

Aero Modeller

INCORPORATING
MODEL AIRCRAFT

MARCH 1970
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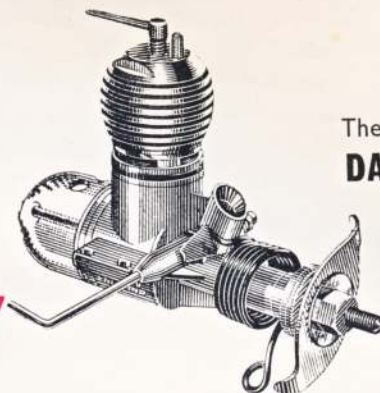
HOBBY MAGAZINE

- **Seamew duo plans**
- **New Zealand championships**
- **A/1 class glider design**



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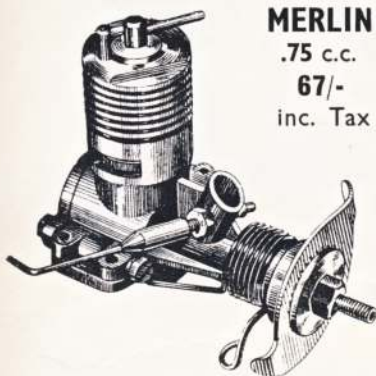
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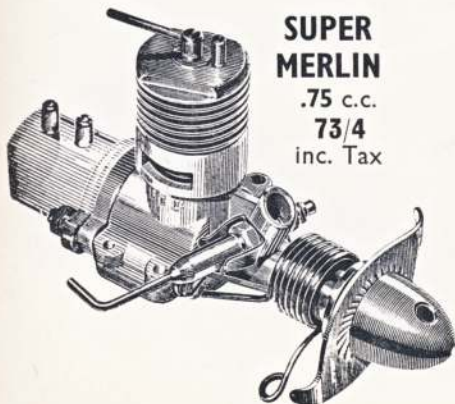
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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

March 1970

VOLUME XXXV No. 410

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HOBBY MAGAZINE



ALSO MODEL BOATS . MODEL CARS . RADIO
CONTROL MODELS & ELECTRONICS . MODEL
ENGINEER, MODEL RAILWAY NEWS, MECCANO
MAGAZINE and SCALE MODELS

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COMMENT

There is a delightful atmosphere conveyed by the report on the New Zealand Championships in this issue. It portrays an enthusiasm for contest flying, coupled with a degree of enjoyment that for many in other lands can only be captured in memory with fond reminiscences. For the New Zealander's have apparently, yet to be swamped by specialisation. The all-rounder with interests spread over control-line, free-flight and radio control has ample time to participate in this 'Holiday-Nats' and though the number of competitors is small by comparison with this country or the U.S.A., the performances are by no means diminished. Hats off to our antipodean counterparts - they may not realise how lucky they are with their relaxed event, so free of the high pressures we know only too well.

on the cover

The Rollason Condor in manufacturer's standard colour scheme. Three dozen of these light trainer/tourers are now flying in Great Britain and they make an ideal subject for flying scale modelling as will be seen from study of the feature beginning page 156.

next month

Popular American ultra light of the '30s, the Curtis Wright Junior is cover feature and one of the month's A.P.S. introductions. Full size pull-out plans for a Radio or Free Flight simple sportster to suit .049 engines. Control Line News, Latest from the Trade Fairs, Scale Plan, Full size plans for Doug McHard's Heinkel He 46, rubber driven scale model, plus all the regular features - out March 20th.



NEW—NEWS!

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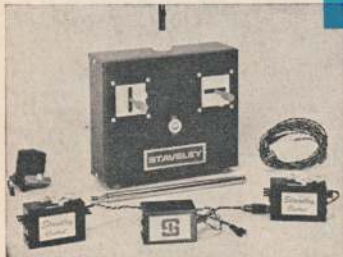
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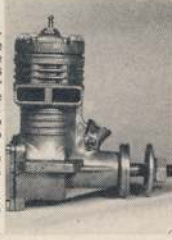
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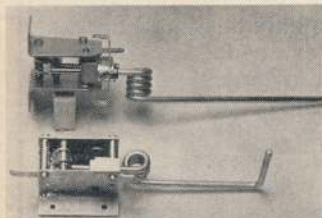
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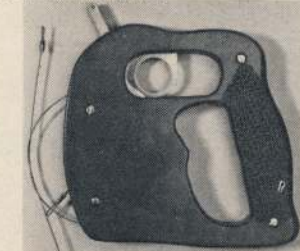
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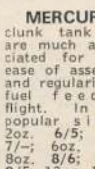
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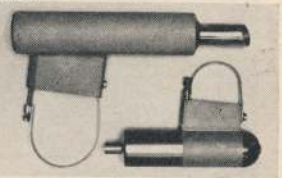


KO SILENCERS

These Swiss silencers are superbly finished in satin plate and are both effective and efficient. Available for every popular make and size of engine. Highly recommended All at one price. £3.15.0

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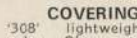
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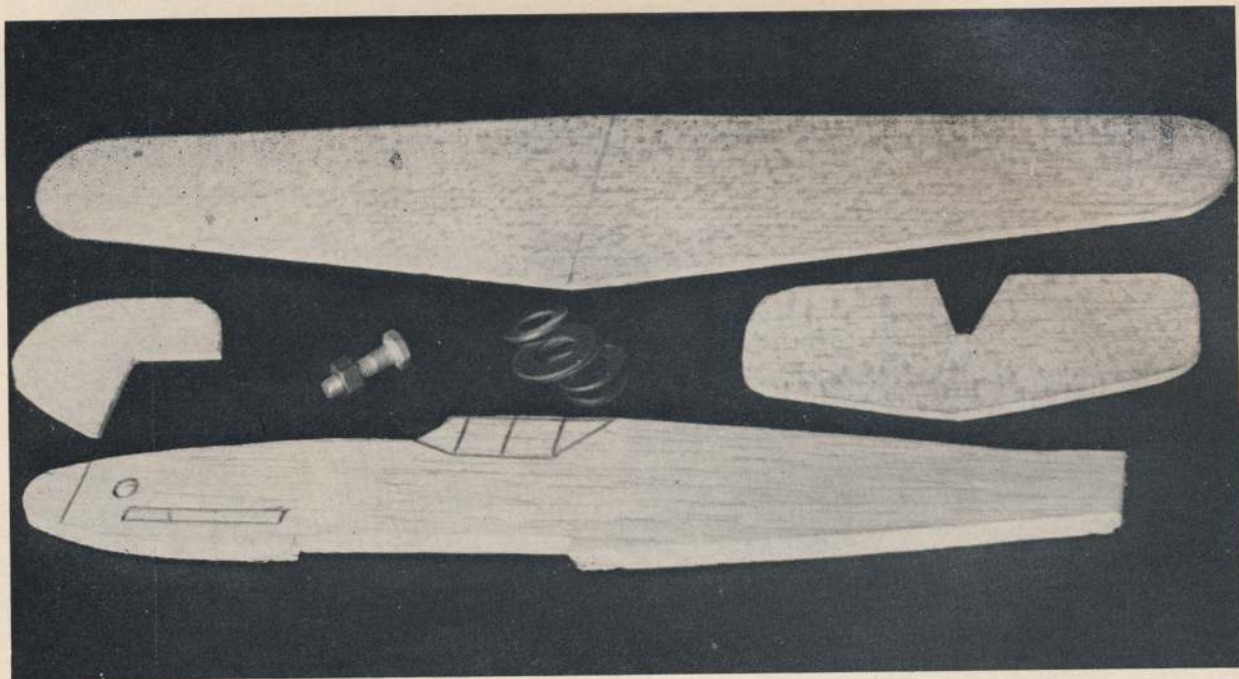
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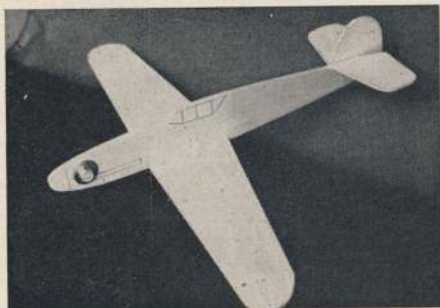


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134
R/C

MANUAL 3

Our Bi-Annual Radio Control-Manual series introduces a third number. Cover feature unique R/C models of 'lifting body re-entry vehicles' used by the American National Aeronautics and Space Administration as an inexpensive method of obtaining data. Other features include Single Channel Contests; How to Run an R/C Rally; a review of Instant Covering Materials; An Approach to the Multi Aerobatic Schedule by Doug Spreng; Scale R/C by Dennis Thumpston; and a pictorial report on the 1969 World R/C Championships and Scale Internationals. 38 scale drawings, all fully dimensioned of the best of the World's R/C model designs of all categories.

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7 CONTROL LINE MANUAL

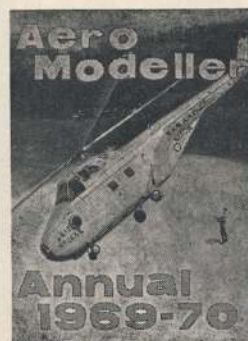


Main chapter headings: Why Control Line?; Basic U-Control; Basic Monoline; Basic Flight Control; Learning to Fly; Aerobatics; Speed; Team Racing; Combat; Carrier; Cargo and Endurance; Scale Models; Jet. The Engine in Control Line; Towards the Indestructible; Looking after the Lines; Variations on the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

$8\frac{1}{2} \times 5\frac{1}{2}$ in. Hard bound. Chapter headings by cartoonist Roland, over 300 diagrams, sketches, photo-illustrations. 74,000 words. **15/-**

Laurie Bagley cover, R/C scale model Whirlwind in bright yellow livery. To tie in with this Dieter Schlueter's fine article on Model Helicopter Technology. (Dieter was winner of 1st International R/C Helicopter Event—also reported in this Annual), John Burkhart, of U.S.A. (who won their first 'Copter event'), adds comments. Articles include Tubular Fuselages from Balsa; Contest Model Performance Prediction; Beginners Only Please; Facts About Propellers; Glider Construction Suggestions; Navy Carrier Event and What It's All About; Fuel Control. Fifty model plans— all scaled and with main dimensions shown— from the year's best, most interesting curious screwball, intriguing, different designs.

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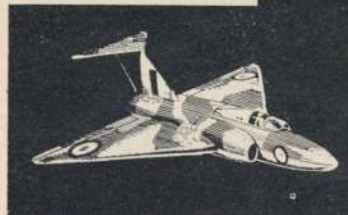
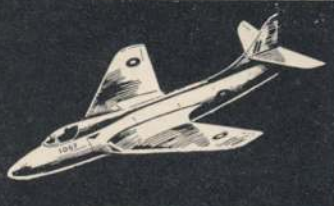
KEIL KRAFT

Skyjet 50

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KEIL KRAFT Hawker Hunter

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KEIL KRAFT

Gloster Javelin

Of unconventional design the Javelin is a two seat all-weather fighter bomber with delta wing and tail-plane. This unusual configuration makes up into a very sturdy model. Wingspan 15 in. 6/4

KEIL KRAFT F86 Sabre

Veteran of the Korean War, the F86 Sabre achieved air superiority over its chief adversary the Russian Mig 15. One of the first swept wing single seat fighters, the Sabre makes a fine looking model. Wingspan 15 in. 6/4

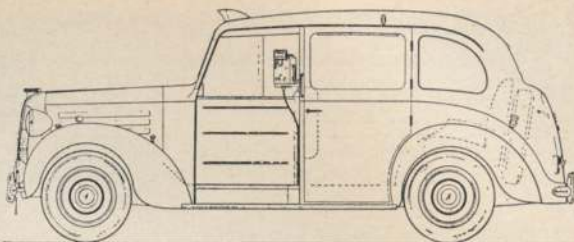


OTHER MODELS include—VENOM, AVRO 707A GRUMMAN PANTHER, ATTACKER, SKYRAY, MIG 15, D.H.110, SUPERMARINE SWIFT and KK CUB

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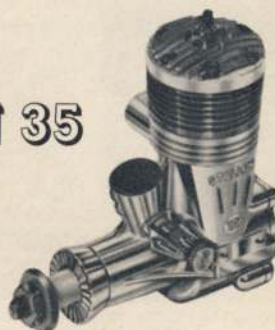


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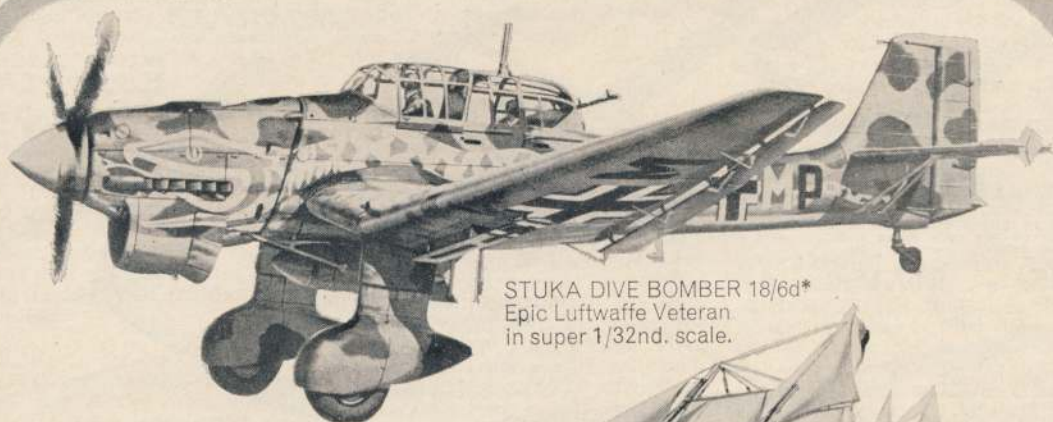


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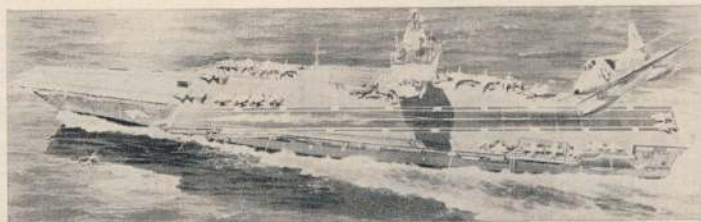
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KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

HEARD AT THE HANGAR DOORS

POSTCARD mentioned in January issue, when we announced arrival of 'Doc' Hawkins in Timbuctoo, brought forth immediate reaction from other remotely situated aeromodellers. Gordon Counsell, who was the S.M.A.E. Technical Secretary as well as a stalwart organiser of R.A.F.M.A.A. contests up to last year, sent a 'Souk' scene of a bazaar in Sharjah with a challenge to find the place on the map. However, unlike the 'Doc's' situation, this little hot spot is also a hot-bed for the hobby. A clubroom next to the airfield is shared with the model railway enthusiasts and there is a great deal of radio control activity, with Gordon still faithful to control-line.

DUXFORD airfield, during wartime one of the most interesting Royal Air Force bases with experimental fighters, new Squadrons, and then the American fighters, was also the scene for much of the filming in *The Battle of Britain*. Now, with one hangar well and truly demolished, it remains one of the most wanted vacant sites in all of East Anglia. Situated near Cambridge, it could well be developed into a Regional Sports Centre with facilities for a large range of pursuits, including our hobby of aeromodelling. Representations have been made on behalf of the S.M.A.E. and member clubs. It is hoped that a vital

meeting, due to be held on the day this issue goes on sale, will co-ordinate the many interested parties and that it will provide the first step towards planning permission for the centre. The meeting is called by the Eastern Region of the Central Council of Physical Recreation.

CHOBHAM preservationists, anxious to retain their established habitual rights in the use of this vast area of common land in the face of roadway development, are strongly advised to 'join the club'. Address of the Chobham Society is: c/o Paradise Farm, Mincing Lane, Chobham, and a nominal 5/- annual membership fee from all concerned with the saving of this last remaining London Area free flight centre will add both numerical and financial strength to a very deserving cause.

INTERNATIONAL invitation comes from France, where the Federation Francaise Aero-Modeliste Club at Suresnes is now organising the Criterium for Free Flight to be held at Marigny-le-Grand (Marne), June 20th-21st. Host club is the Aero-Club Pierre Trebod, who have a long and successful history with this premier free flight International. British modellers are invited to send for more details from Jean Magniette 16 Rue des Puits, 92 Suresnes, France.



Cartoon heading for Postal Contest report from 'AVION' - SPAIN.

SCOTTISH symposium at Greenlaw, now a most firmly established date for radio controllers on either side of the border, is set for April 25th-26th and so far boasts fourteen trade participants plus an excellent flying programme. The exhibition is to be held in more spacious and modern surroundings at Greenlaw School, so organiser Jim Scott tells us. Certainly these are dates which anyone within reach must not miss.

WEYBRIDGE symposium is also 'on', and in the same display area at Brooklands Technical College, where previous shows have attracted so many visitors. Dates this year are April 3-4-5th, and as before, the hard workers of Esher M.F.C. are making all the arrangements.

FREE FLIGHT statistics, which have been the subject of exchanges of correspondence and John O'Donnell's Comments in recent issues are frustratingly difficult to establish. The table here is the result of quite a long search through John's well kept records. We disliked the idea of publishing anything with a blank in it, and so set about filling in the missing data from our own files. Now, some hours later, and having gone through every possible source from caption notebooks (over the past 12 years) Council Minutes from the S.M.A.E., Officer's reports and contest results, we find ourselves unable to add anything to the table John has provided! All we can say is that what *can* be shown is interesting in itself and that statistical records have improved in recent years.

BRITISH NATIONALS

YEAR	VENUE	RUBBER		GLIDER		POWER	
		Entries	Scores	Entries	Scores	Entries	Scores
1956	Hemswell ..	7	56	1178	148	166	86
57	Waterbeach ..	124		317		309	
58	Waterbeach ..	115	63	274	168	258	95
59	Scampton ..	169		355		266	
60	Scampton ..	138		287		277	
61	Barkston Heath	150		296		270	
62	Barkston Heath			NOT AVAILABLE			
63	Barkston Heath	122		255		213	
64	Barkston Heath	149	59	269	193	243	75
65	Ouston ..			NOT AVAILABLE			
66	Hullavington ..	103	43	194	130	128	38
67	Hullavington ..		44	164	80	124	41
68	Yeovilton ..	69	51	123	100	113	58
69	Hullavington ..	97	58	195	140	130	54



SHORT SEAMEW

Two sizes for the
CARRIER DECK EVENT

35" & 44" to suit .40 or .60

THE SHORT 'SEAMEW' was first selected as a suitable carrier-deck model due to a number of desirable features which it possessed. In particular it had simple lines, ample wing and tailplane areas, large flap area, short tail moment, and the slim fuselage shape permitted a fully cowled, upright engine installation. Finally, of course, it's British! The only real drawback was the additional complication involved in making the 'T' tail.

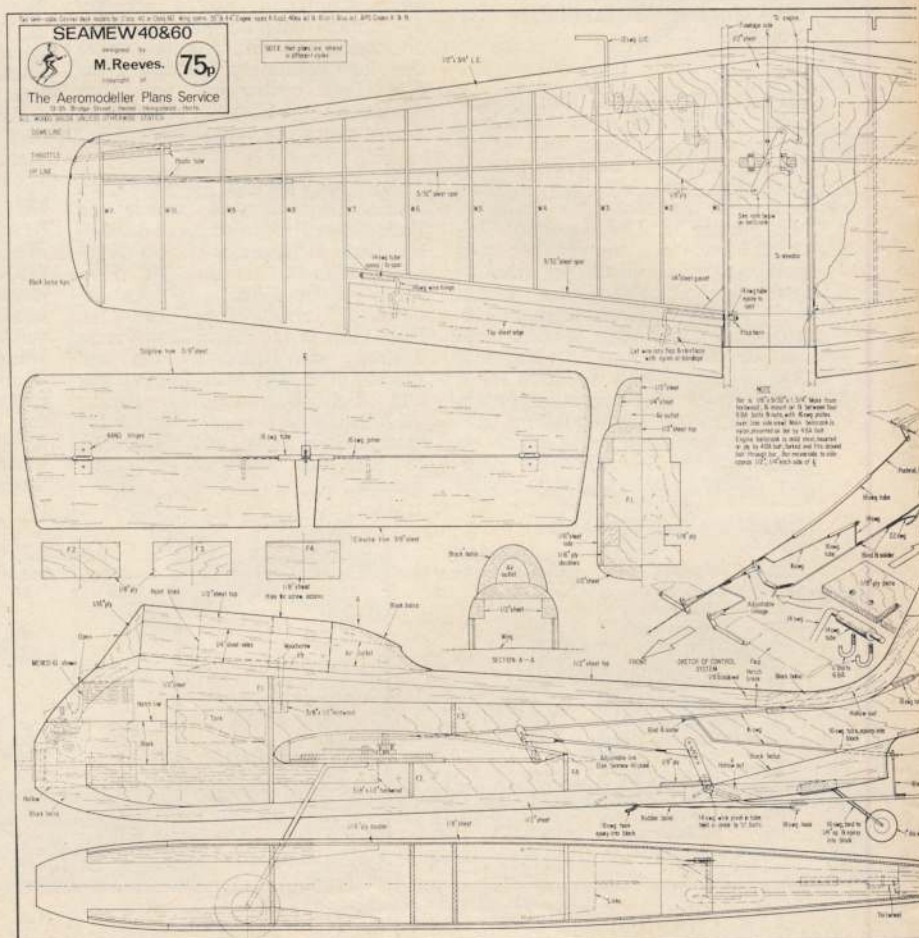
The use of ailerons as flaps is specifically prohibited in the rules, but the .40 size model (Class 1) is 'legal' as the ailerons are used to produce additional drag at low speed, and the model banks outwards for extra line tension. In practice it was found that the model would bank to a large angle (approximately 45 deg.) which although was

fine at 25 m.p.h., at lower speeds – when up elevator was necessary to remain airborne – the ailerons became ineffective. The wings then return to a level position, when the ailerons once more became effective. This situation can lead to an oscillation developing, and we would suggest that various angles of flap/aileron be tried for best results – the original used around 50 deg. deflection.

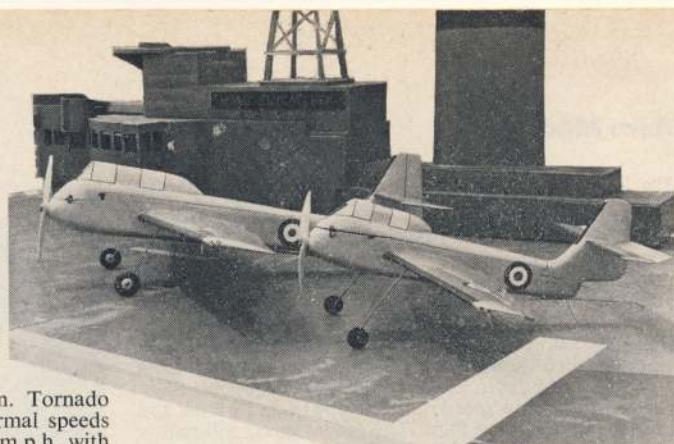
The original Class 1 model was powered by an O.S.40 P motor, equipped with a Merco Microflow carburettor, and when flown on light Laystrate lines, with a Tornado 9 in. x 8 in. nylon propeller, the top speed averages around 80–90 m.p.h., and the low speed 25–30 m.p.h. The larger version is powered by a Merco 61 Mk II (fitted with a

FULL SIZE COPIES OF THIS 1/16th SCALE REPRODUCTION ARE AVAILABLE AS PLAN NO. CL 1061. PRICE 15/- INCLUDING POST. FROM AEROMODELLER PLANS SERVICE, 13/35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

Above, Mick Reeves poses with his winning designs at the Old Warden scale meeting, whilst at right they are seen in their more familiar surroundings 'aboard' H.M.S. Flycatcher, the S.M.A.E.'s carrier deck.



by Mick Reeves



Mk III throttle), turning an 11 in. x 8 in. Tornado propeller, cut down to 10 in. diameter. Normal speeds when flown on heavyweight lines are 80-85 m.p.h. with the low speed runs at around 23-30 m.p.h.

Fuels tried range from 'straight' to 20 per cent nitro with very little variation in speeds, although the use of nitromethane did result in less critical needle valve settings.

