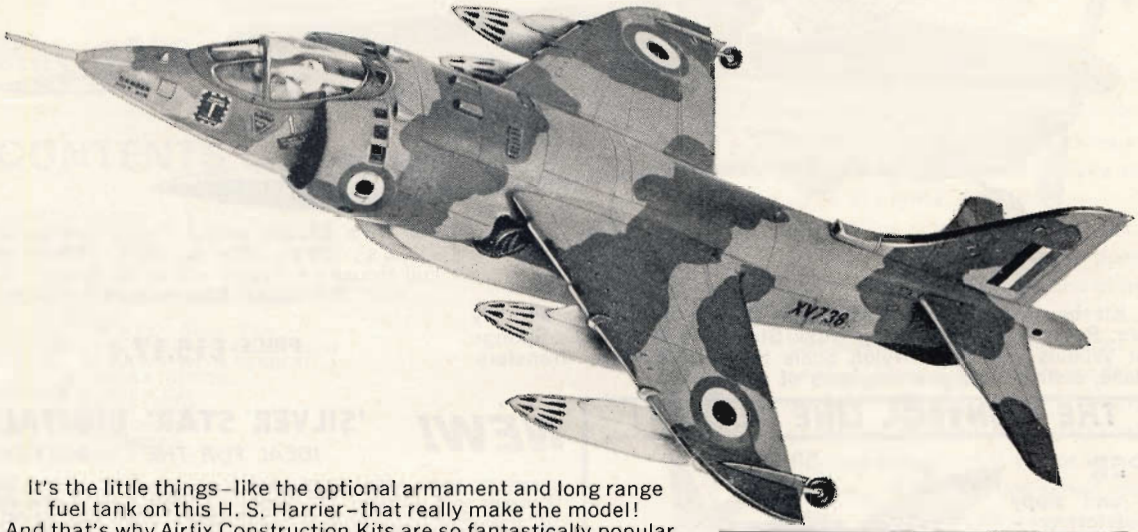
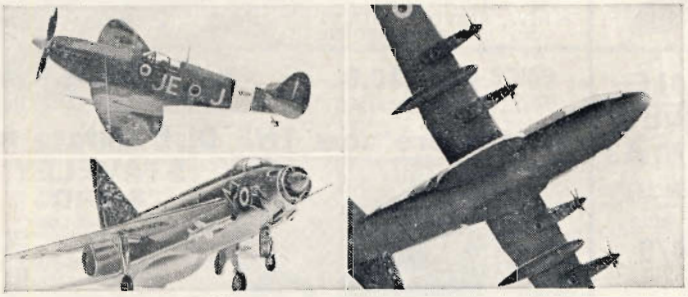


It's the little things–like the optional armament and long range fuel tank on this H. S. Harrier–that really make the model! And that's why Airfix Construction Kits are so fantastically popular. Every model is accurate to the smallest detail–a perfect replica of the real thing! There are nineteen series, each made to a constant scale. Over 300 kits to choose from at prices from only 2/11 to 23/6. From all good hobby shops and F. W. Woolworth. Ask for the catalogue.

Top left: Spitfire. Bottom left: E. E. Lightning. Right: Hercules



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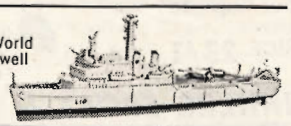

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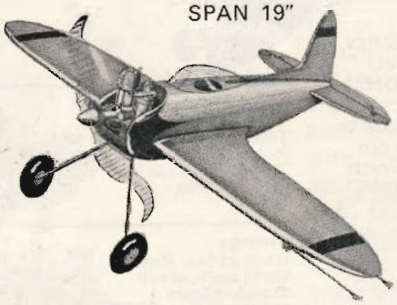

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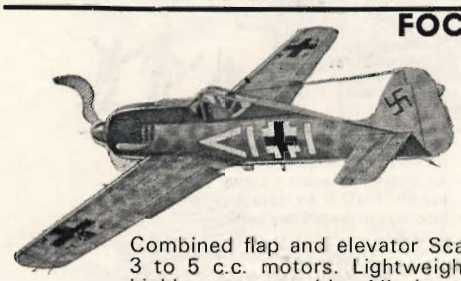

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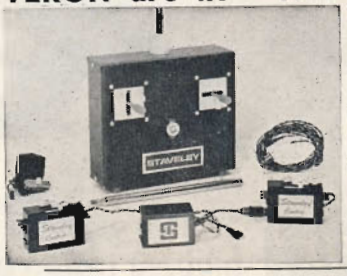

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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

May 1970 VOLUME XXXV No. 412

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MAP **HOBBY MAGAZINE**

ABC

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Editorial Director **D. J. LAIDLAW-DICKSON**
EDITOR **R. G. MOULTON**
Advertisement Manager **ROLAND SUTTON**

COMMENT

Nothing ever surprises us these days – more's the pity. A Canadian escorts his radio controlled model along a highway for 2,086 miles in daily stages up to 311 miles. An American control-line combat champion takes up radio control and – you've guessed it – fits full R/C gear into one of his flying wing style streamer eaters. The ever clever Japanese collect several 'firsts' with a scale model of the YS-11 airliner powered by a pair of the remarkable Graupner-OS Wankel engines, and a recent visitor to our offices, U.S. control-line speed record holder Jack Frye told us convincingly of forthcoming R/C speed record attempts that will make 200 mph seem like a crawl. How refreshing it is in this age of sophistication to examine the simpler details of Elton Drew's World Championship winning glider. The joys of free flight will never be lost, and the revealing description of how to build and fly the 'Lively Lady' does the ordinary aeromodeller a power of good.

on the cover

World Champion Elton Drew and his 'Lively Lady' (named after Sir Alec Rose's famous round-the-world ketch) at the *Model Engineer* Exhibition. Two famous Wakefield designs in the Alwyn Greenhalgh collection are seen in the background – Ralph Bullock's and Alex Houlberg's. Altogether, a very pleasant photo of a modest Champion among the memories of famous Champions of the past.

next month

Two full size plans. Silencer views. The famous Russian Il-2 'Stormovik' in scale drawings for another ideal flying subject. A free flight Savoia Marchetti SM 81. Nats news. Control-line topics. On Sale May 15.

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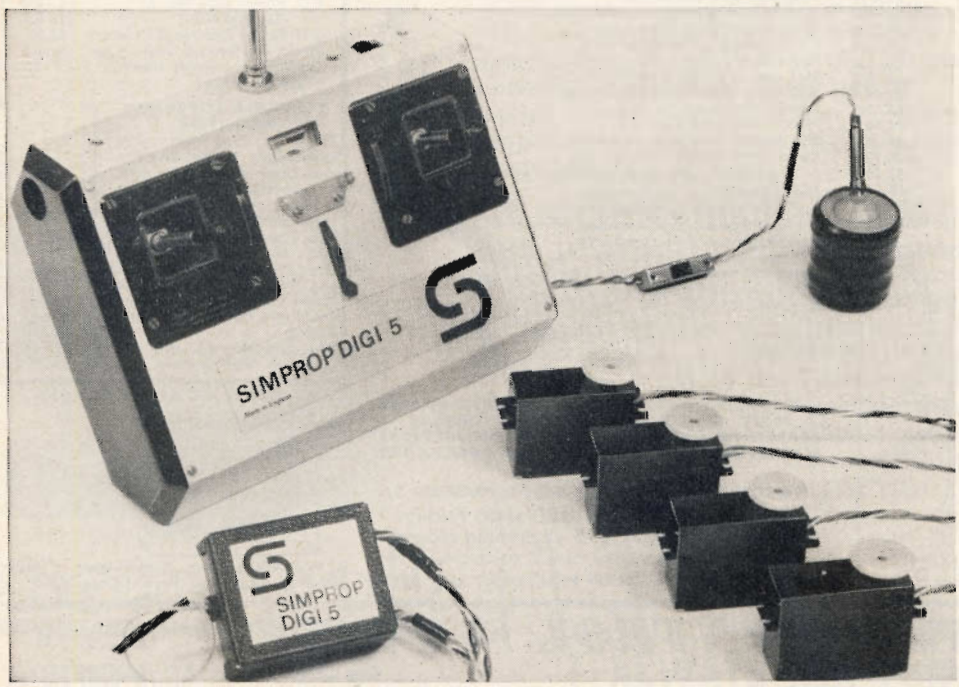

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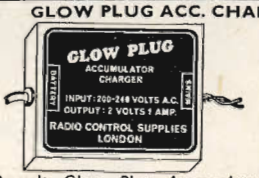

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It has to be a balsa model, of course. You could not hope to make a flying model *Bulldog* in any other material. There's almost enough dihedral in the original design for a rubber powered model, and quite enough for a free flight power model, if you add pendulum control. But, of course, for a proper job, it really wants to be a radio model with proportional control.

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1/12th scale free flight Bristol Bulldog by Peter J. Allnutt (Canada). Prototype model of M.A.P. plan FSP 762 (price 7/6).

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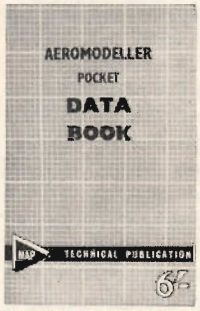

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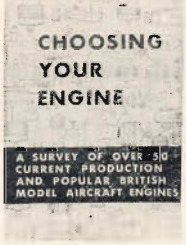

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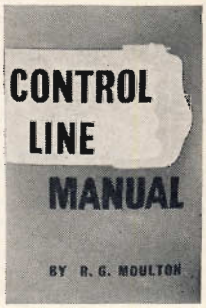

Main chapter headings: Why Control Line?; Basic U-Control; Basic Monoline; Basic Flight Control; Learning to Fly; Aerobatics; Speed; Team Racing; Combat; Carrier; Cargo and Endurance; Scale Models; Jet. The Engine in Control Line; Towards the Indestructible; Looking after the Lines; Variations on the Theme. Plus appendix.

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Heard at the HANGAR DOORS

'KAMAN' HELICOPTER plans published in January issue omitted an essential credit. The rotor design should have been attributed to Dr. Lee Taylor of the U.S.A. It is, in fact, the subject of a Patent Application in the U.S.A. Dr. Taylor's model helicopter designs, which have been published in the American Model Press had influenced J. Bishop in the production of his 'Kaman'. Mr. Bishop made this clear in a letter but unhappily, that reference was not with us when the article was prepared for publication, and thus the entire design was erroneously credited to Mr. Bishop. We apologise for this oversight. In our anxiety to make available a design which had impressed us on several occasions so that others could explore the realm of rotary winged flight, we completely overlooked the extensive development work by Dr. Lee Taylor, which thoroughly deserves the recognition which is due. The rotor and the method of employing slipstream as an anti-rotation device are key factors in the design and their origination is entirely the result of Dr. Taylor's experiments.

JUNIOR KIT contest preparations should by now be well on the way for all youngsters with less than five weeks to go before the big event on 24th May at RAF Hullavington. The kit manufacturers, Messrs. Veron, KeilKraft and Mercury have given their utmost co-operation and have printed special leaflets which can be found on all model shop counters. All we need now is fair weather, and lots of Senior modellers around on the day to give helpful advice to the novices. No Junior need feel in any way conscious of wrinkled tissue, warps or a flight performance akin to that of a housebrick – just bring your model along and you'll find plenty of helping hands to set you on the flightpath to success.

WHO LOST a KeilKraft 'Slicker Mite' at Chobham Common? Telephone Chalfont St. Giles 3494 after 7 p.m. any day with identity claims. By the way, there's no news as yet on the missing *Elite* Trophy from the North West's Woodford Rally – anyone have a clue to offer?

TEN NATIONS have so far indicated that they will enter the World Championships for Scale models at Cranfield, 29th–31st August. With at least four more potentials, it looks as though this inaugural meeting will be the finest start any Championship series ever had. It will certainly set a few records of an unusual nature. The largest tent in the United Kingdom is to be erected on the field for a vast exhibition and trade display, with static shows of non-competing scale models. The event is to have the full backing of the *CASTROL* organisation, so maintaining the wonderful support given to the S.M.A.E. by Lord Wakefield, and which played so great a part in the success of the Control-Line Championships at RAF Swinderby in 1966.

BOEING are supporting a Junior Contest in the U.S.A. It is in the form of a $1,500 Scholarship stipend provided by the Boeing Management Association to the Champion modeller under 19 years of age in a seventeen event rally to be held at Seattle in June. Top score in any four of the contests determines the winner. Boeing are to give trophies to runners-up and they are doing it because *'The contest will help develop aeronautical skills among our youth. We also believe the contest will help build community awareness of the technical know-how of these youngsters'*.

INTERNATIONAL for aeromodellers under the age of 21 takes place from 24th to 27th July at Alicante in Spain and may well attract some holidaymakers. It is for the three F.A.I. free flight classes of A/2 glider, Power and Wakefield. Accommodation is in a College and foreign entrants will get *free* return trips by train from the border to Alicante. Entrants must register prior to 1st July, and we can supply copies of the official entry form for this 'Garcia Morato' contest. We also hold entry forms for the Annual Spanish Postal International contest for A/2 gliders which can be flown on either 19th or 26th April. Five flights are required and there are classes for Junior (under 21!) and Senior, Team (of three) or individual.

TORQUE is a misconception – or so Pipers would have us believe in their sales spiel for the Twin Comanche C/R. The initials stand for Counter Revolution. Pipers have followed some of the military twins, notably the P-38 Lightning (which they acknowledge) and the prototypes of the Gloster F9/37 and Westland Whirlwind plus the more successful de Havilland D.H. 103 Hornet (which do not get a mention). They claim that by changing the rotation of the Starboard engine on the Twin Comanche, the resultant thrust of the propellers is symmetrically *from the inboard side* of each airscrew disc. *Yes* – you *do* read aright! Moreover, any engine-out condition will not materially effect control and they produce sketches to prove it. The advantages of counter-rotation would be perfectly obvious to any aeromodeller, it is the manner of Piper's explanation which disturbs our old-school thinking. Talk about Torque, they say, is erroneous. Torque force is negligible they tell us. We have been utterly misled by what they call the 'P' Factor. They advise that *'in a climb, the down going blade would provide more thrust than the up-going blade. Conversely when an aircraft is in a descent (with a reduced angle of attack) the up-going blade would have more thrust.* As the thrust is therefore theoretically asymmetrical on the airscrew disc, it produces the 'P' Factor. So *now* we know! Piper go on to tell how the slipstream corkscrew gets stretched out as the aircraft travels faster, hence the usual variation on rudder settings to counteract (*OOPS* nearly said torque!) 'P' Factor with airspeed. For the average aeromodeller this mind-boggling revelation which we discover in a sales leaflet may not mean much. We may well have been misled into thinking that a few degrees of offset and downthrust were correcting an undesirable torque reaction yet in reality what we were doing was to incline the airscrew disc in such a way that the asymmetrical thrust vector on the disc was balanced by introducing blade yaw relative to the line of flight! Unfortunately all the expatriate aeromodelling aircraft designers who left this country for Piper, have in turn departed Vero Beach for other manufacturing pastures in the U.S.A., so we no longer have an unofficial Piper consultancy service to lean upon. But we'll bet that the author of the sales leaflet had never flown an open rubber contest design.

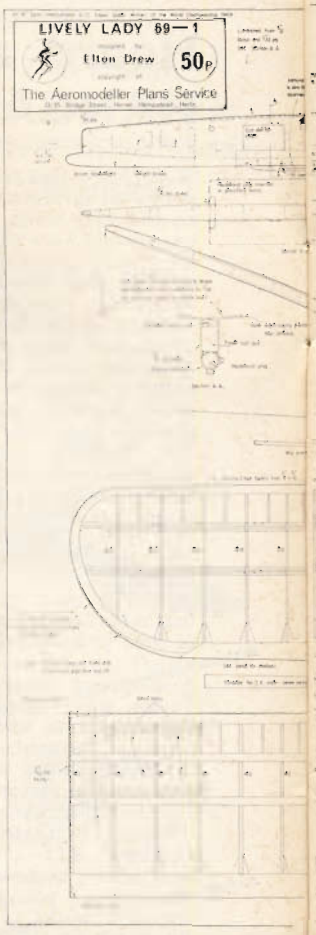
AIR DISPLAYS this month, unfortunately clashing and each not to be missed – the Air pageant at *Old Warden*, and the combined civil/military display at *Southend* both take place on 26th April.

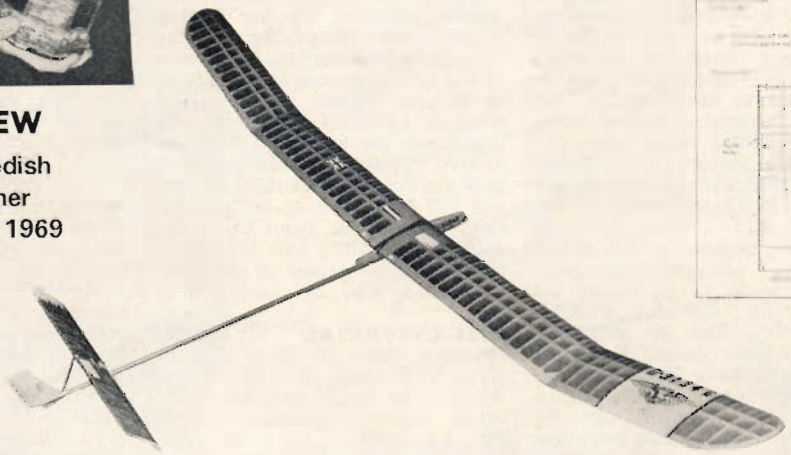
Model on the cover!

The

World Champion's A/2 glider design

LIVELY LADY





by ELTON DREW

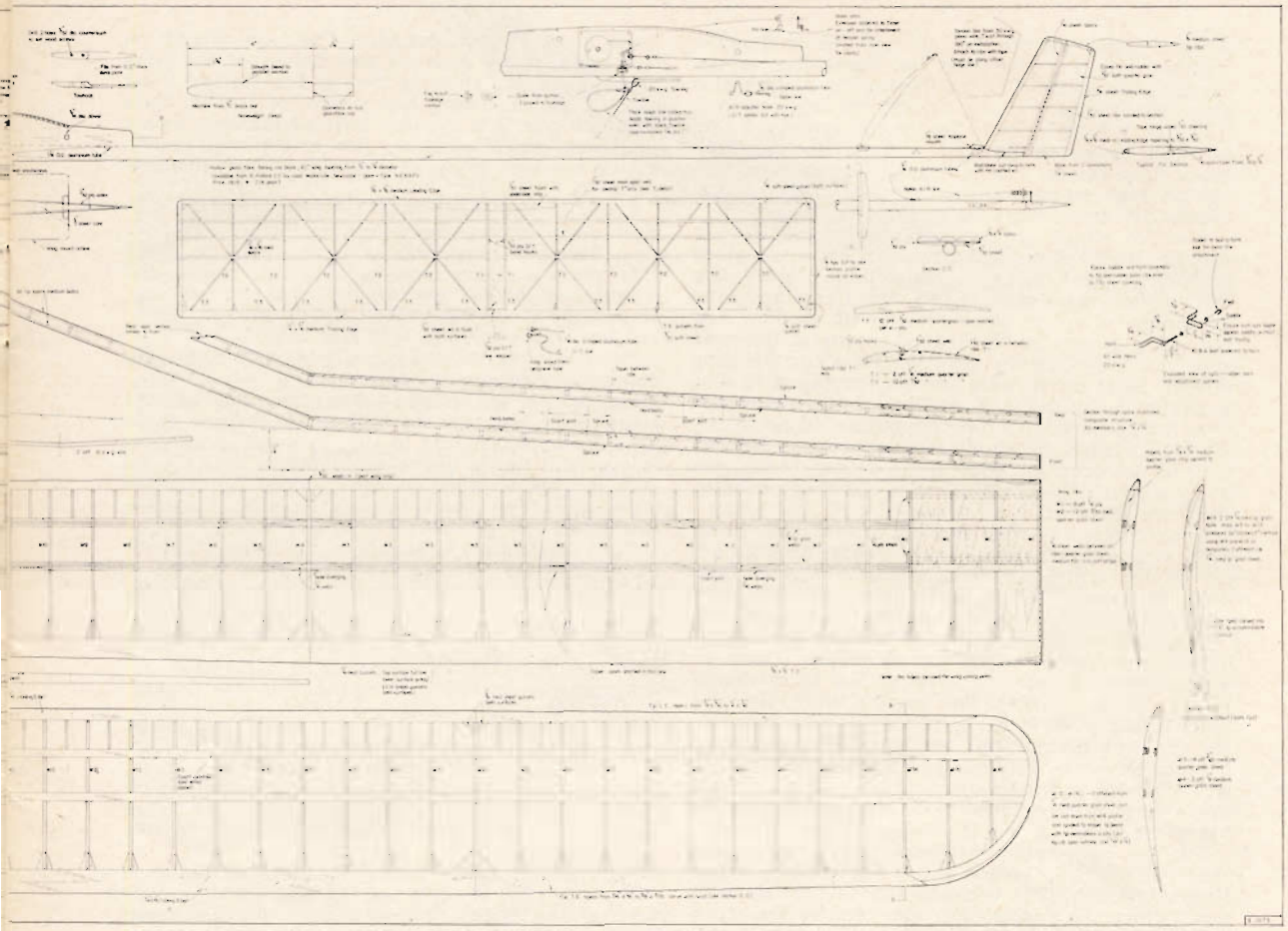
Winner of the Swedish Glider Cup at Wiener Neustadt, Austria, 1969

LIVELY LADY has a development history spread over some ten years of competitive glider flying, and as such it is a compromise to cope with the ever changing British weather conditions and the varying qualities of the average contest site. The designer has long felt it to be preferable to produce a model able to cope with all extremes of weather, rather than to design specialist machines to meet specific conditions. The target has been a design which is reliable, tows well, possesses the highest possible 'still air' time consistent with rough weather ability, and above all one which will ride any thermal – for without some thermal assistance, *Lively Lady* will not max, nor, indeed, will any other A/2 which the designer has seen!

As the World Championships venue was unknown at first, Elton had thoughts on producing a couple of still air jobs to back up his all-weather models, but eventually decided on continuing his existing line of development, with a few more modifications – a wise decision as it happened – Weiner Neustadt having a reputation for windy conditions and 'still air' being relatively rare. Testing of the new models revealed that though their dead air performance was no match for out and out still air jobs, just a trace of lift was all that was necessary to reach the magic three-minute figure.

Conditions at Wiener Neustadt during the glider event became more difficult over the latter rounds. *Lively Lady* was used for the last four flights – the earlier rounds were flown with his No. 7 design simply because being the oldest it had proved itself reliable, and he was more familiar with it. The change over was prompted by an opening out of the turn on the third flight, later traced to heat tightening the nylon auto-rudder line, a problem which had never previously arisen.

The change was not made without some misgivings as *Lively Lady*, having been kept on hand throughout, had been subjected to quite a roasting, and being comparatively new the possibility of some warping was feared. These fears proved groundless, however,



Full size copies of this 1/16th scale reproduction are available as Plan G 1073, price 10/- post free, from Aeromodeller Plans Service.

as the model behaved faultlessly throughout, and having a slight edge in performance over No. 7 proved invaluable during the final rounds, when the available lift was very weak.

Construction should present no difficulties to those who have previously built a few A/2's, but it is by no means a beginner's project. Bear in mind that accuracy and careful selection of wood are essential for top performance. The wings, in particular the tips, must be light and balanced both in strength and weight. Aim for a maximum of 2½ oz. for each panel (less joining dowels), with 3 ozs. the absolute limit. The tailplane should not weigh more than ¼ oz., preferably nearer ¼ oz. and every effort made to keep the rear fuselage and fin light.

Stripwood (including spruce) should be cut from sheet to produce constant strength/weight material and to accommodate use of non-standard sizes.

Begin making the wings by laminating the tips, noting the additional width at the trailing edge. Cut out the eight 1/16 in. ply ribs (W1) and carefully drill holes for the wing dowels. These are used as master templates for all inboard panel ribs, using the 'sandwich' method. Note that the upper rear spar notches reduce to 1/16 in. deep on ribs W3 and 4. Cut the root block fill-in slightly oversize to the rib profile, then drill clearance holes for the wire joiners. Carefully bend wire wing joiners and cut to length, ensuring that they are identical to each other.

Sand the root blocks to the dihedral angle before gluing all the ply ribs and spacing blocks together in the correct positions on the joiners, checking for alignment. Now prepare all inboard panel spars, scarf jointing as indicated on the plan, and laminating the top spar. This spar arrangement results in a wing which whilst very strong, flexes evenly under tow loads and has no excess weight at the extremities.

Roughly shape the L.E. & T.E. for the starboard panel, then pin to the building board, packing to suit the undercamber. The root assembly for both wings (still complete with wire joiners) is glued in position, followed by ribs W3 & 4, and the top spars.

When dry, repeat for the opposite panel – the starboard panel still being attached by the joiners, and supported at the correct dihedral angle. Pack the L.E. up 3/32 in. to allow for wash in when building. When completely dry, separate and add the tips.

Make the tips by tapering the L.E. and T.E. as shown, and cutting to shape. Carve in the 'twist' to suit the tip panel washout – this is essential.

