

Aero Modeller

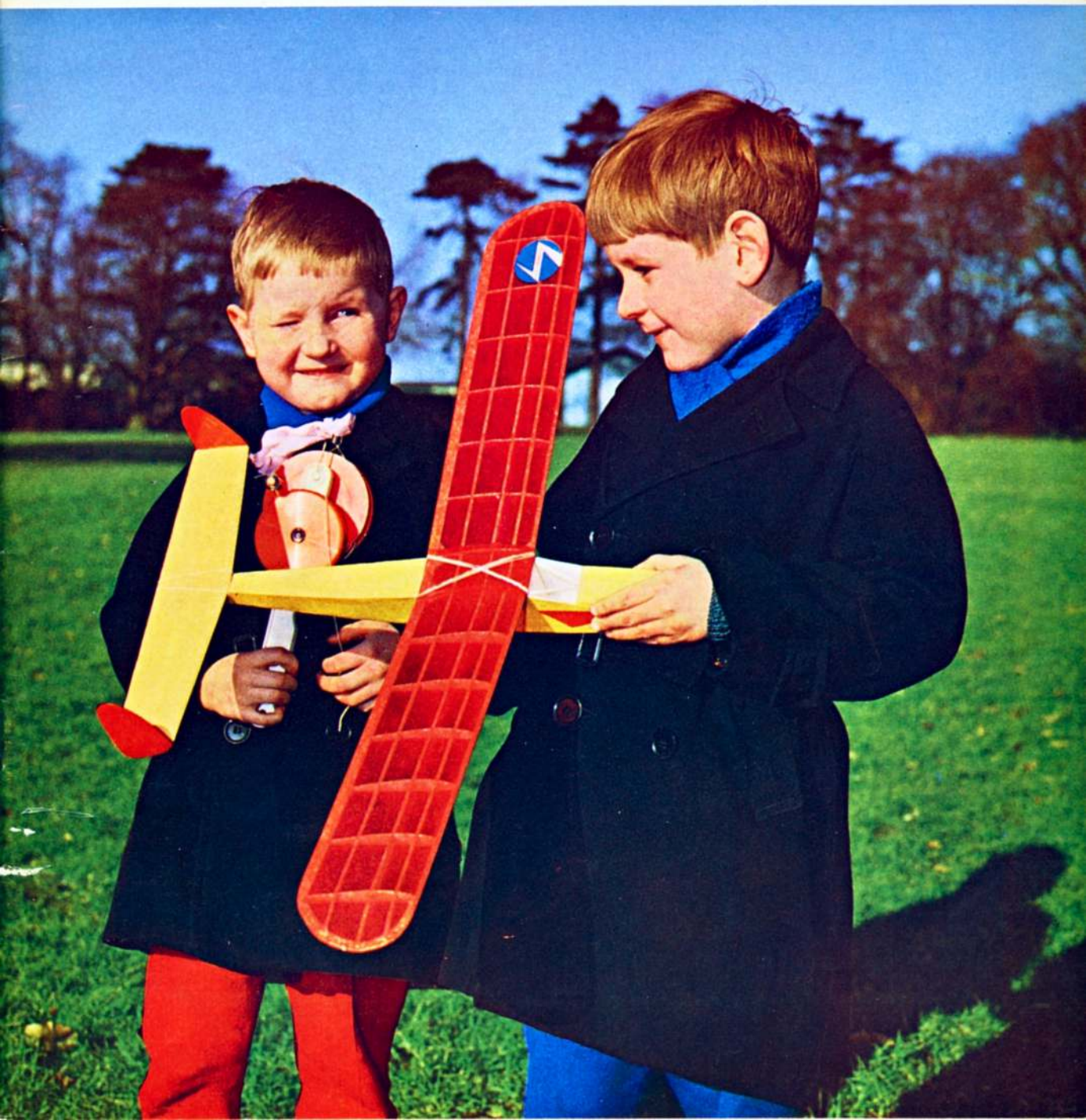
JUNE 1969

INCORPORATING
MODEL AIRCRAFT

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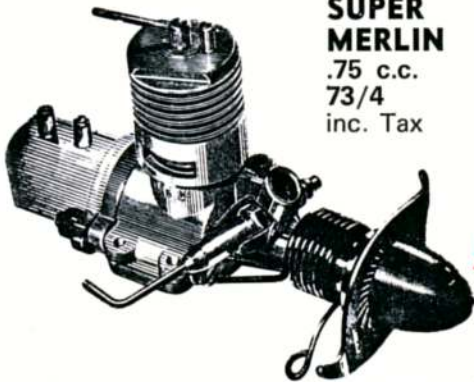
HOBBY MAGAZINE



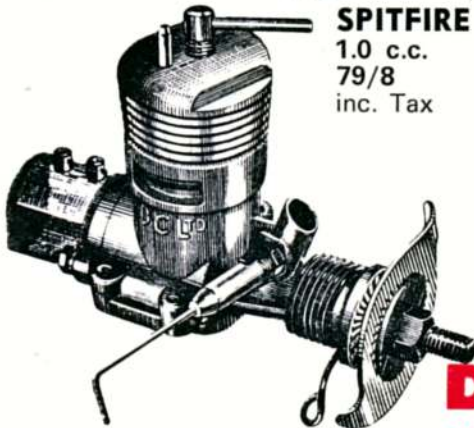
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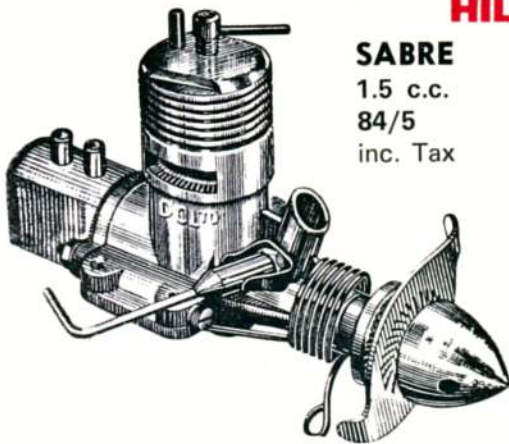
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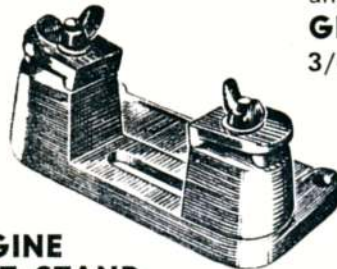
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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

June 1969
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ROLAND SUTTON

COMMENT

Visit any club flying field, any Sunday and you will find that ninety per cent of the activity is concerned with radio control. Free-flight and control-line have a declining following among the *sports* fliers although they form the least expensive introduction to our hobby. Yet at the National Championships this month, we shall see the situation completely reversed. Entries in control-line and free-flight competitions will outnumber those for radio control by a huge margin. The contrast between sports and competition activity becomes more evident with each succeeding year and the separation of these interests widens to the extent that the specialists become blinkered to everything except their own chosen channels. Their only common ground is club membership through the S.M.A.E. This Society, which provides the programme of contests each year, organises the annual jamboree known as the NATS. All roads lead to Hullavington on May 25/26th where sports fliers and contestants can share their fun in mutual enjoyment. Shall we see YOU there?

on the cover

Performance Kits 'Owl' glider for beginners being made ready for test flying in the local park by young David and Alan Parry aged five and seven. Youthful appreciation for this 29-inch model should bring two recruits to aeromodelling in the future.

next month

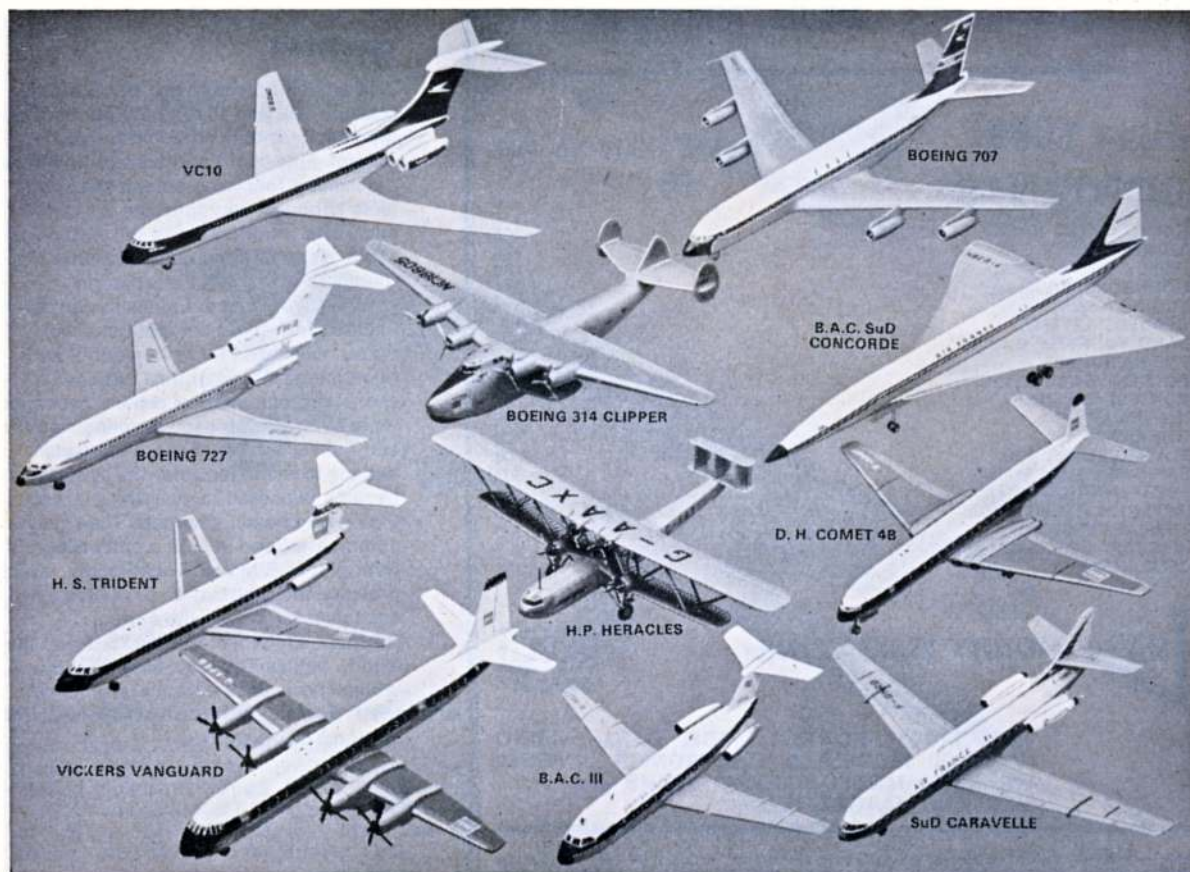
A bevy of overseas **Nats reports** from **Australia, South Africa and India** plus, of course, our own **British Nationals**. Cover feature and super detailed plan of the **Messerschmitt Me 262** Jet fighter, plus introduction of the latest contest class from America, — **scale profile racing** for 2.5 c.c. C/Line and return of **Engine Test**, out June 20th.

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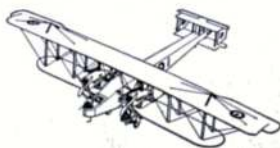
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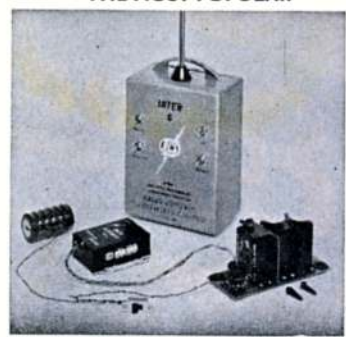


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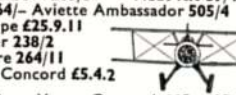
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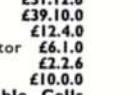
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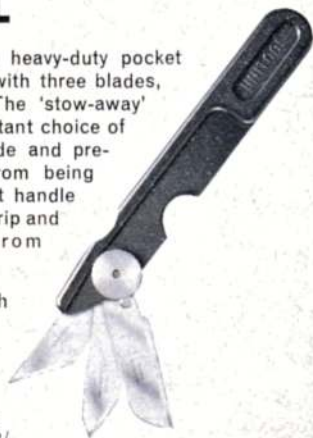


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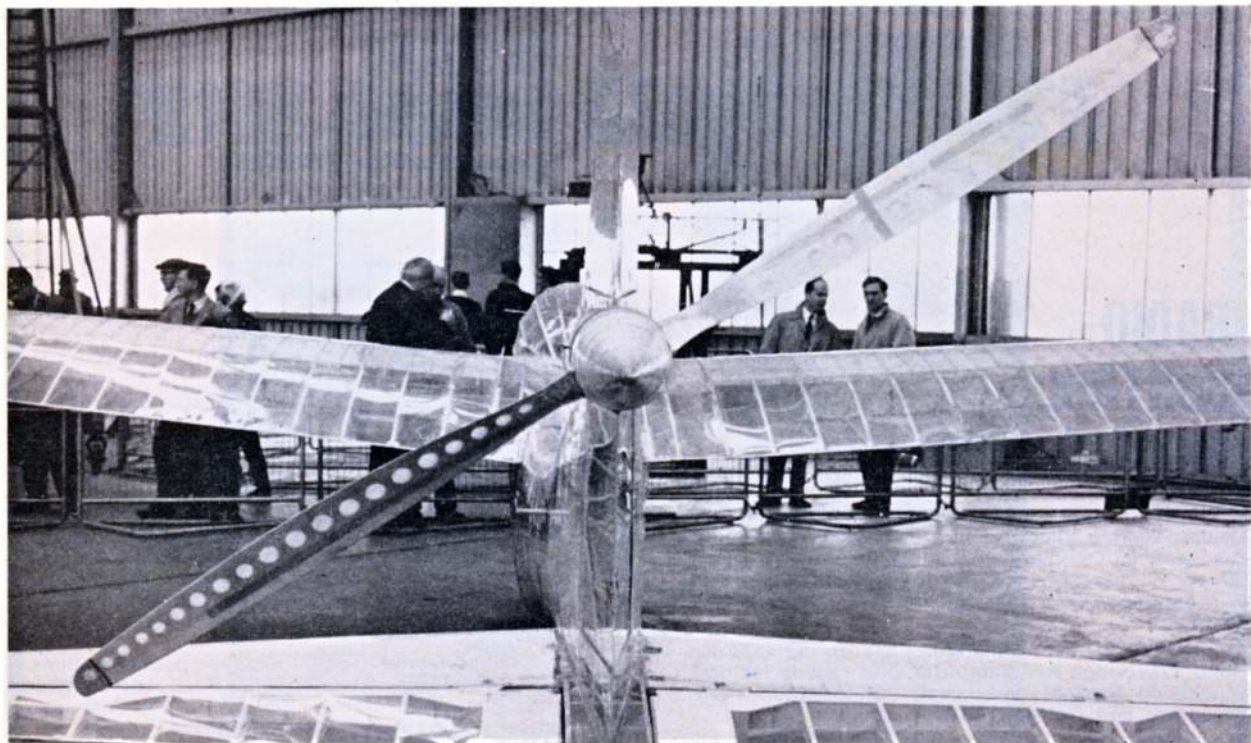
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RADIO CONTROL MODELS



June issue of *R.C.M. & E.* features a really unusual slope soaring glider shaped like a bird—for those in search of something really different, this is it! Also of interest will be the development story of an enormous R/C scale model of the Avro Vulcan bomber.

Other features include reports on the Scottish and Weybridge R/C symposia, plus regular features including Straight and Level, Radio Motor, Commentary and Commercial Developments.

2nd FRIDAY MONTHLY 2/6

MECCANO MAGAZINE



In addition to our usual stamp collecting feature in the June issue of *Meccano Magazine*, Railway enthusiasts will find of interest an article on 'The Benguela Railway' by W. A. Owens. This tells of the 840 mile railway into Central Africa linking with the interior railways of the Congo Republic and Zambia.

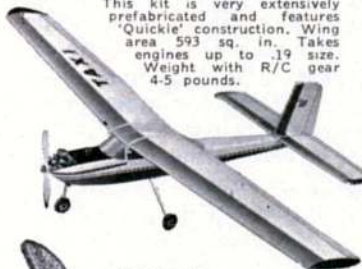
Other features include rubber powered miniature submarines, Traction and Road Locomotives and 'Benvenuto Cellini—Pioneer of the lost wax processes', plus all the regular articles.

1st FRIDAY MONTHLY 2/6

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This kit is very extensively prefabricated and features 'Quickie' construction. Wing area 593 sq. in. Takes engines up to .19 size. Weight with R/C gear 4-5 pounds.



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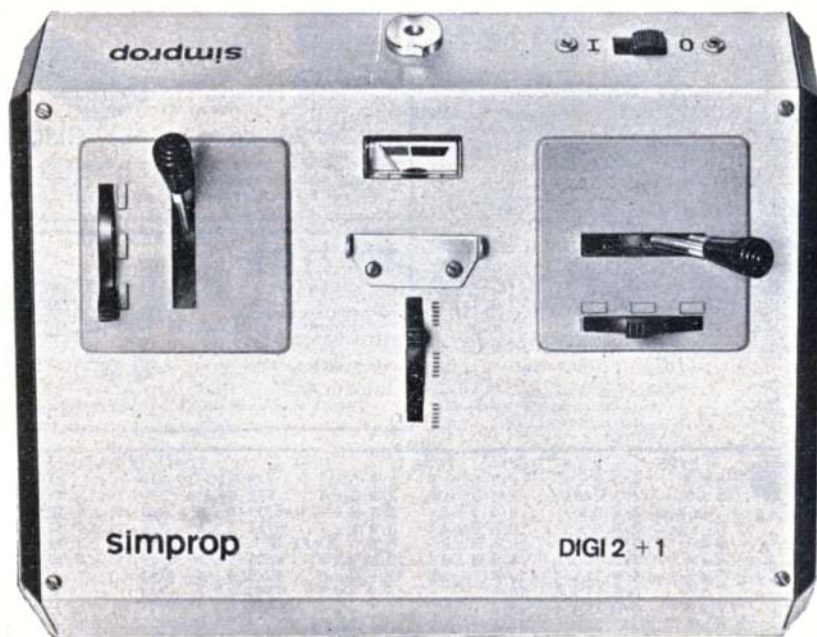
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1 3/16" dia.	5/6 pr	2 3/4" scale 16/6
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2" dia.	6/11 pr	8/11 pr RMA Low-Bounce
2 1/2" dia.	8/11 pr	3 1/2" dia. and 4 1/2"
3" dia.	8/11 pr	dia. balloon-type
3 3/4" dia.	12/11 pr	wheels available
3 3/4" dia.	22/6 pr	shortly

RMA Contest

20 mm.	3/3	24 mm.	3/9
30 mm.	4/6	35 mm.	5/3
40 mm.	5/11	45 mm.	6/9
		50 mm.	7/9

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1 3/4" ...	12/6	2" ...	13/11
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2 1/2" ...	15/6	3" ...	28/-
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SWING IN KEEPERS (4) ... 4/6

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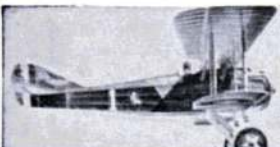
Tornado

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TYPE B	2-bl pusher	7 x 6
TYPE C	3-bl tractor	7 x 8
TYPE D	3-bl tractor	6 x 3
TYPE E	3-bl pusher	8 x 4
		5/11

TYPE A	8 x 8	6/11	TYPE B	5 1/2 x 3	TYPE C	5 1/2 x 3	TOPFLITE NYLON	11/-	GRAUPNER NYLON	3 blade
5 x 3	2/3	9 x 4	8/6	5 1/2 x 3	2/9	5 x 3	5/3	10 x 3 1/2	10 x 4	7/6
5 x 4	2/3	9 x 6	8/6	5 1/2 x 4	2/9	5 x 4	5/3	10 x 3 1/2	10 x 4	7/6
5 1/2 x 3	2/9	9 x 7	8/6	6 x 3	3/6	6 x 3	5/11	6 x 3	3/6	11 x 4
5 1/2 x 4	2/9	9 x 8	8/6	6 x 4	3/6	6 x 4	5/11	6 x 4	3/6	11 x 6
6 x 3	3/6	10 x 4	9/6	8 x 6	9/6	8 x 6	12/-	TYPE D	7 x 4	4/11
6 x 4	3/6	10 x 6	9/6	9 x 6	10/6	7 x 8	8/11	7 x 6	4/11	11 x 8
7 x 4	4/6	11 x 4	10/6	10 x 6	12/-	8 x 6	13/3	8 x 4	7/3	11 x 8
7 x 6	4/6	11 x 6	10/6	Types A, B, C	8 x 8	8 x 8	13/3	8 x 6	7/3	7 x 4
7 x 8	4/6	12 x 4	15/6	and E, yellow nylon, Type D	9 x 6	9 x 6	15/6	9 x 4	9/11	7 x 8
8 x 4	6/11	12 x 5	15/6	alumin'd nyl'n	10 x 4	10 x 4	15/6	9 x 6	9/11	8 x 4
8 x 6	6/11	12 x 6	15/6		10 x 6	10 x 6	15/6	9 x 7	9/11	8 x 4



24" SPAD XIII ... 49/11



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Marvellously ingenious RUBBER POWERED Flying Scale Models by Sterling with built-in automatic 'In flight' action! Designed for peak flying performance, the various models FIRE ROCKETS, DROP BOMBS, OPERATE LANDING GEAR or DUST CROPS - AUTOMATICALLY, in flight! Super kits contain die-cut balsa parts, moulded plastic parts, hardware, motor, authentic decals, etc., SUPER PLANS & FULL DETAILS FOR ADAPTING TO GLOW OR DIESEL POWER FOR FREE FLIGHT, R/C OR CONTROL LINE!!

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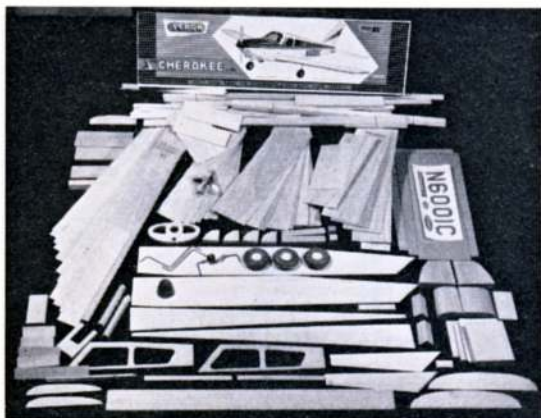
KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

Heard at the HANGAR DOORS

Col. H. J. Taplin with his all-electric 'Radio Queen', one of 'Taps's' many achievements in proving the 'impossible' to be possible.