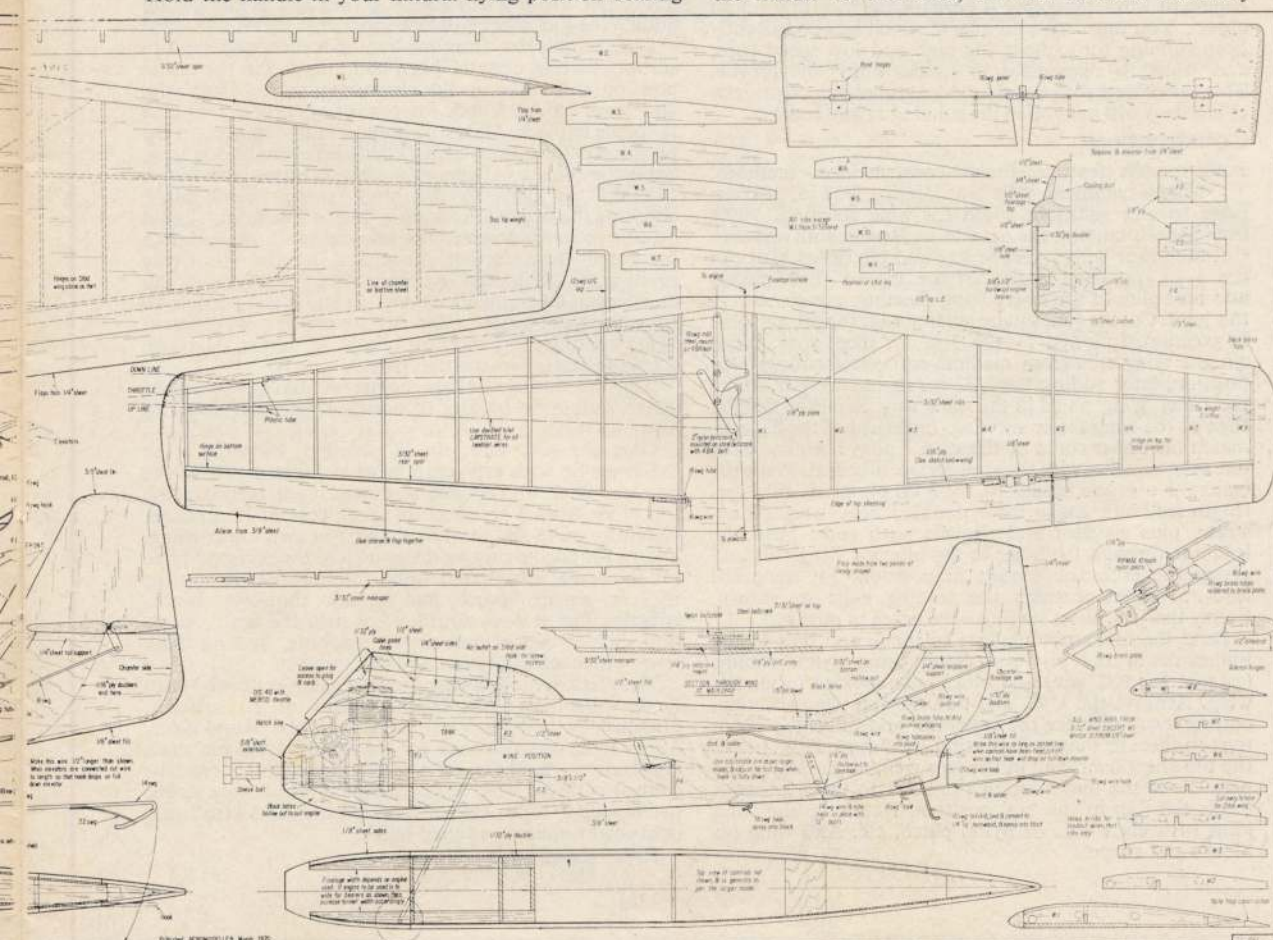
It is emphasised that these models as shown are by no means the ultimate possible, but they do give an ideal basis from which to experiment. In their present form they have won every contest held in this country - using entirely standard engines - so if you cannot join the winner's circle with either or both of the designs then it must be your fault!

It is suggested that the builder experiments with varying amounts of lead screwed to the arrestor hook platform until the best low speed flight is obtained.

Flying

Place the model in the centre of the arrestor wires (see sketch, position A) and lay out the control lines. Hold the handle in your natural flying position bearing

in mind that you will be attempting to land (most people extend their arm and crouch slightly). Now place something heavy and easily seen (the wife?) on the ground so that your foot will just touch it (B). This is your marker for the all important landing. Next, move the model to position C, and start the motor on a rich needle setting. As soon as the motor is running, close the needle to the previously established running setting, found during practice flights. Do not tune the motor by ear, as this can vary, especially due to 'contest nerves' when you realise that you are on your own in front of a large crowd. Walk to the centre, pick up the handle, and standing at position D, signal for the release of the model. As the model rolls forward, step backwards to keep the lines taut, then pull the handle back onto the chest and stand at point E for the high speed run. This gives adequate clearance from the carrier, and by holding the handle to the chest, the line radius is effectively



The low speed arrangement shown on the Class II model. Note the lowered hook - and the angle of those flaps! As the man says, the speed drops dramatically when they are lowered . . .

shortened. If the high speed run is not satisfactory the motor can be throttled back for a landing, and a second attempt made.

Provided that the high speed run was up to expectations, fly an extra 2-3 laps just in case you have miscounted, then extend your arm and start to walk round a two foot radius circle, to give the largest possible flight radius for the slow speed run. Throttle back, fly high, and release the hook and flaps. The model speed will reduce dramatically as the flaps lower. Fly at an altitude of 6-8 ft. and gradually reduce the power until the lowest *safe* speed is obtained. On this first attempt, do not try for the absolute speed differential points, just concentrate on getting a score recorded - the second flight can then be used to establish maximum points. Signal the start of the low speed run and complete the required seven laps, plus an additional three - just in case - making sure that the judges have finished timing.

Move to your landing marker (B), and fly at approx. 3-4 ft. When ready, raise your left arm in signal as you fly over the end of the carrier, then fly at 2-3 ft. until you can watch both carrier and model at the same time (being cross-eyed helps, of course!). As the model reaches the deck approach, chop the throttle right back and fly onto the wires. After this successful (?) landing *stand still* with the handle held at low throttle while your faithful assistant stops the engine. *Then collapse!*

At present it is not necessary to have a super-fast engine to win - reliability is perhaps the most important aspect. You must have an engine which will consistently keep running throughout the high and low speed runs, and which is responsive to quick 'blips' of throttle. This, combined with a scale model and plenty of practice at landings will put you in the running at any contest.

Construction

Both models feature similar constructional methods. The wing is commenced by butt jointing 3/32 in. medium balsa to give sufficient width for wing sheeting. Make four panels, sanding the outside surface smooth and flat. Cut the lower wing panel to size and pin down. Cut out the 1/8 in. plywood undercarriage mount (two pieces) and butt glue to the lower wing sheeting, pre-cementing this joint. Cut the 1/2 in. square leading edge to size, and glue in position, followed by the 3/32 in. sheet spar. Next, cut the wing ribs from medium-soft sheet and glue in position, later adding the 3/32 in. sheet rear spar. Make the other wing panel in the same way. Sand the trailing edge of the wing lower sheeting, outboard of the flaps, to match the upper curve of the ribs. Epoxy both halves of the wing together with the appropriate dihedral. Make the bellcrank unit and mount on the 1/8 in. ply plate. Fit over-length leadouts, made from doubled heavyweight Laystrate, plus elevator and throttle push rods. Feed the leadouts through the holes in the inboard wing ribs and epoxy the bellcrank mount in position. Fit neoprene lead-out tubes through the leading edge as shown. Epoxy the 1/2 in. sheet leading edge brace in position.

Bend the undercarriage legs to shape and bolt to the underside of the plywood plate, using nylon clamps (as sold for R/C use) and blind nuts epoxied inside the wing. Remove the U/C, and add the top wing sheeting, cutting away to clear the bellcrank and pushrods. Trim the top sheet to shape after fitting. Add scrap balsa under the top sheet overhang in the flap well, as shown on the plan. Sand the underside of the sheet to taper where it meets the flap in the 'up' position. Reinforce the wing joint with glass fibre or nylon patch, etc. Add wing tip blocks and shape.



Cut out the 1/8 in. medium balsa fuselage sides and the plywood doublers, then glue them together, using P.V.A. Cut and taper the hardwood bearers to shape, and epoxy to the doublers. Slide the fuselage sides over the wings, and epoxy the bearers to the plywood U/C mount. Add former F.1 and glue the fuselage sides to the wing, check the whole assembly for true alignment and set aside to dry thoroughly. Next, drill the holes for mounting the engine, and bolt in position using blind nuts. Pull the rear fuselage together and cement, later adding the 1/2 in. sheet tailplane support.

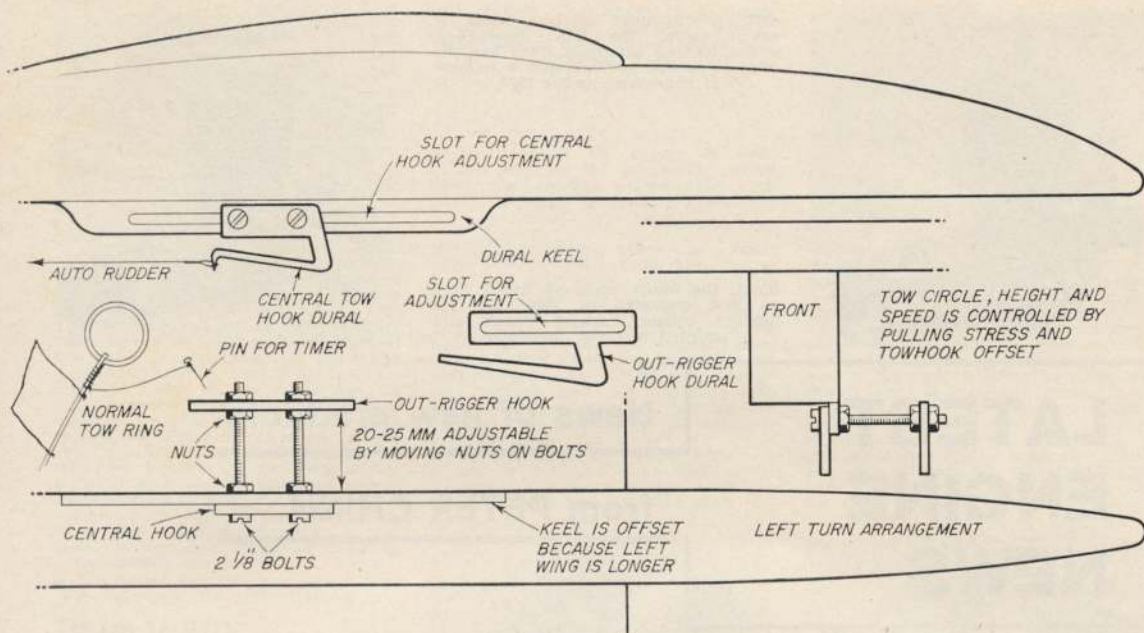
Cut the tailplane from medium-soft sheet and sand to section, then fit elevator horn and hinges. Pin the tail in position and make up the elevator push rod from wire and brass tubing. Check for correct operation then glue tailplane in place. Make the hook unit and mount on the plywood plate as shown, and epoxy between the doublers. Sand the flaps to shape, add control horns and hinge. Connect the flaps to the hook using 'quick-links', checking the operation for smoothness. The hook should be able to move down to the lowered position, and then prevented from further movement by the stop wire meeting the ply mount. At this position the flaps should be between 60 deg. and 90 deg. down. It is advisable to allow for a full range of flap adjustment to meet different flying conditions. The hook release is next to be made, checking that it lives up to its name!

Add the throttle linkage before mounting the tank - which should be packed in position with soft balsa to prevent vibration.

Glue the soft sheet fin in position, blending it to the lower fin with soft scrap balsa as necessary. Add the bottom block and engine cowlings, then laminate the top block from 1/2 in. sheet and tack cement in position. Carefully carve and sand to shape. Remove top cowlings, hollow for engine cooling duct and add the plywood plate for the screw attachment. Bind the tailwheel to a piece of 1/2 in. square spruce, and let into the lower block, ensuring that it does not interfere with the hook operation. Solder connections to the leadouts, making these level, with neutral elevator and half throttle.

The original models were covered in silver Super Mono Kote with matt-black leading edges to all surfaces, obtained by rubbing down black Standard Mono Kote. Mono Kote was also used for the roundels and the black registration numbers. Simulated corrugations on the control surfaces were silver Standard Monokote strips, overlapped 1/16 in. Use of these plastic films result in a lightweight, quickly applied finish.

Happy Landings!



Dutch Glider towing system

Peter Ouden describes the 'thermal-seeking' technique favoured on the Continent

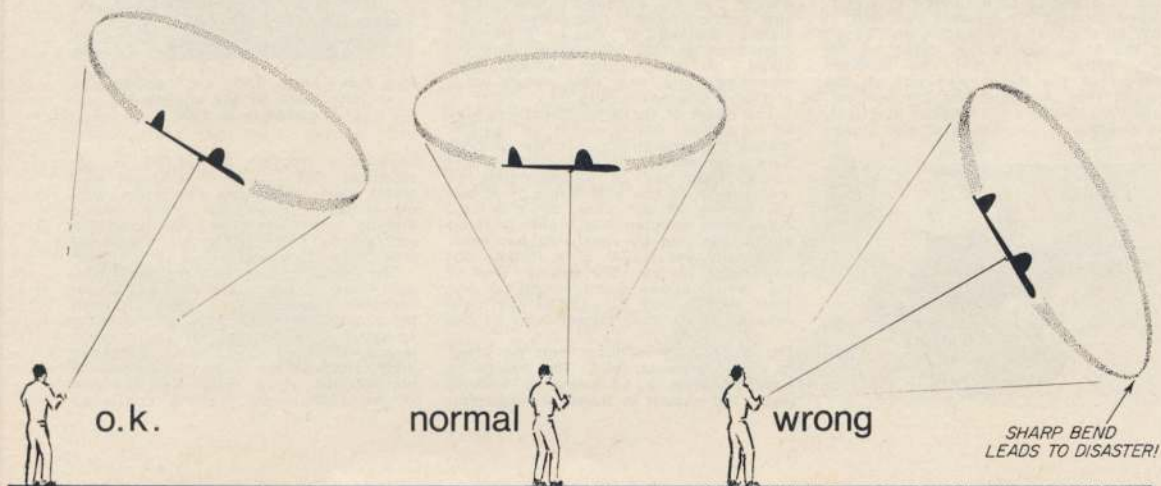
AT THE 1969 World Free-Flight Championships, it became apparent that more and more glider competitors were using the 'circling-tow' technique - whereby the model is retained on the towline, and by making the model circle, whilst still attached, it is possible to either wait for a patch of lift to arrive, or else to seek out one's own thermal assistance. This is achieved without the customary running round.

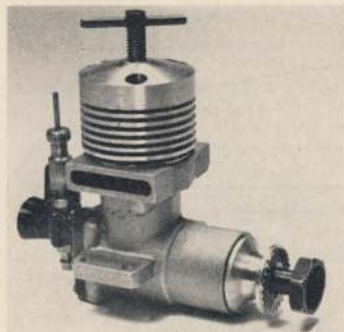
The system illustrated is that used by Tom van Dyk - the Dutch technical team manager - and as can be seen, is fully adjustable both in respect of fore and aft tow-hook positions, as well as a variable-offset hook. As this 'circling tow' method is only suitable for calmer weather, a central tow-hook is provided for adverse conditions where a normal technique is used in conjunction with an auto-rudder. For straight towing van Dyk uses carpet-thread as a towline, but when using the offset hook, nylon fishing line is used due to the greater elasticity which enables the model to be accelerated to a greater height before starting the next turn.

Also, the nylon line relieves some of the stress from the wings if gusts are encountered.

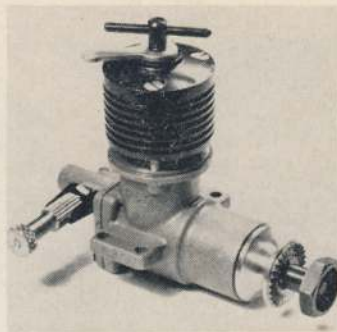
When towing with the offset hook, the rudder is set to give a left turn, thus when towed quickly to height the offset pull and offset rudder counteract each other, enabling a straight tow to be completed. As soon as, or just before, the model is overhead, tension on the towline is relaxed and the rudder only becomes effective, causing the model to circle still with the line attached. The main criterion is to keep the model circling as high as possible overhead, and as slow as possible - remembering that it should circle and not make ground-attack dives!

If tension is applied on the line the model will again tow straight, enabling a release to be made when required. While waiting for lift, the tower should not only walk to and fro, but also roughly in circles. Should wind speed increase, the model can, by a lot of running around, be kept slow and high - but this is somewhat exhausting and the reason why this method is not suitable for rougher weather.





Left, re-introduced after a lapse of seven years, the E.D. Super-Fury, whilst looking externally more like the original model, incorporates a number of improvements for 1970.



Right, the much improved Super Fury as first marketed in 1960, lost its familiar square exhaust stacks and adopted rear-disc induction

LATEST ENGINE NEWS

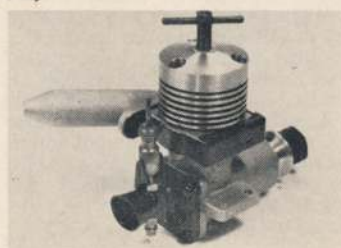
News of new products

from PETER CHINN

E.D. Super-Fury Revived

ONE OF THE best engines made by the original E.D. company was the Super-Fury. It was also one of the most powerful $1\frac{1}{2}$ c.c. diesels of its time. The Super-Fury was put into production exactly ten years ago at the West Molesey factory of Electronic Developments (Surrey) Ltd., but was manufactured for only about two years before falling a victim to the rationalisation programme of the company's subsequent new management. This included replacing the Super-Fury with a new plain bearing engine, the 'Hawk', made for E.D. in West Berlin by Fein und Modell Technik, the Webra engine manufacturer. However, after a further change of ownership, the company finally ceased manufacture completely and in 1965, E.D. engines were saved from extinction only by the decision of K. E. Day (who was joined by W. R. Oberg shortly afterwards) to take over their manufacture and distribution.

At first, production was concentrated on the $3\frac{1}{2}$ c.c. Sea-Otter marine diesel and on the $2\frac{1}{2}$ c.c. Racer and $3\frac{1}{2}$ c.c. Hunter, both these latter being available in a choice of aircooled or water-cooled models. They were followed in 1967 by the Viking, a marine unit based on the Miles-E.D. 5 c.c. diesel of the early fifties. Last year, an updated version of the Racer was put on the market (see *Aeromodeller* Engine Test, July 1969 issue) and, now, at long last, we see the re-emergence of the Super-Fury.



Actually, the basic design of the Super-Fury goes back to 1956. In that year, Basil Miles, noted model power boat engine designer who had been responsible for several E.D. engines, made a $1\frac{1}{2}$ c.c. diesel that was to be the prototype of the first production Fury. The engine was basically a scaled down Racer, but with reed-valve induction instead of a rotary disc. We were called in to do prototype testing in 1957 and the engine was eventually put into production in 1958. Like the Racer of that time, it had a magnesium alloy crankcase and the crankshaft was supported in dual ball-bearings. Although no record breaker as regards power output, it was a pleasant engine to operate and very easy to start.

The original Fury gave place to the Super-Fury early in 1960. This engine was the result of numerous cut-and-try experiments on the standard Fury by Gordon Cornell who was employed as engine designer at E.D.'s at that time. The modifications finally adopted included the use of disc rotary valve induction, instead of a reed valve, improved cylinder porting, a new piston and connecting-rod (the latter of duralumin instead of steel), a revised crankcase of LM2 aluminium alloy instead of magnesium, strengthened mounting lugs and new needle-valve and prop hub assemblies.

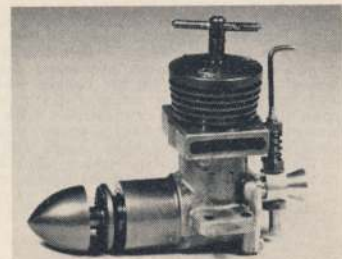
The effect of these modifications was an immense improvement in performance by comparison with the original Fury. The results of a test on an example submitted to us indicated an increase in torque and b.m.e.p. of approximately 28 per cent, while b.h.p., aided by a substantially higher peaking speed, was up by nearly 45 per cent.

The present model is a further development of the 1960 engine. One of the modifications incorporated in the 1960 engine was to remove the twin exhaust ducts that formed part of the

The Super-Fury silencer can be fitted to either exhaust duct. The engine is supplied with a compression locking lever, not shown in these photographs.

original crankcase casting. These have been restored on the 1970 version, in order to facilitate the fitting of a silencer. The crankcase mounting lugs have also been enlarged to increase strength, as have the three lugs into which the cylinder hold-down screws are fitted.

There are some changes to the cylinder and piston assembly. The same type of porting (consisting of three radial exhaust ports with, immediately below them, three similar transfer ports) is used, but the ports are slightly deeper. The cylinder wall thick-



The E.D. Fury 1.49 c.c. engine as manufactured by the original E.D. company in 1958

ness is a fraction less (.053 in. instead of .062 in.), and a larger diameter, taller, machined aluminium cooling jacket is used. The piston has a slightly longer skirt, and the gudgeon-pin is floating instead of being pressed into the piston bosses.

The pressure diecast alloy backplate, with integral air intake and horizontal spraybar assembly, has been replaced by a moulded nylon unit with vertical spraybar. The trumpet intake is much larger, although the effective choke area is about the same as before. A non-metallic valve rotor was featured in the 1960 model, and is continued



Left, Taipan 15 silencer is a simple diecast expansion chamber without baffles and is fixed to the engine with a single long screw.

Right, parts of the Taipan 15 R/C. Shown here are the generously ported shaft, the grooved piston skirt with circlip to retain gudgeon-pin and the wedge type head.



in the present version, but is now moulded in nylon instead of Bakelite. The Fury's bore and stroke remains unaltered at 0.500 x 0.462 in., giving a swept volume of .0907 cu. in. or 1.486 c.c. It is just a trifle heavier than the old model at 4.35 oz. Optional are an R/C type backplate assembly, a silencer and an angled exhaust extension. Either of the latter can be fitted to one of the exhaust ducts, the opposite duct being blanked off by a rectangular plate incorporated in the steel securing strap. With the silencer, the Fury weighs 4.8 oz. The angled outlet is primarily for boat use with a separate pipe or silencer.

Preliminary tests on the new Super-Fury have indicated an output that takes it into the upper performance group among current $1\frac{1}{2}$ c.c. diesels. A full report will follow in the Engine Test series in the near future.

Taipan 15 R/C

Another engine we have had on test recently is the new $2\frac{1}{2}$ c.c. Australian Taipan 15 R/C that was briefly mentioned in last month's L.E.N. At that time, in the absence of a photo of it, the Taipan's appearance was described as slightly similar to that of the O.S. Max 15 R/C, and it is now, perhaps, apposite to remark that its power, too, parallels that of the O.S. - which is not a bad recommendation, in view of the fact that, when dealt with in the Engine Test series, the Max-III 15 R/C had just about the best all-round performance of any throttle-equipped $2\frac{1}{2}$ c.c. motor tested to date.

One thing we did find with the Taipan was that, on the Fireball plug supplied, throttle response was not too good: even with the airbled fully opened, the mixture was too rich to continue to support combustion on this plug when the engine was throttled much below half speed. Switching to a Fox bar-type R/C plug, however, completely cured this trouble and we had no difficulty in obtaining a 3,000 r.p.m. idle on a 9x4 KK nylon prop, at a slight cost in top end performance. We found that the Fox R/C plug would also tolerate an over-rich full throttle setting much more readily - i.e. it allowed the engine to four-stroke quite happily whereas the same setting on standard plugs would cause it to cut abruptly.

Some idea of the general design and construction of the Taipan can be obtained from the photographs. It will be noticed that the main casting ter-

minates immediately above the exhaust duct, and that the cylinder has integral fins. An interesting departure from normal practice here is that the cylinder incorporates a deep flange which drops onto a seating inside the casting below the level of the exhaust port, and this has enabled a large transfer port to be inclined at 45 deg. through the cylinder wall for improved gas flow. This is undoubtedly one of the features that account for the engine's excellent power output.

The crankcase is cleanly cast and typical of current Taipan engines. It incorporates a sintered iron bush for the hardened crankshaft. The shaft has



The Taipan's novel cylinder design permits the adoption of a large inclined transfer port - which helps to account for the high power output of this engine.

a 0.404 in. dia. journal, a 0.287 in. bore gas passage and a 0.195 in. dia. crankpin. The piston is of Meehanite with a fully floating gudgeon-pin. No end pads are used on the gudgeon-pin: instead, the piston is fitted with a wire circlip around its skirt to limit pin movement. The cylinder head is of machined aluminium alloy. Two long screws secure the cylinder assembly to the crankcase.