Prop the inboard panel on the plan to the tip

dihedral angle, and pin the L.E. and T.E. to the plan together with the laminated tip. Remember to use the template at the T.E. for the washout, which also gives the correct packing to suit the undercamber. Add ribs W5–16 followed by the top spars and 1/16 in. sheet gussets to the upper surface. Remove from board, then cement the webs to the upper spars, noting the doubling-up over the central bays and dihedral breaks. The lower spars are then added.

The L.E. riblets are cut from a strip of 1/16 in. x 3/16 in., and are roughly carved to shape and glued in position prior to sanding to section – taking care to avoid sanding away the full ribs. Carve and sand the laminated tips to blend with the rib profiles. Add remaining gussets and hardwood inserts at the wing root, not forgetting the plywood stops for the wing dowels. Sand entire wing smooth, paying particular attention to leading and trailing edges – especially over the tip portion incorporating the washout. Sanding blocks contoured to rib sections are very helpful.

Prior to covering with light weight Modelspan apply a coat of clear dope – this also being used as the tissue adhesive.

The tailplane is very straightforward and needs little explanation except – keep it light. Ribs T3 are cut on the centre-line, and slotted to receive spars when in position. Covering is lightweight Jap with just sufficient clear dope to waterproof adequately.

Construct the fin/rudder by cutting out the tapered leading and trailing edges and hinge line spars; together with top and bottom ribs. The latter should not be split at the hinge line yet. Pin the outline and spars to the plan, with appropriate packing, cementing top and bottom ribs to them. Note the angle between the spars. Fit unshaped intermediate 1/32 in. ribs – sanded to profile on removal from plan. Next assemble screw adjustment parts and bend the torsion bar to the plan.

The fin and rudder are now parted by cutting 'vees' in top and bottom ribs. The torsion bar is twisted through 180° and attached to the ribs with tape. Hinge the rudder with tape. Epoxy the screw adjustment in position – pinning the rudder at 'neutral' helps here. Finally, apply the 'skins' and sand lightly. Check that there is adequate rudder movement and that the torsion bar operates positively.

First operation in making the fuselage is to turn the brass nose weight to the dimensions shown. The glass fibre rod should then be trimmed to suit the noseweight dimensions. The glass fibre blanks used are 42 in. long and taper from ½ in. to ¼ in. and weigh approximately 1 oz. before trimming.

Epoxy a hardwood block at the towhook position then epoxy the brass noseweight in place. When set, blend the glass fibre rod to the brass.

Cut the 1/32 in. ply pylon sides and ½ in. balsa core to shape – allowing for the timer on the port side. Shape the balsa core to the plan profile, add hardwood nose piece, and cement ply sides in position. When dry, shape the pod to mate with the boom and epoxy. This is done by rough hollowing the pod, then wrapping the boom with sandpaper and sanding to a good fit. Check that the correct wing incidence is still present.

Epoxy aluminium lead-out tubes in position and insert overlength nylon lines for A/R and D/T. Cut the rear fuselage to accept the fin, then glue in position, followed by the front tailplane rest – accuracy is essential with both these components.

Cut out the 1/32 in. ply wing mount, splitting along its centre line. Note grain direction is spanwise. Profile the centre-line of each half to incorporate dihedral angle and wing undercamber. Cut 'vee' groove on fuselage top and glue the two halves of the wing mount in place, ensuring that it has slightly more dihedral than the wing. Cut a piece of 1/32 in. balsa slightly bigger than the plan form of the wing mount and using impact adhesive, glue to the wing mount, but do *not* split along its centre line. Trim to shape when dry.

Cover fin and rudder with Jap tissue finishing with clear dope. Insert wing dowels temporarily in position, then add timer and assemble model to check C.G. position. If necessary add a little lead to the weight box before glueing the 1/32 in. ply top. Should the model be nose heavy you've got trouble and boy, can you build light rear ends!

Remove wing dowels, cover pod with tissue and dope, before refixing the dowels.

Finally, add the plastic-button timer hold-off line guide then connect up the A/R and D/T lines. Avoid using knots, which tend to slip, by substituting short lengths of 1/16 in. diameter aluminium tube slipped over the nylon, which is then looped through the fitting and passed back through the tube. Crimping with pliers then produces a neat, secure job.

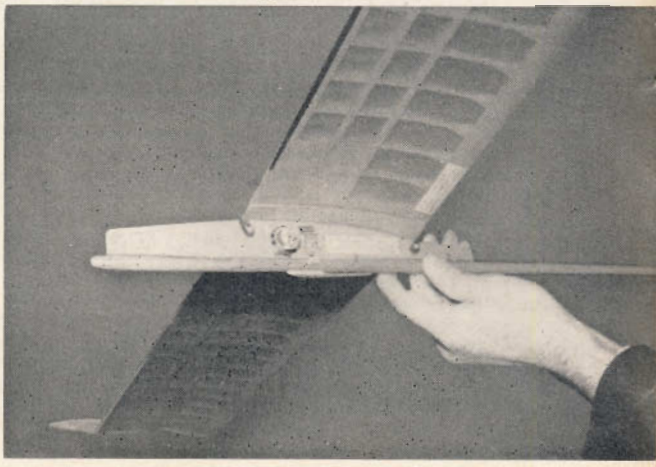
Final adjustments to lengths of the nylon are made by bending the 20 s.w.g. adjusters. 1 in. lengths of self adhesive foam strips stuck centrally along wing mount L.E. and T.E. prevents wing slippage. Preferably leave the wings to age for as long as possible, jigged to the correct warps.

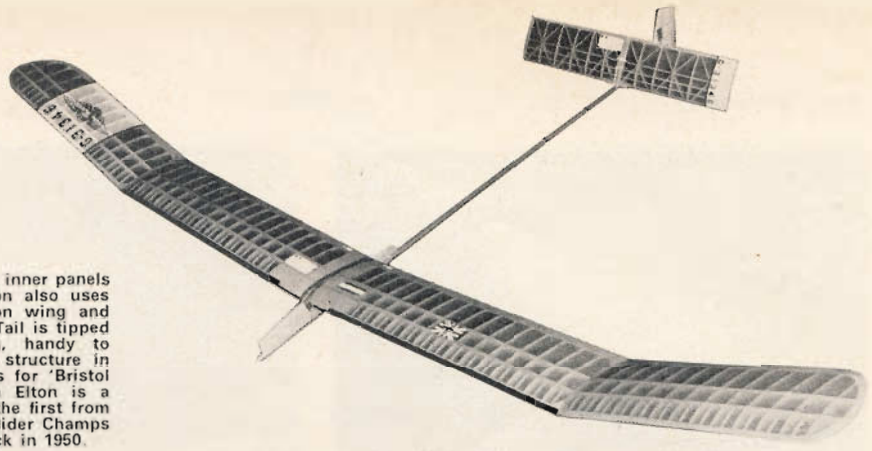
Trimming

First step should be a careful check that warps, centre of gravity and incidence are as on the plan. The only additional warping permissible is a slight, and equal, amount of washout in each tailplane tip which will probably appear naturally. Any other warps will in all probability lead to a heap of trouble – literally!

Set the auto-rudder with ¼ in. left offset for glide and about 1/16 in. right for tow and you are ready for the first flight. Choose a calm day for initial trimming, though a little steady wind need not deter you. A hand glide reveals little, so tow up straight away with a full line length and with a 20 seconds D/T. Note any tendency to veer off at the top of the line on tow and check that the glide is safe. Forget

The heavy end – note long tow hook, projecting 'bullet' end of glass fibre fishing rod fuselage and dethermaliser timer in pylon.





Reflecting leading edges on inner panels of wing aid visibility. Elton also uses distinctive white stripes on wing and tail tips for identification. Tail is tipped to dethermalised position, handy to show off the Union Jack structure in this view. Wing transfer is for 'Bristol and West' club of which Elton is a very active member. He's the first from Britain to win the World Glider Champs since contest started back in 1950.

fine glide trim at this stage, but concentrate on getting the tow straight, with adjustments to the auto-rudder only. When satisfied, adjust the glide, still using short timer settings.

First obtain a wide glide circle and trim by adjustment of the rear tailplane rest height until there is just a suggestion of a stall. Now tighten the turn slightly and check that the stall has disappeared or is negligible.

Next tow up fast and jerk the model off the line to produce a violent stall. The nose should drop, the model wheel around tightly and recover level flight almost instantly, with two stall oscillations at the most. If stall recovery is not instantaneous remove a little tailplane incidence and/or tighten the turn still further. Do not change the tailplane incidence more than 1/16 in. from the drawing – the model must fly very close to the stall. If stall recovery from a 'jerked' launch is poor it probably indicates an overweight rear end.

Now thoroughly check out the towing. Elton regards the towline behaviour of a model as being just as important as its glide.

The tow hook position indicated should give just the slightest tendency to weave on the line, if necessary adjust to obtain this characteristic. Tow directly into a light breeze and by adjusting towing speed get the model to hang back on the line.

Change direction of tow 90° to the left. The model should follow as you move at right angles to the wind direction. If satisfactory, turn round and tow crosswind to the right, and again the model should follow. Make any necessary A/R adjustments to ensure that the model can be towed cross-wind with equal facility to left or right. This means that you can 'zig-zag' when towing, very useful to delay the arrival time at the boundary fence when waiting for a thermal on a calm day!

This results in a very flexible approach to contest flying. One can fly tactically, if desired, knowing that the instant stall recovery and turn will handle the most hurried and violent of releases. This characteristic is also very useful if one senses lift on the ground (i.e. from bubbles, thermistor, hairy knees, sixth sense or whatever!) and need a very rapid tow.

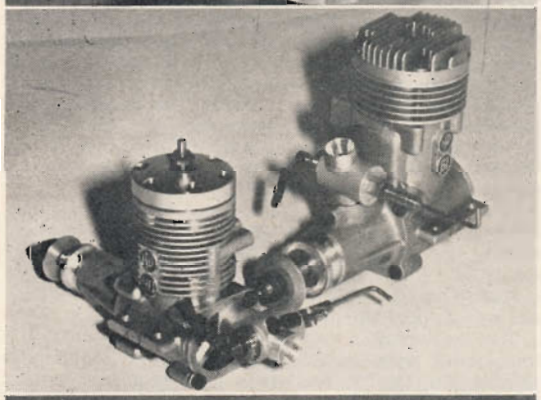
The ability to follow faithfully is also obviously essential when hunting for lift on the line, particularly if towing distance or direction is limited.

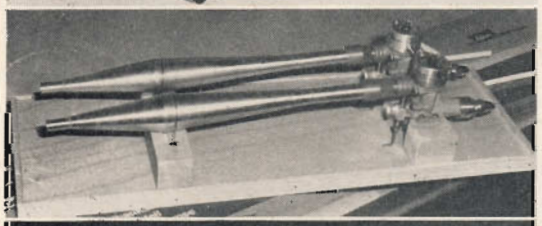
In calm conditions the 'anti-fall off' system, detailed on the drawings, proves invaluable; one can tow with a slack line and negotiate obstacles confident that, within reason, the model will not slip off the line accidentally. This simple device has certainly made a large contribution to Elton's successful flying and he rates it very highly. It will not jam, but a definite tug is required to release. Any stall induced is not detrimental if in lift, as the model will consequently whip rapidly around into its turn. In still conditions the model can, with care, be floated off smoothly.

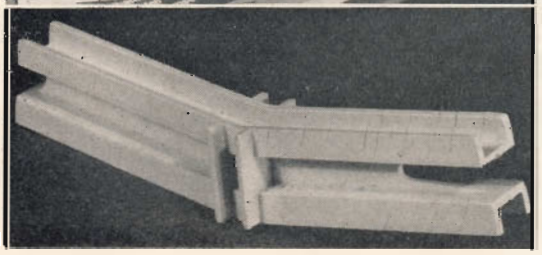
Trimmed to the above procedure *Lively Lady* should possess the ability to centre itself in a thermal. Launched into the centre of a thermal the model should circle in fairly consistent, tight, albeit somewhat stally, circles until the D/T pops. If launched off-centre the model finds its own way into the centre, circling wide downwind, stalling slightly as it comes into wind and wheeling around quickly. The pattern repeats itself until it has centered in the lift, when the turn will tighten and up and away she goes. It may sound far fetched but seems to work, this Elton believes, being due to the model having insufficient rudder area to maintain a consistent turn and, indeed, without the inboard panel washin it would be very reluctant to turn at all. Thus when not in lift the model flies a rather long downwind leg. On encountering the turbulence of a thermal the model tends to stall – the inboard panel, due to its washin, drops first; and the model whips around tightly and into the thermal, or adjacent to it ready for a repeat next time into the turbulent area. The net result is a steady worming into the thermal. When right in the thermal, turbulence, acting as above, keeps it turning tightly and it stays with the lift.

The severity of the stalling action is dependant upon the conditions within the thermal. In steady lift it may be hardly noticeable, but nevertheless still seems to work. In rougher air the model really cavorts around and although the resultant pattern is not exactly elegant it is certainly effective.

The explanation may not be entirely correct but the model trimmed in this fashion certainly does exhibit an ability to work into, and stay with, thermals. On numerous occasions Elton has had models climb away only towards the end of a flight, the initial part of which has looked very doubtful. The model is apparently launched in the edge of a thermal (one has very little indication on the line as to just which part of a thermal has been encountered) and is reluctant to climb away – it may even lose height. It may appear to flirt with the lift, going straight, stalling, turning slightly, repeating the routine until, finally, the turn tightens and away she goes. Onlookers often dismiss this as luck and indeed on occasions this is probably true – one always needs a little luck! However, we prefer to believe that the trim is responsible, or is at least assisting one's luck. Perhaps one has indeed 'boobed' and released nowhere near the thermal, but the model, with this 'thermal seeking' trim, has found its own! This is what one has been aiming for – a model that stays in a thermal if you put it there, works into the centre if launched on the edge, and finds its own lift if you miss it altogether!







Top left: introduced at the fair by Dinky Toys, was this Boeing 737, with retracting undercarriage, appropriately finished in Lufthansa colours. Above: Philips displayed and demonstrated these interesting R/C hovercraft. Used single channel R/C Models moulded in styro foam. Left: New at the L. M. Cox stand was this ready-to-fly control line Ryan PT-20.

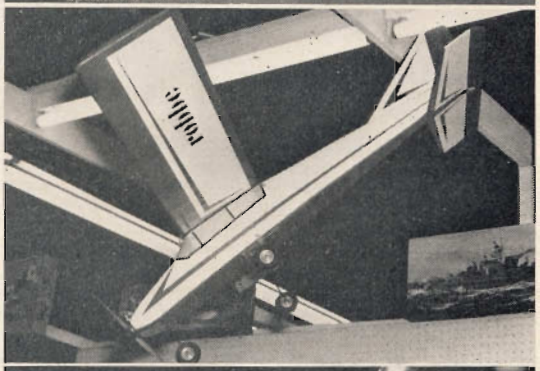
Nuremberg Trade

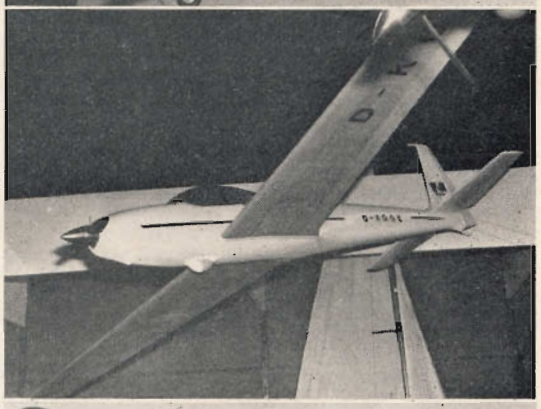
PREDICTABLY, much of the emphasis at this year's International Toy Fair at Nüremberg, West Germany, was on R/C. In the R/C equipment field, emphasis was, even more predictably, on smaller and lighter equipment. **Graupner**, for instance, maintains the 'building brick' principle of their receiver systems, but have attained a smaller receiver/decoder package by condensing decoder and amplifier circuitry for two servos into *one* module, thereby requiring only two decoder/amplifier modules for a full house system. The transmitter for this digital propo system is also smaller, in attractive plastic moulded case.

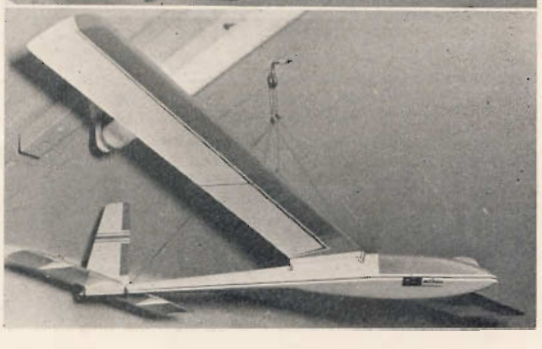
Simprop too have been on the miniaturisation spree, with extensive use on integrated circuit components, in their new *Alpha 2007* series. Yet while other systems offer smaller transmitters, a new belly mount transmitter adaptor for the Simprop Tx. actually makes their unit larger.

Accent in the model field is on even greater extents of prefabrication, a trend led, once again, by the R/C field, where beautifully moulded glass fibre fuselages are the norm, rather than the exception, an example of which shown right is the **Engel** *AS-114* scale motor glider. R/C gliders were, in fact, to be seen everywhere. **Robbe** showed their new *Delphin*, which can be built in 118 or 87 in. versions, the latter for

Third left: seen at the H.P. stand were these latest two aero engines in the H.P. range, the front induction R/C .60 and the new rear induction R/C .40 for pylon racing. Production .40 will have finned head. Fourth left: at the Schuco-Hegi display we saw the new Italian Kosmic .15 racing motors, shown here with tuned pipes. Model in background is marine version. Left: moulded dihedral keeper is just one of many practical features in Graupner 'Katy' A/2 kit. Keeper is moulded in very flexible plastic to allow wing tip sections to easily absorb likely rough and tumble of flying field.







Seen at the Multi-Plex R/C stand was this scale 'SG-38' R/C glider. Model spans 63 ins. Top right: 67 ins. span A/2 sailplane 'Katy' is new free flight introduction by Graupner. Has many practical features, including shaped nose pod and plastic dihedral keepers as shown bottom left. Right: practical looking 'Bronco' by Robbe spans 43 ins. For 1.5 c.c. engines, it has a flat bottomed wing section and is designed for sport R/C with rudder only, or rudder/elevator/throttle controls.

aerobatics. **Rowan,** always specialists in the Almost-Ready-To-Fly category also showed an aerobatic glider, the *Windspiel-Acrobat* at 92 in. span or 113 in. for normal soaring. Most magnificent of all, was undoubtedly the **Wik** *Kestrel*, a true scale model of the T-tail world glider champs winning full size, spanning a graceful 111 in. It had a superb glass-fibre moulded fuselage.

In the non-R/C category, we were particularly im-

Fair News

pressed by the practical and attractive **Graupner** *Katy A/2*, which featured much prefabrication, including ready shaped nose pod, and nicely moulded dihedral keepers in plastic so flexible to allow absorption on the loads put on the wing tip sections during flying field rough and tumble.

In the power plant department, we examined the all new racing .15 motor from Italy, the *Kosmic*, with rear exhaust, designed specifically for a tuned pipe exhaust system. This was on show at the **Schuco-Hegi** stand.

H.P. showed the front induction version of their R/C .60 motor which looks a whole lot more practical from the installation viewpoint, plus a brand new rear induction R/C racing .40 for pylon racing. **Webra,** too had a new R/C 40, with front induction, and looking for all the world, a scaled down model of their famous Black Head .61 R/C motor.

Third right: magnificent 1970 introduction in the Engel kit range, was this scale R/C 'AS-114' to 1/5th scale, with imposing 113 in. span. Has beautifully made glass fibre fuselage – takes 1.5–2.5 c.c. engines, full house R/C. Fourth right: Schuco-Hegi 'Snoopey' is a pleasant looking 58 ins. span R/C sportster which should make a nice multi R/C trainer for rudder/elevator/throttle controls. 2.5–5 c.c. engines accepted. Bottom right: also new at the Schuco-Hegi stand was this small towline glider, called 'Jim'. 39 in. span model is a quick build kit featuring much prefabrication.

Readers Letters

Balsa salvage

Dear Sir,

I am delighted to be able to cap S. V. Tucker's letter about a war-time source of balsawood (Page 142, March issue).

I served in Stringbags flying from escort carriers and was only one of several keen aeromodellers in my squadron.

Pilots occasionally crashed on landing when the Atlantic was tossing our small carrier around like a cork. If other aircraft were due to land on, the crashed aircraft would be literally thrown over the side. We had no mobile crane or spare area of the deck. The crashed aircraft was manhandled to one side and left teetering on the edge.

This gave an opportunity for quick but dangerous salvage of, e.g. electronic gear before the big splash. But the biggest effort was always to get the balsawood that filled in the Vee of the old Swordfishes undercarriage legs to form a step.

Walton on Thames. *Vic Dubery.*

Pipes & Silencers

Dear Sir,

I was rather disturbed at the remarks made by Mr. Richardson in the April *Aero Modeller* (Control Line News). His references to Mr. Burgess's letter of the previous month show just how little he knows about control line speed models, engines and tuned pipes.

Speed models, by necessity, have to be easy and quick to dismantle, an operation that is severely handicapped by the addition of a silencer. Centres of gravity are altered and it is certainly not a case of just 'hack a hole' and bolt it on.

Tuned pipes are extremely difficult to set up for increased performances as may be seen at any speed contest, both national and international.

Shaft runs are inevitable in speed flying and tuned pipes have the desirable effect of making the engine richer thus reducing possible damage.

However, an ordinary silencer, due to increased back pressure, tends to aid the heat build-up in the case of a shaft run, which usually leads to worse piston/liner damage.

As far as Mr. Wisniewski "seeming to cope with a couple of trumpet cones stuck end to end", well it did take him two years full-time to develop the piped T.W.A. layout.

I trust this will help Mr. Richardson to understand why control line speed flyers are against the silencer rule whilst still furthering the cause of aeromodelling.

Warlingham, Surrey. *A. J. Goodger.*

Dear Sir,

May I respectfully request, without prejudice, the opportunity of replying through your columns to the comments by Peter Richardson in the *Control Line News* feature, April issue, relative to my letter on silencers and the speed model published in the March issue.

I make this request for several reasons – most of which I hope will be apparent from the following – but also in the interests of accurate and fair journalism, which the *Aeromodeller* Magazine has upheld, in my opinion, until now, for the twenty-three years I have been a regular reader and C/L aeromodeller.

I would add that I have had practical experience in local and national newspaper reporting and in my cub reporter days had drummed into me 'When in doubt find out – if still in doubt, leave out' and with respect, Mr. Richardson forgot this and similar mottos when he wrote his story, and I support this suggestion as follows : –

1. During a long telephone conversation with Mr. Richardson, subsequent to the publishing of the April issue, I was told that : –
   (a) He has not built any speed models.
   (b) He now owns an OPS 60 with rear exhaust tuned pipe and plans to eventually use it in a speed model.
   (c) The views expressed in the Control Line News article were his own.

   In view of the following, perhaps it might have been better if the views of experienced speed flyers had been obtained by Mr. Richardson prior to writing his story.
2. To my statement (Item D, my letter March issue) *'Pure speed models do not easily lend themselves to the fitment of bulky silencers – and that includes tuned pipes if they are to be considered as silencers'*, Mr. Richardson says . . . *'It would appear that the speed model is the easiest to adapt'*.
   (a) 99 per cent of all speed models employ two part, split on the centre line fuselages, with the engine being mounted to a metal pan.
   (b) Nearly all speed motors currently used are side ported. This means, in the main, that the silencer has to be fitted by means of a strap around the engine and secured by bolts tightened from the transfer port side. Therefore, Mr. Richardson, how do you propose one fits a silencer without holes in the cowl side or a large cut out in the fuselage under the exhaust port?
3. *Tuned Length Pipe*
   Re-read my statement Mr. Richardson and you will see that I said **IF** pipes are to be considered as silencers. It would appear that you did not see the 'if' and, furthermore, it is evident that you consider tuned pipes to be silencers. In that case, had you not heard that some of the U.K. model power boat fraternity insist on silencers being fitted to the end of tuned pipes on OPS and other piped engines? Perhaps they fit them for fun – will you?
4. *Shaft Runs*
   Mr. Richardson's comment is, I feel, unworthy of a full reply – sufficient to say I wonder if he will feel the same when he has a shaft run with his *silenced* OPS speed model despite the fact that shaft runs are not recommended procedure with OPS engines either.
5. *Motor Racing/Speed Models*
   Simply, please read my statement again, think about it and then do likewise with your own comments, Mr. Richardson. Do you now see what I mean? – Several other speed flyers I have spoken to seem to, so it must be clear.
6. Finally, I am in favour of practical and workable legislation like most other people but would suggest that this whole business can be best summed up in seven simple words as stated in the April editorial . . . *'For all modellers to operate with discretion'*, with the emphasis on 'all modellers' not just the Society membership.

Donald E. G. Burgess

Croydon, Surrey.

Well, Well! Nothing like a spot of controversy to get people reaching for their pens. As the above letters are similar in context, I will attempt to answer them jointly, states Peter Richardson.

