Aero Modeller

APRIL 1970
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INCORPORATING
MODEL AIRCRAFT

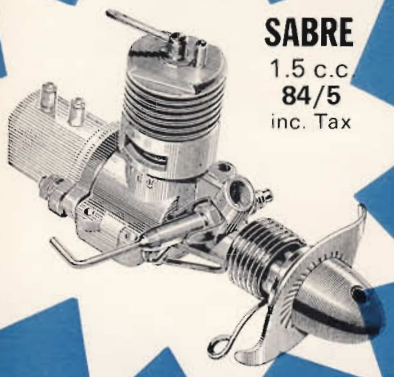
AN MAP HOBBY MAGAZINE

Curtiss Wright Junior Plans

FULL SIZE PLAN 41" SPORTSTER

Rubber driven Heinkel 46

MILES HOBBY DRAWINGS



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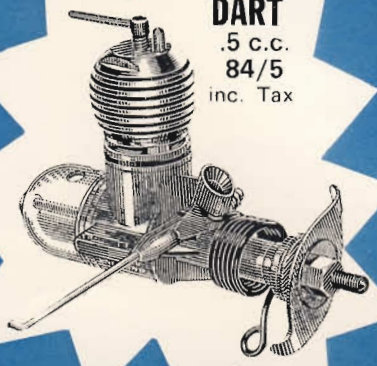

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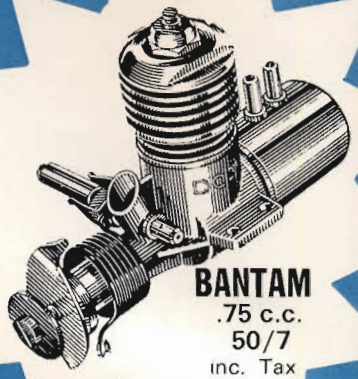

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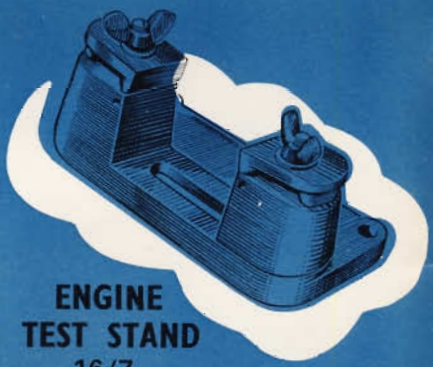

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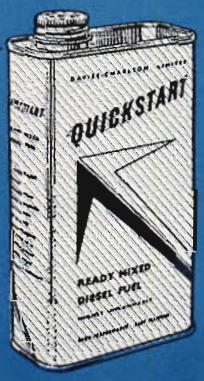

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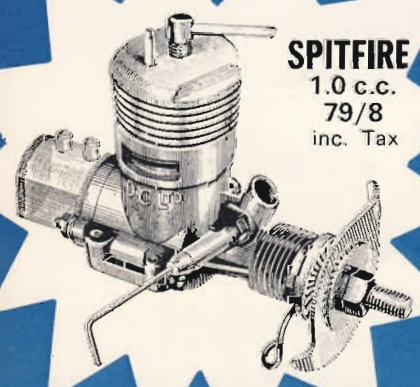

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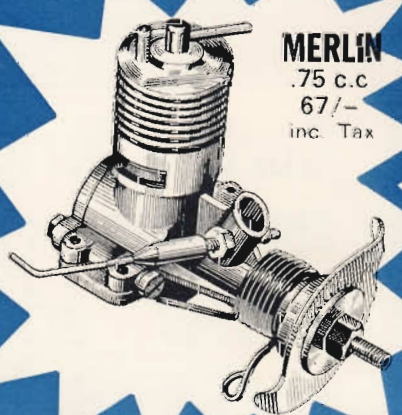

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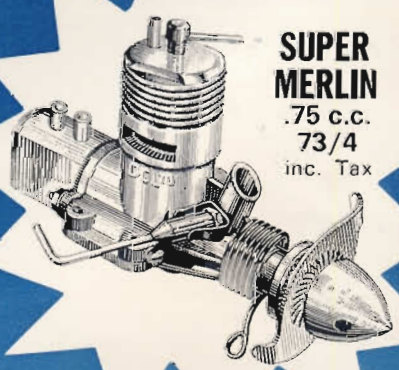

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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

April 1970 VOLUME XXXV No. 411

CONTENTS

HEARD AT THE HANGAR DOORS	193
'CURTISS WRIGHT JUNIOR'	194
TOPICAL TWISTS	197
TRADE NOTES	198
FREE FLIGHT COMMENT	200
VAN RIJ WAKEFIELD	203
'HEINKEL He 46'	204
LATEST ENGINE NEWS	208
GOLDEN WINGS CLUB	210
AIRCRAFT DESCRIBED – Miles M13 Hobby	211
CONTROL LINE NEWS	214
CLUB NEWS	216

MAP **HOBBY MAGAZINE**

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

Editorial Director D. J. LAIDLAW-DICKSON

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COMMENT

In January issue we commended the Society of Model Aeronautical Engineers for its decision to reinstate a requirement for silencers on all models except those for F.A.I. contests and where compression ignition engines of less than 1.5 c.c. were employed. This decision was reached by vote in the S.M.A.E. Council. The proposition to reinstate silencers for all classes was made in November and then referred to all Area Committees for their consideration. The London Area did not accept the Council decision. Twelve clubs called for a General Meeting and on 14th February an inconclusive vote reversed the situation by a narrow margin. The matter is now referred back to Sub-Committees for their recommendations. Their deliberations will consume most of the 1970 season, during which the only models obliged to employ silencers are those which are radio controlled. It seems inevitable to us that local legislation, and perhaps even Airfield authorities will soon assume their degree of responsibility.
Unless the S.M.A.E. Council is given power to bargain, the contest fraternity is likely to be swamped by a 'blanket' regulation to which *everyone* will have to comply. We urge the sub-committees to exercise their mandate cautiously and without delay, and for all modellers to operate with discretion.

on the cover

Donald Gugler's beautifully restored Curtiss Wright Pusher which is the subject of Jack Headley's Flying Scale Model in this issue, apart from minor differences in the wing section and rear cockpit fairing this full-size example gives the modeller perfect information for making a precise replica. The CW 1 is a very popular American light plane and makes an extremely stable scale model for free flight.

next month

The long-awaited World Championship winning A/2 Glider design **Lively Lady** by Elton Drew, with full construction data and tips. **Engine Test, Nürnberg Trade Fair Report, Winter Cup International, Australian and Indian Nats,** and all the usual features, out 17th April.

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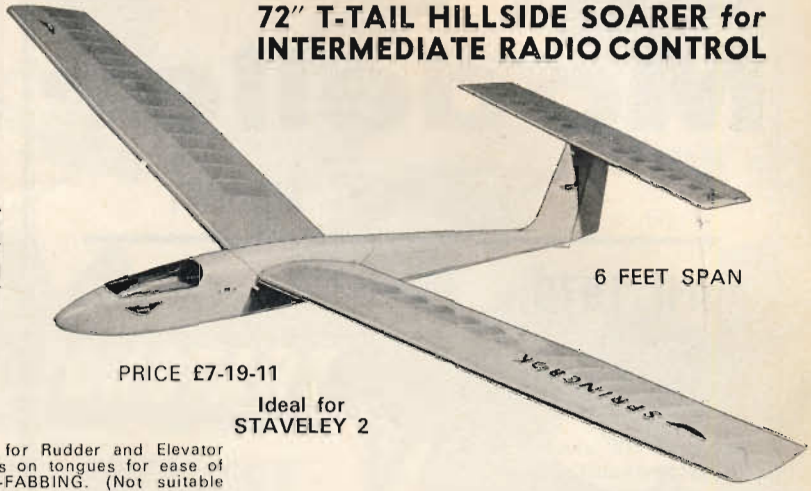

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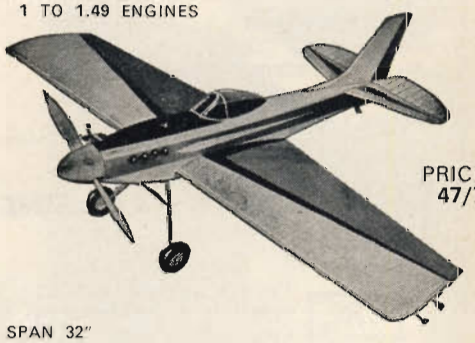

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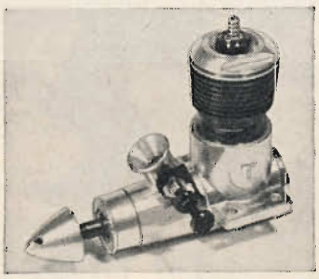
.15 (2.5 c.c.) DIESEL	141/2
.15 (2.5 c.c.) DIESEL MARINE	178/5
.19 (3.2 c.c.) GLOW	186/5
.19 (3.2 c.c.) GLOW R/C	234/5
.61 (10 c.c.) GLOW R/C	352/3



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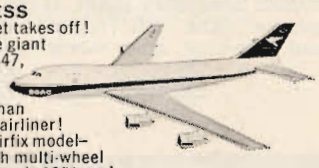
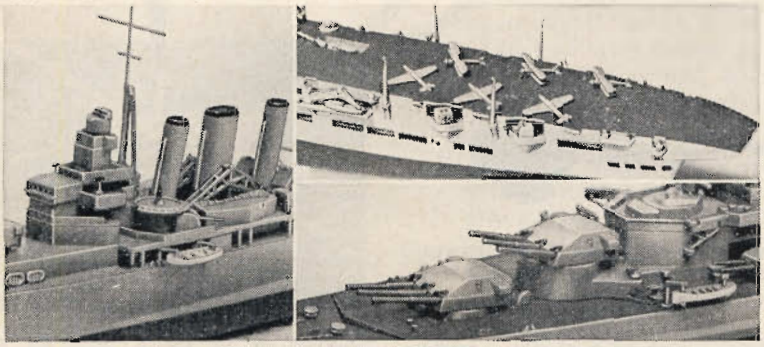


Left: Suffolk. Bottom Right: Scharnhorst. Top Right: Ark Royal.



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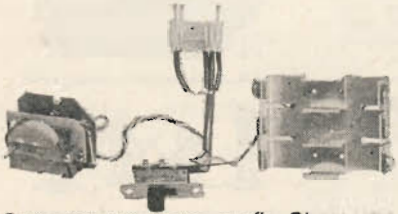

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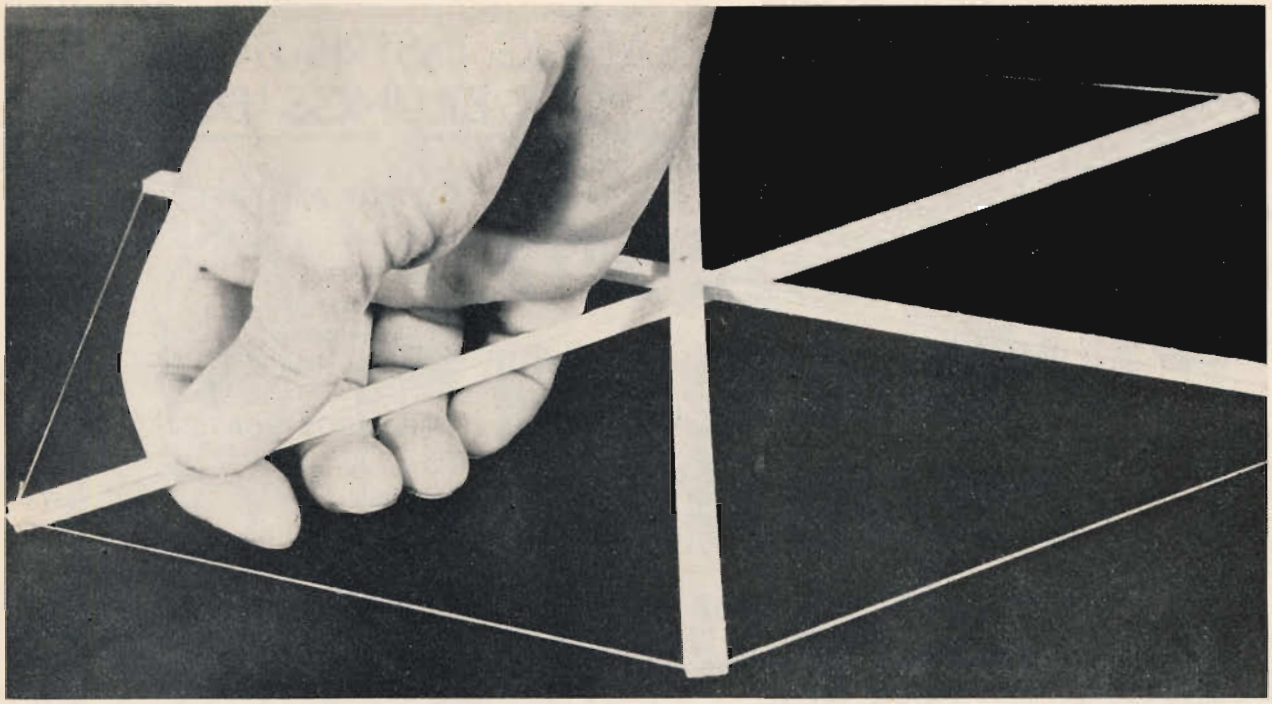

KITES FLEW BEFORE AEROPLANES . . .

Heaven knows how long ago it was that the Chinese perfected kites. Certainly kites were the first form of stable (flat plate) aerofoils – stabilised by the fact that they were tethered. Jim Walker and Vic Stanzel rediscovered the virtue of tethering to produce stability when they invented control line flying some thirty years ago. To make things easy they then had balsa as a standard aeromodelling material.

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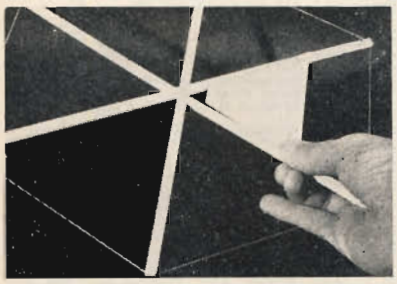

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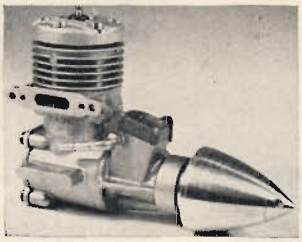

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G.20/15 BL	8 19 6
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G.15 W/Spinner	10 0 0
G.20/23 BL	8 19 0
G.21/29 Lapped RC	10 10 0
ST 35 Stunt (PB)	8 5 0
ST 35 Combat	8 5 0
G.21/40 Std.	10 10 0
G.21/40 R/C	12 4 0
G.21/40 RV	15 0 0
G.21/40 RC R/C	18 0 0
ST 51 BB R/C	15 0 0
ST 56 BB	15 15 0
ST 56 BB R/C	17 14 0
ST 60 BB	15 15 0
ST 60 BB R/C	17 14 0
G.60 Racing RV ABC	30 0 0
G.60 RV R/C	30 0 0
G.60 FI R/C	24 3 0
G.71/RV R/C	30 0 0
G.71/FI R/C	24 3 0

SUPER TIGRE ACCESSORIES

Silencers	
S15 fits G.20, 15, 19,23	2 14 0
S29 fits G.21, 35, 40, 46	3 6 0
S35 fits ST35S, ST35C, ST35 R/C	3 6 0
S40 fits G.40	3 6 0
S56 fits ST51, 56, 60	3 6 0
S71 fits G.60 FI & RV & G.71	3 15 0
Glow Plug Standard	6 10
Glow Plug R/C	7 9
Spinners G.15,G.29, G.60	1 0 0
Screw on 2⅛ in. dia.	1 5 0
Tank Mount fits ST51, 56, 60	1 15 0
Radial Mount	2 8 0
For G.20/15 & 23 G.15	1 17 6
G.20/29 36 40 & 46	1 17 6
ST51, 56 & 60	1 17 6
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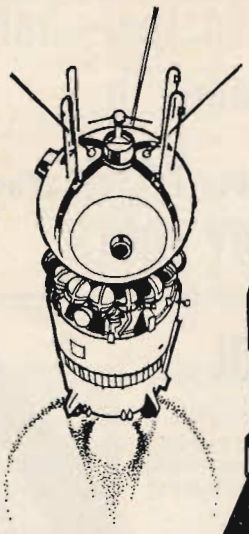

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Yuri Gagarin's
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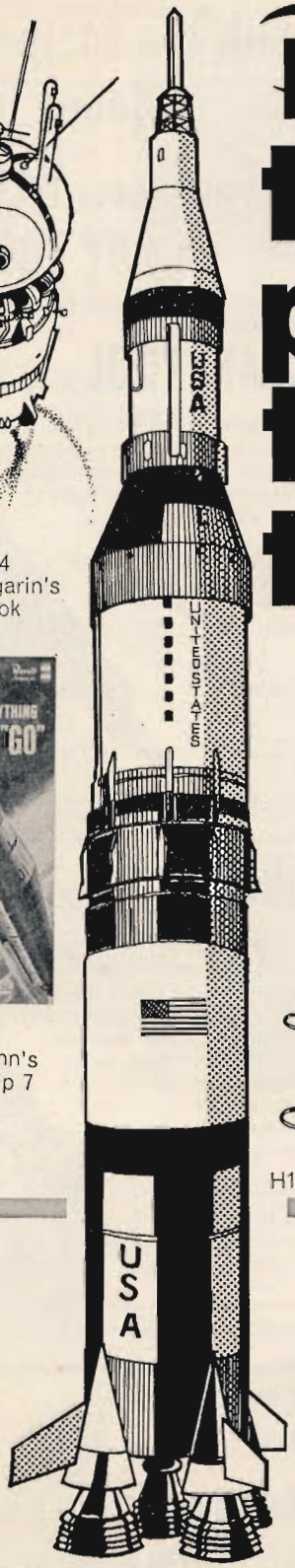
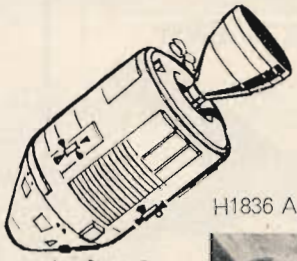
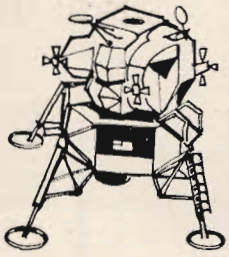
H1833
John Glenn's
Friendship 7

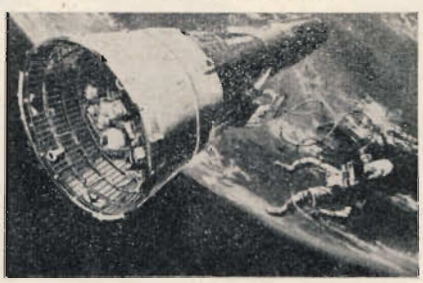


With just five of the authentically detailed range highlighted here



H1836 Apollo Lunar Spacecraft





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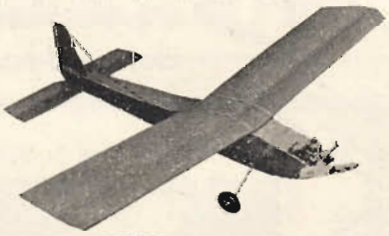

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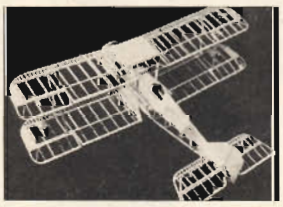

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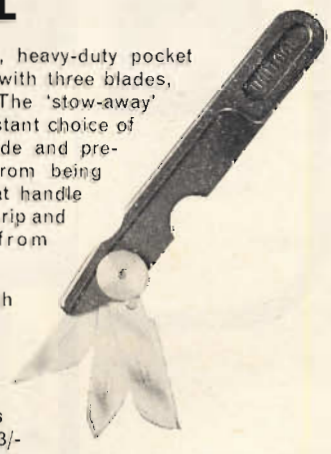

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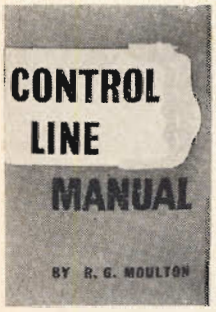

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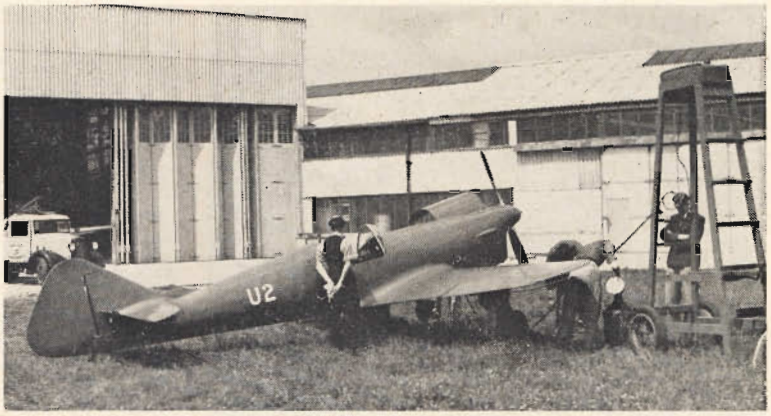
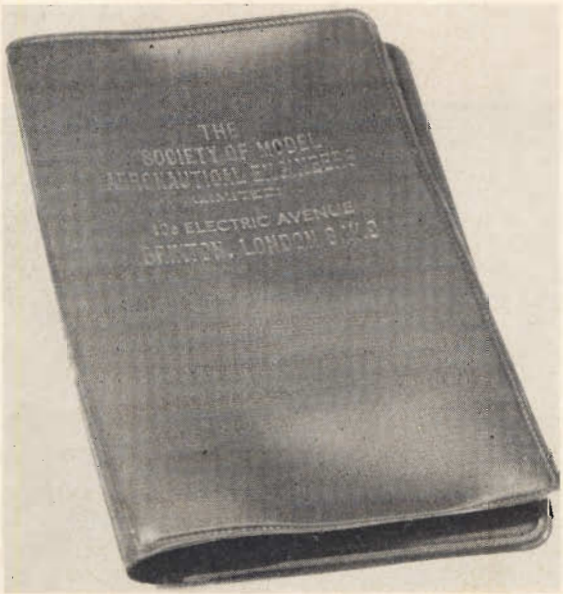


High level gravity tank provides unusual aerodrome equipment detail in this attractive 'Flight' photo of the Miles Hobby under test at Woodley.