As supplied, the Taipan 15 R/C is equipped with the usual centrally-pivoted plate type exhaust restrictor coupled to the throttle arm, but a die-cast silencer is also available for the U.K. and other markets requiring silencers. This is installed with a single long screw. At first, we thought this screw was too long: we had to use extra washers under its head to pre-

vent the end of the screw from bottoming against the edge of the cylinder port. Later (after the photo was taken) we discovered that, by reversing the discarded exhaust restrictor plate on its bushing, this could be used as a cover for the priming hole in the silencer and the screw was then exactly the right length. The plate, we should add, is recessed on one side only, so that it can pivot freely when used as a coupled restrictor in place of the silencer. The silencer is a straightforward diecast expansion chamber, with a $\frac{1}{4}$ in. i.d. machined outlet and absorbs only 200-300 r.p.m. on the most useful prop sizes.



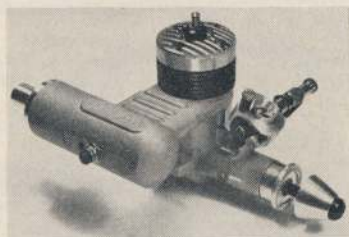
The Taipan carburettor is of orthodox design with a barrel type throttle and an adjustable airbleed. Note the use of a rubber 'O' ring, an unusual feature.

Other Taipan Developments

Arising out of the favourable results obtained with the new 15 R/C power-wise, a revised version of the Taipan 198B, having a large angled transfer port like the 15, is to be put into production.

Another change will be the withdrawal of the 1.5 c.c. plain bearing diesel and its replacement by a twin ball race engine.

The biggest engine in the range, the 10 c.c. Taipan 61 R/C should also be available this year in a Series-II version, with improved porting and, possibly, with a Dykes-ring piston. A prototype which the manufacturer had on test during 1969, is said to have raised prop speeds of the original model by 800-1,000 r.p.m.



At right, the new Kavan glowplugs, mentioned in the January issue, are made in five ratings, and sold in colour-coded polystyrene cases.



At left, the new Taipan 15 R/C from Australia. It is robustly made and has above average power for a 2.5 c.c. R/C unit.

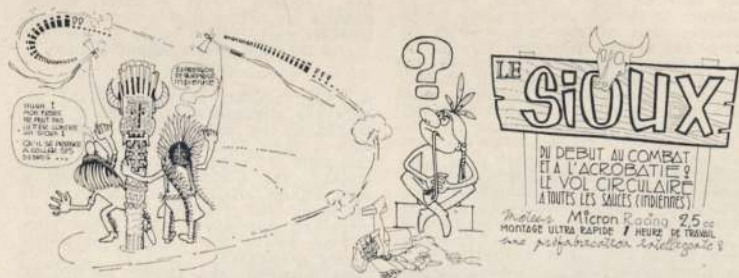


ing adequate line tension. Vertical eights are possible from the top downwards without trouble, and the model would appear ideal for the pilot who, having progressed from the absolute beginner stage is not yet confident to tackle a 'real' stunter. Our main criticism is that the model is not over strong—our version losing part of its outboard wing whilst practising balloon bursting for a local fete, when it struck the light balsa support which had merely been pushed into the soft ground. With a touch of pride, and as a testament to the *Sioux's* handling, it should be added that the wing hit the lower 18 in. of balsa, whilst inverted!

A bumper parcel from **Ripmax** revealed a minor Aladdin's cave of 'goodies' for the aeromodeller. Smallest in size, yet one of the most useful was the Kavan fuel-filter, which incorporates the convenient facility of being of the take-apart variety to enable cleaning of the gauze. So much better, and more positive, than relying on a hearty blow to clear the debris. Price is 4/11d. Of interest mainly to the radio flyer is the range of Ripmax *Tuftanks*—supplied in capacities of $\frac{1}{2}$ oz., 1 oz., 2 oz. and then in 2 oz. increments a maximum of 12 fluid ounces. Prices vary from 6/6d. to 9/6d. The tanks are supplied as 'kits', consisting of polythene bottle, nylon cap, three brass tubes, plus flexible tubing and a weighted-pick-up. The tubes are merely pushed through the nylon cap, but having assembled the entire range, we can confidently assure users that they will not leak—the fits are really tight! Also being marketed by Ripmax are

Above, it's not often that we get the chance to review a French kit, but the '*Sioux*' proved a pleasant exception. The animated building instructions (below) are most amusing in any language!

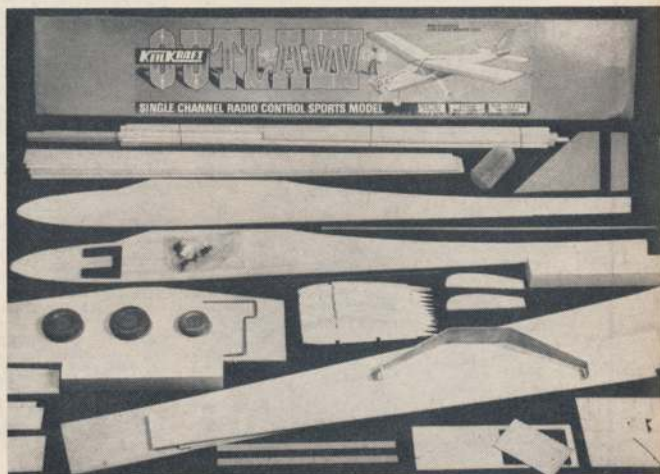
TRADE NOTES



THE FRENCH kit manufacturer 'Challenger' recently sent us a review kit of their *Sioux*, a model which they announce is intended for control-line sport or combat flying. The model is, in fact, basically a scaled down *Peacemaker*, utilising somewhat different construction, and is decidedly out-dated for combat contests as we know them. Die cutting of the balsa parts is both clean and accurate, while the balsa selection was good with the exception of a rather soft leading edge. Construction is extremely quick—the very clear (and amusing) instructions being a luxury, which is just as well if your knowledge of the French language is a mite rusty! However, the claim that it may be built in one hour is optimistic to say the least, unless the Gallic hours are so much longer than our own, or perhaps they don't use glue?

As may be expected from its heritage, and also its light weight (around 16 oz. complete with wheels, which are not supplied) the *Sioux* is a good flier—being smooth through all manoeuvres, and maintain-

Right, the K.K. 'Outlaw' kit is a nicely die-cut production and contains all the necessary hardware.





The Veron Springbok kit reveals a box literally bulging with balsa.

the Kavan range of square 'Sealtite' clunk tanks, which range in capacity from 4-14 oz., at a rather higher price (13/6d.-16/9d.)

Garnet paper, long preferred by modellers as being longer lasting than glasspaper, is now supplemented by the introduction of Lubrisil paper, claimed to eliminate clogging. This is light grey in colour, and has a somewhat soapy feel—hence, presumably, its name. Should be ideal as a finishing medium, at a price of 9d. per sheet (9 in. x 11 in.), and available in all the usual grades.

Kavan nylon propellers are becoming popular, no doubt due to their relatively low prices. Resembling Tornado props in both colour (yellow) and blade shape, they are moulded from a slightly stiffer nylon than is normal. More interesting, perhaps, is their fibre glass propeller, in the 'trendy' size of 11 in. x 7½ in. Trendy? Well, if you're not using an 11 in. x 7½ in. on your latest multi ship, you're just a social outcast, ducky! Price is a very reasonable 9/11d.—let's hope other sizes become available in this material, especially after all those scare reports concerning the safety of nylon props.

Last of the Ripmax accessories is their new *Tufkote* fuel proofer—a two pack material which is simple to mix in the correct proportions, due to the easily read scales on each of the two bottles. This synthetic proofer is claimed to completely resist all fuels, and may be applied over any finish, with perhaps the greatest advantage lying in its rapid curing time—touch dry in five minutes, hard in two hours. Price is 7/6d.

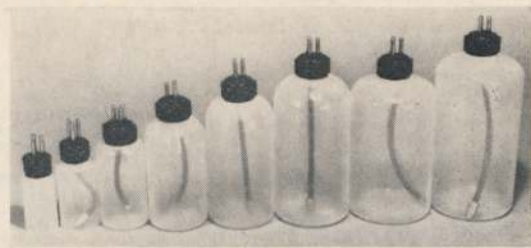
Latest addition to the **Keil Kraft** range of models is the *Outlaw*, a 45 in. span single channel R/C sports model following the traditional lines of a high winged, functional design. The engine used defines the characteristics of the model—install a 1 c.c. motor if this is to be your first attempt at button pushing, or fit a 2.5 c.c., and have some real fun!

Die cutting of the balsa is very good, and that of the plywood is especially commendable, the pieces practically falling from the sheets, making trimming with a knife completely unnecessary. The kit is very complete, hardware items including a 2 oz. clunk

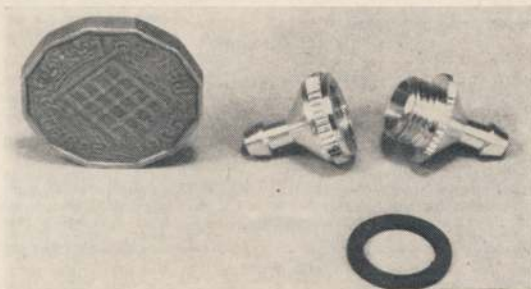
tank, pre-formed dural undercarriage, wheels, as well as the smaller, but just as essential items such as hinges, bolts, collets, etc. The plan is clearly drawn, illustrating a remarkably strong model with ample room for any single channel outfit, even when using a secondary escapement for throttle control. A good £4.17.3's worth by any standard.

'Big Brother' to this design, the *Student*, which caters for the potential multi flyers, has just been reviewed in the February issue of our sister journal, **Radio Control Models and Electronics**.

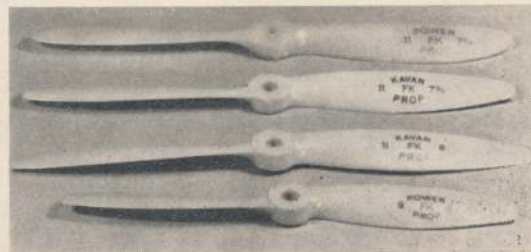
Veron's *Springbok* is an extremely attractive slope soarer of 72 in. span, featuring the 'in' trend of a T-tail, and is destined for the owners of intermediate multi R/C equipment to control the rudder and elevators. The box is crammed full of good quality balsa, and as is normal in Veron kits, the leading and trailing edges are pre-notched, while many block parts are spindle moulded. Accessories, such as bellcranks and control horns are supplied, as is a crystal-clear canopy. A strong, yet elegant design, sure to become popular on the slopes next season, retailing at £7.2.11.



Above, the Ripmax Tufkote range of tanks cater for every size of model, whilst below, the Kavan fuel filter ensures that every drop that reaches the engine is free of grit, etc.



Below, the new Kavan range of propellers, the top one being glass fibre, the remainder nylon.



Silencers

Dear Sir,

I should like, if I may, to express through your columns, a viewpoint which I believe is shared by most C/L speed flyers, relative to the re-introduction by the S.M.A.E. of the silencer rule for 1970 and your editorial comments on same in the December issue.

First, few serious modellers, competition and sport flyers alike, are, I feel, completely 'anti-silencer', for the simple reason it is generally realised that the noise factor, will, unless checked at the local flying site level, kill the hobby.

I contend, however, that the current rule is totally unfair, unrealistic and impractical when related to C/L speed models. My reasons are as follows:

(a) Flight time of speed models is less than, say, other engine powered class, with the exception of F/F power. Thus 'noise time' is very low.

(b) In almost all cases, speed models are only flown at S.M.A.E. contests which are held on remote airfields.

(c) Ground running and test flying of speed models at contests and elsewhere is very limited when compared to any other class.

(d) Pure speed models do not easily lend themselves to the fitting of bulky silencers—and that includes tuned pipes if they are to be considered as silencers.

(e) Melted pistons, scored liners, are a much more likely result if a silenced, and cowed, speed motor suffers a shaft run.

(f) 1969 saw a definite resurgence of speed interest which, I predict, will not continue as a result of the silencer rule.

(g) Finally, what other pure speed, motorised sport imposes the penalty of silencers on its devotees? The exception being 'production' motor car/cycle racing, which is not comparable to C/L speed flying as it is currently constituted.

I submit that C/L speed, all classes, should be exempt from the fitting of silencers and would welcome the views of others on this subject.

South Croydon, Surrey.
Donald E. G. Burgess

Choppers

Dear Sir,

The article and plan in the January 1970 edition of *Aeromodeller* on helicopters indicates a continued interest in this type of model.

Unhappily, many modellers, and in particular the younger generation, find the construction of many designs beyond their skill or patience.

So far as 'rotary wing' models go, the lazy modeller like myself needs a design which will be

a) simple to construct; and

b) which will fly with the minimum of 'fiddly' trimming.

Such a design was illustrated in July 1954 issue of *Aeromodeller* under the name *CHARYBDIS*, after the legendary whirlpool.

I have built over forty of these models since first seeing the illustration, all of which have flown 'straight from the board'.

Please consider giving space in a future edition to a reprint of the article or an updated version of the same. I feel sure other readers who are ignorant of that project will find it of interest.

Wallasey, Cheshire.
P. Hamlin

A pleasure to reprint *Chas McCutchen's* famous 'flying machine'—see below Mr. Hamlin.

READERS' LETTERS

Balsa

Dear Sir,

Reading the advertisement for *Solarbo Balsa* in the February *Aeromodeller*, my memory was cast back nearly thirty years when I read one phrase—'Yes, it's the wonderful old Bristol Bulldog—not a scrap of balsa in it!'

A slight error here as you will see. During the early part of the war, my school (Epsom County Grammar School) had an A.T.C. Squadron composed of a number of the senior boys. Shortly after the squadron came into being, it was decided that instruction on a full-size aircraft would be an advantage, and so one morning, on arrival at school, we found a full-size Bristol Bulldog on the playing fields. Needless to say, it was immediately placed out of bounds to the rank and file of the pupils, but gave valuable service for some time to those lucky enough to be in the A.T.C.

The beginning of the end came when one of the cadets was taxiing down the field—and the wings fell off. The wings were hung up in the woodwork room for years (they may still be there), the squadron eventually disbanded and the fuselage, complete with Bristol Jupiter engine, was relegated to a corner of the field, where it gradually deteriorated due to the weather and being clambered over by hundreds of boys.

Then one day, someone stuck his pocket knife into one of the undercarriage legs. 'It's EALSA!' he yelled. Like flies round a honeypot, those

within earshot swarmed to the undercarriage. Sure enough, it was found that the tubular V-strutting was faired in with balsa wood to form a streamline shape.

Now, for those who do not realise it today, balsa wood in 1944 was nothing else but just a name to us modellers and was then used in the construction of the De Havilland Mosquito, supplies to the home market being virtually non-existent. Therefore, the chance of getting hold of some of the precious wood was not to be sneezed at. In the course of two morning breaks and one lunch hour every scrap of balsa has been hacked off that Bulldog undercarriage, leaving just the bare metal struts. First come, first served, those with the biggest knives got the biggest pieces.

By modern day standards that balsa wood would be useless, it was discoloured to a sickly mottled blackish-yellow, it was soaked in oil with an accompanying oily smell and was very hard in texture. That did not matter to us, it was balsa, and in time, most of the oil dried out of it. The pieces that I managed to salvage came in very useful on a number of occasions until the real stuff came on the market again.

Ashted, Surrey.
S. V. Tucker

Free Flight Contests

Dear Sir,

John O'Donnell's discourse in recent issues on falling free flight competition entries does not appear to have produced the expected flood of replies, may I, therefore, add some comments?

Entries have remained reasonably high in Glider, but have fallen in Power and Rubber events.

Glider has remained popular, I think, for two reasons:

(1) Production of a couple of A/2s allows competition in almost all events;
(2) The three-minute model has yet to be achieved which allows scope for development.

In contrast, two sets of models must be produced to achieve equal competition coverage in Rubber and Power.

Open Rubber and Power classes are virtually devoid of development interest, the models of 10 years ago would be quite adequate for the present rules and as a consequence, these events are usually decided by a timekeeper eyesight contest, a situation unfair to competitors and timekeepers.

The number of F.A.I. events in recent years has given a poor reward for the effort involved, although the situation improved in the past season with clubs running F.A.I. rallies.

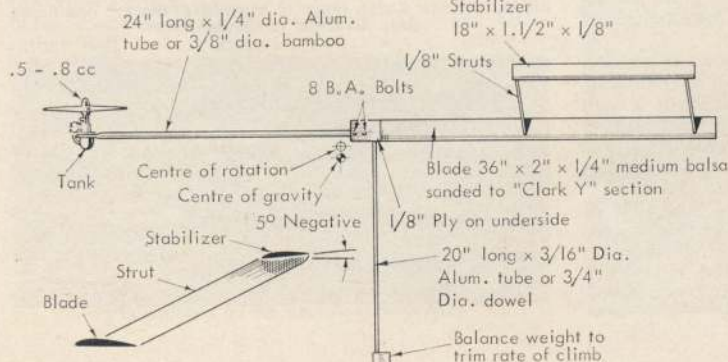
Other factors contributing to the decline in F.A.I. classes are:

(1) The Societies' decision to abandon sponsoring teams. The competitor doesn't fully know what expense he's letting himself in for when he enters the trials, since the venue is not normally known, and he doesn't know if he'll have to pay the competition entry fee himself.

The situation could be improved by raising the trials entry fee to cover the latter.

(2) Increase in the number of flights to 7 (O.K. on an airfield in calm weather, but not very practical at Chobham on a windy day).

Why not decrease the number of flights to 5 for all events but the trials. Another nail in the Open Power model coffin was the decision to make silencers compulsory. If the trade had produced cheap, light and efficient silencers, people may have taken to them. The ones produced were relatively heavy, expensive and inefficient,



Topical twists

by Pylonius, illustrated by 'Sherry'

All in Vane

The schools of aeromodelling thought are many and varied. A good number are definitely C stream in their approach, as is so often demonstrated when what is the flying field equivalent of the inky blotting paper missile whistles past our ears. Many more remain grounded at a very academic 'O' level, as both the overworked club secretary and under-populated flying field will testify. But, generally speaking, the approach to the gentle art of minuscule aeronautics is of three distinct kinds. There are those fretsaw and scotch glue types who look upon it as a hobby - bless their simple souls; then there are the blunt wing tip and run thermal hunters who regard it as a sport, something on the lines of hare coursing; and finally there are the humble characters who find it a miniatureised means of prostrating themselves before the great God, Aviation.

All three approaches have their pros and cons, although I am told that most of the pros are to be found in the latter, mainly Radio, category. The old hobbyist opens his modern model mag only to find himself exhorted to kit himself up with the latest in prefabricated craft, one that all but assembles itself on opening the carton; the sporty flyer finds his sensitive thermal detector is equally non-sensitive at detecting dirty big downdraughts, whilst the mini-aviator finds himself out-jetted and out-rocketed by a generation gap of super, supersonic full size systems.

Altogether, though, it is the mini-aviator for whom the going is the toughest. It's difficult, but not all that impossible to get in on the multi radio act, provided you are not quite as dim as you are affluent, and you can go thermal hunting with the best if you have the patience and the right sort of touch, but you can really feel for the bloke who wants to get launched on a four engined jet, or even the deceptively simple looking helicopter.

I have never actually enquired into this, but when the public comes to watch us at play, to marvel at the stunting and the soaring, the scale Spitfires and Shackletons, do they ever ask where we keep the jets and whirlybirds? If they did they wouldn't get much of an answer, for to the model flyer a chopper is something for cutting up firewood and a jet a piece of gas stove equipment.

Reasonably, the multi boys should all be flying helicopters, even though it would put the Spot Landing Comp. in something of a spot. But for general use on the small field the controlled helicopter would be both practical and safe. Unfortunately, model helicoptering is too devilishly difficult to be true. It seems you need



'Trouble is, none of these chaps could ever get a REAL 'plane to fly'

collective and cyclic pitch control and a gyro controlled anti-rotor plus many more unlikely ingredients to attain a record altitude of a mere 20 foot, and as for any more progressive manoeuvre than mere riseability this is unlikely to come before the year 2,000 when, of course, it will be too late anyway, as you would not have the room to fly vertically, let alone in any other direction.

Something in the air

Back in the days when I started modelling, America was a sort of emergent colony which had earned its distinction in history by discovering balsa wood. Between fighting Indians they produced those super rubber powered models which, according to the accompanying literature, had magnified the model flying potential by a factor of 60, in that they obtained flights measured in minutes, or rather tens of same, whilst we in the old country were still counting the seconds.

This flyability gap was something of a puzzler since we were reproducing the same designs stick for stick and prop for prop, and it wasn't until they had got the last Red Indian into his reservation that we discovered the reason for the discrepancy: that super style American weather of which we are reminded in a recent article on the American Nationals. The sort of glorious flying day that we get once in ten years can be enjoyed almost any day if you happen to live in California, although I am told you would now need radar to record that 30-minute flip, owing to the smog cover.

Sight for sore eyes

In beneficent mood the powers that be have decided to ease the pressure on our ear drums and the strain on our optics by re-introducing the silencer rule, while at the same time giving a side swipe at those ghastly screaming pipes, and also allowing the timekeeper to match his visual stretch to his imaginary one by giving him a pair of binoculars.

The reaction to all this on the part of the power flyer will be the usual scream of protest, plus the usual scream, and you might be sure that the tactical flyers are already grinding and polishing their hundred inch lenses.

and were not readily available to fit all types of competition motor. As a consequence, a lot of power flyers gave up or took up other classes.

My solution for power models is as follows:

If people wish to persist with open events, then the motor run should be cut to 5 or 6 secs. to bring model performance nearer the 3-min. mark.

There is some justification, however, for the view that this would not test the competitor's power trimming ability fully; a view shared by the writer. I therefore would opt for dispensing with Open events entirely and make all events F.A.I.

Although some would mourn the passing of Open, I think the advantage of being able to compete in all power events with one set of models would attract more people to this class. Claygate, Surrey.

P. R. Buskell

Dear Sir,

I have one idea that might help in this discussion of free flight competitions. It is a simple one, it is that any flight which lands outside the airfield perimeter is penalised, either drastically by giving it no score or a nominal score of, say, one minute.

This seems to go to the heart of the problem which is simply that now model aircraft fly too far (invariably downwind). This would both add an element of chance to the competition and also make for a host of technical advances (compass steering, high wind penetration models, etc.).

London, N.W.1.

Peter Lumsden

Dear Sir,

Following the article in the February edition of *Aeromodeller*, by D. Furbank on competition rules, I would like to offer a few suggestions.

Open Rubber, F/F Power, etc.

- 1) Allot a specific area, say, 30 ft. x 30 ft. from which all models will take off.
- 2) For each round, allot a starting time to each competitor and start them at 1 minute intervals. Competitors must be responsible for starting engines in time.
- 3) Two timekeepers to time each competitor.
- 4) Count each flight, whatever the duration and whatever happens.
- 5) The winner to be the competitor with the highest aggregate, ties to be decided by fly-offs in a round-by-round manner on the same basis.

Gliders

As above, but with a much larger specified area for towing and restricted time on line of 1 minute.

Rickmansworth, Herts.

E. Fiddler



inside

GEORGE ALDRICH'S WORKSHOP

Ron Irvine reports his visit to a very famous Aeromodeller

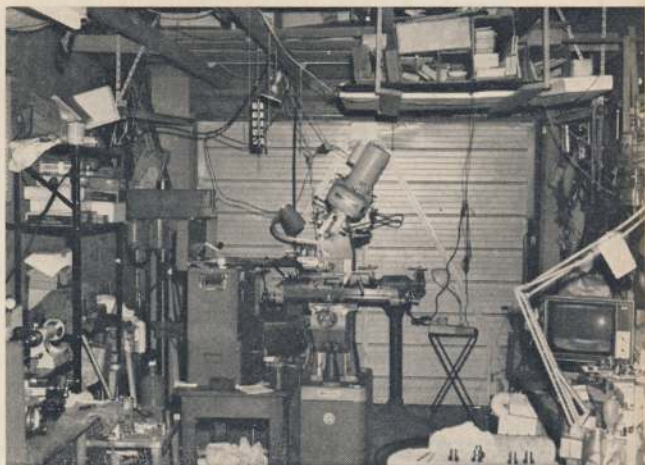
Texas. As most control line followers are aware, George is best known for his development of the C/L stunt model, and his Nobler design is probably the most successful stunt model ever. In recent years however, George has turned his attention to C/L speed contests, and as this is one event in which the engine is the prime factor, not unnaturally George has also been drawn into the engine tuning business, initially rebuilding engines for his own, and friends' use. So successful have his conversions been, that demand has mushroomed at a fantastic rate, and last year George took the rather drastic step of going into the engine development business full-time. It is no easy task to try to earn a living out of engine development and tuning, as reworking an engine successfully is basically a time consuming operation, and it is therefore difficult to market the final product economically. On

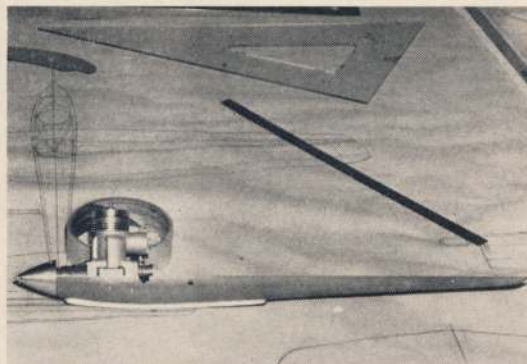
MORE and more specialisation in the many facets of modelling, together with greatly increased sophistication of models has meant that in the competitive branches of the sport, those modellers who wish to win contests consistently must develop every aspect of their models and contest technique to as near the ultimate as possible. There can be little doubt that this requires considerable dedication of effort and time, but certainly this is the only way for any aspiring modeller to succeed. Attention to the minutest detail is also one of the major factors that sort out the winners from the 'also-rans', and in this context the engine of a power model must receive expert attention to ensure that it is delivering the maximum power of which it is capable. It would be a fair generalisation to say that very few contests are won with engines that are in absolutely standard condition as they were supplied by the manufacturers - most have been carefully rebuilt either by the contestant himself, if he has the necessary skill, or alternatively by one of the several specialists in this field.