Firstly, while I accept that when using a cast pan it is normal to build a model split as described, **why** *must it be quick to dismantle? Yes, I know – to fill the pen bladder tank – an operation which can be performed* **without** *taking the model apart. Non-believers should take a note from Jack Frye's book, who seems moderately successful with this system! With regards the 'large cut-out under the exhaust port' created when using side exhaust-stack motors – surely a piece of cowling epoxied to the engine pan would cure this? The important thing to bear in mind is, perhaps, that model design could be altered/adapted to meet any new condition required. Altering of C.G.s is incidental to the problem – and references to 'hacking holes' were not intended to be taken too literally.*

With regards Mr. Burgess's point No. 3 it should be emphasised that it is of no consequence whether **I** *decide that a 'pipe' is to be regarded as a silencer – this is a decision for the S.M.A.E. to make, and as an agent of this body, the Contest Director himself. The important factor in noise suppression is the result, not the method used to accomplish it. If the model boat enthusiasts adopt a certain maximum noise level, then they must use whatever means possible to achieve it. In respect of Mr. Goodger's comments on pipes, it must, of course, be agreed that they are tricky to operate – so it would seem are unpiped engines, judging by the low number of officially timed flights at most contests. Agreed Wisniewski spent two years full time on development of his pipes – and for that very reason it should be much easier for yourself, as he has done your sums for you!*

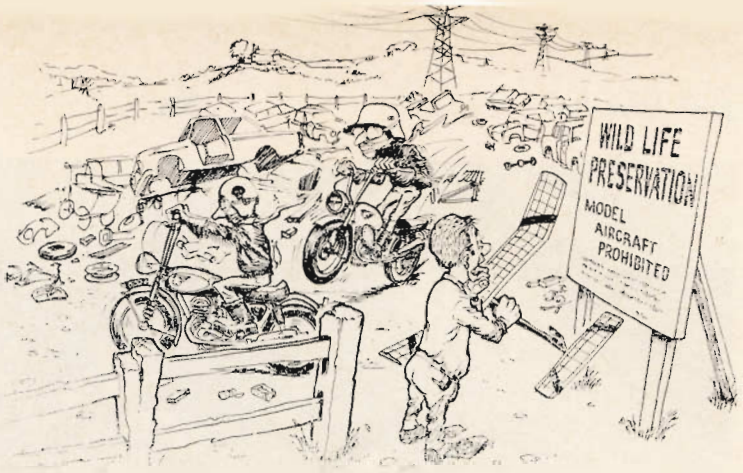
My point concerning shaft runs was that silenced or not, damage in all probability will occur. The degree of damage caused to the piston/cylinder is immaterial if replacement is necessary anyway. I would like to query Mr. G's theory on shaft runs involving pipes, but space prevents.

Point No. 6; in Mr. Burgess's letter requires me to re-read his original statement. Will do Mr. B. – please extend the same courtesy to myself. Sorry to say that I still find your statement irrelevant. If motor sport, due to lack of silencers, was banned, do you really believe that it would affect aeromodelling? Besides which, motor racing is a **professional** *sport, attracting large crowds and big business, whereas in the eyes of the public we are 'boys with toys'. I suggest that it would be far easier to ban aeromodellers from an airfield/private land rather than motor racing from a circuit commercially owned.*

Finally, I am advised that it would have been better to have obtained the views of experienced speed flyers. Why? Their views, presumably, would have been as biased as Messrs. Goodger and Burgess, and how would that fit into the category of 'accurate and fair journalism'?

topical twists

by 'Pylonius'
illustrated by 'Sherry'



Sky Pilot

It takes all sorts to make an aeromodelling world; so if you see someone with his collar back to front smothered by an extremely large size in models do not jump to the alarming conclusion that a nasty accident has occurred, for the gentleman in question has, in fact, got his head on the right way. It's just that his backward facing collar happens to be his badge of office.

But where would a rector keep an 8 ft. span scale model? A crypt-ic question, but look out for any odd additions to the local church before adding your penny to the restoration fund. That new gothic chapel might well be a model workshop.

Sum Hopes

Having read through the new Vintage rules six times I am beginning to get an insight into the devilish cunning of the whole thing. Contest organisers can now be confident of adding a Vintage event to the agenda without fear of getting involved in any extra work. And they should feel jolly thankful, too, for if any vintage flyers were to take the new rules as anything but a devious means of axeing this form of competition, then there would be few organisations capable of mounting the sort of timekeeper/mathematician combo necessary to carry the event through to its ludicrous, meaningless conclusion. Too often the bloke who is prevailed upon to run a contest is hard put to adding seconds into minutes, and to expect him to work out a result in negative quantities is just too much to ask.

You might be able to make some sense of the new rules if all vintage models were lumbering gassie jobs which can turn in an elephantine minute with crowd clearing regularity. Then everyone could enjoy the inevitable wrangle over the applied mathematics of the result. But, as most people go for the thoroughbred duration vintage model, which can hardly keep to a set flight time because of its susceptibility to thermal activity, there is hardly likely to be much response to a contest aimed at selecting the dimmest model.

Fair Deserts

At one time a bit of scrub land such as Chobham was regarded as a blot on the fair face of civilised development. Anyone with an ounce of public spirit would be clamouring for something to be done about it; covering it with a nice smooth dressing of concrete, digging it up for gravel or quarrying it for cement. But now that we are at last awakened to the appalling mess man is making of his natural environment, every acre of wilderness, however blighted and forbidding, is looked upon as sacred, not only by model flyers but by the growing army of preservationists. A few years ago the suggestion of developing gritty old Chobham into a sports recreational centre would have been received with delighted approval by the very people who are now prepared to fight for the preservation of its natural beauty to the last watery ditch.

The unique thing about Chobham is that it is not much use for anything but model flying. You might get the odd naturalist or two grubbing about in the prickly flora, but it's hardly the place to attract the picnickers and courting couples. There isn't, for instance, enough unbroken ground to get a family cricket match going, let alone for more advanced activities. Which brings us to the thought that model flying seems always to be performed as a sort of last rite over any area doomed to extinction. Take the airfield or open space that is under the axe, be sure enough the last protest in the face of the oncoming bulldozers and mechanical ploughs will be the brave flutter of a model wing. It comes as a healthy sign, then, that people are now concerned to preserve areas which have been so unwanted that they are given over to model flying. On the other hand we should perhaps start to worry in case the preservationists might consider model flying as harmful or disturbing to the sand warblers, rock lizards and other natural inhabitants of the wilderness, or we might be faced with signs prohibiting model flying during the mating season.

Coupe De Thread

Reading of a club being regaled with a lecture on aerodynamics provokes the thought that we hear very little on the sacred subject in connection with model flying these days. I can remember the time when no model mag or book was complete without a few diagrammatic offerings on how the air flows where, and what a happy modelling world it would be if the vagrant boundary layer would stick to its job instead of behaving like a whipped cream walnut.

Perhaps it is understandable that, after years of preaching the ideal of air flowing in nice flat layers around your Clark Y, the theorists are not all that forthcoming on the new ideology of the turbulator. The idea that all is anarchy in the aeromodelling world will only strengthen the conviction of those who have been getting along very nicely without all that sort of toffee thank you very much. Literally you throw science to the winds when you tack the sixth thread filament along the wing; whatever is left of the boundary layer is too addled to be used in any sort of comprehensible diagram, and you can only hope the latest 1/16 in. thick aerofoil section is serving some minor purposes under the thread embroidery.

XXVIth Coupe International

John O'Donnell reports

Cup event, with a fly-

ONCE AGAIN *Aeromodeller* made travel, hotel and other arrangements to enable a party of British enthusiasts to attend the annual Coupe d'Hiver at Chavenay. Altogether there were nine in the party, including the two from St. Albans who went by car (and ferry!). The others flew from London Airport to Orly – on the first scheduled flight of Saturday morning. As most of the 'fliers' came from the North, this implied an overnight drive – a hectic start to a hectic weekend!

Despite uncertainty as to the actual date (or even the staging) of the contest, not to mention the threatened closure of London Airport by the firemen's strike, the trip itself went very smoothly. Undoubtedly this was due to most people having 'been before' and hence knowing something of what to expect. The Houghtons, father and son, were the only newcomers to the 'C d'H Party' – whilst the most notable absence was that of Ron Moulton (through editing having priority over reporting!).

The flight – by BEA's Trident One G-ARPM – was followed by an airport coach-cum-taxi journey to the Hotel Terminus-Vaugirard. Only a continental breakfast (or sandwiches) delayed the seeking of a much-needed siesta. Subsequently, sight-seeing and/or shopping took up the rest of the day. Some of the party even had enough stamina to see some genuine Paris night-life!

Sunday morning dawned only too soon – but appeared to promise reasonable flying conditions. The M.R.A. provided coach took yet another different route from hotel to airfield – but still got us there in time to test fly and discover what rules applied!

Traditionally, the French have always had three flights and have insisted on R.O.G. – even though *their* interpretation of unassisted take-off is unique. Recent adoption of the C d'H specification by the F.A.I. involved a decision to have five flights and to allow hand launch. Until we got to the drome we did not know which rules would apply – then it didn't take long to discover that the French had remained unaffected by the F.A.I. Arrangements, in fact, were identical to last year, with two entries (using different models) allowed per person. There was a two-hour round before the lunch break (of 1½ hours), followed by two 1½ hour rounds. R.O.G. was supposed to involve a single point of contact (between model and ground) but I saw numerous unashamed 'hand launches' – some from well clear of the ground. At least one of the British contingent took the attitude of 'If you can't beat them, join them'.

Conditions on arrival at Chavenay were hardly appropriate to a winter contest. It was dead calm, with a blue sky and sun! The competition is very 'organised' by British standards – with contestant's

Heading: the British Group enjoying French winter sunshine. Below, left to right: 2nd placer, J. C. Souveton from Paris waits for flyoff. American model by P. Kleisler being released by French modeller. Barry Lumb started with a double-Max, but sank on third flight with this model.

d'Hiver

CHAVENAY, 1st MARCH, 1970

another great Winter

off to decide the winner

numbers printed on adhesive labels for affixing to the models, 'Control' being located in a caravan, scales for spot checks in an adjacent tent, and time-keepers *supplied* by the organisation. The latter meant that there was often a queue waiting to fly.

There was plenty of lift, even if not particularly strong or widespread – and it was soon apparent that max's were commonplace – even if our share was smaller than we would have liked!

The lunch break did have its advantages – despite its apparent waste of ideal flying weather. It permitted the traditional group shot of the British contingent to be organised and taken – *and* a similar one of the Germans! It gave time to discover what was happening, talk to the 'opposition', and even to eat!

Although the contest was International with entries from Britain, Germany and (I believe) Italy, plus proxy flown models from America and Russia, this side of the meeting is not growing. In fact, the proxy flying of U.S. models has lost the impetus provided three or four years ago when nearly a dozen models were sent over. This year, out of the G.B. party only

Top: German team: Standing (l to r) Peter Brauchle, Helmut Hess, Walter Schmidt, Wolfgang Spiis. Kneeling: Hans Dreher and Ursula Platten. Below (l to r) Mrs. Mireille and Alain Landeau, each in the fly-off, which Alain won with this model, his third outright C d'H. International win. Centre, Kathy Valery with brother Jacques' all yellow model. Right, Louis Dupies, see close up of prop on page 257.

26th COUPE D'HIVER

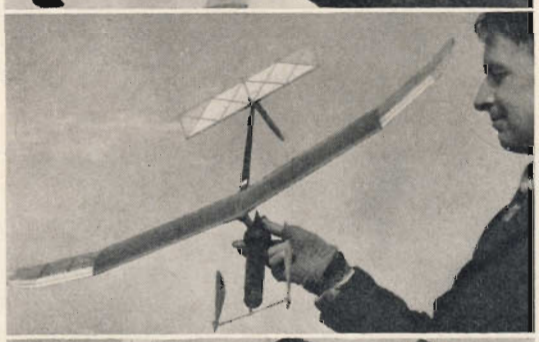
CHAVENAY, 1st MARCH, 1970

1.	Alain Landeau	PAM	360+225
2.	J. C. Souveton	PAM	360+223
3.	J. P. Templier	PAM	360+131
4.	Tom Medley (proxy H. Tubbs)	USA	360+113
5.	Christen Menget	ACC	360+
6.	Mireille Landeau	PAM	360+
7.	R. Garrigou	AMA	352
8.	A. Meritte	ACC	349
9.	W. Houghton	GB	348
10.	J. Griveau	Indep.	345
11.	A. Rennessoy	PAM	344
12.	D. H. Tipper	GB	338
13.	L. Taupiy	ACC	338
14.	J. Griveau	Indep.	334
15.	J. Winchell	ACC	334

Remaining GB placings (and proxies)

35. B. Lumb (299); 44. F. Monts, USA (proxy J. O'D.) (287); 49. J. O'Donnell (280); 50. R. Bailey (279); 56. H. Tubbs (267); 57. R. Bailey (265); 58. D. H. Tipper (262); 61. F. Elton (259); 81. R. Firth (215); 84. P. Houghton (Junior) (210); 93. B. Lumb (176); 101. H. Tubbs (149); 109. F. Elton (118); 111. R. Firth (95).

127 scores were recorded.



Henry Tubbs and I flew proxy (with models we have had for a long while). Dan McDonald's model was flown by a Frenchman, whilst that of P. Kleisler, although present and tested, had not been pre-entered and hence did not participate. The Russian entry, rumoured for '68 or '69, materialised on this occasion and was favoured in having Andre Meritte as its flier.

The second round was a little breezier than the first – but only a little – and lift was even more plentiful. Nevertheless, there were only two double maxs to our credit – and one of these was to Henry Tubbs' proxy model. The other was recorded by Barry Lumb.

The weather 'broke' for the third round in that the sky clouded over completely and the wind freshened. I don't suppose it ever got past 15 m.p.h. – but it was a lot in comparison with the morning. In the expectation of continued deterioration, many people flew early, and most regretted it. I certainly did – in picking very poor air. There was lift, as evidenced by a large flock of birds drifting across the contest area only a few minutes earlier. In Britain this would have produced a mass launch of everyone fortunate enough to have a timekeeper. At Chavenay no one seemed to notice – even though the French obviously fly 'for lift'. Perhaps they prefer to judge conditions for themselves.

Later in the third round was much safer – and Henry managed 'his' third max quite safely (apart from a close D/T). This was not the first known treble – but the final count of six was higher than I had expected.

Not surprisingly, scores were high generally. Barry Lumb dropped a minute on the last round – and came 35th! Best British score came from Bill Houghton, who totalled 348 seconds (with only one max) for ninth. His model was unusual both in layout and construction. A circular motor tube supports both a pylon and a cross-section blister. The tail boom is fixed at the *top* of the pylon – so the tail is level with the wing! The fin is completely underslung. Union Jack wing structure employs sliced ribs. The flying surfaces are covered on the upper side with lightweight Modelspan left undoped, and then the whole covered in clear 'Melinex'. This system combines visibility with puncture resistance.

Just ten seconds and three places behind Bill was Dave Tipper, who had R.O.G. trouble in the second round – with an unsuccessful attempt preceding an inelegant and height-wasting launch. This cost him a probable place in the flyoff. The rest of the British entrants did not fare very well – often through having their better flights spread over both models.

The unprecedented (for Chavenay) flyoff was organised quite smartly and got underway just 20 minutes after the close of the third round. I understand that a quarter of an hour was allowed for the flyoff, but there was little hesitation from the qualifiers. At least five of the six flew within a minute of each other. Even so, there was wide variation in the air. Two models were obviously in lift and another couple seemed on the fringe. The final result was *very* close, with both first and second place models

Left (top to bottom): Henry Tubbs with American Tom Medley's 'Garter Knight' which he flew by proxy into 4th spot in fly-off – the nearest yet in the C. de'H International. Next is Christian Menget w'th 5th place model, last year's winner and our Xmas free plan. Entry from the U.S.S.R. was flown by Andre Meritte who was 8th with his own model. Novel layout is Bill Houghton's, uses Melinex covering – see text. Bill's son, Peter, was first British junior entrant, scored 210 secs. for 84th with his all-Melinex covered design – good effort, Peter!

being timed O.O.S. at a fair height. Alain Landeau won yet again (his *third* win in seven years!) – but by a mere two seconds over his fellow club member Jean Claude Souveton. Third was J. P. Templier, whilst Henry Tubbs managed fourth with Tom Medley's *Garter Knight* despite picking up a stall on the glide. Last year's winner, Christian Menget, was fifth with the same model, whilst the remaining flyoff place went to Alain Landeau's *wife*, Mireille.

Compilation of results always takes a long time at Chavenay, and this year was no exception. It did allow time to pack, move to the appropriate building at the other end of the 'drome, and weigh up the awards. These are unbelievable by British standards. There were several trophies, a number of cast bronze medals, Micron engines to 10th place, merchandise *and* cash for the *next* 18 – and souvenir ashtrays, keyrings, etc., for almost everyone! Landeau arrived back with his model, 1¼ hours after flying off, and just in time for the prizegiving! He had a 6 minute D/T. Souveton was less optimistic and had returned *much* earlier!

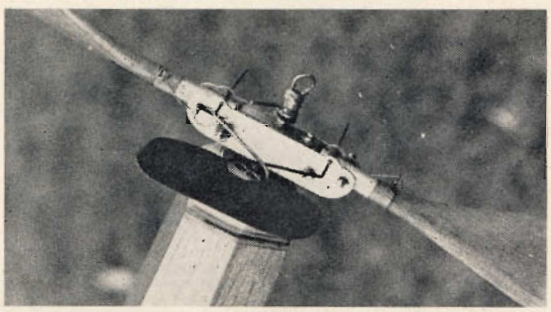
M.R.A. Editor, Maurice Bayet, presented the awards. Notable was the trophy donated by the *Paris* City Council (if our translation was right) to mark the regular British participation, and collected by Bill Houghton.

Each year we seem to have less time to catch the flight back to England. With a five-minute stop at the hotel to collect 'left luggage' and change out of our flying clothes, we barely checked in at Orly for the 10 o'clock flight home. Then we had to buy the duty-free allowances. The aircraft proved to be Air France's Boeing 727 F-BCJF – and got us to London in 50 minutes' flying time. It then took half an hour to disembark and collect our luggage. Once again the need for *substantial* model boxes to withstand air travel 'handling' systems was adequately demonstrated. The Northern Area contingent's communal box lost its carrying handle – a type considered strong enough for use on bathroom doors!

All in all it was a very good contest *and* trip. The French have a very different approach to C d'H – and are getting better. Large and lightly constructed models, with motor run sacrificed to gain altitude, seems the philosophy. Power pattern of the best models is very good, and the whole approach implies a good glide. Whether such a model would suit typical English contest weather is perhaps another matter!

Mireille Landeau piles on the turns, ably assisted by another charming French lady modeller.

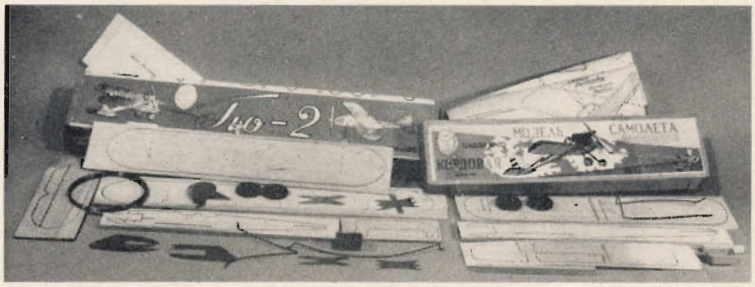
German group from Ravensburg engineered this rooftop 'coffin', all wings mounted on anti-warp boards.



Propeller assembly by Louis Dupuis, the wire pin locks blades 'out' for winding. (Below): Henry Tubbs echoes many thanks to the organisers as he takes a bow (and prizes) for 4th place, note Landeau and cups in background.

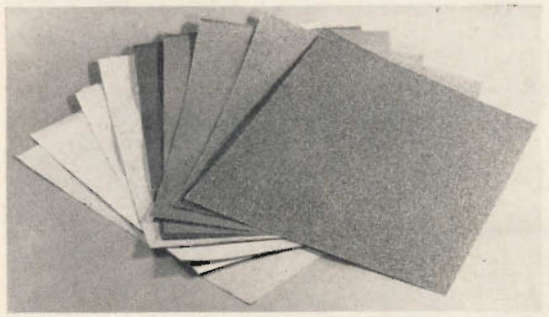
Dear friend of all modellers, the Patron of this wonderful series of winter contests, Maurice Bayet gives Alain Landeau the Vee for Victory sign as he congratulates him on taking first place. Prizegiving develops into as great a marathon as the flying.

TRADE NOTES

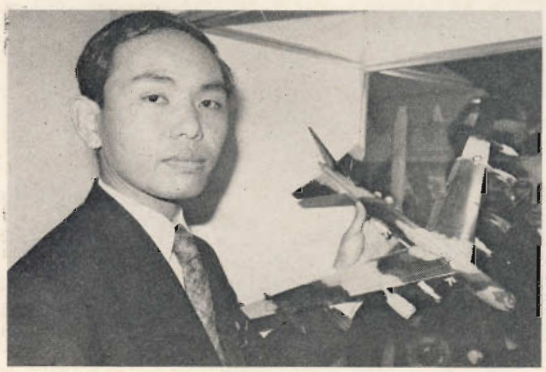


The two Russian control line trainer kits (see text) which we recently received. Remarkably cheap, they come with flying wire and all metal parts, but no glue or dope.

Humbrol's latest innovation is a range of thixotropic poster paints, a boon to all parents of impatient children, and also the modellers who go in for scenic background work.



Finishing paper with a difference via Ripmax. This range of Silicon Carbide and Garnet papers in non-clog grades will be a great aid to those who like a smooth finish. Below, a rare opportunity to catch a Plastic kit manufacturer with a new prototype came to us during the Nuremberg Trade Fair when Shunsako Tamiya showed us his 1/100th scale Boeing B-52, a most impressive kit to come later in the year.



ALREADY firmly established as the sole distributor of *Diesel Ignition Improver* in this country, is **J. R. Mager** of College Road, East Halton, Grimsby, Lincolnshire. This additive has rapidly found acceptance by many competition flyers, particularly combat enthusiasts who detect a definite improvement with a more consistent engine run – so essential for their type of contest. Team race followers, too, have benefited in this direction, with the added advantage in many cases of a slight reduction in fuel consumption. Unusual, too, in these days of rising prices, is the large reduction in cost, due to importing the additive in bulk quantities. An 18 oz. tin now costs 19/11d., while two are sent for 39/4d., four for 74/6d., and one gallon cans at 132/6d. This additive is thus considerably cheaper than the Amyl Nitrate which it replaces (in fact it is a third of the price) and also it is used in smaller quantities, i.e. 1½–3 per cent. A new addition to his range is a nitro methane/methanol mix, in the ratio of 60:40 – ideal for the high performance-minded modeller, and useful for the sport flyer who requires a little more 'poke' from his motor. Two 18 oz. tins of this mix are available at 29/6d., four cost 49/–, and a gallon is priced at 65/–. For those with really thirsty engines, or as a club purchase five gallon drums can be supplied at 245/6d. Straight methanol is also available at 57/6d. per five gallon drum. All these prices include packing and carriage fees.

Of enormous help to scale modellers, especially those making solids or plastics where there is a considerable amount of 'fiddly' work involved, is the *Clifton* flexible arm stand magnifier. This unit comprises of a heavy cast base from which a 5 in. flexible arm connects it to a 3 in. (or 3½ in.) diameter magnifying glass. This enables the head to be readily raised or lowered over the subject to obtain correct focus, without fear of the unit toppling over. Prices, including post and package from the manufacturers, **Cox and Terry Ltd.**, of 136 Whiteladies Road, Bristol, are £2.10s.0d. for the 3 in. unit, and £2.15s.0d. for the 3½ in. diameter model.

A parcel which we recently received revealed its contents as a couple of Russian control-line kits. Although not available in this country, it is interesting to compare the different standards between East and West. No balsa wood is employed – the wings and fuselages being of wood which is virtually identical to that used in the construction of orange crates – and just as rough! Tailplanes are from plywood, whilst the fin of the biplane is tinplate. Die-cutting is non-existent, the parts evidently having been marked out with carbon paper and a blunt scriber. The fuel tanks supplied consist of a plastic moulding resembling an open-topped cistern – which are rendered fuel tight by inverting and glueing to the upper surface of the wing – presumably fuel-proofed beforehand! The biplane kit also includes stamped tinplate fittings

for the interplane struts, nose reinforcement and bell-crank mount.

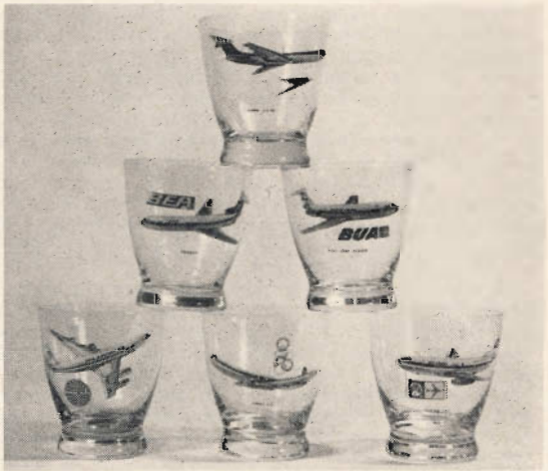
To be fair, it should be pointed out that the price in Russia for these kits is only 12/- and 5/- respectively, and even taking into account the cost of living, they are remarkably cheap.