NOT LOST (?) but gone before? Is there a modeller in the land who knows the whereabouts of the '*Elite Trophy*' once awarded annually to the winner of the Open Glider event at the Woodford Rally? Organisers North Western Area S.M.A.E. are anxious to recover the Trophy for future award and we'd be pleased to pass on any hints leading up to re-establishment of the Trophy.

FIRST AIR RALLY of the year takes place at Old Warden Aerodrome, home of the Shuttleworth Collection on Sunday, March 29th. It will be devoted to activities related to World War I, with appropriate aerial 'battle' staged. It's too early to hope for the L.V.G. C VI to be airborne, but we are happy to report that this sole remaining airworthy example of a German two-seater of W.W.I is well on the way to completion of reconstruction. Second major function is the Shuttleworth Pageant on April 26th, which unfortunately clashes with the Southend Air Display. The latter event will include aerobatics by the Red Arrows, The Falcons, and a solo Lightning as well as John Fairey's two-seater Spitfire. Vintage aircraft will form a static display. Other major dates to note for Shuttleworth flying days are: June 28th (*Private Flying*), July 26th (*Military Air Pageant*), August 2nd (*Aerobatics plus parachuting*), August 30th (*requested Veterans*) and September 27th (*Edwardian Era*). Model Flying dates are: June 14th (*A.M. Scale Rally*), August 16th and October 4th.

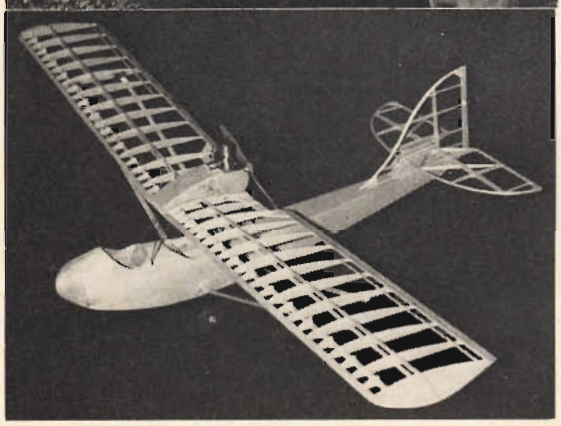


S.M.A.E. members can now obtain a neat blue plastic wallet for protection of their membership cards. Cost is 1/-, from the Secretary / Treasurer.

GLADIATOR search deep beneath the waters of Lake Lesvagjog in Norway is scheduled by the Sub-Aqua club of Royal Air Force Wyton. The remains of 263 Squadron Gloster Gladiators are said to be visible in the fresh water where they sank after the ice aerodrome melted. Parts are destined for the R.A.F. Museum which received some components from another expedition in 1968. At this rate we shall soon have more Gladiators in preservation than Hawker Hurricanes!

MODEL ROCKETRY was represented by Cox and Estes/Damon at the recent Nürnburg Trade Fair. Increasing interest in the U.K. will, we hope, lead to approved manufacture and operation of solid propellant rockets of the type which have proved to be so popular in the U.S.A. and elsewhere. We wonder how much longer this country will have to trail behind others in this progressive model activity?

BROOKLANDS Technical College at Weybridge will once more be the scene of a Radio Control Symposium organised by Esher D.M.F.C. All manufacturers of note will be exhibiting, and many of them are to provide flying demonstrations during the three days, 3rd, 4th and 5th April. By popular request, the Symposium will open to all on Friday, 3rd April. The first day had previously been set aside for trade visitors only. A number of new items are expected to be revealed in public for the first time. Readers will be welcome on our own stand where a full range of M.A.P. books will be available and the staff of *Radio Control Models and Electronics* will be able to offer advice and answer queries.



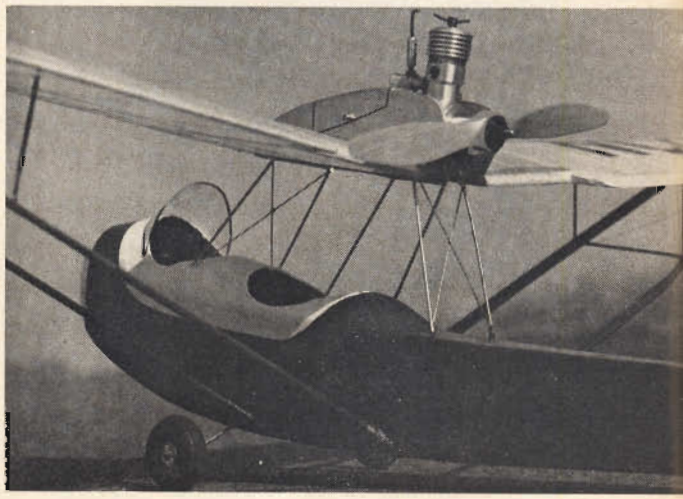
From America's Golden Age of Flight in the thirties –

The Curtiss Wright CW1 "Junior"

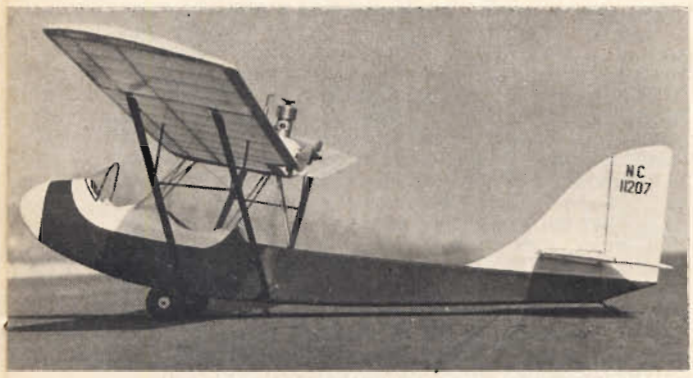
Flying scale model for free flight using 1 c.c. engines, designed by JACK HEADLEY

THE DESIGNER stumbled upon his first Curtiss-Wright Junior quite by accident. While looking around the hangars at Porterville Airport for a Sopwith Pup replica, he came across a small collection of very well-kept Waco Biplanes. After taking several pictures of these, he saw in the back of the hangar a curious welded tube fuselage with a three cylinder engine mounted on top. A pair of wings were stuck somewhere in the rafters, also a little worse for wear. It wasn't until some time later that it was identified as a C-W Junior, Jack being more interested in the Sopwith Pup at the time.

The next one was discovered at the Orange County Air Museum, looking very wrong, painted silver with



Heading photograph shows Jack Headley in his natural surroundings – note the sunny Californian foliage! Below, the lady unclothed displays her simple wing structure and box-like sheeted fuselage. Ample room for single channel R/C if desired. At right is a close-up of the Em Bee .75 c.c. engine mounting. This engine being of the sideport induction type runs in reverse, which accounts for the backwards mounted prop.



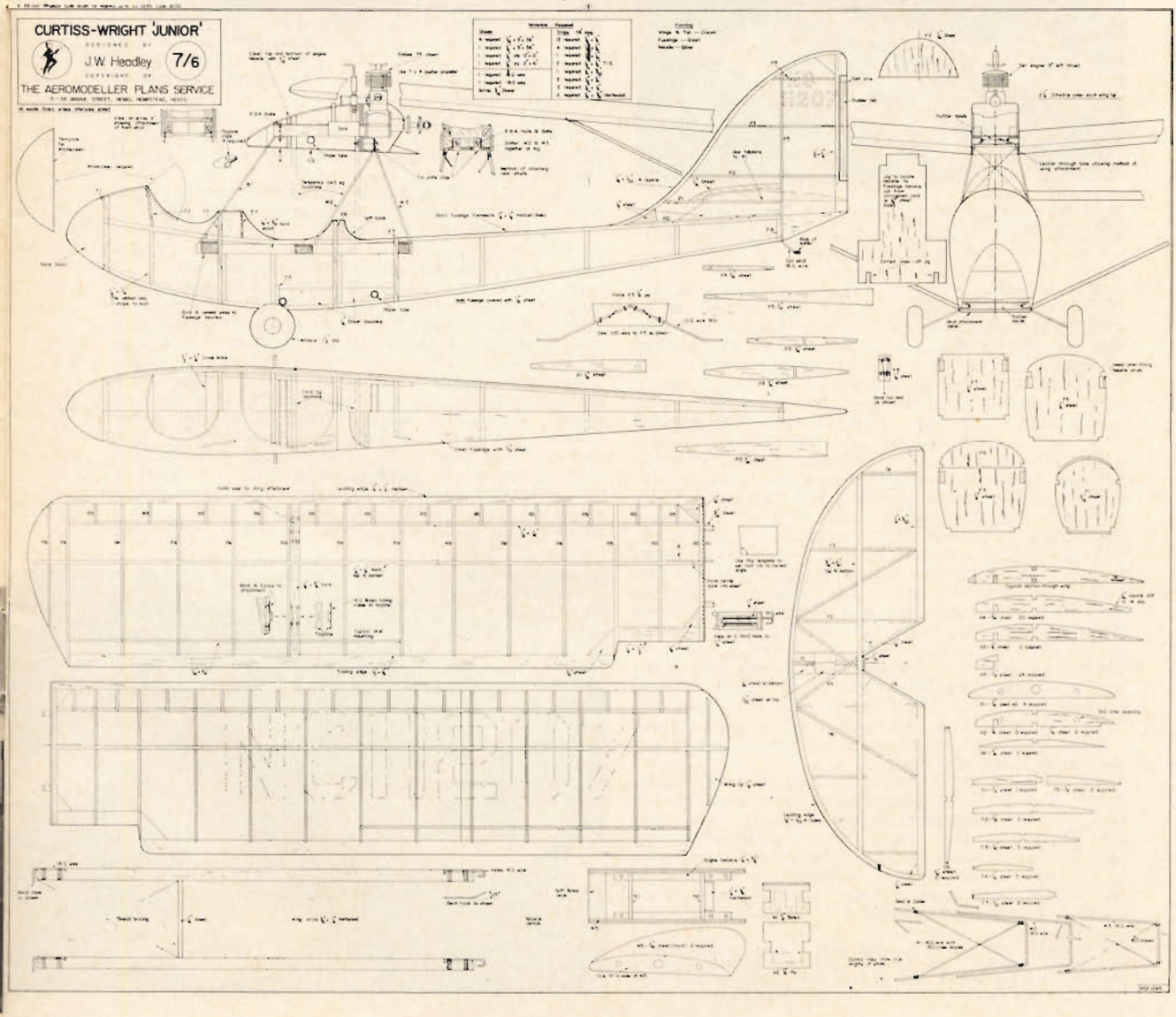
Left, nose pointing skywards the Junior prepares to 'make like a bird'. This high parasol wing is an ideal layout for stable flying.

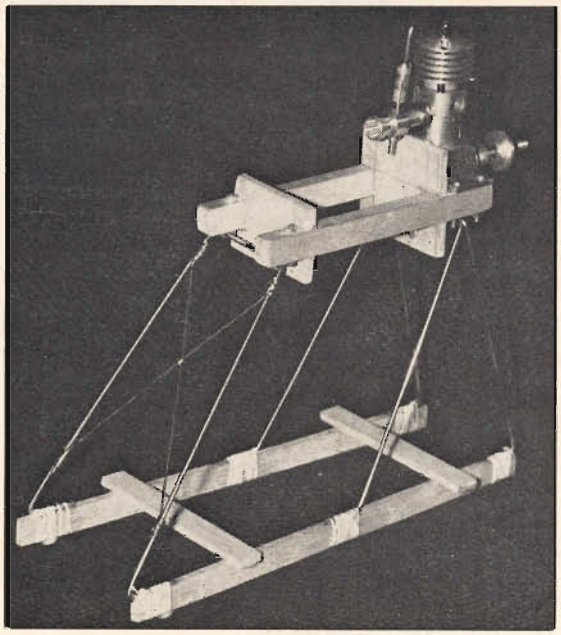
Maltese Crosses all over. It was in the process of being prepared for a film, although which one was never discovered. This was a re-engined version, having a flat four in place of the Szekely radial, and a revised front fuselage.

Although quite a popular ultra-light aircraft in its time, only seventeen examples appear to remain registered today. In 1931, three hundred of these aircraft were made, powered by 45 h.p. three-cylinder, air-cooled radial engines.

This one-tenth scale model is a beautifully stable flyer – as it should be with such a high wing layout and ample tail surfaces! With the 'pusher' arrangement the builder has two choices over the propulsion

FULL SIZE COPIES OF THIS 1/6th SCALE REPRODUCTION ARE AVAILABLE AS PLAN NO. FSP 1043, PRICE 8/- INCL. POST. FROM AEROMODELLER PLANS SERVICE, 13/35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.





The nacelle unit, complete with engine, is supported on the fuselage simply by the wire struts bound to hardwood spars. Accuracy is essential here – use the cardboard jigs as detailed on the plan.

unit. Either the engine may be run in the usual way with a pusher propeller, or else the engine may be run in the reverse direction with a 'normal' airscrew. Not all engines will run backwards in this fashion, but sideport engines such as the Mills .75 c.c., and reed induction glow engines are equally happy whichever way round they are running.

The model has been designed to follow the full scale construction, except for the tailplane, which has extra diagonal ribs to give the required warp resistance. If you are interested in a true scale model, these diagonals can be omitted, but take care. As we are discussing the tail, let's start with that. Make a corrugated cardboard former for the leading edge, and mould four laminations of $\frac{1}{8}$ in. x 1/32 in. strips to this contour. Leave this overnight to dry before adding the ribs and spars. The wings can be made next. Pin down the lower spar, the leading edge and the notched trailing edge. Cut out the required number of ribs and sand to shape. It's easiest to make all the ribs together and then modify the root ribs to the revised shape later. Make the leading edge riblets. Cement all the ribs and riblets to the spars, then add the upper spar, and wing tips, together with all the gussets. Don't put on the plywood root ribs yet, these will be attached later.

The basic fuselage frame is made of $\frac{1}{8}$ in. square strips. The bottom longerons should not be too hard, as they have to be bent quite a lot. Make two side frames at this stage. Next comes the engine nacelle-wing strut assembly. First attach the engine to its bearers. The original model used an Em-Bee .75 c.c., which is quite a large engine relative to its capacity, and the plans show this installation. For any other engine modify formers N1 and 2 to suit. If using a radial mounted engine, use former N2 for the mounting, but keep the hardwood bearers forward of this frame to serve as the nacelle mounts.

The nacelle is attached to the fuselage by wire struts bound onto two hardwood spars which are themselves glued into the fuselage frames. Make the cardboard jigs as shown on the plan, and assemble the nacelle relative to the spars. Now make the wire struts and fit to suit. When all the bends are satisfactory bind the lower wire ends to the spars, and bolt the upper ends to the engine bearers. Four small tinplate straps are required for this. When the correct alignment has been obtained, solder these straps to the wire and the 8 B.A. mounting nuts and bolts. Add the cross bracing to the front and rear struts, then remove the card jigs and the temporary spacers.

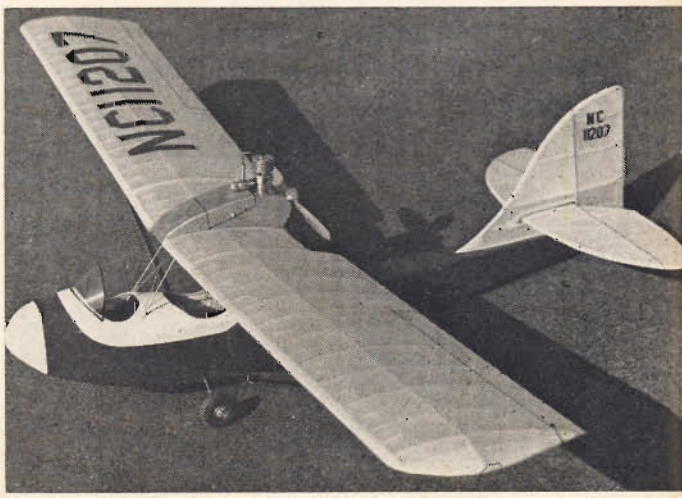
This assembly can now be glued to the fuselage frames, and the fuselage sides can be attached. Cement in the remaining frames, gussets, etc. and then cover with 1/16 in. sheet.

The plywood root ribs are cut out next, and drilled together for the mounting dowels. Glue these to the wings and the nacelle sides; then attach the nacelle side plates to the nacelle.

At this stage a trial assembly of the wings-nacelle can be attempted. If everything is satisfactory, complete the nacelle structure, not forgetting to include the fuel tank.

Next the tailplane mount can be made and attached to the fuselage. Glue the tailplane in place and finish off the fin and rudder assembly. The model can now be tissue covered, doped and painted. The original had a green fuselage with white wings and tail.

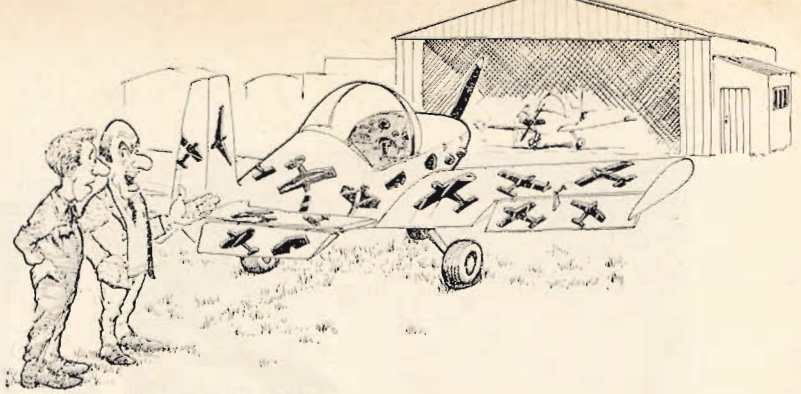
As the tailplane and wings are fixed in position the only trimming device left is moving the centre of gravity. First balance the model as shown on the plan and attempt a few test glides. Correct any stalling tendencies by adding nose weight, or remove weight if the glide angle is too steep. When a satisfactory glide is obtained try a powered flight. Don't let the engine run be too short, as there is nothing worse than a two-second engine run followed by a swift dive into the ground. Be careful about making large adjustments to the rudder tab, as this is located in the slipstream, and is quite powerful. Aim for a realistic flight; a scale model is not supposed to climb like a rocket, or fly around with its engine screaming.



The original model was finished with white flying surfaces and green fuselage. The cover photographs of Don Gugler's Curtiss (full-size that is!) shows how striking and eye-catching this simple colour scheme can be.

TOPICAL TWISTS

by Pylonius, illustrated by 'Sherry'



'It's been like this ever since they started to use Balsa in the construction.'

Square Deal

With all the current talk of modern man's devastation of his environment, pollution of the atmosphere, etc., no one mentions the most serious threat of all, one that could wipe out all the more advanced forms of model life on this globe. I refer, of course, to the criminal exploitation of the world's limited stocks of precious balsa wood by the monoliths of industry.

Now, to my way of thinking, balsa wood was put on this tired old world of ours for one purpose and one purpose only: to supply us modellers with an indispensable material. Yes, I know the Aztecs, or was it the Incas, were supposed to lash the rough balsa logs into rafts whenever they felt the need of an epic journey across the Pacific, but who ever heard of balsa wood before it was put into a model plane? Nothing grieves me more than to think of all that wonderful quarter grain wood, simply crying out to be shaped into a prop or wing tip, used as underflooring in aircraft or as a lining for gas tanks.