Some of the more able contestants have acquired this necessary skill to rebuild their own engines very successfully, but generally their work will have consisted of stripping down a standard engine and rebuilding it in the same form, but with that extra loving care over fits and alignment that makes all the difference between an average and an exceptional engine. However, the specialist engine tuner usually has expensive equipment and a lot of acquired knowledge available at his disposal. As a result he is able to carry out extensive modifications to the basic engine design and construction to realise that extra bit of power which can make all the difference between winning or losing a contest. Over the past few years two names have come to the forefront of the glowplug engine tuners, Rolf Miebach in Germany, and George Aldrich in the United States. Both of these have achieved an enviable reputation for high class workmanship in their extensive engine rebuilds, and are now successfully marketing the products of their labour.

On a recent visit to the U.S.A. I was privileged to spend a few days with George Aldrich at his home in

Left, preparing an O.P.S. 60 for test - note the electronic strobe in the background. Below, How's that for a workshop? It's even got a telly! Bottom, impressive line up of engines 'undergoing treatment'. Many well-known names are evident as George's customers.





A T.W.A. 15 powered speed model in the planning stages. At the recent U.S. Nats, his speed engines consumed some eight dozen plugs!

the face of it, it might seem that the price of a major rework is high, but if one realised the number of hours work expended in reworking and testing each unit, then a different view would be taken. In the case of George's reworks, they are without doubt potential contest winners before they leave his hands, and therefore are a must for serious contestants.

George's custom-built engines have not been confined to C/L speed and rat race users, for in fact some of his best successes have been in the free-flight and R/C fields, but even C/L stunt engines are sent to him for tuning. At the time of my visit George was working on a large batch of Super Tigre G.15's for free flight power enthusiasts, and judging by the well known names on many of the boxes, most of America's top exponents have been purchasing George's expertise. These G.15's were being rebuilt for use with Miebach tuned exhaust systems and the work being carried out consisted basically of:-

1. Replacing the standard sleeve and piston with an ABC sleeve and piston. This piston is specially heat treated by George to stabilise the alloy, and the sleeve has the exhaust port milled to give the extended exhaust timing necessary for tuned pipe use. The cylinder bore is also carefully honed to give the optimum piston fit.
2. Milling out the exhaust and transfer passage in the crankcase.
3. Grinding the crankshaft port and crank web and extending slightly the port timing.
4. Machining the standard cylinder head to take a Cox head insert.
5. Alignment checks, careful assembly, and test.

George has also been very successful with his modifications to the K&B 40 for pylon race enthusiasts. With these engines the same basic rework pattern is used but the standard sleeve and piston are retained though in a very much modified form. The alternate port bars in the liner are completely removed, the bore is honed, hard chrome plated and re-honed. The piston ring is then pinned in the piston to prevent its ends being trapped in the enlarged cylinder ports.

For C/L and R/C stunt, the modifications normally include careful fitting and attention to the cylinder head and ports, and chroming of the cylinder bore. Quite a large amount of time is also spent on the final test of the unit, and different cylinder heads and head clearances will be used, until absolute maximum power is being delivered by any one unit. Some idea of the amount of effort expended in this part of the work may be gathered from

Great concentration is obviously required when milling out the exhaust ports on a G.15 crankcase.



Interesting array of models hanging on this wall - note what appears to be an 'instant' Nobler - foam wings and moulded fuselage are plainly visible.

the fact that after George had rebuilt a ST.29 for Australian speed flier Jack Finneran, he used 24 glow plugs before getting maximum power from the unit, which could then turn a 7 x 11 series 200 Rev-up propeller at 20,400 on 72 per cent nitro. On the basis of this ground r.p.m. George says that the engine should be capable of reaching the upper 170s in a good mono-line speed model.

George has invested a considerable sum of money in new equipment for his workshop, pride of place going to the new Rockwell lathe and a Rockwell mill. However, he also has a vast amount of small equipment, including honing equipment, electronic strobe, and Hasler tachometers, and he is therefore well equipped for any eventuality. His plans for this year offer two stages of rework at different price levels, Stage I being the normal complete rework but no bench tuning or running tests other than one short test run. Stage II will be 'full-house' treatment with the engine fully tested and adjusted to the final degree and all ready for installation in the model.

One cannot help but admire George for the sheer amount of effort that he is expending on his hobby cum livelihood. He works into the early hours of almost every morning, and apart from the engine rebuilding business has a number of other projects which should come to fruit in the next year or so, but which at the moment are strictly secret. However, one side of his operations which George wishes to expand is in the field of consultancy. George's knowledge, experience and expertise is available to manufacturers or individuals for private and confidential development work.

Anyone interested in George's products or services is invited to contact Aldrich Models, 3219 Shady Springs, San Antonio, Texas, U.S.A.





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

JUNIOR KIT CONTEST AT 1970 NATIONALS

Last month some of the questions being asked by you about the kit contest were answered and a few more are covered below. In addition there is some very interesting information about prizes which will, no doubt, please all those who have already made up their minds about entering this new contest and will also encourage a lot more of you to enter. But first of all the following extracts from a letter are reproduced especially for those who are still a bit worried about entering:—

Dear Sir,

I am very interested in your 'Kit only' contest. I would like to have more information please. I will enter in the glider and rubber sections. Will there be 3 minute maximums? I have never flown a model before, but I hope to do well.

M. P. Sherman
Norwich, Norfolk.
(age 12 yrs. 11 months)

It is that last sentence which is gratifying and I hope this will reassure you that others are going to have a go—So why not YOU. By the way, the writer of the above letter is nowhere near the youngest person to express interest, quite a few came from 11- and 12-year-olds, plus one or two from even less.

The S.M.A.E. (who administer all Aeromodelling in Great Britain and who organise the Nationals) have shown their approval of this new contest by allocating a trophy on an annual basis (so if it is successful it will be an annual event—it's up to you!). This is a large cup called the C. HAMLEY CUP kindly donated to S.M.A.E. by C. Hamley's Ltd. of Croydon. It will be awarded to the highest scoring S.M.A.E. member in the kit contest each year.

Next month the full list of prizes will be given in this column, so keep looking. Now, on to a few more questions:—

Which is the 'best' model?

Well, this really is a question and a half! All the kits have been chosen to be of roughly equal potential performance although no doubt someone could

come up with arguments why one may be a better design than another. It is honestly believed that the carefulness of building to instructions plus the amount of practice will have more effect than basic design differences. So get building early.

Can I bring a spare model?

Yes, provided it has also been built from a kit, i.e. it must not be built from your own wood using the plan from your first kit. You will then be able to interchange parts as well, if you get any breakages. (The reason for insisting on kit parts is to prevent specialist knowledge of choosing wood and materials, giving an unfair advantage.)

What about towing-up a glider if I am not allowed to fit an auto-rudder because this would be a modification?

Yes, it will be a bit more difficult to tow-up a glider without auto-rudder but 'no modifications' must be the main rule—so there we are. You will have to tow slightly at an angle to the wind to compensate for the turn of the model or alternatively trim it to fly straight. If the former then the actual angle depends on wind strength and amount of turn you naturally have—you will have to practice this. If you trim for straight flight you might have less towing problems but your chances of staying in any lift are greatly lowered and you may have a very long retrieval run! Try both ways during your practising and see which suits you best.

Don't forget the organiser still wants to hear from you and will happily send you detailed information if you write to the following address enclosing a self addressed, stamped envelope:

Mr. R. A. Favre,
90 Courtlands Drive,
Watford, Herts., WD1 3JA.

It won't commit you to anything but it does help the organiser to gauge the interest and be aware of any problems you might have. It is better to try to sort them out before the day!

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

Dear John,

I recently found out that you could buy engines with built-in fuel tanks. I also discovered that you could buy them in 1.5 c.c. engines. I am building the Messerschmitt 262 from the plan issued in the December *Aero Modeller* and would like to know if the flight performance would be affected if I left the fuel tank off, and used a 1.5 c.c. engine with built-in fuel tank instead of the two part engine and fuel tank as shown on the plan.

Broadstairs, Kent.

C. W. King

Use of an engine fitted with an integral tank will not affect the performance of the model in any way, except that the length of flight is likely to be shortened due to its smaller capacity. When fitting the tank, remember to rotate it 90 deg. to make the vents vertical when the engine is on its side, and to arrange for the feed pipe to 'pick-up' on the outboard side.

Dear John,

Recently I obtained the Keil Kraft ready-to-fly Hurricane. The specified length of cord is 30 feet; I was wondering whether the model could be flown with success, with the lines at a length of 50 feet.

Rugeley, Staffs.

A. Brown

The 'Hurricane' uses an engine of only .8 c.c. and thus 30 ft. lines are the most that this engine could cope with. Longer lines cause a lot more drag and the resulting drop in speed would make the model extremely difficult to fly in anything above absolute flat calm.

Dear John,

Please could you tell me if the two books *Construction for Aeromodellers* and *Design for Aeromodellers* are still available. I saw the advertisements for these in an old edition of the Plans Handbook and at the time they were five shillings each.

Some time ago I built a Caprice glider. This is a good flier, but only in calm weather and then it is very unstable on the towline. Once I tried to fly it on a rather windy day and it swerved to one side so sharply that it hit the ground, the fuselage thrust into the hard soil like a spear. Miraculously nothing was damaged.

Now I am building a Keil Kraft Chief and am hoping to have more success with this model.

Salisbury, Wilts.

Barry Lewis

The two books which you refer to are now out of print, and would be rather 'dated' in relation to modern techniques.

The 'Caprice' is normally a very efficient glider, and stable on the line, so it would seem that you have a fault somewhere. Towing stability is usually governed by the relationship of the tow-hook to the centre of gravity. Assuming that the tow-hook is in the position shown, I suggest that you check that the C.G. is as stated on the plan. The veering off to one side is caused either by a warp, or by the rudder being off-neutral. This situation is worsened in strong wind due to the extra effect of the warp/rudder when the model's speed is increased.

NEW ZEALAND NATIONALS

as seen
by
Paul Lagan



In the heading, our reporter tries to read some sense into Murray Stringer's thermal detector. The large accumulator doubled as power supply and starting battery!

FEILDING was once again the venue for a truly fantastic N.Z. Nationals. The 130 contestants had calm (winds never over 8 m.p.h.), fine, warm (around 80°F) weather for each of the five flying days and registration day from 27th December '69 to 1st January '70. As usual, most flyers brought their families along and camped at the site producing a true summer holiday atmosphere – very relaxing and enjoyable.

This atmosphere was not so prevalent on the flying field where contests were keenly fought, augmented by a stronger than usual inter-club rivalry, with Auckland and Christchurch slugging it out for the Club Championship – Christchurch having recently gained the services of Ron Magill and Murray Stringer, both ex-Auckland.

Free Flight

Notable 'firsts' in the F/F events were :-

- Murray Stringer's thermistor-type thermal detector which was used extensively in most events. Murray read it with great accuracy for fellow Christchurch members but, curiously enough, was sadly

astray with some of his 'picks' for other bods!

- Murray Stringer's and Noel Hewitson's pipes in F.A.I. Power – alas for the last time, and double-alas, too powerful for their models – sad!
- A 'Ladies' Cup' event run on similar lines to the British Nats which attracted four entries first time up with the winner, Mrs. Douglas, recording two fine maxes with her A/1.

F/F events all started sharp at 5.30 a.m. necessitating a 4.45 a.m. alarm clock setting (which got thrown severely across the room on the last two mornings) and causing an almost listless first, and sometimes second round in most

events. F.A.I. events were flown to five rounds as was A/1, while Chuck Glider was over six flights of 1½ min. max. and the others (Payload, Ladies' Event, Open Rubber, Open Power) were of three flights, 3 min. max.

Alf Leong put down his transmitter to come and fly, and win, A/2 using his Jedelsky-winged model while Trev. Martin's first A/2 (a *Wichita* naturally enough) was right behind. F.A.I. Power was Brian Roots' all the way with a one-in-a-hundred stock G.15 *Night Train* turning faster than most 'hot' engines on the paddock, Trev Bundock entered F.A.I. Power for the first time and flew extra well for second. Paul Lagan's wooden-winged *Wake* (with the crazy carved 3-D turbulators) ate the opposition – Paul was cranking 390 turns on 16 strands and achieved 3:35 in a dead air first round at 5.50 a.m.

A/1 was a win for Lagan's *Sinner III*, three of which were in the top ten. John Malkin's usual Jedelsky model was a scant five seconds away. Ron Magill had a great morning when he won both Open Rubber and Payload. The Rubber fly-off had five starters – all except Alan Douglas flew 'true' Open models, Alan a Lagan-Wakefield. Ron Magill played it cool here and with a bit of help from Stringer + thermistor launched into a beaut at the end of the fly-off period for 14 mins. plus. The other four all launched simultaneously into a great patch of down – some say Murray reversed his thermistor connection for these bods! (*tsk, tsk, tsk!*).

Chuck Glider was a 'piggy-backer's picnic' and with over 60 entrants was the most popular event at the Nats. Open Power was disappointing with F.A.I. models 2nd and 3rd – Gordon Speedie flew his *Ephemeris* very well and that-man-Martin with his first power model, a *Starduster-X*, did it again – as a matter of fact Trevor placed in the top three in all the events he entered in!

Don Hagues magnificent C/L Ansaldo SVA-4 scored 970 scale points, from a 1010 maximum. Artwork is truly superb. Always a stunning subject for C/L Scale Contests, the Ansaldo comes from A.P.S. plan no. MA 359, price 10/-.



Indoor

Indoor events were flown in a fairly cluttered 28 ft. high vee-ceiling site, but relatively still air compensated somewhat for the mess up top. Class B Indoor is basically the same as the U.S. *Easy B* rules—18 in., straight out-lines, sheet prop, etc. Class D is 'Open' spar. Paul Lagan put up two early flights in these two events—his 'B' flight coming within ten seconds of Trev Martin's N.Z. record and nobody came within two minutes of it all afternoon. In 'D', Trev had a lovely 'clean' flight and Paul's early flight held on to second. There were 24 entries in these two events.

Indoor Chuck Glider was held in the evening and with 35 entries things were pretty hectic in the centre. Best flight of six attempts was counted, but many never realised their full potential in the official period. Murray Stringer flew well below maximum ceiling height with a 3.5gm *Sweepette* to win and did a 29 sec. unofficial flight during the contest. Immediately after the contest, Paul Lagan did a 31.4 sec. flight with his 4.4gm swept-wing type for a new record.

Radio Control

Single Channel (Class A), Intermediate (Class B) and Multi to FAI Rules (Class C) events were very keenly contested and in the calm conditions were generally well flown.

Grenville Thompson repeated last year's win in Class A with a .19 sized ship. Bruce Wilson with o/d *Fin* was unlucky not to place. Angus Macdonald used the new Futaba 5-channel proportional in Class B, and Ewan Galloway gave notice of fast-improving form by placing second in both A and B. In Class C, Mike Kendrick stepped down to judge and Alf Leong chalked up a unique double with a fine win here. Alf used

Murray Stringer had the fastest motor in F.A.I. Power—seen here tuning for a top 'C' on his own designed model. Motor proved too powerful for the wings in the third round!



Sprengbrook gear, *Slik Fli* and Merco .61 Mk. III. Don Putt all but won (he had an engine failure with three manoeuvres to go), using Skyleader gear with o/d swept-wing ship and Merco. Brian Perry had an excellent second round.

Control Line

Entries here were down a bit on other years, with the exception of Stunt which could be enjoying a real revival. Peter Wheeler flew an 8-year-old *Phoenician* with Veco 35 to win Stunt, while 16-year-old Bruce Turner took a deserved 2nd.

Speed events were generally shared between Paul Lagan and Phil Staples with Paul bettering his own NZ records in 2.5 c.c. and 3.5 c.c. Jet and 10 c.c. were combined this year with Phil's jet beating the 10 c.c. motors. Phil's 150 m.p.h. 5 c.c. ship didn't really get going in Class III but was good enough to beat the 'free flight' opposition.

A Team Race had a great final with Murray Stringer and Chris Williams very close indeed, but FAI was of a mediocre standard and Bill Forbes deserved his win with some clean flying. Class B, usually a rip-roarer at a Nats was

a bit of a fizzle. Phil Staples was the only one to finish in the final. The change to .016 in. lines in this event has apparently dropped speeds considerably as race times are 30 to 40 secs. slower now.

Combat was excellent. Calm weather helped but even so there were many fast models with good flyers entered. Ron Magill made it to the final mainly because of his size! Murray Stringer repeated last year's win. Both flew *Domina-tors*, Murray with an Oliver, Ron a Rivers.

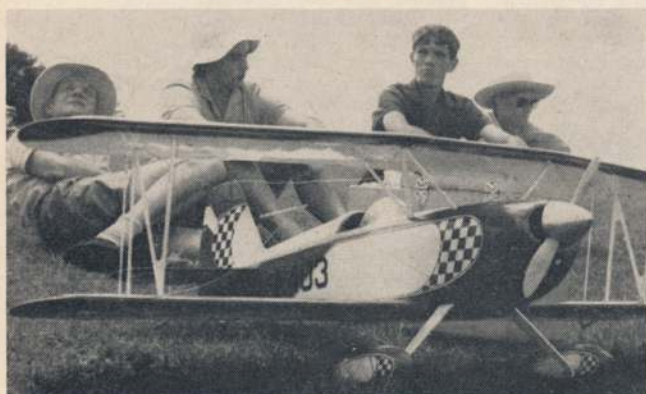
Scale

In Radio and C/L especially, N.Z. seems to be following the Scale revival. C/L scale saw some excellent machines with Don Hague's *Ansald* *SVA5* gaining near maximum points—his club-mate Dave McDonald flew a fine retract gear *Beechcraft D-17* and Gerald Nally a big, fast *Shoestring*—all naturally enough used throttle control.

The Kendrick *Chipmunk* put up a fine display in Radio Scale and had a fine flight which included a 4 point roll. Athol Fahey's *Fletcher* all but won the event, but required a forced landing after engine failure. Doug Marsh had a retract-gear *Yak* and Russ Johnson a neat *Piper Cub*.

Free Flight Scale was largely a matter of recording a qualifying flight—Laurie Ackroyd did this O.K.—in fact he flew O.O.S. with his little *Beaver* which was not recovered at the close of the Nats! Fred Percy's *Piper Cub* had spring loaded, working cabin controls, and recorded a staggering number of static points.

The mad 'scramble' was held on New Year's Eve and lasted for half an hour in a 5 m.p.h. breeze. The 'oldies' generally couldn't stand



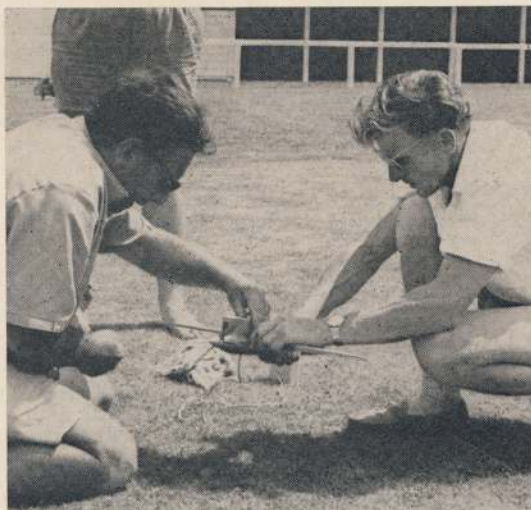
Neville Dawson entered this 'Aeromaster' Bipe in the R/C pattern event, recording fifth best score in second round. Decor looks pretty and very much in keeping with the semi-scale 'Great Lakes Trainer' lines.

the pace (and showed the strain later in the evening!) and young Bruce Turner jogged his way to victory.

Always keenly contested at the N.Z. Nats—with all events counting towards Club, Junior and Open Championships, it takes an all-round effort to win. This year Christchurch sneaked home with the Club title despite having only two members in C/L events. Bruce Turner was Junior Champ after being runner-up last year and Paul Lagan was Champ of Champs for the fifth time in succession and promptly announced his 'retirement' from serious competition in all but the three FAI F/F events.

The next Nats venue was announced at the prizegiving as being Christchurch.

Brian Stanish's low centre of lateral area Payload model won last year, placed fourth this time. Model performs exceptionally well, rules call for a 5oz./cc dummy to be carried, 15 seconds motor run and 3 min. max.



Bill Cook returned to the contest scene after being involved in full-size gliding for the past five years. Seen here starting his Class I (2.5 cc) speed model with John Malkin holding.