Mainstream Productions Ltd., have come to the rescue of experimenters and home builders by producting a vast range of nylon moulded gears, pinions, worm wheels with combined pinions, idler sprockets, crown wheels, etc., etc., which they say are suitable for gearboxes, servos and model boats, (whatever they are). The range is so complete, and prices so reasonable, that if they cannot meet your requirements then is *must* be your fault!

Humbrol Ltd., have now introduced a replacement for their popular 'Jet Pack' spray guns. The new assembly, whilst identical in principle to the earlier design, is in fact a far sturdier and neater design. The plastic bridge between the paint jar and the compressed gas can is now a very rigid unit which supports both of them securely. The power unit is screwed into the bridge – a much more positive method than the previously used push-fit. The trigger is an improvement, being a metal fitting with a longer action. Replacement jars (1/5th pint) cost just 1/6d. and the power units are now available in two sizes, standard and 'economy' priced at 10/- and 15/- respectively. These spray-packs are very useful to the modeller, being capable of spraying cellulose, enamel or polyurethane paints – indeed any liquid with a thin enough viscosity. The compact size and absence of air lines, etc., make them particularly useful for small trim jobs as well as complete airframes – although this could prove a trifle expensive if a large model with several coats is envisaged. The standard size power unit contains sufficient propellant to spray approximately one pint and costs 25/-.

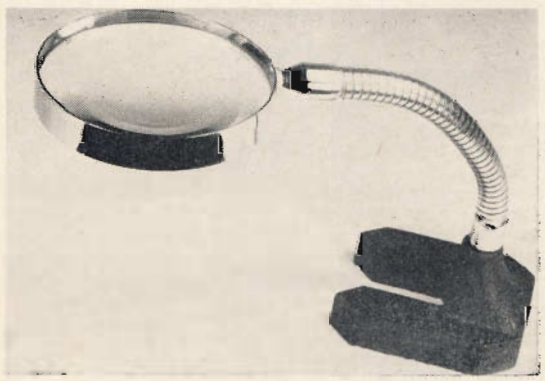
Another new item from **Humbrol** is their *Precision Oil*. This is a highly refined, low viscosity oil designed to provide lubrication for all types of delicate machinery. It is packaged in a neat transparent tube which incorporates a fine nozzle to direct the oil where it is most needed. Very useful when, for example, oiling the bearings on an electric motor as no excess must reach the commutator. The unit is, in fact, very handy to keep in the tool-box so that after a flying session a few drops may be inserted into the engine to prolong its life – a well known, yet normally, overlooked operation.

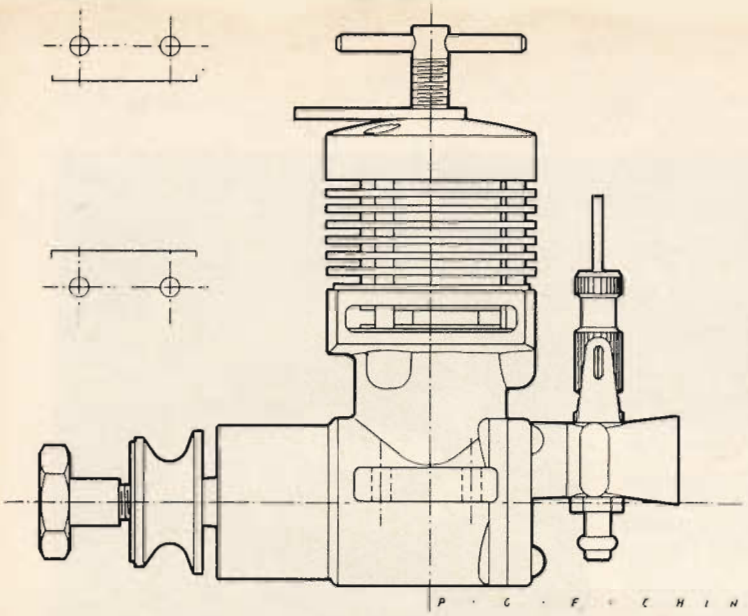
Latest products from Cox in California are model rockets. These three were on show at Brighton, but alas, the Home Office has not as yet responded to many appeals to relax the Explosives Act which still prohibits this educational activity. They were also shown (along with other makes from the U.S.A.) at the Nuremburg Trade Fair.



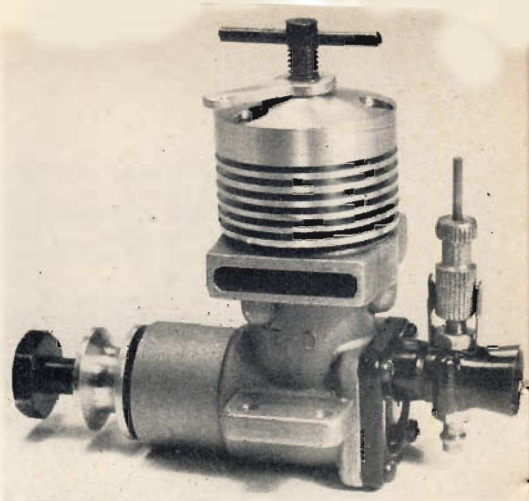
Appearing on the market are glasses decorated with various airliners and airline symbols; the transfers for these glasses were produced by Matthey Printed Products Limited, the world's largest manufacturer of ceramic transfers. The designs are styled in authentic airline livery, and are produced with the full co-operation and approval of the airlines concerned. Self-explanatory photo below illustrates the Mager Products described in text.

Spy-glass on a mount for ultra small work, study of photographs, or even reading our own small print – by Cox & Terry.





P · C · F · CHINN



E.D. Super-Fury

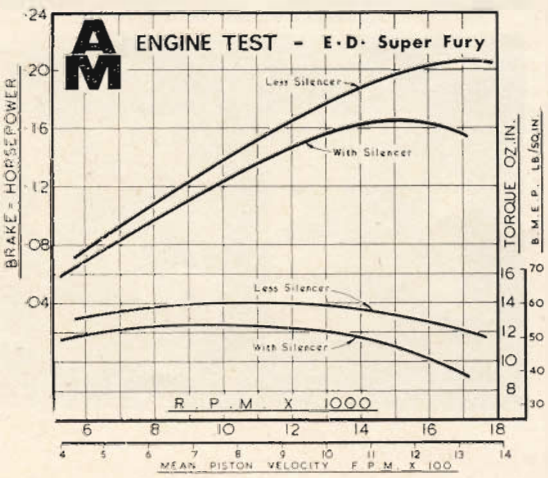
1.49 c.c. Diesel

ENGINE TEST By Peter Chinn

AS EXPLAINED in the March issue (*Latest Engine News*), this engine is a revival of the E.D. Super-Fury first marketed ten years ago, but with some modifications. When the 1960 model was introduced, it was one of the most powerful model diesels manufactured up to that time in the 1.5 c.c. class. On the basis of our findings with the 1970 model, the Super-Fury would seem to hold a similar position today.

Unlike most small engines, the Super-Fury is a twin ball-bearing unit with rear rotary-valve induction. In layout it is, in fact, similar to the long established E.D. Racer 2.5 c.c. diesel and, like the Racer, it can be obtained in both aircooled and watercooled (marine) versions and with a choice of standard or throttle type carburettor.

The model chosen for this report was a standard aircooled engine as normally used for free-flight and control-line work. It is, however, easily converted to variable speed use for radio-control applications by fitting the throttle type carburettor/backplate unit obtainable as an extra. In this form and with the silencer unit required for R/C, the Fury loses about 20 per cent of its peak output (or, perhaps, 10-15 per cent on the prop sizes most likely to be used for an R/C model) compared with the silencer equipped standard engine. This is due to the smaller effective choke area of the R/C carburettor.



Another option with the Super-Fury is a simple silencer unit, fabricated from aluminum alloy, consisting of a small volume expansion chamber with a 3.7 mm. dia. outlet hole. This can be clamped to either side of the engine's rectangular exhaust duct, the opposite side being blanked off with the steel cover plate that forms part of the silencer fixing. Obviously, the free flow of gases from the exhaust ports is somewhat spoiled by the blanking off of one side and, since the Super-Fury still retains a degree of sub-piston induction, some dilution of the crankcase charge with exhaust gas is bound to occur when the silencer is used. However, the arrangement is very neat (actually twin silencers could be fitted without much difficulty) and results in an acceptable level of silencing.

Among the improvements incorporated in the new version of the Super-Fury is a strengthened crankcase with heavier beam mounting lugs. As on the current Racer, nylon mouldings are used extensively in the rear induction assembly: these include the backplate and carburettor intake in addition to the valve rotor. Incidentally, the valve rotor has two pick-up slots for the crankpin: these enable the backplate to be installed with the intake at either the top or the right side, so that the needle-valve can be located vertically or horizontally, according to the position most suitable for installation in the model.

Performance

Our test unit was submitted by the E.D. company and was given a total of approximately two hours running time after delivery before tests were undertaken.

Although atmospheric temperature at the time of testing was fairly cold (40 deg. F) the Super-Fury started quickly and was quite easy to handle. The response to both needle-valve and compression adjustment was positive. The contra-piston moved

At right, the E.D. silencer fitted to the Super-Fury, a neat arrangement with noteworthy cleanliness and efficiency. Far right are the parts of the Super-Fury, all manufactured to highest standards, as the excellent power output testifies.

smoothly and did not seize in the bore when the engine was hot. There was a tendency for the compression lever to run back when the engine was propped for very high speeds (i.e. on 7x3 and some 7x4 props, but this was, of course, easily checked by means of the convenient compression locking lever provided.

On torque tests, the peak torque recorded by the Super-Fury was no more than average but was realised at rather higher rpm (up to 12,000 when running without a silencer). As a result of this, plus a fairly gentle decline thereafter, a much above average maximum b.h.p. at a relatively high peaking speed was indicated. As the performance curves show, this reached a gross figure (i.e. without silencer) of approximately 0.21 at between 17,000 and 17,500 rpm. This, incidentally, is the best figure we have achieved to date for a quantity-produced 1.5 c.c. diesel.

As expected, the addition of the silencer caused a marked drop in peak output – about 20 per cent, or around 1,000 rpm on props matched to the top end power. However, it is worth remembering that the Super-Fury's maximum b.h.p. when fitted with a silencer was still higher than that of most other 1.5 diesels *without* silencers.

Because the Super-Fury has a high b.h.p. peaking speed but does not develop more than average low-speed torque, it is the sort of engine that needs to be given its head and must not be overloaded with a big prop if its performance is to be fully utilized. Typical prop revolutions obtained on test, with silencer fitted, included 6,900 rpm on a 10x3½ Top-Flite wood, 7,900 rpm on a 9x4 Keilkraft nylon, 8,700 on an 8x6 Power-Prop wood, 9,700 rpm on an 8x5 Power-Prop wood, 9,900 on an 8x4 Top-Flite nylon, 11,000 on an 8x4 PAW Trucut wood, 11,200 on an 8x3½ Top-Flite wood, 13,600 on a 7x4 Top-Flite wood, 14,600 on a 7x3 PAW Trucut wood and 15,500 rpm on a 7x3 Top-Flite wood.

Most diesels tend to become more difficult to start on small props: many, in fact, are unpleasantly spiteful, so that a high output at a high peaking speed, requiring the use of such props, may be a mixed blessing. The starting qualities of the Super-Fury on small light props remained tolerably good. Of course, one needs to get one's fingers out of the way fairly smartly when flicking a 7x3 prop, and especially in cold weather, when a rap over the knuckle or finger nail can be painful, it is not a bad idea to use one of E.D.'s moulded rubber finger stalls for protection.

Specification

Type: Single-cylinder aircooled compression-ignition two-stroke with rear rotary disc valve induction and twin ball-bearings.
Bore: 0.500 in.
Stroke: 0.462 in.
Swept Volume: 0.0907 cu. in. = 1.486 c.c.
Stroke/Bore Ratio: 0.924 : 1
Checked Weight:
123 grammes = 4.34 oz. (less silencer)
36 grammes – 4.80 oz. (with silencer)

General Structural Data

Diecast aluminium alloy *crankcase/main bearing housing* with integral exhaust duct. One piece non-counterbalanced *crankshaft* with ¼ in. dia. main journal and 5/32 in. dia. solid crankpin. Shaft supported in one ¼ x ⅜ in. front and one ¼ x ¼ in. rear *ball journal bearings*. Radially ported steel cylinder with separate machined alloy *cooling jacket and head unit*. Lapped cast-iron *piston* with fully floating ⅛ in. dia. solid *gudgeon pin*. Forged duralumin unbushed *connecting-rod*. Machined aluminium alloy *prop* driver pressed onto knurled shaft taper. Steel prop mounting sleeve nut. Moulded nylon *induction valve rotor* mounted on ⅛ in. dia. solid steel pin. Pin rotates directly in backplate material. Moulded nylon *crankcase backplate* with paper gasket and attached to crankcase with four round-headed screws. Moulded nylon *carburettor air intake*. Brass spraybar type *needle-valve assembly*. Beam mounting lugs.

Optional extras

(a) Silencer assembly, weight 13 grammes – 0.46 oz.
(b) Angled exhaust extension outlet assembly, weight 13.2 grammes 0.47 oz.
(c) R/C type backplate assembly with barrel throttle carburettor.

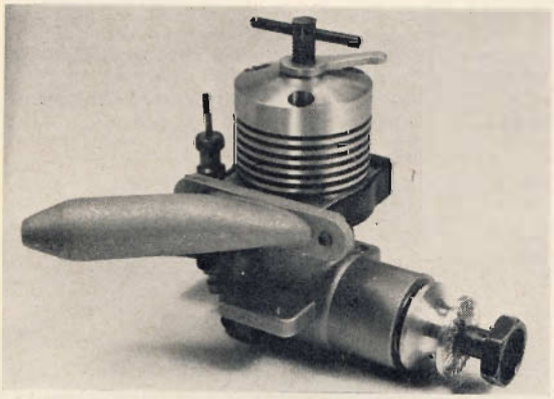
Test Conditions

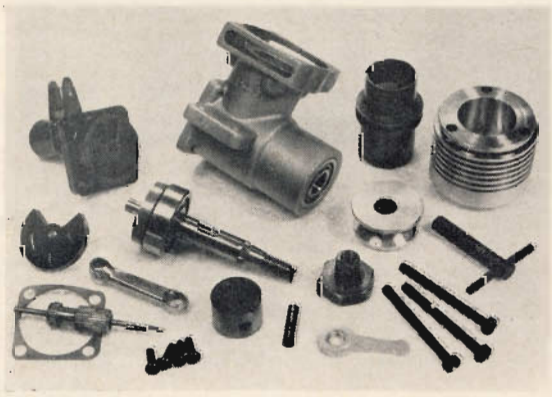
Running time prior to test: Approx. 2 hours.
Fuel used: 30 per cent ICI technical ether, 30 per cent Castrol 'R', 40 per cent kerosene plus 2½ per cent amyl-nitrate.
Air Temperature: 40 deg. F.
Barometric Pressure: 30.1 in.Hg.
Silencer: Maker's single expansion chamber type.

To sum up, we would say that, if all Super-Furies are as good as our test unit, there would seem to be little with which to find fault in this latest addition to the current E.D. range. It is a little heavier than most 1½ c.c. engines, but makes up for this in an outstanding good top end power output. It is also easy to handle and soundly built.

Power/Weight Ratio (as tested):
0.55 b.h.p./lb. (with silencer)
0.76 b.h.p./lb. (less silencer)

Specific Output (as tested):
104 b.h.p./litre (with silencer)
139 b.h.p./litre (less silencer)





AIRCRAFT DESCRIBED No. 193

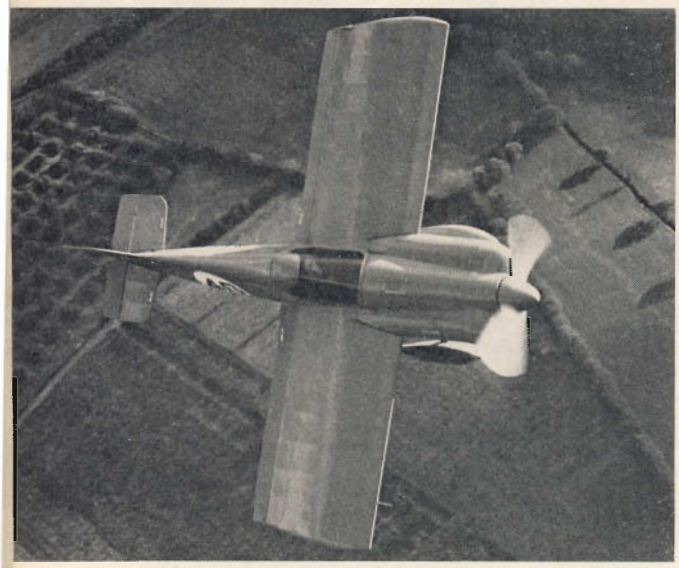
AIRMARK CASSUTT

described and drawn by A. A. P. Lloyd

MOST OF US acknowledge the American midget racer as a small device; but the experience of looking at a 48 inch span tail assembly comes as a sobering moment for the most blasé among enthusiasts. This is only one aspect of a fascinating aircraft and one which is admirably suited to modelling.

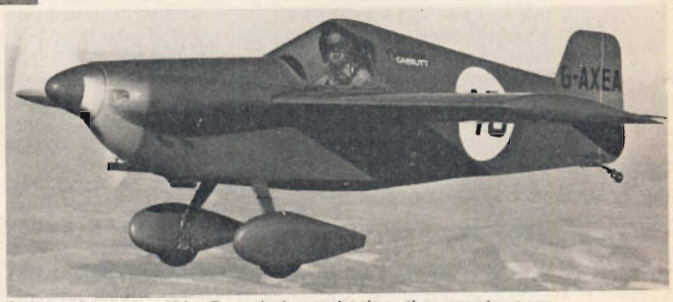
The Cassutt special was designed some while back in the middle fifties by airline pilot Captain Tom Cassutt as a 'Goodyear' type Formula 1 racing plane.

Success came both in the racing, and perhaps more so with the popularity of the design with American



home-builders. Fortunately for them, weather conditions are perhaps more favourable for both flying and building one's own aircraft in the South West United States. Most home builts don't have de-icing and this can be a problem even at modest altitudes in the United Kingdom during winter.

In spite of this, Airmark Ltd., a company based at Redhill, and run by Tom Storey, whom aerophiles will know for his TSR-3 'Wonderplane' G-AWIV, have undertaken to bring the Cassutt to England.



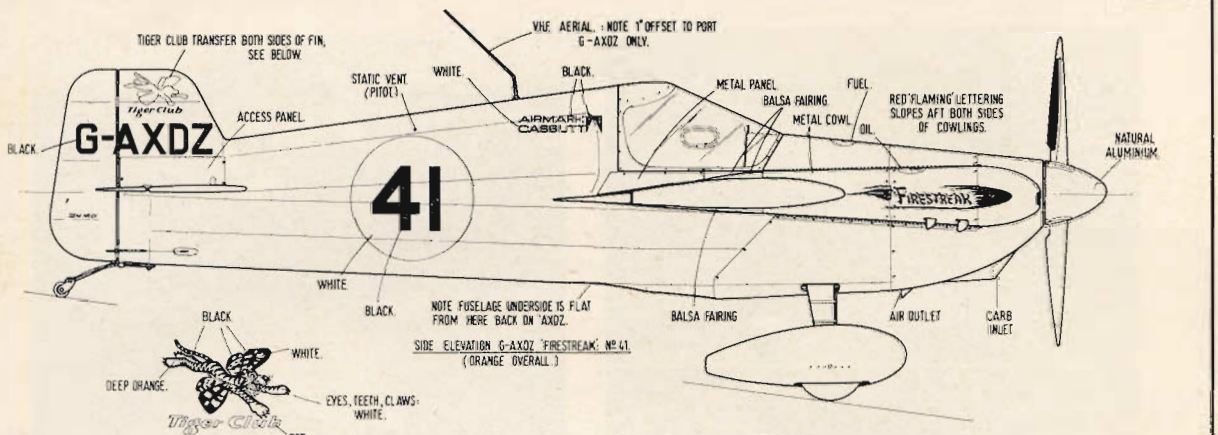
Flying shots by 'Air Portraits' emphasise the squat, purposeful shape of the Cassutt and its attraction for model-making. The aircraft is so small in fact, that this is the first time we have ever managed to publish a 1/36th scale 3-view on a page plan. (The original drawing is one inch to the foot!)

Indeed, one may purchase the completed aircraft from Airmark or, as circumstances permit, purchase one or more of four kits to supply the basic bones of a Cassutt. Alternatively, on purchase of a set of D-I-Y plans, one will be faced with the interesting choice of two derivatives, the IIM or IIIM.

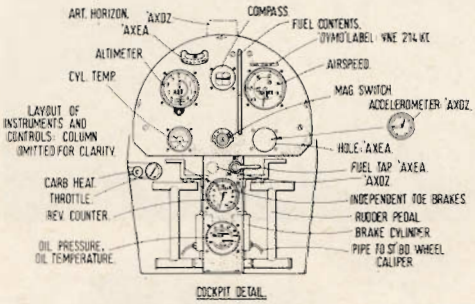
We have drawn the IIIM. Basically the IIM is a lighter Cassutt with a 'thin' 6% chord/thickness ratio wing, and a fuselage 18¼ inches wide. Definitely a racer, this one, though only with a convenient sized pilot.

The alternate IIIM has a 'thick' 11 per cent chord/thickness ratio wing. The modified NACA 23006 section is known as Cassutt 1107, and supports a 22 in. wide fuselage. Both aircraft will accept most 85-90 hp engines, but in particular the R.R. Continental C-85 or C-90. This motor gives the ideal combination-

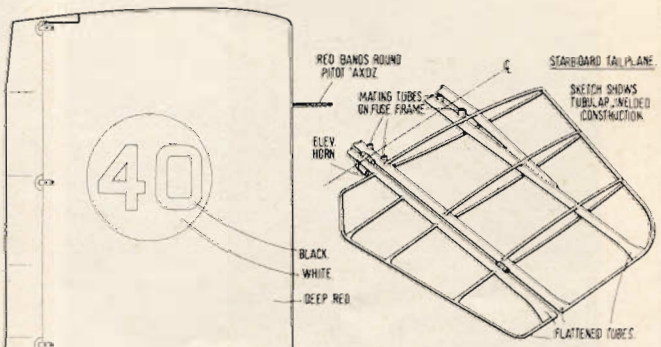
Number 40, G-AXEA is deep red overall, with black registration, and white disc background for the racing number. (All photographs on this page by Air Portraits.)

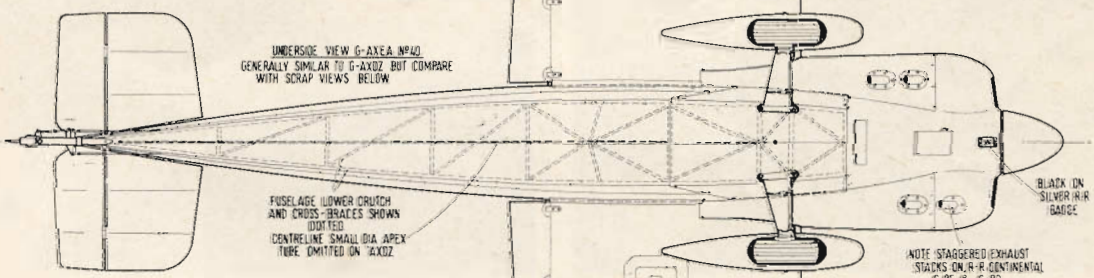


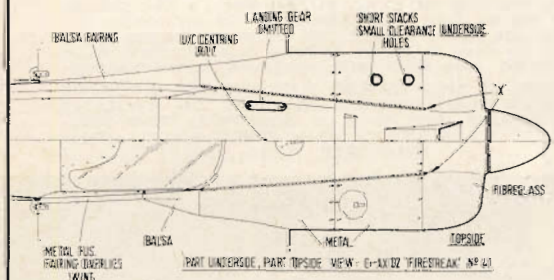
ENLARGED TIGER CLUB EMBLEM



COCKPIT DETAIL.

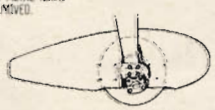






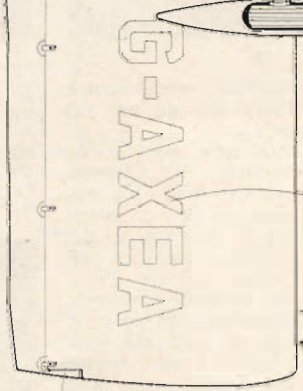
PART UNDERSIDE, PART TOPSIDE VIEW G-AXDZ 'FIRESTREAK' Nº 41

'X' ARE FOUR QUICKLY DETACHABLE PINS WHICH ENABLE ENTIRE METAL COWL PANELS TO BE REMOVED.

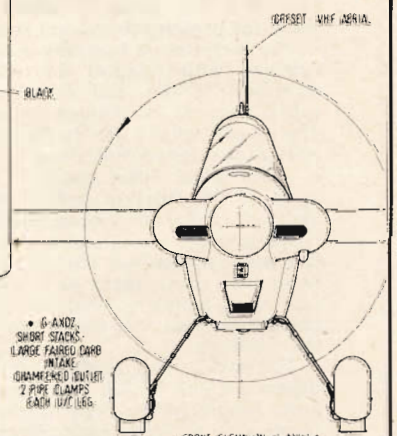


DISC BRAKE DETAIL

INNER SIDE, PORT WHEEL, BOTH AIRCRAFT.



