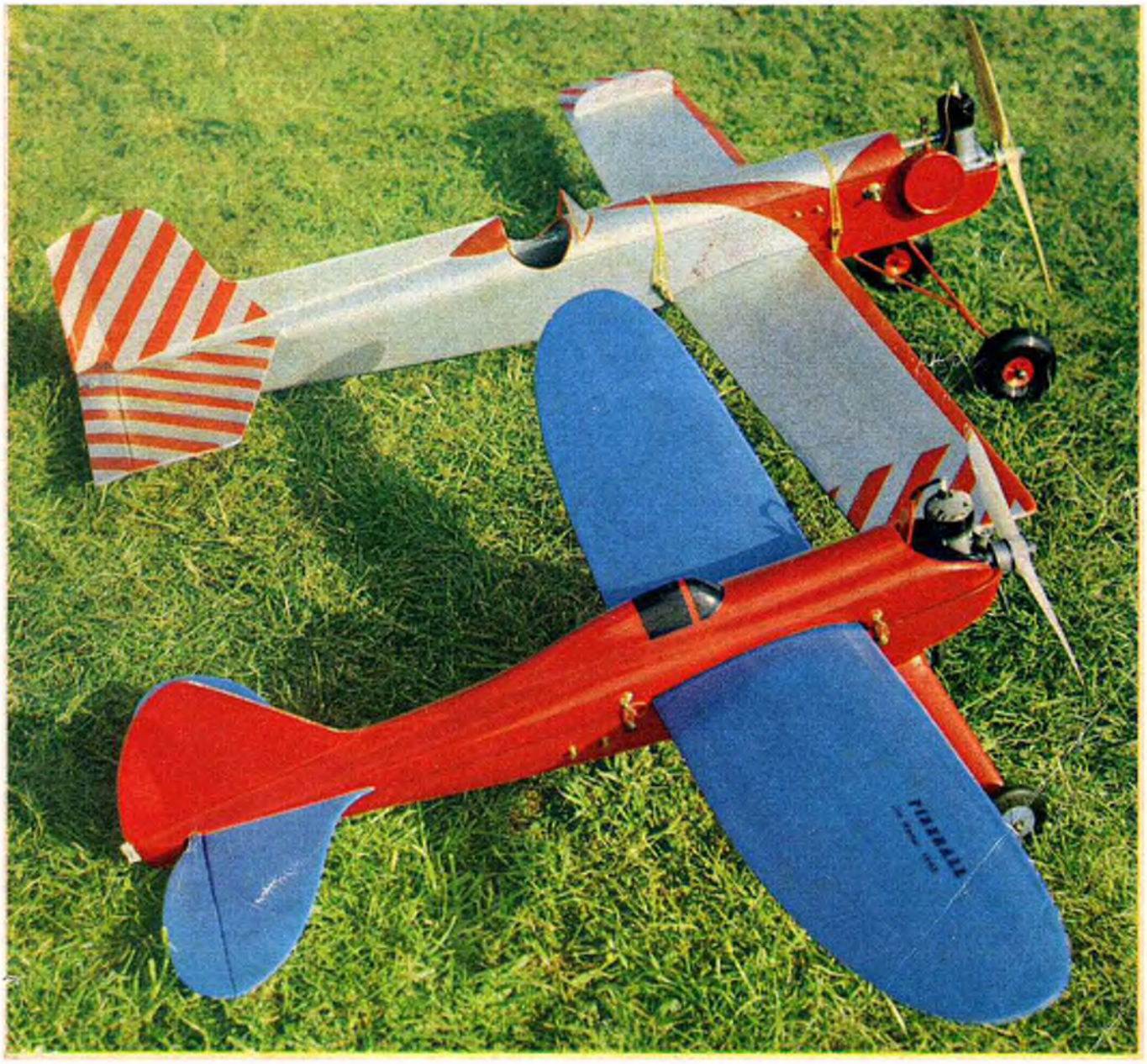
Aero Modeller

July 1976
30p
U.S.A. & Canada $1.25

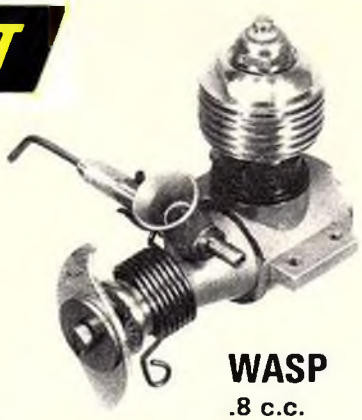
INCORPORATING
MODEL AIRCRAFT

MAP HOBBY MAGAZINE



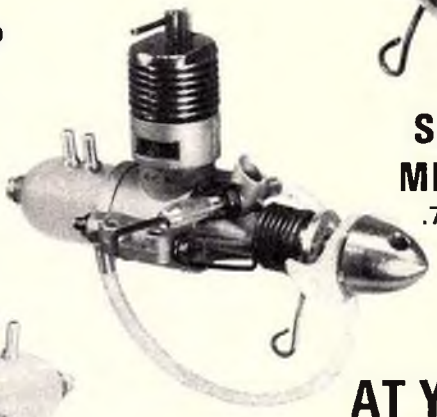
QUICKSTART

DART
.5 c.c.



WASP
.8 c.c.

MERLIN
.75 c.c.