NORDIC A/2 (5x3)

1. A. Leong	Hamilton	12:58
2. T. Martin	Auckland	12:40
3. T. Bundock	Auckland	12:16

WAKEFIELD (5x3)

1. P. Lagan	C'Church	13:35
2. R. Hewitson	Auckland	13:04
3. G. Roots	Wellington	12:34

LADIES CUP (3x3)

1. Mrs. Douglas	Gisborne	6:26
2. Mrs. Hewitson	Auckland	2:25
3. Mrs. Bundock	Auckland	2:20
4. Miss Bundock	Auckland	1:32

OPEN RUBBER (3x3) Fly-off scores:

1. R. Magill	C'church	+13:59
2. N. Wearne	Wellington	+2:41
3. B. Keegan	Auckland	+2:11
4. A. Graves	Hamilton	+2:08
5. A. Douglas	Gisborne	+1:11

PAYLOAD (3x3)

1. R. Magill	C'church	8:17
2. R. Roots	Wellington	7:35
3. P. Lagan	C'church	7:30

INDOOR CLASS B (Best flt of 3)

1. P. Lagan	C'church	7:27
2. T. Martin	Auckland	5:15
3. M. Stringer	C'church	4:48

INDOOR H.L. GLIDER (Best flt of 6)

1. M. Stringer	C'church	27.5 sec.
2. T. Martin	Auckland	26.2 sec.
3. P. Lagan	C'church	25.3 sec.

CLASS A RADIO (S/Channel Rudder)

1. G. Thompson	Hamilton	472
2. E. Galloway	Hastings	411
3. L. Ruby	Hastings	327

CLASS C RADIO (F.A.I. 1969 Pattern)

1. A. Leong	Hamilton	
2. B. Perry	Hastings	
3. D. Putter	Hamilton	
R1	R2	Total
1427	1399	2826
1198	1398	2596
1264	1327	2591

C/L AEROBATICS (F.A.I. Pattern)

1. P. Wheeler	Kaipoi	857
2. B. Turner	Kaipoi	845
3. N. Dawson	Wellington	844

2.5 c.c. SPEED

1. P. Lagan	C'church	136.4
2. P. Staples	Wanganui	123.3
3. A. Clarke	P. North	113.9

5 c.c. SPEED

1. P. Staples	Wanganui	134.3
2. P. Lagan	C'church	125.9
3. G. Roots	Wellington	125.0

1/2 A TEAM RACE (5 1/2 miles) Final times:

1. M. Stringer	C'church	5:10.2
2. C. Williams	Rotorua	5:11.2
3. P. Staples	Wanganui	6:10.2

F.A.I. TEAM RACE

1. W. Forbes	Kaipoi	5:19.5	12:13.8
2. B. Howser	Hamilton	6:05.1	13:19.6
3. A. Clarke	Palmerston Nth.	6:21.9	

F.A.I. POWER (5x3)

1. G. Roots	Wellington	14:33
2. T. Bundock	Auckland	12:16
3. H. Winn	Auckland	12:05

NORDIC A/1 (5x3)

1. P. Lagan	C'church	13:39
2. J. Malkin	Wellington	13:34
3. T. Martin	Auckland	13:17

OPEN POWER (3x3)

1. T. Martin	Auckland	8:56
2. G. Speedie	Wellington	8:40
3. G. Roots	Wellington	8:22

CHUCK GLIDER (6x1 1/2)

1. B. Turner	Kaipoi	6:44
2. J. Spray	Masterton	6:18
3. G. Burrows	C'church	6:12
R. Vazey	Wanganui	6:12

1/2 HOUR AGGREGATE

1. B. Turner	Kaipoi	14:47
2. G. Thompson	Hamilton	14:46
3. P. Wheeler	Kaipoi	13:43

INDOOR CLASS D (Best flt of 3)

1. T. Martin	Auckland	8:32
2. P. Lagan	C'church	7:33
3. B. Keegan	Auckland	6:09

CLASS B RADIO (Rudder/Elevator/Motor)

1. A. Macdonald	Auckland	670
2. E. Galloway	Hastings	630
3. R. Johnson	Palmerston Nth.	604

COMBAT

1. M. Stringer	C'church	
2. R. Magill	C'church	
3. R. Judge	Te Kuiti	

3.5 c.c. SPEED

1. P. Lagan	C'church	139.5 m.p.h.
2. P. Staples	Wanganui	136.4 m.p.h.
3. G. Roots	Wellington	116.1 m.p.h.

JET/10 c.c. SPEED COMBINED

1. P. Staples	Wanganui	141.7
2. R. Hewitson	Auckland	132.4
3. B. Deakin	Palmerston Nth.	124.1

CLASS B TEAM RACE (10 miles)

		Heat	Final	
1.	P. Staples	Wanganui	8:28.5	8:09.8
2.	R. Vazey	Wanganui	8:23.9	44 laps
3.	G. Bradley	Hamilton	7:50.9	37 laps

FREE FLIGHT SCALE

1. F. Percy		Auckland	
2. D. Hope-Cross		Roskill	
3. R. Hewitson		Auckland	
	Static	Flying	Total
Piper Cub J3	580	140	720
Tiger Moth	398	155	553
Piper Cruiser	321	210	530

CONTROL LINE SCALE

1. D. Hague	Whakatane		
2. D. MacDonald	Whakatane		
3. G. Nally	Southland		
Ansald SVA 5	669	301	970
Beechcraft D-17	582	260	842
Shoestring	575	215	790

RADIO SCALE

1. M. Kendrick		Wanganui	
2. A. Fahey		Auckland	
3. R. Johnson		Palm. Nth.	
Chipmunk	458	305	763
Fletcher	438	250	698
Piper Cub	313	300	613

JUNIOR CHAMP

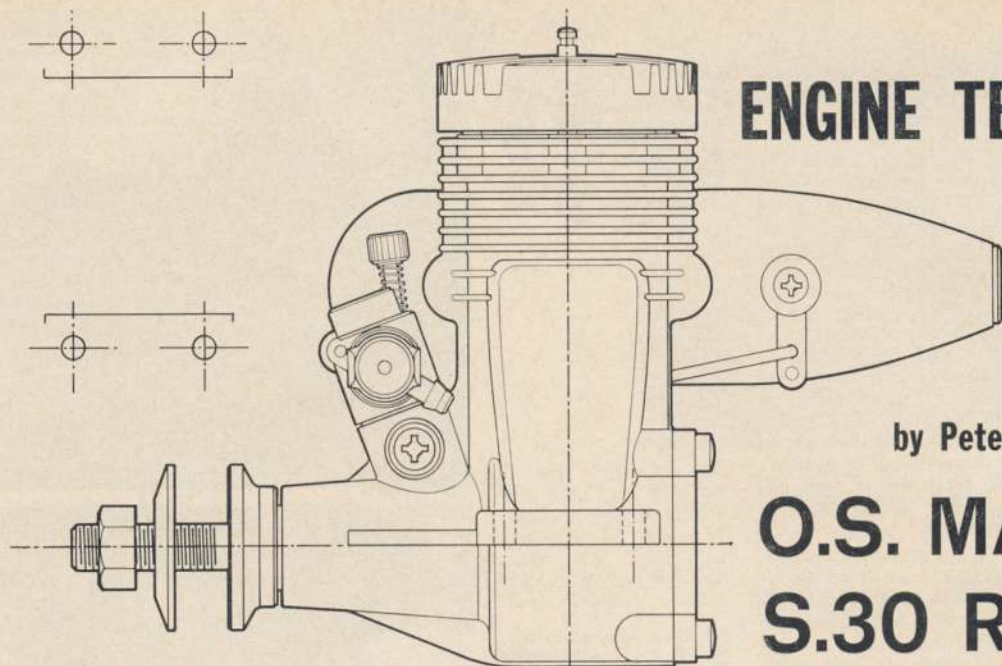
Bruce Turner	Kaipoi	83 points
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Runner-up

Michael Bundock	Auckland	60 points
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CHAMP OF CHAMPS

1. P. Lagan	Christchurch	214 points
2. P. Staples	Wanganui	130 points
3. T. Martin	Auckland	125 points
4. G. Roots	Wellington	119 points
5. R. Magill	Christchurch	118 points
M. Stringer	Christchurch	118 points



ENGINE TEST

by Peter Chinn

O.S. MAX S.30 R/C

THIS IS A 'by request' report on an engine that has become recognised as one of the best of its kind on the market.

The O.S. company introduced the Max S.30 R/C just over five years ago after a study of the various requirements of multi-trainer type power units. Being modellers themselves, the O.S. design staff knew that the best sort of aircraft with which to learn multi-channel radio-control flying, was a reasonably stable model of sufficiently large area to keep wing-loading at a moderate level and thus ensure fairly docile handling: in other words, the sort of model which has been typified by the Keil Kraft Super 60 in the U.K. and by other high-wing models of what one might call 'vintage free-flight' lineage. Admittedly, some kit models advertised as 'multi-trainers' do not fit into this category. Smaller, with higher wing loadings and, sometimes, bi-convex wing sections and with little inherent stability, they can be rather a handful for the newcomer to R/C, yet if underpowered, can be more tricky than when overpowered, especially near the ground.

In evolving a 'multi-trainer' engine, it therefore seemed

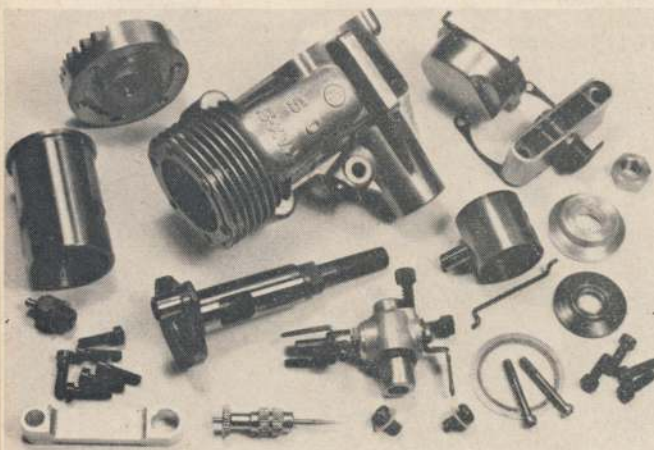
better, on both counts, to aim for a slightly higher performance than that offered by the .19 cu. in. and 3.5 c.c. engines commonly recommended for R/C trainer use, particularly as, with the then-new trend towards the use of silencers, the power of a .19 could be marginal in anything except a light model. O.S. decided that the solution lay in an engine of 5 c.c. (.30 cu. in.) nominal swept volume, moderately ported and lightly stressed. Such an engine would deliver ample power without resort to small props and excessively high r.p.m., would still be reasonably light in weight and could be made easy to handle, with reliable wide-range throttling.

The end result of this decision, the Max-S.30 R/C has proved very successful. Compact and only about 1½ oz. heavier than the average .19 class R/C motor, it offers up to 50 per cent more *usable* power yet is very easy to handle and has almost foolproof throttle control. (We know of several of the engines which have flown straight out of the box on the factory throttle settings). It is reasonably economical, runs well on inexpensive fuel and wears slowly.

Basically, the Max-S.30 R/C has remained unchanged since its introduction. One obvious modification, however, has been the replacement of the original 'turnstile' type coupled exhaust valve by the ordinary pivoted plate type restrictor. This change was made (at the request of the U.S. distributor) to facilitate easy screwdriver access to the beam mounting screws. It is of little moment to the average U.K. user since either type is normally replaced by a silencer. Two types of O.S. Jetstream silencers are available for use with the 30 R/C, namely the Type 'L' or Type 'R/C-L'. The difference is that the latter incorporates a brass baffle valve that can be coupled to the throttle in place of the standard restrictor. Our tests on the 30 R/C were carried out with this type fitted, but for actual flying we have used the standard (and slightly cheaper) Type 'L' which gives almost as low an idling speed, quite safely, with the advantage of simpler installation and a slight reduction in weight.

Also available as an optional extra is a neat machined alloy spinner nut.

Essentially, the Max-S.30 R/C is a bronze bearing glowplug motor with lapped piston and shaft rotary-



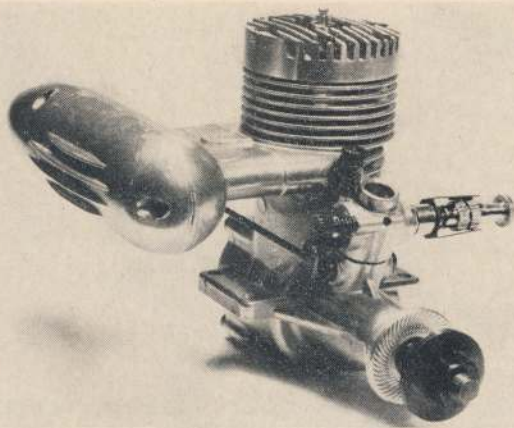
valve induction. The rotary-valve is conservatively timed to close at 40 deg. after top dead centre, following a 180 degree induction period. The exhaust and transfer periods are also quite moderate at 124 deg. and 108 deg. respectively. The piston is machined from Meehanite with a straight baffle and is relieved approximately .0015 in. around the crown, where maximum expansion takes place, to aid running in and subsequent piston seal. Internally, the piston has an annular rib to help maintain piston roundness. The cylinder head is of a shallow hemispherical form. Crankcase volume has been kept small to increase pumping efficiency and assist fuel draw and gas transfer. The carburettor is of the barrel throttle type with a quite modest choke area - a further aid to non-critical throttle control.

Performance

Our test engine was, for all practical purposes, run-in after about half-an-hour of accumulated running time. We found it very easy to start right from new, using the normal preliminaries of priming through the exhaust when cold and choking the intake when warm. Performance tests were carried out on our standard R/C test fuel containing 5 per cent nitromethane but, of interest to those who wish to use the cheapest practical fuel mixtures, will be the fact that the 30 R/C also started, ran and throttled just as well on a straight methanol and castor-oil blend, the only discernible difference being an r.p.m. loss of about two per cent on most props.

Carburettor controls were not at all critical and with the needle-valve adjusted for maximum full-throttle power, very little adjustment of the original factory settings of the airbleed or throttle stop was called for to obtain a low idling speed and a good intermediate range. Typical maximum/minimum speeds obtained on various props included 7,800/2,000 r.p.m. on a 12 x 4 Power-Prop, 8,600/2,100 on an 11 x 5 Top-Flite wood, 9,300/2,200 on a 10 x 6 Tornado nylon, 9,800/2,200 on an 11 x 4 Top-Flite wood, and 10,700/2,400 on a 10 x 4 Tornado nylon. All these figures were obtained with the R/C-L silencer installed.

The performance curves determined with our test sample, showing (on five per cent nitromethane fuel) a maximum b.h.p. of just over 0.40 at 12,500 r.p.m. less silencer, and 0.34 b.h.p. at 11,500 r.p.m. with silencer, may possibly be a little on the conservative side. Other independent test reports have claimed up to 0.47 b.h.p. at 12,000 (on 10 per cent nitro) with silencer, although we feel this to be just a trifle over optimistic even for an abnormally 'good' example. (The factory



makes no claim to high b.h.p. for the Max-S.30 R/C but offers, instead, the high-output Max-H series 35 and 40 R/C engines for those who require fully aerobatic contest levels of performance in the medium capacity group). It is, perhaps, sufficient to remark that our test motor, silencer equipped and now with about 25 hours total running time, flies a 4½ lb., 600 sq. in. trainer with ease and has proved entirely trouble-free.

Power/Weight Ratio (as tested):

0.63 b.h.p./lb. (with silencer); 0.83 b.h.p./lb. (less silencer).

Specific Output (as tested):

70 b.h.p./litre (with silencer); 84 b.h.p./litre (less silencer).

SPECIFICATION

Type: Single-cylinder aircooled glowplug ignition two-stroke with throttle control. Crankshaft type rotary-valve induction and bronze bushed main bearing.

Bore: 18.8 mm. (0.7402 in.).

Stroke: 17.5 mm. (0.6890 in.).

Swept Volume: 4.858 c.c. (0.2964 cu. in.)

Stroke/Bore Ratio: 0.931:1.

Weight: 7.8 oz. (8.7 oz. with R/C-L silencer).

General Structural Data

Pressure diecast aluminium alloy crankcase/cylinder/main-bearing housing with cast-in phosphor bronze main bearing bush. One-piece counter-balanced case-hardened steel crankshaft with 11 mm. dia. journal, 7.8 mm. gas passage and 6.35 mm. tubular crankpin. Meehanite c.i. piston with flat crown, straight baffle and with internal annular stiffening rib above bosses. Machined 24ST3 aluminium alloy connecting-rod with two lubrication holes at big end. Fully-floating case-hardened steel gudgeon-pin with brass pads. Lead-steel ground and lapped cylinder-liner, located by top flange. Pressure diecast and machined aluminium alloy cylinder-head with cast-in brass thread insert for glowplug and recessed soft aluminium gasket. Head secured to cylinder casting with six Phillips screws. Machined duralumin prop driver keyed to flat on crankshaft. Pressure diecast aluminium alloy carburettor body with ground brass throttle barrel and stationary needle-valve assembly. Separate idling and airbleed adjustment screws. Coupled centrally pivoted steel exhaust restrictor valve interchangeable with O.S. Type L or Type R/C-L silencers. Beam mounting lugs.

TEST CONDITIONS

Running time prior to test: 1 hour.

Fuels used: (i) 70 per cent ICI methanol, 30 per cent Duckhams racing castor-oil (running-in).

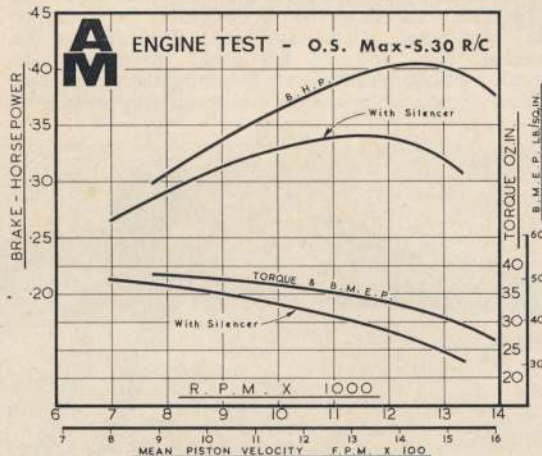
(ii) 5 per cent pure nitromethane, 70 per cent ICI methanol, 25 per cent Duckhams racing castor-oil (performance tests).

Glowplug used: O.S. No. 7 bar type, platinum filament.

Air Temperature: 46 deg.F.

Barometer: 30.60 in.Hg.

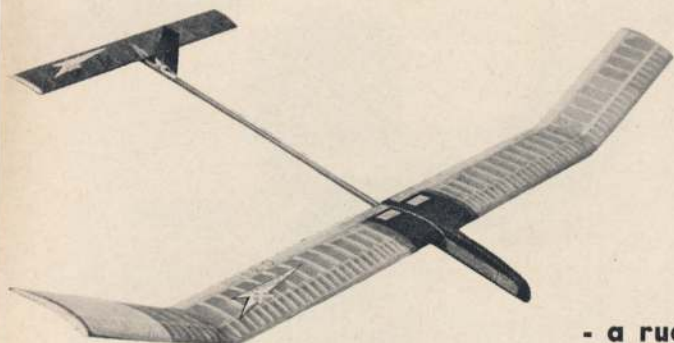
Silencer: O.S. Jetstream Type R/C-L.



Colin Morris's

SPANISH FLEA

- a rugged, high performance A/1 glider



Spanish Flea was the author's final attempt to build an A/1 that towed well, having vowed to give up A/1s for good if it did not! Evidently he succeeded, as the model's many contest successes since 1966 confirm, and it is clear that he has hit on the right combination of all those variable factors that no amount of theorising seems to resolve, what the Americans call 'eyeball engineering'.

This is quite a simple model to build for someone who has already built a couple of similar designs. However, there are some variations from orthodox building methods, which though not difficult, do take a little longer. These result in a model which is far more durable than normal - a valuable factor with a competition model. Very early in its career, the original spent three months in a garden near Chobham Common, and apart from a badly warped tail-plane (hence its now being geodetic) and a timer full of insects, it towed just as well as before, so the slightly longer building process is well worth the effort.

The plan shows two different types of fuselage construction, one using a hollow glass-fibre fishing rod blank, and the other a simplified structure of 1/16 in. sheet balsa. The balsa version is cheaper, and possibly quicker to make, but of course there is the very real risk that sooner or later it will get broken - most likely after the third max!

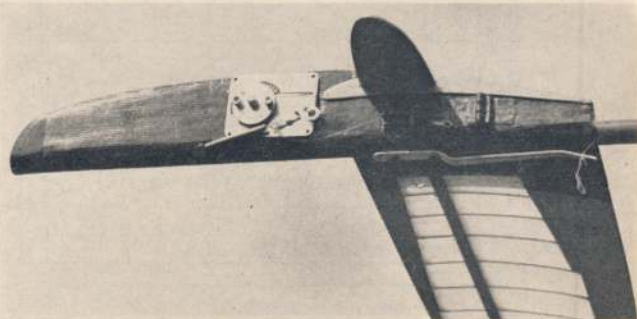
The fuselage nose 'pod' is cut from medium hard $\frac{1}{2}$ in. sheet, leaving a bit of spare wood at the top to carve to the correct contour when the wings are fitted. There is plenty of depth for the timer without opening out both sides of the nose. The underside is cut along its length, in the centre, to approximately $\frac{1}{2}$ in. with a saw or knife, and then 'routed' with the thick end of the fibre-glass rod to make a neat fit. The wing tongue is epoxied to the pod taking care to check its alignment by using a setsquare on the underside. Wood-screws can also be used for additional strength, but are not essential. Epoxy a piece of scrap $\frac{1}{2}$ in. sheet to the top of the tongue, then add the fibre-glass rod to the pod assembly, again using epoxy. Apply finger pressure and scrape off surplus epoxy, then apply firm pressure by binding the whole assembly with thick string. It looks an awful mess at this stage, but don't worry, it all cleans up with a razor-plane and sand-paper. This assembly should be left for at least 24 hours, so the wings may now be built.

PVA is used throughout for wing and tailplane construction as it does not warp the structure.

Cut out all the ribs, including the notches for the spars, and then carefully cut the tongue slots in the 6 ply ribs, noting that the slots are the same length in each rib. Layout the leading and trailing edges, carefully packing and spacing the 1/32 in. balsa under rear of leading edge and $\frac{1}{8}$ in. under front of trailing edge to get the correct section, then add all the balsa ribs. Next make a duplicate wing tongue, smear lightly with vaseline to avoid it sticking when the box is built up, and slide the ply ribs on. Offer up to the wing, carefully spacing the ribs and making sure that they are square. The upper spruce spar is then added, followed by the gussets; these are far stronger and simpler than notching the trailing edge. Fill the gaps in the ribs above the spar with 1/16 in. sheet, cut to the correct width with a piece of scrap spar. Allow to dry well to avoid warping, then sand the surplus off each rib, taking care not to get a flat top to the section. Fill in between the ribs over the top of the tongue with scrap sheet, to become flush with the bottom of the spar slot. Remove the panel from the board and make the rest of the tongue boxes by filling in with scrap sheet, leaving room for the bottom spar, and leaving the box rectangular inside - it does *not* taper, but allows the wings to knock off easily in a heavy landing.

Now add the webs to the underside of the top spar - this is where the wing strength comes from, so cut them accurately, and make sure that the grain runs vertically between the spars. When these are all fitted add the bottom spar, and allow to dry thoroughly.

Cut the spars, leading and trailing edges flush with the end ribs, then plane and carve the wing boxes to section. This is quite simple, as the ply ribs enable the section to be maintained. Carve and sand the L.E. to the section. Now add the full chord ply facing ribs to the root of each panel, not forgetting the tongue slot. Clean up each centre section, and cover right round each



Right, close-ups of nose reveals the bandage covering, long towhook and use of solder tags to form the loops on the ends of the nylon D/T and A/R lines.

Back to the fuselage. Clean up the assembly, then fit the wings, and shape the top to the wing contour with a razor-plane. Now give the nose a couple of coats of sanding sealer or dope, and sand smooth. Cover the sides and bottom of the nose-pod with a piece of lightweight tissue. Leave the top uncovered at this stage. Now add the ply ribs to the fuselage sides, and after roughening the glass fibre rod at the correct positions, epoxy the tailplane and fin saddles in position. Check very carefully for alignment, and leave to dry. Next add the fin and auto-rudder systems. The auto-rudder line is rigged by pushing a length of three-strand Laystrate C/L wire through the hole at the nose end, with the nylon line attached via a small loop in one-strand made by pushing the strand out slightly with a pin. Pull right through to the tail end, making sure you do not 'lose' an end by tying on a matchstick etc. Detach the Laystrate and push it through the hole in front of the fin to come out at the rear end of the rod. Re-thread the nylon line and pull through the hole in front of the fin. With lead already in the fibre-glass rod from the end of the dowel to the front of the fuselage, it should only be necessary to add a little more ballast. The C.G. is between 50 per cent and 55 per cent of the wing-cord. Do not go outside these limits.

Cover the top of the nose pod and then check the model for warps, and making sure that all the components are fitted squarely. Also, do a couple of checks on the D/T actuation.

Set the auto-rudder at zero degrees and handlaunch into the wind. If anything, the model should tend to fly nose down, so start by adding packing under the trailing edge of the tail-plane until a nice floating glide is obtained. Try a tow, and see which way the model is inclined to turn, there is almost certain to be a slight bias to left or right. Correct the auto-rudder for a dead straight tow – this being very simple with the screw adjusters, but do not forget to have a small screw-driver handy! Now concentrate on the glide, aiming for 150 to 200 foot diameter circles on a calm evening – the turn tightens up considerably in thermals. Remember that as you increase the turn, the glide tends to steepen, so it is prudent to add a shade more packing under the trailing edge of the tailplane.

Finally, and we still see experienced flyers not doing this, add a name and address label. The designer has had the original *Spanish Flea* returned four times in four years from O.O.S. flights as a result of this very simple precaution.

Tailplane detail shows nylon D/T line threaded through fuselage and tail plywood extension. Geodetic structure prevents warps, yet is very light.