Had I the nerve to enquire into this dastardly business further I would, no doubt, find balsa being used for even baser purposes, probably playing a major role in the preparation of whatever it is that's going to put paid to us all. And I dread to think of how many thousands of cubic feet of what might have been good eighth square it took to get a man on the moon.

All this might not be so bad if we modellers were assured of a fulsome share of the world supply of the wonder wood, which might be said to be our historic right. What little we do get comes like manna from heaven, with celestial pricing to match. And we only get that on sufferance. Were it not for the fact that all the balsa tycoons got their start in life from flogging balsa to the only people who wanted it back in the early part of the century, the model flyers, and for that reason nurture a soft spot for the old hobby, we would not get so much as a sniff at an offcut.

Never mind, though, all the indications are that we are moving into an even more plasticised era, in which balsa will be replaced by such horrors as expanded polystyrene, all supplied commercially at even more inflated prices than we suffer at present. Already people are prepared to pay fifteen quid for a kit of parts containing two bobsworth of balsa at pre-war prices. As such kits are bought along with the two hundred quids worth of radio gear they do not notice the difference, and certainly won't object to paying twenty quid or more for a few dressed up bits of polystyrene that could otherwise have been used for packing apples.

Fly-Off

Contest organisers today seem to have a curious approach to their chosen role in life; they compete with each other in cramming as many events as possible into a single meeting, regardless of whether or not the events are flown. Whereas, at one time, a one entry event would have been the cause of great lamentations and gnashing of teeth throughout a shocked model movement, it is now accepted as quite the normal thing.

Recently I read a cock-a-hoop write-up about a highly successful Nationals in a large country. Praise was given to the organisers for a highly successful operation, and the competitors congratulated on their skill and enthusiasm. Since the organisers managed to notch up the enviable total of 41 events it was undoubtedly a success from their point of view. And successful, too, from the competitors' point of view, you might say, as there were only 137 of same to share 41 events.

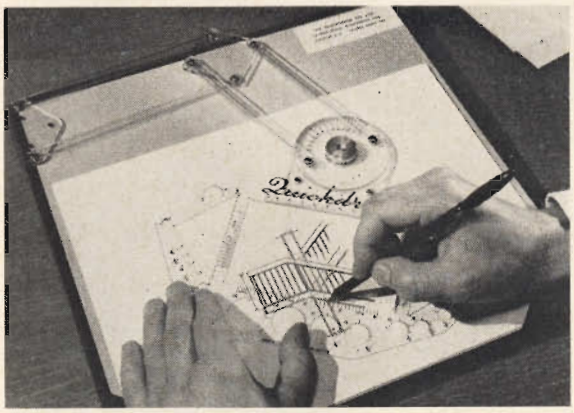
One strong reason why organisers would wish to keep the model flyers out of contests is the amount of dissention two or more contest flyers can ferment. And this says much for the contest flyer's determination, since they rarely see each other during contests, nor anyone else apart from their pet timekeepers. I have often wondered what happened to their more serious complaints, such as bubbles from the thermal making machine going up the inlet pipe, but now I see that a complaint is not accepted as a complaint unless it is registered as official. Naturally, the official complaint must be referred to a higher authority, and this means that no action to deal with the matter can be taken at the time. Afterwards it is too late to probe into something which could only have been investigated on the spot.

All Systems Gone

If there is one thing people have strong opinions about it is the future of contest flying, and none held more strongly than by those people – and their numbers are legion – who resort to the passive resistance method of non-participation. Oddly enough, with the exception of the bloke who wins all the contests, the people who do go in for contest flying have little to say on the question of any drastic revisions to the present system. For one thing, they have the good sense to know there isn't really much you can do that hasn't already been tried. Reasonably sensible things, that is. Give the theorists their head and you get something as horribly impractical as the new Vintage rules, although I have a sneaking feeling that these have been so devised to frighten off the contesters. As it is, present rules are few, simple and understandable, and are thus because they have resolved into their existing format by long and hard experience. Introduce any of the whacky systems that are thought up in remote back rooms and the only things flying over Chobham Common will be the buzzards.

It is significant that perhaps the longest letter ever to be published on the subject of contest rules has no magic formula to offer, apart from suggesting that we might return to the old five minute, lose your model system, which the modern contest flyer wouldn't touch with a thermal detecting pole.

TRADE NOTES



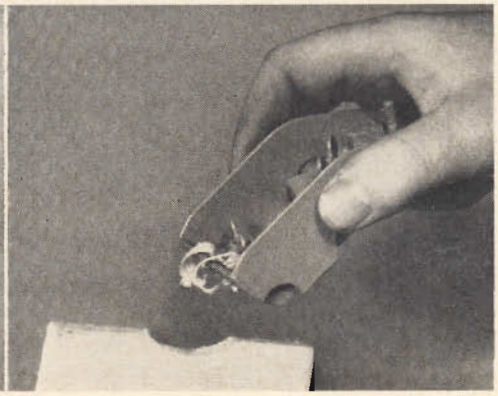
Above, the Quickdraw D.L.S. in action – here the template is being used for drawing in cross-hatching. A standard model (without the protactor head) is available at 99/6. At left, the Rexel Versicut knife – the fine blade is ideal for intricate work. Below, two views of the 'David 4' razor blade plane. The capacity for cutting concave shapes is most useful.

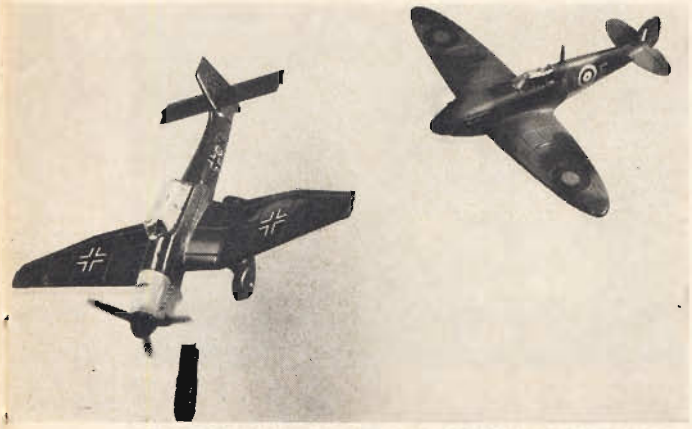
RIPMAX, who always seem to have a new product to offer, have sent us a sample of their *David* 4 razor blade plane. However, this is a much more versatile tool than a 'normal' mini-plane, as four different operations are illustrated for which it may be used. For straightforward planing, the razor blade is clamped in the middle position, which maintains the cutting edge slanted across the plane at an angle of approximately 15° – to ensure clean cutting and prevent clogging the blade. By repositioning the blade to the rear, rounded end, the tool will plane concave hollows (ideal for prop blades, etc.) and may also be used to shape convex profiles. A quick swap round again finds the blade in the foremost position, where it may be used as a scraper, or we are told, as a device to plane right into the corners – an admirable idea, but not entirely successful. The blade in this position chips rather than planes the wood, due to the increased angle of operation, and it still leaves a quarter-inch margin untouched at the side, caused by the body width being greater than the blade. Price of this most valuable workshop accessory is 15/–.

Continuing the cutting theme is the **Rexel** *Versicut* – a very neatly made tool that can be easily (and safely!) carried in a pocket. The aluminium barrel has a knurled section, which when unscrewed opens the 'clutch' jaws, permitting a *very* sharp blade (Swann-Morton No. 15) to appear. Retightening the barrel locks the blade in position. Removing the end cap (a push-fit) reveals a spare blade, screwdriver bit and a scoring pin, all of which may be used with the tool. The 7/6d. price tag represents good value for money for this most convenient, useful tool.

Ideal for the inveterate sketcher or 'doodler' of brainwaves, is the **Quickdraw** drafting instrument. Although designed primarily for engineers, draughtsmen, architects, etc., it could also be of great use to the amateur designer – especially when making reduced scale drawings of your next project 'to see how it looks' – far superior to the conventional sketch on a beer mat!

The latest model, the *Quickdraw D.L.S.* consists of a drawing board contained within a P.V.C.-covered folder, which also incorporates a pocket in the lid to hold spare paper, etc. Mounted to the drawing board is a parallelogram unit carrying a protractor to which is attached the Quickdraw Template. Wherever the unit is moved, the template maintains its horizontal and vertical axis, thus acting as a combined T-square and set-square.





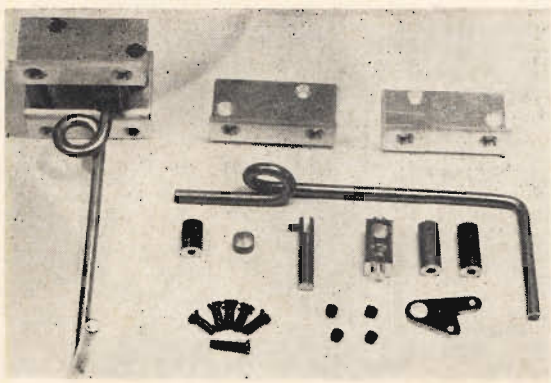
Use of the cut-outs and scales enables any shape or type of outline to be drawn, and by using the protractor any angles may be drawn – again the lines will be parallel, making isometric and oblique projections extremely simple. The centre cut-out in the template accepts various other auxiliary stencils, including one for drawing ellipses.

The whole unit is self-contained – the only extra required being a pencil or ball-point pen – and at 129/6d. represents good value to the serious amateur or professional.

A similar device, designed to fit onto an existing drawing board is available at 99/6d. This is naturally supplied without the folder, and features larger and stiffer arms and pivot plates, to cope with the greater surface drawing area of 24in. x 30in.

From Sun Lane Cycles comes a sample of the *Eldeco* retracting undercarriage set. This is an all-metal unit, sold in kit form, but which is easily assembled in a few minutes. A very neat arrangement locks the leg in the 'down' position, preventing any possibility of a collapse on landing. Presumably intended mainly for the R/C market, it could just as easily be used for control-line scale, etc. Weight for the two units, including the 10 s.w.g. legs is a shade under 3¼ oz. – price, £3 19s. 6d. the pair.

Whilst all the controversy about the use of silencers continues, it is nice to be able to report on the availability of two new designs, which help to disperse the tales of woe concerning non-availability of commercial units for some engines. Firstly, World Engines of Watford now have the new **Super Tigre** 'venturi' type of silencers, claimed to reduce the noise without a noticeable fall in power. The silencers are



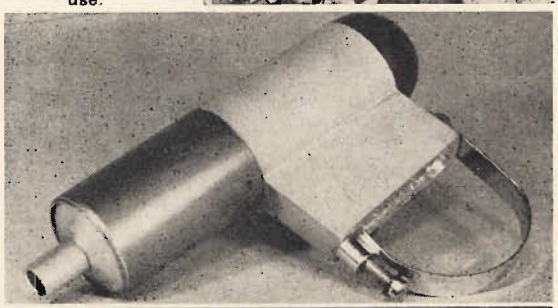
Ideal present for young brother/son are the Dinky 'Battle of Britain' models. The 1/65th scale Spitfire II features for the first time an electrically driven propeller, as well as retracting undercarriage. The Stuka is to 1/76th scale and features a dropping 'cap' bomb! Prices are 17/11 and 15/11 respectively for these highly detailed die-cast models.

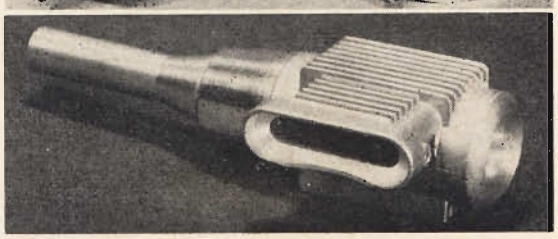
very well made and have the usual S.T. appearance, with heavily finned, finely produced castings. Mounting may be with either a wire clip or a steel strap, both of which are supplied.

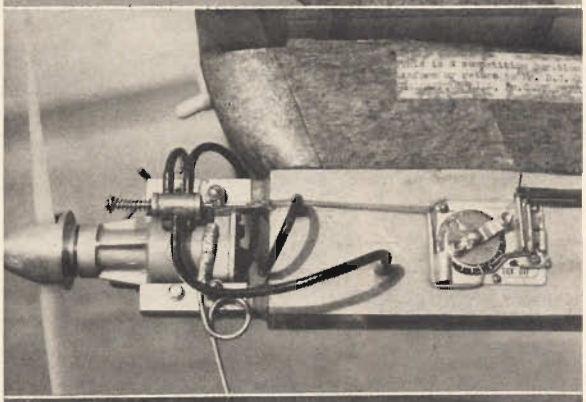
The other silencers available are the **Köelliker** range, which may be purchased from either Henry J. Nicholls or Ed Johnson. These are very attractive units (with gold and mauve anodised end caps!) and are lighter in weight than their appearance might suggest. The large size for 10 c.c. motors is also of the venturi type, but the smaller size is of the rather more conventional expansion chamber variety with a single drilled baffle plate. Fixing is by a steel strap around the cylinder, and anchored by a single screw.

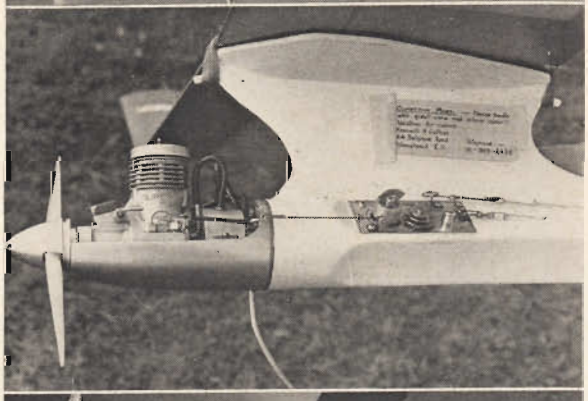
A useful 'accessory' for the beginner, and a helpful reference for the more experienced is the latest Keil Kraft Handbook, containing 90 pages of catalogue listings and editorial matter. All their currently available kits are illustrated, as well as their vast range of accessories – not to mention engines, R/C equipment, etc., etc. Price is just 3s. 6d. for this well-produced book.

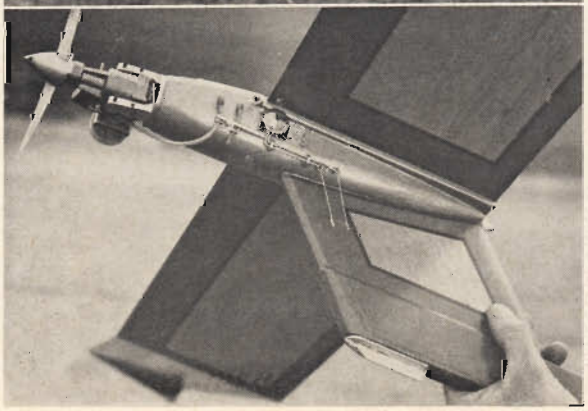
At right, needing no introduction, is the latest K.K. handbook. Below lies the smaller of the Koelliker silencers – available to suit many different engines, this one fitting the O.S. 19. Below this is the S.T. Venturi silencer, well finned to promote cooling, at the expense of slightly increased weight. Below left, is a 'before and after' display of the Eldeco retract legs. The all-metal unit was rather stiff on assembly, but no doubt this would soon ease once in use.











THE COMPLETE ABSENCE of any contests between early January and the start of the 1970 'season' in March provides the opportunity for a new approach this month. If you would like to see *your* pet ideas in another such feature then bring them to my notice. I usually carry the camera at all contests.

Model design *has* changed over the years, partly through rule changes and partly through a "best answer' (or at least an adequate one) arising by evolution. Twenty-odd years of Wakefield styling are compared in **photo 1.** It's probably fair to say that model configuration has become more basic,

FREE-FLIGHT CO

with constant chord surfaces, square tips and parallel section fuselages all being part of the standard approach. Attention has been focused as generally 'stretching' the layout and on practical gadgetry.

Although many models look similar, and indeed some enthusiasts have fleets of apparently identical models, this does not imply stagnation. Development is largely a matter of refining detail – and much real work can be done by the builder who varies wing sections, constructional techniques and the like, and who profits by what he learns. In comparison the experimenter who jumps from canards to biplanes and back again is likely to be interested mainly in novelty.

I build quite conventional models – some people have even said old-fashioned! Nevertheless, I am never short of ideas for what to build. Whilst my personal building programme is unlikely to be of general interest (and, in any case, is likely to change suddenly if I break or lose something) some of the ideas I have seen over the years may serve to inspire others.

Trim-changing devices are steadily becoming more and more accepted. Auto-rudder hardly counts as a 'gadget' nowadays and variable incidence tail planes are becoming commonplace in Power. For some reason, whilst considered a necessity for F.A.I. (along with a metal engine mount) some people still seem hesitant about using V.I.T. on Open. Personally, having been forced to add the appropriate mechanism to my last Open model, I would now fit it from the start.

Certainly auto-rudder and/or V.I.T. can be used to update and improve existing designs. **Photos 2** and **3** show a 'Creep' modernised with movable tail surfaces – and well able to cope with a G15. The design was always noted for good climbing performance – but transition to glide could be

Photo No. 1 (top right) depicts over twenty years of Wakefield design. John Shaw (left) with vintage 'Zombie' design by Ron Warring and Dave Hipperson with modern own-design. Photo No. 2 (top left) shows D. J. Wain's 'Creep' with A/R and V.I.T. Tail is held in power position by line from central peg, over T.E. to timer. Released to rise to wire stop, which pushes out of way for D/T. Front end of same model, shown in photo 3, displays mechanical shut-off, metal faced bearers and pivot tubes stuck to timer faceplate. Below, Ken Collins' F.A.I. model (photo 4) uses own made pan with space for tank. Seelig timer operates gadgets. The bottom photo, No. 5, illustrates Jim McCann's high thrust line, all sheeted F.A.I. model. Note how the lines have to be routed through the pylon.

MMENT by John O'Donnell

Right, photo No. 6, displays George Fuller's ½A model. The Cox TD.049 has pen bladder tank mounted in a 'Mustang' cockpit canopy, glued to the fuselage side. Below is the Tony Cordes' glass fibre fishing rod ½A model (photo 7) Motor backplate is epoxied directly to the rod. Pylon has plywood sides, internal tank, and two different brands of timers! Photo 8 (below) shows A/1 launched by Alan Brocklehurst. Uses moulded fibreglass pod, and aluminium tube boom. Next in photo 9, is an Open Rubber model with unusual fuselage structure, 1/16 in. sheet sides, well lightened. Bottom right (photo 10) illustrates Bob Wilder's (U.S.A.) torque meter. Motor goes on one end, winder on the other. The torque is indicated directly in inch-ounces, and visible to the flyer. Whole device dismantles for cleaning. Centre shaft runs on ball races. Bottom left (No. 11) shows Tony Young's answer to D/T timer failure – two timers provide for D/T action, should either fail to start.

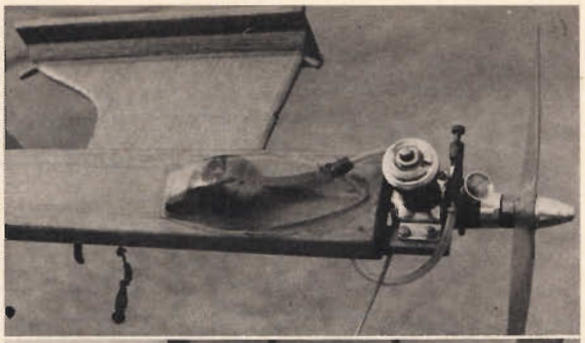
tricky. The value of such techniques is well illustrated by their total prohibition in the just republished set of rules for vintage models!

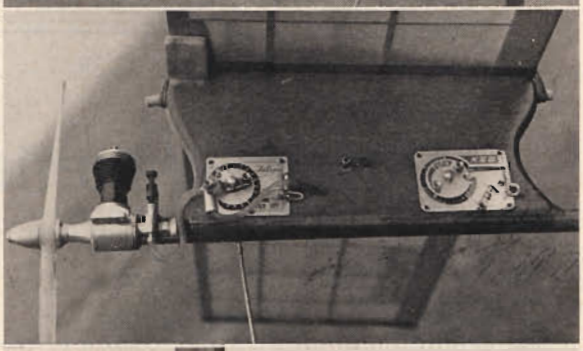
Operation of auto-everything is comparatively straightforward with the multi-purpose Seelig timer (see **photo 4**) – but can be done with any other make. The usual method is to add a slotted disc (as per the sort used on D/T timers) with one or more pivoted wire arms in tubes fixed to either the timer face plate, a separate plate or directly to the fuselage. **Photos 3** and **5** show alternative methods. The latter, incidentally, shows how the *model* layout can complicate matters !