COLONEL H. J. TAPLIN who died while on holiday in Malta on April 20th was a true pioneer in every sense of the word. Aged 78, and fully active throughout his remarkable career, 'Taps' was one of those unique characters to whom life was a great challenge. Consider just a few of the 'firsts' with which he was associated. The production twin-cylinder diesel, crossing of the channel by model aircraft and model boat, electric powered radio control models, establishment of the SMAE Areas, speed control-line, course racing with R/C boats, marine servos, radio controlled yachts, the reed bank in production, extruded gears for electric motors, proper carburetors for R/C engines and even the first kit in this country for an R/C model aircraft. Add to these, his invention of 'George' the automatic pilot whilst establishing Spokane Airways in the U.S.A. with a Lincoln Standard, his establishment of model clubs and contests in the United States and his pioneering work in international competitions which has led to current F.A.I. and NAVIGA events and one begins to gather an appreciation for his industry. 'Taps' learned to fly at Shoreham. He flew Boxkites, Moranes and Farmans but before then helped A. V. Roe make his first 'planes at Hackney Marshes and measured the original British powered flight by tape measuring the gap between tracks in the grass! He carried on flying until quite recently, and never lost his love of the air. Cars were another favourite. He converted one to glowplug, and made a B.S.A. 125 c.c. motorcycle run as a compression ignition diesel. Now and again the B.B.C. would 'discover' his achievements. Several programmes were made about him, each of them uncovering a different facet of his fascinating character. And when those TV and broadcasting types got his gravel voice started, we are willing to bet they began to wonder who was supposed to be conducting the interview! Our modelling world will be much the poorer



without him and our sympathies go out to his wife Kit and sons Michael and John.

TWO OTHER well-known modelling personalities died on the same week-end. Jack Fisher, until recently proprietor of 'Modelradio' at Newcastle-under-Lyme, collapsed after landing his R/C model on April 20th, and in France, Gems Suzor died on April 21st. Gems was perhaps the most ingenious experimenter with the two-stroke theory in all of Europe. A pioneer aeromodeller and model hydroplane racer extraordinary, his presence at any international meeting of RTP cable racing boats was sufficient to provide all the excitement, and incidentally all the noise, from his fast engines.

SURVEY of modelling in Italy reveals that this country has 26 control-line circuits, most of them provided by grants.

WORLD RECORD with a 65 cm-class indoor model was set at 39 minutes, eighteen seconds by Czech, Jiri Kalina, during a meeting in the Rumanian salt mines, March 20-23rd. Previous record was 45:40, established at Cardington by Karl-Heinz Rieke with the earlier 90 cm span spec. model. The salt mines are likely to be the site for the 1970 World Champs. They are 120 m. underground, 69 m. high and 38 m. wide in a hall 100 m. long. Temperature is a constant 60°F. and, of course, there are no draughts.

CANTERBURY PILGRIMS head across the channel again on a friendly exchange with their opposite numbers at Beauvais on June 1st. This will celebrate the 21st Anniversary of the club and anyone wishing to join the party should contact J. F. Ward, 19 St. Paul's Way, Sandgate, Kent for day air trip details.

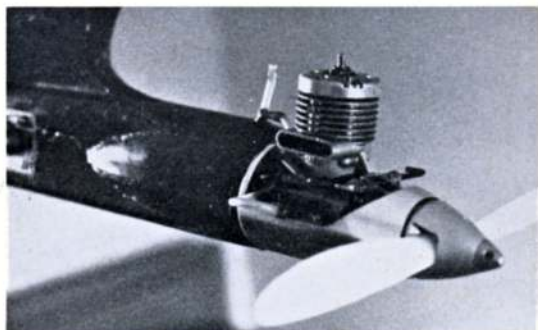
BROMLEY R.C.M.A.C. broke a few records when they had to seat 172 people at their annual dinner on April 26th. It was quite a function - thanks to great efforts by Ron Ward and Arthur Lalley. At this rate they'll be taking over the SMAE!

TWO EXHIBITIONS worthy of note are those at Rhos-on-Sea swimming pool, Colwyn Bay, this week-end of publication (May 16/17/18th) and at the C.E. School, West St., Newport, Isle of Wight, August 19/23rd. Each will have local model club exhibits.

PHOTOGRAPHIC COMPETITION of interest to Aeromodellers is to be announced in May/June edition of *POPULAR FLYING* the official magazine of the Popular Flying Association. We feel that many *AEROMODELLER* readers will be attracted to this competition.

We have put the flags out! A new all-British kit has arrived in the shape of Veron's Piper Cherokee. There's 3½ lb. of wood in the kit, much of it die-cut as to be seen in this display.

Food for thought-World Champion

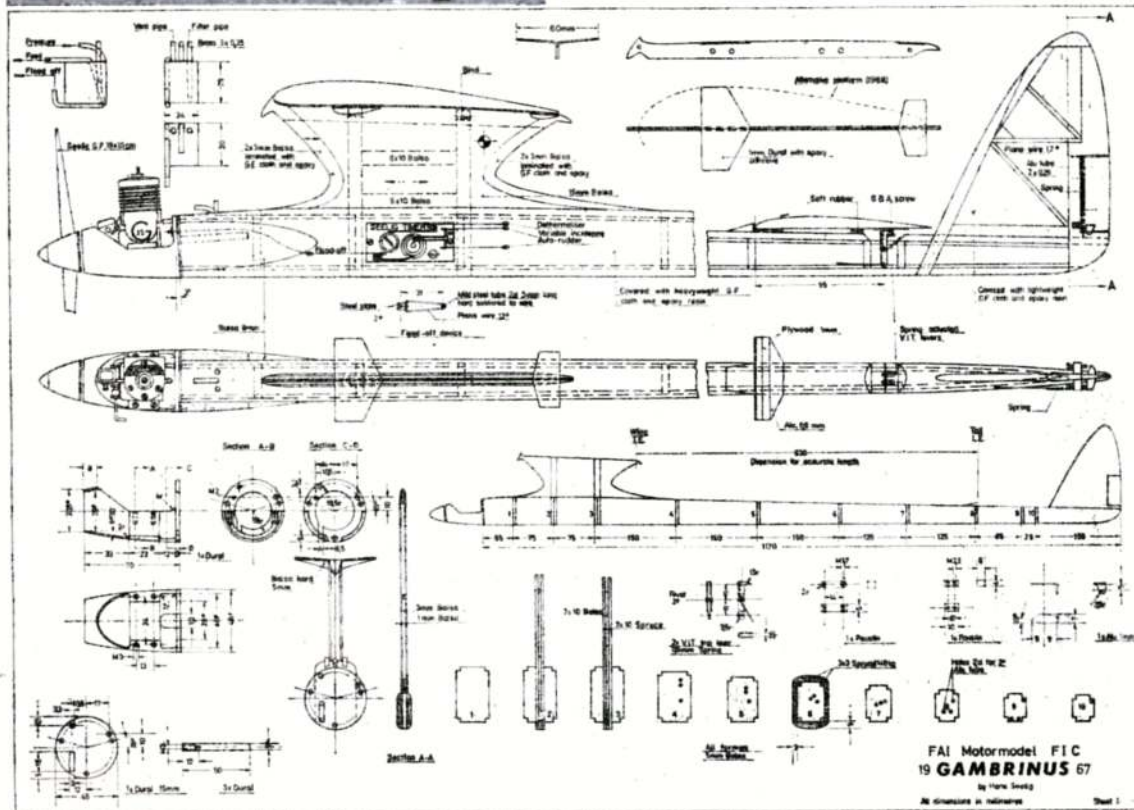
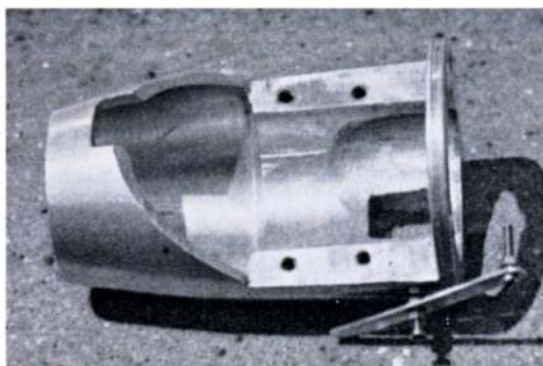


EARLY IN 1968 your Editor sent me the plans of Hans Seelig's FAI power model requesting that an 'Anglicised' version be built. At the time it was intended to publish a normal building article and to offer full size plans in the usual way. Unfortunately it has not been found practical to do this, mainly because the hardware required is not commercially available, so it has now been decided to describe the unique covering methods used by Hans Seelig and to allow the reader to make up his own mind as to the usefulness of the ideas presented; hence the title of the article.

The model is covered almost entirely with glass fibre cloth and epoxy resin over an all sheet structure which results in tough, smooth long lasting model. Two weights of glass fibre cloth are used. The heavier cloth weighing 2½ oz. per square yard covers the fuselage, and the lightweight cloth weighing 1oz. per square yard is used on the mainplane and fin. Many epoxy resins are available and a list of those tried are given in the Table. All have been found successful but some are lighter than others so it might be advisable to experiment with available resins.

At this point it is assumed that the wing panels have been built and have been carefully prepared for covering with the lightweight cloth. Before mixing up the resin and hardener in the exact proportions recommended by the manufacturer, cut a piece of cloth so that it will wrap round the entire panel and overlap at the trailing edge and at both ends. Now place the panel on a clean

Machined engine mount for Super Tigre G15 indicates sophisticated approach in Hans Seelig's Gambrinus. Drawings are dimensioned; but those who require full-size copies of the anglicised two sheets can order them as 'Gambrinus' price 15/- through the editorial offices.



Hans Seelig's design & construction methods

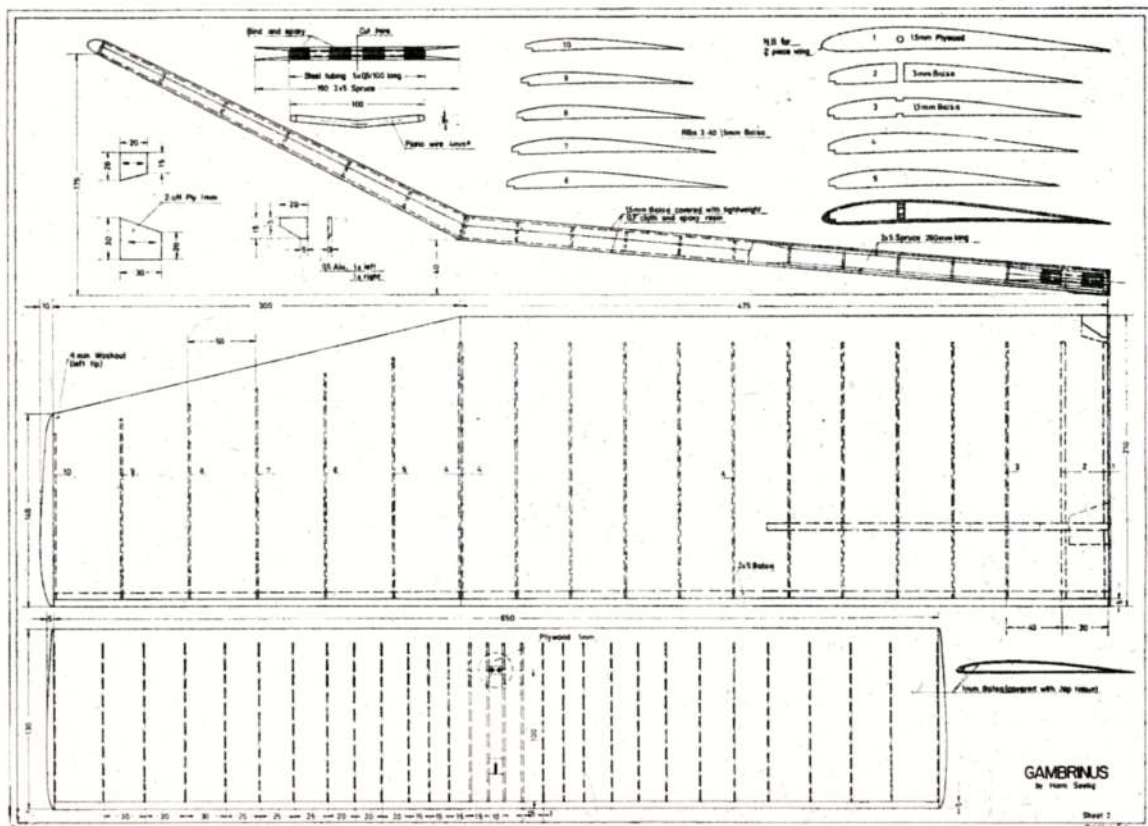
described by Tom Cheesley

piece of PVC sheet and carefully uncover the top of the panel. Thinly spread the resin/hardener mix over the entire surface of the wing panel and replace the glass fibre cloth over the treated surface. The object now is to ensure that the resin is worked into the glass cloth and that all the surplus mix is removed. This can be readily done by using a suitable spatula and working towards the trailing edge of the panel. The best results have been achieved by using a spatula made of $\frac{1}{8}$ in. flexible perspex having a rounded edge, but an old steel backed razor blade can be used. In both cases, of course, the spatula is used upright with a light pressure. It is absolutely vital the glass cloth is completely wetted with resin and that the surplus is removed. If these precautions are not observed the operator will have a difficult job filling the holes remaining when bubbles have been removed, or the panel will be overweight. When the top surface has been completed the panel is carefully turned over and the undersurface similarly treated. Before hanging the panel to cure, check that the cloth has adhered to the entire wood surface. Curing time will naturally depend on the type of resin used and the room temperature, but it is not advised to accelerate the curing time by placing the work near a heat source, as bubbling takes place and removal is tedious. Far better to cure in a warm dry room.



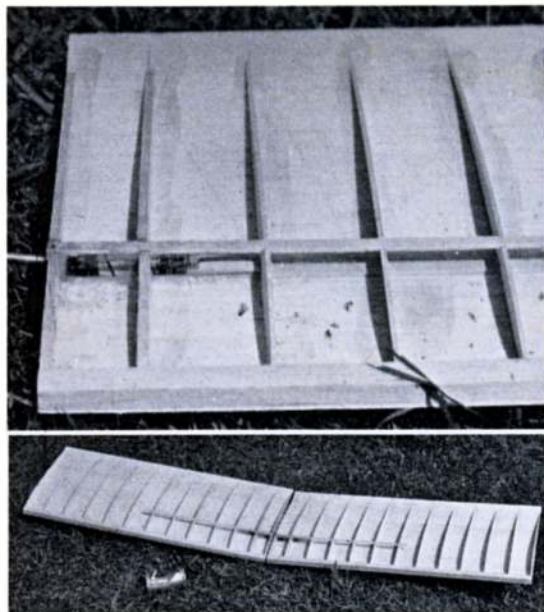
The tip panel is covered with lightweight tissue applied with sanding sealer in the conventional manner, but the writer has achieved slightly better results by using Hobbyoxy clear as the adhesive medium which gives a harder finish for a negligible weight increase.

When all four panels have been covered and cured it only remains for them to be joined. It will be noted that the original design used a short piece of piano wire to effect the centre section joint of a two piece wing. The writer has not sufficient faith in his building ability to ensure a perfect joint, so his test models have all been built with a one piece wing, and the ply centre ribs and the spruce box containing the wire joiner have been dispensed with. Therefore all panels have been butt jointed. However, when this is done, it is essential to strengthen the centre section with a 10 in. wrap-round of heavyweight glass fibre cloth. It is obviously necessary to completely trim each panel and to accurately sand the joints before applying the adhesive. After all joints are dry the wing can be finished with steel wool taking care that the tissue tip covering is not abraded. If a super finish is desired at the expense of a small weight increase, a second ultra thin layer of resin may be applied with a lint free cloth.

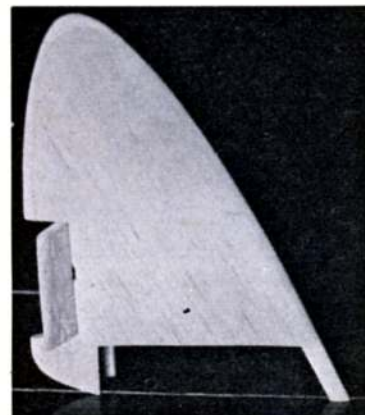


GAMBRINUS
by Hans Seelig

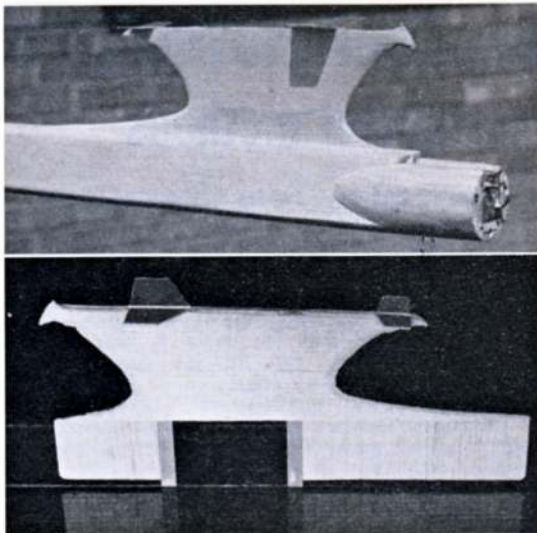
Sheet 1



The fuselage is covered with heavyweight glass fibre cloth and is slightly more difficult than the wing. It is advisable to cut a piece of thin card so that it may be used as a cutting template for the cloth, and the reason for this is to obtain an accurate fit of the single piece of cloth around the fuselage thus lessening the amount of finishing work required. Before applying the resin make absolutely certain that the cloth fits properly and has a small overlap on the underside of the fuselage. Now remove the cloth and apply a thin film of resin to the top of the fuselage, press the cloth into this area, repeat for the two sides in turn, and finally work on the underside. Return to the top and work the spatula from the backbone to the underside of the fuselage, taking note of all the precautions mentioned when covering the wing. At this stage the underside where the cloth overlap is made will look fairly messy. Do not worry, it would have been far worse if a template had not been used! After the resin has cured all lumps and bumps can be filed or ground off and all surfaces given a smooth finish with steel wool. Colour finish can be applied and magnificent results have been obtained with two coats of Hobbypoxy paints, but there is no reason why any



Rigid fin construction and positive tailplane mounting are essential features of this extremely well-developed contest design which has variable incidence tailplane (V.I.T.), auto-rudder (A.R.) and dethermaliser (D/T) controls from a Hans Seelig timer in the fuselage.



Details of Tom Cheesley's model indicate a little of the special construction methods in wing and fuselage even before the involved covering stage is reached. Box in base of Pylon is for the multi-purpose timer.

Table of Materials

Glass Fibre Cloth

Type Weighing $2\frac{1}{2}$ oz. sq. yd. - from some model shops or from Bondaglass Ltd., Croydon, Surrey at approximately 7/6d. sq. yd.

Type weighing 1 oz. sq. yd. - from K. Collins, 54 Belgrave Road, Wanstead, London, E. 11 at about 10/6d. sq. yd.

Note Both grades obtainable from Sig dealers in USA

Epoxy Resins

Bondaglass resin/hardener - from most DIY or model shops in UK

Wide choice only obtainable from Ciba (ARL) Duxford, Cambs. in fairly large quantities for about £1. Personal preference is for Resin MY 752 with hardener X38/341. Technical literature available.

Hobbypoxy Formula 2 Glue - readily obtainable in USA but difficult in UK.

other type of colour finish need not be used if so desired.

The tailplane is treated in an identical manner as the wing tip panels but be as sparing as possible with the sanding sealer as this all sheet tailplane is fairly heavy and the slightest excess weight cannot be tolerated.

Finally it may be truthfully stated that Hans Seelig's covering methods are more difficult to apply than the more conventional silk/tissue/dope methods, but for the trouble taken you will have flying surfaces that are unaffected by weather conditions and a model that performs as built throughout its life. It is also pointed out that the methods described although based on a free flight design in this instance, can equally be applied to any other class of model.



TOPSY .375 c.c.

G. Hugh describes material supplies

NOT EVERYONE is able to acquire easily the materials needed to build 'Topsy', therefore this article is prepared primarily to help people in this position. However, even those people who can get metals, may not readily be able to acquire the exact ones mentioned in the articles on the building of 'Topsy' and they may also find these hints helpful.

Most engineering firms will allow their employees to purchase small amounts of any materials which they stock, and in most cases the chief buyer for the firm will, as far as possible, help employees to get specific items. If you don't work in the industry maybe you have a friend who does, and is willing to help. This is one avenue worth exploring.

For those who have no connection at all with engineering there are other easy ways to get the materials you need.

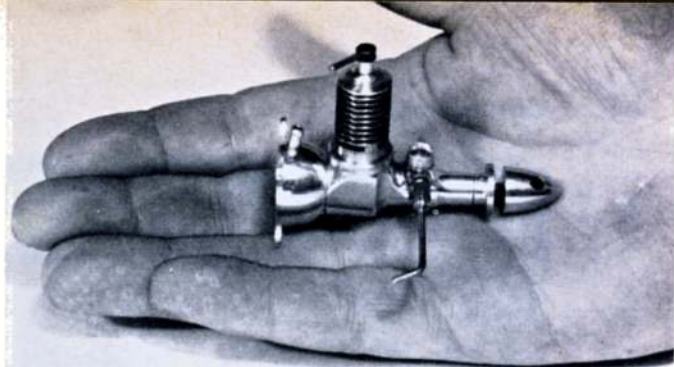
There are very few towns indeed without its quota of small engineering workshops of one sort or another, some of them very small, one or two-man affairs, often working with a minimum of equipment, but in most cases turning out products of an excellent quality - moulds, jigs and fixtures or tooling to be used by the larger firms.

The men who run these small firms are of necessity resourceful and highly skilled engineers. They have to be, to survive! Try looking in on one of these. If they haven't the things you need, he'll most surely put you in touch with someone who has. For instance he will be able to tell you the name and address of the local suppliers of metals. The one-man operators of this type lead lonely lives, locked in the seclusion of their functional little workshops with only the clatter of machinery for company. He'll be glad of a few minutes break for a chat.

If there are sizeable engineering firms in the area, there are bound to be dealers in scrap metals somewhere not too far distant. Try chatting to the owner of one of these businesses. He'll tell you where in his yard to look for odd ends of metal bars which he will have collected together with the swarf from larger firms. You will surely find most of what you need here. Dural bar is easily recognisable by its bright and silky texture, but be careful not to select pure or cast aluminium. This has a quite different appearance, being full, and any machined face will be rough and 'torn' as though a blunt tool had been used. This will be quite useless to you because of its poor cutting qualities.

Cast iron is another metal fairly easy to recognise, although not all Cast Iron is suitable for your needs. It should be of good quality and fairly dense. Mehanite is ideal, being cast iron which is centrifugally cast to get rid of air bubbles and to compact it. It is also refined to remove foreign matter. Therefore, look for some with a machined face and examine it for texture. It should be as even in texture as machined mild steel, but quite dull to the eye, and without even so much as a pinhole in the surface. The outside of Mehanite and cast iron can be quite rough and 'nobby' but this doesn't matter as long as the material itself shows no evidence whatsoever of even the slightest sign of porosity. If in doubt, the man in charge of this yard will probably know which is the best cast iron.