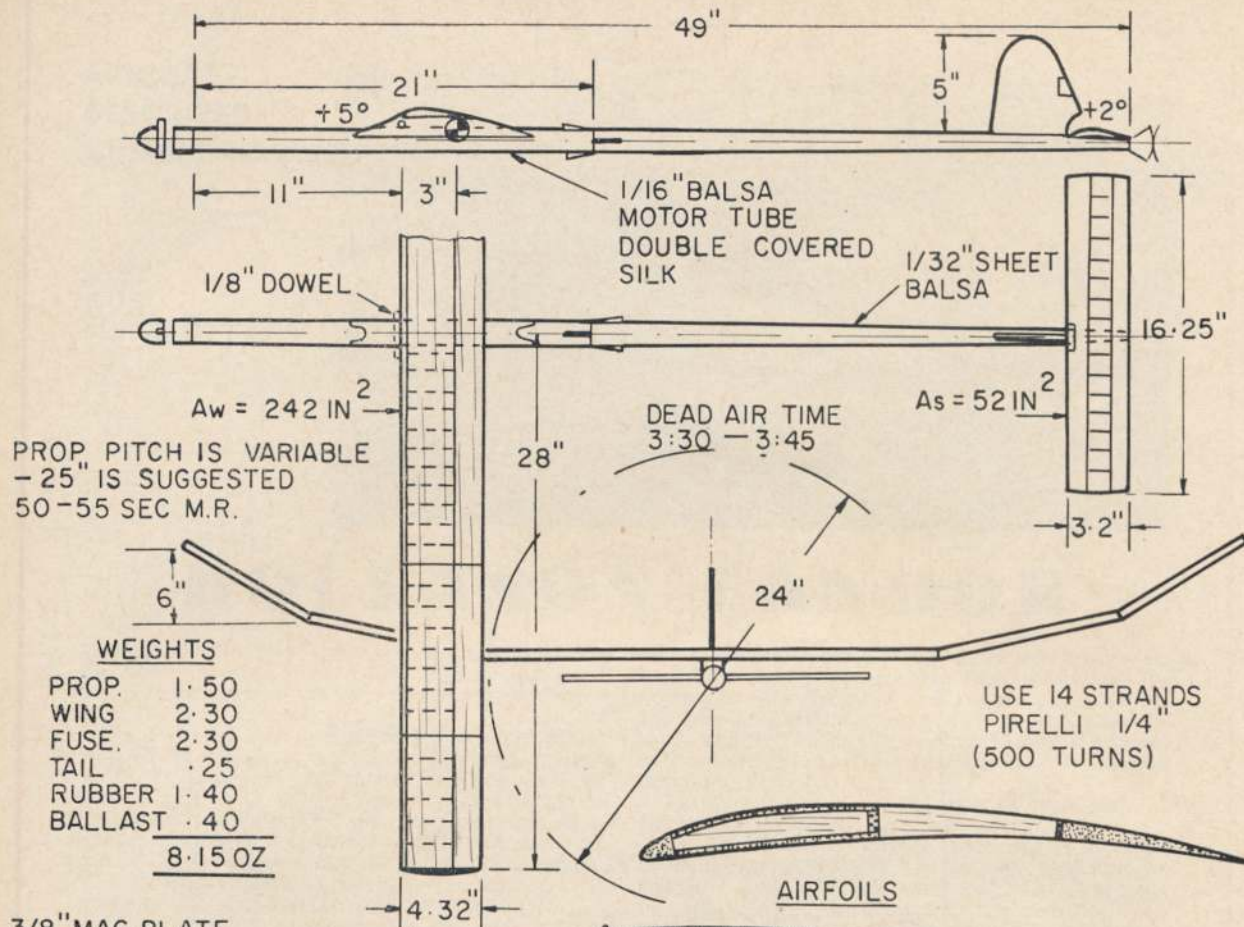
John Gard's WAKEFIELD design from the U.S.A.

COMPETING at the '69 World F/F Championships was the highlight of John Gard's aeromodelling activity, which began back in 1939 when he built Korda's winning Wakefield model. An aeronautical engineer by profession, specialising in the field of structures for the past 22 years, he still obtains an immense satisfaction in designing and flying rubber powered models, particularly Wakefields, finding it a tremendous challenge to squeeze the longest flight from each gram of rubber permitted.

The model drawn opposite placed fifth in the Championships and may well have placed higher if it had not been timed O.O.S. for the third round when an approaching rain squall moved into the flying area.

It is a (relatively) easy model to build, and an exceptional performer – John preferring a long motor run to eliminate the necessity for auto-tailplane and rudder. Flight testing has resulted in the placing of two .025 in. diameter button thread turbulators at 7 per cent and 23 per cent of the wing chord respectively. Use of the high aspect ratio wing with the turbulated section has reduced the sinking speed to 1.3 feet per second.

Wood selection is very critical, especially as the complete wing is sheet covered – the original wings weighing only 2.3 oz. for their 242 sq. in. area. The nose block, so much the centre of involved 'gadgetry' these days is remarkably simple with a ball-race mounted shaft, although the propeller blades do feature variable pitch, adjusted by slackening of a pinch-bolt. To wind the motor the rear fuselage is unplugged, exposing the rear motor hook.



3/8" MAG. PLATE

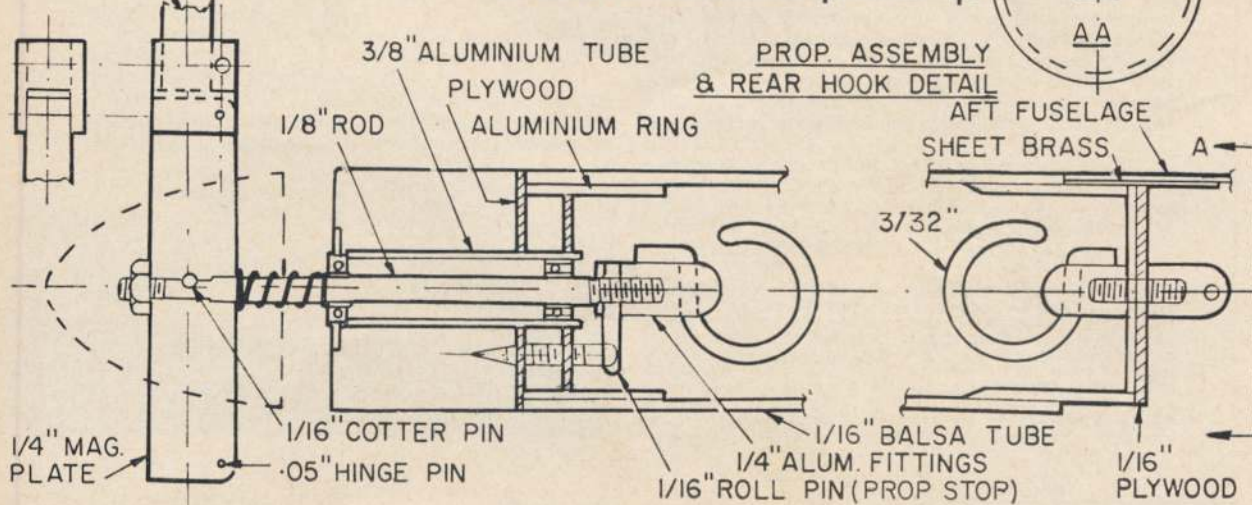
1/4" WOOD DOWEL

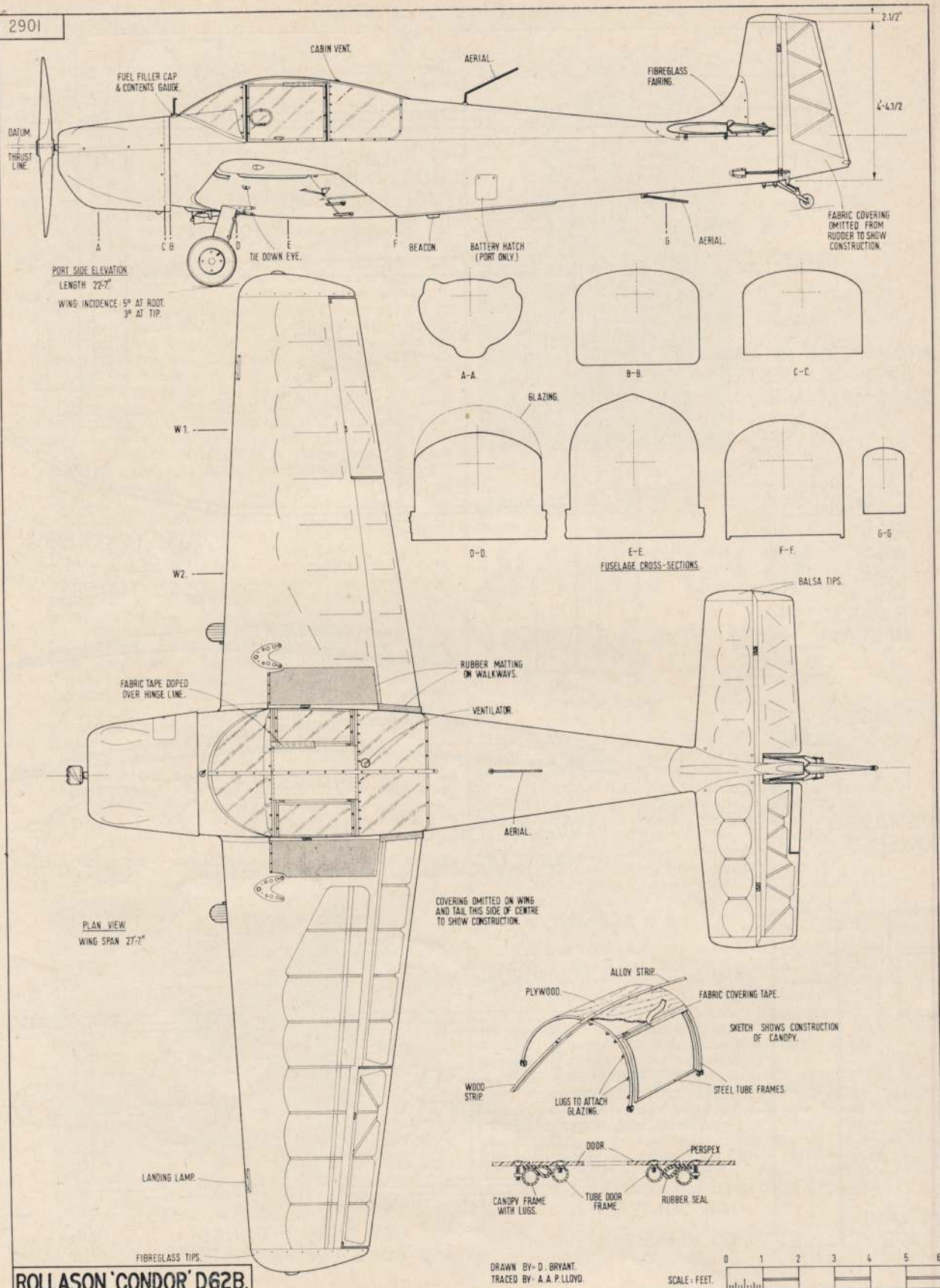
TIE BOLT

WAKEFIELD 5th place
1969 World Championship

PROP ASSEMBLY
& REAR HOOK DETAIL

AFT FUSELAGE
SHEET BRASS





AIRCRAFT DESCRIBED NUMBER 191

By D. Bryant



ROLLASON CONDOR

THE CONDOR is a two seater training and club aircraft, designed by the late Roger Druine of Turbulent fame, whose tragic death at the early age of 37 years was a great loss to the light aircraft world.

His Turbulent and Condor designs are now manufactured by Rollason Aircraft of Croydon, Surrey. Rollasons have been well known for many years for their aircraft repair and overhaul services, entering the manufacturing field in 1957 with the production, under licence, of the ultra light Turbulent and at the same time carried out the conversion of the Ardem 4CD2 engines. The first Rollason-built Turbulent flew in January, 1958, a further nine being completed by September, 1959.

Condor production commenced in 1962 and since that date 34 aircraft have been built. It is a sad reflection on the state of the British light plane industry that the Condor is the *only* powered, two seater, wooden aircraft in current production.

The Condors are made at the Croydon factory at the rate of one per month to a very high standard of workmanship in the best traditions of wooden aeroplanes. Rollasons can supply drawings for the use of home builders, but in view of its size and the cost of the engine, this method of obtaining the aircraft is not likely to appeal to many people.

The current production aircraft differ in many ways to the original and, in fact, modifications are frequently made to facilitate production.

A tour of airfields will give the impression that no two Condors are alike. Some are without flaps, others have metal engine cowlings, and on later aircraft fibreglass

wingtips have replaced the original wooden ones, while steel tube canopy frames have been substituted for wooden formers. Various shaped cowls are to be found, and there are Condors at Redhill that are fitted with tow bars for glider towing. These aircraft have their wingtips removed and replaced with endplates, said to improve the rate of climb.

The aircraft shown on the drawing represents the current (Jan 1970) production Condor.

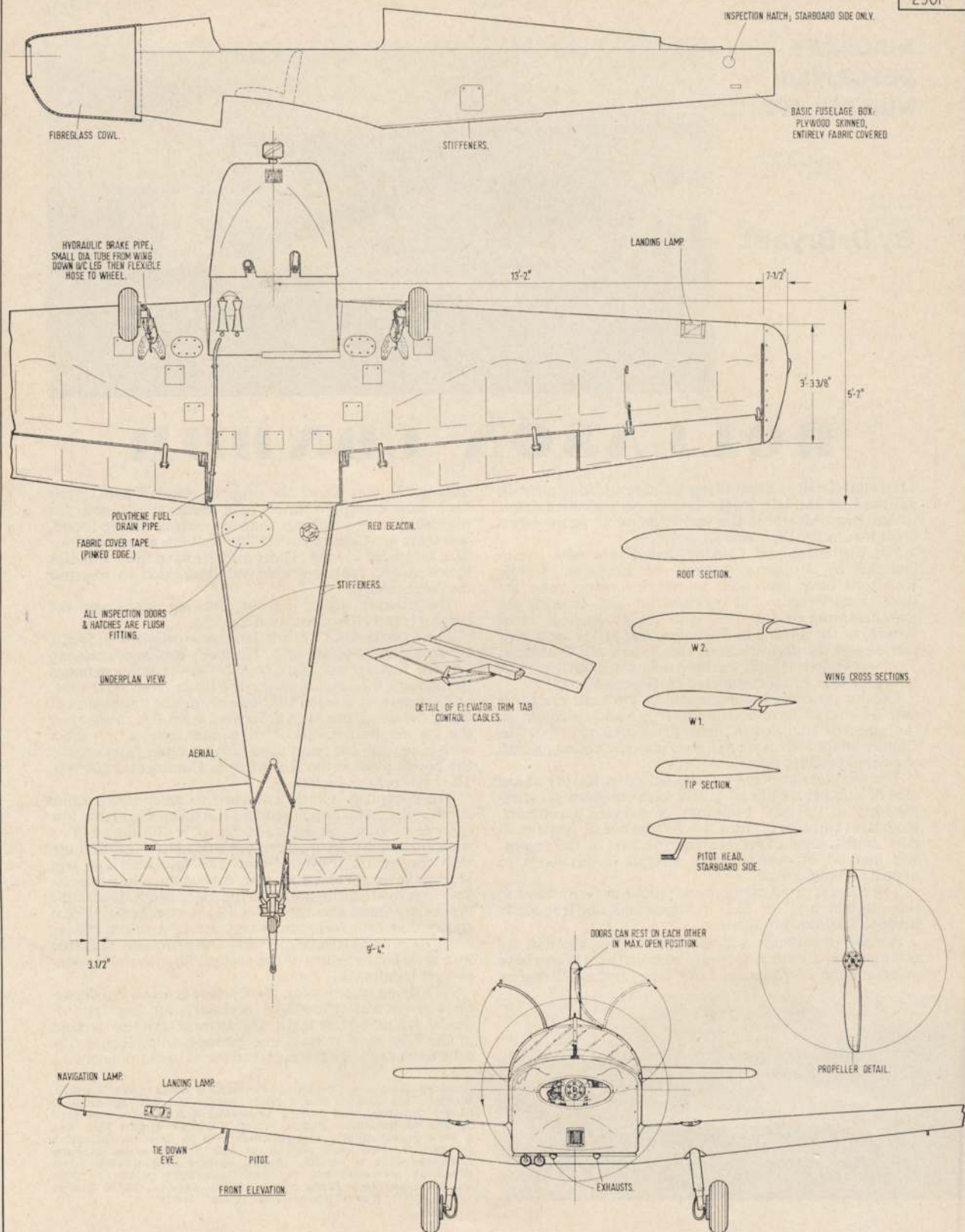
The Condor is of all wooden construction with fabric covered wings and tail unit. The leading edge of the wing and the fuselage are ply covered. On the latest versions the canopy frames and doors are made from steel tube, and the perspex panels, although giving the impression of being moulded, are in fact, formed from flat sheets over the curved frames. Standard colour scheme is yellow with blue trim, the paint used being 'Cellon Docker' and the power plant is the Rolls Royce Continental 100 h.p. The basic price is £3,500.

The cockpit is a little awkward to enter but is quite comfortable, well appointed and has a commendably low noise level. It is a pleasant aircraft to fly although its two wheel undercarriage may present a few problems to those who trained on tricycle types. The undercarriage legs are cantilever shock struts with rubber discs in compression to provide springing as on the Tiger Moth. Hydraulic brakes are fitted and the tail wheel is attached to a leaf spring skid with coil springs connecting it to the rudder horn to provide steering. Flaps are manually operated by a lever in the centre of the cockpit floor in the manner of a car handbrake.

As a flying scale model, the Condor is ideal. No departures from scale should be necessary for any type of model, including free flight, and as most civil aerodromes in the UK have at least one example in residence, the keen modeller will not have far to travel to examine one.

Heading shows a Condor at Rollason's sales base, Redhill, Surrey. This aircraft has a white rudder. At left, the subject of the drawings and photos of details G-AVAW as operated by the Metropolitan Police Flying Club at Biggin Hill, has a dark blue rudder - colour change is to help identification on circuit. Full size copies of the 1/16th scale original drawings plus a reprint of this feature with 1/48th scale drawings are available as Plan Pack 2901 price 5/- plus 6d. postage, from Aeromodeller Plans Service, 13/35 Bridge Street, Hemel Hempstead, Herts.

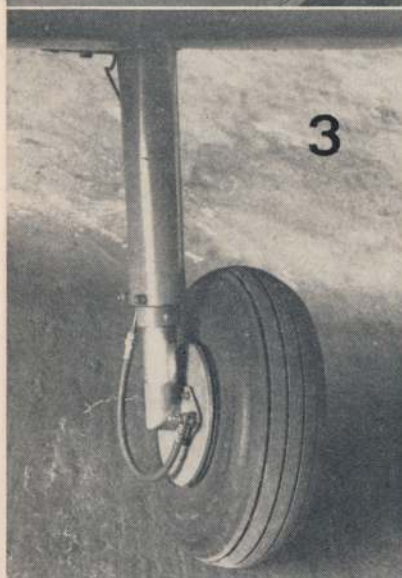
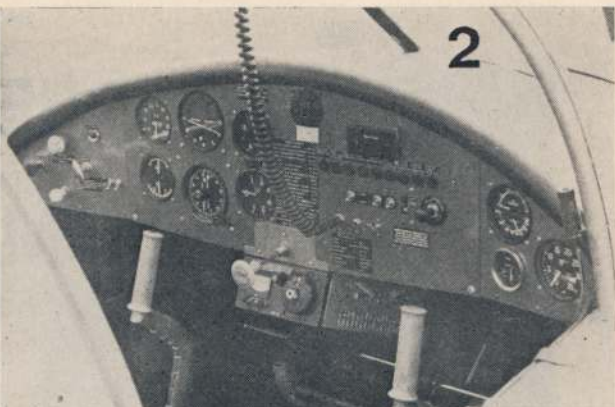




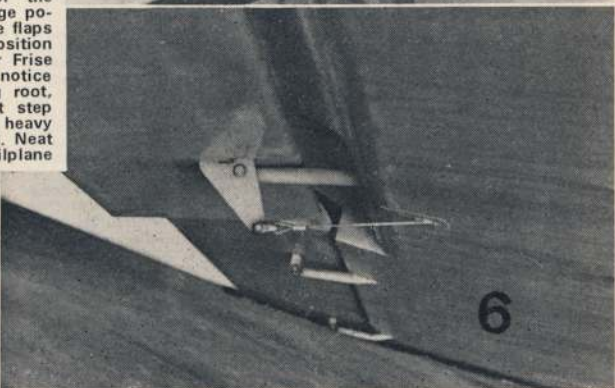
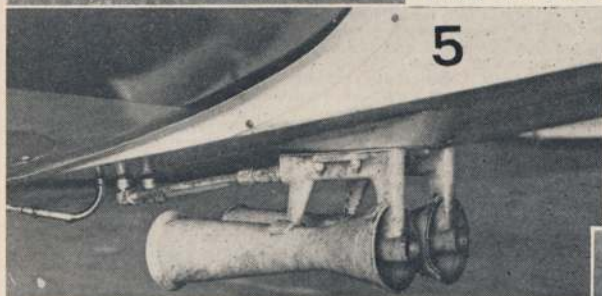
ROLLASON 'CONDOR' D62B.

DRAWN BY D. BRYANT.
TRACED BY A. APLOYD.

SCALE: FEET. 0 1 2 3 4 5 6



Useful detail for modelling, as on the example measured for the drawings. 1. Illustrates the simple cockpit panels curved from flat sheet Perspex with a centre panel in ply, over tube framework to provide an impression of curvature. 2. The standard flying panel with push-pull throttle in centre and flexible cable to microphone on roof clip. 3. Hydraulic brakes on the Jodel type wheels, with rubber shock absorber cantilever undercarriage leg. 4. Scott tail wheel is steerable through linkage with rudder, springs absorb shocks and permits castoring. 5. Not often seen today, the venturii for vacuum operated instruments. 6. Detail of the aileron horn, the hinge position and also of the flaps showing the hinge position and wing shroud for Frise slot effect. 7. Obvious notice on the flap at wing root, also showing a foot step plate to keep the heavy footed off the flap! 8. Neat fairing over the tailplane



FREE-FLIGHT COMMENT

by John O'Donnell



Left, it's been a while since we saw Dave Furbank (February *Readers' Letters*) on the contest field, shown here with his lightweight Wakefield, back in the balmy days of '65. Incidentally - apologies all round - we forgot to caption the photo of Junior Champ Dave Plews in last month's heading.

RECENT *Readers' Letters* have included some response to my remarks about the number of entries being made in free-flight contests. Such feedback is heartening as it denotes active interest in what I write. Whether I find myself in agreement with readers can be another matter - but differences of opinion can be instructive as well as interesting. I had expressed concern at the present situation where many contests have small numbers of entrants. Furthermore, there seems to be a very casual attitude towards participation under different conditions. In reply Martin Dilly quoted entry figures from the 1968 and 69 S.M.A.E. Area-centralised contests and the Nationals.

Such a comparison is inadequate for evaluating general trends. Statistics is a terribly dangerous subject for the non-specialist. Varying circumstances can invalidate comparisons - and long term trends can be masked by short term perturbations. With such warnings in mind, considerations of Nationals entries over a number of years is not too encouraging. As many modellers make an annual pilgrimage to participate in the 'Nats' perhaps it is not the best basis for a representative picture. A search through back issues of assorted periodicals for relevant information on galas proved more time consuming than useful. The temptation to read old magazines once opened is insidious!

With or without statistical evidence I, for one, am far from happy with the numerical support afforded free-flight events - and I see a pretty fair selection of them. This topic is being aired in the hopes of promoting ideas for a solution rather than from a desire to play the 'prophet of doom'.

In this context certain recent developments show at least an awareness of the need to recruit 'new blood' and to retain it. To retain the active support of the U.S. Navy as host for their Nationals the Americans have staged a massive campaign to attract juniors and to start them off on the right foot for building and flying the 'Delta Dart', an ultra simple rubber design. The *National Free Flight Society*, operating within the framework of the A.M.A. (the transatlantic equivalent of the S.M.A.E.), has just announced a design contest for small field rubber models.

Rather nearer home, a radical innovation in the 1970 British Nationals programme is the Kit Contest for Juniors. Restricted to under 16's, flying models built from a limited choice of rubber or glider kits, this is a most welcome concept. Handled correctly, and with sufficient publicity and prestige, this event should do much good. Perhaps it could prove the first step in the long term promotional exercise that the hobby needs.

On a different slant, in the February *Aeromodeller* Dave Furbank argued that 'progress' had taken the accent off model performance and that the situation could be improved by revising contest rules to include more flights to a higher max. This idea, if not the exact rules suggested, might well encourage the existing enthusiast, but these are limited in number.

Coincidentally, I received direct a letter from Herb Franck, of Massachusetts, U.S.A., that bears on the same topic. Herb's name should be familiar through his productions of 'The Long Flight' film that I reviewed in my June 1968 'Comments' and that has been seen by some British audiences. Perhaps I can quote him verbatim:-

While the quality of F/F competition seems to be improving, the number of participants is not growing. I can see any number of reasons for this phenomenon. As I see it, F/F must change its image in order to attract new people. Obviously, promotion

has always been needed, but the quality of promotion is most important. I am convinced that most people don't know what a wonderful thing they are missing, and that if the public were just let in on the real thing, we would have more new faces on the flying field.

The American Free Flyers are convinced that the solution to any participation problems we are having can be cured on either the drawing board or by the contest board, i.e. new designs and new events. This implies that the designs we have are unpopular and the nasty rules are turning people away. My theory is that the general public is not bothered by the rules, or the state of design. In fact, they aren't bothered by F/F because they have never heard of it.

Herb also sent me the certificates won by Whitefield members in the postal contest organised by N.F.F.S. last May and June, together with the benefits of his experience in helping to handle this type of event. A comprehensive range of events was offered and this was considered to be the fundamental reason for the administration difficulties and resultant delays. Certainly it has led him to recommend that 'any club or individual that decides to run a postal would be well advised to take one bit of advice - offer only one event at a time!'