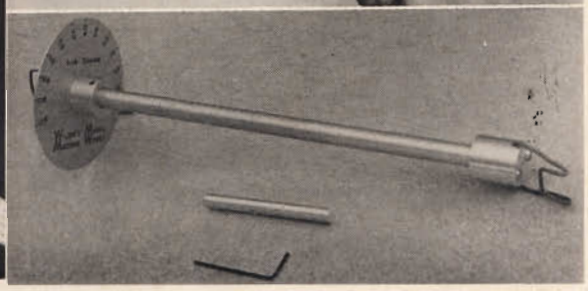
Extracting the most power from engines is always a popular topic – and hardly one on which I am qualified to comment. Rigid mounting is always recommended, and cast metal mounts are almost *de rigueur* on F.A.I. Power. It is assumed, as distinct from ensured, that tightening down the engine on such a mount does not *produce* distortion. To get the best from such a mount 'overhang' should be at a minimum – even though some types of pan prefer to allow space for a tank. Compare **Photos 4** and **5**. For Open models where weight has to pay for itself I reckon to stay with conventional bearers.

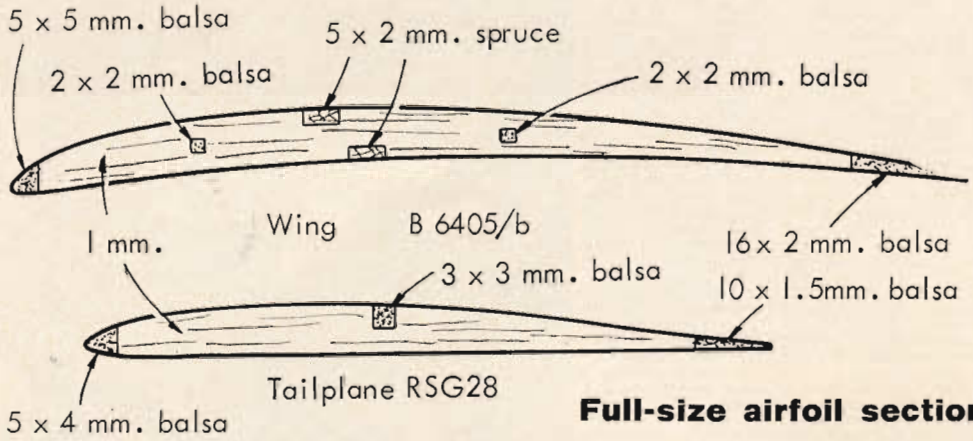
Pressure feed is widely used – but almost always by means of a crankcase tapping. The alternative, widely used in C/L circles, is to provide the pressure by means of an inflated (by fuel) pen bladder. For some reason this has never 'caught on' – despite the advantages of lightness. Location is a minor problem especially as a burstage is rather messy. George Fuller solved this on his ½A model by mounting the pen bladder inside a normal commercial cockpit canopy stuck to the fuselage (see **photo 6**).

Modern materials are slowly becoming used in free-flight. The glass fibre fishing rod is widely used in A/2 – but is also spreading into other classes. The A/2 size rod is about right for ½A power. Mounting the engine was solved by my club member, Alan Moss. by epoxying the front of the rod directly into the backplate of his Cox TD 049. He lost the model before I got round to photographing it ! A rather similar approach is shown by Tony Cordes' model in photo 7 – although his choice of a rear intake motor complicated matters, and involved a substantial cutout in the rod. Plywood pylon sides are simple; but are rather stronger than I would use. Certainly the basic idea of a fishing rod fuselage is sound – even in large sizes. My F.A.I. model utilised a rather larger rod of 0.7 inches o.d. tapering to 0.55, and has given no trouble at all throughout two years of hard flying in all weathers.









Full-size airfoil sections

A Dutch Wakefield class model

IN OUR years of model reporting we have learned to respect the comparatively small nation of Holland for its high achievements. In the 1969 World Championships for Wakefield models they were the 4th placed team, and this was not a lone example. The Dutch have always impressed for design leadership, flying techniques and consistency. This model, being developed by J. D. van Rij and his friend B. van Leeuiven is typical for a simple, yet most refined, approach. The use of a hexagonal fuselage is, of course, not new by any means, but the combination of the swept-back tips adds aesthetic appeal.

FREE FLIGHT COMMENT (*cont. from page 201*)

Glass fibre does not have to be confined to ready made items. **Photo 8** shows an A/1 of Alan Brocklehurst that reverses the usual trend in having a glass-fibre *pod* – and incidentally an aluminium tube boom. Alan used a two piece home-made moulding – but I would think that applying cloth and resin over a normal balsa structure would be equally hard wearing – and easier for a 'one-off'.

Even traditional balsa and tissue construction can appear in a new guise. An interesting Open Rubber model seen some time ago featured 1/16 in. sheet sides with lots of lightening holes. For once my notes seem to have failed me so if the builder recognises himself from **photo 9**, it will be duly acknowledged !

Ideas can extend to ground equipment. The March *Club News* contained a brief mention of Bob Wilder's torque meter. Primarily intended for Wakefields where power is critical the device fits between motor and winder – and indicates the former's torque. Presumably if one finds that a motor is weak then there is the choice of trying for more turns, or 'running down' the motor and trying another. I saw Mike Gaze's example at South Midland Gala last year – although not in use. **Photo 10** should give the general idea of how a shaft is mounted inside a tube and, by rotation against suitable restraint, indicates torque directly on a calibrated scale. Coincidentally, just after I printed this photo I had the B.B.C. asking me for the torque appropriate to the just released Airfix rubber powered ornithopter ! The information was relayed to B.B.C. 1 programme's millions by Raymond Baxter of 'Tomorrow's World' on 25th February.

Another, but very different method of ensuring longer life for gliders is shown in **photo 11**. This is one of Tony Young's A/2's that sports *two* DT timers, *either* of which will cause the tail to tip at the right moment. This provides a very practical form of insurance against dust, dirt and other causes of timer stoppages. Whilst the clockwork timer, actuated by release of the towline has revolutionised glider flying over the past few years, lost models are still too frequent. I can speak with feeling after expending much time this winter in renovating one of my A/2's through it spending several weeks out following a timer failure ! This was the fourth such flyaway in five years – so, as and when I build another A/2 it will very likely possess a *second* timer. Although this might appear 'good for trade' it is intended to be otherwise in the long term !

For F/F to keep in fashion – or at least in step with other branches of the hobby – the use of iron-on coverings will have to come. I've had samples of both 'Transparent Super Monokote' and 'Solarfilm' from the Trade – but have yet to produce a suitable model to try out these products under practical conditions. All I've done so far is to weigh the samples.

The British product is a little lighter (at 0.116 ozs. per 100 sq. inches) than its American predecessor (0.126) – but both are heavier than either Jap or lightweight Modelspan and plenty of dope. Comparison with heavy Modelspan is much more realistic – and A/2 and power wings would appear suitable subjects. One of my club members, Alan Wood, is a faster builder and attracted much interest at the York Rally last October with his 'Solarfilm' covered O.S. 35 model. **Photo 12** shows it displayed by an equally fashionably attired spectator !

Photo 12. Latest fashion in models. Transparent 'Solarfilm' covered O.S.35 power model built by Alan Wood, and displayed by Mrs. Rosemary Dobson.

Halvegaar '69'

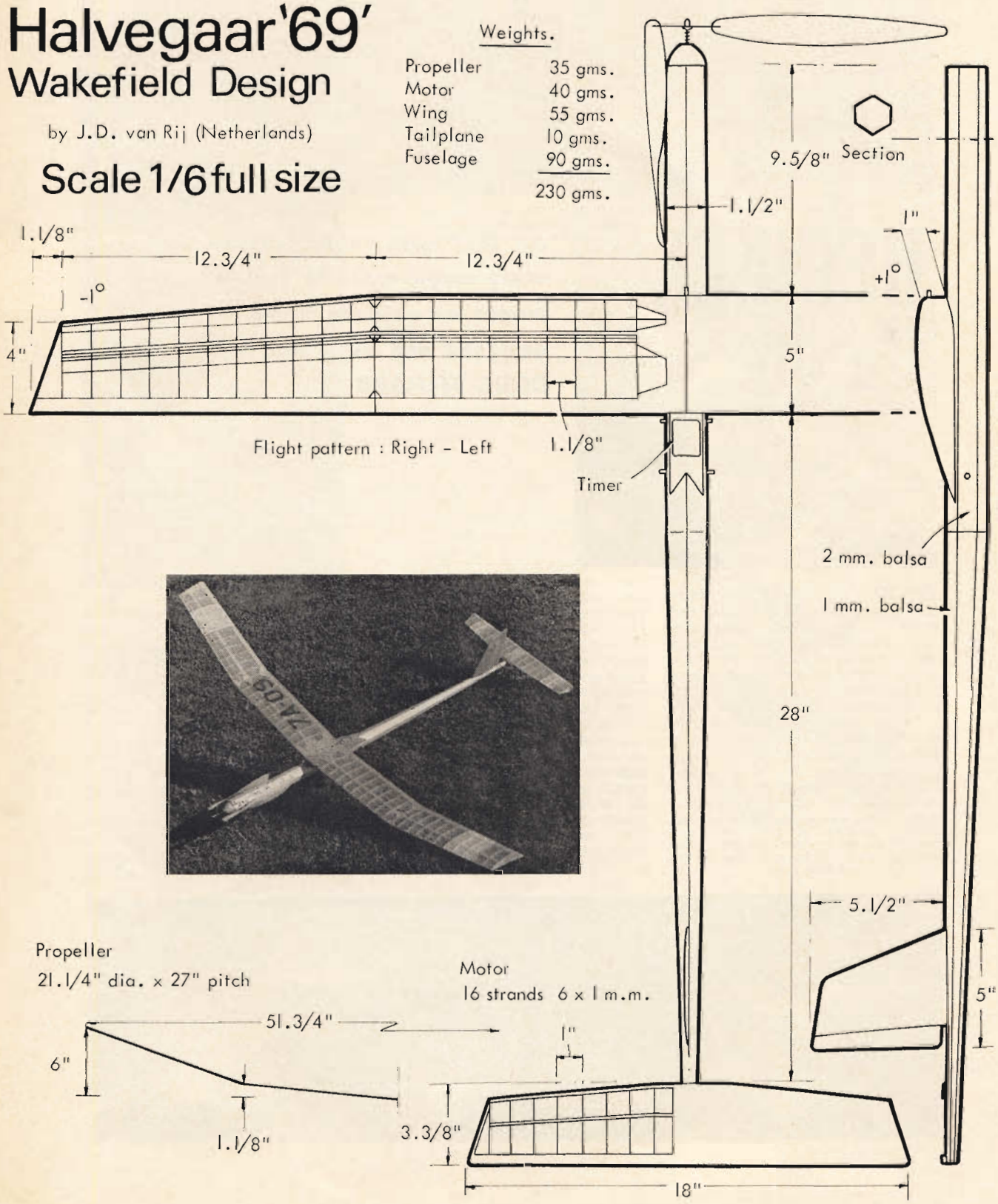
Wakefield Design

by J.D. van Rij (Netherlands)

Scale 1/6 full size

Weights.

Propeller	35 gms.
Motor	40 gms.
Wing	55 gms.
Tailplane	10 gms.
Fuselage	90 gms.
	230 gms.



HEINKEL He 46

An 18¾" span rubber driven scale model suitable for indoor or outdoor flying designed and described by DOUG McHARD

THE HEINKEL He 46 was widely used by the Luftwaffe in the mid and late Thirties as an Army Co-operation machine. Its parasol lay-out makes it an ideal subject for a stable scale model and the degree of wing sweepback dispenses with the need to use non-scale dihedral.

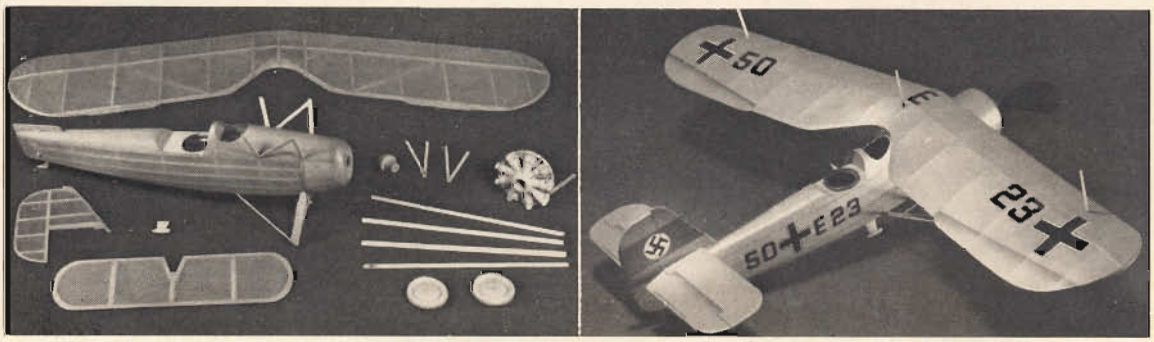
Choose your balsa carefully. Use the lightest possible material, consistent with strength, and use only sufficient cement to ensure sound joints. Surplus cement pushes up the airframe weight alarmingly, and a small model like this depends for its success upon keeping the weight DOWN!

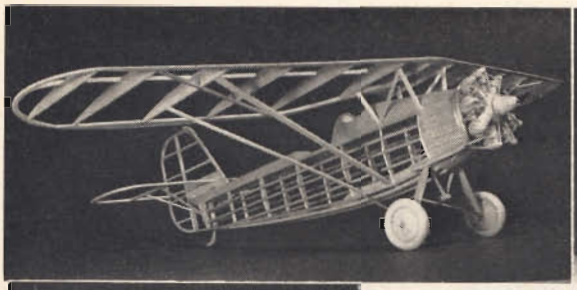
First remove the plan from the magazine and place it over a flat building board. Start the fuselage by making a conventional box structure from 1/16in. square balsa and the 1/16in. keel pieces.

Construct two basic side frames flat on the plan, then when dry, separate them with a razor blade. Re-cement at the rear post and complete the basic box by inserting 1/16in. square spacers top and bottom, to the lengths shown in the fuselage plan view.

The 1/16in. sheet top and bottom formers are now cemented in place Cover the top decking with sheet balsa or stiff paper, using P.V.A. glue to avoid the inevitable distortion produced by the shrinkage of balsa cement. Now add the bottom stringers. Side formers are 1/16in. x 1/16in. strips of soft balsa, tapered (after fitting) at each end as shown in the small sketch. Check the final shape by placing the 1/16in. x 1/16in. side stringers in position before cementing finally in place. Cement the main landing gear legs in place and fit the bamboo rear legs in position, sharpening the tops of these and forcing them into the fuselage keel pieces. Cement well. When dry, build

Covered but not painted version with exposed engine at left, completed cowled variant at right. Doug's skilled airbrush work picks out the control surface areas.





Structure of the second model compared with completed first version. Close up left shows the 9 cylinders in position, made of Balsa dowels, reed and considerable ingenuity.

up the rest of the landing gear assembly, starting with the cranked axle fairing. Streamline all struts and let in the 22 s.w.g. axle flush with the fairing lower surface. Wrap with two layers of tissue, well cemented.

Cut away the top fuselage decking to allow the lower ends of the wing cabane struts (C.S.1., C.S.2., C.S.3.) to be cemented securely to the top fuselage longerons. Check the angle carefully to bring the top ends against the inside faces of wing ribs W.2.

Before building the noseblock you must decide which type of engine you are going to reproduce. The simpler (cowled) version is recommended for the less experienced builder, but the exposed engine can be very impressive if you've the patience to build it! Make the nose plug detachable in each case, and bush with a 20 s.w.g. brass tube at the angle shown.

Wing halves are built on the plan. Take particular care to cut the inner ends of the spars, leading and trailing edges exactly as shown. The wing tips are laminated from softish 1/32 in. sheet cut into 3/32 in. wide strips. Soak the strips in slightly watered down P.V.A. glue and form all three laminations pressed hard against a thick cardboard or 3/32 in. balsa former well waxed to prevent the laminations sticking to it. Hold in position with pins as shown in the photograph and do not remove until completely dry. Remove the completed wing halves and cement them together flat with no dihedral.

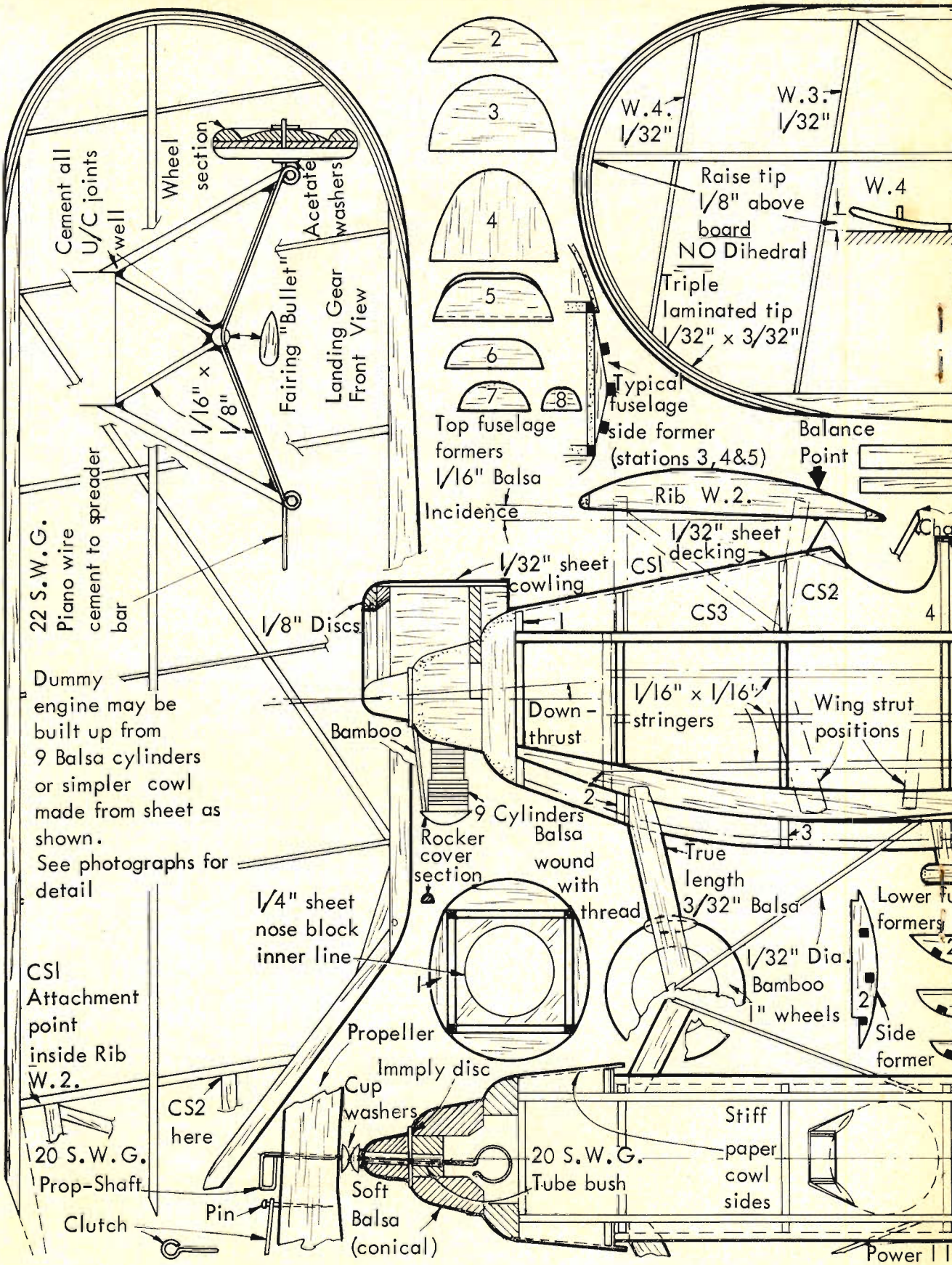
The fin/rudder outline is laminated like the wing tips. If you are unable to buy 1/64 in. sheet balsa, sand down a piece of 1/32 in. sheet to half thickness, using the sandpaper wrapped around a balsa block.