AILERON MASS BALANCE.



* G-AXDZ: SHORT STACKS. LARGE FAIRED CARB INTAKE. CHAMFERED OUTLET. 2 PIPE CLAMPS EACH SIDE. W/C LEG.

FRONT ELEVATION G-AXDZ *

COLOUR NOTE: A/C FINISHED WITH CELLULOSE LACQUER BY H SELLER & SONS LTD.

Nº 40 : G-AXEA : DEEP RED Nº D1005

Nº 41 : G-AXDZ : ORANGE Nº D1004

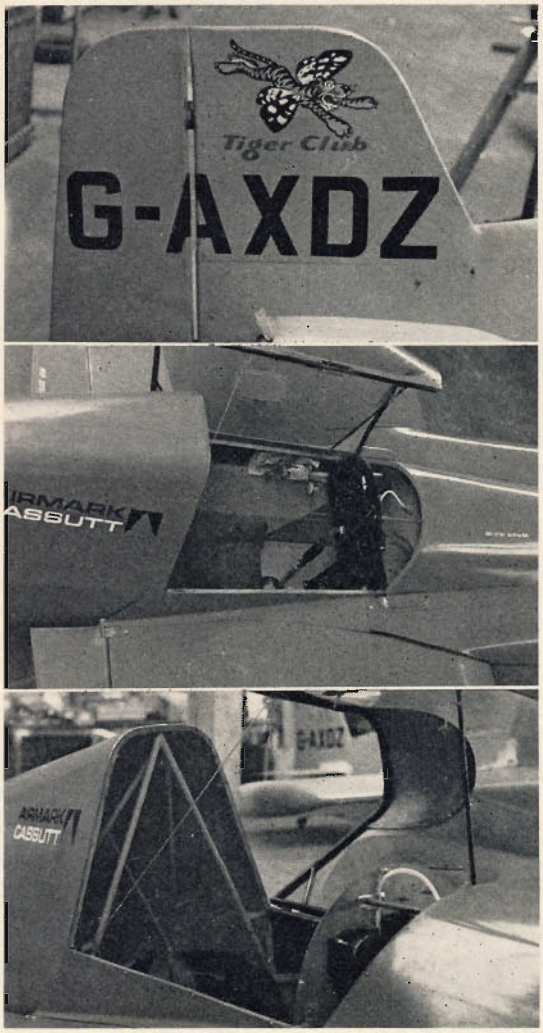
REGISTRATION LETTERS: BLACK

RACING Nº : BLACK ON WHITE DISC

AIRMARK CASSUTT III M.

DRAWN & TRACED BY G. A. P. LLOYD.

SCALE: FEET 0 1 2 3 4



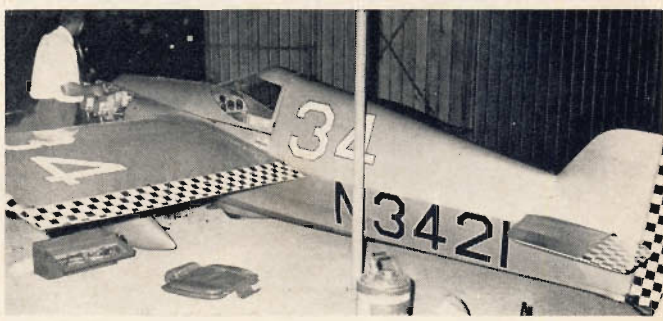
Above left, close-up details of Tom Storey's own Cassutt which has the Tiger Club badge on the fin and rudder, and at right. the second Cassutt. One has to see the size of the tail 'in the flesh' to believe it! Below is an American Racer in lavender mist finish with chequered control surfaces.

REPRINTS OF THIS FEATURE PLUS DYE-LINE COPIES OF THE 1/12th SCALE ORIGINAL DRAWINGS ARE AVAILABLE AS PLAN PACK (2905 PRICE 10/- POST FREE) FROM AERO-MODELLER PLANS SERVICE, 13/35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

indeed as well as a racer to Formula I the Airmark Cassutt is no slouch at aerobatics – though not yet fitted for prolonged inverted running.

The airframe is basically a steel tube space frame fuselage with integral fin. Similarly, the ailerons, stabiliser, rudder and elevators are tube outlines, fabric covered. A claimed stressing of plus or minus 12g reveals what a sturdy frame it is. The area of the cockpit is skinned inside and out with aluminium, and a sheet metal spine decking rounds off the sharp apex of the fuselage behind the cockpit. Cowlings, etc., are metal or fibreglass, according to ease of shaping. Any aeromodeller would be at home with the wing; a constant chord, 18 built up ribs, spruce laminated main spar, with solid leading edge and rear spar, which construction gives a simple rugged ply-skinner unit, cut out at the centre-section to clear the fuselage.

The spring steel landing gear is equipped with independent disc brakes and like the wing and tailplane bolts simply to the main fuselage crutch. Entire airframe is covered with fabric, cemented to the



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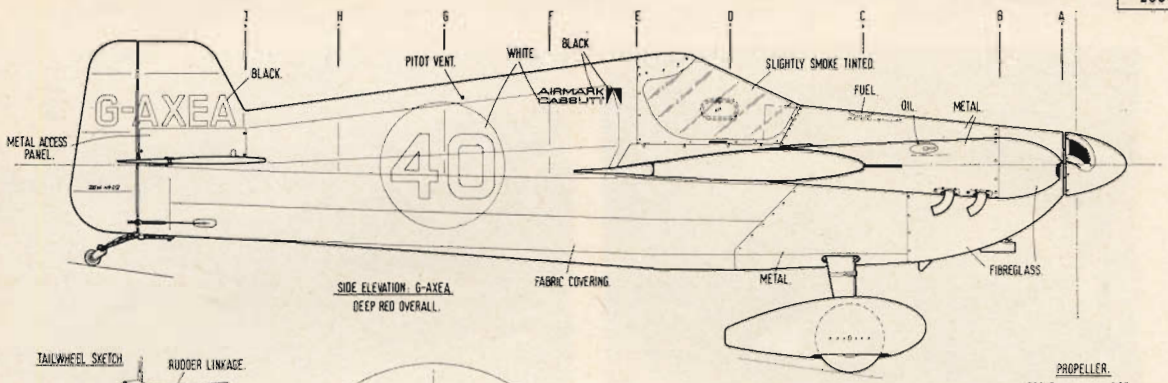
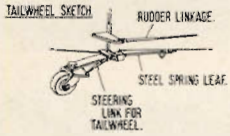
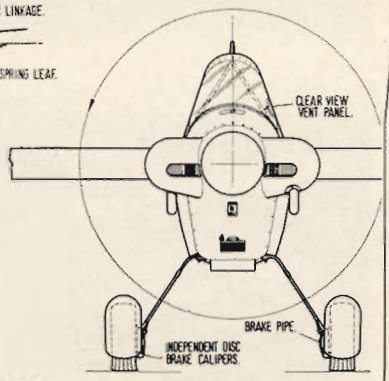
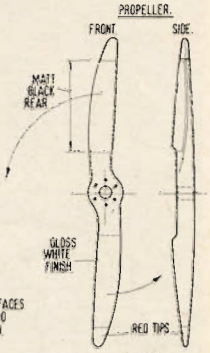


SIDE ELEVATION: G-AXEA.
DEEP RED OVERALL.

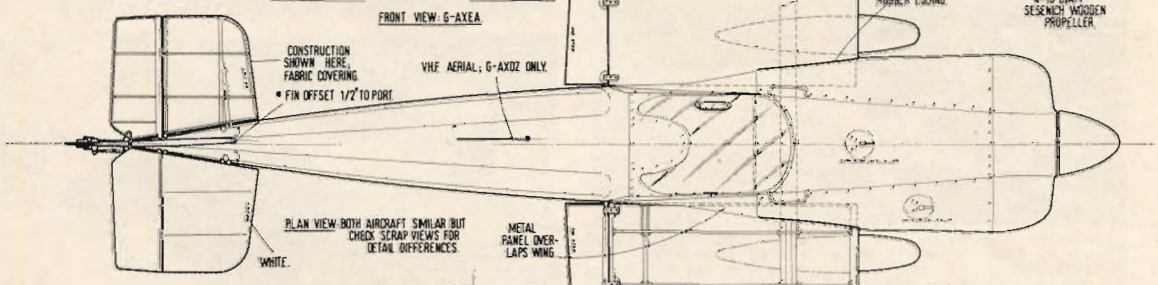




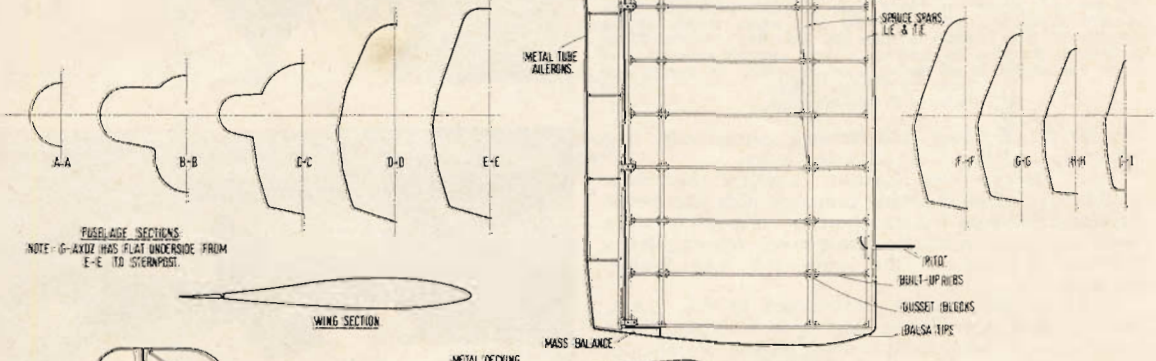
FRONT VIEW: G-AXEA.



4'-10" DIAM SESENCH WOODEN PROPELLER.

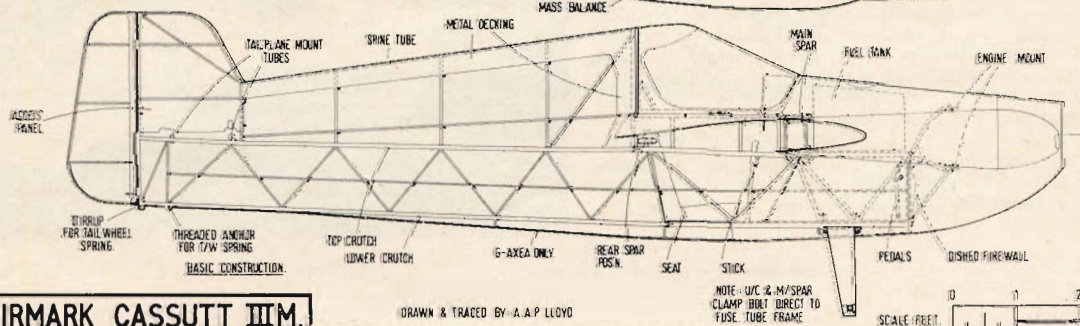


PLAN VIEW: BOTH AIRCRAFT SIMILAR BUT CHECK SCRAP VIEWS FOR DETAIL DIFFERENCES.



FUSELAGE SECTIONS
NOTE: G-AXOZ HAS FLAT UNDERSIDE FROM E-E TO STERNPOST.

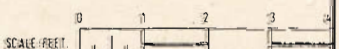
WING SECTION

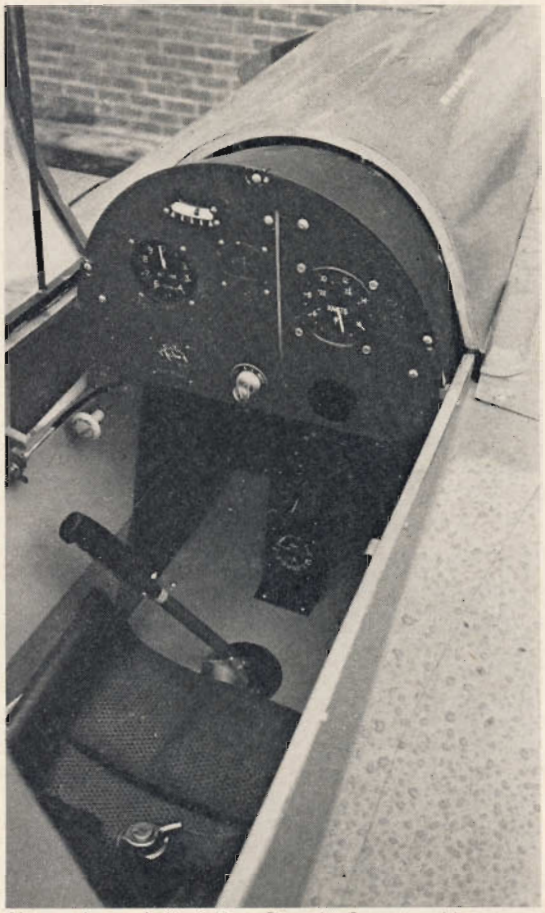


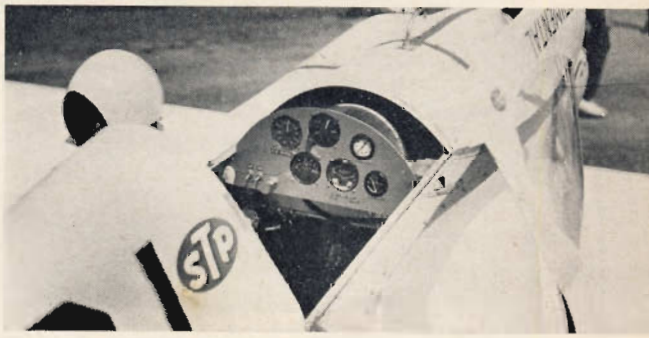
BASIC CONSTRUCTION.

AIRMARK CASSUTT IIIM.

DRAWN & TRACED BY A.A.P. LLOYD







Above, the cockpit of Tom Storey's Cassutt, with car seat fitment to add comfort in an uncluttered arrangement (Air Portraits photo). At right, Cassutt Racers in the U.S.A., at top the red, white and black 'Erie Scarab' number 99. Next is Jim Clement's Mk.II in red and white finish, racing number 55. The cockpit is from the 'Boo Ray' Number 81 as at bottom showing its modified square cut tail surfaces. The most successful of all racing Cassutts, 'Boo' is owned and flown by Marion Baker. (Russell Brown photos).

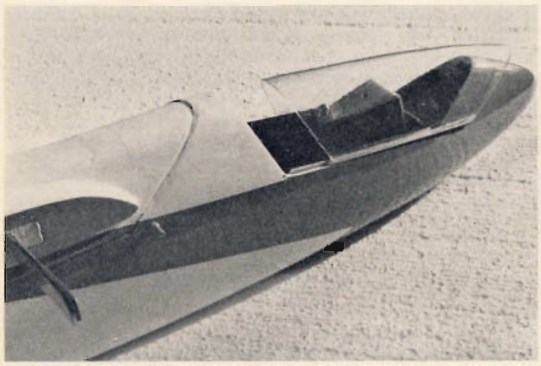
tubular frame direct, and finished normally by first tautening and then colouring to choice.

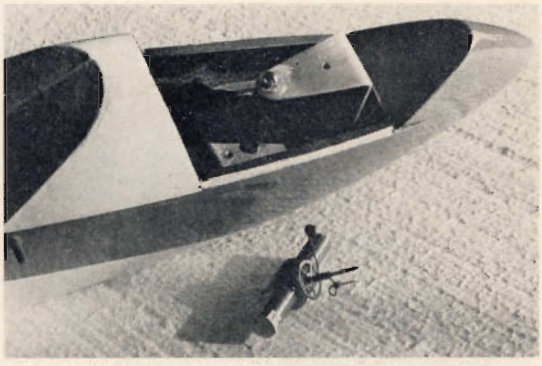
Tom Storey's own Cassutt G-AXDZ has been modified to allow the wing complete with ailerons to be easily removed for transporting on a trailer when necessary. This is simple enough but requires Balsa fairings attached to the wing top and bottom surfaces.

Some of the aircraft constructed in the U.S.A. have narrow ailerons, or part span ailerons, these, together with canopy and cowling shapes, are obvious external differences, and are not laid down to any pattern of the designer. The cockpit height is given as 'pilot's eye level plus six inches' – this shows but one of the flexible dimensions which must make each and every Cassutt a neat, sleek individual.

If you are in London in early August, you may even find one in Harrods. *No*, we're *not* kidding!

The author is particularly indebted to Tom Storey and the facilities afforded by him to produce this feature.





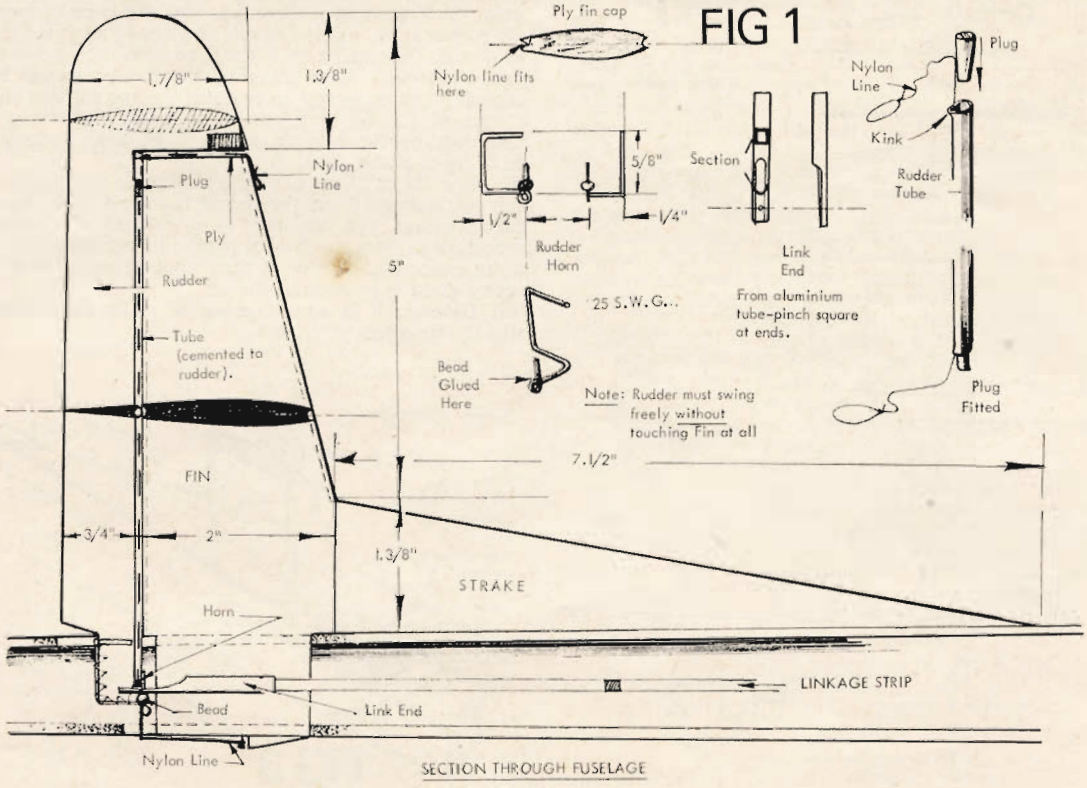
MAGNET STEERING WITH A REAR RUDDER

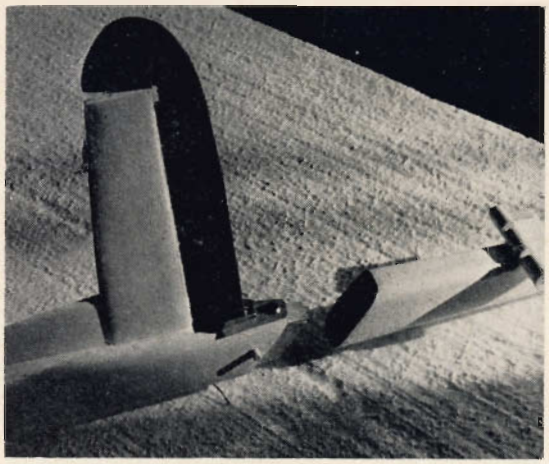
Trevor Faulkner describes his approach to semi-scale slope soaring

SINCE PUBLISHING a drawing of Trevor Faulkner's semi-scale magnet-steered glider in the January issue of *Aeromodeller*, we have received numerous requests for further information on this type of model, featuring a magnet-operated *rear* rudder. Because of this, we have asked Trevor to expand on his 'reasons why', and to explain some of the intricacies involved.

His original intention was to produce a 'sports' soarer, reliable in performance and of semi-scale appearance. The resulting model had a performance far exceeding

FIG 1





The rear fin – a far more acceptable arrangement than the usual forward fin on functional magnet steering designs. Note the detachable section of the rear fuselage. Pictures on previous page illustrate the nose end with the magnet unit housed within an attractive semi-scale cabin.

expectations, and from the outset showed characteristics desirable in competition models.

Subsequent prolonged testing has indicated lines for future development and it is interesting to note that this development will be aimed at aerodynamic and structural objectives – the steering system being quite satisfactory. Perhaps it may help to tabulate the advantages and disadvantages of the system being discussed:

Advantages	Disadvantages
1. Longer steering moment;	1. Increase friction of linkage;
2. Concentration of weight nearer C.G.	2. Slightly more difficult construction.
3. Fuselage L.O.A. reduced;	
4. Aluminium damper unnecessary;	
5. Bearings stay cleaner;	
6. Improved appearance (according to taste).	

As the advantages are self-evident, let's deal with the debits.

1. *Friction* – this is in fact, part virtue, part vice. It provides damping for the system in a simple manner, but the fractional power loss must be kept to a minimum by careful design and construction.
2. *Construction* – there are a few more parts than in 'conventional' magnet-steered models, and so one must take care throughout a longer period of building. There is nothing that the consistent application of common sense and average craftsmanship cannot successfully achieve in this context.

The Rudder Unit

There are three major aspects to be borne in mind in connection with the rudder design, (*Fig.* 1) namely:

(i) *Hinge:* the lightest nylon fishing line (breaking strain 1–1½ lb.) gives an almost friction-free hinge. Tension is adjusted by varying the position of the pin holding the upper loop. The nylon is fastened to a length of cotton with which a needle is threaded. This is passed through the rudder tube, and the length of nylon is then wedged as shown. The small kink in the tube allows the nylon to locate centrally. After plugging, the rudder should be capable of being moved up or down the line without any chance of altering its position accidentally. Obviously, one must experiment with various plug shapes and sizes to fit the available tube.

(ii) *Horn:* 24 or 22 s.w.g. wire is used, note the length of this part compared with the magnet horn to give mechanical advantage. The wire *must be polished* after bending: indentations from the jaws of pliers can increase friction to an unacceptable level. A small round-topped bead is epoxy-glued in position as shown.

(iii) *Balance:* it is advantageous to make the rudder slightly 'nose heavy'.

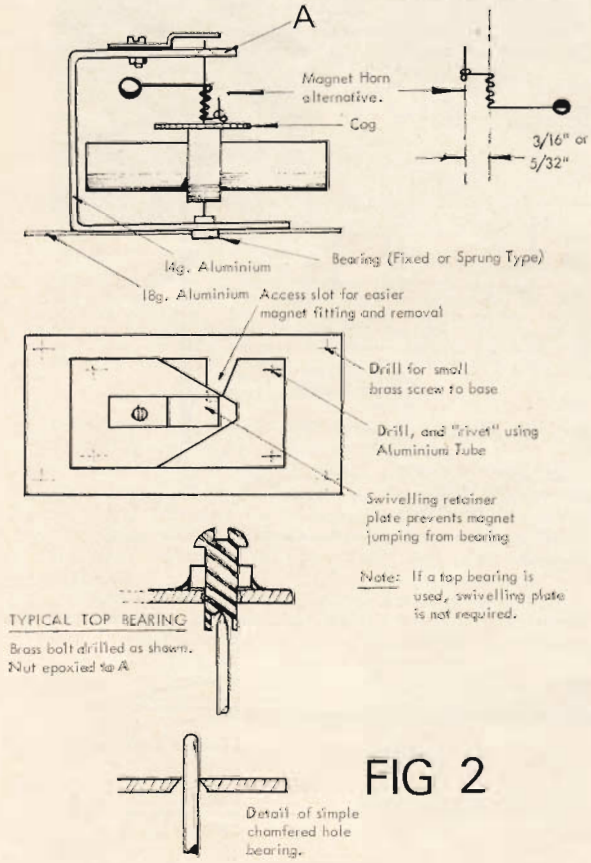


FIG 2

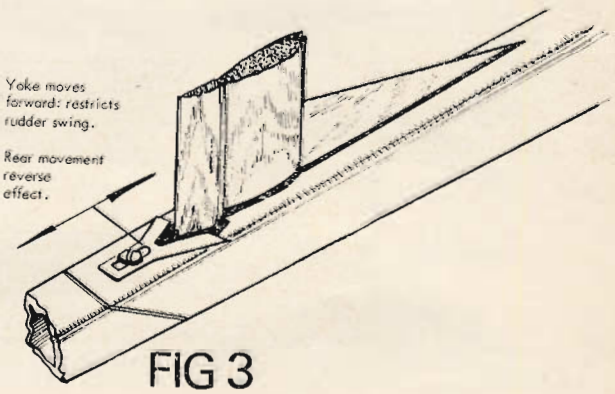


FIG 3

The pendulum effect so achieved seems to improve flight performance.