Certainly a couple of very successful *International Postals* held during 1969 followed this advice. I am thinking of the German organised Chuck Glider event (reported in the October 1969 'Hangar Doors') and the third annual Spanish A/2 contest. The latter has been unreported so far - but perhaps the accompanying results might inspire other clubs to emulate Whitefield and Norwich! The next contest is to be flown on either 19 or 26 April 1970, and souvenir hunters might like to know that pennants are distributed to all entrants - or at least they have been so far!

It would seem appropriate to mention briefly the *East Anglian Area postal* held last Autumn. This was for All-in-F.A.I. and produced only a relative handful of entries. Whilst admittedly disappointing to the organising area, who provided much of the entry, I would think that more advance publicity would have given the event a better chance. On the other hand, many contest 'regulars' are simply disinterested in this type of contest - this was noticeable at Chobham, where I made extra flights for the postal after my normal Gala ones - and aroused a certain amount of surprise in the process!

★ ★ ★

'Winter Rallies' seem to have lost their one-time popularity. The North Western Area, once pioneers of this idea, recently gave a very cold reception to a proposal that such an event be held! Nevertheless, there has been some activity on the contest field.

One meeting that I attended in the rather unusual guise of spectator was the 'Winter Chuck Glider Contest' run by the Wigan Club on parkland on the outskirts of town. The handout sent to local clubs promised seasonal prizes of festive consumables (plus money) - a favourable indication that the event mattered to the organisers.

The weather man proved unkind, with a very cold, blustery wind, with much low level turbulence. Conditions improved somewhat towards the end and some respectable scores were managed. Few were surprised to see Roy Roberts emerge as the winner with his version of Nat Antonioli's design.

The winning approach. Roy Roberts' Dolphin uses wing tab to give wash-in on port wing.

Whilst much of Roy's success is due to his ability to throw hard and accurately it was apparent that he also has a model that can utilise 'armpower' effectively. The flights I saw displayed little or no tendency to loop, made about half a circle 'under power' and had a rather wide glide circle.

In comparison, runner-up Mike Duce flew a low aspect-ratio straight dihedral model (or to be more accurate, three of them) with a rather rolly-polly climb. Third place went to Barry Kershaw, mainly by dint of making the day's best single flight of 52 seconds. Fourth and top junior award, was taken by David Barnes (whose father Joe was prominent in rubber events a few years ago) flying a very small model.

Several of the other entrants had pattern problems - some of which were due to 'weak' launches. Contest chuck glider needs both throwing ability and correct model design and adjustments. These are inter-related to an extent not often appreciated. The faster the launch the less warp and incidence difference are needed - and often enough the better the transition to glide. Beyond this, I think the specialists should give the advice!

★ ★ ★

There were two contests at Chobham between Christmas and the New Year, about which I heard little either in advance or afterwards. However, I did make the trip South to attend Blackheath's 'Bill White' Gala on 11 January 1970.

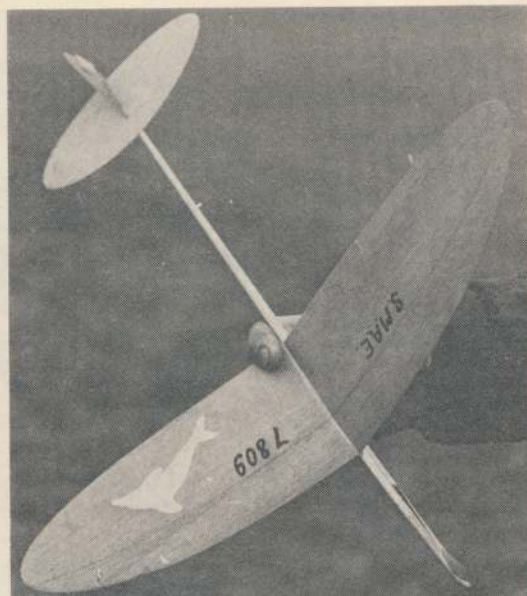
The morning was rather overcast and dismal, with some rain. Flying was slow to start - despite the announced early closing time. First person I saw fly was Jim Bagley with a largish square-tipped open glider - quite a departure from his usual A/2 and inviting comparison with the *Maxmaker* eight-footer he used to fly. He had made three flights for a very useful 8:45 total before most people had flown at all. In the end, however, he was beaten by Tony Young who managed the only treble in glider. Tony was using a model that he had vastly improved by relocation of the wing tubulators, and which featured two DT timers as insurance against failure. He broke a towline on the third flight, and had to reply with a reserve in the final minutes of the contest.

Power was the first contest held under the 'new' silencer rule. Discussion soon revealed confusion over the exemption of F.A.I. specification models, and their eligibility for open events in an unsilenced state. The situation remained unresolved as I had not time to fly power! This event was won by John West with three maxs from a model that looks quite different from its *Dixielander* origin. Power was a good G15 (the same engine that George French borrowed for Sazena in '67), using 30 per cent nitro fuel to turn a 7 in. x 4 in. Top Flite nylon prop. Silencer was a Merco intended for .29 to .35 engines. Second was Russell Peers flying his usual Eta 29 powered *Woodpecker* design but with an over-ich motor on two flights, blamed on inexperience with silencers. The type used is uncertain as it came from a club member who had polished the outside and 'cleaned out' the inside!

The All-in-F.A.I. event was won by Bill McGarvey flying I believe, a Wakefield to a very good score in the conditions. Runner-up was Jim Bagley with another set of flights, this time using an A/2.

Meanwhile, the rubber event had produced many retrieving difficulties. There were about five or six double maxs,

The novelty approach. Eric Higham produced this eggbox winged, T-tailed 'chuckie', but did not fly it at the Wigan contest.



out of an entry of under ten, but only two trebles. Andy Crisp stalled down on glide through a rubber bunch, Dave Digby had his model returned too damaged to fly again, whilst Bob Wells and Dave Hipperson returned too late for their final flights (with and without their models, respectively).

This left Tony Grantham and myself to flyoff. My model was well off the common and proved elusive. Knowing Tony's model had been found I searched as long as I dared before returning to flyoff with an inadequate reserve. As Tony and the organizers had waited for me, I can hardly complain about the final outcome. If they hadn't I would still have been second. Tony's winning model stalled on the flyoff through bunching and/or damage to fuselage longerons and hasty field repairs. It was a replica of Fred Boxall's pylon free-wheel design of many year's standing. The model is smaller than usual nowadays, having only 180 square inches of wing area, and 65 of tail. Power is 3.2 ozs. of 6 x 1 mm. Pirelli arranged in 10 strands and driving a 16 in. x 23 in. propeller. Airframe weight was unknown, but the designer reckons 2½ ozs. is typical.

To conclude this contest report I would add that both John West and I thought it worthwhile to revisit Chobham (in the company of Dave Welch and Fred Boxall) to look for, and find, our models - an interesting illustration of the value of models as distinct from their cost!

Wigan Winter Chuck Glider Contest, Beacon Park, Upholland, Nr. Wigan, 14th December 1969. 1. R. Roberts (C.M.) 2:56; 2. M. Duce (Liverpool) 2:36; 3. B. Kershaw (Wigan) 2:19; 4 and Top Junior, D. Barnes (Liverpool) 2:10.

East Anglian Area Postal All-in F.A.I. Contest, 5th and 12th October 1969 (23 entries of which 14 scores were returned). 1. J. O'Donnell (Whitefield) 18:58 Power; 2. D. Oldfield (Norwich) 18:34 A/2; 3. W. McGarvey (Croydon) 18:17 (Wakefield); 4. J. O'Donnell (Whitefield) 18:11 A/2.

Blackheath 'Bill White' Gala, Chobham Common, 11th January 1970. Rubber ('Bill White' Trophy): 1. A. Grantham (East Grinstead) 9:00 + 2:46; 2. J. O'Donnell (Whitefield) 9:00 + 2:29. Glider: 1. A. Young (Croydon) 9:00; 2. J. Bagley (Hayes) 8:45. Power: 1. J. West (Brighton) 9:00; 2. R. Peers (Congleton) 8:40. All-in-F.A.I.: 1. W. McGarvey (Croydon) 8:33; 2. J. Bagley (Hayes) 7:56.

3rd Spanish Postal Contest for A/2 Gliders, April 1969 Team Junior. 1. ASVA (Rumania) 2,437; 2. E. A. Madrid (Spain) 2,282; 3. L. M. K. Prostějov (Czechoslovakia) 2,273. Best British performance, Whitefield, 13th. **Team Senior:** 1. Arnhem M.A.C. (Holland) 2,693; 2. Whitefield M.A.C. (G.B.) 2,608; 3. Toronto F.A.I. Group (Canada) 2,591; 4. Norwich M.A.C. (G.B.) 2,533. **Individual Junior:** 1. C. Mackenzie (Toronto, Canada) 900 + 124; 2. S. Szava (Rumania) 875; 3. J. Ferreira (Madrid, Spain) 867. **Individual Senior:** 1. M. Reeves (Whitefield, G.B.) 900 + 240 + 167; 2. Z. Flieger (Prostějov, Czechoslovakia) 900 + 240; 3. J. Borril (N.S.W.A., Australia) 900 + 194.



aero highlights

Much admired was The Reverend J. R. Cooper's de Havilland Mosquito. Scale type finish and interior details were first class. Many queried how it would fly. It hasn't yet! Will have undercarriage and .60 size engines fitted for control-line. Father Cooper runs an Aeromodelling class in his Parish in N. West London.

AEROMODELLING was better represented at this year's 'M.E.' Exhibition than for the last two shows, and for several reasons. Firstly, an increased response to the invitation for entries; secondly, due to first-class representation by the National Societies, the S.M.A.E. and the I.P.M.S.; thirdly, due to the magnificent display of historical models by Alwyn Greenhalgh, and fourthly, because the revised layout of the exhibition gave the aero side a better display. Not that we're at all satisfied! *Next* time we want twice as many *good* model 'planes to show the other modelers that *aero* modelling has a strong following.

Our electric round-the-pole models repeated their success with continual action, though due to concentricity with a circular boating pool there were times when nautical, R/C automobile and aeronautical interests conflicted. Mainstream joined us in R/C vehicle demos by the trackside, and after ten days of autorial practice, we were all experts at parking, obstacle dodging and sharp steering with these remarkable cars. Some clubsters brought their own RTP models along to try, and were welcome, notably the Debdenaires, and since the show we've had a number of appeals to borrow the pylon and control which we must decline due to other commitments. Elsewhere, the S.M.A.E. lads were showing how to make a model (ready for the Junior Kit contest at the Nats) and I.P.M.S. answered more queries about plastic-card models than they'd care to recall. Their booth exhibited a wealth of talent with some truly magnificent models which more than dispelled the assumption that plastic modelling was just another form of messing about with simple kits. Some of the I.P.M.S. publications too, were extremely impressive for their wealth of detail and fine illustration.

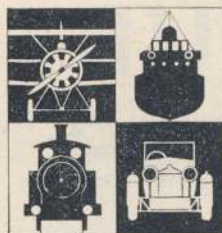
Occupying an impressive frontage was the Greenhalgh Collection. This continually expanding display is an exhibition in itself. Alwyn had the famous Stanger engines and other pioneering power units on show, as well as some of his latest additions which include a record holding Puss Moth of the thirties. The sight of these early models, generations old in many cases, emphasises how much the character of



Daily dust-off by Lt. Cdr. Alwyn Greenhalgh R.N. (ret) for just one of his collection of what must amount to hundreds of famous pioneering models, and engines. Compressed air big 'uns are suspended in background.

Trio from Leicester were top of the aero club entries but alas a Railway Engineering club took the trophy. B. A. Drone, Beagle Pup and Vickers Supermarine Seagull made a nice entry, showing broad choice of subjects.





model engineer exhibition 1969-70

aeromodelling has changed over the years. One is tempted to wonder how many modellers would have the patience to construct some of the complex streamliners today.

On stage, one could see most of the competition exhibits. Apart from those we illustrate were two of Harold Towner's latest scale creations, each of which we hope to publish. They are a Britten-Norman Nymph for single channel—and an Avro Lancaster control-liner for small engines. Popularity of the Beagle Pup was exemplified by no less than three entries, and to round off the assortment, what better could one wish to see than no less than ten of Doug McHard's beautiful miniature rubber scale jobs, including a 1/50th scale Zero which at any distance could have been mistaken for an escapee from I.P.M.S.!

AWARD WINNERS

Free Flight Flying Models

J. O'Donnell, Stockport, Cheshire
M. Dilly, West Wickham, Kent

'Slowcoach' Wakefield A/2 Glider

Hly. Comm'd
Commended

Radio Control Flying Models

P. A. Denne, Gillingham, Kent
J. Marsh, Leicester

'Mustang' Aerobatic model

First
Second

Scale Flying Models

P. J. Morrell, Bury St. Edmunds
Rev. J. R. Cooper, London, N.W.1
D. Meredith, Sidcup, Kent
M. Poncelet, Morden Surrey

S.E. 5a
D.H. Mosquito
Sopwith 1 1/2 Strutter
Grumman Tigercat

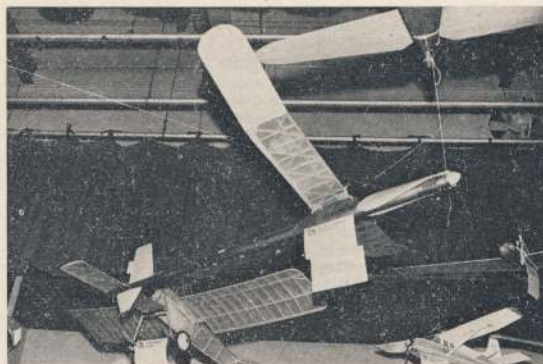
Silver Medal
Bronze
Hly. Comm'd
Hly. Comm'd

Non-Flying Scale Models

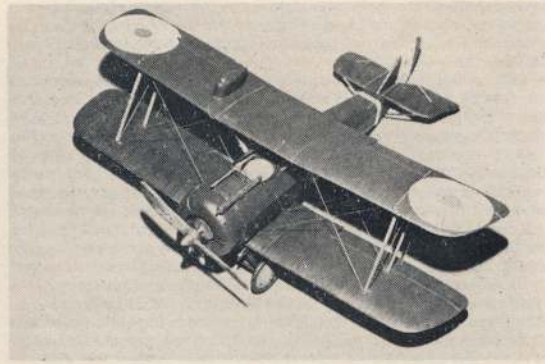
H. J. Boyd, Edinburgh 3
W. A. Vandersteen, Winchester, Hants.
J. Wardman, Leeds

Bristol Fighter Collection of Sopwith Models (3)
Spitfire LF Vb

Silver
Bronze
Hly. Comm'd



John O'Donnell's Wakefield known as 'Slowcoach', a Blackburn Monoplane and an Aermacchi 'Santa Maria' over the stage area. Duration models were the rarity. Fear of warps in the heated hall maybe? Experience proves this unjustified.



Just one of many really superb models on the I.P.M.S. stand was this de Havilland 5 fighter from World War One made completely from plastic card by Tony Woollett with every item of detail beautifully reproduced to 1/48th scale.

This huge S.E.5 by P. J. Morrell, with O.S.80 but as yet to have its radio (though Mr. Morrell was a lucky winner of a recent comp. for a Simprop outfit) was a clear winner of aircraft championship. Interior of cockpit has been re-furnished since Old Warden outing.



From Edinburgh came H. J. Boyd's 'old style' carved from the wood static model, and it proved so faultless and well made it gained the Bristol Trophy plus class honours. Large (1/24th) scale helps; but workmanship remains the final arbiter.





CLUB NEWS

S.M.A.E. stand at the 'Model Engineer' Exhibition held at the Seymour Hall in London was well staffed and carried several outstanding models, notably Roy Yates' 'Proctor' and Elton Drew's 'Lively Lady' World Championship winning A/2 glider (to appear in our May issue). Here, Elton Drew, Ray Favre, a visitor and Bob Burgess of 3 Kings Club are ready to answer the many queries.

ALTHOUGH for reasons too obvious to restate, the reintroduction of the Silencer rule by the S.M.A.E., will only be as effective as its members wish to make it, let us hope that the decision will stir many a conscience into an acceptance of its imperative need, and that all clubs will do their best – as many are already doing – to get the golden rule of silence observed wherever model planes are flown. Whilst cause for complaint will continue to rise from irresponsible individuals with no sense of allegiance to the movement, at least we would get a much improved situation if the silencer rule were to be stringently applied at all organised centres of model flying, particularly the club fields.

Still on the theme of Society affairs, *Seadog* the newsletter of the **South East Area**, is sorry to see the Area lose its very able Secretary, Norman Couling, but is not too downhearted because Norman's services will still benefit the Area in a less direct, but equally important way, now that he has been elected to the office of Chairman of the S.M.A.E. Problem is to fill the void left by this very industrious officer, and it's a compliment to his capacity for hard work that his Area job is being shared by six individuals. And still keeping to Society matters, there is now much talk of a new look for the Seventies. The model movement, as always, is in the melting pot, due to the rapidly changing model scene. The organisation suited to the Fifties was not so relevant to the Sixties, and goodness only knows what will be required for the Seventies. Let us hope, though, that the sub-committee which is being formed to look into the whole structure of the Society will come up with a good, practical scenario. In the wider international field, the F.A.I. have made a few realistic revisions to its rule book. One very welcome piece of realism is the scrapping of the r.o.g. rule for Coupe d'Hiver models. Mostly it has been a matter of touching the tailend lightly on the ground and away. I sympathise with the power boys who have invested in costly tuned pipes, but I will not be sorry to see them banished from the flying field – you can stand a certain amount of noise, but . . . Perhaps a more controversial change of heart on the part of the F.A.I. is to allow timekeepers to use visual aids, but it will at least make a change

from the flyer's pals! Other notes in the newsletter concern the possibility of putting on another Charity event for a R.A.F.A. home, run much on the lines of the highly successful 1969 event.

With so much emphasis on model flying as a 'sport', it is a bit refreshing to see that good construction and finish still brings its rewards. From the **Leicester M.A.C.** newsletter we learn of a three-stage Concours event to be held early in the 1970 season. First stage will be for complete, but uncovered, air frames; second stage for covered and finished models to coincide with the Leisure '70 Exhibition; and, finally, there is to be a flying event to round off the event; just to prove that the artefacts are practical, operative models and not mere decoration. A membership-cum-publicity form accompanies the newsletter. This gives the would-be member a potted history of the club from its origins in 1936 as the *Stoneygate Model Aero Club* (days when Radio was but a gleam in some toddler's eye). Reconstituted after the war under its present name, the club has gone from strength to strength whilst many another club has bloomed and withered. One reason why it has weathered all the changing moods of the modelling scene and remained a strong, well integrated group is, perhaps, evidenced in this well prepared application form which, incidentally, includes a questionnaire for the would-be member to fill in; designed, it would seem, to obtain some assurance of serious intent. It is all too easy to pick up non-participating, non-paying 'paper' members who only add to the burden of administration. Application forms obtainable from the Secretary, Mr. Malcolm Crisp, 84 Henley Crescent, Braunstone, Leicester.

Users of motorway-threatened Chobham may be alarmed to learn of a further threat to this rugged, but precious piece of flying territory. The nature of the threat is revealed in a cutting from a local newspaper which a concerned resident of the district has kindly forwarded to us. It would seem that the Surrey County Council are putting up a scheme for the conversion of over 100 acres of this natural countryside to recreational development, including a golf course and rugby pitch. We can, however, assure any interested



Silver and Black transfer at left is obvious in its purpose, that at right is in Blue and Yellow, and carries subtle identification of East Grinstead Model Flying Club.

reader that the S.M.A.E. is already lending what we hope is an effective voice of protest by attending meetings of the Chobham Preservation Committee.

To the oldies among us a *Buy a Spitfire* fund meant trotting out the old aluminium pots and pans, but as the fund referred to by the **Potteries M.A.C.** is for the purchase of a wartime relic, it is money-raising activities to which the sponsors are looking. Very involved in the affair is the Potteries Club, which operates in the area where Reg Mitchell, the designer of the Spitfire, came from. True, the Spitfire in question is not exactly early vintage, being a Mk. 16, but still an acquisition of much sentimental and historic value which the local Council has promised to give a resting place. The Club's particular effort (it calls itself the Potteries Spitfires by the way) was a Concours event which was judged by members of the Fund Committee. Quite a success, too. It raised ten useful guineas for the Fund and, at the same time, gave the Club good publicity coverage in the local press. Another cause for satisfaction is the return to the fold of the Radio boys who left to form their own club some time ago, but whether to call the return a prodigal or proportional one is a moot question.

Frontispiece of the **Elliott Club's** issue of *Circuit* depicts Santa Claus flying a C/L model over the antlers of a red-nosed reindeer (doing a couple of lapps, of course), whilst in the sky above, old man moon himself is flying a radio job in spite of all the people who have been trampling on him lately. A bumper issue this, with a lot of solid diagrammatical gen for the ambitious – and sporting – C/L man. Useful, too, to expert and novice alike, are the plans of a couple of increasingly popular profile Racers, a simplicated Rat Racer, and a highly sophisticated F.A.I. Team Racer. This latter design hails from the South Bristol stable of Giles/Harvey. The model utilises a Meccano wheel bellcrank and also embodies such super refinements as wing section variations; for instance, the inboard panel changing from semi-symmetrical at the root to thin Clark Y at the tip. The Club is hoping that its junior section will be well represented in the special kit contest that is being put on for the younger modelers at the next Nationals. Club championship honours for the past season went to C. Atkins, with J. Langridge as runner-up. Points award system is of interest: 60 for a first place, 40 for a second and 30 for a third, with an extra award of 10 points for each contest entered. Outside comps. only to count.

A peat decking may not provide the smoothest form of landing strip for the homing radio model, but flyers of the **Urmston & D.M.A.C.** are often thankful for the absorbent qualities of their Astley Moss site when their valuable models come in slightly askew. Plenty of radio activity in this club, but not to the detriment of other interests, for we are told that all branches of the hobby are thriving, particularly Combat, much of which is to be seen on the club flying field at Urmston Meadows on any flyable Sunday afternoon. Odd club evening was a 'McGillicuddy' night. Older readers of this journal will remember with fond nostalgia the cunning gambits of the old Maestro, assisted by his seagull pet, Drambuie. It was in an attempt to recapture something of the flavour of those more spacious days of model flying that the McGillicuddy evening was held. The readings given from his Year Book brought forth many an appreciative guffaw from the electronic age members, for whom his wayward philosophy still provided many a shrewd thrust. Anyway, past or present, we are glad to hear from the Urmston Club again, and to know it is in such a thriving state.

A long time since we made mention of the **East Lancashire M.A.C.** Not our fault; it is that nothing has issued from that corner of the country for many a moon landing. Club P.R.O., P. I. Coates, reminds us, however, that things in the East Lancs. district – model wise, that is – are in robust condition and bursting forth in all

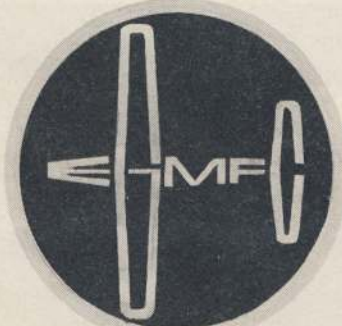
directions. Contest flying is at present restricted to Free-Flight mostly A/2, but perhaps the control line section has been too pre-occupied in putting on demos as a means of swelling the club funds. No mention of Radio, but prospective members are assured of unlimited flying space. The big winter event was held in February when the Club joined with the local Model Boat and Railway clubs. Activated features included Electric Round the Pole Flying, Hovercraft and Radio-controlled cars.

The **Three Kings Aeromodellers** are in no doubt that the re-introduction of the silencer rule was a diabolical plot on the part of Radio flyers who, at various contests, couldn't hear the purr of their silenced engines over the howl emanating from the C/L site. Does sound a bit improbable, but it would seem that the Radio section of the movement is becoming more vocal at the centres of power. It wasn't long ago that we reported a lack of radio representation at decision-making level. Still, we trust that the Council's decision to bring back the much battered rule was motivated by reasons more pungent than the pressure applied by any one self-interested faction. Further decisions taken at that momentous Council meeting adverse to the Three Kings' interests concerned the Nationals; abandoning the Carrier event and taking out Goodyear racing. However, it is possible that the Carrier decision could be reconsidered if the Three Kings manage to get the deck mobile at least a month before the event. And, as for Goodyear, the boys feel strongly about this: so much so, in fact, that Dave Rudd has offered to run a Goodyear event at the Nats as a private venture. It is felt that Goodyear, with its low costing and simple construction, has a special appeal for the younger modeller. Keeping to the subject of youth, the Club recently held an aeronautical get-together with the local A.T.C. boys. A special treat laid on for the lads was a sumptuous display of Scale models, no less than fourteen in number. These included a 63 in. span Viscount and a 10 c.c. R/C Spitfire, also a string of first World War models, such as the Sopwith Pup and S.E.5A. In addition to the display there was an absorbing, all flying film show. Altogether a successful evening.