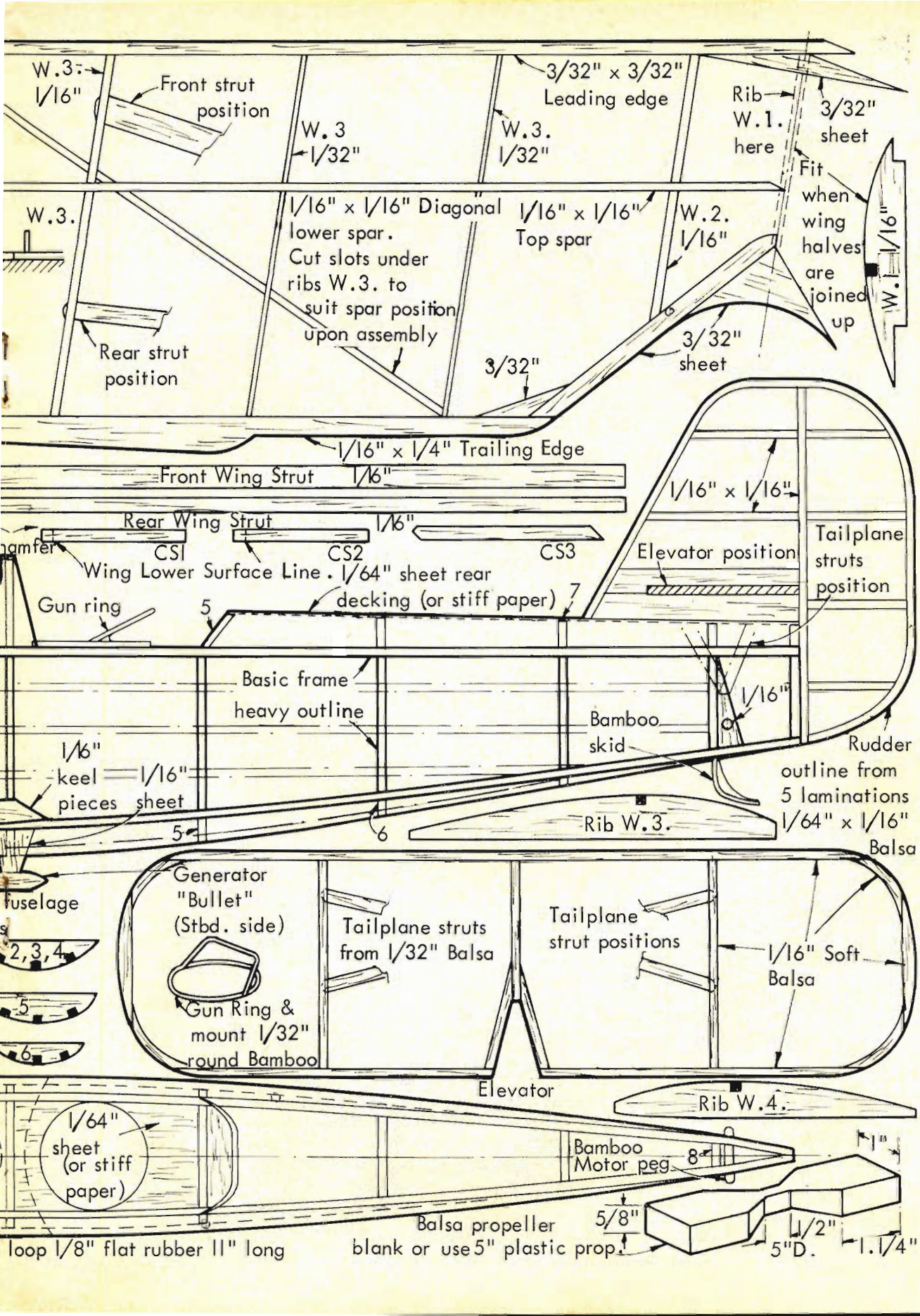
Each component is covered separately before final assembly. Use Jap tissue if available, otherwise use lightweight Modelspan. Cut away tissue wherever struts are cemented to the frame. Note how the struts C.S.1 and C.S.2 are chamfered at their top ends and cemented to the *inside* faces of wing ribs W.2. Be very careful to ensure that the correct angle of incidence is maintained.

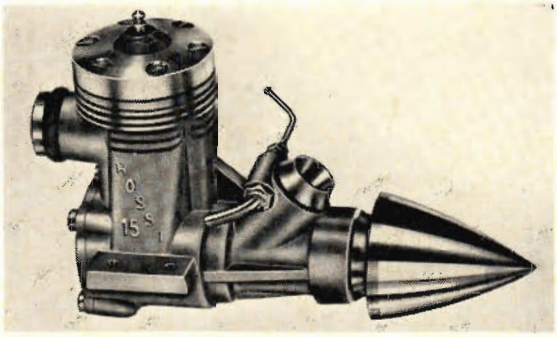
You can check this by cutting a piece of sheet balsa to conform to the

(*continued on page 216*)

Above, realism is incredible – especially when one realised that these models weigh less than 0.8 ounce. Flight pattern on single loop of rubber never fails to impress. Two types below, very original model paint scheme at right.

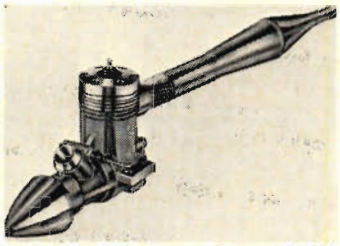

Cement all U/C joints well
Wheel section
Acetate washers
Fairing "Bullet"
Landing Gear Front View
1/16" x 1/8"
22 S.W.G. Piano wire cement to spreader bar
1/8" Discs
Dummy engine may be built up from 9 Balsa cylinders or simpler cowl made from sheet as shown. See photographs for detail
CSI Attachment point inside Rib W.2.
CS2 here
20 S.W.G. Prop-Shaft
Clutch
Pin
Propeller
Immply disc
Cup washers
Soft Balsa (conical)
20 S.W.G. Tube bush
Stiff paper cowl sides
Power
2
3
4
5
6
7
8
W.4. 1/32"
W.3. 1/32"
W.4
Raise tip 1/8" above board
NO Dihedral
Triple laminated tip 1/32" x 3/32"
Typical fuselage side former (stations 3,4&5)
Top fuselage formers 1/16" Balsa
Balance Point
Rib W.2.
Incidence
1/32" sheet decking
1/32" sheet cowling
CSI
CS2
CS3
Down-thrust
1/16" x 1/16" stringers
Wing strut positions
Bamboo
9 Cylinders Balsa wound with thread
Rocker cover section
1/4" sheet nose block inner line
True length 3/32" Balsa
1/32" Dia. Bamboo
1" wheels
Lower formers
Side former


W.3. 1/16"
Front strut position
W.3 1/32"
3/32" x 3/32" Leading edge
W.3. 1/32"
Rib W.1. here
3/32" sheet
Fit when wing halves are joined up
W.1. 1/16"
W.3.
1/16" x 1/16" Diagonal lower spar. Cut slots under ribs W.3. to suit spar position upon assembly
1/16" x 1/16" Top spar
W.2. 1/16"
Rear strut position
3/32"
3/32" sheet
1/16" x 1/4" Trailing Edge
Front Wing Strut 1/16"
Rear Wing Strut 1/16"
CS1
CS2
CS3
Wing Lower Surface Line . 1/64" sheet rear decking (or stiff paper)
Gun ring
5
7
1/16" x 1/16"
Elevator position
Tailplane struts position
Basic frame heavy outline
1/16"
Bamboo skid
Rudder outline from 5 laminations 1/64" x 1/16" Balsa
1/16" keel pieces
1/16" sheet
6
Rib W.3.
Generator "Bullet" (Stbd. side)
Tailplane struts from 1/32" Balsa
Tailplane strut positions
1/16" Soft Balsa
Gun Ring & mount 1/32" round Bamboo
Elevator
Rib W.4.
1/64" sheet (or stiff paper)
Bamboo Motor peg
8
1"
5/8"
1/2"
5"D.
1.1/4"
Balsa propeller blank or use 5" plastic prop.
loop 1/8" flat rubber 11" long



LATEST ENGINE NEWS

By Peter Chinn



Left, the new 2.5 c.c. Rossi R.15 contest engine is now in production. FAI free-flight, R/C, team-racing and speed versions (see above) are planned.

Rossi 15 in Production

Hard on the heels of the disclosure (see February L.E.N.) that the Komet K.15 engine is being produced commercially, comes the news that another Italian 2.5 c.c. racing engine, the long-awaited Rossi R.15, has also reached the production stage. The first batch of motors should be on sale in Italy by the time these words appear in print.

The Rossi brothers inform us that the motor is the outcome of research and tests over a period of five years and claim that it offers outstanding power in the 2.5 c.c. class. It it is to be produced in five versions, namely:

1. R.15 *a risonanza* (i.e. for tuned pipe)
2. R.15 *normale* (i.e. non-pipe)
3. R.15 R/C Marine (for tuned pipe)
4. R.15 R/C with silencer
5. R.15 Diesel for tuned pipe

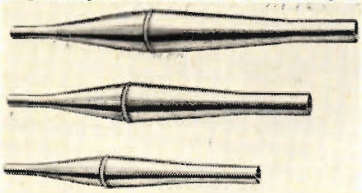
In the first version, the engine is claimed to be capable of equalling or exceeding today's highest levels of power in the FAI Speed category. The second type, ported for non-pipe operation, is intended for FAI free-flight under the 1971 rules. The Marine version, with water-cooling has, quote, already displayed superiority in many contests, both Italian and foreign, while the R.15 diesel is expected to demonstrate its exceptional performance in the coming season's team-racing contests.

We have no technical details of the engine at present but the manufacturer's illustrations give a good idea of its general layout. It will be noted that, in contrast to the well-known Rossi 60, the engine shown is a front induction type with rear exhaust and appears to have Schnuerle type porting. It is not known whether the same casting, with rear exhaust, is also used for the R/C aircraft version.

The Rossi brothers are marketing in addition, a range of lightweight tuned pipes for speed work. These are made in 2.5, 5.0 and 10 c.c. sizes, weighing, respectively, 17 gr. (0.60 oz.); 23 gr. (0.81 oz.) and 35 gr. (1.23 oz.).

O.S. Max-H.40R

This new model was released towards the end of last season and should be available shortly from Keilkraft stockists. Intended primarily for rat-racing and open free-flight, it is not to be confused with the Max H.40-R/R model, which has now been withdrawn from production. Whereas the earlier model was a lapped Meehanite piston engine and had its crankshaft carried in a single large ball-bearing supplemented by a bronze outer bush, the new 40P uses an aluminium piston with single ring and has dual ball-bearings.



New Rossi tuned pipes for 2.5 c.c., 5 c.c. and 10 c.c. speed engines.

There are numerous other refinements that have necessitated new parts practically throughout, including a revised crankcase, new crankshaft, prop drive assembly and cylinder-liner. Induction, transfer and exhaust timing have all been modified.

Of the five O.S. 40 engines that have been manufactured since the original lapped piston H.40-R/R and H.40 R/C were introduced in 1964, only the three ringed-piston engines are now in production, namely, the single ball bearing, throttle-equipped H.40SP-R/C, the twin ball-bearing, throttle equipped, R/C pylon-racing H.40P and the H.40R now under discussion. The H.40R shares certain features with the H.40P, including its wedge type combustion chamber and skirt-ported piston.

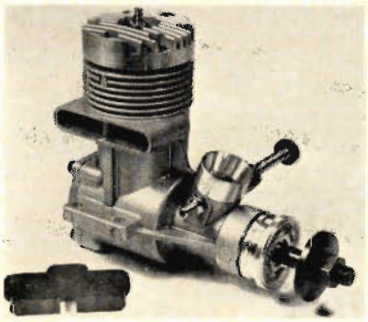
Three views of the new O.S. Max-H 40R, designed for 'maximum power' events, shows revised casting carrying dual ball-bearings. Venturi insert has a massive 0.450in. dia. throat – engine is for pressure feed only.

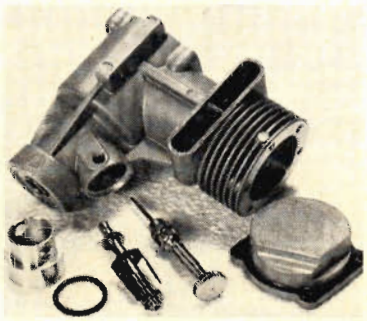
A few months ago in this series, we included a comparison of the latest Series 69R K&B Torpedo 40 and the Super-Tigre G.21/40 RV. Both of these are disc-valve engines (although the K&B is available in a shaft-valve model) but the O.S. H.40R is aimed at the same market and it is appropriate perhaps, to briefly examine its various design features under headings as used for the analyses of the K&B and S.T.

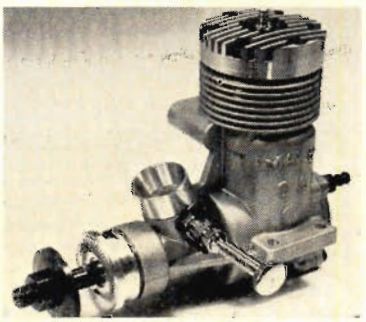
Main Casting. This comprises (as does the S.T.) the crankcase, cylinder casing and front housing and is a very smoothly turned out pressure casting with cast-in bronze bushing between the two ball-bearing housings.

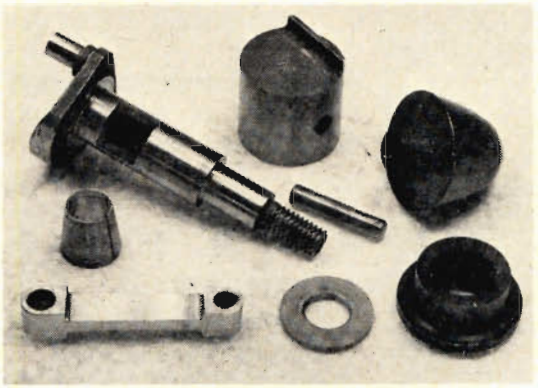
Cylinder Liner. Having been originally designed to accommodate a .40 cu. in. displacement at the outset – rather than as a .29 (S.T.) or .35 (K&B), the O.S. is able to use a thicker (.055 in.) cylinder liner. With a port area of approximately 90 sq. mm., the 40R has much the same size exhaust as the S.T., as against 110 sq. mm. for the K&B. Transfer port area is also slightly smaller: 82 sq. mm., compared with 86 (S.T.) and 88 (K&B). Unlike the S.T. and K&B, however, the O.S. has two skirt transfer ports in the piston and liner to aid gas flow and vent hot gas from beneath the piston crown.

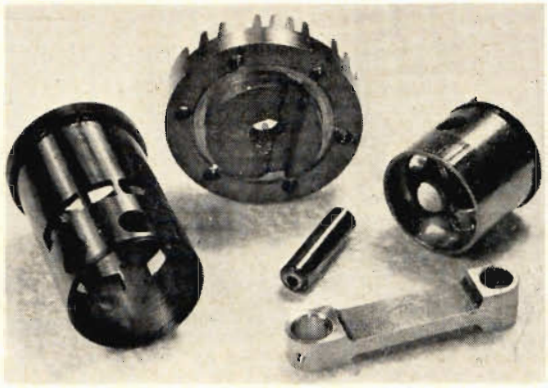
Piston: Like the S.T., the O.S. has a gravity diecast aluminium piston with one conventional ring. The early production model O.S.40P's had Dykes rings but these were subsequently dropped in favour of an orthodox compression ring and the same piston and ring is used in the 40R. The weight of the piston and ring is 7.7 grammes, compared with 7.2 for the S.T. and 7.0 for the K&B. Two oil holes are drilled in each piston boss on the O.S. The O.S. uses a larger o.d. tubular gudgeon-pin (5.5 mm.) than the S.T. (5.0 mm.) or K&B (4.5 mm.) which, in consequence, is a little heavier. Total piston and conrod assembly weight is 13.2 gr. compared with 12.9 (S.T.) and 12.3 (K&B).











Above left, the O.S. Max-H .40 series uses the largest diameter crankshaft in the .40 cu. in. class. Right, skirt-ported piston and cylinder liner and wedge type cylinder head are featured by new O.S. 40R.

Cylinder Head. In contrast to the S.T. which uses a wide squish band surrounding a small hemispherical combustion chamber, the O.S., like the K&B, uses a wedge pattern head. As on all the O.S. Max engines, the head is fitted with a cast-in brass thread insert for the glowplug.

Crankshaft. As befits a shaft valve motor, the O.S. has a larger (13.0 mm.) diameter crankshaft main journal than the S.T. (12.0 mm.) or K&B (9.5 mm.) and this is bored a generous 9.8 mm. for the gas passage. At the front end the shaft is reduced to 7 mm. dia. (S.T. 7 mm.; K&B 6.35 mm.). Both journals are supported in steel cage ball journal bearings (13 x 28 mm. main, 7 x 19 mm. front) the front one being a shielded type. The prop driver is of machined dural, mounted on a split taper collet. This replaces the die-cast driver used on the earlier H.40's. A large rectangular valve port is used in in conjunction with a parallel sided intake aperture for quick opening and closing. Shaft counterbalancing is by means of deep cutaways each side of the crankpin, plus a crescent counterweight. (The S.T. uses cutaways only; the K&B has an internally counterbalanced disc type crank.) The crankshaft is machined in one piece complete with 6.35 mm. tubular crankpin. (The one-piece S.T. crankshaft has a solid 6 mm. crankpin; the K&B has a pressed-in 5.5 mm. dia. crankpin.)

Other Statistics. All three engines have much the same cylinder port timing. Each has a 120 degree transfer period. The measured exhaust period on the O.S. was 142 deg. compared with 138 deg. for the S.T. and 140 deg. for the K&B. The rotary-valve opens at 35 deg. ABDC and closes at 50 deg. ATDC, compared with 35–55 for the S.T. and 33–50 for the K&B. The massive 11.5 mm. bore intake has an effective choke area of approximately 62 sq. mm. (S.T. 54 sq. mm., K&B 61 sq. mm.) and fuel pressurisation is provided for by a backplate nipple. The O.S. has no supplementary air induction period and will not therefore suffer adulteration of the charge if a silencer is used.

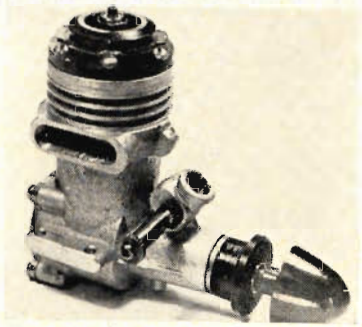
At a checked weight of 242 grammes (8.53 oz.) the 40R is a fraction heavier than the K&B, but an ounce lighter than the S.T. It is, being a front induction engine, rather shorter than either of the other two, and measures 83.2 mm. from prop driver face to the backplate-mounted pressure fitting, compared with prop driver to carburettor intake measurements of 92.8 mm. and 95.5 mm. for the S.T. and K&B. Overall height, less plug, is 83.4 mm (S.T. 85.5; K&B 81.0 mm.) and overall width is 48 mm. – the same as the S.T. and half a millimetre more than the K&B. It needs a bearer spacing of 33.2 mm.; approximately the same as for the K&B, compared with 32.0 mm. for the S.T.

The bore and stroke of the O.S. is 20.6 x 19.5 mm., giving a stroke/bore ratio of 0.947 (S.T. 0.966; K&B 0.857) and a swept volume of 6.499 c.c. or 0.3966 cu. in. (S.T. 6.535–0.3988; K&B 6.539–0.3990).

As regards performance, it remains to be seen whether the O.S. 40R can offer a serious challenge to the Series 69R K&B 40 or the S.T. G.21/40RV which, at the present time, are the most successful rat-racing 40's. The K&B in particular, offers pretty phenomenal power (on test, we have obtained outputs approaching 1.3 bhp on high nitro racing fuels) but it seems reasonable to predict that the performance of the 40R on the strength of the performance obtained on the basically similar, but relatively detuned 40P, will place it in the top three. The only other likely contender for 40 honours in the immediate future would appear to be the redesigned Fox 40 which, we understand, is being developed for the Fox company by speed expert George Aldrich.

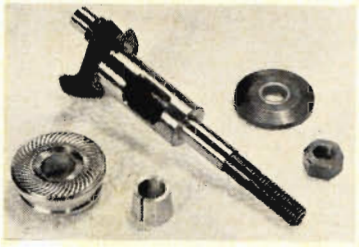
Poljot 5.6

The O.S. 40R, like other engines from this manufacturer, is noteworthy for a high standard of construction and finish both inside and out, which is more than one can say of another medium size glow engine that came into our hands recently. This was a Russian Poljot ('Flight'), a C/L 'stunt 35' type engine put out by DOSAAF, the official Soviet aero sport organisation. The engine would not even sit square: its mounting lugs were neither flat nor in alignment with each other and the same rough-hewn workmanship was evident elsewhere.



Somewhat lacking in refinement, the Russian Poljot .35 cu. in. C/L stunt engine.

The Poljot's basic layout – possibly inspired by the Fox 35 – appears to be sound and it is a pity that its construction, like so many other USSR production engines, is so poorly executed. The engine has a nominal bore and stroke of 20.5 x 17.7 mm., giving a swept volume of 5.842 c.c. or 0.3565 cu. in. It weighs 7.59 oz.



At right, the Poljot has usual bronze bushed main bearing and drop-in cylinder-liner, also uses (left) an 11 mm. dia. hardened crankshaft, cast-iron piston with annular rib and a 4 mm. solid gudgeon-pin.