Steel is another matter. For the crankshaft and cylinder, ideally it is best to use metal of a high tensile content.



Basically this means a steel to which the manufacturer has added a percentage of other minerals such as nickel, chrome, molybdenum, or perhaps carbon and other things. This gives it properties of strength and resistance to wear. To recognise this type of steel by eye alone is practically impossible. What the author does, is to select a few pieces at random and carry out a few tests on the lathe. A steel suitable for our purposes should behave as follows: it will machine in a free-cutting manner, the metal curling nice and freely away from both tool and bar, leaving a good clean surface free of tearing or scores. The swarf will be also clean, sharp-edged, bright-faced and with bluish or blue-grey colour. The swarf should also be pliable and reluctant to break when bent vigorously back and forth. If it breaks immediately, there is too much carbon present. The metal will show marked resistance to anything but slow speed cutting. With a bar of around $\frac{1}{4}$ inch diameter, and without using any coolant try turning it at around 800-1000 r.p.m. If it 'chatters' violently and the cutting edge of the tool 'disappears' after a few seconds, and provided it meets the requirements mentioned earlier in the paragraph, you will have a material quite suitable for our purpose. Finally it should easily take a good shine with emery-paper.

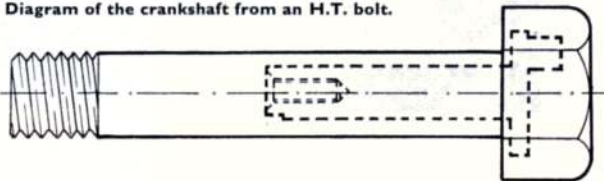
For those still unable to find a source of supply, notwithstanding the hints given so far, don't give up hope. There are still a few untapped sources.

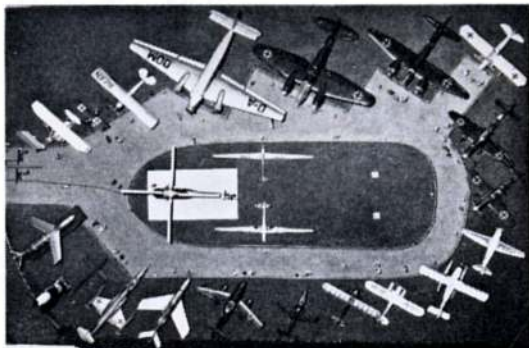
Most large ironmongers of the type that sell engineers' tools such as micrometers and rulers, also keep stocks of Stubbs Silver Steel. This is a carbon steel which hardens right through when heated to a cherry red colour and dipped in water. This will do for the crankshaft provided that it's left in a soft state after machining. For the crankshaft and cylinder, I would rather purchase a normal, good quality bright high tensile bolt of sufficient diameter and length that when the thread has been cut off, enough shank and head remains to make either crank or cylinder. Cast iron for piston and contra-piston could be obtained by saving a lump from an old motor car cylinder head, made roughly round with a file before holding in the lathe. If one wished, both could be made from free cutting mild steel. This could be obtained by using a bright commercial bolt (not high tensile) also purchased from the ironmongers. The bush for the main bearing could also be made from this material if cast iron is not available, although brass or dural in the author's opinion would be a better substitute.

Unfortunately Dural can only be obtained in the manner previously mentioned, but one could doubtless find a supplier of metals by looking through the directory of services at the back of a G.P.O. Telephone directory (Yellow pages).

Just one more tip. Choose always the materials which machine in a free-cutting way. It is always easier to produce a component to a close tolerance if the metal is free-cutting.

Diagram of the crankshaft from an H.T. bolt.

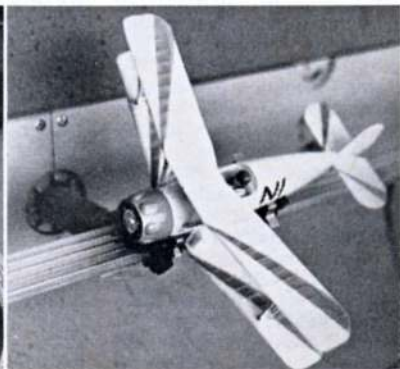
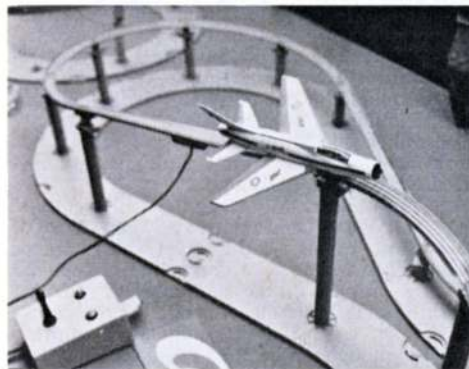




Nürnberg Novelties

ASIDE from the new flying model kits to be seen at the 1969 Nürnberg Trade Fair and reported in earlier issues, there were many other intricate and ingenious items which have no counterpart in the British model shops. Perhaps the most adventurous of these was the

new overhead or table-top rail plane system introduced by **Carrera** who are the biggest of the German companies engaged in the slot car field. The rail is flexible and can be arranged in pairs, or singly in almost any pattern including loops, rolls, etc. The aircraft are either North



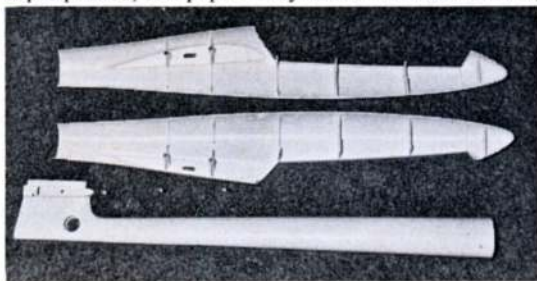
Top left: Variety of Wiking's range of small scale models is evident in this display ranging from a Lockheed Constellation to a Sailplane, made by Peltzer and Peltzer of Berlin. Top right is part of the large 1/100th scale Faller range of plastics. Compare F-104 with Ju-52 - or how's your identification? At left, the Carrera rail planes, the F-100 type with rocket firing.



Left: not very often do we have the opportunity of identifying the personalities behind the big names in the model trade. Here is Johannes Graupner, emphasising the diminutive proportions of the Graupner/NSU Wankel engine.

American F.100, or Bucker Jungmeister biplanes or even a sort of space rocket! The Bucker is strictly for aerobatics and racing. The F.100 has rockets and a stick box. One has a throttle stick and a firing control. Set up a target, and as the fighter sweeps around a curve, one has to match skills in aiming by timing.

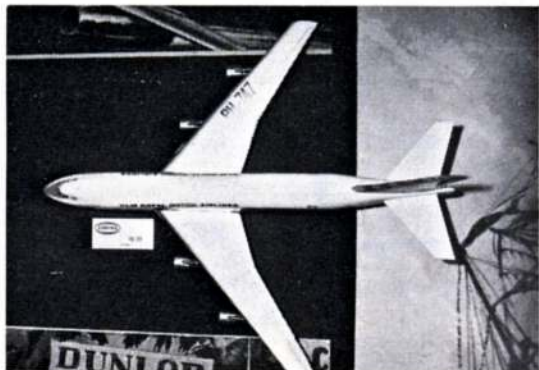
Card cut-outs are generally considered as 'kid's stuff' in Britain. Many of us remember the wonderful Rigby flying models of the 'thirties in fond reminiscence and though there still does not appear to be a latter day equivalent of those clever paper models, J. F. Schreiber-Verlag produce a quite remarkable range of scale models in pre-printed, stiff paper. They include intricate Castles,



Right: Herr Graupner's big investment, the Novodur plastic injection moulded three-part fuselage for his 3-metre span 'Cirrus' glider.

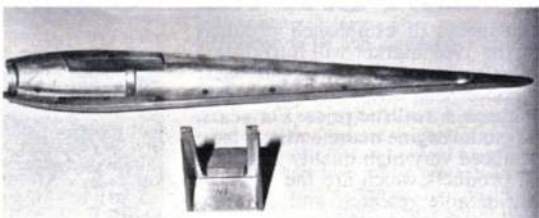


Above left, the Spanish Nacoral radio-controlled swing wing airliner does not fly! Has motorised wheels and a gun grip type transmitter. Right, first of the Boeing 747 models to come is Aurora's big one, (soon to be followed by Airfix). The Boeing 737 below it is not plastic, but one of many very clever cut-out card sets marketed by J. F. Schreiber, publishers of 'Mechanikus'.



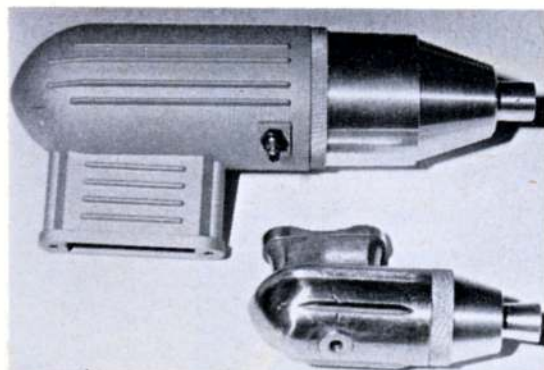
Cathedrals, and, happily for our sakes, aircraft. World War II fighters, transports and airliners are offered on printed sheets, latest being the Boeing 737, naturally in Lufthansa colours.

Perhaps the most novel aspect of all at Nürnberg was the clear evidence of a return to the die-cast collector's idea of a scale aircraft model. Dinky once had a handsome range, now reduced to a couple of Beechcraft types but with promise of more to come. Airfix have introduced 'Wild Wings' which are hardly scale or in all cases realistic but fill a void. Now Cox, through their connection in Hong Kong have revealed some delightful constant 1/100th scale 'Showcase Miniatures'. These colourful models are bound to set a new fad going, and all power to them if they make people become airminded!

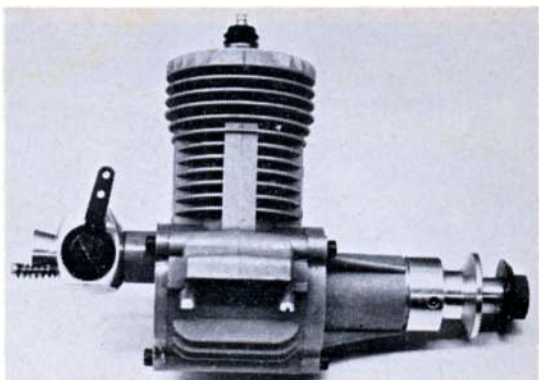


Right, little known are the special speed pan and R/C radial mounting made by Hirtenberger for the HP61. Below, left to right, the ladies play their part in the German trade in a big way. Elsa Klinger has a Guillow Fokker Dr1, Triplane kit converted with two servos for rudder/elevator R/C. Ursula Krick holds the Krick Jig for fuselage construction, comes in the small box at left of picture, and Frau Kussmaul (Multi-Plex) holds elegant Alpha glass fibre glider fuselage.





Two new silencers from Webra, note primer hole in smaller one and pressure tapping point on its big brother.



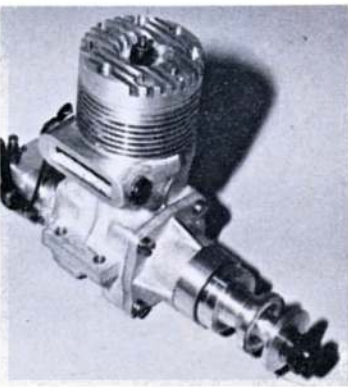
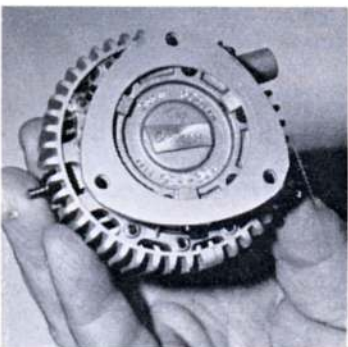
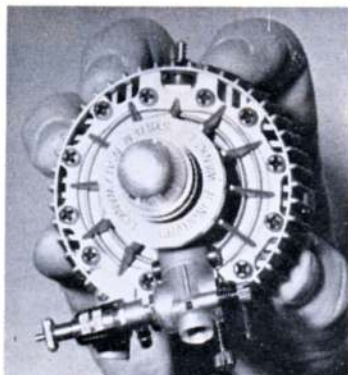
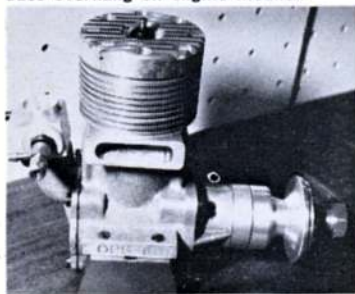
Another view of the Cox rear-rotary 'Concept' 40 R/C engine, scheduled for July production. Bolts under engine bearers retain split crankcase.

JULY appears to be the month to look forward to for the arrival of production versions of the radical new engine designs of 1969, the Graupner/NSU Wankel and the Cox 'Concept' 35 or 40. There is also promise that the Italian Komet 15 racing engine will be in full scale circulation by then. Each of these entirely new engines, as well as the

ENGINE

refinements of established products for the 1969 market will introduce a new element as far as the purchaser is concerned, and this is, in plain language, a realistic price. For years, the model engine manufacturers have produced very high quality engineering products which are the result of considerable research and development, at a cost per operation and final unit that would drive any but the staunch enthusiast for his product right out of business in no time at all. Increased price levels, the first for many years, have just been established in the A-M range of diesel engines. This places the AM 25 at £6 3s. 7d. at

Above right: two views, front and rear, of production version of the Graupner/NSU Wankel. Note OS carburettor and three-point mounting flange. Below is side exhaust stack on the OPS R/C .60 with down-draught carburettor to reduce overhang on engine mounts.



a disadvantage when the imported Chinese Silver Swallow 2.47 sells at £4 13s. 8d., but is it SO unrealistic when compared, say, with the new Veco 50 which has just arrived, at £21 10s. 0d? We think not. The British manufacturer gets less than half the eventual selling price for his product. This must cover materials, wages, machine investment and

NEWS

profit. The Chinese or Hungarian engine is produced solely to obtain Western currency. It does so at a charge which is not related to production costs. We have yet to learn what the complex Cox or O.S.-made Graupner/NSU Wankel will retail at in this country but whatever it is, the rate will be realistic from all points of view. This month also marks the passing of the respected Marown range, now withdrawn from production for economic reasons. Those in circulation will be treasured, like their late lamented Mills Bros. products before them. Let's hope AM, D-C, Eta, E.D., P.A.W. & Oliver can keep their lathes turning.

Left: 1969 Rossi 60 R/C has few external changes but claims greater power and flexibility. Below: Italian Komet 15, designed and supplied with a tuned exhaust pipe has unusual concave cylinder head contour on top surface.



Hands off R/C

Dear Sir,

For how much longer do you intend to continue your disservice to the aeromodelling hobby by propagating the bigoted and ill-judged attacks on radio control flying by 'Pylonius'.

More warped in outlook than a last year's Wakefield wing, he obviously cannot appreciate that the vast majority of R/C flyers are not anti-social plutocrats - he would do well to remember the old saying 'Those who can, do; those who can't, criticise.'

If 'Pylonius' would read the letters in the 'Golden Wings' page, he would realise that to many R/C is a perfectly natural progression, and not a vice of the well-to-do. Incidentally, I have yet to hear a radio flyer protest about the use of uncontrollable free flight models and the damage done by their irresponsible owners whilst retrieving them from standing crops, etc.

So, let us have no more of this wedge-driving policy - humour by all means, but with unity as the theme please, not apartheid.

Gloucester

R. M. Russell

Where are they now?

Dear Sir,

The sad news of the death of Mr. D. A. Pavely reported in the March edition of the *Aeromodeller* took me back to the days of my youth when he and I were members of the Wimbledon and District Model Aeroplane Club.

He used to come out with some most original models in those pioneering days, both rubber driven and compressed air. He even produced a child's motor car also driven by compressed air but whether this was a marketable success I never knew as I left the district shortly after the 1914/18 War.

Many of us joined the R.F.C. and the R.N.A.S. and some found fame while many of us drifted into obscurity.

Among some of the names I remember well are L. H. Slatyer (R.N.A.S.) of Schneider Trophy fame and for various exploits in the two World wars, A. F. Houlberg whose exciting models were always years ahead of their time and who later became Chairman of the S.M.A.E., S. I. Barrs (R.N.A.S.), A. G. Boniface (R.F.C.), T. Chown (Secretary of the Club), D. Easdale (Sopwith Aviation Co.), L. Hutcheon (R.F.C.), G. Hayden (an expert on compressed air engines), T. Jannaway, D. Laing and F. Powell, etc., etc.

One wonders how many members of that Club are still alive and it would be most interesting to have news of them.

Ashted,

L. Gordon Tucker
(ex R.F.C. and R.A.F.)**Exclusivity**

Dear Sir,

I belong to that reasonably common type of 'Lone Ranger' aeromodeller: i.e. the type who spend more time building planes than flying them. Being a 'Dad' with four small sons, means that the weekly trip out on a Sunday afternoon has to be given a miss. Other commitments (family-wise), usually place Dad's hobby in second place.

However, considering that Dad loves Aeromodelling, and has a number of models, ready and waiting, the time does occur when he wants to see them fly!

Just throw the gear in the car, pile the family in, and off we all go to the local flying

field. What do we get? 'NO DEAL'. I have tried, on three or four occasions, to fly my models recently, on fields used by local clubs and on every occasion I have been refused permission by the Club Secretary. 'You'll have to join the Club first, old chap', is the answer I get every time. 'It's the insurance, you see!'

On one occasion I pointed out, that as a full member of S.M.A.E., I was insured, but the reply remained the same.

READERS' LETTERS

VIEWS EXPRESSED IN THESE COLUMNS ARE NOT NECESSARILY THOSE OF THE EDITOR. CORRESPONDENCE INTENDED FOR PUBLICATION SHOULD ALWAYS BE ACCOMPANIED BY THE FULL NAME AND ADDRESS OF THE WRITER AND AN S.A.E. FOR REPLIES.

Considering that the modelling fraternity is always crying out for more support for its functions, it seems silly to me that the 'Lone Ranger' type of modeller, like myself, should be discouraged in this way. Surely, a person who can only fly a few times a year should be encouraged!

After all, he does buy wood, engines and radio gear, just like a club member - keeping the hobby going.

My wife summed up the situation in a few well-chosen words. 'If I made an aeroplane and they wouldn't let me fly it, I don't think I'd bother any more.'

Food for thought, don't you think?

Penketh, Warrington D. A. Thornton

Spectacles

Dear Sir,

I heartily endorse the remarks and ideas of Mr. E. Humphrey in the November issue of the *Aeromodeller* of the vital necessity of providing something for the uninitiated spectator. How about a competition for the best re-enactment of some famous aeronautical event of the past, for instance, the incredible rescue of Mussolini in 1944 from the mountains of Italy. Surely, this would draw the crowds.

Finchley N.3.

P. A. Scorey

- *Coo - I Dennis Bryant and his Storch to the fore! Who's going to build the model mountain? Mr. Scorey's suggestion fires the imagination - why stop at single aircraft events - surely the aim is a tied together formation of Fuiries, Gladiators, Gauntlets or Tiger Moths? We wonder how long it will be before such spectacles become reality? Ed.*

Service

Dear Sir,

Just over a year ago I bought an O.S. Pet R/C engine from a Model Shop. I had some difficulty starting and running the Pet, but at least it did run. After making one flight with the engine fitted to a model (Graupner Amateur) the engine just would

not run again. I consulted the Model Shop and on their advice tried different grades of plugs, but it still wouldn't run. I thought I detected a crankcase leak, so I fitted new gaskets, but it didn't do any good. So I just accepted the fact that I had bought one of the 'bad' engines that must get through from time to time.

One day I visited another Model Shop in Ashton, Lancs. and on enquiring about a reasonably-priced 1½ c.c. glow engine was recommended the Pet.

I jibbed and explained why. I was told to send the engine back to the agents Keil Kraft and explain what the trouble was. I did so, dispatching the engine on the following Monday.

I got it back on the Saturday after with a pleasant little letter and was very pleased to find that the engine was okay. It had been fitted with a new cylinder assembly, free of charge and it had been serviced as well.

Excellent service indeed for an engine costing £3 3s. 4d. (I think it was then) and after a year's delay.

So to any beginner like myself, if any trouble arises with your equipment give the agents of manufacturers a chance to correct it. Like me you might be pleasantly surprised at some kindly treatment. You never know till you try.

Manchester.

J. Kilburn

Rally sites

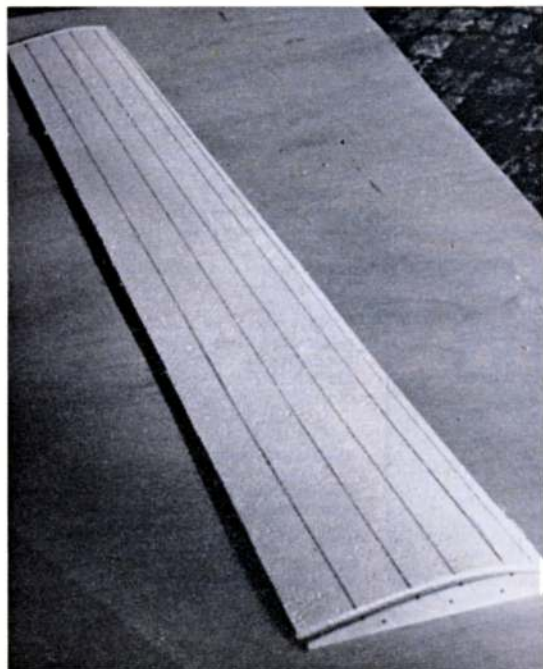
Dear Sir,

The rude remarks about the Woodford Rally which provoked Mr. D. Allman's letter in your March edition were mine, per the East Anglian Area newsletter. 'Clubman' did not make the sense of my remarks very clear because he only printed a very small part of what was said, so perhaps I had better repeat them.

What I said was, that anyone who runs a rally where competitors from hundreds of miles away are expected, ought to run it on a decent airfield. I for one resented travelling a long way and then being prevented from flying for lack of space. The organisers should decide whether they want to run a rally for the benefit of their coffers or for aeromodellers, and then advertise it accordingly. I have no objection to attending a revenue-raising rally provided the organisers pay travelling expenses and don't charge me an entry fee. And crowd control is essential in any event, but more so than ever when the rally is advertised on local television the night before. In 1970 I shall turn up with a pylon racer, and God help anyone who gets in the way!

Now, on to Knock-Out free-flight contests. The East Anglian Area ran one of these contests in early 1967 to see if the rules were workable. Actually, the weather on the day chosen was impossible, but the Norwich Club tried out the idea later. They reached two conclusions: First, that even models released side by side are in different air, and the luck element is as great as ever. Secondly, that any attempt to assess which was the higher model after two minutes flight time was almost impossible if the models had drifted away from each other. These two conclusions meant that the main advantages of the proposed system was lost, and the idea was not tried again. I personally hope the Whitefield Club can make it work, and shall be interested to read the report. (This issue - Ed.)