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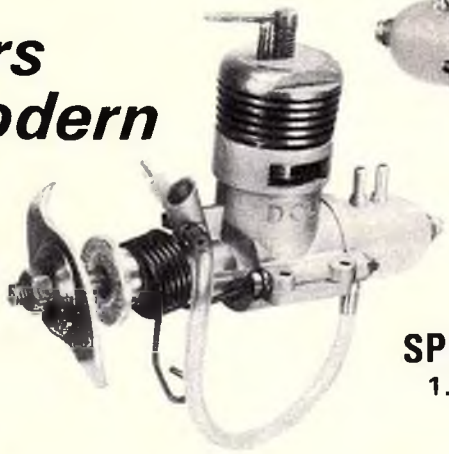

SPITFIRE
1.0 c.c.

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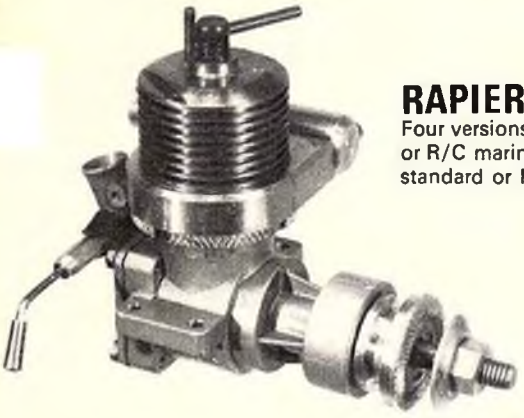

RAPIER 2.5 c.c.
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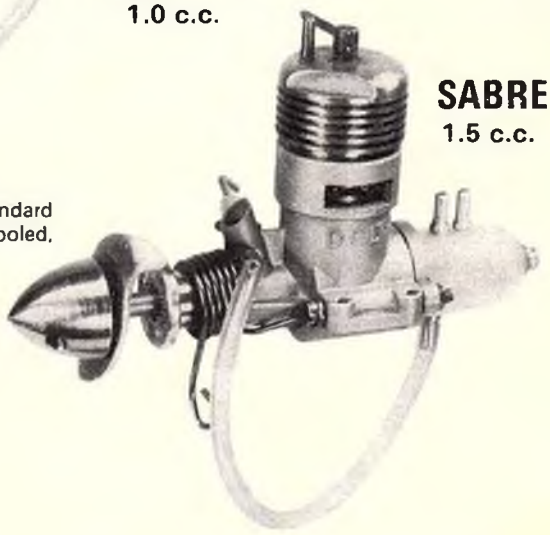