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

JUNIOR KIT CONTEST AT 1970 NATIONALS

As it is getting near the date of the Nationals, the rules of the JUNIOR KIT CONTEST are given below. Those of you who wrote to Ray Favre will have had them already – there are no changes but some of the wording has been made more clear and the prizes have been added:–

1. The contest will be run in two sections (rubber and glider) and will be open to *anyone whose 17th birthday is after 24th May 1970*, provided that they can produce evidence of insurance with at least similar cover to that provided to SMAE members (MAP will do fine). The contest will take place on Sunday, 24th May 1970, at the British Nationals Meeting at RAF HULLAVINGTON, WILTSHIRE.
2. Entries can be made beforehand (details next month) or can be made on the field in the period from one hour before to one half-hour after the start of the contest, i.e. between 1. p.m. and 2.30 p.m., see below.
   Entry Fee will be 2/- and this will cover entry to either rubber or glider *or both* (i.e. no extra cost to enter both sections). Only one entry per section per person is allowed.
3. Models must have been built entirely by the entrant from a kit and must be chosen from the following kits only. (More than one model per entrant per section is allowed if required.)
   Rubber *Keilkraft Ajax and Senator, Mercury Mentor, Veron Sentinel.*
   Glider *Keilkraft Invader, Mercury Martin and Swan, Veron Verosonic, Cirrosonic.*
4. Entrants must wind and launch their rubber models and operate the towline on glider models – towline length will be 50 metres (164 ft.) maximum.
5. After having entered and collected his flight card from the Contest Director each entrant will be required to attempt three qualifying flights (for each section if entrant is in both) at any time between 2 p.m. and 4 p.m. These flights must be timed by someone other than the entrant, preferably with a stop-watch but at least a sweep-second watch. The time for each flight must be entered on the flight card and taken to the Contest Director for verification after each flight. A three-minute 'maximum' will operate, i.e. individual flights lasting for more than three minutes will score three minutes only. (But don't worry if you can't get anywhere near this in practice – it's just a safeguard !)
6. At the end of the time period all cards must be returned to the Contest Director who will then announce in each section the names of the five entrants with the highest three-flight aggregate scores (or all those with three 'maximums' if there are more than five). These entrants will then be required to make two further flights during a specified time period (probably from 4.45 p.m. to 5.45 p.m.). These flights will be timed by stop-watches. *Before* these two final flights each of the models to be flown will be 'processed' and tow-line lengths will be checked. A check facility will be available beforehand for those wishing to be doubly sure.
7. Processing will entail the Contest Director checking the model against the plan issued with the purchased kits in order to ensure that the models are standard and have no modifications. In particular the rubber motor and propeller must be as provided or recommended in the kit. There is no need to bring your copy of the plan. (See below for available modifications.)
8. The winner in each section will be the entrant with the highest aggregate score from the final two flights. Entrants must indicate to the Director before the end of the qualifying flights if they wish their model(s) to be considered for the 'best built' prize (see later).
9. The decision of the Contest Director will be final.
10. Advice or answers to further queries can be obtained by writing to : Mr. R. A. Favre, 90 Courtlands Drive, Watford, Herts., WD1 3JA, enclosing a stamped, addressed envelope and marking the outer envelope with 'Kit Contest'.
11. *Prizes.* (The ones below are definite – additional ones may be available on the day.)
    (a) *1st Prize* (in each section) will be one year's free subscription to SMAE plus one year's free subscription to *Aeromodeller* plus kit (or vouchers) to the approximate value of 30 shillings (total value is approximately £5).
    (b) *2nd Prize (in each section)* will be kit (or vouchers) to the approximate value of £1.
    (c) *The remaining entrants reaching the qualifying rounds* will each receive kit or vouchers to the value of approximately 15 shillings.
    (d) THE HIGHEST-SCORING SMAE MEMBER IN THE CONTEST WILL BE AWARDED THE C. HAMLEY CUP FOR ONE YEAR.
    (e) *The youngest entrant* making at least one contest flight over 20 secs. will also receive a prize to the approximate value of 10 shillings.
    (f) The best built model achieving at least a 20-second contest flight will receive a prize to the approximate value of 10/-.

Kits or vouchers will be kindly donated by Keilkraft, Mercury and Veron kit manufacturers; **Aeromodeller** subscriptions kindly donated by MAP Ltd.; and SMAE subscriptions by SMAE Ltd. *STOP PRESS !* Exclusive arrangements have been made to allow the winner in each section this year to appear on the ITV (Thames Television) programme 'MAGPIE'.

The following is a summary of the *only* optional modifications, as indicated on the plans or in instructions to the kits :–

Rubber :
Senator. Standard, no modifications.
Mentor. Standard, no modifications.
Ajax. Self-carved wooden propeller to plan details (optional in place of provided propeller).
Sentinel. Choice of optional propellers as indicated on plan and in instructions.

Glider :
Invader. Standard, no modifications.
Martin. Standard, no modifications.
Versonic. Standard, no modifications.
Swan. Dethermaliser optional.
Cirrosonic. Dethermaliser optional.

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.

4/70 2d. in the 1/- Rebate plan purchase coupon for Golden Wing Members G. W. No.....

Aircraft Described

Number 192

By H. J. Robinson

MILES M.13 "HOBBY"

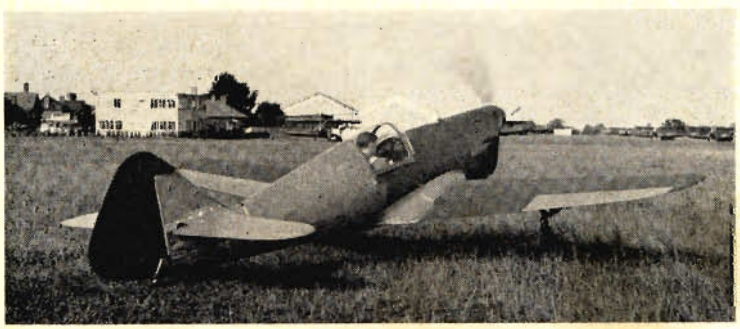
F. G. MILES' mount for the 1935 King's Cup Race had been the first M.5 *Sparrowhawk*, an ingeniously extemporised design by Mrs. Miles with standard Hawk components cleverly modified to produce a most pleasing aircraft which recorded the fastest time in that year's Eliminating Contest and placed 11th in the Final. In January of 1937 Miles determined to build a small, really fast aeroplane that would retain the excellent qualities of the *Sparrowhawk*, test a number of his theories and provide him with a mount for the 1937 Race.

The new aircraft was to embody several aerodynamic improvements, including a semi-monocoque fuselage of oval section, fully enclosed cockpit and retractable undercarriage. Top speed was to be over 200 m.p.h. using the 140 h.p. Gipsy Major Series II engine turning a De Havillant 1000 variable pitch propeller. As the M.13 was purely experimental, F. G. and Mrs. Miles completed the basic design in their spare time and just two craftsmen began its construction. Named as usual after a member of the hawk family, the M.13 became the *Hobby*, a small, agile falcon fast enough to strike down a swift in flight.

Several weeks before the date for receiving its C. of A. it was realised that the *Hobby* would not be finished in time, so a number of enthusiastic assistants was recruited and a week before the race all hands began working night and day. Assembling the machine with only two days to go, it was discovered that the undercarriage would not retract into the holes in the wing provided for it. Since design and construction of a retractable undercarriage is a specialist undertaking this had been sub-contracted, but somehow the essential liaison between Miles and the sub-contractor had broken down (it was never discovered where or how). Redesigning and rebuilding the wing within forty-eight hours was impossible, but on the night before its anticipated certification, the *Hobby*, its improvised undercarriage without cover doors and with retracting jacks outboard of the Oleo legs, was rolled out onto Woodley Aerodrome and F. G. Miles was only prevented from taking off in total darkness by the arrival of Mrs. Miles.

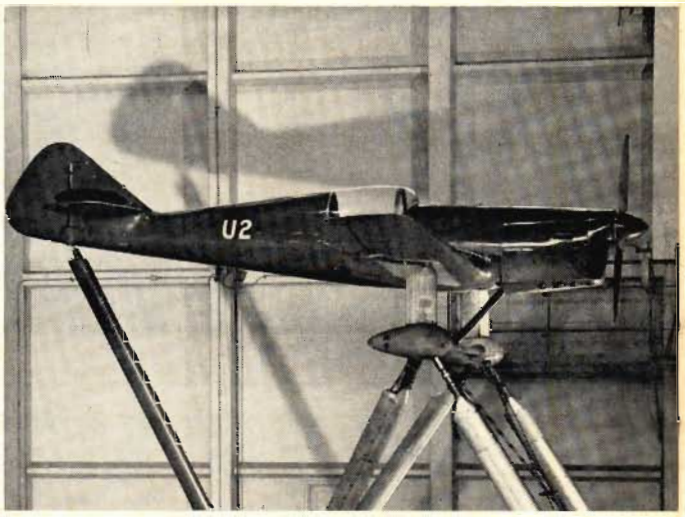
For its first flight on 4th September, 1937, the *Hobby* retained the improvised undercarriage and was largely unpainted, with red oxide primer on forward fuselage, wing and rudder. Miles found his aircraft 'satisfactory and very comfortable', although the landing speed was higher than anticipated. Later it was painted crimson overall with the experimental registration 'U2' in cream. By then the undercarriage had been modified with actuating struts fitted inboard of the Oleo legs and cover doors added. The aircraft never received its C. of A. and hence the allotted registration G-AFAW was never carried nor the racing number 2 applied.

Although the *Hobby's* wingspan was less than its overall length, wing area remained adequate for its weight. With an extremely thick aerofoil at the root, the one-piece wing tapered in both plan and thickness, with sharply dihedralled outer panels and a short,



Unusual outboard retracting jacks on the undercarriage are evident on the yet-to-be finished 'Hobby' at Woodley Aerodrome ('Flight' photos).

On test at Farnborough, the Hobby mounted in the 24 ft. Wind Tunnel for aerodynamic analysis (Crown Copyright photo).



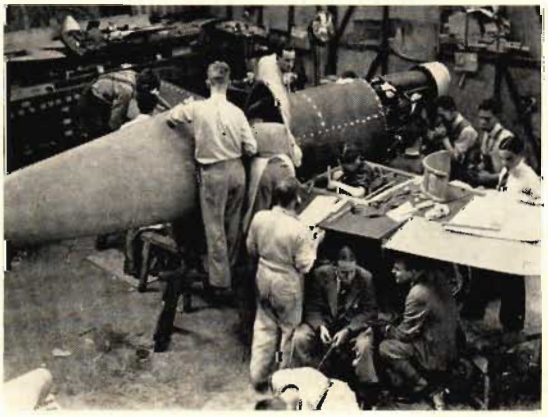
flat centre panel almost buried in the fuselage. Two box-spars of spruce flanges and birch plywood webs were joined by plywood ribs with spruce capstrips, corner blocks and uprights, while additional nose ribs were fitted to the upper surface between the front spar and the spruce leading edge. Vacuum operated landing flaps were carried on a short, false spar of solid spruce and the entire wing was covered with birch plywood.

Each aileron was constructed on a spruce spar with plywood ribs and covering, with a mass-balance weight mounted off the front face of the spar and housed within the wing where a hole in the lower plywood covering allowed passage of the weight and upward movement of the aileron. Control was by cables operating through a large external horn at the inboard end of each surface.

The gracefully tapering fuselage was built about two tapered spruce longerons set immediately below the cockpit canopy and a number of oval plywood formers. This basic structure was reinforced by spruce stringers and covered with birch plywood. Formers were paired about each wing spar to form a slot, with both formers and spars suitably reinforced and bolted together. Between these two sets of double formers the fuselage was occupied by the fuel tank. The steeply sloping windscreen was typically Miles, and the large transparent cockpit canopy was a well-contoured one-piece moulding.

The shapely tail surfaces were constructed of spruce spars and plywood ribs, plywood covered except for the fabric covered upper section of the rudder. The fin was integral with the fuselage and the balanced rudder cable operated through external horns. The tailplane was mounted in line with the top of the fuselage, and the entire fin/fuselage/tailplane junction was faired with a large duralamin fillet. Both elevators were mounted on a single spar which ran through a hole in the fin. The curved steel tailskid was hinged off the rear face of the rudder post and sprung by bungee cord in tension. The Gipsy Major Series II engine was carried on a mount of welded steel tube. Side panels of the tapered cowling were hinged along their upper centre line for engine access and held in place by quick-action fasteners.

Haste of the moment can be detected in this view of the Hobby under construction. Note the chap standing 'through' the wing! Design conference obviously taking place on the tool chest. ('Aeroplane' photograph.)



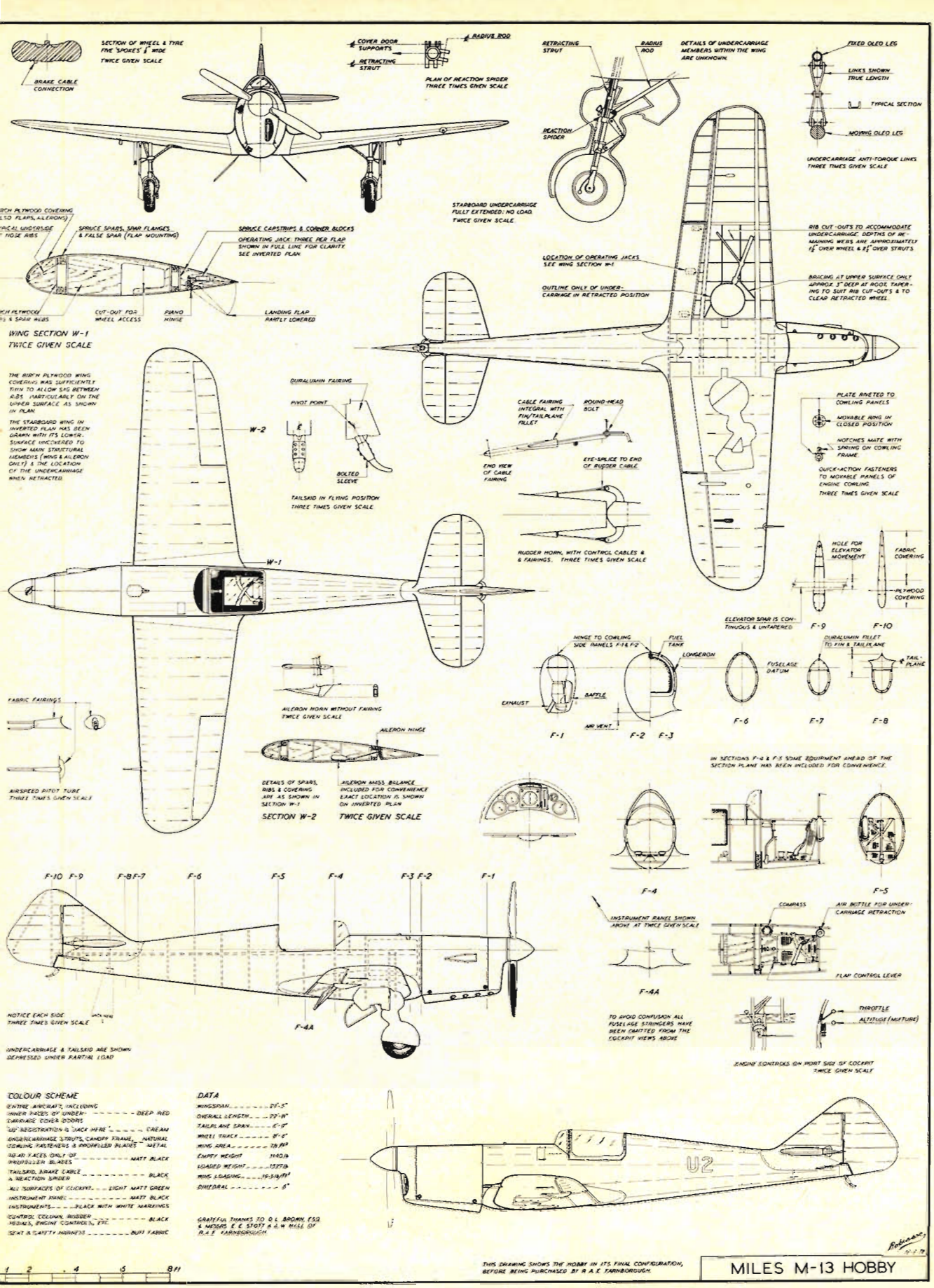
Each wheel of the wide-track undercarriage was carried in a forked Oleo leg, raked forward when extended and swung aft by the radius rod during retraction to lie between the wing spars. Pneumatic retracting jacks were finally located inboard of the Oleo legs and operated from an air bottle mounted behind the pilot's right shoulder. The central portion of the cover door was pin-jointed to the moving Oleo leg, with inner and outer sections hinged from the underside of the wing. In the original undercarriage design a single cover door was mounted on the Oleo leg with a hinged flap covering the lower half of the wheel. The early improvised arrangement was retained until after the aircraft was fully painted with the experimental registration 'U2'.

The *Hobby* had been built principally for the 1937 King's Cup Race and as this was now past, F. G. Miles was happy to dispose of her to the R.A.E., who wished to use the new 24 ft. wind tunnel at Farnborough to analyse its drag and investigate ways of reducing it. Lift and drag were measured between — 2 deg. and + 10 deg. angle of attack, first with the undercarriage retracted, and with wheel wells and cooling openings covered and gaps to control surfaces and cowling panels sealed. Covering and sealing reduced drag but it was decided that the main source of drag was the 22 per cent thick wing root aerofoil. Nevertheless, airflow at the wing/fuselage junction was good with negligible drag rise. In flight tests the top speed was 196 m.p.h., well below the anticipated maximum.

After the test programme the *Hobby* was bought by Miles' Assistant Test Pilot, H. V. Kennedy, who wanted only its Gipsy Major engine. This was removed and the airframe scrapped. Miles considered the *Hobby* to be 'not one of our best aeroplanes', but with no opportunity to prove itself this wholly delightful little aircraft scarcely deserved such an inglorious end.

The author wishes to thank D. L. Brown, Esq., who enlarged and checked this article, Mr. and Mrs. F. G. Miles and Messrs. E. E. Stott and A. W. Hall of R.A.E. Farnborough.

Reprints of this feature plus 1/24th scale dye line print of the drawings are available as plan pack JH 2904, price 2/6d. plus 6d. post, from Aeromodeller Plans Service.



COLOUR SCHEME

ENTIRE AIRCRAFT, INCLUDING INNER FACES OF UNDER-CARRIAGE COVER DOORS	DEEP RED
'US' REGISTRATION & 'JACK HERE'	CREAM
UNDERCARRIAGE STRUTS, CANOPY FRAME, COWLING FASTENERS & PROPELLER BLADES	NATURAL METAL
TOP (& FACES ONLY OF PROPELLER BLADES	MATT BLACK
TAILSKID, BRAKE CABLE & REACTION SPIDER	BLACK
ALL SURFACES OF COCKPIT	LIGHT MATT GREEN
INSTRUMENT PANEL	MATT BLACK
INSTRUMENTS	BLACK WITH WHITE MARKINGS
CONTROL COLUMN, RUDDER PEDALS, ENGINE CONTROLS, ETC	BLACK
SEAT & SAFETY HARNESS	BUFF FABRIC

DATA

WINGSPAN	29'-5"
OVERALL LENGTH	22'-11"
TAILPLANE SPAN	6'-0"
WHEEL TRACK	8'-6"
WING AREA	78 ft²
EMPTY WEIGHT	1440 lb
LOADED WEIGHT	1929 lb
WING LOADING	16.5 lb/ft²
DIHEDRAL	6°

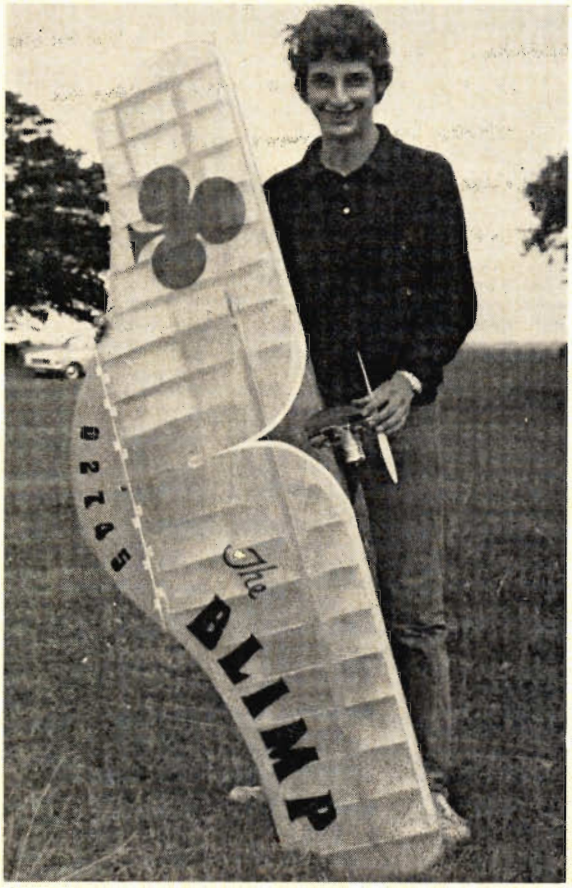
GRATEFUL THANKS TO D. L. BROWN, ESQ & MESSRS. E. E. STOTT, R. A. M. HILL OF R.A.E. FARNBOROUGH

THIS DRAWING SHOWS THE HOBBY IN ITS FINAL CONFIGURATION, BEFORE BEING PURCHASED BY R.A.E. FARNBOROUGH.