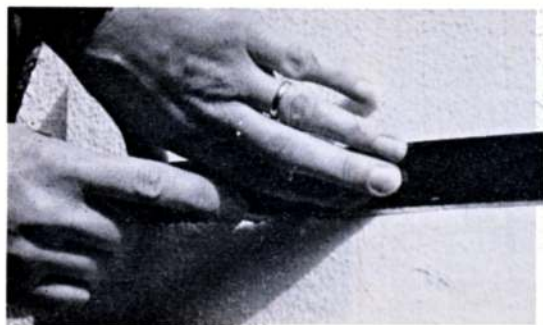
D. J. T. Miller,
E.A.A., P.R.O.



RECENT DEVELOPMENTS in aeromodelling have included successful applications of plastic materials, particularly Expanded Polystyrene (E.P.). The modeller who continues to *construct* the airframe of his model (as opposed to merely finishing and assembling components) can use a fairly simple electrical apparatus to provide an equivalent to the commercially exploited moulding process. Indeed, the home constructor could well use the same type of apparatus as the professional on limited series production where tooling costs preclude moulding.

However, as not all modellers wish to invest in transformer and thermostat equipment, but would still like to employ E.P. forms, I decided to explore the possibility of working this material directly. To economise further in time and money, I resolved to work with raw material almost the exact thickness of the finished job. Furthermore, (almost as a point of honour) the limitations on tools and apparatus were such as to restrict the range and cost of these items to a bare minimum.

The chosen project was a constant taper A2 glider wing, featuring a flat based aerofoil section Gö 796 (*A.M.* Feb. 1962) it was thought that a tapered wing would probably be a little harder to make than a constant



Sandpaper yourself a wing

suggests T. Faulkner

Polystyrene block, cut and sandpaper into wing cores

chord equivalent, although mechanically it would be superior. If the project was successful, the constant-chord type wing would probably prove simple enough for relative beginners, and also serve as a starting point for thinner undercambered sections.

Because of the extreme fragility of E.P. in thin extremities (*e.g.* trailing edges) and because of the vulnerability of leading edges, the E.P. was to act as a core between the two. I planned to sheath the finished core in balsa (a method often described) applying a plastic sheet finish to avoid doping and to improve puncture resistance with small weight gain.

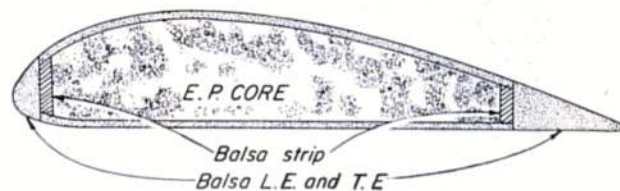
An E.P. sheet, $\frac{3}{4}$ in. x 3 ft. x 2 ft. was bought for 3s. 9d. from the local builders suppliers. (The thickness was actually 11/16 in. so do check this dimension before making your purchase.) The quality was much better than that I had seen used in thicker sheets, the 'beads' being approximately $\frac{1}{8}$ in. in diameter. As the varieties on sale now include self-extinguishing types, I opted for the cheaper, inflammable sort. The sheet, it was calculated would provide 2 sets of cores for $6\frac{1}{2}$ in. chord wings, allowing a little for waste.

Perhaps the planning stage of any process equals any subsequent task in importance. This technique is no exception, and a lot of care was taken in subtracting the sheathing thickness for top and bottom of the aerofoil profiles in plotting the detail of balsa to E.P. joints, and in trying to envisage the sequence of building process. Previous experience with all sheet surfaced wings had shown me that the nose area (the area of maximum curvature) is always that most difficult. It was decided to lap the covering on to a $\frac{1}{8}$ in. strip at both front and rear, this sandwich then being covered by a conventional L.E. and T.E. butted up and glued in position (*see Diagram 1*).

Templates corresponding to the core were made, divided into convenient segments for checking purposes

At top is Figure 7 showing a near finished wing core with spanwise lines running between rib templates. Left is Figure 2 where the pattern is being cut from styrene block using a straight edge and a very sharp knife.

DIAG 1 Construction Details



and pierced for the pins which would hold them in position against the sheet ends when required. The E.P. sheet was then marked with the core plan form (using ball point pen or a fine watercolour marker), and cut. (Fig. 2). Any knife for cutting E.P. must be stiff, thin in the blade and extremely sharp. The one used was made from a hard, not flexible, hack-saw blade, ground with a very gradual taper from edge to full thickness, hardened and tempered to straw colour over a gas ring. After sharpening on an oilstone, and being stropped on the heel of the hand, such a knife bears a long-lasting shaving edge.

To avoid surface breakaway, the sheet should be cut halfway through from both sides: as the marking may not be perfectly coincident, always mark and cut slightly 'full', sanding back to an accurate platform.

The straight edge shown in the illustration was chosen for clarity, normally a long T-section of aluminium is used which provides a finger-guard and allows a continuous cut to be made. The knife is inclined at about 30 deg. to the surface, and should give clean cuts, (see fig.3, comparing cut and 'natural' edges). Later the knife removes excess waste as marked in Fig. 4, again using slicing cuts. Surface refinement and final shaping of the core to the correct section is carried out by sanding. For this process to succeed, the correct grade of abrasive makes a striking difference.

After several tests it was found that 3M closed coat Garnet paper 2/0-100 grade, gave excellent results with the type of E.P. sheet being employed. When used correctly, it cut through the beads of the material, rather than pulling them from the block. The writer is convinced that individual research into abrasive could be rewarding. For example, the use of wet or dry papers with water gave good results, and avoided excessive dust production. Whatever abrasives are used they *must* be glued properly to sanding blocks. The writer uses a deal block, 2 in. x 6 in. x $\frac{3}{8}$ in., and makes sure that all the edges of sheet abrasives are neatly secured: failure to do this simply causes snagging and tearing of the E.P.

The sanding action itself could be most accurately described as 'wiping' in one direction, rather than the normal to and fro movement associated with sanding. The rate of material removal is surprisingly rapid - so proceed slowly.

The underside of the core should be sanded flat and smooth before working the cambered area (see fig. 5). The E.P. must be worked on a flat, smooth, board, and after the lower core surface is finished the templates are pinned in position at root and tip, with the core the right way up (fig.6). As mentioned earlier, the knife is useful for removing excess waste, subsequently the sanding block is brought into action.

To check progress, a long straight edge is placed across the templates from one corresponding segment to another. This is gently pressed down on to the block and will leave an indentation marking any high spots. These are gently sanded away until the straight edge leaves no indentation, and no gaps appear between it and the core-profile. Fig. 7 shows check lines illustrated.

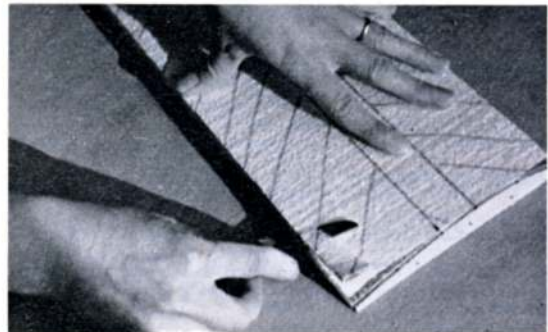
(A constant chord wing would allow a chordwise template to be used at very small intervals: this could be based on the building board as a datum line, and would be easy to use.)

Before final sanding, the L.E. and T.E. strips were attached: this prevents edges crumbling, but one must sand obliquely into the core centre. Any adhesive suitable for both E.P. and wood would be usable for this joint, although the writer always prefers a rigid setting adhesive such as Cascamite.

The finished cores illustrated weighed 1 oz. each, and possessed a fine slightly furry surface which provided a good key for the sheet skin later applied.



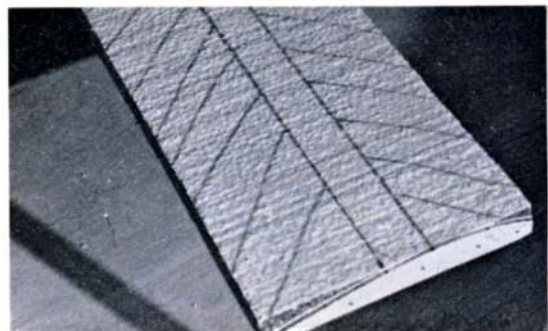
Figure 3 above, illustrating a clean cut by knife in the upper panel, lower panel has natural edge finish.



Waste styrene being removed above in Figure 4, note centre strip left uncarved and ply template on end of panel.



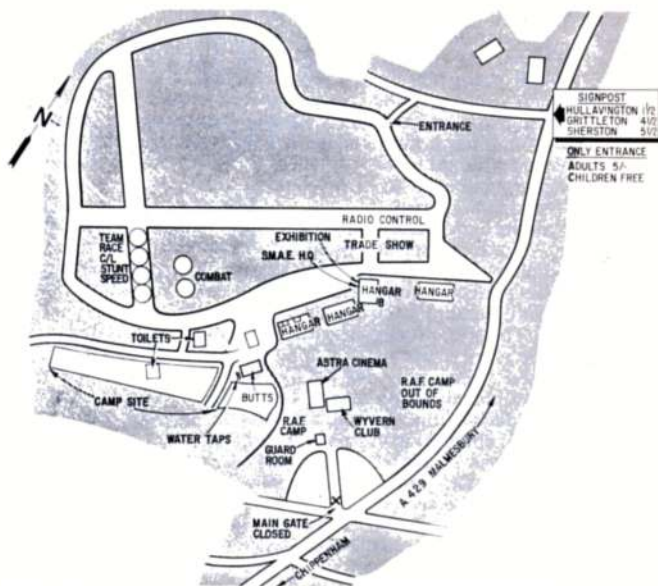
Figure 5 above shows a panel which has sanded surface compared with cut surface of raw block as supplied. Below is Figure 6 which illustrates how waste areas are marked and templates pinned in place.



DAILY PROGRAMME OF EVENTS.

Sunday, 25th May 1969

Radio Control Events	9.00 a.m. to 7.00 p.m.
Free Flight Events	10.00 a.m. to 7.00 p.m. (Fly offs from 8 p.m. at 15 min. intervals in the order of Glider, Power, Rubber)
Control Line Events	9.30 a.m. to 6.00 p.m.
Sir John Shelley Cup	Free Flight Duration Contest for Power Models.
Model Aircraft Trophy	Free Flight Duration Contest for Rubber Models.
Thurston Cup	Free Flight Duration Contest for Gliders
Lady Shelley Cup	Free Flight Duration Contest for Rubber Glider or Power driven tailless models.
Frog Junior Trophy	Free Flight Duration Contest for Rubber Glider or Power driven models. Restricted to juniors only.
S.M.A.E. Trophy	Aerobatic Contest for Multi Channel Radio Controlled Models. 9 a.m. - 11 a.m., 12.30 p.m. - 2 p.m., 3 p.m. - 5.30 p.m.
Radio Modeller Trophy	Precision Flying of Radio Controlled Scale Models of full size aircraft - Qualifying flights 11 a.m. - 12.30 p.m., 5.30 p.m. - 7 p.m.
R/C Pylon	Course racing event for R/C Models (2.00 - 3.00 p.m.)
Knokke No. 2 Trophy	Flying Scale Contest for Control-Line Models - Qualifying Flights (From 9.30 a.m.)
R.A.F.M.A.A. Trophy	Team Racing Competition for Control-Line models with engines up to 1.5c.c.
Navy Carrier	Carrier Deck Landing event for Control-Line models (12 - 6 p.m.)
Gold Trophy	Aerobatic Contest for Control-Line Models.
Handicap Speed	An out-and-out Speed Competition for Control-Line models from 1.5c.c. to 10c.c. matched on a handicap.
Combat	Preliminary Heats of a 'knock-out' Aerial Combat Contest for Control-Line models.
Mouse Race	Control-Line racing for up to .9c.c. at 7.00 p.m., Hangar 8.
Unorthodox	(8.30 p.m.) in Hangar 8.



The NATIONALS
WHAT, WHERE, WHEN
Annual championships of the Society
of Model Aeronautical Engineers

Monday, 26th May 1969

Radio Control Events	8.00 a.m. to 6.00 p.m.
Free Flight Events	(F.A.I. in rounds) 9.00 a.m. to 5.45 p.m. (Fly offs from 6 p.m. at 15 min. intervals in the order of Glider, Power, Rubber)
Control Line Events	9.30 a.m. to 5 p.m.)
Women's Cup	Free Flight Duration Contest for Power, Rubber or Glider Models. Restricted to Lady Competitors. (10 a.m. to 4 p.m.)
1A Power	Free Flight Duration Contest for engines up to .8c.c.
Wakefield F.A.I. Power A/2 Glider	International Class events in Free Flight. Five flights in each event. Run in rounds.
Radio Modeller Trophy and Knokke No. 2 Trophy	Qualifying flights for Radio Controlled scale models. 11 a.m. - 2 p.m. Models are then judged for scale accuracy.
Combat	Final rounds of the Aerial Combat Contest for Control-Line models.
Davies 'A' Trophy	Team Racing Competition for Control-Line models with engines up to 2.5c.c. Final races for heat winners 2 p.m. - 3 p.m., 5 p.m. - 6 p.m.
R/C Pylon	Final rounds of Aerobatic contest for multi-channel Radio Control models. 8 a.m. - 11 a.m., 3 p.m. - 5 p.m.
S.M.A.E. Trophy	Control line racing at high speeds. Final Flights in the deck landing contest.
Rat Race Navy Carrier	
SUPPLEMENTARY EVENTS	
Houlberg Trophies	Individual Championships for Senior and Junior events. Top Junior in each event will receive a plaque.
F.A.I. Speed	International category (2.5c.c. engines, models with two line control).





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

Dear John,

I have been interested in Aeromodelling for only six months and so far have only built one glider (tow-line). What would be my next step - rubber-powered or combustion engine?

I would also like to join a local Aeromodelling club. Could you tell me the address of the nearest one? I live in the Epsom district.

Ewell.

Andrew Mooey.

The choice of your next model really depends upon your pocket. A rubber powered model is cheap to build and fun to fly, but for a power model you will of course need an engine, prop., fuel, etc., etc. Should you be unfortunate enough to lose the model, it is always much less heartbreaking when it has not cost you so much!

If you decide on a rubber model, I would suggest 'Little Mavis' plan no. D890, price 3/6d., and if you would prefer a power model perhaps the 'Debutante', plan no. PET/493, price 4/-, or else 'Pepe', plan no. PET/835 price 4/-.

Your nearest model club would be the Hawker Model Club, whose secretary is R. J. Steers, of 3 Willow Court, Cambridge Road, Kingston upon Thames, Surrey.

Dear John,

I am making a Carl Goldberg Falcon 56in. it is to be fitted with a six channel reed outfit. I have started the covering and have done the wings and tailplane. The plans say that it is best to cover all surfaces. Surely this adds weight? I asked somebody in authority and he said not to cover sheet surfaces. I am in a muddle, can you give me any advice.

Sowerby Bridge, Yorkshire. *Michael Uttley*
You have a very nice model/equipment combination!

I assume that you have covered the wings and tail plane with nylon, and the fuselage should be covered with the same material. The increase in weight is only

slight, but the additional strength is enormous. Your Falcon 56 will easily carry this extra weight, and will benefit considerably from the increased strength.

TIP OF THE MONTH

Modellers who have difficulty in making fuel tanks for models, or to be more precise, making the bends in the tinplate or brass where the modeller wants them, not where the metal normally wants to bend will like this idea. Most people making fuel tanks have been used to having to carve a fairly hard block to bend the metal around, just a little smaller than the desired size of the tank. Carving a suitable and exactly sized block was difficult, moreover bending the metal round it had a tendency to split the block if the grain was in the wrong direction. To obtain sharp bends in the tin plate or brass, run a knife edge down the surface of the metal to be bent so making the bend line somewhat weaker than the rest of the metal. The incision in the metal need not be very deep (especially in brass) to be effective. The one drawback is that the bend, once made, should not be opened out again otherwise of course the groove in the metal will cause a tear as soon as the metal is moved out, this warning is especially relevant in the case of tinplate which will break at the slightest provocation.

A word too perhaps on selection of metal for these tanks. Cocoa tins are the stock examples mentioned in most books on the subject, but they are not always near to hand (or empty!) one must be very careful in scrupulously cleaning out the contents of the tins before using them (though you may like soup from tins, model engines frequently don't and refuse to run!)

Bath.

Stuart Lodge

Dear John,

I am enquiring about an aeroplane called the 'Pink Lady' it was used by Brian Jackson in the World Control Line Championships. The plane was a 2.5-speed model (seen in October 1968 *Aeromodeller*, p. 522). The questions I would like answered are:

- (1) Where can I obtain the plan or the shell of the aeroplane and how much will it cost, to be imported or otherwise?
- (2) Can the aeroplane be hand launched?
- (3) How is the plane landed?
- (4) Is the plane flown round a pole or by a person with a control handle?
- (5) Is a single- or double-line used and of how long?
- (6) If a single, how does it work?
- (7) Is the single-control tab at the back used in flight or set before.
- (8) Are there any planes of similar design class and if so where may they be obtained and how much?

I enclose a stamped addressed envelope for your earliest reply.

Beckenham, Kent

Alan George

To be quite honest, I would consider the 'Pink Lady' to be rather too advanced for you. Do you realise, for instance, that it features dural wings, machined maple spars and a magnesium engine pan? Also, to be successful at speed flying, requires the experience, and the facilities, of an engineer. Speed flying is fully described in our publication 'Control Line Manual' price 15/-. This book gives details of mono-line control, model design and flying technique, etc.

The planes, which must now use two control lines to comply with the F.A.I. rules. take off on a 'dolly' - a wheeled device which remains on the ground after the model is airborne, and land on a wire skid mounted flush with the bottom of the pan.

Dear John,

I acquired, a few months ago, the plans for the Me-109 by Stan Cole. I have nearly finished it, and would like to have some 'Luftwaffe' transfers for it. I asked in our local model shop for it but they only suited the Mercury Masterbuild Me.109. I would appreciate very much that if you have them, could you please give me details of them and their price.

Dublin 9.

Damien O'Reilly

Although there are some commercially available transfers, I agree that they are often not of the required size. However, why not make your own transfers? This is really very simple - details being shown on page 27 of our 'Plans Handbook No. 1' price 2/6d.

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

6/69 2d. in the 3/- rebate
plan purchase coupon
for Golden Wings members
G.W. No.

Contest Calendar

- May 18 **NORTHERN AREA VINTAGE MEETING** plus R/C. C.d'Hiver, A/1 Glider, Open Power (Panrett Trophy) R.A.F. Topcliffe.
- May 25/26 **THE NATIONALS** at R.A.F. Hullavington.
- June 1 **SUTTON COLDFIELD R/C RALLY**. Spot landing, Limbo, Spins, Pylon Racing at Fradley, near Lichfield.
- June 8 **S.M.A.E. CENTRALISED C/L MEETING**. Speed, Rat Race, Class B T/R, Combat, R.A.F. North Luffenham.
- June 15 **ELLIOTT M.E.C. C/L GALA**. Rochester 1/2A T/R, F.A.I. T/R, Rat Race, Combat, Stunt. Pre-entry 2/6 to J. Broad, 37 Oakhouse Road, Bexleyheath, Kent.
- June 15 **WEST MENDIP SLOPE SOARING MEETING**—single and intermediate, Crookes Feak.
- June 22 **CHESTER M.F.C.'s CLWYD SLOPE SOARING RALLY**. Moel Ffammau, N. Wales. Details from C. R. Filtness, 26 Raymond Street, Chester.
- June 22 **AEROMODELLER/RCM & E Scale Rally**, Old Warden.
- June 22 **NORTHERN AREA THERMAL SOARING CONTEST** R.A.F. Elvington.
- June 22 **STOCKPORT D.M.A.C.** Open Combat Rally, 'Mainstream' Trophy and £10 prize, 5/- pre-entry to J. Daly, 112 Conway Towers, Brinnington, Stockport, Cheshire Enclose S.A.E. At Stockport Co. Playing Field, Mill Lane, Bredbury.
- June 22 **CROYDON F/F 'Knock-out' events** Open R/G/P plus A/1 and 1/2A Power 3 x 3, Chobham Common.
- June 29 **ST. ALBANS GALA (1)** Open R/G/P 5 x 4 mins Rubber, 3 x 3 mins Power and Glider, Carl Simeons Trophy, Vintage (pre-'51) Chuck Glider, Chobham Common.
- June 29 **N.E. AREA GALA F.A.I. T/R, Rat Race, Combat**, Open R/G/P. Pre-entry 5/- to R. Wilson, 1 Birkheads, Marley Hill Co., Durham. Venue R.A.F. Ouston, 12 miles west of Newcastle on B6318.
- June 29 **FINCHLEY D.M.E.C. C/L RALLY A & B** Combat, B Rat Race, Stunt, Silencers over 2 cc, 3/6 pre-entry to J. Goodwin, 77 Gallants Farm Road, East Barnet, Herts. Venue Glebelands, Finchley.
- July 6 **CHICHESTER R/C RALLY** Pylon Racing, Scale R.A.F. Thorney Island.
- July 6 **ELLIOTT M.E.C. SPEED MEETING** F.A.I. T/R & Speed (All Classes) Elliott Bros., Airport Works, Rochester, Kent.
- July 13 **NORTHERN AREA R/C Multi**. F.A.I. R/G/P free flight and S.M.A.E. Area Championship. R.A.F. Topcliffe.
- July 13 **LONDON AREA C/L CHAMPS 2nd Round** F.A.I. T/R 1/2A T/R, Combat, Charville Lane, Hayes, Middx.
- July 20 **SOUTH BRISTOL SUMMER GALA** F/F, Vintage, C/L, R/R & Combat. R.A.F. Hullavington.
- July 20 **FLYING DRUIDS M.A.C.—2nd Multi Aerobatic event**. Venue, Middle Wallop.
- August 9/10 **SOUTHEAST R/C RALLY** Leigh Marshes.
- August 9/10 **R.A.F.M.A.A. CHAMPIONSHIPS**. R.A.F. Hullavington.
- August 17 **S.M.A.E. ALL SCALE MEETING** R/C F/F, C/L, R.A.F. Little Rissington.
- August 24 **SUTTON COLDFIELD R/C RALLY** for Multi Aerobatics, 10.30 a.m. start, Fradley, near Lichfield.
- August 24 **S. MIDLAND AREA Burns-Brown Combat Trophy** open to all comers, 4/- pre entry to T. Heeley, 22 Upper High Street, Harpole, Northamptonshire, at Midsummer Meadow, Northampton. (Silencers required).
- August 31 **R/C THERMAL SOARING RALLY 'Towner Trophy'** Golden Cross, Lewes, Sussex.
- August 31 **WEST OF ENGLAND R/C SCALE AIR DAY**, Westland Aerodrome, Yeovil. R/C Scale and possibly Pylon Racing.
- September 7 **NORTHERN GALA** R.A.F. Lindholme.
- September 7 **SOUTH COAST R/C RALLY**, Golden Cross, Lewes, Sussex.
- September 13 **FLY FOR FUN** Demo's, Sywell.
- September 14 **S.M.A.E. C/L TEAM TRIALS**, R.A.F. Upwood.
- September 14 **NORTHERN AREA** Goodyear and Open Pylon R/C Races, R.A.F. Topcliffe.
- September 21 **SOUTH MIDLAND GALA**, literally everything! Open R.G.P. 1/2A, C.d'H., Tailless Chuck, Helicopter, single and multi R/C, Vintage, Carrier, Combat, Stunt, 1/2A, F.A.I. T/R, Rat, Moose racing, C/G entries to T. Heeley, 22 Upper High Street, Harpole, Northamptonshire. R/C to D. Giles, Derron, Station Road, Bow Brickhill, Buckinghamshire. F/F to T. Payne 92 Coppice Drive, Parklands, Northampton, 2/6 each event at Cranfield.
- September 28 **SOUTH COAST GALA** details later.
- September 28 **S.M.A.E. CENTRALISED R/C & C/L MEETING**, 1/2A T/R, F.A.I. T/R, Stunt, Carrier. R.A.F. Upwood.
- October 5 **SPORTS RALLY** (Performance Kits) Old Warden, Beds.
- October 5 **EAST GRINSTEAD GALA** All-in F.A.I. (1st rd. 10.30-11.30) A/1, C.d'H. 1/2A Power, Chuck glider. 3/6 entry, re-entry 2/6. Chobham Common.
- October 19 **YORK RALLY** R.A.F. Elvington.
- October 19 **LONDON AREA C/L CHAMPS 3rd Round** F.A.I. T/R, 1/2A T/R Combat, Charville Lane Circuit, Hayes, Middx.
- October 26 **ST. ALBANS WINTER COMP.** All-in F.A.I. C.d'H., A/1, Chuck Glider, 1/2A Power, Chobham Common.
- November 16 **ST. ALBANS THERMAL SOARING** event for R/C gliders, Nomansland, Wheathamstead.