Event of the season for the **San Valeers** of California, was the wedding of their President, Lee Polansky. The occasion seems to have been used as a gathering of the whole Californian modelling clan. The only trouble was one of recognition, as many of the modellers were barely recognisable with their airfield clobber exchanged for Sunday best. Oddly enough the *Satellite* appears to greet the wedding of a model flyer more with joy than dismay. Unlike here, where the wedding bells knoll the departing aeromodeller, they regard the matrimonial institution as one productive of future junior members. A point in the mag about model shops. Someone has reacted to the recent 'Support Your Local Model Shop' campaign by pointing out that the hobby has become so diverse and specialised that the shop that caters to the general local interest would be unlikely to stock those unlikely odds and ends that the specialist modeller requires. Certainly, over here, the larger model shops run a strong line in Mail Order, but even at that they specialise to a large extent, and you have to keep your ear to the ground if you want that hank of Pirelli or a ball race. But just to show how specialised things have become, there is report of a U.S. firm which is offering torque meters to the serious rubber flyers. Address given is Wilder's Model Machine Works, 2010 Boston, Irving, Texas.

With our old twelve times measuring and weighing systems likely to go the way of our I.s.d., in the not too distant future, perhaps we should start now thinking internationally in terms of grammes and other tenth part whatnots. If you are a convert to this way of thinking you won't have to go through agonising conversions when coming to grips with international specifications; particularly the one I saw in *Free Flight News* for a new Thermal and Slope Soaring class of R/C model. Max surface area 150 dm² and max weight 5 kg, heterodyne radio only. For thermal soaring the towline or catapult and line length is limited to 150 metres. Flight max is 6 minutes with penalty points for exceeding that limit. For Slope the models will be required to fly a course as well as max out at 6 minutes. The mag also carries an outline drawing of the Russian Wakefield of I. Silberg which placed 3rd in the 1969 World Champs. Cunning mid-wing fixing used, beautifully faired into the aluminium fuselage – reminiscent of the old streamliners. Curious to know how this mid-wing assembly was effected, particularly as the wing section, Goettingen 495, is extremely thin. This section is given full size in the mag, complete with a set of ordinates, and is strictly expert stuff; too slim to apply to conventional wing structure techniques.

If you want a club event to be a success give it plenty of forward publicity. A short notice club auction held recently by the **Anglia M.F.C.** failed to bring forth the members and their goods in any quantity. Even so, much was achieved with the little there was, raising the tidy sum of £51.0d. for the club funds. We were discussing earlier our obsolescent duodecimal system; so it is interesting to read in the Newsletter of a member, Ken Collins in fact, who had



built a couple of French influenced Coupe d'Hiver models from a stock of metric balsa he had acquired. Advice he gives to anyone going over to the metric system is to think wholly in metric terms, even if it means wearing a beret and drinking black coffee. He goes on to say that, from a design calculation point of view, things are easier if you work in tens. Makes sense, too, particularly as all international formulae is metric. You could design to finer limits than is possible if you had to convert into inches, and you would find it easier to study foreign layouts. At the Club A.G.M., held last November, club fees were raised to £2.10.0d, for Radio flyers and £2.0.0d for Free Flyers. Some of the additional money obtained will go to the purchase of a motor mower for use on the club field. (For 'One man and his dog' delete dog etc.) and also for a folding bike to be used for retrieving. It is also possible that a caravan may be acquired for use as a club hut.

Imagine holding the Nationals during the week after Christmas! It's bad enough here at the height of summer. However, if you happen to live on the other side of our shaky old globe - New Zealand, to be precise - Summer and Christmas are likely to coincide. Too much at once if you are a model flyer and given to festive indulgence, but no reference to the dyspeptic droops or thermal sized heads in the **New Zealand M.A.A.** Newsletter, from whence I obtained news of these Dec./Jan. Nationals. The events cover a period of six days, with the first day given over to registration, a get-together of contestants, and very practically, an A.G.M. of the N.Z.M.A.A.

Tony Grantham, P.R.O. of the **East Grinstead M.F.C.**, reminds us of the Gala the club held at Chobham last October as an example of what the club has been doing since last we had word from them. The gala was one of the best of the year down South. Club members did not fly in the interest of providing plenty of time-

keepers and the best organisation they could muster. Prizes were in the form of engraved plaques and the weather glorious. Mainstay of the club are the contest free-flyers and the sport control line groups, but there are several fringe flyers whom the club would like to see more actively involved. Reference to the fine free-flight area available to the club seems to suggest that it is not open to Radio, although obviously the club has facilities for control line. There is also a dash of microfilm flying at the East Grinstead Grammar School, where the club meets every Monday. Perhaps we'll get some news of Radio when they go 'comprehensive'.

Dave Digby, who hails from **Epsom Downs**, has got together with a few other local enthusiasts with the object of forming a club to cover the North Surrey area. Not just an open club, though, for it is intended to limit it to free-flight contest flyers only. A bold move in these radio-dominated days, and one which we hope will succeed. Meetings will be held occasionally either at the local or in a member's house, where ideas can be exchanged and contest arrangements made. Is the flying ground to be that ancient haunt of model flyers, Epsom Downs? Or don't they allow that sort of thing at Tattenham Corner these days? Anyway, if you are a contest flyer, or would-be contest flyer, why not ring Dave at Burgh Heath 54329, or his pal, Malcolm Lambert at Lower Hook 5487.

If you are a believer in extra curriculum pursuits, particularly of the voluntary kind, then the juniors of the **Debdenairs M.F.C.** will surely win your sympathy, for they put on a quite unprompted display for fellow scholars after school hours. On a slightly grander display scale the club's electric r.t.p. section turned up in force at the **M.E. Exhibition**. They got a great welcome, and would like to express their thanks for the hospitality shown. The boys managed to get three models circulating on the stand, all K.K. kits, and enjoyed

Finnish Indoor Meeting

First Finnish contest of the year was their indoor meeting held on New Year's Day - the only day of the year when the seats are cleared from the huge exhibition hall, following a big dance the night before! This contest has traditions dating from the middle thirties when most of that nation's modelling was indoors.

The most popular event was for kit models, divided into various age classes, with a weight rule of 2gms. minimum per 10 cms span, or part thereof. Best supported was the open class with 27 entries, eventual winner being Erik Lauraeus, attaining a duration of 2mins 9 secs. An interesting class which can be highly recommended for other indoor contests, is the paper-covered category, with a maximum of 70 cms span and a minimum weight (without rubber) of 2 gms per 10 cms of span. These models fly well, and are not as vulnerable as the microfilm covered jobs. Ilkka Narvala won this class with a best flight of 4:58 - there being some 15 other competitors.

Microfilm covered models suffered from the wintertime draughts present in the hall, and also from temperature

variations - outside the hall the temperature was -10 deg. C, and inside 20 deg. C! Oile Nordlund took top honours in this class with a 14:14 flight. The under 35 cm span class attracted only one entry, and a newcomer at that, being Kosti Nurminen with a 4:20 score.

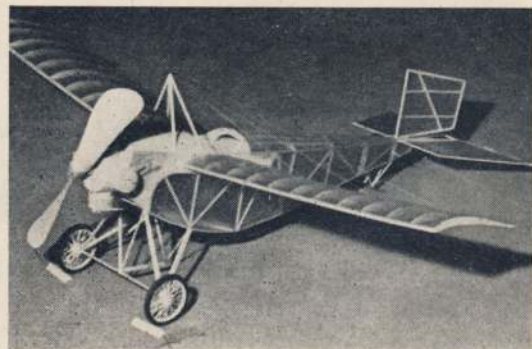
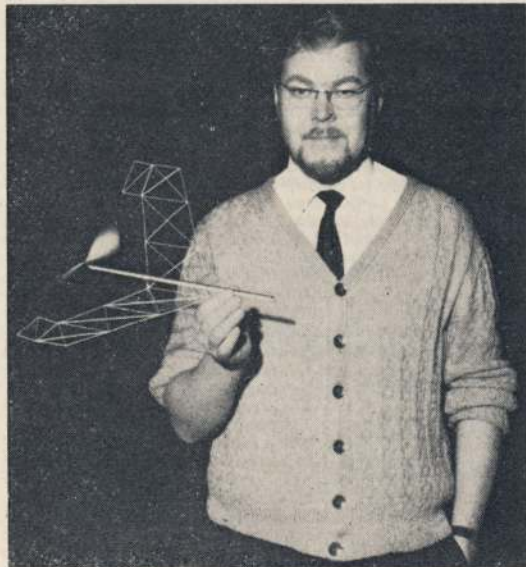
Scale models were judged according to modified F.A.I. rules - outlines had to be strictly scale, with no enlarged tailplanes or dihedral. Only the propellers could be non-scale, and even they had to allow ground clearance when resting on the scale-length undercarriage legs. All take-offs were to be R.O.G.'s. Winner was Julle Mattas with a 1911 **Caudron Monoplane** - achieving a duration of 1:9.3 and a scale score of 36.5 out of a maximum possible of 40. Second position was closely contested between Johan Lund with a **Blackburn Monoplane** and Mangus Grotenfelt's **Siemens-Schuckert E.1** - the former winning by just one scale point, having been equal on duration!

The Experimental section was divided into two classes, for rigid and moving surfaces, but only two competitors per class were able to achieve results. Seppo Niemela managed 2:37 with a microfilmed flying wing, while the 'moving surfaces' category was won by Pekka Joensuu, flying a helicopter for a duration of 30 seconds.

This contest has become an annual get-together for many aeromodellers, many of them no longer so active in the model aviation world, and the total number of contestants (106) speaks well of its success and popularity.

Left, Seppo Niemelä, winner of the unorthodox class in Finland, with his flying wing.

Below, close up of the winning Caudron 1911. Prop diameter is scale and wheels have scale number of 48 spokes! Made by Julle Mattas, best flight in contest, 69.3 seconds.



every minute of it. More models would have flown but, although O.K. for the club circuit, they were a bit underpowered for the M.E.'s one. "Brains" of the r.t.p. section is Brian Dawson who is working on a new head for multiple flying—a complex of perspex and ball races. From out of tragedy comes the club's newest trophy, *The Martin Coe Memorial Trophy*, a handsome tankard from the proceeds of the scale of effects of young Martin, who died in a holiday crash last year, plus a generous cheque from his parents. By way of recognition of their unselfish gesture the club has invited the Parents along to judge a Concours of r.t.p. models. The club meets at Luction Boys' School, Loughton every Friday at 7 p.m.

It pays at times to be a bit cheeky. **The Bridlington & D.M.A.C.** is a registered Youth Organisation on the Council's books, so when the question of a club outing came out, one bright spark suggested the club might apply for the use of the Council minibus. Request accepted, so now the lads are laying plans for a trip to one of the big meets. And it pays to be businesslike too. The club now buys its balsa in bulk, reselling to members at a fraction above cost—just enough to keep the club balance of payments healthy. Danes Dyke is not where Hereward flew his Wake, but the club flying ground. Permission from the Parks Committee is on a year to year basis, and all fingers are firmly crossed as the item goes on this year's Council agenda. A Radio mishap always gives cause for reflection, particularly if it hits the wing mirror of a car. Name of flyer: Ken Cropper!

The **Cambridge M.A.C.** tried hopefully to get its nose into Duxford Aerodrome, but had to join the queue headed by the Glider Club and their airfield sweeping towlines, closely followed by the Yacht club intent on claiming the whole runway (must get some rain there!), the parachutists, horse riders, drag racers, etc. Might be possible to get a C/L circle squeezed into a remote corner of the field—but even that depends on the noise factor. With all these conflicting things going on it's little wonder that Pete Tibbetts tried to loop his Trials bike and couldn't make it to the club committee meetings. Cheap membership rates quoted, 15/- for Seniors and 7/6d, Juniors, and includes the use of Waterbeach aerodrome.

An analysis of the contest scene in Australia's **All West Coast's Windsock** shows, oddly enough, an increase in free-flight entry over the past five years, an even more substantial increase in C/L, but a sharp rise and fall in R/C.

And that's about all we can fit in this month, but still anxious to hear from club P.R.O.s everywhere.

THE CLUBMAN

Richmond Gala

It is somewhat defiant to put on a seven-event Gala in the midst of our uncertain winter, but the Richmond club got a fair amount of support for their ambitious programme on what is described as a cold, rather windy day which managed to stay dry, in spite of a threatening flurry of snow. **Glider**, naturally enough, proved to be the most popular event with a strong entry of 15. This gave plenty of scope for warm-up chases over the rugged terrain, but a few brave souls were prepared to hang around for the possible patch of lift. Or, as one competitor put it: the way to find lift was to wait until you stopped shivering, then tow up. Considering the low lift factor, the gliding was of a high standard; Jim Baguley dropping only half a minute on the 9-minute possible. A surprising amount of support, too, for Rubber: 9 entries. R. Bailey flew a convincing 4.29 in the fly-off against J. Blount.

Power saw George Fuller up to his usual good form, though unlucky to lose his power job on his second flight, which meant rounding off with a JA job. By an odd quirk of fate, he was consoled by finding a model which he had lost six months ago—all warps intact.

A high standard also in **Coupe d'Hiver**, in spite of the small field of five. Not too easy to get a max on these models without the right sort of lift.

Five entries also in **Chuck**, where the top boys displayed impressive techniques with their simple, but highly developed models.

The two guinea Voucher, donated by Solarbo, went to Jim Baguley, winner of the largest class.

RESULTS

Open Rubber (9 entries): 1. R. Bailey (St. Albans) 9:00+4:29, 2. J. Blount (Croydon) 9:00+3:17, 3. M. Grantham (E. Grinstead) 8:43. **Open Glider** (15 entries): 1. J. Baguley (Hayes) 8:29, 2. P. Jellis (Croydon) 8:27, 3. J. Mabey (Croydon) 8:23. **Open Power** (6 entries): 1. G. Fuller (St. Albans) 8:48, 2. R. Johnson (St. Albans) 8:27, 3. J. Allen (Brighton) 8:10. **C. d'Hiver** (5 entries): 1. B. Rowe (St. Albans) 5:15, 2. R. Wells (Norwich) 5:06, 3. A. Crisp (FACCT) 4:47. **A/I** (2 entries): 1. M. Dilly (Croydon) 7:14, 2. C. Morris (St. Albans) 5:56. **JA Power** (1 entry): 1. P. Jellis (Croydon) 0:55. **Chuck Glider** (5 entries): 1. W. Houghton (C.M.) 4:56, 2. M. Shepherd (St. Albans) 4:45, 3. A. Crisp (FACCT) 3:52.

NATIONALS VINTAGE PRECISION EVENT RULES

1. A Vintage model must be built in accordance with a design that was published prior to 1st January, 1951, or was kitted by that date (January 1951 issues of magazines are accepted as published in 1950).
2. A Vintage engine is one, the design and mark number of which was advertised for sale prior to 1st January, 1951, although the engine need not necessarily have been manufactured by that date. Engines which would otherwise be classified as vintage engines which include modifications incorporated in manufacture after 1st January, 1951 are not classified as vintage engines.
3. Contestants are responsible for proving the eligibility of their models and engines to the satisfaction of the contest director and must be prepared to produce photo copies of original plans and magazines on the day of the contest.
4. Models should follow the construction shown on the plan. No major alteration should be made to structures. Minor modifications may be made as follows:
 - (a) Materials may be substituted, i.e. spruce for obechi.
 - (b) Balsa laminations/sections may replace bent cane.
 - (c) Plywood dihedral braces and bandaging is permissible.
 - (d) Local sheeting to improve handling of fuselage allowed and also local sheeting and/or subspars on flying surfaces to take the strain of fixing bands.
 - (e) Power models may have noses altered to suit engine mounting.
 - (f) Minor alterations may be made to enable a tip-up tail D/T to be fitted to a design which was not originally so fitted.
 - (g) Fixed undercarriages may be substituted for retracting undercarriages and the position may be moved fore and aft of design position. Twin legs may be substituted for single legs, but wheels must be fitted if shown on original plan, but the diameter may be varied, undercarriages may be fitted if not shown on the original plans.
 - (h) Rubber model propeller block size must be adhered to, as must be the type, single-bladed or twin-bladed, free-wheeling or folding. Free-wheel clutches, rubber hooks and tensioning devices may be to the contestant's choice. The amount of rubber is not restricted, but the rear anchorage must be in the position shown on the original plan. Gears are not permitted unless shown on original plan, and vice-versa.
 - (i) Engine and dethermaliser timers of a type not used on the original design may be used if shown on the original plans, except in the case of gliders, an auto-rudder operated by the release of the tow-line is permitted.
 - (j) Power models may use any type of engine and propeller.
5. Each competitor shall make 5 flights.
6. First Flight—The competitor shall make his first flight which shall terminate in a normal manner, i.e. by touching the ground or come to a standstill by striking an obstacle. If this flight terminates in a dethermalised landing or passes out of sight, or is less than 30 seconds, a further attempt may be made. The time of the first flight multiplied by five is the total time that the competitor shall attempt to score with the aggregate of all five flights.
7. Subsequent Flights—All subsequent flights shall terminate in a normal manner or when the model passes out of sight of the timekeeper. If the landing is made after a dethermalised descent or is less than 30 seconds, it shall count as a non-scoring attempt. Other non-scoring attempts are as defined in appropriate S.M.A.E. rules. Should both attempts be non-scoring, a time of zero shall be recorded for that flight.
8. The winner is the scorer of the lowest error calculated as follows:

$$\text{Error} = \frac{(5X - Y) 100}{X}$$

Where X = First flight time
Y = Aggregate of all five flights.
9. There shall be no restriction on the length of engine run, amount of rubber motor or length of towline employed.
10. Gliders must be launched by towline.
11. Rubber and engine powered models must be launched R.O.G. in accordance with rule 12. This rule may be rescinded at the discretion of the contest director.
12. Power and Rubber models must R.O.G. from a conventional position at the point of release, models must touch the ground at three points. Vertical and/or high-angle take-offs and pushing is forbidden.
13. Engine run for power models, 15 secs. (20 secs. if fitted with a vintage engine). Tow-line 250 feet.

CONTEST CALENDAR

March 15th	CROOKHAM GALA. Open R/G/P. Cd'H. 1/4 Power A/1 glider. 10 a.m. start at Chobham Common.
March 22nd	S.M.A.E. R/C & C/L CENTRALISED MEETING. Multi R/C aerobatics, Combat, Race, F.A.I. T/R, Stunt at R.A.F. Cottesmore, Rutland.
March 22nd	S.M.A.E. AREA CENTRALISED MEETING. Open Power, Open Rubber, F.A.I. Glider, Area Venues.
April —	THIRD HALIFAX INT. POSTAL CHALLENGE CONTEST. Rules and entry forms from J. Pool of 51 Northfield, Barby, Nr. Selby, Yorkshire, E.R.
April 12th	F.A.C.C.T. COMBAT RALLY. At New Barn Farm, Weston on Green, Nr. Bicester, Oxon. (Off A.43). Pre-entry 4/6 to G. Johnson, 37 Oxford Road, Kirtlington, Oxon.
April 19th	LUTON & DISTRICT SLOPE SOARING RALLY at Ivinghoe Beacon. Magnet Steering (3/-). R/C Multi & S/C Spot Landing (5/-). Pre-entry to T. R. Clark, Windy Ridge, 126 Alexandra Avenue, Luton, Beds. (Luton 22742).
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 10th	SOUTHERN GALA. Open R/G/P. 1/4 Power Chuck Glider, R/C aerobatics, F.A.I. Pylon Race, 1/4 T/R, F.A.I. T/R, Combat, Stunt at R.A.F. Oakham, Hants.
May 24th/25th	BRITISH NATIONALS at R.A.F. Hullavington.
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 7th	SOUTH MIDLAND AREA THERMAL SOARING CHAMPS. Venue to be announced.
June 14th	AEROMODELLER/R.C.M.&E./SCALE MODELS SCALE RALLY at Old Warden, Beds.
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. 1/4 T/R, B T/R, Handicap Speed, Profile Goodyear, F.A.I. T/R, Combat. Pre-entry 2/6 to C. Atkins, 12 Hillcrest Road, Chatham, Kent.
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 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. R/C & C/L SCALE TRIALS at R.A.F. Little Rissington, Glos.
July 26th	SOUTHAMPTON M.A.C.'s F/F GALA. Open R/G/P, A/1, C d'H at Beaulieu Airfield.
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 16th	S.M.A.E. ALL SCALE MEETING at R.A.F. Little Rissington. F/F, C/L, R/C.
August 29th-31st	WORLD SCALE CHAMPS. Control Line and Radio Control at Cranfield, Bedfordshire.
September 6th	NORTHERN GALA. Open R/G/P, 1/4 T/R, F.A.I. T/R, B T/R.
September 20th	SOUTH MIDLAND AREA RALLY. R/C C/L and F/F at Cranfield, Bedfordshire.
September 20th	IST. R/C TRIALS at R.A.F. North Luffenham, Rutland.
October 4th	HARPOLE SECOND ANNUAL C/L STUNT COMP. The contest with the built-in lunch! Details: I. Peacock, 41 Carrs Way, Harpole, Northants.

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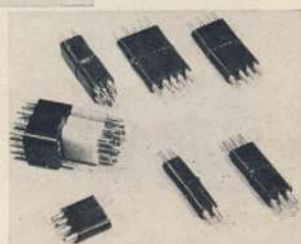


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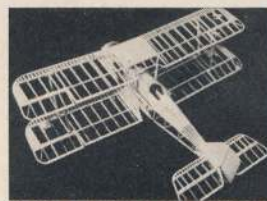


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March R.C.M. & E. carries a free full size plan for a single channel R/C sportster designed by David Boddington, while other plans in this issue will include Rich Brand's sleek low wing Spitpanzer aerobatic model which placed 8th at the last World R/C Championships and Jo Ivens' Can-Can, R/C canard model for single channel. Rex Boyer explains the operation of integrated circuits, and also provides some useful information on updating the R.C.M. & E. Digital system, while other features include Scale News and Throttle Benders Union with more information on R/C pylon racing.

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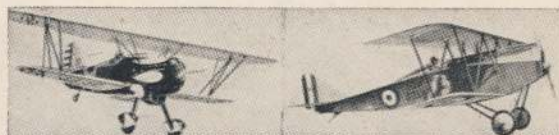
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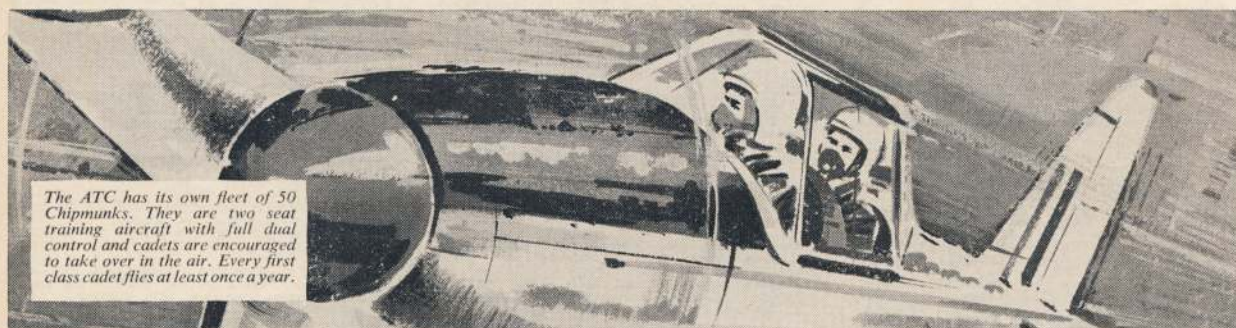
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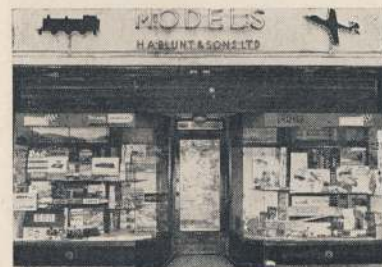
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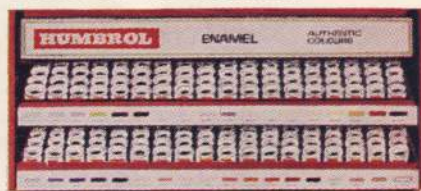
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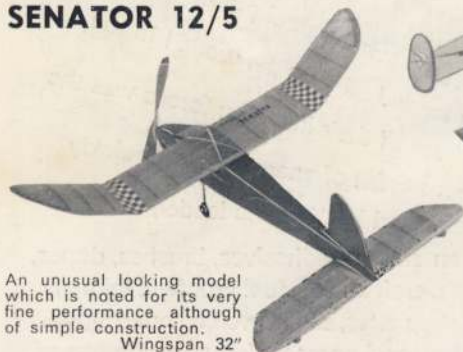


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