MILES M-13 HOBBY

Control-line News

by Peter Richardson



Now then, who's for combat? M. R. Chesterton, secretary of the Maidenhead club, hides behind his 70 in. span, 3 lb. 'wing' powered by a Merco 61. Root chord is 17¼ in. while the wing section at this point is 2½ in. thick. No reports on its flying characteristics available, but it sure attracts the crowds!

Combat Capers

AT THE forthcoming **World Championships** (to be held at Namur, Belgium, over 20–24th August – but please don't ask us for more details yet – 'cos we dunno!) a combat event will be held in addition to the usual contests, but only under a supporting event classification. This is because the F.A.I. combat rules are still only provisional and subject to revision, thus a contest cannot attain World Championship status. To clarify this point, it should be emphasised that the provisional F.A.I. rules have been in existence for 5–6 years. These are the ones to be used, not the *proposed* re-write of the F.A.I. rules drawn up recently by various British flyers. These are likely to be considered by the F.A.I. C/L sub-committee at the November 1970 meeting of the C.I.A.M.

One question which does arise, however, is that should we ask a team to represent us, in the light of previous experience in Belgium in respect of combat, and the rather loosely-defined rules? Bearing in mind that the team would have to pay their own expenses (and possibly entry fees too, as there is no Championship status involved) would it be fair on the pilots, not to mention pit crews? We think participation is **essential despite** the difficulties.

Hear we go again

Judging by the virtual 50–50 voting on the silencer issue at the recent Extraordinary General Meeting of the S.M.A.E., it appears that everyone agrees with fitting of silencers – for the *other* person. With such close voting, it is obvious that the London Area clubs who called the meeting were more than a little surprised by the support for the reintroduction of silencers. We trust that the individual sub-committees, who now have the responsibilities of *all* followers of their interests will take heed of this, and not be guided solely by the desires of specialist competition flyers – who, it must be admitted, are by far in the minority.

Without wishing to become involved in lengthy arguments on either side of the question, we must confess that some arguments for the abolition for silencers are based on very weak grounds. For example, a letter printed in the March issue complains that 'pure speed models do not easily lend themselves to the fitment of bulky silencers – and that includes tuned pipes'. Really, Mr. Burgess? From studying models, photographs and drawings, it would appear that the speed model is the *easiest* to adapt. To put it crudely, hack a hole in the rear of the cowl (for rear-ported motors, or in the side for a motor using a S.T.-type manifold), add a strut at the rear of the fuselage to clamp the tail pipe – and presto! One piped model to order. And as for a silenced/piped motor suffering more damage from a shaft run – well, that's not exactly a recommended procedure, now is it? Mr. W. would be very hurt if you make a practice of shaft runs with his products (he'd cry all the way to the bank!) – and he seems to cope with a couple of trumpet cones, stuck end to end, poking from the rear of his motor. Finally, Mr. B., what relevance is it to quote other sports where silencers are not fitted? If motor racing were banned, it would hardly affect C/L speed flying or vice versa, except perhaps there would be more tarmac available . . .

Smaller 'rats' for smaller pockets

Since mention was made in *Club News* concerning several groups flying **'A' class rat-racers,** Derek Small, control-line competition secretary of the Western Area, sent us details of the rules to which his Area run these very popular events – and the reasoning behind them.

There are no model restrictions other than a maximum engine capacity of 3.5 c.c. Lines are of at least 30 s.w.g., and 52 ft. 3 in. long, while F.A.I. team race circuit rules apply (i.e., segment behaviour etc.). Heats are held over 100 laps to include one pit stop, and the final is a 200-lapper with two compulsory breathing spaces.

Far from being 'petrified', young Billy Dahlgren of Illinois seems quietly confident that his last tweak on the needle valve was just what the Torp needed! His father's *Voodoo* is covered with a nylon print and is claimed to 'quiver in colour'!

The lack of model restrictions, they claim, encourage Juniors as 'full size' ratting has proved that it is complexity, *not* cost which frightens them off. A maximum of 3.5 c.cs. of ironware up front enables all sorts of hitherto 'sports' engines to be used, especially those reasonably priced glow .19s and 'oversize' diesels which can prove very competitive with expensive racing 2.5 c.c. diesels.

The purpose of the team-race procedure is twofold: to give beginners a good grounding in the finer arts of racing, should they wish to progress to team racing proper, and also to provide practice for regular racing men. Perhaps additional safety also fits into this category of advantages.

That these events are popular is undisputed – their being a major factor in last season's revival of C/L flying in the Western Area following a distinct barrenness in previous years. Although this 'tame' rat-racing is not new (in fact rules suggested by the FASTE club in the July 1962 *Aeromodeller* allowed for a Class I category) it has taken a long time to surface as a popular event. Perhaps with the bigger stuff 'going over the hill' to some extent, it will gain impetus even more rapidly.

We would not argue with the rules above, except for the reasoning that current rat-racers are complex – the model specifications are the same (*i.e.* none!) for either class – and that Juniors are unconcerned about the sixteen or so pieces of 'folding stuff' to obtain a power plant, let alone the cost of nitro fuel. The only complexity concerning a 'ratter' is the cut-out/tank/pressure systems used – so if simplification is required, why not insist on suction feed and ban fuel cut-offs?

Attendez!

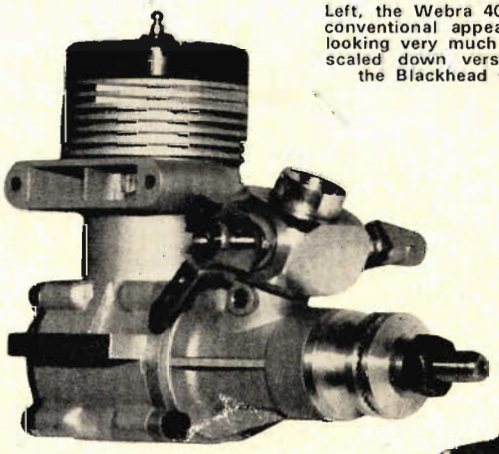
Our Gallic friends, from the expensive Ville de Paris, bring us to task for the brevity of our caption regarding the 'Perspex' domes (which, incidentally, were polystyrene) illustrated in the January *Control Line News*. So as to avoid having our supply of pâté de foie gras curtailed, we will now expound in greater detail.

The domes were designed and made by the French modellers to illustrate to the C.I.A.M. Meeting that various manoeuvres detailed in the F.A.I. stunt schedule could *not* be performed as described. By cunning application of adhesive tape, both the book definition and the pattern as flown is clearly seen. The purpose behind these demonstrations was to persuade the committee to alter the described schedule to that which it is possible to fly.

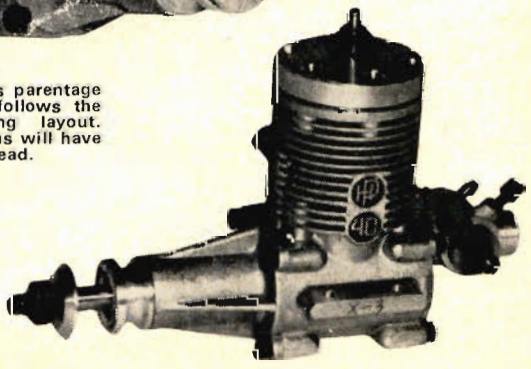
An interesting comment contained in the same screed is that the French would like to see a capacity limit of 2.5 c.c. established for aerobatics. This would be in order to bring stunt back into line with other F.A.I. classes, and enable the resulting models to be flown on the same sized areas as team racers, speed models, etc. Another advantage (!) would be that square figures, though still possible, would be harder to perform, thus easier to judge(?) These mini-models would probably average out at 35-50 in. span, thus are more easily carried in a small car. Obviously it's all a fiendish Gallic plot to flood this country with those little Citroen CV2s!

New racing motors

Seen at the Nürnberg Toy(!!) Fair were two new 'hot' 40's obviously designed for the fast-growing R/C racing classes. However, in throttle-less versions they should (by reputation at least) provide extra interest to rodent operatives. The HP factory needs no introduction as producers of some very hot motors, whilst the Webra concern is one of the longest-established in the field of high quality motors. Neither are yet available, but it would seem that knowing the opposition, these European firms would hardly produce an engine which they considered inferior to existing designs.

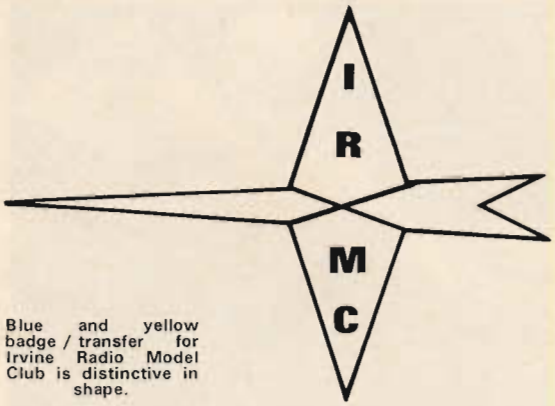


Left, the Webra 40 is of conventional appearance, looking very much like a scaled down version of the Blackhead 61.



Right, the HP 40's parentage is obvious, and follows the 'traditional' racing layout. Production versions will have a finned head.

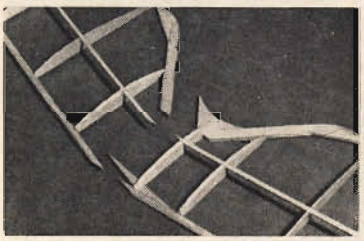
CLUB NEWS



Blue and yellow badge / transfer for Irvine Radio Model Club is distinctive in shape.

UNLIKE MANY sporting grounds, racecourses are not in constant use. The sport of kings is a seasonal one, and meetings are held at well spaced intervals. Thus, given the good offices of the proprietors, these large areas of well tended grass can be given over to other activities, not least of all, the sport of wings – model flying. Understandable, then, that members of the **Liverpool & D.M.A.C.**, have been sizing up the possibilities of one such site right on their doorstep: Aintree of Grand National fame. And to good purpose, too, for they have persuaded the management to let them use the course for a probationary six months. But conditions of tenancy are pretty stringent and could only be undertaken by a well disciplined club. All visitors must be equipped with an authorised pass, and though allowed to bring along their pet models, not so their pet dogs. (What about fillies?) As for behaviour, you might not believe this, but engine starting can only be indulged in if the tender grasses are covered with a polythene sheet. What might be called verging on the ridiculous. Anyway, full marks to the Liverpool boys for securing such a promising flying area, and let us hope that we do not hear any cases of deaf horses and oily verges. Whether things are more free and easy on the club's other field, Woodvale, we are not told, but they did manage to hold a rather festive meeting there on Boxing Day. Quite a good turn out, too, for just one club on a forbidding winter day. There were eight entries in Chuck Glider, four in Coupe D'Hiver and seven in All-In Free Flight. Some notable chucking from Eric Higham, who notched up 3 mins. 15 secs. with his best five out of nine flights, and won a pound for his muscular pains.

The P.R.O. of the **Scunthorpe M.A.C.** omitted to supply his name when writing to us, but, like many a contest max, it was just an oversight. However, he informs us that the Scunthorpe club is well endowed with all the goodly amenities of model life. The membership of 35 is able to meet on two evenings a week at the 'Hobbies Centre' in Scunthorpe. The Centre is an amenity block provided by the Council to give a 'home' to the various hobby and recreational groups in the Borough. It is equipped with a refreshment shop for the thirsty and a club bar for the even thirstier. On the flying side the club has the use of three fields; one for C/L in town, another a disused airfield four miles out, and also the recently acquired ex-R.A.F. station at Kirton-in-Lindsey.



Joining the wing halves at left, sweep back calls for careful interlocking. Right: the rudder outline laminated from 1/32nd strips and below, a close-up of the 'before' and 'after' stages in laminating and shaping wing tips.

HEINKEL He 46

(*continued from page 205*)

angle between the top fuselage line and the wing underside. Use it as a temporary packing jig to achieve the right setting. Keep the wing tips level too. The tailplane assembly should be clear from the plan.

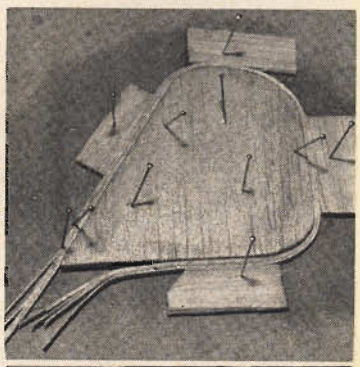
After steam-shrinking the tissue, apply one coat of thin, clear dope all over with an extra one on the fuselage. Use colour dope very sparingly. If you haven't got a spray gun we strongly suggest you leave the colour dope strictly alone. Brushed-on colour dope is very heavy and destroys flying performance.

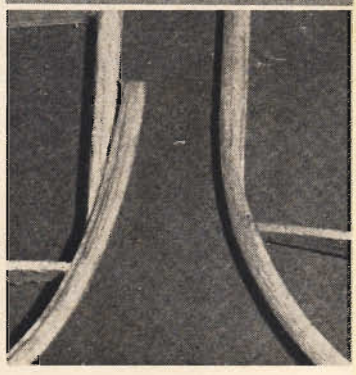
The distinctive trio of aerial masts on the wing are cut from *thin* acetate sheet, lower ends pointed and cemented into carefully cut slits in the wing ribs.

Carve a propeller from balsa, to the blank sizes shown on the drawing, if you want top performance. If you must use a plastic one, fit one of the very thin, flexible, square-tipped type that come with those ready-to-fly stick jobs. They are far more efficient than the heavy sort supplied with the majority of small British kits.

Balance the model where shown, adding weight if required, to the nose. My original He 46 (cowled engine) was built from very carefully selected balsa and weighed just over 16 grams (.6 oz.) all-up. It required no balancing weights and flew on a 9 in. loop of 1/8 in. flat rubber.

The second He 46 (exposed engine) built exactly to this drawing and using the sort of wood that less experienced modellers might choose, required a little nose weight and came out at 22.5 grams (.8 oz). It needs a 9 in. loop of 3/16 in. rubber and, although somewhat faster than its lighter brother, it is still quite a slow coach by small scale model standards.





where use is by kind permission of the Royal Fusiliers. This field, obviously a good one, is about six miles from town, but this is no embarrassment to the highly mobile members who put on a fleet of cars to transport the younger members. Trust, though, that they are kept on a short lead, or it might well be marching orders from the army. Although the club is an all round one, taking in everything from r.t.p. to public displays, mention here is limited to the successes of the extremely capable combat group, a doughty trio who got at least one place between them in eight of ten contests entered during the past season. Included were two outstanding virtuoso performances: at the North-East Area where they came 1st, 2nd and 3rd, and at the Woodford Rally where they got a 2nd and two 3rds. Altogether the club bagged a total of 20 trophies during 1969.

The Secretary of the **F.A.C.C.T. Club**, G. Johnson, is now leading a double life, for he has taken over from Terry Healey the job of C/L Comp Sec., for the South Midland Area. Significantly, F.A.C.C.T., together with other South Midland clubs, hopes to run a National Rat Race and Goodyear meeting sometime in the summer. They also have ambitions of fitting in a Goodyear event at the famous Cranfield Rally. All in all, it seems, these semi-scale, profile Goodyear models have made quite a hit with the club. As they say, it does at least give more people the chance to fly in C/L comps, and it is not without its merits as a crowd puller. But C/L is not the only club interest. Look out this summer for monsters of Neil Webb and Fred Catt atop the soaring slopes. In the case of Neil's model it might well be easier to fly the car than put it in the car – it comes just within the F.A.I. size limit. Let's wish these monsters plenty of monster thermals. Meanwhile the members involvement with pan and pipe is nothing to do with a pagan rite, but is a way of adding a touch of sophistication to the rough and ready rat racer. It is suggested here that engine pans make for stronger, safer models – engines stay put. Keeping to the rodent theme, we hope we do not let the cat out of the bag by telling you that monster man, Neil Webb, has gone to the other extreme by building a tailless mouse racer. The nursery rhyme idea is giving the Sec food for rat racing thought, and a tailless rat is quite on the cards. And a word more about Mousing. We are told that a good silencer equipped engine to use is the Cox QZ.049. Reports suggest an even better performance than the Golden Bee.

Yet another club new to our recent columns is the **Stockport & D.M.A.C.** Philip C. Dunn tells us that, at the time of writing his report, members were busy sorting out details of the club's second Annual Combat Rally, to be held at Stockport this summer. They hope to supply date and venue for inclusion in our next issue. First prize will again be the *Mainstream Trophy* and £10 in cash. Seems the last Rally raised £50 for a local Spastics Home, which is a pretty good effort to say the least. Come to think of it, though, there are now quite a number of model clubs raising money for special areas of need. Quite apart from the feeling of satisfaction in doing something for the less fortunate, there is always a handsome comeback in publicity. And still in the sphere of good public relations, the club is asking the Mayor and Mayoress along to its annual Social Evening. This will be the second time the club has played host to the civic couple. Last year they were invited to the clubhouse for an exhibition of models, a film show and a sociable cup of tea. Being honoured thus helps to maintain club prestige alongside other groups in the municipality. Back to purely club affairs, the claim is that S.M.A.E. membership is now almost 100 per cent, due to the improved insurance offered. Rat racing is very popular – and strictly for the cognoscenti, it is a case of rivalry between the M.V.V.S.'s and the P.A.W.'s.

In spite of the strong reservations the **Three Kings Modellers** had over the recent Silencer debacle, they have decided to renew the club's affiliation with the Society on the commonsense grounds that overall it is a worthwhile organisation which is hardly likely to be replaced by a better. As the club newsletter says, it's mostly the people who don't go to the meetings who criticise it. This is quite true, for the strength of any representational body lies in the quality and quantity of the representations. The newsletter also suggests that a letter to the appropriate S.M.A.E. can wield a surprising influence. This seems to imply that instead of criticising the Society, members should try to use it. No society is better than the quality of its members. However, let us not get too involved with politics, and look instead to the engine room of our movement : the modeller's workroom. But more of a model factory than a workroom is how balsa basher par excellence, Pete Mason's workroom is described. An aerojective look around his aeroparadise revealed 15 flying models of varying kinds and sizes, not to mention a formidable array of cars, boats and other model miscellena. And to think all I have to show for all those long winter nights is one rather skimped Wakefield.

Message 4, the news sheet of the **North Western Area** daringly publishes the 1969 N.W.A., Individual Championships list, compiled by Russel Peers, and topped in all events by Russel Peers. All fair and above board though, for this versatile flyer from the Congleton Club not only produced better scores than any other Area flyer, he participated in more events than anyone else, which is even more to his credit. (Perhaps I should ask him to give me a few tips on trimming a Wakefield.) Next man up in the lists was that other Northern maestro, Brian Picken. Good reporting here of the N.W.A. Annual General and Committee Meetings held on January 3rd. Moot point raised was the official or otherwise status of a verbal complaint. It was decreed that a verbal complaint would only be accepted as 'official' if that term is contained in the complaint. The question arose out of two complaints of timekeeping irregularities made at the 1969 Rootes Chuck Glider event. Now, without any knowledge of the complaints referred to, I should say that any complaint made on the flying field is deserving of immediate investigation, unless, of course, it is a patently trivial one. Most people who make complaints at contests do so only in the expectation that they will be looked into immediately; more often than not they do not wish the complaint to be the subject of a high level issue.

The **Handsworth M.A.C.** report states that it is one of the only two model aircraft clubs left in the Birmingham district. Ten years ago there were six. Handsworth is asking where all the flyers have got to. One answer proffered is the reluctance of the Council (Birmingham City ?) to provide facilities for model flying equal to those given to model boats. This point is relevant since the Handsworth club have been refused an extension, presumably of their flying site, by the Parks Dept. From this you might gather that the club is mainly a C/L affair. Membership stands at 15 regular flyers who are sustained by a healthy kitty (just what you want for Mouse racing). Combat and team racing are the mainsprings of activity, with the odd rat race thrown in. Members are persisting with the demanding sport of F.A.I. team race, but although speeds are improving, lappage is still on the low side. Care to join this citadel of C/L flying in model devastated Birmingham? Then trot along with your handle, etc., to the sole remaining flying spot, Perry Hall Park. G. Bryant the Sec., will be glad to see you.