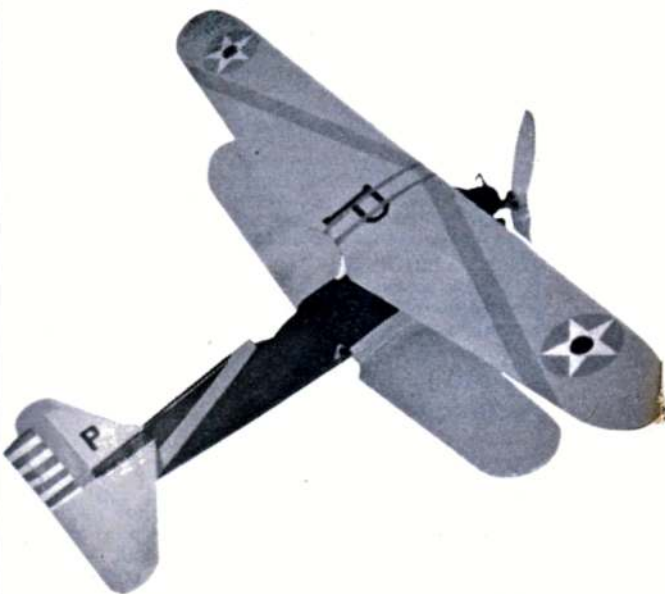


Your FULL SIZE plan

The HAWK

THE COLOURFUL 'pursuit ship' is scudding across the greensward and seeking altitude in a wide, right hand, climbing turn. Its highly distinctive squadron markings glint in the clear sky as the wings waggle and the 'plane settles itself comfortably into its natural element — the air.

Circling over the field, after a while the engine cuts back, changing the flight pattern to a left circling glide, and the ship reluctantly heads back to earth. Eventually, with a flare out, the wheels meet mother earth, and trundling along the ground, the plane comes to rest not far from where it had departed.



From the exotic markings, surely among the most colourful ever used by any military aviation group, the scene described could have taken place in the United States, at an Army Airfield such as Selfridge or Kelly in the late 'twenties or early 'thirties. The 'planes being variants of the famous Curtiss 'Hawks'.

In actual fact, this particular incident took place several times last summer, at our local flying field! Our variant of the 'Hawk' is a 28 inch span, all sheet profile. Its power plant is the neat little D.C. Quickstart Merlin, and performance is all that is needed for many hours of real fun flying. About 5 degrees of engine downthrust was designed into the prototype but on first flights the model stalled dreadfully. Another 5 degrees was added and no other alteration was needed. With the rudder tab set for a slight left turn, the 'plane flew 'straight off the plan' giving a wide right turning climb under power, and a smooth transition to a left glide when the engine cut.

On still days the model would land very close to take off position, but this does not mean to say that it is a calm weather only design. On the contrary, it has proved to be more fun on windy days, being very robust and really exciting to watch providing your flying field is big enough - and you don't mind the chase!

SEMI-SCALE 28 inch PROFILE FREE-FLIGHT DESIGN FOR .049 cu ins By A. J. DORRELL

Incidentally, the 'Hawk' alighted in a cornfield about a week before harvesting. The farmer was approached and he kindly promised to keep his eyes open for it. After eight days, a message was received and we went to collect the offending flying machine. The wings had tried to argue with the combine harvester but it was otherwise perfect. The farmer was most considerate and interested. The moral here is obvious, do not charge around on crops, but use a little tact and approach the right people. Admittedly, it was luck in this case that the harvest was so close to the loss.

Constructionally the Hawk is very simple. About two evenings are required to cut and assemble all the parts. However, if you wish to go to town, emulating one of the real 'Hawk' colour schemes this will take longer than the construction. Profile No. 45 'The Curtiss Army Hawks' or A.P.S. Plan Pack No. 2698 will give all the colour data. First model built was decorated as a PID of 43rd School Squadron, Kelly Field, Texas.

A young friend made a most pleasing version of the 'Snow Owl' P6E of the 17th Pursuit Squadron. The colours used in these cases were Humbrol gloss plastic enamels on top of two coats of clear dope.

All parts are drawn full size on the plan, a scale sketch shows how the wings and tail unit can be cut from only two sheets of 3in. x 36in. x 3/32in. balsa. Eighteen

inches of 1/4in. x 3in. balsa is sufficient for the fuselage. Other items needed are listed on the plan.

When the wing panel outlines have been shaped, the slight curve can be produced by dampening the upper surface with a moist cloth or sponge. Before this dries, cement the ribs to the underside in the positions shown on the plan. These will hold the wing section to the curve required. When all are set, sand the roots of the outer wing panels until they form the desired dihedral angles when offered up to their respective centre sections. When satisfied that all is as it should be, cement well and assemble. Reinforce these joints with cement soaked tape or bandage.

The fuselage is quite simple - cut the profile from 1/4 inch balsa sheet. Attach the pylon and insert the 5/16in. x 1/4in. hardwood engine bearers in the slots in the nose. Now the front end can be sandwiched between the 1mm. plywood doublers. Drill through for the 3/16in. diameter wing dowels. You can now add the tail unit and the wing platforms. Be very careful to mount these at the correct angles of incidence shown on the plan and, of course, make sure that the wings and tail unit are properly aligned. Add the undercarriage and bind securely in position. Rub down all surfaces with fine glass paper and apply two coats of clear dope rubbing down after each.

Enamel finish

Humbrol enamels were used on the original and these are completely fuel proof to diesel fuel, however, if, using a glow motor, add one coat of fuel proofer.

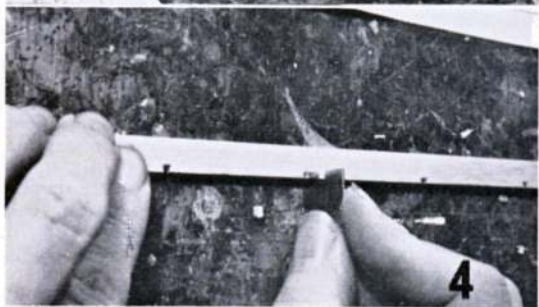
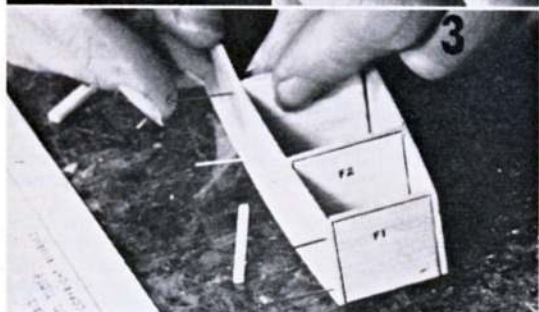
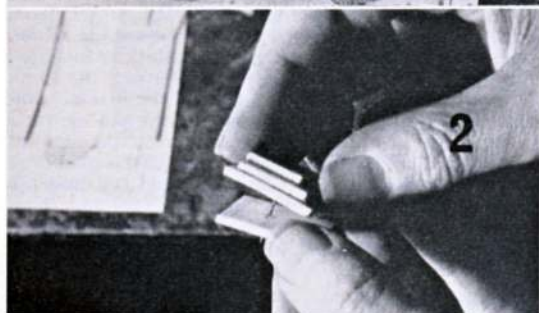
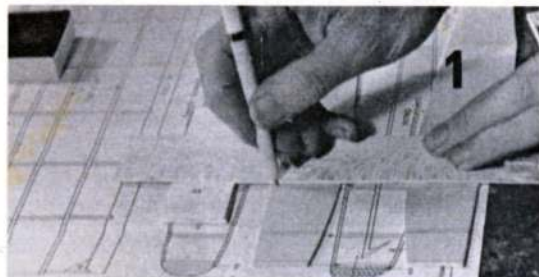
If you are using a Merlin with a plastic tank fitted, remove this, modify and mount it on the side of the fuselage just behind the motor, or fit one of the special types. The Merlin is mounted with cylinder head projecting from the port side. This is to protect the needle valve which cannot be reversed on this motor, because it is inclined.

When you attach your wings with tightly stretched rubber bands, protect the wings with a folded piece of acetate sheet where the bands touch the edges. In the event of a rough landing, tight rubber bands will break, thereby reducing the risk of a wing getting smashed. They also minimise the possibility of the wings vibrating and moving from their true position, so ensure those bands are really stretched.

Check for glide, for once it need not be said, over long grass - any reasonable surface will do if you have used your cement tube properly. Any adjustment should be made to the top wing only. Pack under the leading edge if the model dives, trailing edge if it stalls. An 8in. x 4in. nylon propeller was used on the original. Fit it back to front for initial flights. Add a dash of fuel, flick the prop, adjust settings and hand launch, straight and level. When you are happy with the test flights try the prop the correct way round and add a little more fuel for a longer power run. The designer likes about 40 seconds climb followed by a pleasant spiral glide.

Poised for action, a pair of prototype 'Hawks' await a flip of the prop before zooming up and away on yet another mission. Colourful decoration of the P6E or PID variants adds to the charm of this simple design. Both models use a D.C. Quickstart Merlin. Lighter engines may need a longer nose to achieve same balance.





Building the Performer

29 in. simple glider for the novice is a photograph of typical stage by stage. Cover subject this month

ASSEMBLY of a conventional construction tissue covered balsa framework is still very much of a mystery to many aeromodellers and it is for this reason that the *OWL* has been selected for this photo-display of stage-by-stage building. Not particularly well known as it has never been advertised the *OWL* has been distributed since last December and sells for 12/7d. It stands virtually alone as a new kit for the novice from any British Manu-

1. Lay the fuselage sides (inside upwards) each side of the side view and using a sheet of balsa, mark on the positions of all the formers.

2. Assemble the nose block by selecting the component piece N1.-N5. in the correct order, threading them on a pin and cementing together.

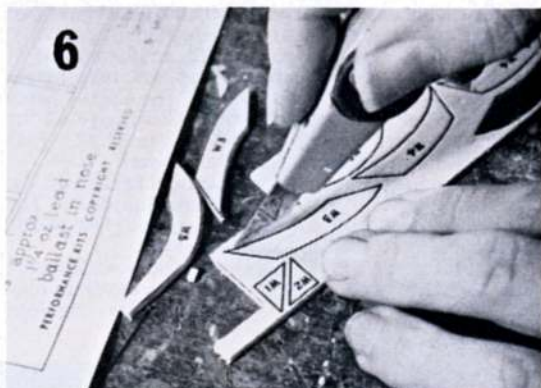
3. Cement in F.7 and F.1., add other formers all on lines marked and pin while cement sets. Cover top and bottom of the fuselage with 1/16 in. sheet.

4. Prepare the trailing edges of the wings from 1/8 in. x 3/8 in.; cut notches 1/16 in. x 1/16 in. for the wing ribs. Mark the positions from the Trailing Edge on the plan.

5. After notching, carve away the rear top surface of the strip and sand at the edge of the table with sandpaper wrapped around a wood block.

6. The correct way to cut out the wing tip parts is to work inwards from the corners. This avoids the knife running in and splitting them.

7. All the wing ribs are ready die-cut. They can be separated from the waste wood by lifting a corner and twisting them, like opening a door.



Performance Kits 'OWL'

is a useful review subject for
large model construction, also our

facturer and is a welcome example of a small glider which can be flown from a slope, or tow-launched. We found that towing was sensitive to the tail position due to the use of twin fins, and advise use of small strips under the tail to act as keys to give a positive position. Capable of excellent flights, it represents good value and is recommended for anyone seeking traditional assembly methods.

8. Use a card or scrap balsa template cut from the copy of the plan to ensure the root ribs are all at the correct angle for the dihedral. After cementing the ribs to the bottom spar, leading and trailing edges, add the top spars which are cracked down and chamfered at the tips.

9. With the wing tips propped up 2.1 in., cement in the centre section, carefully match up the leading and trailing edges. Hold with clothes pegs.

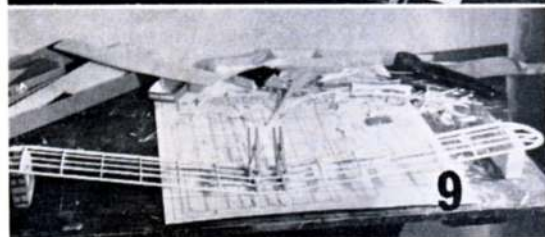
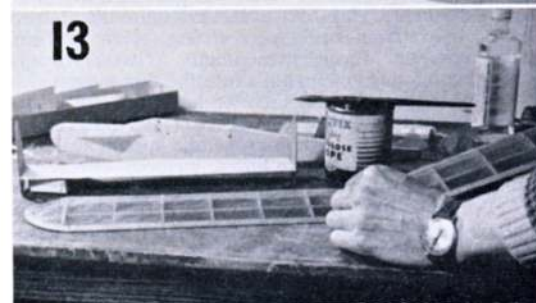
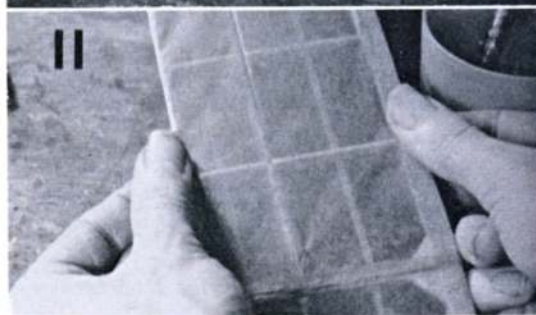
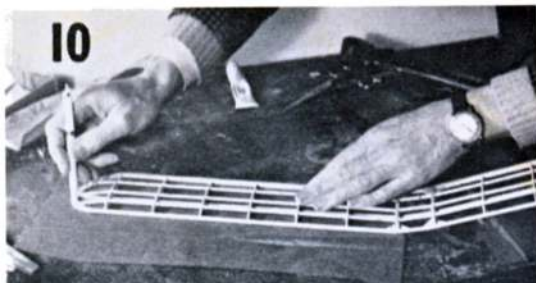
10. Draw round the wing on to the tissue for the bottom covering. Allow an extra 1/4 in. for the top covering piece to allow for the camber.

11. Applying the bottom covering. Frame is pasted with tissue paste or thick Polycel. Wrinkles are pulled out by an outward movement of thumbs.

12. The top is now covered and the excess tissue trimmed away on the underside with a sharp pair of scissors. The remaining flap is pasted down. An overlap of 1/4 in. is left at the wingtips, this is notched to facilitate folding over. Separate covering to top tip bays is recommended.

13. When the wing has been water-sprayed and dried naturally, it is doped and pinned down flat when touch dry. Dope each wing half separately.

14. Ready to fly (as the cover). Ensure that the tailplane is keyed to the fuselage to avoid it going askew.





Transparent Melinex covering on this contest model by Bill Houghton does not exactly aid visibility though sun reflection from the exceptionally smooth surface is considerable. See a glider tail at right, with rigid structure to preserve shape.

THE POSSIBILITY of using thin plastic films as covering materials for model airframes has always been attractive since this would produce a 'permanent' finish without the subsequent need for doping. However, until comparatively recently the only suitable material of this type worth considering was cellophane (cellulose acetate film), which had distinct limitations for such an application - particularly in getting it tight and wrinkle-free to start with, and the fact that cellulose acetate has a high coefficient of thermal expansion so that it tends to contract or expand appreciably with changes in temperature. As a consequence, cellulose acetate film was never seriously considered as a covering material.

About ten years ago Imperial Chemical Industries Ltd. produced a new type of polyester film (chemical name polyethylene terephthalate) which was marketed under the name 'Melinex'. This film possessed quite unique properties, apart from being very strong, given by being 'plane oriented' during manufacture. That is to say, in the second stage of manufacture the film is heated to above 80 degrees C. and then stretched equally in two directions at right angles. The effect of this is to remove any brittleness and also improve the mechanical properties, as well as giving the film a 'memory' effect. As a result of this latter characteristic, if the film is subsequently re-heated to some temperature higher than 80 degrees C. it will tend to revert to its original size, *i.e.* it will contract considerably if free to do so. There is also one further effect. If the film is re-heated to about 200 degrees C., not only will it contract but the film itself



Plastic Covering Materials



continuation of our
series of features on

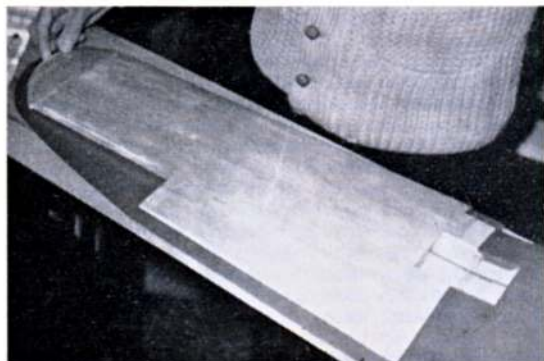
Basic Aeromodelling

will undergo a change in composition that makes it stable dimensionally, so that having contracted it will *stay* contracted.

Here, indeed, was a very attractive covering material. Its very high strength of 25,000 pounds per square inch meant that a very thin, and thus light, film could be used. Once attached to the airframe it was only necessary to heat the film to a moderate temperature for it to contract into a taut covering, which would then *stay* taut. There was just one major snag. 'Melinex' proved a very difficult material to stick to anything, so it was tricky to attach to an airframe in the first place. Nevertheless there were suitable adhesives - 'Evo-Stik' being one.

The first known application of 'Melinex' as a covering material was on the 'Puffin' man-powered aircraft built by the Hatfield group of the (then) de Havilland Aircraft Company; Subsequently it was tried by aeromodellers on a limited, and largely experimental basis, notably by Jim McCann in 1962-3. Sticking the film in place was one problem. The fact that it was only available as a transparent film was another limitation (not every aeromodeller wants his finished model to look like a skeleton!). Also, despite its high strength the film was

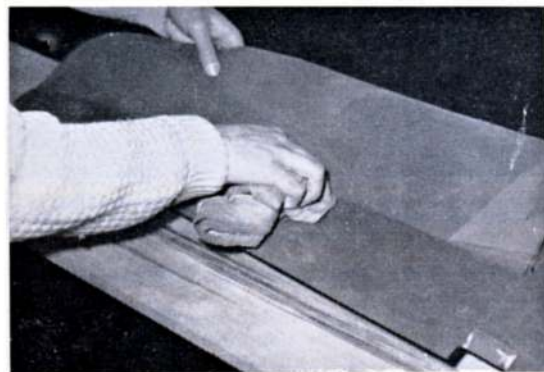
Graupner Polyester film being examined at the Nurnberg Fair were translucent as well as bright new 'solid' colours were exhibited and available for finger-pressure tests. Translucent red film tends to look rather 'sweet-wrapper-ish', actually the original purpose for British Melinex.



Covering a wing starts with planning the cutting of shapes from the film in the most economic manner. Here one half wing is covered and the second half is being cut with a generous lap. Easy method is to use a shop modelling knife through film, onto the building board.

relatively elastic, and lightweight model structures rely very much on covering being inelastic, or staying 'drum tight', to give wings, tail surfaces and fuselages rigidity. Thus whilst 'Melinex' offered the possibility of covering, say, a Wakefield model with less weight addition than doped tissue, and greater covering strength as regards puncture resistance or tearing than tissue, a 'Melinex' covered wing or fuselage was no more resistant to twisting than the uncovered frame.

Nevertheless, the idea of using a thin but very strong polyester film as a covering material obviously has considerable possibilities. The basically elastic nature of the



The film panel is being worked onto the sheet surface of the wing in this case a 'De Night Special' pylon racer, and the adhesive backing is smoothed down using a soft duster to discourage blisters. On any open framework the film is applied to all outer edges first, as light as possible.

material could be overcome by (i) using it as a covering only on sufficiently rigid structures, such as a geodetically braced wing or fuselage, or a typical power model wing with sheet covering top and bottom back to the mainspar; or (ii) applying the covering over a tautened tissue covering. In the former case it would be used as a 'pre-finished' covering material. In the latter case it would be used as a 'finish' with a high gloss surface. It had advantages to justify the latter use - high gloss, durability, complete 'weatherproofing', and resistance to model engine fuels.

Two further stages of development were necessary before polyester film became a suitable, and widely acceptable, covering material. The first, and main

problem, was to solve the question of difficulty of sticking the film to an airframe. This was overcome by finding an adhesive which could be applied to one side of the film as a coating which could then be activated by moderate heat to produce a permanent bond. Basically one then had the equivalent of a sheet of 'Scotch tape' with a slightly tacky surface on one side which could be protected by a sheet of backing paper. After being cut to size, the backing paper could be peeled off and the film laid in place, adhesive side down, the tackiness being sufficient to locate it in place. Once positioned, it could then be permanently bonded to the airframe by moderate heat - the most convenient source of heat being a small domestic electric iron, set to an appropriate temperature. By ironing around the edges first the cover-



Peeling the paper backing piece from the panel. Some modellers prefer to do this in stages as the panel is adhered to the framework. Our preference is to take all the paper off.

ing was properly stuck in place, after which it could be ironed overall to draw the covering taut.