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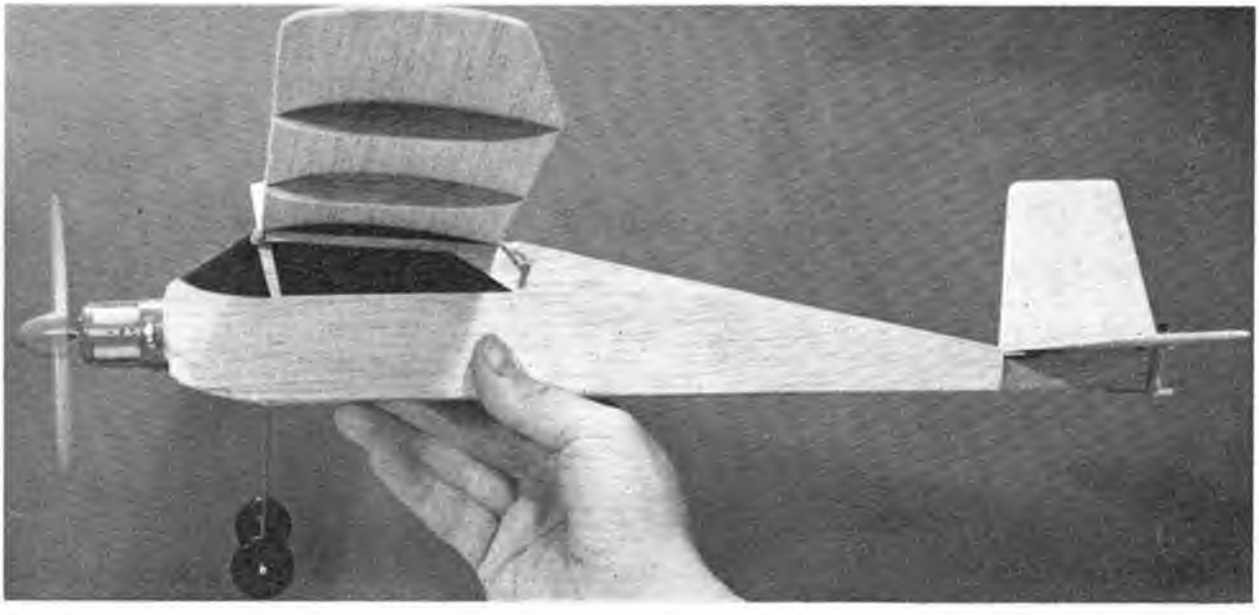

One of the great attractions of aeromodelling is that it is never 'dead end'. There are always new and different models to try. And new developments continue to appear. The latest—and it could be a big thing—is electric powered flight, using motors and batteries specially developed for the job.

The advantages are obvious. No messing about. Just switch on and go—without creating a noise problem either. But there is one technical snag. It needs about 100 watts to develop 1/10th horsepower from an electric motor—which is why special batteries have to be used to supply the necessary volts *times* amps! That also means a fair amount of payload which has to be carried.

The answer is lightweight airframes—which is where Balsa construction comes into its own yet again! All-sheet construction for models up to about 24in. span—built-up tissue covered wings and tail surfaces on larger models. And trim the model like you would a 'duration' type rubber model with a nice floating (almost stalling) glide. Then you can get real thermal-hunting performance.

Photo shows the Quest Wisper—the first British kit for Mabuchi AI electric power. Other electric power units are now available equivalent to .15 and .29 glow motor power, so model size is not necessarily restricted with electric power.

Above all, choose your Balsa carefully. Use the best you can get (which automatically means Solarbo Balsa); and nothing more than medium density. Use *light* quarter-grain wherever you can. Weight can make a lot of difference to performance!

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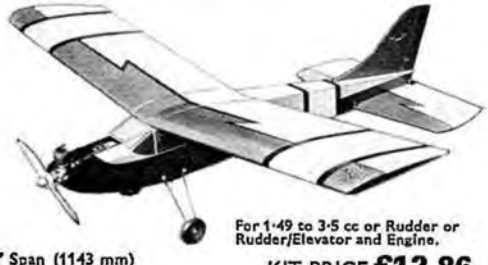

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Comment

Have a good Whitsun holiday? Strange wasn't it, to have three days' break and no major modelling event to enjoy. Without a Nats it simply hadn't the same atmosphere this year though the local fields were booming with activity and all the new models appeared to be getting their airings. In a way, the lack of Nats as a relief valve for new season's enthusiasm will have further emphasised the problems of public relations which hit the National newspaper headlines in May.

When the Science commentator for TV declares he is to set up a kite barrage at Norman Park, Bromley, to defend his property from irritant models, it is clear that something has to be done to straighten out both parties. For it is just as foolhardy for Peter Fairley to position a kite flyer within 60 metres of a potential accident (maximum permitted kite line length) as it is for the modellers to overfly his, or any other person's, property.

We're much in favour of kite flying. It's a great hobby with many attributes, one of which is the way kiting erases, even if temporarily, the woes and worries of the flyer. If it soothes Mr Fairley's troubles, kiting will have done more than set up a warning perimeter in his local park. But we hope he was not advocating deliberate barrage action just as much as we expect the Bromley modellers to respect the privacy of local residents.

on the cover

A pair of truly classic control line models, built by Michael Beach. In the foreground is a replica of the late Jim Walker's **Fireball** *design, which was responsible for starting stunt flying in the USA during 1941. Behind is Ron Moulton's* **Voetsak** *which made many demonstration flights in the UK from 1947 proving to the sceptics that aerobatic flying with C/L models was a practical proposition, and thus spreading the seeds for interest in this form of flying. How fitting that Michael Beach's splendid trophy, presented to encourage vintage control line flying, should be named after the model that 'fathered' this part of the hobby. See pages 396-7 for a report and pictures of this first ever meeting.*

next month

Plans for a really attractive, semi-scale, full stunt control line version of the *Focke Wulf 190*. Report of the 1936 Wakefield Trophy event by one of the contestants, received exactly 30 years later! Contrasting this are all the latest news and views of control line, free flight and scale topics plus many other interesting features all in the August *AeroModeller*, on sale 16th July. Don't miss it.