Originally, the model employed a 1/16 in. sq. balsa strip linkage which drooped alarmingly, although it worked, but it was felt that a 3/32 in. strip with little or no sag would be better, particularly as the link ends would sit at right-angles to the horns on both magnet and rudder.

The link ends are shaped as shown, and pierced with a pin rather than drilled. Any roughness is removed from the area which bears on the bead. The system must be assembled for the final linkage adjustment to be made – the distance from centre to centre of the link ends must give central rudder with the magnet horn at 90 deg. to the fuselage centre line. The link ends are then cemented in place.

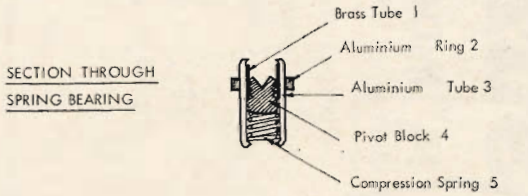
Trevor always marks the above distance on either the model or its box to assist in repairs to, or construction of, new linkages.

Magnet

The simple method of pivoting the magnet is clearly shown in *figure* 2. In practice, there is little to choose between a clearance hole and a screwed pivot for the upper bearing. The clearance hole gives more play in the entire system, and can allow the magnet to jerk loose in a hard landing. It wears a little, due to continued fitting and removal, but that on the prototype is still serviceable. The perfectionist would, no doubt, be able to insert a brass or bronze section to outlast the aluminium many times over.

A cog wheel with coloured sections simplifies flight adjustments – each tooth represents a fixed number of degrees and the colour code facilitates remembering the settings being used should the system need re-aligning between flights. The horn and balance weights should be checked for finish on bearing surfaces as carefully as the rudder horn.

Although the balance weight theoretically opposes 50% of the linkage weight, there is no perfect balance to be achieved for *all* flight positions. As a practical step towards an impossible solution. Trevor Faulkner makes the balance equal in weight to the linkage, and then bends the balance arm for optimum performance (i.e. minimum magnet deviation) when the model is pivoted about its latitudinal and longitudinal axes. All pivots should be sparingly lubricated with very thin oil before each flying session.

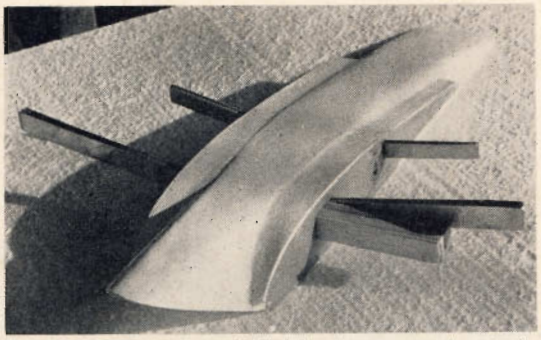


DETAIL OF CONSTRUCTION:

FUNCTION: Pivot block yields to vertical load VIA magnet pivot point. Magnet ring bears on top of housing. BEFORE spring is fully compressed.

Tube 1. is sliding fit in 3.
Ring 2. is cut from suitable tube, interference fit on 3.
Pivot block chosen to be "screw" fit into tube 1.
Tube 2. is gently peened at top, components assembled, and peening at bottom of 2. retains spring 5. from ballpoint pen.
Housing fits into Magnet holder base from above.

FIG 4



The wing centre section, with joining tongues for the panels, a feature which allows many a hard knock with minimum of damage. For full views of the complete model see the drawing published in January issue.

Model design

The prototype model, which was drawn in detail in the January issue, had the forward fuselage area strengthened with glass-reinforced plastic. The use of a transparent cockpit cover allows the magnet to be seen functioning. The rear fuselage is detachable to allow the linkage to be inserted. A strake was fitted to the fin to give additional directional stability, while the rudder area was increased beyond that used on forward fin models, but its deflection reduced. This avoided any chance of the rudder stalling, and also stopped the linkage moving past 'rear dead centre' at the magnet end.

The yoke (see *figure* 3) resulted from a series of test flights limiting rudder deflection on one side more than the other. This could give, for instance, a tight correcting right-hand curve and an open left-hand counterpart, and proved valuable when flying into a wind striking the slope slightly obliquely.

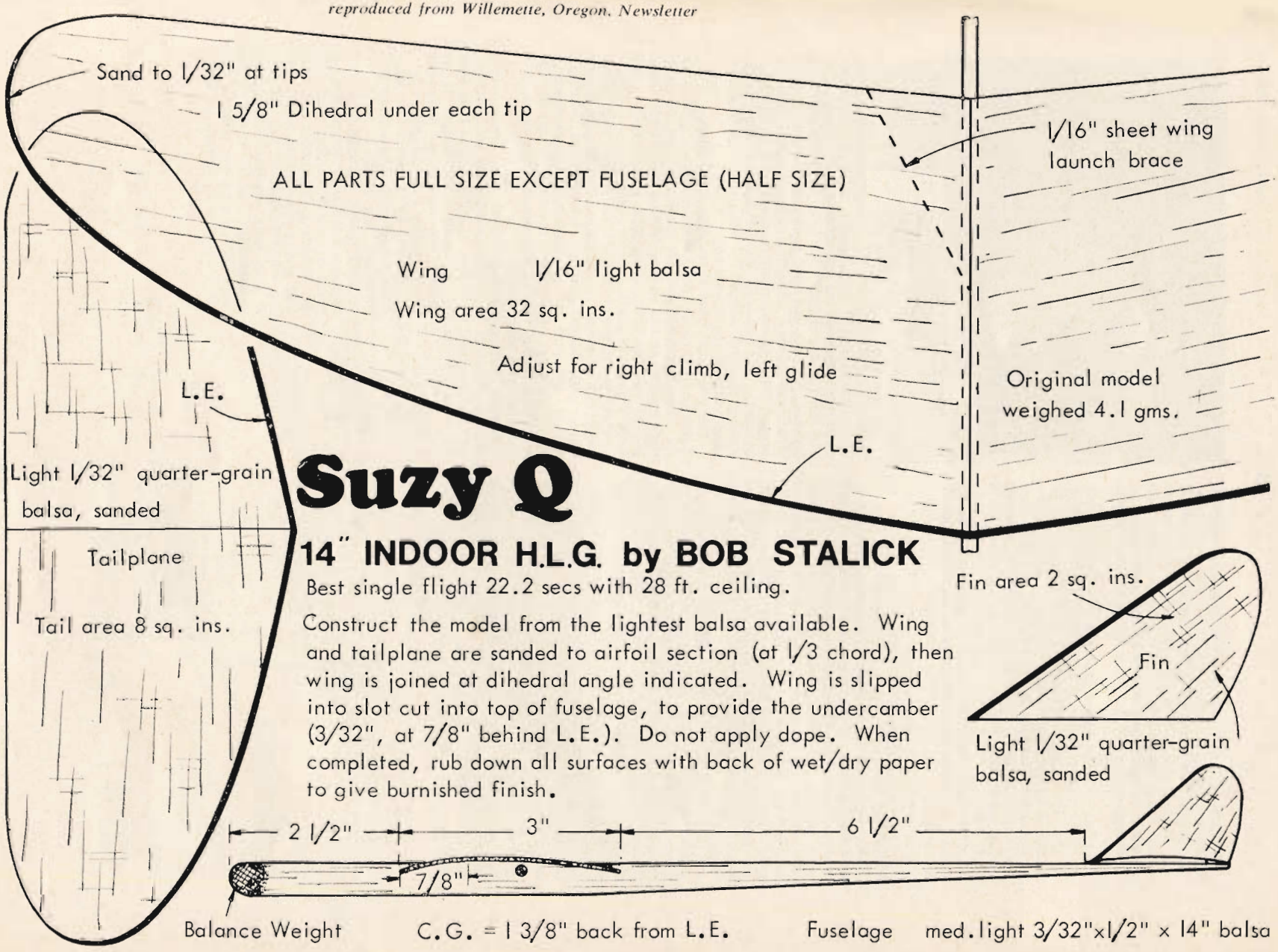
Although the prototype is still fully serviceable, a later model has been built incorporating a removable fin and rudder unit, slimmer fuselage, flat bottomed Göttingen section, and such aids to modern living as veneered styroform wings and Solarfilm covering throughout. The same wing fixing, slightly streamlined, is retained, as is the removable rear fuselage.

Sprung bearings, directly copied from *Europameister* Helmut Schubert and then modified to accept clock-makers' hardened pivot blocks and standard tube sizes have been produced, mainly to avoid sharpening up bearing – pivots after prolonged use – a yearly task! (*Figure* 4.)

COMPLETE UNIT

Perhaps by accident, a semi-scale model with competition performance has resulted from the original design exercise. The fact remains that the prototype has become a most rewarding model to fly, attracting favourable comment and giving pleasure on every outing when conditions are suitable. It does hold one personal record, incidentally: after initial hand launches to establish trim, it has D/T'd from every subsequent flight.

reproduced from Willemette, Oregon, Newsletter



Suzy Q

14" INDOOR H.L.G. by BOB STALICK

Best single flight 22.2 secs with 28 ft. ceiling.

Construct the model from the lightest balsa available. Wing and tailplane are sanded to airfoil section (at 1/3 chord), then wing is joined at dihedral angle indicated. Wing is slipped into slot cut into top of fuselage, to provide the undercamber (3/32", at 7/8" behind L.E.). Do not apply dope. When completed, rub down all surfaces with back of wet/dry paper to give burnished finish.

GOLDEN WINGS AEROMODELLER MODEL CLUB

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

Dear John,

I am hoping to build the 'Kaman' helicopter. I have a D.C. Merlin, but this is now fairly worn out so I am going to buy a new engine. Apart from the mentioned Cox Babe Bee which of the following do you recommend for the 'Kaman'?

D.C. Bantam Deluxe.
WEN MAC Thunderbolt.
D.C. Spitfire, or the M.E. Heron.

Northallerton, Yorkshire. *Richard Suttill.*

As was stressed in the article concerning the 'Kaman' helicopter, a good powerful engine must be used. The D.C. Bantam and Wen Mac engines are really sport engines and would not deliver the necessary power. The M.E. Heron is now, sadly, out of production, and while the D.C. Spitfire has the power, it is rather heavier than the Golden Bee – and has lower torque. This being a torque reaction 'chopper' then torque is, of course, all important. Quite honestly for this model a good glow .049 is needed, and as any engine other than the Bee is going to need a special engine mount and tank made, I can only really recommend the Cox engine for this particular model.

Dear John,

Could you please tell me how do you tell the difference between a PAW 3.2 and the PAW 2.5 as they look both the same?

What is the best glue for fixing the engine pod on to a flying wing type model?

Ampthill, Beds. *John Stokes.*

The only external difference between the PAW 2.49 and .19 (3.2 c.c.) engines is that the bigger capacity engine is some 3/32" taller.

Suggest you use an epoxy adhesive such as Araldite or Britfix 88 for glueing engine bearers/pods, etc., together, as these glues have immense strength, and are completely fuel proof.

Dear John,

I have had trouble with my rubber powered *Hurricane*. I can get a flat glide, but under power it stalls. No matter what weight I put on the nose it always stalls – please can you tell me what to do because I am a newcomer to the hobby.

Accrington, Lancs. *Ian Rayton*

As your model is stalling under power only, it would indicate that some downthrust is required. Re-trim the model to obtain a flat glide, then insert a piece of packing (approximately 1/32 in. thick at first) at the top of the noseblock, to tilt the whole prop. unit downwards.

Increase this packing as necessary until the stall has disappeared – then glue permanently in position.

Dear John,

I have recently been given an old diesel engine – I think it is an E.D. Mk. II – and would be grateful if you would tell me what power group it is classified in, because it is not shown in the list of engines in the Plans Handbook No. 1. I should also be very glad if you could tell me if the engine would do for control-line flying, as I have been told by a friend that the engine revs are not high enough.

Finally, if it is suitable would it be possible to put it in A.W. FK4 (FSP/960), and convert the plane to control line?

Wirral, Cheshire. *P. E. Davidson*

Engines as old as your E.D. Mk. II (produced over 20 years ago) do produce rather a problem with regards 'power classification'. Although a powerful 2.5 c.c. engine in its day, any current sports 1.5 c.c. diesel would equal it, at less than half the weight. Because of this, it cannot really be 'graded' and would suit only a few particular designs – mainly free-flight sports (or ideally, vintage designs). Its excessive weight and bulk for its capacity/power means that it would be too large for 1.5-2.5 c.c. control line models. It is best used in situations where a large propeller turning at moderate speeds. It would most certainly be unsuitable to power a control line version of the AW FK4.

Dear John,

Although I have been building control-line models now for nearly two years, there is still one problem which crops up time and time again – that is, how to make *neat* round holes in balsa wood. This usually occurs when making leadout holes in wing ribs etc. Is there an easier way than cutting square holes and then using a round file? I know that it doesn't matter what shape the holes are, but would much prefer a neater job.

Headington, Oxford. *A. Dawson*

Glad to hear of someone taking a pride in his work Alan! Actually, there is some advantage in having round holes, as there is a greater tendency to split along the grain of the wood when a square hole is cut. This is due to the 'sudden' change in section (90 deg.) at the corners of the hole – a circular one, of course, changes shape smoothly and retains the strength.

The easiest way of cutting a perfectly round hole is with a sharpened tube – drills are useless for balsa as the material is too soft. Either purchase a set of cork-borers, as used in school physics laboratories, or make your own cutter. Cork-borers consist of tubes with a T handle at one end, the other sharpened, and are available in sizes from approx. ⅛ in.-¾ in. diameter. To make your own, take any thin walled tube – preferably of brass or steel, then sharpen the bottom edge with a file – using a shallow taper of approx. 30 deg. As the material you are cutting is likely to be fairly thin, a handle is not necessary. To use, simply hold at right angles to the work, and rotate backwards and forwards, applying slight pressure to cut your way through – do not attempt to 'stamp out' the balsa, as crushed edges will result. To remove the scrap 'discs', merely push out with a stout piece of wire.

ATTENTION JUNIOR KIT CONTESTANTS AT 1970 NATIONALS!

IMPORTANT NOTICE CONCERNING THE VERON 'VEROSONIC'

It has been discovered that some of the *Verosonic* kits left the factory with the wrong type of tissue paper enclosed (it is a thin, crispy paper, similar to that used for folding within clothes when packing in a suitcase). If you have this tissue in your kit and have had difficulty using it, then either purchase lightweight Modelspan tissue from your local model shop, or send the tissue back to the kit manufacturer with a short note – they will replace it with the correct grade. If you mention you are entering the 'Kit Contest' the manufacturer will do his best to send the correct paper as quickly as possible.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the "Golden Wings Club". With this application I enclose postal order (International Money Order) for 2/6d. 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.

5/10 2d. in the 1/- Rebate plan purchase coupon for Golden Wing Members G.W. No. .....

LATEST ENGINE NEWS

by Peter Chinn

Two Thousand Mile Flight in Canada

Fox engine manufacturer, Duke Fox, has sent us details of a remarkable long distance radio-controlled flight that was made in Canada, a few weeks ago. In a series of ten consecutive daily stints, Grover Lowery flew his Fox 74 powered *Northwind* high wing design from Beaver Creek down to Lethbridge, Alberta, near the United States border, a total of some 2,086 miles. Temperature varied from minus 62°F to 36°F and the model was airborne for a total of 58 hours 1 minute. The longest non-stop hop was on the second day, covering some 311 miles in 6 hours 17 minutes.

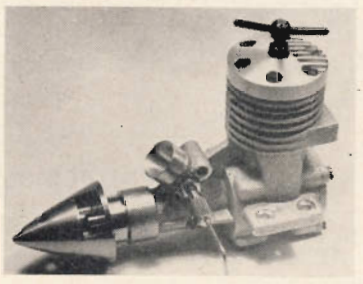
The model was controlled by Lowery from a minibus driven by his daughter, Regina, and the flight must surely rate as something of a feat of endurance for the crew as well as a very good advertisement for the Fox engine, glowplugs and fuel used – also the *Royal* digital proportional radio equipment. The model consumed just under ten U.S. gallons of fuel for the entire trip, a consumption of about 0.17 gall/hr.

News from O.S.

Just going into production at the O.S. factory in Osaka is a new model in the Max-H.40 range. To be known as the Max-H.40S, this engine, the outcome of representations made by the American O.S. distributors, World Engines Inc., is intended for control-line aerobatics use. It will offer, at the expense of some increase in weight and bulk, substantially more power than the well-established Max-S.35 stunt engine and will appeal to those who favour a larger and more elaborate type of C/L aerobatics model than the traditional style lightweight 35 powered stunt job.

Basically, this new Stunt 40 is a development of the throttle-equipped H.40-SP R/C engine and retains the latter's large diameter ball-bearing mounted crankshaft and ringed aluminium piston. Rotary-valve timing, exhaust and transfer periods and compression ratio, however, have all been modified in the interests of C/L stunt requirements.

An illustrated description of this new O.S. will follow in due course.



Green-Head Torpedoes Discontinued

For 1970, all the remaining plain bearing Torpedo engines have been deleted from the K&B range. Only five K&B's are currently being made. These comprise the four models of the ball-bearing Torpedo 40, plus one low priced plain bearing unit, the Stallion 35. Incidentally, the shaft-valve R/C 40 will, in future, be offered as an R/C aerobatics type unit, complete with Perry carburettor, rather than as a pylon racer motor, this latter class being catered for by the more popular disc-valve model.

There is, perhaps, always the possibility that some of the other Torpedo engines might be revived at some future date. This happened a while back with the 19, 35 and 45 which, after being withdrawn in the summer of 1966, were soon afterwards brought back by popular demand. Meanwhile, the UK distributors, Irvine Engines, can still supply the 19 R/C, 35, 29R, 35-Combat, 35 R/C, and 45 R/C from existing stocks.

K&B Speed Fuel

Irvine Engines also have available a limited quantity of K&B Speed Fuel. This is expensive but is certainly the most powerful commercial racing glow fuel obtainable in this country at the present time. We understand that K&B Speed Fuel contains the equivalent of approximately 60 per cent nitromethane, which is much more than one can obtain in the U.K., without going over to a pure laboratory grade nitro, because commercial nitromethane is now sold here only in a dilute form and already contains either 30 or 40 per cent methanol. Commercial nitromethane is manufactured solely in the United States and, following two serious accidents many years ago in the bulk transport of this material, overseas shipments are now permitted only when nitromethane is treated with a denaturant, i.e. ready-mixed in a fuel or blended with a specified quantity of methanol.

More Combat support for MVVS 2.5–TRS

In last October's column we quoted a favourable report from the Stockport & District M.A.C. on the use of the Czechoslovakian MVVS 2.5 TRS engine for combat. Support for these claims was subsequently received from Andreas Ytreoy who hase used these engines with considerable success in Norwegian combat events. Mr Ytreoy purchased his first MVVS at the Swinderby World Championships (which he attended as a member of the Norwegian team) and subsequently modified it in accordance with the suggestions of maestro Josef Sladky. He reports :

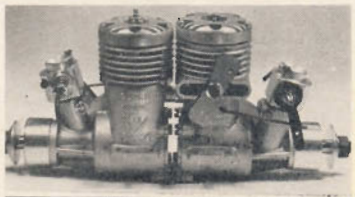
'With the normal venturi of 7 mm. dia., this engine, in a 33 in. span combat model, did 105 mph but only for 5–6 laps of even running. The choke was then reduced to 6.2 mm. and further modifications added, including an exhaust restrictor. Fuel was 40 per cent ether, 40 per cent paraffin and 20 per cent oil, plus 3-3½ per cent nitrate. In fact, a nitrate change from 3 per cent to 3.2 per cent made a great difference in even running. This was used in conjunction with an 8 x 6 Supersonic nylon prop and an old type wedge stunt tank. This gave an even run through about four minutes with, maybe, one minute slightly over-compressed at the end of a flight. The speed advantage was approximately 5-8 mph, plus much better pull through manoeuvres than any modified Oliver.

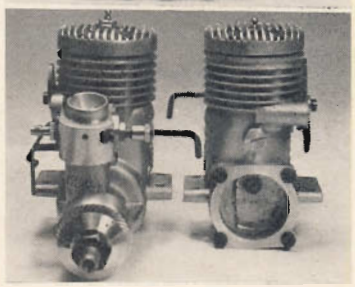
'With this engine I won six out of seven competitions in 1967 and won the Nordic Championship in 1968. The engine's main disadvantage was slow starting which, at times, would take 8-10 seconds, compared with 2-5 seconds with an Oliver and this could, in F.A.I. combat, affect the score. During the time I used these engines, I changed the contra-piston twice as these tended to seize in the bore but, in all other respects, the MVVS seemed reliable enough to me. I fully support Mr. Clarkson in his claims for this engine and hope that these notes may be of interest to other people who wish to use this engine.'

Medium-sized ST R/C Engines

For C/L carrier-deck, radio-control and other uses where a throttle is desirable, Mick Wilshere (the U.K. end of *World Engines*) is offering R/C versions of the Super-Tigre G.21/29-FI (4.82 c.c.) and G.21/35-FI (5.65 c.c.) engines. Formerly, the G.21 series front induction motors were obtainable only in the ringed-piston G.21/40 (6.54 c.c.) and G.21/46 (7.53 c.c.) models. The G.21/29-FI R/C, in particular, should be welcomed by those who may wish to build twin-engined R/C models within the official 10 c.c. total piston displacement limit.

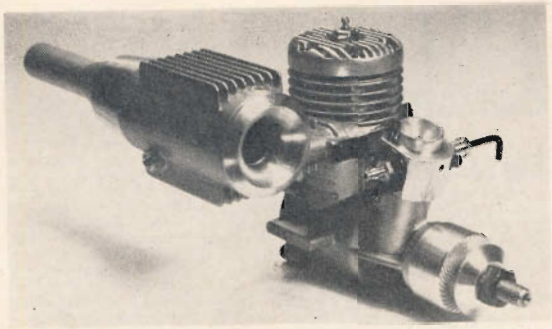
In standard non-throttle trim, the G.21/29-FI and G.21/35-FI are pretty powerful engines. Prior to the development of the G.21/29-RV rear disc-valve model, the G.21/29-FI was, in fact, the stock Super-Tigre offering in the 5 c.c. speed class. It features the regular Super-Tigre racing engine scavenging system of large inclined parallelogram transfer ports, timed to open and close simultaneously with the exhaust port, and a flat crown deflectorless piston. It also retains the offset intake, promoting a tangential gas flow through the rotary-valve, rectangular ports being used in both the housing and the shaft for rapid opening and closing of the 200 degree induction period. The cylinder head incorporates

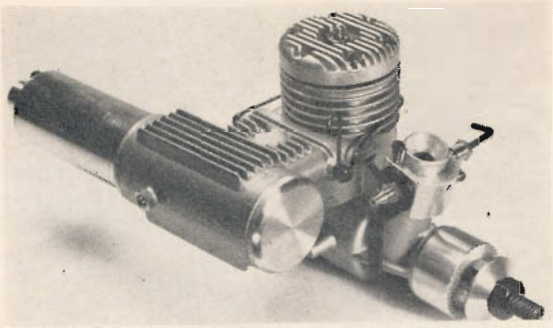




Left, the Czechoslovakian MVVS 2.5-TRS (shown here with non-standard spinner assembly) for which another reader has made strong claims in combat flying. See text. At right, the Super-Tigre G.21/35-F1 R/C (left in both pictures) and G.21/29-F1 R/C. Despite larger displacement, the 35 is lighter and shorter. Note offset carburettor.

CORRECTION Photographs on left side of page 209 in last month's issue were transposed. Top photo is of Poljot shaft assembly and bottom photo is of Max-H.40R shaft.





At left, the ST. G.21/35-F1 R/C and new air-scavenged type ST. S-29 silencer with strap fitting, whilst at right the ST. G.21/29-F1 R/C and standard ST. S-29 baffled expansion chamber silencer with wire clip fitting is shown.

a very wide (3.8 mm.) squish band surrounding a hemispherical combustion chamber with a centrally located standard Super-Tigre long-reach glow-plug. A single annealed copper 0.2 mm. gasket is used between the head and cylinder liner flange.

For the most part, the G.21/35-FI R/C differs from the G.21/29-FI R/C only insofar as is necessary to adapt to its larger capacity. Thus, the piston skirt is cut away fore and aft to clear the crankshaft counterbalance and crankcase backplate – a consequence of the engine's 1.0 mm. longer stroke. However, a saving in overall height has been achieved with the 35 by reducing the height of the cylinder casing and liner above the ports. The cylinder head does not project so far into the bore and a wider and shallower combustion chamber is used.

The construction of both engines is typically Super-Tigre. The crankcase, cylinder casing and bearing housing are pressure diecast in a single light alloy unit. The crankshaft has a 9 mm. gas passage and an integral 6 mm. dia. tubular crankpin. Counterbalancing is by means of cutaways each side of the pin. The shaft journals are 7 mm. dia. at the front and 12 mm. at the rear, each running in ball-bearings. Ahead of the front bearing a cup type machined dural prop driver is mounted on a split taper collet.