The second problem was to provide coloured film rather than a transparent film. Rather than try to colour the film itself, it was found that the best solution was to apply a colour to the back of the film, followed by the adhesive coating, giving in effect a three-layer film. This answered all the main problems, but put up the cost of producing the film.

This was the basis of 'Monokote', developed by

The iron is set for 'Rayon' or 'Wool' and held over the film to transfer heat and so shrink the film taut over the wing. Blisters and wrinkles disappear and the final touch of the iron on the surface (lightly mind!) sets the heat sensitive adhesive on the sheet surfaces.



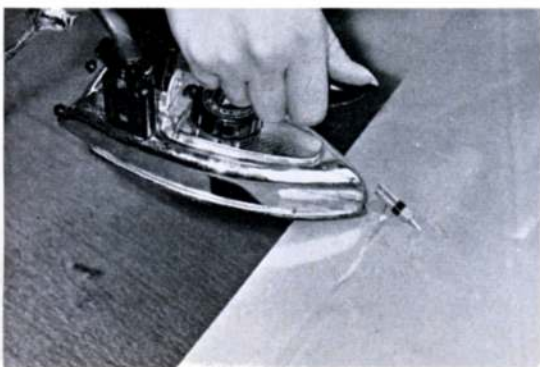


Sealing the edge is accomplished by 'rolling' the iron over the trimmed overlap edge of the film. Use a light-weight travelling iron to avoid building up extra arm muscles on one side only and be careful not to melt the film with prolonged contact.

TopFlite in America, and the first of the modern plastic covering materials to appear. The film itself was relatively thick, with a weight of the order of $\frac{1}{2}$ ounce per square foot (differing slightly with different colours), but a tensile strength of the order of 29,000 pounds per square inch which made it virtually tearproof and 'crashproof'. Its main – and intended – application was for covering radio control and control line model wings, fuselages and tail surfaces, or similar rigid airframes. Where a wing frame lacked sufficient rigidity on its own it could be tissue covered first – the film adhering equally well to tautened tissue. It could also equally well be applied over 'solid' or sheet covered surfaces, the only proviso being that the base surface should be perfectly smooth and clean (as otherwise irregularities would show through), and that the mouldability of the film to accommodate compound curves was somewhat limited. The latter, however, was largely a matter of technique.

Subsequently a number of other polyester films of similar type have been marketed – notably *Solarfilm* in this country, *Graupner Polyester-Bespannfolie* in Germany, *Sterling Cover-Rite* in the U.S.A., and a thinner *Super Monokote* with improved mouldability and edge-durability by **TopFlite**, U.S.A. (with standard Monokote also remaining in production). All these films are of the three-layer type (film-colour-adhesive), although at least one manufacturer is currently introducing transparent film (film-adhesive layers only).

The principle advantage offered by all these films is a



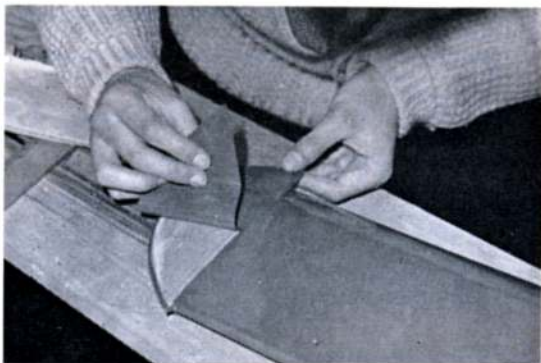
considerably saving in time in covering and finishing a model – a high gloss fuelproof colour finish being obtained simply by application of the covering material over a suitably prepared airframe.

Preparation, basically, merely requires that all the surfaces on which the film will rest, and subsequently adhere to, are sanded smooth. Sanding sealer is not required. A pre-covering of tissue over open areas (e.g. on wing panels), which is subsequently water-shrunk only will generally improve stiffness and give a better finish with less sag, but is not essential unless the frame lacks reasonable rigidity. Some of the films are more rigid than others in the degree of final 'stiffness' they impart to less rigid frames – *Super Monokote* being somewhat better than *Standard Monokote* in this respect, for instance. Some films are also more mouldable to deal with compound curves – e.g. *Solarfilm* and *Super Monokote* are generally superior in this respect.

Technique of covering

The technique required in applying film covering is quite different from ordinary covering and is basically the same for all films supplied with adhesive backing. The sequence of operations required is:-

1. Sand all framework surfaces perfectly smooth,



Tip areas are sometimes best applied as separate pieces as in this instance. The join line is hard to detect once the surface has been ironed down.

filling in any gaps, as necessary, as otherwise these will show through.

2. Dust off the framework thoroughly as this will spoil the smooth finish if trapped under the film.

3. Mark out and cut the film to a suitable size to cover the area concerned. Here individual techniques can differ. Ideally the film should be cut to *exact* size, allowing for a slight overlap around the edges. This will obviate any need for trimming off surplus covering. The required outline should then be cut with a razor blade or modelling knife for a 'true' edge, rather than using scissors. However, some modellers find it easier to cut an oversize panel and trim when in situ.

Marking to shape and cutting out should be done before removing the backing sheet from the film. If the outline is to be drawn on the film, use a Chinagraph pencil.

4. Peel off the backing piece and lay the film in place, properly positioned. Here again individual techniques may differ. Some people find it easier to peel off the whole of the backing paper and lay the film in place.

Difficult areas around control rods or ailerons are dealt with in stages and the same material is used for hinging control surfaces in many cases, preferably with a double layer for added strength.

Others find it best to peel back the backing from the one edge only, seal down this edge with an iron, then continue to pull off the backing, pressing the film in place and sealing the edges with the iron. (The latter technique is recommended with Solarfilm which has a thin plastic backing sheet.)

5. For sealing the iron should be set to 'Rayon' or 'Wool' temperature and left for a sufficient time to warm up. Sealing is accomplished by applying light pressure with the iron on top of the film, and gently ironing along the length of the seal, using the toe of the iron. The surface of the iron must be clean.

Avoid excessive pressure as this may well part the film from the colour backing, producing clear streaks. Also with light pressure it is easier to smooth, and eliminate wrinkles.

Avoid excessive iron heat as this can melt the film and damage it. The heat required varies with different films, so follow the manufacturers recommendations. Surplus adhesive or colour which is squeezed out beyond the edge of the film can be removed with acetone, or dope thinners. This should always be done before applying the second covering sheet which has to overlap the first slightly to hide the joint line and produce a fuelproof



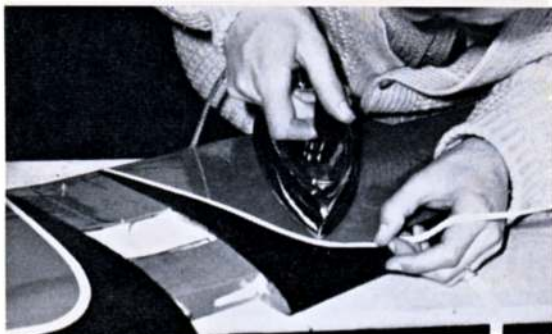
Working around a compound curve of a wingtip demands a little patience. It is surprising how the film will adopt two-way curves though sometimes it is necessary to cut and overlap strips on sharply-curved tips.

joint. Again surplus adhesive or colour can be removed with solvent.

6. Once the film has been stuck down to all edges it can be tautened by passing the iron to and fro just above the surface. It may be necessary to turn the iron heat up slightly for best results. After it has been properly shrunk the film can then be ironed down onto solid surfaces, such as sheet covering, to ensure full adhesion to these surfaces. Iron carefully to avoid wrinkles. Small wrinkles can usually be ironed out. Bad wrinkles may have to be pricked with a pin and then ironed down flat. The usual cause of wrinkles - and thus the thing to avoid in laying the covering in place - is trapped air causing air bubbles. If necessary, relieve air bubbles with a pin prick.

7. To cover compound curves, the film is first ironed around the edges to stick in place, at the same time pulling the film as tight as possible round the curve. Then 'mould' the film in place, working along a narrow strip at a time, using very light ironing pressure. The technique may have to be varied slightly, depending on the nature of the compound curve and the type of film. In some cases it may be necessary to slit and overlap the film to complete a smooth covering without wrinkles.

As with all practical work, it needs practice to make a perfect job. The main thing is to learn from mistakes -



Trim decoration is both simple and effective, it also adds strength. Here a leading edge contrast colour has been laid over the normal covering, and now a narrow trimming strip of neutral colour is being applied in a curve to separate. The result is permanent, fuel proof and neat.

work out what you did wrong if the job is not as good as it should be, and avoid that error next time. If necessary practice on a dummy shape first to find the best way to go about it, particularly if you are tackling a compound curve like a wing tip for the first time.

Although plastic films are relatively expensive covering materials, the total cost compared with conventional nylon covering followed by dope finishing is generally favourable, and the overall appearance of the finished job generally far superior. Weight also generally works out very favourably compared with colour doped silk or nylon covering. Modern plastic film coverings are therefore very attractive for finishing all types of models with fairly ruggedly constructed airframes. The fact that the film will adhere to itself when ironed in place also makes the addition of trim strips, lettering, etc. cut from film easy to apply. These can be positioned by moistening the adhesive side of the film with detergent solution or alcohol to make the adhesive tacky and then iron in place using a low heat setting on the iron.

'MELINEX' FILM

Available thicknesses: .00025in. to .005in.

Recommended thicknesses for model covering: .00025in. and .0005in.

Suitable adhesives: Evostik
Titebond 22 or 24
Bostik 1320, 1767, 1768 or 1775
Pliobond 20 or 30
Texicryl A950
Texilac 173

Trade names in other countries:

USA - 'Mylar'
France - 'Terphane'
Germany - 'Hostaphan'
Italy - 'Montivel'
Japan - 'Tetron' and 'Diafoil'

MONOKOTE	TopFlite, USA	distributed by Ripmax Ltd.
SUPER MONOKOTE	TopFlite, USA	distributed by Ripmax Ltd. and E. Keil & Co. Ltd.
SOLARFILM	Solarfilm, G.B.	
GRAUPNER	Johannes Graupner,	not available in UK
POLYESTER		
COVER-RITE	Sterling Models, USA	not yet available in UK



FREE FLIGHT COMMENT

By John O'Donnell

Seen at the Woking Easter Gala, left, Miss Meg Field holds Brian Hobby's (appropriate name!) new, and still being tested, F.A.I. power model. Right, Mike Fantham's A/2 launched by helper. Same model won both Open and A/2.



THE F/F CONTEST season is usually considered to commence with the first **S.M.A.E. area-centralised event** – usually held at the end of March. This is hardly a propitious time as 'March winds' have blown out these contests on several previous occasions. This year the weather was critical in a different way as it varied considerably throughout the country. The North had the best of it, with relatively good weather on both sides of the Penines. On the other hand, conditions were very windy in the South – with reports of visibility and fuse-settings of less than three minutes.

This is readily confirmed by inspection of the results. The top dozen A/2 places, and the top six or so in both open rubber and power, were taken by fliers at the Northern, N.W., and N.E. venues. From the flyoff scores there seemed little to choose between Elvington and Chetwynd, although the latter appeared to have had the better afternoon.

Birmingham rubber specialists Dave Greaves and Mike Dixon flew with the N.W. to take first and third in the A/2 event for the K.M.A.A. Cup. I came in between with my usual fishing-rod A/2 – now in its **sixth** contest season – flying at Elvington.

The **rubber** flyoff was topped by John Pool despite under D/T'ing his inappropriately christened 'Expendible' in the vain hope of keeping it out of the downwind pine-woods. Jack Kay managed second by dint of launching his hastily (and only partially) wound model underneath a flock of thermaling birds! His very straight-forward model seemed to owe much to Gerry Tidswell influence. Alan Nobbs was third with a *free-wheel* model – just a few seconds ahead of N.W. flier Brian Picken who went O.O.S. well under his airborne duration.

Russell Peers had a convincing lead in the **Frog Senior** flyoff with his E.T.A.29 lightweight (complete with flood off, a/r and V.I.T.) over Brian Hooley's G15 F.A.I. model. Roger Baggott placed third despite a *very* premature D/T that robbed him of a max.

In the light of the above it is little surprise that the top **Plugge** positions are filled (so far) by Northern Clubs. Perhaps this might generate some *real* interest and participation in the National Club Championship – the time for such is certainly long overdue!

Whitefield's experimental **f/f knockout competition** was held the following Sunday, 30 March 69, at Chetwynd. As I have already covered (in the March *Aeromodeller*) the basic reasons behind this concept, I will not reiterate them here. Suffice it to say that the idea is for contestants to fly near enough simultaneously in pairs, and for the winner to proceed to the next round – just as in certain C/L events.

The knock-out idea had been expected to need much more organisation than is nowadays considered necessary for normal f/f events – and this had been provided. The route to the field was signposted, there were duplicated rule-handouts to all entrants, a p/a system and pre-engraved plaques as prizes. In short it was intended to be a meeting worth running and attending.

In these circumstances it was especially unfortunate that the weather severely curtailed both attendance and participation. The morning was cold, wet and windy – and although there was bright sun in the afternoon there was still considerable drift. With only a handful of entrants forthcoming at the announced (and extended) time for the 'draw', my club almost *had* to fly in order to provide some measure of competition – even though such participation had not

been envisaged had the entry been up to our hopes – if perhaps not our expectations.

As it was, Mike Reeves found it was a full day's hard work being in charge of the events. There was no question of merely taking entries and recording occasional scores. Decisions were constantly needed regarding the timing of rounds, setting of maxs, interpretation of rules and the like. With the small entry it was necessary to have gaps between rounds to allow participants to return with their models. (This situation will inevitably apply at the *end* of any knockout contest even if a large entry enables the early rounds to be run continuously). Matters were complicated by some competitors flying in more than one category.

Glider was the only contest with sufficient participants to give a real test of the knock-out system, rules and procedures. An entry of fifteen implied four rounds. The initial round revealed that the prescribed 10 second period in which to commence towing was much too short in the prevailing windy and gusty conditions, and it was lengthened to 30 seconds for the rest of the contest. A surprising number of 'attempts' were registered in the first round – and only one out of the five people involved was in a position to try again.

I found the only thermal in the first round – but lift was more plentiful thereafter. The second round was notable for Russell Peers' double max – the first being disallowed through the towline breaking. As the pin actuating both autorudder and D/T timer did not release, he was lucky that the model came down. His second attempt, with reserve model, took longer to come down on D/T than it did to go up – and caused retriever Dennis Allman to forfeit his own chances in the following round.

I also missed the third round whilst retrieving my power model – and came back to find that the surviving pair were my club members Pete Oliver and Alan Moss. The fourth round saw *both* find their *own* lift, max, and hence need another round. This was rather an anticlimax as gusts gave both trouble on tow with Pete recording a 45 second flight, and Alan an 'attempt' on *two* counts (broken line and under 20 seconds). As they had agreed on a high max so as to obtain a decision this really entitled Alan to a second attempt which *if* he *max'd* would have meant *another* round. He decided to take second place without further flights! Both models had fishing rod fuselages, Pete's having 'Sans Egal' surfaces and Alan's very simple squared-off wings and tail.

Third in glider was a problem. There were three 'losers' from the third round – Russell Peers who had flown but lost, and Dennis Allman and I who were downwind when we *should* have flown. After *much* discussion it was decided that it didn't matter *how* one lost – and a flight to settle third place was required. I found lift, Russell didn't, and Dennis had trouble on tow.

The other events were much simpler affairs. **Rubber** had only three entrants so all flew together. I allowed plenty of time to wind and was able to launch at leisure. Russell Peers underestimated his winding time, had to cut his turns, and even so only got away just in time. Ted Prince made the same error but more so and incurred a substantial penalty with launching about a minute late. It didn't matter as he did 2:41 whilst Russell and I *max'd*. A farm worker picked up *both* my and Ted's models and hardly improved them.

The next round saw Russell's model (a very simple, square,

'throwaway' design appropriately entitled *Big Ugly* manage 3:55 to my 2:35 with my old Wakefield (on 2½ oz. rubber).

Power was a one flight contest. There were four entrants of which one withdrew to leave the others to flyoff together. Fred Chilton (the only Southern participant) was first away with his G15 *Dixielander* but had a rough engine run. Brian Hooley followed with a F.A.I. model, complete with G15 and pipe. The O.S.35 in my open model gave me a little trouble – and I launched about 10-15 seconds late. This didn't matter as I found by far the best air, and eventually D/T'd well over the max.

Obviously my club were disappointed with some aspects of the contest. We had hoped for *much more* interest and participation. We were unlucky with the weather, but even so we learnt a great deal. It was *expected* that difficulties and 'loose ends' would be found in the rules – and that a certain amount of 'ad-lib' improvisation would be necessary. There was a definite tendency for both contestants and organisers to apply, almost unconsciously, 'normal' contest ideas and precedent – when such did not follow logically. This extended from enquiries as to 'how many flights?' (which obviously depends on the entry) down to the trouble in resolving third place in glider.

Criticism has been made on the grounds that half the entry will only get one flight. This is only a half-truth in that a max flight will *always* get the flier through to the next round, and a poor flight might well! Compare this with the present contest situation where a sub-max flight in reasonable weather effectively ends the contestant's chances.

For others who desire to try knock-out contests a few pointers might assist. An appropriate set of rules is obviously required, and a set of ours (suitably amended) can be supplied by my club. A *full-time* contest organiser is essential, as is a *full-time* assistant to marshal timekeepers etc. Some sort of loud-speaker system is needed if the officials are to retain control of the contest. Merely conducting a draw, and leaving the resultant pairs to fly together more or less as and when they like is inadequate. In short the knock-out concept requires *organisation*, and this *must* be appreciated.

On the other hand there are advantages. It makes a very interesting contest and effectively overcomes many of the drawbacks of the current approach. Whitefield has no doubts that it was an experiment worth conducting *and* worth repeating.

WHITEFIELD f/f KNOCKOUT GALA Chetwynd 30th March 1969

Glider. 1. P. Oliver (Whitefield), 2. A. Moss (Whitefield), 3. J. O'Donnell (Whitefield). Detailed scores not available.
Rubber. 1. R. Peers (Congleton) 3:00 & 3:55, 2. J. O'Donnell (Whitefield) 3:00 & 2:35, 3. E. Prince (Congleton) 2:41 (less penalty).
Power. 1. J. O'Donnell (Whitefield) 3:00, 2. B. Hooley (Whitefield) 2:16, 3. F. Chilton (Crookham) 1:03.

The Easter weekend offered a choice in modelling attractions – except in the North-West where it had been decided not to run the once traditional Two-Day Easter Meeting at Tern Hill.

I went to Chobham for the **Woking Easter Gala**, run to all intents and purposes by John Lorimer. Progress of the events could be followed by a good scoreboard (thanks to cards being called in after each flight). One innovation was the chance to enter all events by purchase of a 'contestant's licence' I think I was the only one to do so. Otherwise it was a typical Chobham Gala.

Sunday was very windy, and entries were low in consequence. Even a 2:15 max proved little incentive. Typically Russell Peers was first to fly with a model he likes to call an *Urchin*. This is old and is reserved for such occasions! It proved ideal in making four flights of 1-2 minutes and surviving. He was lucky in that George Welsh lost the propeller assembly off his model through landing in a tree – and had the contest close whilst his reserve model. Bill Houghton was third with a 'Melinex' covered model that survived some nasty crashes into the gorse bushes. I had a bad day with an unrepairable model after a single max, recovered from 2½ miles downwind after a compass-guided trek through a large thick wood!

Coupe d'Hiver was hard fought in comparison. John Blount won after borrowing motors from John Mabey. Dave Tipper made two of his flights very late.

Open glider started very well with the first three flights (by Mike Fantham, Martin Dilly and Ken Smith) all being 2:15 maxs. Only Ken managed a second, but lost his old A/1 in the process. This enabled Mike to 'play it clever' and win without a fourth flight. Scores were very close as a glance at the results will show. In contrast A/1 was won on a single max by Julian Hopper, despite Mike Coomes struggling valiantly with tow troubles.

Power was very poorly supported. I provided one of the two crashes, leaving my clubmates Alan Moss and Terry Toolan to record the only scores. Ironically their models, although damaged,

were repaired for the following day – and then both lost on D/T failures. No-one entered, never mind flew, in **A**.

Monday was marvellous in comparison – or even objectively. Events scheduled were the three F.A.I. categories – flown to seven flights in one hour rounds. It was bright and sunny all day, with an initial gentle breeze that never became really strong. Mid afternoon flights went well across the common largely due to the time taken to come down on D/T through strong thermals.

A/2 was obviously going to be a hard fought event. There were maxs aplenty, especially from the Croydon contingent who had taken themselves off to one side and where Jack North was using a thermister to great effect. Even Tony Young was taking note and said it was 100 per cent reliable for his first five flights. Something seemed to upset the apple cart thereafter, as all but Martin Dilly dropped flights. The only other perfect score was recorded by Mike Fantham who was tactical flying in a different place. The eventual flyoff saw Mike's conventional (even a balsa fuselage) model work its way into a thermal for an easy 4 minute max; whilst Martin, flying well crosswind as he had all day, found nothing helpful at all.

Wakefield was hardly a fight as the rest of the entry did not fly tactically. I did, and dropped only a few seconds on one flight – using the older (1963) of the two models I have flown for some years. Laurie Burrows was second and Andy Crisp third, (despite his competing also in A/2 and making all 14 flights!) The other two 1969 Wakefield Team members retired partway through their flights – Bob Wells being especially unlucky in losing a model on D/T. It was last seen at around 10 minutes at a fantastic height.

F.A.I. Power was almost a flyover for John West with his latest (new for the Trials) model complete with Miebach motor, pipe etc. He is still using wooden props (7½x3½ Super Record) however. Second place went to Pete Buskell despite missing the first round with a late arrival, and stalling down on his last flight.

Woking Easter Gala 1969

Sunday 6th April 1969

Chobham Common

Open Rubber: 1. R. Peers (Congleton) 5:51, 2. G. Welsh 3:58, 3. W. Houghton 3:20 4. J. O'Donnell (Whitefield) 2:15. **Open Power** 1. A. Moss (Whitefield) 2:15, 2. T. Toolan (Whitefield) 0:50. **Open Glider** 1. M. Fantham (Richmond) 4:59, 2. A. Child (Brighton) 4:50 3. M. Dilly (Croydon) 4:47, 4. K. Smith (Croydon) 4:30. **Coupe d'Hiver** 1. J. Blount (Croydon) 5:03, 2. D. Tipper (St. Albans) 4:37, 3. J. Allen, (Brighton) 2:56, 4. J. Mabey (Croydon) 1:02. **A/1 Glider** 1. J. Hopper (Stanstead) 2:15, 2. M. Coomes (E. Grinstead) 1:24, 3. R. Kenward (Croydon) 1:22.