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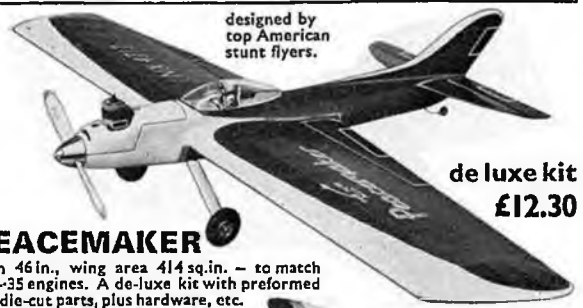

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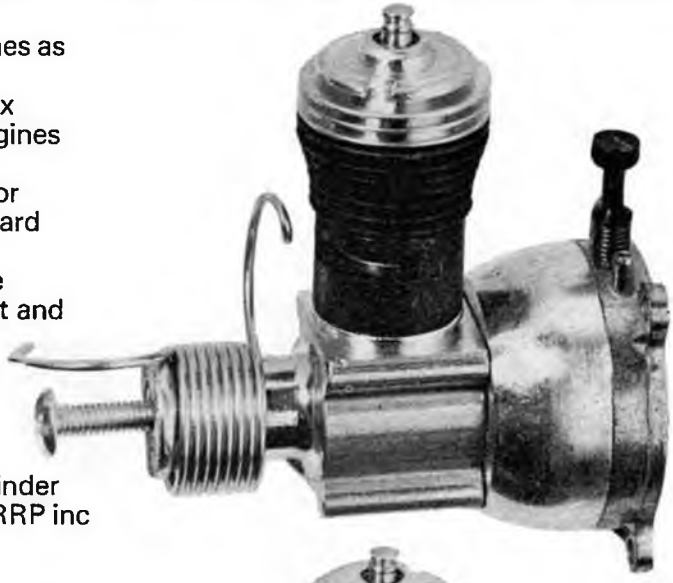

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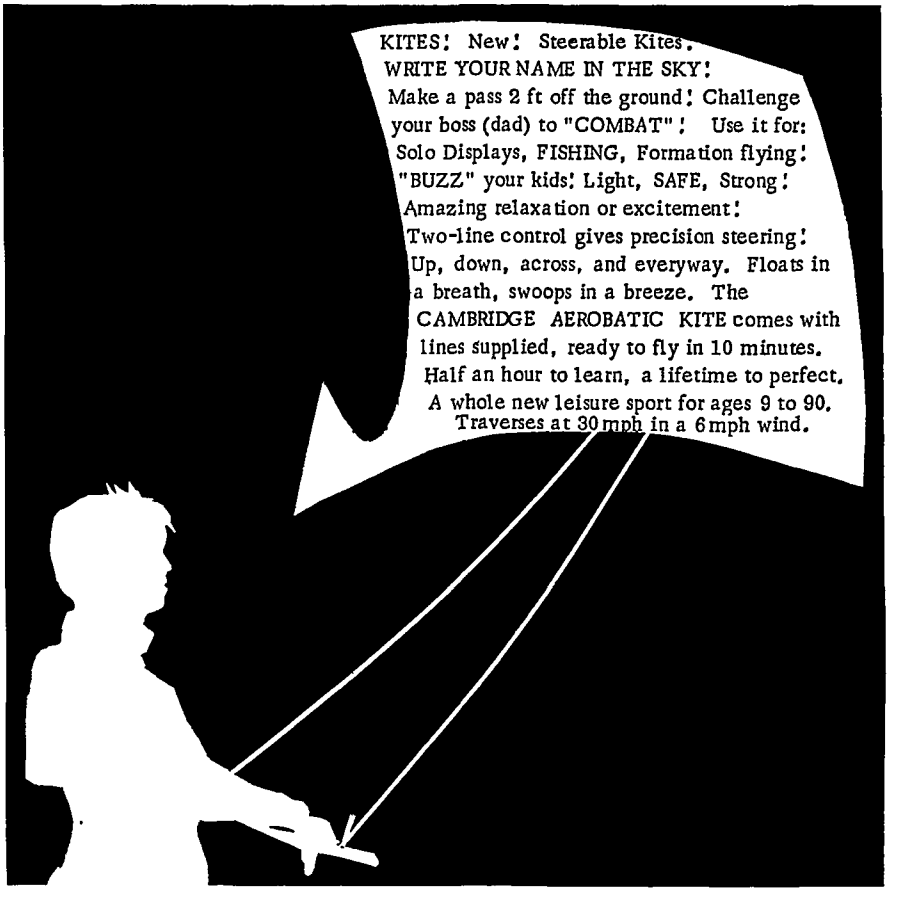