A drop-in cylinder-liner is employed, located, in the customary manner, by a flange at the top where it is clamped by the six-screw head. The cast-iron piston has annular stiffening ribs both above and below the bosses to minimise ovality in manufacture and is fitted with a tubular 5 mm. gudgeon-pin retained by wire circlips in the piston. The connecting-rod is of machined dural with a bronze bushing at the big end.

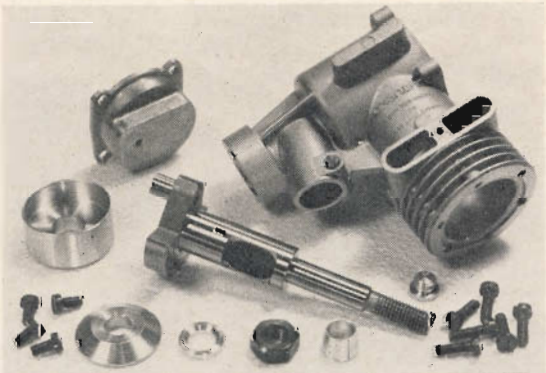
An orthodox barrel throttle type carburettor with adjustable airbleed is fitted. The brass spraybar remains stationary and the barrel rotates around it. The barrel has a 7.5 mm. dia. choke giving a cross sectional area of 44.2 sq. mm. This is reduced to an effective choke area of 15.5 sq. mm. by the spraybar.

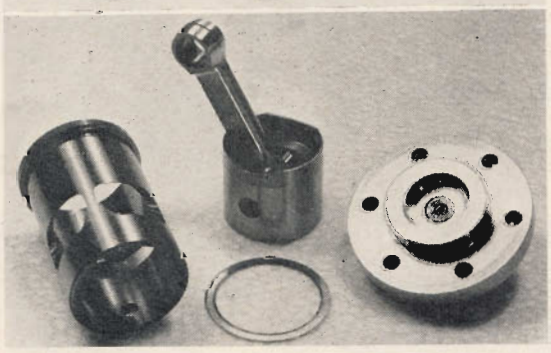
As delivered, the engine is supplied with the throttle arm coupled to a pivoted plate type exhaust restrictor. This, of course, will normally be discarded in favour of a silencer. The engine can be fitted with either the standard Super-Tigre S.29 baffled expansion chamber type silencer or with one of the new ST air-scavenged type silencers for reduced power loss. These may be attached with the normal steel strap fitting or with a special wire clip also included. The strap makes for a more secure and vibration-proof attachment, but the wire clip should reduce the risk of damage to the engine in a crash.

The G.21/29 FI R/C has a bore and stroke of 19 x 17 mm. giving a swept volume of 4.820 c.c. or 0.2941 cu. in. The G.21/35-FI R/C has a bore and stroke of 20 x 18 mm., for a displacement of 5.655 c.c. or 0.3458 cu. in. Due to its shorter cylinder and reduced cylinder-liner wall thickness (1.5 mm. instead of 1.75 mm.) the 35 is slightly lighter than the 29. Checked weights for the 29 (with 35 weights in parenthesis) are as follows: Bare engine, less exhaust restrictor: 9.59 oz. (9.28 oz.). With exhaust restrictor: 9.77 oz. (9.45 oz.). With standard S.29 silencer and strap fitting: 12.10 oz. (11.78 oz.). With S.29 air-scavenged silencer and strap fitting: 12.63 oz. & (12.31 oz.).

Twin O.S. Wankel rotary engines power this splendid R/C scale model (below) of the Rolls-Royce engined Japanese YS-11. Built in O.S. factory, 7ft span model has retractable undercarriage and uses O.S. Digital-6 proportional radio.

ST. G.21/35-F1 R/C parts. Engine has Super Tigre racing type porting with standard ferrous piston/cylinder assembly. G.21/29-F1 parts are similar except for shorter crank throw, smaller cylinder bore and wider squish band.





FREE FLIGHT

COMMENT

By John O'Donnell

Tony Grantham, with Boxall designed 'Bill White' Cup winner. Same model placed third at the Crookham Gala.

FORMAL competition rule changes for the 1970 season have been overshadowed by the S.M.A.E. Extraordinary General Meeting that revoked the need for silencers on most types of models. The position as regards free-flight is that there is now *no* S.M.A.E. requirement for silencers to be fitted (and, in fact, a prohibition on them for F.A.I. *contests*).

The various sub-committees have been given until June to report back with their pronouncements. This seems a remarkably long time to me, especially on such a fundamental and pressing issue. The very request for an E.G.M. in the first place presupposed that the sub-committees (or at least one) would not be pro-silencer.

My views on this very controversial and emotional question are that we have become pre-occupied with *one* particular 'solution' to a very real problem. However, I will not pre-empt the full length article that the subject really needs!

The recent rule changes made by the F.A.I. were adopted officially by the S.M.A.E. at the Council Meeting of 14th February – with one important exception. The use of binoculars, approved in principle by the F.A.I., will not be permitted in domestic events.

F.A.I. power models will not be permitted extensions to the exhaust opening(s) of the motor – effective forthwith. This means no pipes and no silencers. Whilst hardly a surprising decision in view of the scheduled Autumn Trials to select the 1971 team, it does make the year's grace prescribed by the F.A.I. seem rather pointless. I seem to recollect a very similar occurrence when the Wakefield rubber allowance was cut from 50 to 40 grams!

In comparison the elimination of the popular 80 per cent methanol, 20 per cent castor oil 'standard fuel', and the resultant compulsory use of the less powerful 75/25 mixture seems trivial. I sometimes wonder how the constituents *should* be defined. Methanol has a marked affinity for water, and there is a notable difference between cheap commercial methanol at a few shillings per gallon, and the analytical variety. Similarly, Castrol R (and M) and other motor oils are *not* identical to medicinal castor oil – as anyone who has tried the former for rubber lubricant will confirm.

Unlike the French Coupe d'Hiver at Chavenay, we have adopted the F.A.I.'s change to five flights (still to a two-minute max) and hand launch. Sentiment aside, hand launch is much more practical than r.o.g., both from model safety and rule enforcement considerations.

The extension of eligibility for a proxy to include 'absence abroad' seems extremely permissive. Whilst realising that it is undoubtedly a result of giving this concession to last year's World Championship attenders, it seems illogical that a continental holiday should be considered different to one in this country!

Whilst the aforementioned changes will doubtless be adopted by gala and other organisers with little confusion, the same cannot be said about two other rules. We are allowed three models in a S.M.A.E. event for F.A.I. models, but only two for open events. In case it seems unnecessary to spell out this distinction, perhaps I could recall one gala last year where an event winner used two models for his three maxes and a third for the flyoff.

Similarly prohibiting the release of the towline *only* applies to A/2 and not to open glider. Whilst the F.A.I. pundits will have a quick solution there are some unfortunate implications in the phrase 'the release of the winch or cable is forbidden'. As a start a broken line would seem to comprise a release – which is at variance with the general S.M.A.E. rule. Secondly, it has *already* become apparent after but a single event (the March area centralised contest) to these rules that the timekeeper cannot watch both the tower and model simultaneously. So we have an unenforcable rule specific to A/2 – not to mention its apparent lack of purpose. Throwing winches is clearly a safety hazard – but the line alone would seem harmless, especially if it is the alternative to a model being towed into the ground (or maybe something or someone more fragile). Surely this is one F.A.I. rule we can do without?

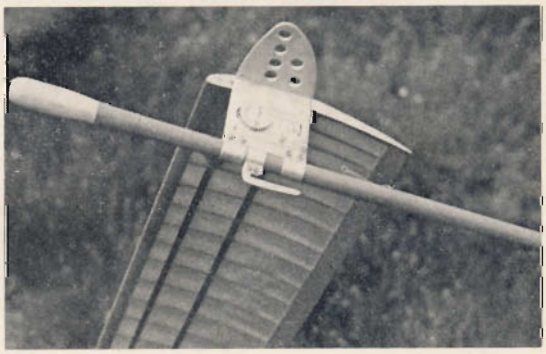
It may not be generally known that I am on the F.A.I. free-flight sub-committee – but such is the case. Some rules are changed by the C.I.A.M. meetings, and *then* referred to the sub-committee for suggestions as to how they can be defined and *enforced*.

Before leaving the subject of rules, I would like to comment briefly on some recent suggestions appearing in print. There is certainly support for retaining open rubber – despite the suggestions that we should go all F.A.I. Whilst I agree that we have too many classes, I cannot agree to the all-F.A.I. idea. It would obviously do our International chances some good; but, I consider, at the cost of reduced domestic interest. This is too high a price in my opinion. There are obvious snags with F.A.I. power, now a highly expensive power race. Wakefield is almost as much a thermal contest as A/2. Whilst one such event can be justified there is little need for more.

All in all, I am rather disappointed that ideas have been so orthodox. 'A complete re-think' was the phrase I used – and used intentionally. There are other measures of excellence than mere duration that would not stifle design. The long forgotten P.A.A. Cargo Chipper concept is an illustration of such an alternative. Need I go on?

Rubber fly-off winner at the Crookham Gala, Laurie Barr prepares his model while Jim Baguley, also of Hayes, assists.

Mike Keevill of Leatherhead produced an interesting 90 in. A/2 at Crookham Gala with fishing rod fuselage plus aluminium pylon with wing tongues very much after West German fashion.



The **Crookham Gala** held at Chobham Common on 15th March, effectively marked the start of the 1970 Contest Season. The choice of date was, perhaps, a little dangerous, being only a week before the first S.M.A.E. Area-centralised event (which *some* people consider more important than club galas). As it turned out the weather was quite good, especially early in the day, and this resulted in sufficient entries to please the host club.

It was apparent that Crookham had tried to stage an organised meeting. There was a control tent, scoreboard and *timekeepers* (since Crookham members did not participate). Whilst only the Power event carried a trophy I understand that there are plans to extend this in the future.

There were plenty of maxes recorded during the morning and early afternoon. However, the wind freshened somewhat and the prospects of large flyoffs did not materialise. Lift seemed patchy, despite some sunny periods and there were many fliers with two maxes and one poor flight. This applied particularly to **glider** which had by far the largest entry. Surprisingly, despite the erection upwind of the latest version of Jack North's thermal indicator (a 'bubble machine' atop a 15-20 ft. *balsa* pole) neither of the two glider trebles came from Croydon.

The **Rubber** event had poor scores considering the number of early maxes. There were at least a couple of lost models, but also I suspect a certain amount of discretion rather than valour.

None of the 'minor' events (if I may so term them) needed a flyoff, although George Fuller maxed out in winning ½A with the pen-bladder-equipped model illustrated last month. I won **Coupe d'Hiver,** after wasting most of the day on an assortment of troubles in power, without any maxes. Runner-up was Tony Grantham who was lucky to find his novel T-tail model after its second flight. It had been hidden by downwind youths – but not well enough. Third was Andy Crisp with one poor flight and then two maxes, the last of which cost him his squared-off version of *my* design. Dave Tipper made a very late effort, managed a double max, but ran out of time for a third flight.

A/1 glider was topped by Gordon Hannah with two maxes out of three flights. Martin Dilly came second despite snapping one of his sheet-top winged models on tow. A very poor second flight kept Jim Baguley down to third.

First of the flyoffs was **Open Power** – between Russell Peers and John West. Their flights made an interesting comparison. Russell had changed models from his usual and still silenced one to a better 'reserve', flew first (by perhaps a minute or less), had a rather straight climb, stalled on transition and appeared to be sinking rapidly. John's model was a little tight, but much higher and looked well set. However, being higher it drifted faster and had caught up Russell's model by the time they passed the waiting 'recovery squad'. Russell's model had worked into better air and finally ended up much the higher. The result was a visibility win for Russell's large ETA 29 model – as both D/T'd close together at about 7½ minutes, and were successfully retrieved.

Laurie Barr flew first in the rubber flyoff, despite breaking a strand winding and changing motors. He had lost a model as a very long third flight, and his reserve made very flat circles immediately after launch before climbing away. Hamish Gunn, recently returned to contest flying, had a large if heavy model – with 55 in. span and length, 5 ozs. structure and only 3 ozs. (16 strands by 42 in. length) of rubber. Nevertheless, he got much higher – only to find poor air, and end up in second place.

This only left glider Brian Bow, flying one of Elton Drew's earlier designs, towed up almost as soon as given the go-ahead, released very quickly – but not into lift. This gave Mike Fantham the opportunity to wait and to run-down his D/T timer. In such a situation it is easy to be over-confident – but Mike towed his A/2 into lift and it was well up when it D/T'd.

The actual competition aside, there was one interesting development observed on more than one glider. This was the use of an *all-moving* fin instead of the usual fixed fin and auto-rudder. This has been tried by several well-known fliers, including Elton Drew who has so modified his 'Trials' model. I am rather sceptical about the virtues of this idea, as it must require *finer* adjustment and positioning, in addition to structural and mounting considerations. Whilst it might be more efficient (through providing less drag) this hardly seems relevant in the usual thermal catching environment. What might be significant, however, is Pete Jellis' contention that his design holds lift *better* with the all-moving fin.

RESULTS

Open Glider (43 entries): 1. M. Fantham (Richmond) 9:00+2:47. 2. B. Bow (Bristol & West) 9:00+1.35. 3. B. Chapman (Hayes) 8:58. **A/1 Glider** (19 entries): 1. G. Hannah (St. Albans) 7:55. 2. M. Dilly (Croydon) 7:27. 3. J. Baguley (Hayes) 6:16. **Open Power** (18 entries): 1. R. Peers (Congleton) 9:00+6:12. 2. J. West (Brighton) 9:00+4:50. 3. A. Fathers (F.A.C.C.T.) 8:10. **Open Rubber** (11 entries) 1. L. Barr (Hayes) 9:00+4:12. 2. J. Gunn (Bristol & West) 9:00+3:44. 3. A. Grantham (E. Grinstead) 8:12. **Coupe d'Hiver** (9 entries): 1. J. O'Donnell (Whitefield) 5:14. 2. A. Grantham (E. Grinstead) 5:04. 3. A. Crisp (F.A.C.C.T.) 4:55. **½A Power** (4 entries): 1. G. Fuller (St. Albans) 9:00. 2. J. Hook (Southampton) 6:09. 3. P. Baker (Bath) 3:50. **Best Junior**: W. Houghton.

Errata

Perhaps a couple of corrections to recent 'comments' would not come amiss. The photo in the April issue, comparing Wakefield development, should have been captioned as John *Turner* with 'Zombie'. Ron Magill wrote from New Zealand to tell me that I attributed information about Rieke's engine to *South Island News* whereas it came from *News of the North* – the newsletter from the other part of N.Z. *(which we do not see! – Ed.)*. Apologies to all concerned!

Below left: Crookham Gala Glider winner Mike Fantham of Richmond. Centre is the all-moving fin (rudder?) on Mike Keevill's design, not actually flown in contests but seen with designer at right.

CONTEST CALENDAR

April 19th	**SOUTHEND C/L RALLY.** Rat Race, Combat, Goodyear, at R.A.F. Duxford, Nr. Cambridge. 10.30 a.m. start. Insurance essential. Entry on field 3/-.
April 26th	**NORTHERN AREA R/C PYLON RACE MEETING.** Formulae I & F.A.I. at R.A.F. Topcliffe, Yorks.
April 26th	**S.M.A.E. AREA CENTRALISED MEETING** Open Rubber, Open Glider, F.A.I. Power Area Venues.
May 3rd	**EASTBOURNE M.F.C. SLOPE SOARING EVENT** at Long Man, Wilmington.
May 3rd	**NORTH LONDON M.F.C. R/C RALLY.** Multi aerobatics, fun events at Baldock, Herts. Details from J. Picard, Potters Bar 58191.
May 3rd	**LONDON AREA C/L CHAMPS.** Combat, F.A.I. T/R, ½A T/R at Charville Lane, Hayes, Middx.
May 10th	**SOUTHERN GALA.** Open R/G/P, ½A Power Chuck Glider, R/C aerobatics, F.A.I. Pylon Race, ½A T/R, F.A.I. T/R, Combat, Stunt C/L Scale, at R.A.F. Odiham, Hants.
May 17th	**ST. ALBANS' R/C THERMAL SOARING RALLY,** at Nomansland Common, Wheathampstead.
May 24th/25th	**BRITISH NATIONALS** at R.A.F. Hullavington.
June 6th	**ULSTER C/L NATIONALS** at Royal Naval A/C Yard, Sydenham Airfield, Belfast.
June 7th	**SOUTH MIDLAND AREA THERMAL SOARING CHAMPS.** at Enstone Airfield (off B4030 Bicester-Chipping Norton Road) 5/- Pre-entry to G. Dallimer of 10 Angle Way, Stevenage, Herts.
June 7th	**BRISTOL PHOENIX R/C RALLY.** Open R/C events, single and multi. Fly for fun comps. with prizes. 2/6d. Pre-entry to C. Hart, 12 Edgeware Rd., Redland, Bristol 6. Venue: Whitchurch Airfield, Bristol.
June 7th	**NORTH LONDON M.F.C. SCALE R/C FLY-IN** at Baldock, Herts. Competitors only. Entry 5/–. Barbeque and Prizes. Details: J. Picard, Potters Bar 58191.
June 14th	**AEROMODELLER/R.C.M.&E./SCALE MODELS SCALE RALLY** at Old Warden, Beds.
June 14th	**S.M.A.E. AREA CENTRALISED MEETING.** Open Power, Glider, F.A.I. Rubber. Area venues.
June 21st	**SEVENOAKS R/C RALLY.** Open pylon, Spins, Scale, Bipe Racing, Spot Landing. Roundabouts and swings for kids ! Refreshments. Edenbridge Recreation Ground, Kent.
June 21st	**CHESTER M.F.C.'s SLOPE SOARING RALLY** at Clwyd.
June 21st	**FLYING DRUIDS RALLY.** F.A.I. Multi R/C Venue to be announced.
June 21st	**S.M.A.E. C/L CENTRALISED MEETING.** ½A T/R, B T/R, Handicap Speed, Profile Goodyear, at R.A.F. Cottesmore, Rutland.
June 21st	**RICHMOND F.A.I. GALA.** F.A.I. R/G/P (7 rounds) 10 a.m. start at Chobham Common.
June 21st	**DEVON RALLY.** Open R/G/P. All-In F.A.I. (5 flights), Chuck glider, Combat, Unlimited re-entry. Woodbury Common, Exmouth.
June 28th	**R.A.F.M.A.A. SINGLE CHANNEL R/C RALLY** at R.A.F. Luffenham.
June 28th	**ST. ALBANS SUMMER GALA.** Open R/G/P. to be flown in rounds. Vintage, Chuck glider 10 a.m. start at Chobham Common.
June 28th	**FINCHLEY M.A.C.'s CONTROL LINE GALA.** A & B Combat, Stunt, Rat-race, at Glebelands, Summers Lane, Finchley. Pre-entry 4/- to J. Goodwin, 77 Gallants Farm Road, East Barnet, Herts.
July 5th	**ELLIOTT M.E.E.C. RALLY.** C/L Stunt, Profile Goodyear, F.A.I. T/R, Combat. Pre-entry 2/6 to C. Atkins, 12 Hillcrest Road, Chatham, Kent.
July 5th	**CROYDON F.A.I. GALA.** F.A.I. R/G/P 7 Rounds, commencing 12.00. Augmented prize list. 4/- entry at Chobham Common.
July 5th-19th	**CHELTENHAM M.A.C.'s POSTAL EVENT.** Open glider. 5 flights and progressive fly-offs. Entry forms and rules 3/- from J. Andrews of 106 Churchill Grove, Tewkesbury, Glos.
July 11th/12th	**SHEFFIELD S.A. TWO-DAY SLOPE SOARING RALLY.**
July 12th	**SUTTON COLDFIELD R/C PYLON RALLY.** Formulae I, F.A.I. & Open at Fradley, Nr. Lichfield.
July 12th	**S.M.A.E. AREA CENTRALISED MEETING.** Team glider. Open power, Coupe D'Hiver. Area venues.
July 12th	**S.M.A.E. R/C & C/L SCALE TRIALS** at R.A.F. Little Rissington, Glos.
July 12th	**S. MIDLAND AREA BURNS-BROWN COMBAT RALLY** at New Barn Farm, Weston-on-Green, Bicester, Oxon. (Off A.43).
July 19th	**LONDON AREA C/L CHAMPS.** Combat, F.A.I. T/R, ½A T/R at Charville Lane, Hayes, Middx.
July 19th	**TYNEMOUTH F.A.I. F/F GALA.** F.A.I. R/G/P 5 Rounds and Progressive fly-off. Many trade prizes. Best junior prize. 5/- Pre-entry (6/- field) to B. Martin, 14 Hilda St., Gateshead, Co. Durham.
July 19th	**S.M.A.E. CENTRALISED R/C MEETING.** Multi aerobatics, F.A.I. pylon race, at North Luffenham.
July 26th	**SOUTH COAST R/C RALLY.** S/C Spot Landing (10 a.m.), Biplane/Form I pylon race (11 a.m.), Spins, Scale, Balloon Bursting, Demos, at Golden Cross, Sussex.
July 26th	**STOCKPORT COMBAT RALLY.** Mainstream Trophy plus £10 cash. Details: D. C. Clarkson, 14 Taplow Grove, Cheadle Hulme, Cheshire.
July 26th	**SOUTHAMPTON M.A.C.'s F/F GALA.** Open R/G/P, A/1, C d'H at Beaulieu Airfield.
August 1st	**ULSTER F/F NATIONALS** at R.A.F. Bishopscourt, Co. Down.
August 2nd	**HAYES F.A.I. GALA.** F.A.I. R/G/P (7 rounds) 10 a.m. start at Chobham Common.
August 2nd	**COTSWOLD R/C SOC. RALLY.** F.A.I., Open, Formulae 1 & Scale Pylon Racing, R/C Scale at R.A.F. Hullavington, Wiltshire.
August 8th/9th	**SOUTHERN R/C M.F.C. RALLY.** Formulae I & F.A.I. Pylon Race, S.M.A.E. Centralised Multi Aerobatics, Novelty Events, at Leigh-on-Sea, Essex.
August 9th	**S.M.A.E. AREA CENTRALISED MEETING.** Team Power, F.A.I. Rubber, A/1 glider. Area venues.
August 9th	**S. MIDLAND C/L MEETING.** Rat Race and Goodyear at Turweston Airfield (off A.43 Brackley-Northampton Rd.)
August 16th	**SCUNTHORPE M.A.C.'s COMBAT RALLY.** A & B Combat. Trophies and cash prizes. Refreshments. Pre-entry 3/6 to S. French, 9 William Street, Scunthorpe, Lincs. Venue: Central Park, Kingsway, Scunthorpe.
August 16th	**S.M.A.E. ALL SCALE MEETING** at R.A.F. Little Rissington. F/F, C/L, R/C.
August 23rd	**FLYING DRUIDS RALLY.** F.A.I. Multi R/C. Venue to be announced.
August 22/23rd	**S.M.A.E. FIRST TEAM TRIALS.** F.A.I. R/G/P at R.A.F. Syerston.
Aug. 31–Sept. 4	**MANX M.A.C. 'SOAR IN'.** Details from J. Martin, Trade Winds, Mount Gawne Road, Port St. Mary, I.o.M.
September 6th	**NORTHERN GALA.** Open R/G/P, ½AT/R, F.A.I.T./R, B T/R.
September 13th	**SOUTH COAST GALA.** F/F, C/L, R/C. Venue to be announced.
September 13th	**S.M.A.E. AREA CENTRALISED MEETING.** Team Rubber, F.A.I. glider, ½A Power. Area venues.
September 20th	**SOUTH MIDLAND AREA RALLY.** R/C C/L and F/F at Cranfield, Bedfordshire.
September 20th	**1st R/C TRIALS** at R.A.F. North Luffenham, Rutland.
September 27th	**TOWNER TROPHY THERMAL SOARING RALLY** at Golden Cross.
September 27th	**S.M.A.E. CENTRALISED MEETING.** Trials for 1971 Criterium of Aces.
October 3rd/4th	**S.M.A.E. SECOND TEAM TRIALS.** F.A.I. R/G/P, at R.A.F. Syerston.
October 4th	**SECOND R/C TEAM TRIALS.**
October 4th	**HARPOLE SECOND ANNUAL C/L STUNT COMP.** The contest with the built-in lunch ! Details: I. Peacock, 41 Carrs Way, Harpole, Northants.
October 11th	**TORBAY RALLY.** Open R/G/P. All-in F.A.I. (5 rounds) for Torbay Trophy. Chuck glider. Unlimited re-entry at Woodbury Common, Exmouth.
October 18th	**LONDON AREA C/L CHAMPS.** Combat, F.A.I. T/R, ½A T/R at Charville Lane, Hayes, Middx.
October 18th	**SOUTH BRISTOL GALA.** Open R/G/P. Vintage, F.A.I. T/R, Combat, Goodyear T/R, at R.A.F. Hullavington.
November 8th	**RICHMOND WINTER GALA.** Open R/G/P, A/1, ½A, C. d'H, Chuck. 10 a.m. at Chobham Common.
November 29th	**ST. ALBANS WINTER GALA.** F.A.I. R/G/P, ½A Power, A/1, Coupe D'Hiver, at Chobham Common.