Monday 7th April 1969

Wakefield (9 entries) 1. J. O'Donnell (Whitefield) 20:54, 2. L. Burrows (Blackheath) 17:44, 3. A. Crisp (F.A.C.C.T.) 16:26. **F.A.I. Power** (5 entries) 1. J. West (Brighton) 18:38, 2. P. Buskell (Surbiton) 13:50, 3. J. Allen (Brighton) 11:15. **A/2 Glider** 1. M. Fantham (Richmond) 21:00 + 4:00, 2. M. Dilly (Croydon) 21:00 + 1:00, 3. K. Smith (Croydon) 19:50, 4. J. Mabey (Croydon) 19:37.

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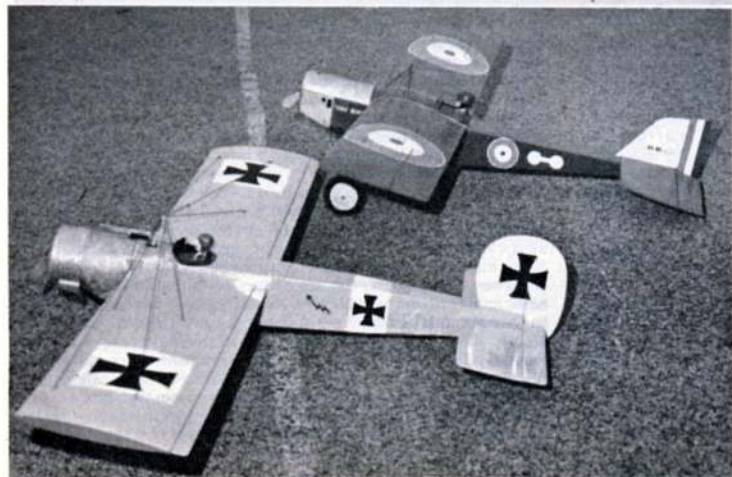
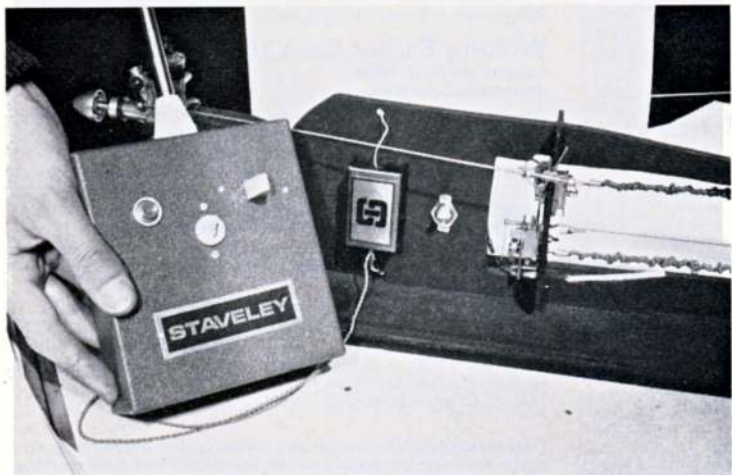
One very noticeable feature of all three of the contests reported above has been the amount of engine running done on the field. Most of this has been done by F.A.I. power exponents, who seem more than adequately equipped with special motors, tuned pipes and the like. Flying this machinery is a different tale however, and I am rapidly becoming convinced that the F.A.I. power model has *ceased* to be a model for normal weather and contests.

The F.A.I. power model is now too expensive (both in time and money) to be risked except on special occasions – but has become a prestige symbol, especially if unsullied by actual competition. This is a most undesirable situation and is a direct product of the present rules. With a limit on engine size, and weight and size requirements for the model, performance clearly depends on engine power. This implies a .15 that gives the output of a .29 or .35 – but at several times the price and trouble. What a pity we can not take the accent off the engineering (C/L speed is the event for this) and put it back on the model.

As has already been reported editorially the Americans seem to have appreciated something of this problem – as they have just banned the use of tuned pipes for non F.A.I. f/f 'gas' events. The biggest effect this is likely to have is to prevent the use of F.A.I. models in their class 'A' events. I cannot see the merits of using a pipe for open. It is much simpler, easier and, to me, more efficient to fit a larger engine. Conversely, if, designing from scratch, make a smaller model! It is quite easy with modern glow motors to produce an open model so highly powered that power trimming and *consistency* is the problem. The limit seems to be what one is prepared to try to trim!



WEYBRIDGE R/C SYMPOSIUM



THE 3rd Weybridge R/C Symposium organised by Esher M.F.C. took place, as in previous years, at Brooklands Technical College, April 11th, 12th and 13th.

Though some names in the Hobby industry were absent this year, displays were as interesting and varied as ever. For instance, three manufacturer/distributors are now offering R/C cars, Flight Link Controls offering the American Ra/Car two-speed gearbox, automatic clutch car, Skyleader Radio Controls with their own car which also has a two-speed box, and Mainstream Productions who intend to offer the German Simprop car which features a single gear speed and brakes.

Main emphasis was however, in aircraft models and equipment, and one of the most interesting pieces of new equipment shown was certainly Staveley Control's new single-channel superhet system. This features a compact receiver and small size transmitter which incorporates their 'tone lock' think-box coder to sort out the press-and-hold or press-release, press-and-hold left and right signals keyed from a single lever. There is also a very positive quick blip signal command which operates perfectly however long or short the signal.

Also new at the show was Flight Link Controls' latest lightweight five-function proportional system. Flight Link have re-vamped their airborne package with smaller Rx. and servos, yet still retaining the Flight Link feature of servo amplifiers inside the Rx. case, which makes acquisition of an extra set of servos a relatively inexpensive proposition.

For R/C enthusiasts who go in for the less expensive pulse proportional systems Derek Olley of Fleet Control Systems showed his new *Duolog* dual proportional system with new miniature superhet receiver and new two-in-one twin motor Duolog actuator which provides pulse proportional for rudder and elevator control, plus positionable throttle command.

Roy Scott of Micro-Mold Plastics breaks into the R/C kit market with two small sportsters, the high wing 'Planet' and shoulder wing 'Nipper', each designed by David Boddington and both featuring one piece, ready to use moulded foam wings. These should be popular as will be the 'Merlin' soaring glider which Micro Mold will be offering in conjunction with Avoncraft.



Top left: the R.C.M.&E. Stand. Centre left: the new Staveley single-channel system with superhet receiver and 'think box' transmitter. Bottom left: Semi-scale Eindecker by Ron Ward and 'Old Bill' by David Boddington. W.W.I. combat pair, both to appear in R.C.M.&E. Above: Fritz Bosch preparing R/C speed model.



Above: Dave Handley of Staveley Control preparing Staveley two-function-equipped 20-inch 'Sharkface' for flight. Terrific performance

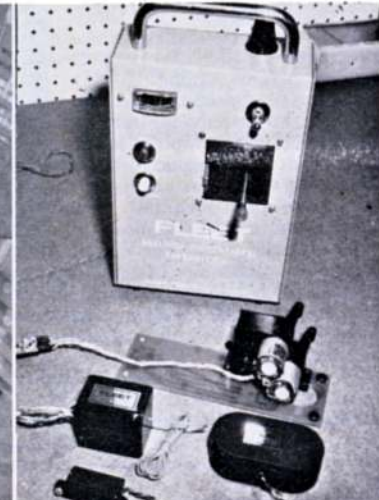


Above: another Fritz Bosch demonstration machine, this time a flying toilet door!

The prize for sheer spectacle must certainly go to Fritz Bosch and Werner Käseberg who came over from Germany to demonstrate Simprop R/C gear for British distributors of Mainstream Productions. Both Fritz and Werner had fantastically fast R/C speed models and just to prove that anything will fly, Fritz brought along his flying door, with appropriate insignia to identify from whence it had come, *Ladys only* indeed!



Above: amazingly positive and effective retracting undercarriage unit by Micro-Mold Accessories is servo-operated. Below right: Micro-Mold also do cockpit canopy and top deck for Aeromodeller Oct. 1968 Beagle Pup.



Above: new Fleet Duolog dual proportional system with all new twin-motor actuator and small size superhet receiver, reduces cost of dual proportional pulse control.

Below: new, almost-ready-to-fly soarer by Avoncraft and Micro-Mold. Vacuum-formed fuselage and foam wings. Named Merlin, offers choice of 96-inch or 72-inch span wing.



topical twists

by 'Pylonius':
illustrated by 'Sherry'

'Looks like good-
night for the Red
Knight!'



Foreign Report

In spite of all the jet age razzmatazz and the whizz kid electronic stuff we hear so much about, we modellers in the old country still think and move at a mere horse and buggy jogtrot. This shows up in the sobersides way we write up our derring do on the flying field; something on the lines of a church mag report on a Sunday School outing.

But go transatlantic and the reportage is real fiery six stage, all systems go treatment. In fact, many of the punchy, all action reports never get as far as the flying field. What you imagine to be the description of a hectic days flying turns out to be just a warming up commentary on the pre-comp breakfast. Usually though, the typical report is more on these lines:

'Chuck and I got the wagon rolling real early. We needed to churn up two hundred miles of Arkansas dust to catch the big meet on Acupuncture Field. I'd been up all night doing a recover job on my Scorpio Snarlbomb. It was still dripping dope as we stacked it into the trailer.

'On the way we picked up Herb and Cher, leading lights of the San Fermento Cloud Blasters. Hadn't teamed up with them since the Nats, and got one hell of a surprise at the site of the twins waving out of the trailer window. Guess he never did get that Wizard 350 off the stocks.

'We hit the field two hours after sun up, and already the Val Derma boys were pitching in with the big stuff. We unshipped our tentage but hit trouble with the workshop extension. Chuck made first with his souped up Hellclimber. He had it all the way on that zooming climb but didn't make the hot broth. Meantime Herb was staking out a sizzly patch with his old, but potent, Skyblaster II. Sure enough he hooked a fat one and was last seen hotfooting it for the horizon. Time it came my turn I was in a hell of a sweat. Tough going, these Coupe D'Hiver Meets.'

Local Radio

What is so miraculous about those Sunday morning Radio get-togethers is not so much the wonder of Radio Control, but the uncanny telepathy by which the assortment of flyers regulate their activities. Now, with some twenty crackling transmitters knocking around you would think that some sort of highly disciplined control would be called for. But not a bit of it. Without so much as a look at the confusion around, a veteran of three flights nonchalantly heaves his crate skywards. It misses by inches a screaming Bazz Bomb. Calamity, you shout, but, like the flyers you, like they, are just not on

the right wavelength, although, telepathy wise, the boyo's are tuned to a hair. Which is just as well, because they are able to help each other out on those very dicey escapement slips. In fact, they have developed the mutual help, alternating blip system to such a degree that four models can be flown at one and the same time. This has come to be known as the poor man's superhet. Thus when you hear a multi man speaking joyfully of his Single days you know what he means.

Radio, of course, is a great fly-for-fun movement - though often at the expense of other people's fun. But this fly-for-fun obsession has some people in the movement worried. Why, they ask, is the average radio flyer such a reluctant contest goer. You could answer that he doesn't stay in the hobby long enough to get as far as a model meeting, and that if they knew the average radio flyer in his wild, homespun state, they'd be only too happy to leave him there.

Personally, I think that contest judges would be much disconcerted by a local radio phenomenon known as Inbuilt Waffle. This factor makes it almost impossible to determine whether the manoeuvre you have just witnessed was a purposeful piece of manipulation or just a desperate attempt to keep the model under control. Sometimes the inbuilt waffle is of such magnificent proportions that the model goes through the schedule in a completely unbuttoned state. And you could well imagine the embarrassment of the judge when he learns that the modeller to whom he gave top points never even got his radio working.

Warped Outlook

Why have we been suffering such a serious run down of contest flyers over the years? Well, I suppose you might call it tactical flying in a way, but there's a chap who's telling people to remove wing warps by crouching over a hot car exhaust . . .

Head Start

I can't say I'm all that happy about the idea of team race pit mechanics wearing crash helmets. I appreciate that, without them, its a case of fools rushing in and angels flying out, but they are going to look rather odd. And there are people, of course, who will say that anyone thick enough between the ears to play rush-in roulette with 120 m.p.h., projectiles, would hardly need a crash hat anyway.

The crash hat might be a necessary safety factor, but the effect on the public could be most unfortunate. Either they will get the impression that model flying is every bit as dangerous as motor cycling, or they will believe that the helmets are only cardboard and merely worn to add a touch of toytown realism.

AIRCRAFT DESCRIBED
NUMBER 183

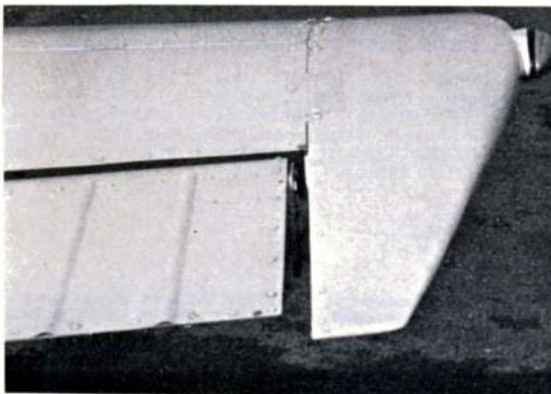
BEAGLE PUP 100 & 150



Both versions of the Pup have the enlarged rudder though our Pup 100 drawing illustrates the original shape. Modellers should also note that the torque links on early aircraft were at the front of the nose leg. Pup 100 at left, G-AVZM and the Pup 150 above both have the 'droop snoot' leading edge on the outer third of the wing leading edge.

FIRST CONCEIVED in 1965 as project B.121 for a low cost aerobatic trainer and private tourer, the Beagle Pup has now been in full-scale production since 1968 and already carries the international registration of many overseas countries. At the outset, the design was intended to be good looking and with a minimum of compromise. Thus it incorporated a tapered wing of laminar flow section (NASA 632615), slotted flaps and ailerons, and the tail surfaces were generous to permit short movements with a reasonable fuselage length. All the lines of the fuselage and its integral fin could only be described as gracefully curvaceous and the cabin accommodation extremely generous by all established standards. In other

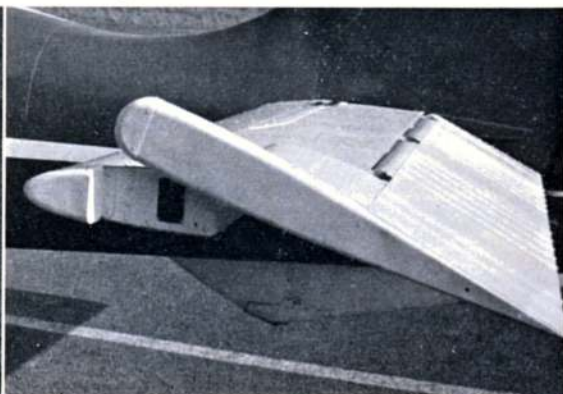
Aileron flutes are rounded in section, and on the upper surface only. All rivets are rounded and the panel edges overlapped. Note the wing tip light and straight upper surface of the tip.



words, the Pup was the Beagle conception of what an efficient all-metal lightplane *should* look like. At the same time every consideration was given to maintenance accessibility and structural strength. The Pup owes nothing to any other type and in its originality has now carved a niche in the market which ensures long-term production. Future developments may be the 180 with extended wing, and the 200 with retractable landing gear, there has also been talk of a twin-Pup.

For the modeller, the aesthetic lines, especially of the Pup 150 with its cleaner engine cowling have already established the type as a favourite for flying scale. With tricycle undercarriage, ample dihedral and its large tail,

Elevator flutes are triangular in section and on both surfaces. The mass balance is inset in to the tip, together with an aerodynamic horn balance. Note the underfin.

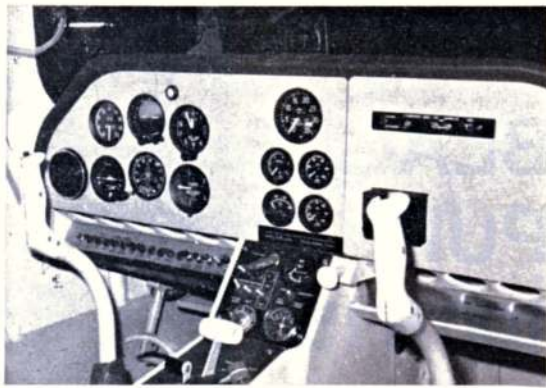




Slotted flaps and ailerons have protruding hinge plates. Note the tab in starboard aileron only, picketing ring and streamline undercarriage fairing.

it becomes ideal for all categories, free-flight, control line or radio control.

Cleared for unlimited spinning, and with light, responsive ailerons, the Pup has already become a star turn at the Farnborough and Paris Air Shows. All the characteristics add up to an ideal trainer, free of vices and yet with the comforts of a tourer. While the 100 is essentially a two-seater, the higher powered 150 has two 'occasional' children's seats, or can have a single full-size third seat on the starboard side of the rear cabin. Endurance is over three hours at a 95-knot cruise for the Pup 100 while



Basic instrument panel. Group of six at left, top row, Airspeed, Artificial Horizon, Altimeter; bottom row are Turn and Slip, Directional Gyro and Vertical Speed. To left is a fresh-air louvre. Group of five at right are at top R.P.M., Fuel pressure and Oil pressure and at bottom, Cyl. Temp. and Oil Temp. Rectangular shape is the Audio panel.

the 150 cruises faster at 114 knots with corresponding increased consumption.

Structurally, the Pup breaks entirely new ground as far as this country is concerned for light aircraft. The number of parts is reduced to the extent that there are 40 per cent fewer than in any competitive rivals. Extensive use is made of stretch forming, especially for the fuselage and fin panels which are of 20, 24 and 26 s.w.g. The wing skins are 24 s.w.g. over an 'L' section main spar and widely spaced ribs. The control surfaces have external flute stiffeners. Shapes of the trailing edges, arranged purely for structural rather than aerodynamic reasons will have particular interest for model makers. The number of open 'holes' which relieve condensation might also cause a few grey hairs for the absolute perfectionist scale modeller! Among the many attractions of the type are the huge doors with external hinges which permit the door to swing away from the fuselage and in turn reveal all the cabin interior detail. A central console which is actually a keel member in the fuselage structure, and seats over the wing spar plus a high-level baggage floor in the rear cabin offer convenient hiding places for radio controls. Main undercarriage legs are sprung sideways immediately aft of the mainspar. Transverse shock absorbers are fitted to the head of each leg in a horizontal position behind the spar. The main wheels have Lockheed disc brakes and the same size as the steerable nose wheel. In the course of development, torque links on the nose gear have been moved from the front to the rear of the leg, and ugly greasing nipples have sprouted at all points as if to emphasise the influence of automotive engineering.

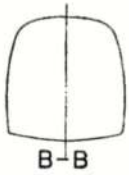
Specification

Wingspan 31 ft; Length (100) 22 ft. 9 in., (150) 23 ft. 3 in.; Height 8 ft. 6 in.; Tailplane span 11 ft; Wheel track 7 ft; Wheel base 4 ft. 7 in.; Wing area 120 sq. ft; Weight, empty, (100) 970 lb., (150) 1,030 lb; Max. speed (100) 129 m.p.h., (150) 153 m.p.h; Stall speed, (100) 57 m.p.h., (150) 63 m.p.h.

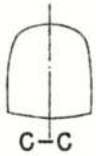
Distinguishing features of the 100 and 150 are the cowlings for the different engines and the spinner shapes. Above is the 100 with a Rolls-Royce Continental 0-200A of 100 h.p. having a sharply-tapered spinner. At bottom, the 150 with Lycoming 0-320-A2B 150 engine. Prop on the 100 is 70 in., the 150, 74 in., both are fixed pitch metal.

PUP 100

PUP 150



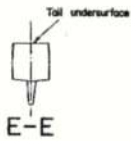
B-B



C-C

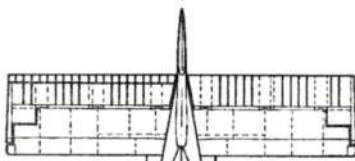


D-D



Tail undersurface

E-E

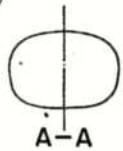


D

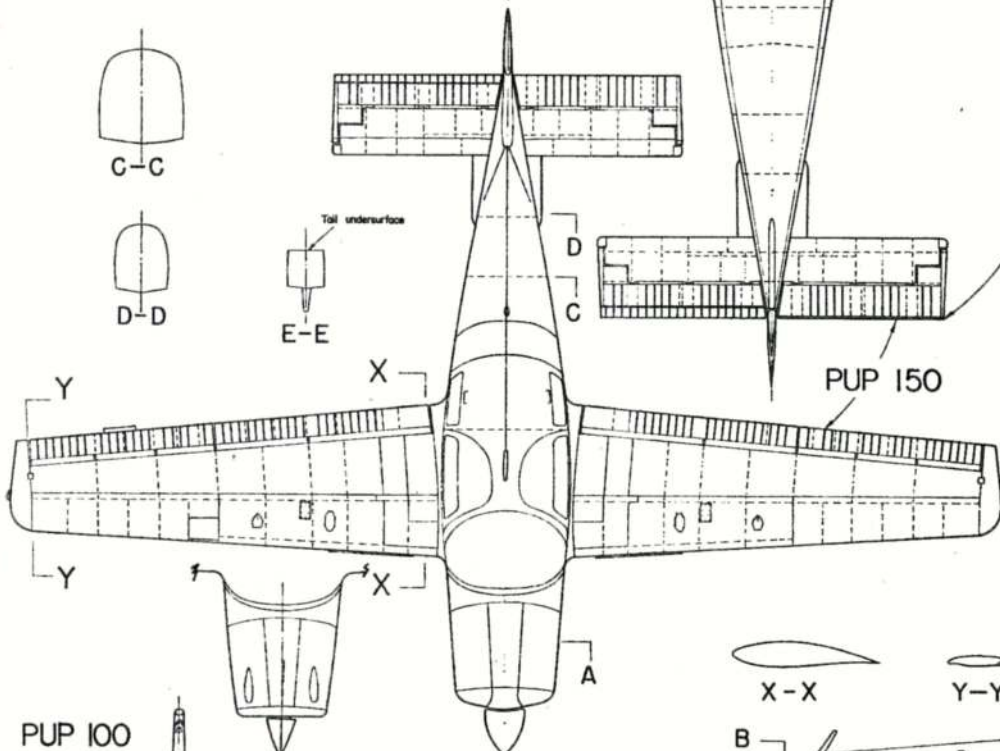
C

A

Enlarged detail of Trailing Edge

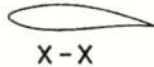


A-A



PUP 150

Enlarged detail of Trailing Edge Section

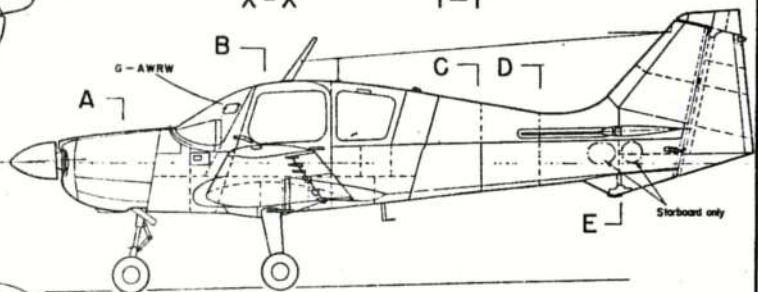
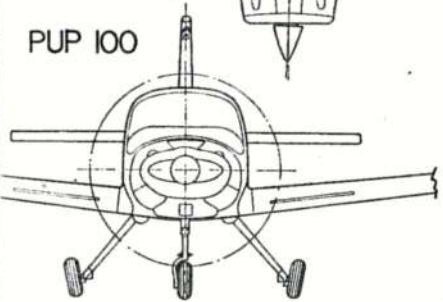


X-X



Y-Y

PUP 100



G-AWRW

A

B

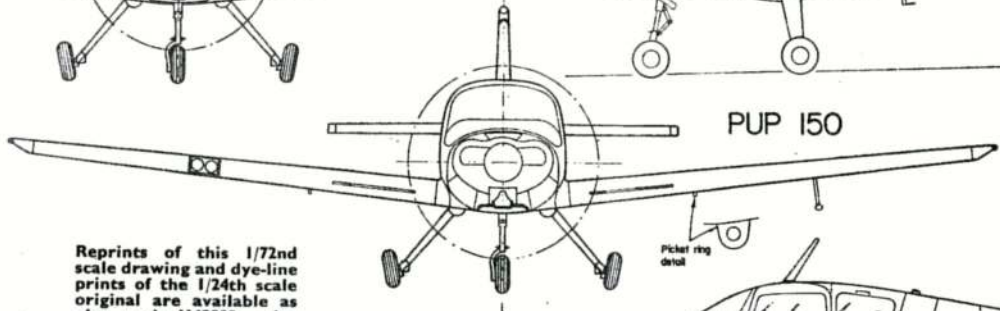
C

D

E

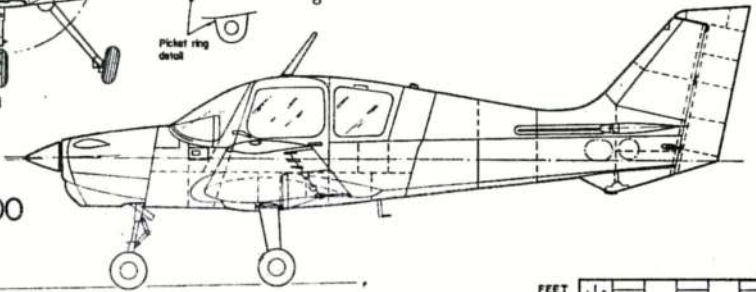
Starboard only

PUP 150



Picker ring detail

PUP 100



Reprints of this 1/72nd scale drawing and dye-line prints of the 1/24th scale original are available as plan pack JH-12890, price 2/6d. plus 6d. post from Aeromodeller Plans Service.