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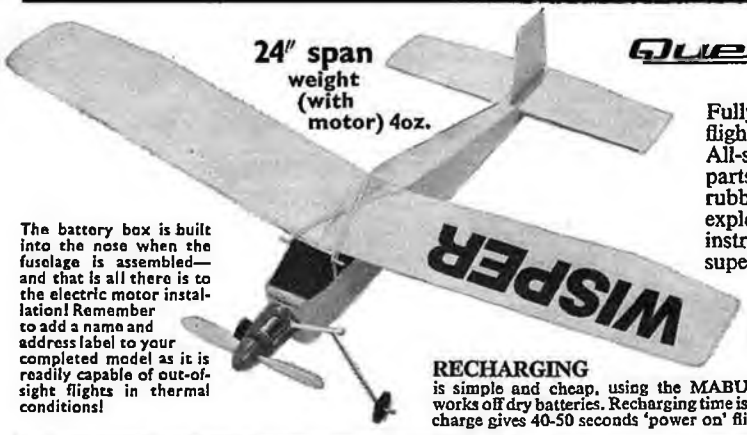

24″ span
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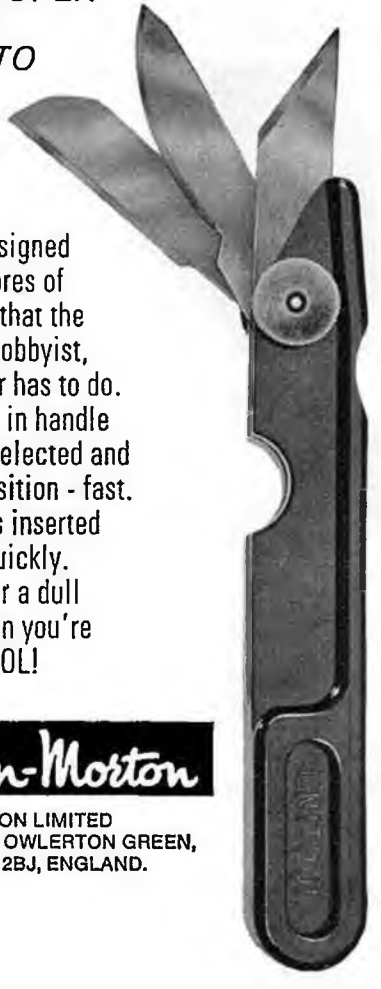

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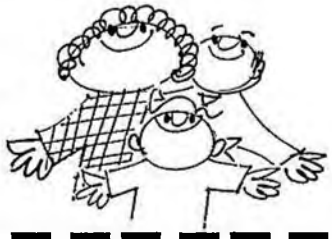

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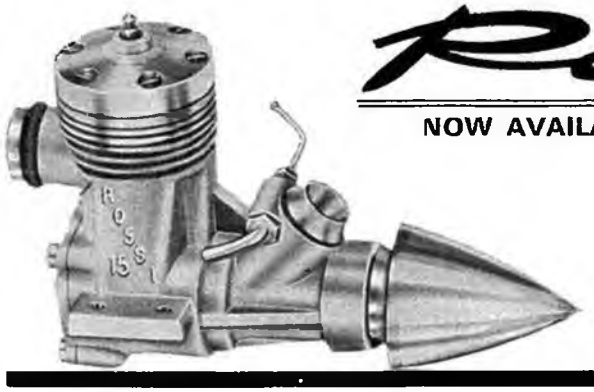