CLUB NEWS

(Insignia of Maidenhead Model Makers)

FLYING FIELDS may come and go, but some seem to keep marching along quite merrily. Matter of fact, I was doing a spot of flying the other Sunday on a site which had known the thud of many an oiled silk and spruce model back in grandfather's time, and I couldn't help but wonder what he would have made of the radio biplane which came to earth with as hearty a bump as any of its hoary antecedents. I further speculated on what and where is the oldest model flying site in the country. Wimbledon Common, the home of the famous T.M.A.C., must have certain claims to this distinction. So, too, Blackheath, now a huge traffic intersection, but, at one time, the spacious flying ground of the Blackheath club, happily still (just!) extant. I wouldn't be surprised, though, to learn of model activities in Hyde Park when you could hardly tell the machines from the deck chairs.

Just how long people have been flying models on Nomansland, the embattled flying ground of the **St. Albans M.A.C.**, we have no idea, but certainly it is put to much good use in this day and age. And very much of this day and age was the R/C Soaring Rally held there towards the end of last year. Mention of this is made in *The Thermal*, the club newsletter. The event was quite a success and may well auger some good contesting in this direction during the current season. Radio systems are now so miniaturised that an event to A/2 rules, with models differing little in configuration from their F/F counterparts, is quite on the cards. Getting back to Nomansland, a sensible sounding comp. was a keep-it-on-the-common one held during the winter. Only flights actually landing in the common to count, though we are not told if D/T's were in order or not. More grist to the club mill was the 'bring a model' night. Outstanding models on view was David Tipper's unique A/2. It had a new aerofoil section with the maximum camber well back – sounds like a boundary layer type – and also sported a glass fibre fuselage.

One thing that is always a good talking point is the other bloke's model. The **Heswall M.A.C.'s** newsletter mentions a few forthcoming attractions from members' workrooms, such as John Skinner's *Fieseler Storch* which he is preparing for a Nats C/L event. Also Allan Jones has very ambitious plans for a *DH.88 Comet* to be powered by two Merco 35s. Which reminds me of a couple of Wakefield noseblocks I've seen lately – very much Angleterre, and well up to continental standards of craftsmanship. A later club bulletin, February to wit, gives news of a lecture on aerodynamics given by a Dr. Gibbings. Very well received. A topic discussed after the air slugs had settled down was the high cost of flying at the Pensby Boys' School Playing Fields, 34/– per session. Very much a drain on club funds, so it was suggested that all C/L members contribute something per session, thus making the amenity open to all without direct payment, with the cost covered regardless of how many may turn up at one session. On the subject of the club building, Mrs. A. Jones, wife of the newsletter editor, is standing by to make up the curtaining. This in spite of a laggard response from members to entreaties to get the final touches added; it being left to the same old faithful nucleus to slosh on the emulsion. And how's this for the easy life? Fourteen beds have been booked at the Fleece Hotel (sounds ominous!), Cirencester, as the horizontal part of the club excursion to the 1970 Nationals. Used to be tatty tents in my young day.

Still on the theme by handle we have a report and newsletter from that stalwart backbone of South London C/L flying, the **Three Kings Aeromodellers.** Big news – and we do mean big – is of Dick Tidder's very fab 63 in. span *Viscount* and Geoff Burkett's O.S. 40 packed *Corsair*, both monumental pieces being dedicated to the forthcoming Nats. Very trendy this gargantuan vogue – gives you something to hang on to in uncertain times. Seems that no one worth his salt is to be seen with a fidgety sprat on the end of his lines these days. Take Stunt, for instance. There we see Mick Harvey bulldozing the frosty air with his MAN plan *Skyscraper Stunter* – 59 in. tip to tip, 67 ounces in weight and O.S. 50 powered. Other giants in the offing are Dave Morbin's Scale *Kittyhawk Mk. II*, powered by a Merco 61, and Pete Mason's 53 in. *Gladiator*, also with a Merco 61 up front. There is also a *Grumman J2F5 Duck Amphibian* taking shape under Wal Cordwell's skilful digits. A nice prestigious club touch is the very emblematic Three Kings blazer badge, now available at the not too expensive price of 11/3d. each.

A valiant attempt to re-launch the **Folkestone & District Model Society,** which unhappily went into demise last year after only four months of existence, is being made by Mr. M. Howland of 35 Tanners Hill Gdns, Hythe, Kent. He is being assisted in this worthwhile enterprise by Don Perry. In order to get the support necessary for the new club to enjoy a long and lively life much publicity is required. To this end a number of posters have been prepared as a means of getting as wide a public coverage as possible, and, of course, these columns naturally exhort all would-be members in and around Folkestone to get in touch with Mr. Howland at the address given. You may have deduced from the term 'Society' that the club is not limited to aeromodelling alone but takes in other forms of modelling activity, particularly boating. If all goes well it is hoped to run a model aircraft rally during the summer. Club insignia is a cruciform composite of boat screw and aircraft propeller.

Chief topic discussed at the recent A.G.M. of the **Esher Model Club** was the lack of club flying facilities for Radio. Whilst it is hoped to obtain a field for Radio and C/L within the Esher district, the possibility of having to venture further afield is recognised, even if this does mean a deep dip in the kitty. Sad to say, the C/L circle at Fairmile will not look so fair after the road builders have bulldozed through it. What with that, and the Radio boys having to go as far as Epsom for flying space, something drastic is called for. Fortunately, the club finances are capable of meeting any reasonable demands, thanks mainly due to the success of the now-famous Esher R/C Symposium. Not only was the symposium a success from the club point of view but in aeromodelling generally it has established itself as the major R/C event of the year. Needless to say, preparations for this year's effort are already well under way. This promises to be the best ever, though it occurs to me that it will be over by the time this appears in print. In main the club emphasis is on Radio and C/L, but nevertheless other flying activities are not overlooked; anything from Jetex to Slope having a place. And to give an idea how different interests are integrated at official level, Albert Briggs, the newly appointed R/C comp sec., is a well-known control liner, a member of the 1969 Criterium Team and wielder of superb multi engined control liners. The report comes from Mr. P. Bragg, of 67 Grove Road, Sutton, Surrey, who invites any lone hand in the area to drop in at the Esher Youth Centre on a Wednesday evening for a natter and a cuppa.

Tony Cordes, the Secretary of the **Tynemouth M.A.C.,** writes to inform us that the club is running a Free Flight F.A.I. Gala at R.A.F. Ouston on the 19th July. (See Contest Calendar). Prizes are sufficiently enticing to attract the top-notch exponents in the F/F field; engraved plaques to the first three places in each event, plus a host of goodies as sweeteners. These include D/T timers, glass fibre blanks, epoxies, Jap tissue, etc. As it is expected that A/2 will net the largest entry, prizes in this event will be down to five places. And, thoughtful addition, there will be a special prize for the best performance by a junior (under 18). Very important that the event is a success, according to Tony, for most of the club's finances are tied up in this event. Let us hope that they haven't put the money by for a rainy day! Point made in justification of this big club splash is that F/F has for too long been the poor relation in the N.E. Area, and a strong stimulus to this still very valid and rewarding style of flying is very much needed.

This years *The Message*, the Newsletter extraordinary of the **North Western Area,** comes in a new stylish format, a much more professional looking affair than the old duplicated mag. Plenty of gen compressed into the two tightly printed sheets, including a diagrammatic feature on a Coupe D'Hiver motor loading tube. The idea, a most ingenious one, comes from San Diego. It allows for winding up completely outside the model; the fully wound motor being inserted in the fuselage and locating itself to take the rear anchoring pin through a hollow dowel. Editorially, there is some not too happy news to dispense. The N.W.A. were unable to obtain either Tern Hill or Chetwynd for a one day meeting at Easter. It used to be the gliding schools which so often frustrated our intentions, not to mention the doggy dos, but the latest airfield hogger seems to be parachute jumping. Does Radio lend itself all that well to contest flying? At least up there it has been hard to whip up any interest in competitions in the R/C ranks. In fact, interest has been so non-existent that the Committee were not stimulated to arrange any events in 1969, but had intended to put Aerobatic and Pylon Racing on the Easter programme. Hot item of news which should by now have spread like a prairie fire is the decision of the Council at the February A.G.M. to reverse the Silencer rule re-introduction which had produced such a storm of protest. No further comment. Did you, however, know that the **National Paper Dart Championships** took place, or at least we trust it did, at the Imperial College on the 21st March? Question asked is why did the Society allow the British Gliding Association to step in to organise this scintillating event? Perhaps a wise decision on their part on reflection. If the model movement is to improve its

Unusual club transfer in red, blue and grey, unfavourably described by Handsworth members – see text

public image, perhaps it is just as well not to identify too closely with such frivolities. Good for Russell Peers. He intends to stage a mini-event, Coupe and A/1, on to the Summer F/F meeting, and is offering a junior prize if there is enough support. Excuse my enthusiasm, but I am all for the small model meet, as I feel it can do much to extend the contest scope, particularly in areas where space is restricted.

Being somewhat timorous by nature, I cannot say that the News-sheet of the **British Miniature Pylon Racing Association** sets me agog. The standard racing beastie specified therein is not one that I would like breathing down my neck. 6 c.c.'s of engine on a 50 in. span model seems to add up to quite a bit of locomoting equipment, and I would like to see evidence of a reasonable safety factor before accepting pylon racing as an inevitable form of R/C competition. I do feel, though, aerobatics to be a short term resource and spot landing mere novelty. However, the Association is not oblivious to the danger problem. Indeed, the Secretary, Tony Dowdeswell, makes this the main talking point of the news-sheet. He seems in no doubt that the future of pylon racing will depend upon establishing acceptable margins of safety. One snag is the public inability to recognise what would appear to be an evident risk, something commonly encountered in motor racing. The answer therefore, or at least one answer, is effective crowd control. I also feel that Radio contests, with the exception of glider events, should be run separately from other contests.

The News-sheet of the **M.A.C. of Ireland** contains a questionnaire which is going out to all members. The purpose of the enquiry is to find the weighting of interest in competitive and general flying, and also to get some indication of what meetings and what events contest flying members intend to compete in during the season. Just how useful such enquiries are it is difficult to say, but it's often the thing the old hand tends to ignore and the paper members use to indulge their pipe dreams. Let us hope, though, that this particular survey produces the hoped-for guide lines. Ireland being a relatively small country makes for ease of centralisation. Understandable, then, to find the contest agenda full of national events, North and South. Interest at the moment, though, centres on efforts to raise a team for the 1971 R/C World Championships. It is hoped the questionnaire will be of help in this regard.

Mention earlier of Radio A/2 Gliders makes you wonder what might be the outcome of a contest between a Radio and a F/F glider. One such is being staged in the Western Province of South Africa, according to the newssheet, *Wipmac*. Dennis De Wet is the challenger and John Carswell the challenged; the former operating in the unbuttoned state. On the face of it the Radio job should win comfortably, but perhaps not so if a short line is opted for. This sort of friendly rivalry sets the tone for the rapport which has been achieved between those who fly 'no hands' and those who prefer to switch it than to leg it. Radio influence, however, does have a dampening effect upon the competitive spirit, mainly because the Radio model is essentially a fly for fun machine, unlike free flight, where the fun is in producing a machine to contest standard.

Whatever decisions are made on silencers in the councils of power, some flyers have no alternative but to fly silenced – it is that or not at all. This is very much the situation at Old Warden, where is to be found the **Model Section** of the **Shuttleworth Veteran Society**. A special insertion in the Section magazine warns members that, owing to complaints from local residents, models must somehow be effectively silenced or the management may have to suspend flying. Membership of the Section now stands at 74, with interests ranging over the whole spectrum of historic flying, from plastics to lighter than air.

A handicap to free flighters in our sea-girt isles is the ever blowing, often battering wind. Similarly afflicted, or so I should imagine, are the New Zealand islands which are perhaps even more open to the winds from the sea. At least, *Torque*, the news-sheet of the **Christchurch M.A.C.**, has a few aggrieved words to say on the continuous high winds which more or less knocked out free flighting towards the end of last year. None the less, entries were quite reasonable in the New Zealand Nationals, with 16 entries in Wakefield as a good example. An interesting point made in the newsletter concerns the sort of trouble the novice Radio pilot – and even the the more practiced – gets into by losing momentum on a turning movement and mushing into a stall. On slow, light models which have a high stability factor stalling is not so critical as they tend quickly to regain equilibrium, but if you stall a fast, heavy model the outcome is usually a nasty dive into the deck. Moral is not to drop below the model's natural landing speed.

Did you know that the **Third Halifax International Postal Tailless** contest is being flown off during April? Again the indefatigable John Pool is in charge of proceedings. Surprising how well these tailless wonders fly. From observation the rubber model appears to be the best of the breed. Power is apt to be a bit wayward and gliders difficult to tow up.

Whilst the **Handsworth M.A.C.** admits that its central interest is control line, it would like to correct any impression that it is given over wholly to this branch of the hobby. G. Bryant, the Club Secretary, tells us that the wing on the wire addiction is largely due to lack of flying field space for untethered operations. However, there is a small nucleus of Radio and F/F enthusiasts in the club, and if any unattached modellers in the Birmingham area have been put off by the all-C/L tag they can be assured of a warm welcome at the club whatever their religion. A good point raised in the report is of the essentially simple Goodyear Racer evolving into a specialised engine model, such as ½A Team Race unless an engine price limit is introduced, as in Mouse. The chap with the cheap 2.5 diesel will be outclassed by the racing .15 glows, however good he may be as a flyer. I, personally, feel we should keep the competitive field as wide open as possible, and not allow success to be measured in terms of money. The club continues to flaunt its curious insignia, although it had been described elsewhere in this magazine as a rather bent C/L model being eaten alive by a bowl of porridge. Come to think of it, that wouldn't make a bad title for an avant Guard drama on the modelling scene.

A rather belated report from the **Havering Model Club** has just reached me. The club covers the Romford and District part of the Eastern London suburbs; an area which, at one time, could boast many fine, active clubs, but where interest now is at a low ebb. The situation will not be helped by the powered model ban which has just come into force on Upminster Common. However, the Havering Club has its particular flying facilities which are offered to any lone hands looking for a companionable club. John Barfoot, the P.R.O., lives at 46 Ilfracombe Gardens, Chadwell Heath, Romford, Essex.

Thomas E. Wilson is Vice-President of the **Seattle Skyraider Model Club**. He also tells us in his letter – very complimentary to this magazine – that he is 24 years old, and an Inspector on the Boeing 747 in Everett, Washington. His main interests are Goodyear and small sports models. He would like to enter into correspondence with anyone over here prepared to swap news and views on club life, etc. Address: 10720 Washington Way, Everett, Washington 98201, U.S.A.

Volume two of the **M.A.A. of Canada** magazine, entitled *Canada 70*, flatteringly reproduces a comment on one of their editorials which I made a few issues back. I suggested that model flying could be designated a hobby or activity but not a sport, because in a sport you have to chase something live, though not girls. Perhaps I was being a bit pedantic, tongue in cheek like, and should in all fairness allow the term 'sport' to be applicable to the chasing of girls. Anyway, a very good issue, Volume Two, giving a highly inclusive coverage of the Canadian scene.

The **Liverpool and D.M.A.S.** draws attention to the pitfalls that await the novice Radio flyer. He needs to be both an aeronautist and a technologist from the word go. Many fledgling Radio flyers go bravely to the flying field with not a clue on how to conduct those initial tests. The article in the club newsletter endeavours to fill in a few of the pitfalls by way of a preparation schedule, and goes on to describe a simple flight simulator, on which the piloting skills can be learned in the safety and comfort of the living room. Mentioned, I believe, in our last issue, was the news that the club had obtained the use of Aintree Racecourse for model flying. We are pleased to see all is going well with the venture, and that it looks like being a success.

And that about winds it up for this month.

THE CLUBMAN

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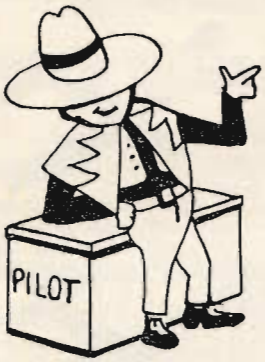

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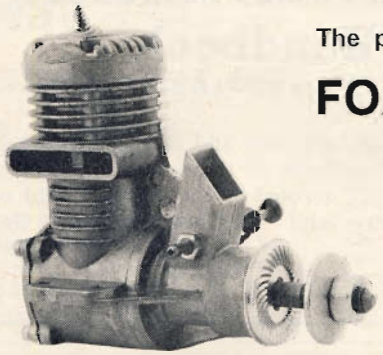

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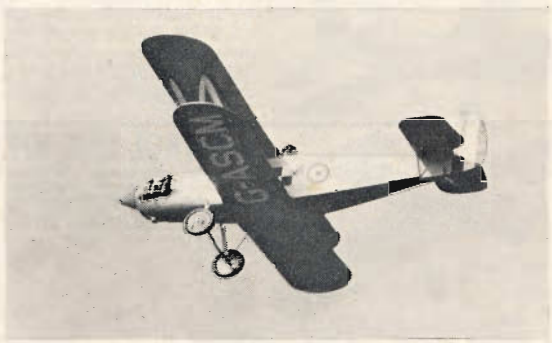

Scale planes, cabs & camels

More data on the Sopwith Survivors with colour information on the Camel. The famous 'Checker' Cab, drawn as a companion to the London Taxi in March issue. More new kits reviewed, with revelations from the recent Trade Shows and another survey of useful reference books. Miniature figure feature and special article on cast figure modifications. Plus a fine intro to the flying scale model.

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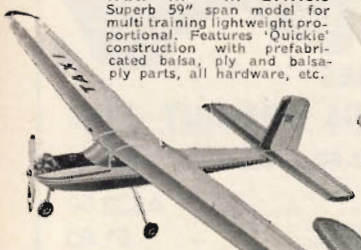

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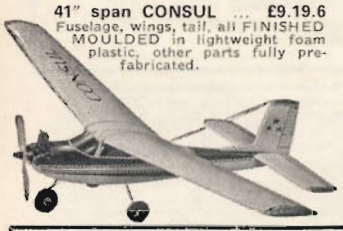

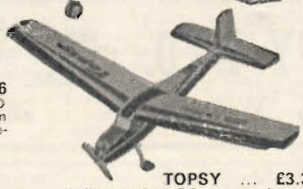

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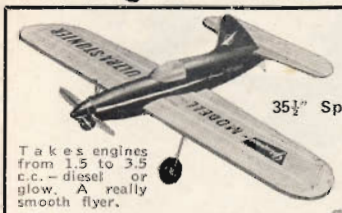

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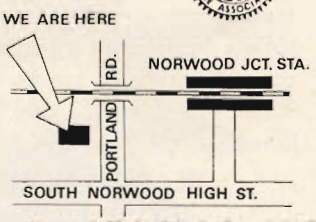

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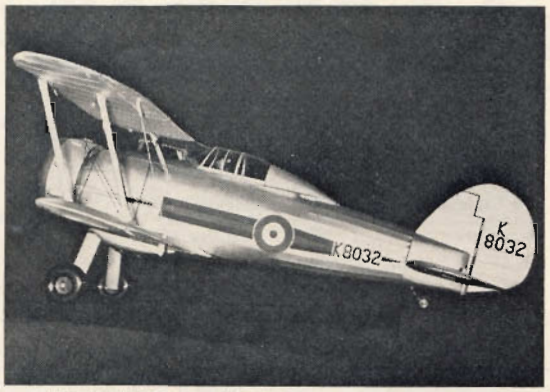
May R.C.M.&E. will be our 10th Anniversary edition – that's right, we've been producing the magazine monthly since May 1960, and to celebrate we'll be giving away full-size construction plans for a 38in. span scaled-down version of Phil Kraft's popular Bar-Fli design, appropriately named the Bar-Flea, which, like its big brother, will take full house radio equipment.
There will also be plans for a rudder only control R/C thermal soarer, a report on the new R/C products we saw at the recent Nuremberg Toy Fair, plus usual favourites like Scale News which provides more news of R/C scale model activities. In Throttle Benders' Union there will be more pylon racing news, and in Straight and Level, Peter Russell provides more views on the R/C news around the world. Kit review this month examines the Micro D.B. single channel kit models, and there will be more news of single channel and sport R/C activities in David Boddington's sport and single column.



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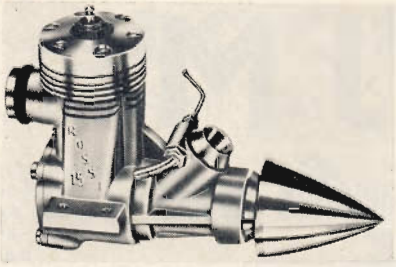

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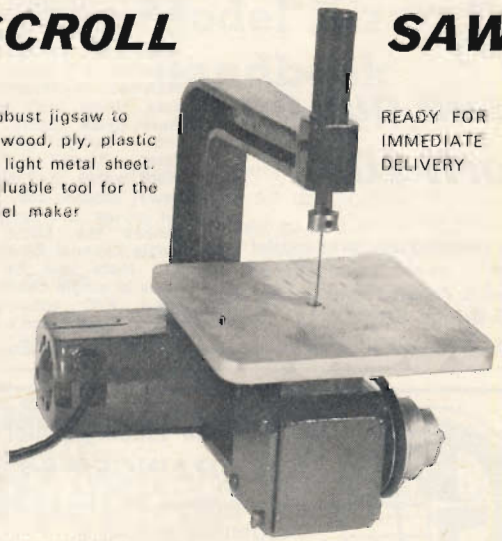

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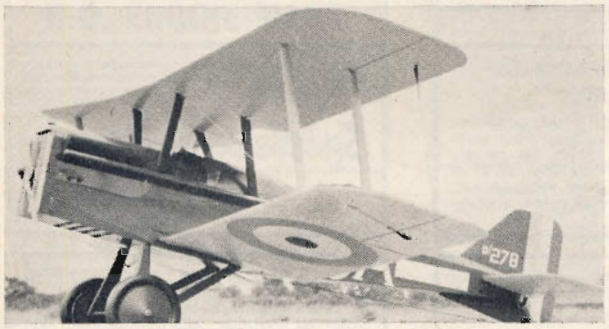

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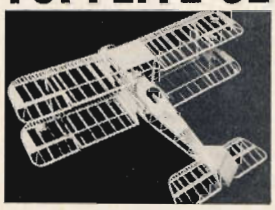

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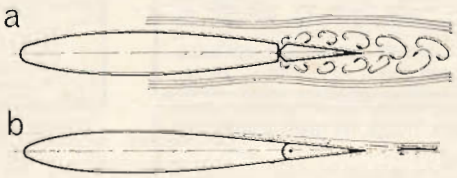
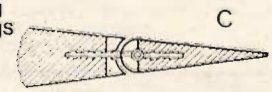


a – airflow over normal wing
b – airflow with Kavan fairings
c – installation with Kavan hinges



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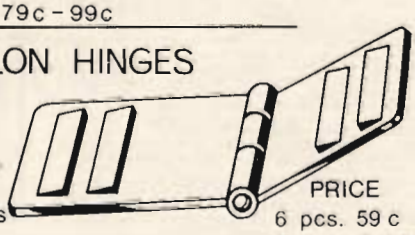

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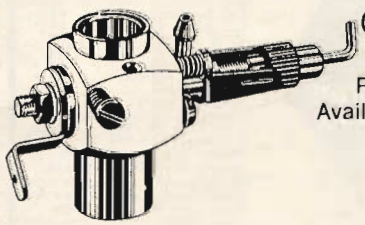

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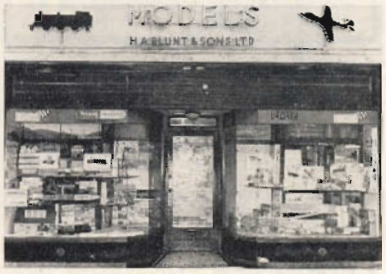

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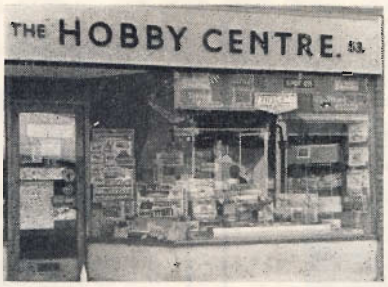

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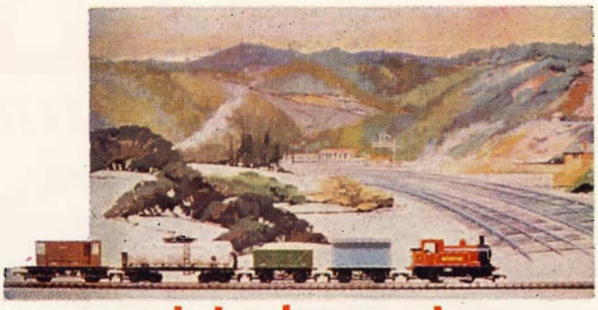

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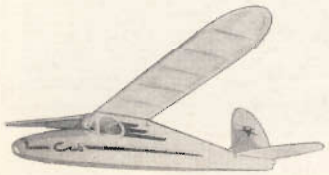

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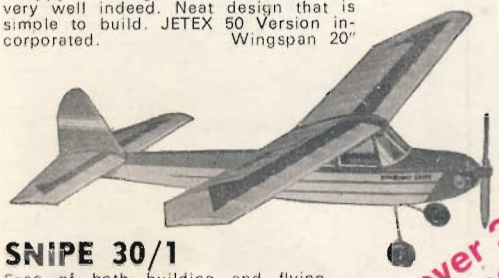

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