CLUB NEWS

THOSE who are seeking a sovereign remedy for the less scintillating patches of club life should pay heed to what goes on at the court of the **Three Kings Aeromodellers**. We are proudly told by P.R.O., Laurie Glover of the multifarious projects which are sustaining interest at a high pitch. Would seem these are mainly, if not all, of the C/L variety, with, currently, a particular emphasis on Scale. One notable project is the *Fokker D21* of W. B. Cordwell, which, it is hoped, will add a touch of W.W.2 realism at the next Nats. And if you think that Chitty-Chitty-Bang-Bang is just a non-flying piece of fantasy, then you've not seen Mr. Cordwell's other very much airborne project. An even more super project, at least bulkwise, is Geoff Burkett's huge *PBY Catalina*, trimmed in Norwegian livery. And super, too, the *Aero Commander 680 Super* of P. Mason, which is awaiting a lively pair of ST.G20/23's. In fact, all big stuff, for even the Stunters now spreading their wings are doing it to the extent of a 56in. reach. Merco's 35 is very much in evidence as the boys get warmed up for the contest season.

Sobering thoughts on the much discussed Knock Out contest system from *Message*, Newsletter of the **North Western Area**. It is very much a fact that the poor sporting charlie who enters just to make up the numbers gets only one comp. flight instead of his customary three. Not exactly the most brilliant way of promoting contest participation. Such makeweight entrants are flippantly referred to as P.O.P. fodder (Experts Picken/O'Donnell/Peers). Was the model engine really the greatest boon to model flying since the discovery of balsa? At least a contributor to *Message* accepts this proposition as a tenet of faith, although, like the early petrol engine, it might be a question of advance and retard. And more than somewhat retarding are those R/C flyers who fly not only to the gallery but at it, too. A warning to same in the Area has been issued by the Secretary, D. T. Hambley. Clubs and individuals could be disciplined.

Emblem of the newly formed **Epsom Radio Flying Club** is appropriately a flying horse, albeit shirtless. Trouble is, though, that the horsey home ground, Epsom Downs, gets too choked with R/C flyers and picnickers on Sunday to provide good, uncluttered sport. The club, therefore is dedicated to the idea of an elysian away-from-the-madding-crowd field of its very own. The group

meets at the 'Wheatshaf' pub, Brighton Road, Banstead. Even if you are not a pinta man call in on the first Thursday of each month, or you could drop a line to the Hon Sec., Peter Cupis, 2/23, Comonside West, Mitcham, Surrey.

Reference in the **East Anglian Area** Newsletter is to the start of what is purported to be the true contest season; that is, the contest between seasons - the model flying season and the gardening, housepainting etc., season. And we all know which one wins! The Newsletter gives much praise to a Danish modelling mag. and brings the long suffering Aeromodeller to task for not similarly restricting(!) its content to purely contest matters. Perhaps the starry eyed writer might take cognizance of the fact that this journal's wide ranging interests at least encompasses criticisms such as his. Mention of the Anglia Winter Contest, in which I actually placed (Yes, I do fly the things!) is almost like looking back on a summer day after that wretched dose of early spring weather.

Club life need not be a struggle for either supremacy or survival; it can be a steady, consistent fact of existence over the years. This is very much the case with the **Swindon M.A.C.**, which, in spite of a lack of publicity, has kept going with a 40 to 50 membership and a very active flying programme. To this mainly free flight group the transistorisation of the hobby has not come as a complete winder to button conversion. True, a number of members have succumbed to the lure of radio. and this has brought financial and social benefit to the club, but, generally, the committed free fliers have remained loyal to the unfettered forms of flight. And to good effect too. Witness the name 'Swindon' appearing so frequently of late in the contest result sheets.

Talk about being between the Devil and the deep blue sea. The **Wolves M.A.C.** Newsletter tells of a very heads-you-lose situation with regard to the club's flying site. It recently came close to extinction because of a possible danger to the local Airport activities. Now there is a threat of the airport closing and being turned over to housing estates, from whence will roll in the noise complaints. You just can't win these days.

Reading quickly through the **Woking & D.M.A.C.** Newsletter, I had the impression that things were really looking up in the hobby, but closer inspection revealed that the euphoria was caused by a series of 1939/40 Aeromodeller Club News snippets. I certainly liked that 'Win the War' call from THE CLUBMAN of that period, in which he suggests that the model flyer would be doing his bit by carrying on building, flying and chasing his models. Who said that the war was won on the playing fields of Eton? Getting more up to date, last February in fact, there is news of the club more or less cleaning up the **Airtech Rally** Time and Spot Landing event. P. Charman and G. Putt tied for first place, thus calling for a fly-off. In this Peter Charman just managed a three point edge for the cup and champagne. But what a cold, windy day. *Brrr*. Good fun, too, at the club Unorthodox event on 9th March. Taken to the field were a fish, a dog house, a flying waffle with 'Ryvita' elevator and



Left, Ian Kaynes with his tailless rubber model. Note tips joined to inner panels via sheet fins. Right, Bill Houghton displays his remarkable 'Melinex' covered rubber model. See also page 302.



a shovel. Non-flying objects mostly failed to achieve an airborne metamorphosis. Cannily, the winner flew nothing more unorthodox than a flying wing!

From *Canadian Model Aircraft*, the Newsmag of the **M.A.A. of Canada**, comes news of the latest safety device: crash hats for Team Race Pit Mechanics (It's the only way to keep a-head). Actually this was a comment on rules issued at the last F.A.I. meeting in Paris. Good to learn, too, from the same source, that *Coupe D'Hiver* has been accepted as an International event - 5 flights of 2 minutes, hand launched.

Seems I, or someone boomed when *Club News* described the **Whitefield M.A.C.'s**, first Knock Out F/F Comp as being an A/2 only event. It was in fact an All Open affair. Apologies. Much interested to learn how the meeting went, from John O'D-see page 307

Water wings rather than model wings are recommended for use on the **Long Eaton & D.M.A.C.** flying field, as the ground is usually under water. Even so, the club is managing to keep its head above H₂O level and striking forward bravely into the future. A new look club emblem has made its glittering debut, and avant garde members are going in for those 'nu-fangled, steam-radio fins'. So much so that a radio teach-in has been arranged. Other news is of one member getting tired of those teeny eleven foot jobs, and is going the specification limit - whatever span that might be without a rule book to hand. Model flyers betwixt Nottingham and Derby are asked to contact the new Hon. Sec., Mr. V. Shaw, 17, Derby Road, Stapleford, Nottingham. Report from the Hon. Treasurer, A. J. Wright.

Perhaps the **Elliott Model Eng. Club's** *Circuit* editorial is perhaps a bit too alarmist in worrying about flying C/L near airfields. The *Aeromodeller* warning was specifically aimed at Radio Control & free flight factions. Surely C/L would only be dangerous if operating on or near the touchdown areas, or close to vulnerable installations. But good to see one club at least, erring on the side of extra caution. Another club safety concern is over all that slap happy team racing that goes on, with vulnerable, exposed nuts playing dodgem with lethal projectiles. Any one got any new ideas for Fete flying? Elliott feel that the old routines are getting a bit yellow at the edges. Personally, I'm all for the big spectacle, using really, large models. Not always practical, of course, due to space restriction but I think the small, flit happy model to be seen at any time over the parks are really out. What about a cavalcade of aircraft across the years, from Bleriot to Concorde?

We are asked by the **Stevenage Model Aviation & Marine Society** to give notice of a change of Secretary, the new one being Derek Walton, of 39 Chertsey Rise, Stevenage, Herts. The club hopes to be more outward looking this year, entering rallies etc., rather than flying just for fun. Clubnight is the first and third Wednesday of each month at the Meeting Room, Stevenage Swimming Pool, at 7 p.m. Why not dive in?

A brave turn out on the part of members of the **Leicester M.A.C.**, got the season away to a flying, but windy and cold, start. Events were for Jetex, Sealed Time and Spot Landing, with entries 6, 9 & 9 respectively. Indoor wise, a Spring Social - jolly good idea - has been arranged for the end of April.

Quite a history lesson comes with **Bridlington & D.M.A.C.'s** report on its new Danes Dyke C/L flying site. The area is a rift in a headland, attracting Stone Age man as a fortified stronghold, and finishing up as a stately home estate. The local corporation ultimately acquired the site, and it is by their courtesy that the Bridlington boys have the use of it. Mostly we don't like our models Outward Bound, but two lads from the club are doing aeromodelling as part of their syllabus in the Duke of Edinburgh Award Scheme.

What is a yo-yo merchant? According to **Handsworth M.A.C.**, it is the bloke who hangs on the handle. Several Combateers of the lone wolf variety have nosed their way into the Handsworth lair from Birmingham. The lair in question, Perry Hall Park, is in a state of ferment each Sunday until 2 p.m. It's generally vampires you kill with stakes, but the local council have been doing much the same to model aircraft with the stakes they have planted across the Perry Hall patch, and sudden wing removals have become all the rage. Still, flying goes on apace, and any other club which fancies its chances at a spot of combat are asked to pop in to the park for a spot of gage dropping.

It might be that F/F contest flying is decreasing in volume, but, boy, has it increased in finesse. Modern F/F machines are trimmed to a hair, and something of up to date techniques were to be seen in the March issue of *Northern Area News*. Even *Coupe D'Hiver* models have thread adjustable trim tabs. There is also mention of a 'tactical' tow hook/d/t link up which enables the thermal hunter to keep wandering for hours if necessary. Plenty of vintage stuff in the well stocked pages too. Anyone remember the old Bowden Contest model? Of more up to date interest,

At successful **Luton D.M.F.C.** Slope Soaring Rally, 20th April, top magneteeer was Trevor Faulkner of Sheffield with 'Hanger' as designed for APS - this variant known as 'Hangeround'. Centre is a hot low-wing soarer in equally warm mauve colour scheme by Michael Conrad, 72 in. span, has coupled ailerons and rudder, R.C.S. Digi-Five R/C gear. Bottom is Chris Foss's 'Phase One' with all moving Tee-Tail and long ailerons; has many novel features including fuselage with room for large reed-type servos.



Club News (continued)

some f/f protagonists have given up resisting the inexorable R/C tide. 'If you can't beat 'em join 'em' goes the cry. So a new type of, free flight cum radio control contest is being devised. Sounds very unlikely to me.

Could it be true? A clubroom 3 storeys high and 3,500 square feet in area. Such, however, is claimed by the **Bilston M.A.C.**, of Wolverhampton. This lease has given the club a new lease of life. From a down in the doldrums membership of six they have boosted themselves to a happy band congregation of thirty. Club promoting projects include poster displays, demos and jumble sales. All interests are now catered for: f/f and both types of control, but only talk of a flying site is one for Mousing and Combat. The club plans to be a host to local clubs in the coming months - secretaries please note. Why not visit the palatial club apartments at 23 Wellington Road, Bilston on any Friday night?

New secretary of the well known **Bristol Bulldogs M.A.C.**, is Mr. P. W. Spence, of 11 Russell Road, Westbury Park, Bristol, BS67UP.

The Newsletter of the **Liverpool & D.M.A.C.**, is not, as I first thought, produced in pure Scouse, but merely rendered barely readable by an overrun of violet ink. Anyway, reading between the blobs, I perceive a well argued complaint against the S.M.A.E., for still clinging to the time honoured domination by free fliers but would seem that the persistence of f/f control is due simply to, the fact that they are the only people who volunteer for the official posts. Also because the contest stimulus of which f/f is still the main activator, forms such a necessary and cohesive part of the Society's function. Still, there is nothing to stop the R/C boys pitching in; the Society is an open democratic body.

Highly relevant to the foregoing is the *London Area Newsheet* referring to an insurance premium row brewing up. The overwhelming majority of claims are R/C initiated; which suggests to many people that the R/C model should be rated as the 'Sports Car' of the air, and the premiums adjusted accordingly. Trouble was, though, there were no R/C people present at the London Area Meeting to discuss this very sensitive issue, and it was accordingly shelved. Further comment, however, in the Newsletter, reveals the difficulties of blanket R/C discrimination. Some R/C models are large, fast and dangerous, whilst others are lightweight and relatively innocuous. It is suggested, therefore, that insurance values be assessed on overall weight. One thought, though. Insurance is not compulsory by law, and nothing should be done which might frighten people off this very necessary safeguard.

Where many clubs complain of people joining just for the social interest, the **Glasgow Hornets M.A.C.** have opened up a new Social Member category. So what about that?

A good set of aerofolds published in *W.M.C. Patter*, a newsletter, from **Oregon U.S.A.** Many are familiar, such as our old N.A.C.A. and Clark Y friends - but 'Lucky Lindy' (after Larry Canover's 1960 Power winner) is oddly named as it is flat bottomed! However, I spotted one section, B - 8405 - D, which is a type enjoying current popularity. It has a high forward camber and a very slimmed out trailing edge. But would you take your 'Lucky Lindy' to a misery Meet? Certainly the one held on Hart's Lake Prairie would seem to be anything but misery. For if plenty of open space and predictably good weather is misery then our own rainswept, windblown get-togethers cannot be described, at least not in printable language.

Still, our so called temperate climate has its advantages, in spite of the poverty of flyable days. From Salisbury, Rhodesia, comes a report in *Propshaft No. 17* of jungle sprouting flying fields and a general state of swampland. To reach the flying fields thus described you need to be a bit of a rally driver, but a few tons of gravel and stones got the wheels turning slightly less sideways. Universal question: how to maintain a sufficiency of Radio Control judges. As stated, competence comes with practice, and only the chap really immersed in Radio Control in all its finer nuances can really be acceptable at higher levels. Personally I feel that organising bodies could issue some sort of competence certificate to accredited adjudicators; perhaps with an identifying 'R/C Judge' strip to add to a jacket insignia.

Almost a vintage comp in itself is the **Anglia M.F.C.**, Kiel-Kraft 'A/jax' event. The rules are simple: to build the kit exactly as per plan, with the winner the one making the best aggregate of five consecutive flights.

And that about winds it up for this month, as the model flyer said as his rubber motor burst.

THE CLUBMAN

S.M.A.E. team trials for Criterium of Aces

13th April, 1969. R.A.F. Upwood

A TOTAL OF 46 entries battled with strong winds. Some measure of the increase of interest can be seen in 14 speed entries with models for the new F.A.I. regulations requiring two line control. The combination of wind together with inexperience in the pylon caused a number of spectacular prangs. The speeds were very much on the slow side, both Brian Jackson and Allan Woodrow only achieving 103 m.p.h. but this was mainly due to the top experts being unwilling to fly their 'number one' planes because of the conditions.

There were 7 entries in the **stunt** event and the first four placed men managed to score very well especially Mick Reeves who put up a superb display.

Notably absent from the **Team Race** entry list was Brian Turner who took over the organisation of the event on the day. First place went to Place/Haworth the ex world champions who put in heat times of 4.41 and 4.43, second were Heaton/Ross who managed 5.02 and 5.02. But a big battle developed between Davy/Devenish and Smith/Harknett for third. Although faster in the air Smith/Harknett blew up their Super Tigre G15 D and had to change motors which caused them to miss two of the four heats. However since places were decided only on the best two times out of the four Harknett/Smith eventually took 3rd place with 5.06 and 5.32.

Combat was run utilising the usual knockout system but with each entrant having two 'lives' to try to reduce any luck element. The undisputed winner was J. Dixon who remained unbeaten throughout the event. S. Jones and V. Hunt were the last remaining entrants with one life but S. Jones took official second place having achieved more 'cuts' than V. Hunt, who came third.

SPEED Team: 1. B. Jackson (Workshop) 2. A. Woodrow (Deltas) 3. P. Halman (R.A.F.M.A.A.)

COMBAT Team: 1. J. Dixon (Feltham) 2. S. Jones (Liverpool) A.C.E. 3. V. Hunt (A.C.E.)

TEAM RACE TEAMS 1. Place/Haworth (Wharfedale) 2. Heaton/Ross (Leigh) 3. Harknett/Smith (Feltham)

STUNT 1. M. Reeves (Wanstead) 2. M. Harvey (Three Kings) 3. J. Mannall.

C/L Scale Team to be selected at the Nationals.

SHEFFIELD S.A. SLOPE SOARING EVENT 6th/7th APRIL
BRILLIANT sunshine and snow lingering on the distant high ground provided a spectacular setting for the first day of this Easter competition. Unfortunately, winds of 35-45 m.p.h. ruled out any hope of either Single-Channel or Free-Flight rounds being flown. However, good performances in Multi were being given throughout the first day.

7th April began with 10 yards visibility and 30 m.p.h. wind at the main site! A report on an alternative site (specified in the Comprehensive Info. and Rule Book, issued by the Club) showed there to be 5 m.p.h. winds and brilliant sun some six miles away, so the large retinue was transferred at 11 a.m. The F/F competition started at 12 noon with max times set at 1 minute, and 40 secs. for Magnet and unsteered groups respectively. These were set to avoid tree-hazards and to allow a reasonable number of rounds to be flown. Most models competing were capable of flights greatly exceeding the set maxes, as P. Yospa's solid balsa glider (without D/T) showed.

John Turner (Teeside) dropped only 3 secs. in his 5 x 40 sec. flights after several fruitless episodes. Ray Sutton's stable was a bit off colour, the unorthodox approach to design which has paid off so well at Clywd seemingly at a disadvantage.

The small Sheffield nucleus of magnet-fliers managed to D/T every flight into open ground. Some adventurous fuse and timer settings saw Jeff Palmer and Doug Robinson through to a 'target-time' fly-off after 5 rounds, won by the now timer-equipped 'Hanger' of Robinson with a 3-6 secs. error. There is little doubt that Magnet models, as demonstrated here, are capable of offering an excellent class of competition for slope soaring events, the models concerned climbing away regularly when R/C fliers found lift insufficient for their purposes. It was unfortunate that the first-choice site was to prove so inhospitable as the 19 model entry in Free-Flight would have provided some spectacular flying over the two days. However, the holiday atmosphere of the Free-Flight competitions made the first day proportionately less disappointing, all entrants staying to the Competition closed at 5.15 p.m.

Results: Free-Flight and Magnet combined: Cash prizes 1. D. Robinson (Sheffield); 2. J. Palmer (Sheffield); Random Place, R. Sutton (Leek).

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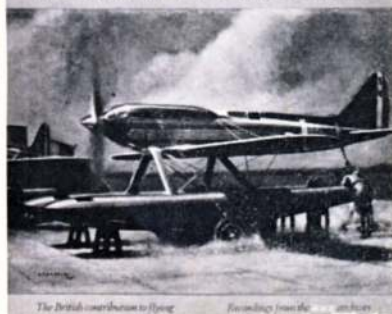
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25/7



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39/4

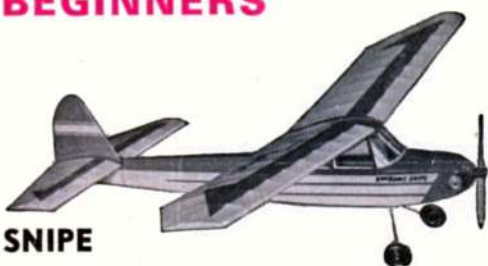


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The Phantom Mite is just about the toughest model available to the newcomer to control line flying. Features all sheet construction with wings, tailplane, fin and fuselage sides ready to cut to shape, for .5 to .8 c.c. engines. Wingspan 16".

22/11

BEGINNERS



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This nice looking model is especially suitable for beginners as it is so straightforward to build and easy to fly. Kit contains die-cut parts and has been specially designed for .8 glow motors. Wingspan 40".

30/1



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Easy - to - build beginners' model. Sheet fuselage sides and all other parts are die-cut. Preformed under-carriage. Wingspan 22".

13/8



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7/8

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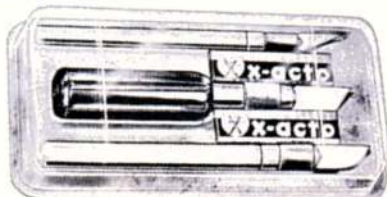


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