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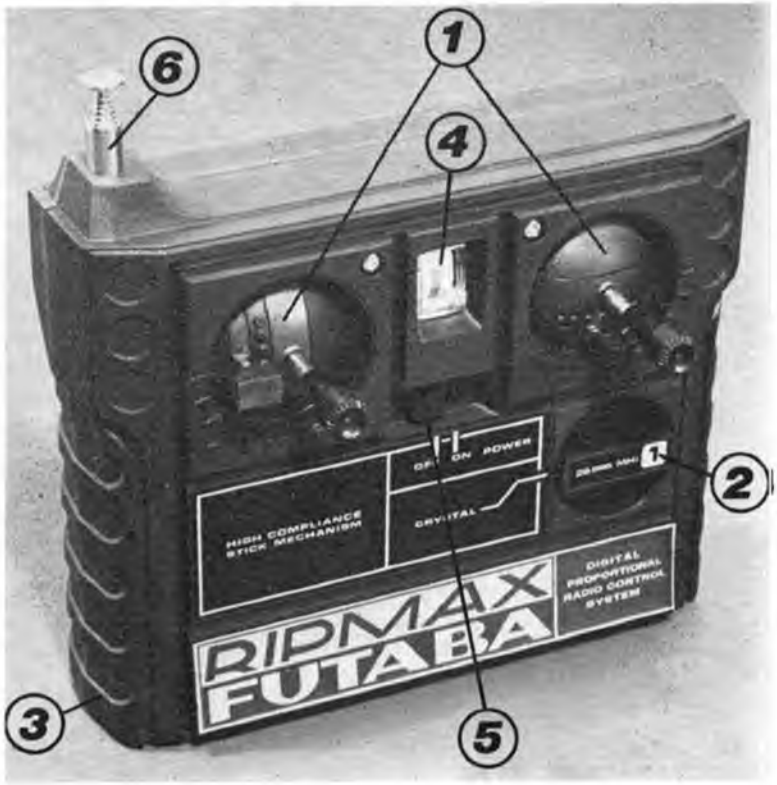

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Heard at the HANGAR DOORS

This trade directory published by A. S. Connor & Co Ltd of 26 Sheen Park, Richmond, Surrey, could be most useful for the 'serious' modeller. Contents include details of manufacturers, associations and consultants, plus of course lists of all adhesives currently available in the UK.

PROBLEM. What would you do if you spilt a whole bottle of the new generation, fast setting, cyanoacrylate glues all over your hand? Doesn't bear thinking about does it, but it can – and did – happen. The unfortunate person, after plunging his hand into a bowl of water, which meant that the adhesive formed a 'shell' without gluing individual fingers together (although the adhesive did run betwixt finger and nail) first read the instructions on the back of the offending bottle. *Receive immediate medical advice* they said, and *do not remove by mechanical means*. Phone calls to his doctor, then various hospitals, revealed that no one seemed to know of a solvent. Next day, the manufacturers of that particular brand were telephoned, but they were unable to provide the information, instead suggesting that a scrubbing brush should be used – despite warnings to the contrary in the instructions. Eventually, help was forthcoming – and would you believe that our old friend nitro methane is an excellent solvent?

Apparently, the best procedure is to wash the affected area in very hot water – as hot as you can bear – and allow to soak. Next, a solvent can be applied if necessary – either nitro methane, di methyl formamide or methylene di-chloride. Finally, wash off and all should be well. If the adhesive has not cured – and remember it only cures in the absence of air, when for example two surfaces are pressed together, then wash off with acetone, toluene or MEK (methyl ethyl-ketone). A small bottle of solvent kept within easy reach of the building board would be a good safety measure. Above all, take care – and do not panic.

LIST OF PLACES to visit during 1976 for the aviation enthusiast continues to grow. Firstly, on 20th June the Duxford Aviation Society and the Imperial War Museum are staging an air show which will be like World War II revisited, with dozens of exciting military aircraft performing in a flying display. Subjects range from an RE8 (non-flying) through Spitfires, Hurricanes, Sea Furies to a pair of Boeing B17s! Venue is RAF Duxford in Cambridgeshire.

From 2nd-5th July there is *Sywell '76*, an International Air Rally organised by the Popular Flying Association. This is a unique affair with something for everyone, especially as there are always so many new and exciting home-built and 'special' light aircraft. With over 2,000 movements a day, there is plenty of action, and of course photographers, historians and enthusiasts alike delight in the hundreds of privately-owned aircraft lined up in the static display area. Venue is Sywell aerodrome, located some five miles North East of Northampton.