A gadget which caught my eye in *Canadian Model Aircraft*, the journal of the **M.A.A., of Canada**, was a tool for bending those heavy and intractable gauges of piano wire which everyone but myself seem to twist around their little fingers. The two things I have particularly in mind are Wakefield prop shaftings and R/C undercarts. The tool in question consists of a small stepped block of steel on which is mounted a lever with two pins set into its head. The wire is caught between the two pins and levered into shape against the block. The supplier of same, for what it's worth, is given as Leo Lapalme, 7710 Casgrain, Montreal. The journal puts much emphasis on youth, not so much as a means of ensuring a healthy continuity of the hobby, but as a social crusade to save the victims of the permissive society from sex, drugs and what have you. Point is, should we take ourselves that seriously? Or do you think that those open to corruption remain corruptible whether they fly model planes or not. News here of the 1969 Canadian Nationals. Total entry for the 40 events was 137. This left some of the events thinly subscribed; a few to the point of extinction. No disappointment was expressed at the low entry figures; indeed, the meeting was hailed as a success. But, personally, I cannot help wondering if the multi event meeting has any real future. When you think of the clash of interests that so often occurs and the effect on morale of the two entry event, the idea of the single class meeting does seem attractive.

The Editorial of *Wipmac*, the newsletter of the **Western Province of South Africa**, report of a falling away of Free Flight in that part of the world, and of a W.P. meeting discussion on the possibility of reviving interest in F.A.I. events by giving 'colours' to those modellers who achieve an international standard. Oddly enough, it was vetoed on the grounds of it making the hobby too much of a sport!

Signs of these changing times very much in evidence on the Scottish scene. Reports from the various officers at the A.G.M. of the **Scottish Aeromodellers' Association** indicate the near demise of free flight and a rather wilting C/L situation. Needless to say, that lusty infant, Radio, is going from strength to strength, though some may say it is outgrowing its strength. In my humble opinion, Radio now stands were C/L stood say, 15 years ago when, with Stunt no longer a viable contest proposition, C/L enthusiasts looked to team racing as a means of competitive survival. If there is any truth in this analogy then we must look to Pylon racing as the hope of the future. Not, in my view, an encouraging prospect. However, more cheerful news from the treasury side of things, where a surplus on the balance of payments was realised. Also the insurance officer, with fingers firmly crossed, was able to announce a year clear of any insurance claims. The A.G.M. was attended by some 30 delegates. Chairman George McRea skilfully brought the proceedings to a close by 6 o'clock to have the decks clear for the ensuing Dinner and Dance.

There's nothing like your own little home, even if, like the dicky bird, you have to build it yourself. So think the

Maidenhead Model Makers, who, after acquiring a site after years of haggling with the Council, put aside the razor blade and balsa strip for a hammer and a bag of nails. It has been a slow job, the pace being set by the availability of funds, but things are now moving towards completion. We are told by the Secretary, M. R. Chesterton, that the hut gives ample accommodation for modellers and work-benches. He also tells us that the club has been through a difficult year, but even so membership has stayed fairly constant. Nothing startling to report from the free flight side, apart from a first place in the C.M.A. Cup at Greenham Common by George Clark. Combat, on the other hand, has shown signs of flourishing, with the twelve strong team sharing eighteen Mk III and Mk IV Oliver Tigers between them, nearly all engines Copeman tuned. But very little

CONTEST CALENDAR

March 22nd	**S.M.A.E. R/C & C/L CENTRALISED MEETING.** Multi R/C aerobatics, Combat, Ratrace, 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, Barlby, 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 19th	**SOUTHEND C/L RALLY.** Rat Race, Combat, Goodyear, at R.A.F. Duxford, Nr. Cambridge. 10.30 a.m. start. Insurance essential. Entry on field 3/-.
April 26th	**NORTHERN AREA R/C PYLON RACE MEETING.** Formulae I & F.A.I. at R.A.F. Topcliffe, Yorks.
April 26th	**S.M.A.E. AREA CENTRALISED MEETING** Open Rubber, Open Glider, F.A.I. Power Area Venues.
May 3rd	**EASTBOURNE M.F.C. SLOPE SOARING EVENT** at Long Man, Wilmington.
May 3rd	**NORTH LONDON M.F.C. R/C RALLY.** Multi aerobatics, fun events at Baldock, Herts. Details from J. Picard, Potters Bar 58191.
May 10th	**SOUTHERN GALA.** Open R/G/P, ½A Power Chuck Glider, R/C aerobatics, F.A.I. Pylon Race, ½A T/R, F.A.I. T/R, Combat, Stunt C/L Scale, at R.A.F. Odiham, Hants.
May 17th	**ST. ALBANS' R/C THERMAL SOARING RALLY,** at Nomansland Common, Wheathampstead.
May 24th/25th	**BRITISH NATIONALS** at R.A.F. Hullavington.
June 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 14th	**S.M.A.E. AREA CENTRALISED MEETING.** Open Power, Glider, F.A.I. Rubber. Area venues.
June 21st	**SEVENOAKS R/C RALLY.** Open pylon, Spins, Scale, Bipe Racing, Spot Landing. Roundabouts and swings for kids ! Refreshments. Edenbridge Recreation Ground, Kent.
June 21st	**CHESTER M.F.C.'s SLOPE SOARING RALLY** at Clwyd.
June 21st	**FLYING DRUIDS RALLY.** F.A.I. Multi R/C Venue to be announced.
June 21st	**S.M.A.E. C/L CENTRALISED MEETING.** ½A T/R, B T/R, Handicap Speed, Profile Goodyear, at R.A.F. Cottesmore, Rutland.
June 28th	**ST. ALBANS SUMMER GALA.** Open R/G/P. to be flown in rounds. Vintage, Chuck glider 10 a.m. start at Chobham Common.
June 28th	**FINCHLEY M.A.C.'s CONTROL LINE GALA.** A & B Combat, Stunt, Rat-race, at Glebelands, Summers Lane, Finchley. Pre-entry 4/- to J. Goodwin, 77 Gallants Farm Road, East Barnet, Herts.
July 5th	**ELLIOTT M.E.E.C. RALLY.** C/L Stunt, Profile Goodyear, F.A.I. T/R, Combat. Pre-entry 2/6 to C. Atkins, 12 Hillcrest Road, Chatham, Kent.
July 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 12th	**S.M.A.E. AREA CENTRALISED MEETING.** Team glider, Open power, Coupe D'Hiver. Area venues.
July 19th	**S.M.A.E. CENTRALISED R/C MEETING.** Multi aerobatics, F.A.I. pylon race, at North Luffenham.
July 19th	**TYNEMOUTH MAC. FREE FLIGHT GALA** F.A.I. R/G/P 5 x 3 + progressive fly-offs, plaques and prizes. Field entry 6/-, pre-entry 5/- to B. Martin, 14 Hilda Street, Gateshead, Co. Durham.
July 26th	**SOUTH COAST R/C RALLY.** S/C Spot Landing (10 a.m.), Biplane/Form I pylon race (11 a.m.), Spins, Scale, Balloon Bursting, Demos, at Golden Cross, Sussex.
July 26th	**STOCKPORT COMBAT RALLY.** Mainstream Trophy plus £10 cash. Details: D. C. Clarkson, 14 Taplow Grove, Cheadle Hulme, Cheshire.
July 26th	**SOUTHAMPTON M.A.C.'s F/F GALA.** Open R/G/P, A/1, C d'H at Beaulieu Airfield.
August 2nd	**COTSWOLD R/C SOC. RALLY.** F.A.I., Open, Formulae 1 & Scale Pylon Racing, R/C Scale at R.A.F. Hullavington, Wiltshire.
August 8th/9th	**SOUTHERN R/C M.F.C. RALLY.** Formulae I & F.A.I. Pylon Race, S.M.A.E. Centralised Multi Aerobatics, Novelty Events, at Leigh-on-Sea, Essex.
August 9th	**S.M.A.E. AREA CENTRALISED MEETING.** Team Power, F.A.I. Rubber, A/1 glider. Area venues.
August 16th	**SCUNTHORPE M.A.C.'s COMBAT RALLY.** A & B Combat. Trophies and cash prizes. Refreshments. Pre-entry 3/6 to S. French, 9 William Street, Scunthorpe, Lincs. Venue: Central Park, Kingsway, Scunthorpe.
August 16th	**S.M.A.E. ALL SCALE MEETING** at R.A.F. Little Rissington. F/F, C/L, R/C.
August 23rd	**FLYING DRUIDS RALLY.** F.A.I. Multi R/C. Venue to be announced.
August 22/23rd	**S.M.A.E. FIRST TEAM TRIALS.** F.A.I. R/G/P at R.A.F. Syerston.
Aug. 31–Sept. 4	**MANX M.A.C. 'SOAR IN'.** Details from J. Martin, Trade Winds, Mount Gawne Road, Port St. Mary, I.o.M.
September 6th	**NORTHERN GALA.** Open R/G/P, ½AT/R, F.A.I.T./R, B T/R.
September 13th	**SOUTH COAST GALA.** F/F, C/L, R/C. Venue to be announced.
September 13th	**S.M.A.E. AREA CENTRALISED MEETING.** Team Rubber, F.A.I. glider, ½A Power. Area venues.
September 20th	**SOUTH MIDLAND AREA RALLY.** R/C C/L and F/F at Cranfield, Bedfordshire.
September 20th	**IST. R/C TRIALS** at R.A.F. North Luffenham, Rutland.
September 27th	**TOWNER TROPHY THERMAL SOARING RALLY** at Golden Cross.
September 27th	**S.M.A.E. CENTRALISED MEETING.** Trials for 1971 Criterium of Aces.
October 3rd/4th	**S.M.A.E. SECOND TEAM TRIALS.** F.A.I. R/G/P, at R.A.F. Syerston.
October 4th	**SECOND R/C TEAM TRIALS.**
October 4th	**HARPOLE SECOND ANNUAL C/L STUNT COMP.** The contest with the built-in lunch ! Details: I. Peacock, 41 Carrs Way, Harpole, Northants.
October 18th	**SOUTH BRISTOL GALA.** Open R/G/P, Vintage, F.A.I. T/R, Combat, Goodyear T/R, at R.A.F. Hullavington.
November 29th	**ST. ALBANS WINTER GALA.** F.A.I. R/G/P, ½A Power, A/I, Coupe D'Hiver, at Chobham Common.

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competition experience yet, and so no contest honours to report; though this year . . . New members welcome at the clubroom in Lower East Street, Maidenhead.

From *Seadog*, newsletter of the **South East Area**, comes some thoughts on R/C Slope Soaring for 1970, expressed by Chris Foss. Would seem the emphasis will be on time/spot landing events. Pylon racing is all very exciting, but puts a premium on speed. All very chummy these spot landing contests, but is it really serious competition flying?

Surely using the cold water tank to make microfilm is plumbing the depths. Or not quite the depths, for, according to *Nitro*, the Chairman of the **Belfast M.F.C.** has turned his roof space into a modelling eyrie, and the cold water tank is just part of the furnishings. At least F/F is not moribund in this corner of the world. There is rumour of an outcrop of Wakefields and A/2's emerging from the winter hideaways. Other item of news is of a postal indoor contest with the Richmond club.

A newsletter just to hand comes from Cornwall, and is called *Drogue*. First item of news concerns a Concours run by the Redruth club back in January. Winner was a C/L *Avro Lancaster*, entered by K. J. Bennie, so huge that it was almost an exhibition in itself. Second and third places were taken by R/C models, a *Lil' Ghost* and a *Cessna Skylane*. The Redruth club was formed in 1967 and has a particular interest in solid modelling, which, in these advanced times, means plastic.

Expansion is the watchword of the **South Bristol M.A.C.**, where the membership total has shot up to 55 members, all paid up. The club is still mainly C/L, but some of the expansion has been in the Radio and Free Flight sections. In order to accommodate the enlarged membership the club has moved into more spacious premises. And there is plenty of room for more. Also plenty of flying space at the club's two flying sites. Whitchurch and R.A.F. Colerne. In view of the poor support given to free flight the club is giving its attention to running the Vintage event at the Nationals. I wish them the best of luck. Personally, I cannot see any purpose in the new rules. It would have been much simpler to have just added points for year of vintage. Sender of the report is Mrs. P. J. Garland, who invites anyone interested in model flying to look in at the 'Black Horse', West Street, Bristol, where the club meets on the second Friday of each month.

If you happen to be in the Dunfermline area on the 14th June, 1970, you should find your way to the Pitreavie Playing Fields, where the **Dunfermline M.A.C.** intends to hold a sizeable model display. The site is on the Rosyth-Dunfermline Road.

A club that all but went to the wall is the **Harlow M.F.C.** (Essex). Membership dipped to a couple of juniors, but then the club put an advert in the local press, and lo and behold, members came in thick and fast. Interest now centres on Radio, Sport and F/F, the rites of which are performed on Latton Common, Harlow. And what's this again? Yes, another lady reporter! She is Mrs. Hazel Cave, the Club Secretary. If you cannot get along to the common, you can get details of the club from Mrs. Cave at 99 Radburn Close, Harlow, Essex.

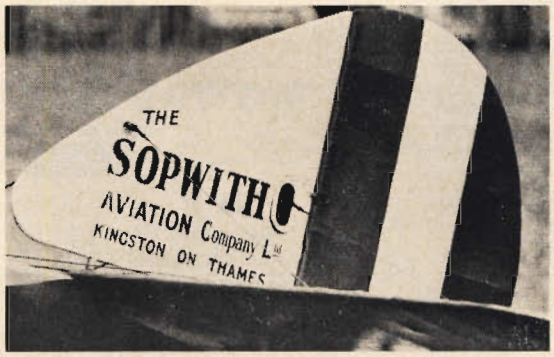
Flying space in the Huddersfield area would seem to be on the sparse side, according to the report from G. Mackrell, the new P.R.O. of the **Huddersfield M.A.C.** However, in spite of the lack of a regular flying field the club continues to be very active, mostly in C/L and glider, with a bit of R/C thrown in. One cohesive factor is the public displays, which are enjoyable as they are beneficial to the club kitty. Mr. Mackrell lives at 44 Copley Avenue, Wearley, Meltham, Huddersfield.

The membership of the **Irvine Radio Model Club** is given as 25 souls (who says Radio isn't dangerous?) Appropriately enough, many use Galloping Ghost equipment, though there is a good sprinkling of down to earth multis and singles. Secretary is J. Walter, 13 Cochrane Street, Irvine, Ayrshire. Meetings are every Wednesday evening at 7.30, in building adjacent to the Drill Hall, Irvine, and flying takes place every Sunday at Howies Farm, Girdle Toll, Irvine. All welcome, Radio, non-Radio and boats. Report from P.R.O. David A. Anderson.

It's refreshing to find in this day and age a club clinging to the old form of title. Such is the **Woolston Model Aeroplane Club**. The address given is 2 Middle Road, Shaling, Southampton, where, I presume, stands the club's very own clubroom. The clubroom has facilities for building, and it is hoped soon to have a canteen dispensing snacks and drinks. Club emblem is the Spitfire, for it was in Woolston that much of the Spitfire development was carried out. Negotiations with the Southampton Council have resulted in the provision of a very unrestricted C/L field, and the club is now on the look out for a Radio site. Meetings are every Wednesday at 8 p.m., in the clubroom.

Keep those reports rolling

THE CLUBMAN



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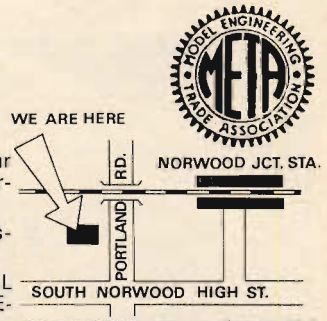

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April R.C.M.&E. will be a special pylon race issue, with three plans for R/C pylon racers. We'll be publishing plans for Al Greenwood's 'Estrellita' Formula 1 beauty, plus Tom Protheroe's Formula F.A.I. 'Brigand' from U.S.A. and Tony Dowdeswell's 'Rivets', also for F.A.I. class racing.

But that's not all, there will also be a discussion on the new provisional F.A.I. thermal soaring rules by two top British R/C thermal soaring exponents, kit review of the new Veron Springbok slope soarer and *Wave Lengths* R/C boating column. Other regular features include David Boddington's *Sport & Single* round-up of all in the sport R/C field, including dimensional details for a single channel model which employs a readily available one-piece foam wing.

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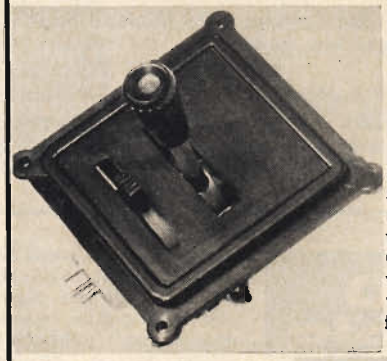

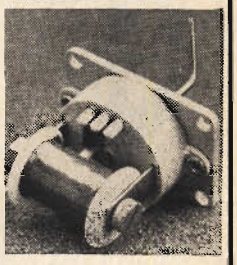

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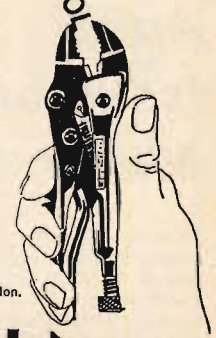

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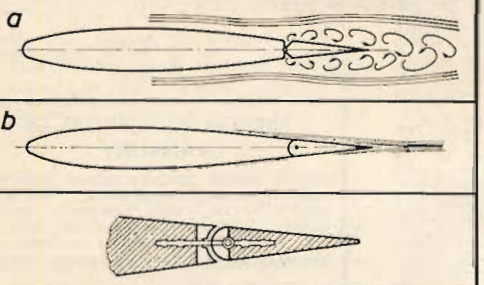

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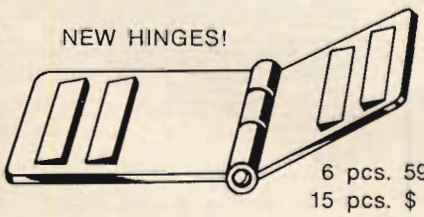

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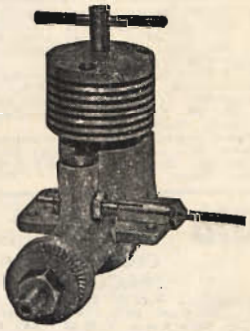

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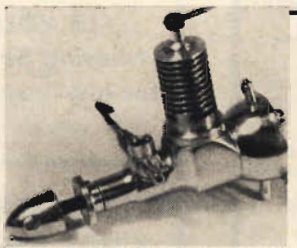

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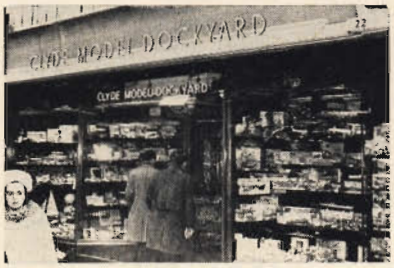

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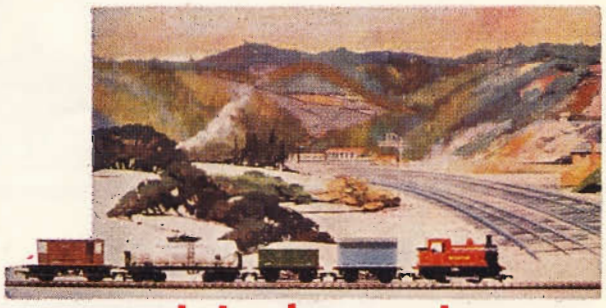

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SNIPE 30/1

Ease of both building and flying make this model very suitable for beginners. Takes .5-.8 c.c. motors. Wingspan 40"

SLICKER MITE

32in. span **20/3**

SLICKER 50

50in. span **44/1**

A classic amongst contest designs, the Slicker Mite is for motors below 1 c.c. and the Slicker 50 is for motors up to 2.5 c.c. The most popular contest model ever kitted.

SOUTHERNER MITE 22/1

A graceful streamlined cabin model with a fine performance. For .5-.75 c.c. motors. Wingspan 32"

GAUCHO 34/6

Outstanding pylon type contest model for 1-1.5 c.c. motors.
Very complete kit with full instructions. Wingspan 44"

See also the CESSNA 170, PIPER SUPER CRUISER & LUSCOMBE SILVAIRE in the super Scale Series

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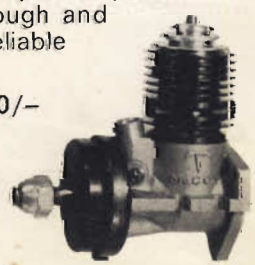

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