Later in the same month, on Sunday, 25th July, the Shuttleworth Collection will be holding its annual *Military Air Day* at Old Warden aerodrome, off the A1 near Biggleswade in Bedfordshire. The RAF will be performing with their sole remaining Lancaster, plus a Hurricane and Spitfire, together with the Red Arrows. Representing a somewhat earlier period will be the Collection's own aircraft, among them being the Bristol Boxkite, Bristol Fighter, LVG CV1, Gloster Gladiator and Avro Tutor. Watch history fly by!

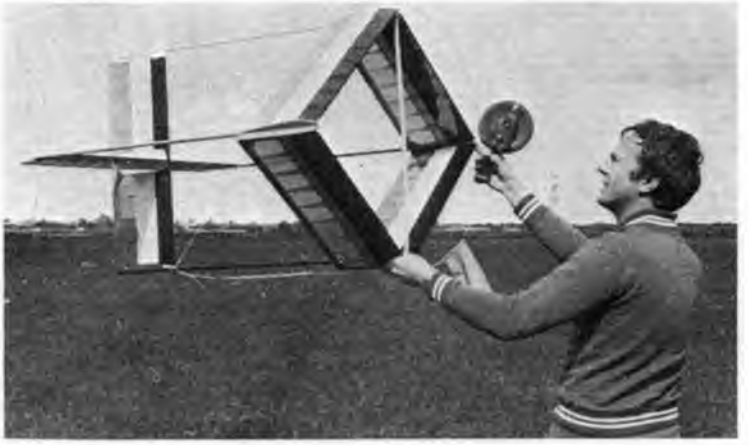
The *International Air Tattoo '76* will be a two day extravaganza, featuring flying displays by over 100 aircraft, from vintage to the very latest equipment of the NATO forces. Apart from these, there is a record entry of 20 aircraft from ten different air arms competing for the Embassy Jet Aerobatic Trophy – a unique opportunity for service pilots to show their flying skills to the public. In addition, there will be an action-packed ground tattoo, exhibition and demonstration – all at RAF Greenham Common, Newbury, Berkshire from 31st July–1st August.

Finally, RAF Biggin Hill will be holding an 'at home' day on Saturday, 4th September to commemorate the Battle of Britain. There will be a comprehensive flying programme from 11am to 5.45pm with many static displays, including simulator demonstrations.

SMAE CENTRALISED Club Championships for free flight contests to be held on 27th June, will take place at RAF Barkston Heath, near Grantham, Lincolnshire. Still on SMAE business, at the Sandown Park R/C Symposium, the winning number for the raffle in aid of the World Championships Team Support Fund was not claimed. If the holder of ticket number 91, with the correct security code, sends it to M. Dilly at 20 Links Road, West Wickham, Kent BR4 0QW, he can claim his *Acemaker* Club 20 kit, donated by Jay Models of Southampton.

KITE display in London opens on 13th July at the Institute of Contemporary Arts (ICA), Nash House, The Mall. To reach the gallery, either enter direct from the Mall, opposite Horse Guards Parade Ground, or from Lower Regent Street via Waterloo Place down the steps to the Mall. Main feature is the amazing 300ft. long 'Trampoline' kite by American sculptor Tam Van Sant who is supervising kite making sessions and demonstrations. One special event takes place at the National Theatre, South Bank throughout 17th July. Next major kite rally at Old Warden for the KFA is to be on 10th October.

NATIONALS '76. Still confirmed as 14/15th August at RAF Little Rissington, Glos. No further details yet available.



. . . . and now for something completely different, the

THERMAL DETECTING KITE

by Mervyn Buckmaster

THIS DESIGN has resulted from several observations at the flying field which have impressed me over the past few years. Firstly, there seemed to be a need for a true windy weather model, one which would enable flying to continue when the wind became too rough for other conventional types. This impression is as old as my flying career! I can manage in a 10 knot wind, struggle in 15 knots, but succumb to anything more – the survival curve crosses zero at 15 knots and becomes greatly negative in stronger winds! As it is usually the landing (arrival?) when damage occurs, what was also needed was a model where the 'landing' was as controlled as the launch.

The next impression occurred during a windy A/2 contest in February 1972, I noticed how a plastic 'bird' kite responded to thermal activity. A 15 kt wind was blowing and the kite was tugging vigorously on the line at about 150ft. altitude. On several occasions the wind speed increased as a thermal went through the area; the kite would flap more loudly, and climb towards an overhead position. Some of us caught lift if we were lucky enough to be able to launch an A/2 on any of those occasions.

Attending a kite flying display held in conjunction with the Melbourne Moomba Festival during March 1973, I was rather envious of the kite flyers. Several of the kites were up high in only a 10 kt breeze, and it was a great sight – so I resolved to be a participant instead of a spectator the following year. At that time I was disappointed with the aerodynamic crudity of those kites, so I thought that it would be beneficial to apply model aeronautical principles to kite design.

Then during late 1974 and early '75 I had had some correspondence with Ian Kaynes of *Free Flight News*, and he convinced me that thermal detection apparatus, whatever it may be, can be considered as a legitimate part of the free flight scene. Now I have an anti-electronic-devices prejudice, but I reasoned that having a flying machine to detect thermals would be *most* acceptable – but logic dictated that it should not need to be retrieved.

Given the preceding 'input data', any computer would put out the conclusion – *Go fly a kite*!

Construction follows standard free-flight building practice – so begin by cutting out all ribs and strip spars; then shape the leading and trailing edges. Pin down the LE, TE and bottom spar for one panel of the box; then insert the ribs and gussets. If in a hurry, dab every joint with a cyano-acrylate adhesive, otherwise stay with your favourite adhesive. Next, add the top spars. When cement has dried, remove panel from plan, shape where necessary and set aside. Produce three more panels in the same manner.

The 'tailplane' is assembled in the same way; note that it is longer and narrower than all the other panels, because it is slotted through the vertical stabiliser, i.e. fin (bother those American magazines!). Pivot dowels are added *after* covering.

The fin is assembled with both the LE and TE packed up off the building board. Use full length spars on top and add those on the other side when the adhesive has set, cut away spars from the centre section bay. The gussets will hold the structure securely.

The poles I used were pine dowel, but hard balsa, spruce, or glass fibre tubes would be suitable – just use whatever is to hand.

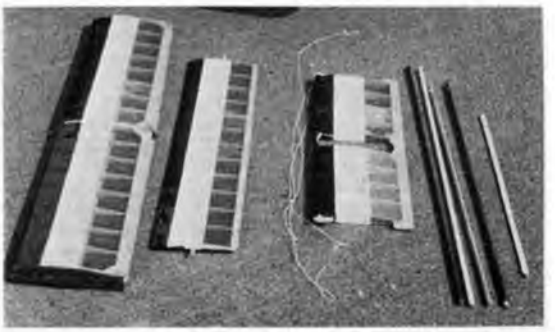
It should be pointed out that there is a wide range of variation available in the basic design. For example, a model that is built for light weather conditions, would be satisfactory with $\frac{1}{16}$in. sheet ribs and smaller trailing edges plus tip ribs. In addition balsa poles could be used. For a heavy-weather model, the wood sections may be increased as much as by a factor of two, and hardwood poles could be used.

Covering also can be matched to intended use. Lightweight tissue is quite satisfactory, although vulnerable to grass stalks. Silk, nylon and plastic film are attractive because of their puncture resistance.

Furthermore, the size of the model may be varied, with little risk of failure, provided that the proportions are not radically altered. A small model is easier to manage in high winds, while a large model gives more fun in a light breeze.

Assembly

This is neither difficult nor critical. After all the panels are covered, fix the end plates directly to the wood of each end rib, at all four main panels. Next the panels are



hinged together, making sure that each has the top airfoil surface uppermost – this produces the box part of the kite, which can be folded flat for storage and transport. The fin has tubes fixed to the leading and trailing edges (some short lengths of glass fibre or aluminium tubes are satisfactory).

Two of the poles (port and starboard) are drilled to take the pivot dowels on the tailplane, and a ply plate is fixed to reinforce the drilled area. The vertical stay also has a piece of tubing fixed to each end, so that it can be attached to the top and bottom poles. Aluminium or wire hooks are now epoxied to the framework where indicated on the plane.

Assemble the pole and the box with the stay in place, then add the tail surfaces, using rubber bands to keep the sub units together. Add rigging cord, which should have almost zero stretch, so that towing forces are transmitted evenly to the towline.

Flying

In a light breeze the standard sailplane technique of paying out all the towline before launching is applicable, while in a steady wind solo launching is easy. The only problem I have encountered is with wind gusts, because a model like this with so much surface area becomes quite difficult to manage in turbulence.

Sometimes it is necessary to move into the wind when the kite sinks into a downdraught. In a thermal it climbs towards the overhead position, although it does not reach there because of the centre of gravity – towline relationship. The tail surfaces may be adjusted to alter the trim so that a wide range of weather conditions can be managed; and there is the further feature that the balance may be altered just as with a 'normal' free flight machine.

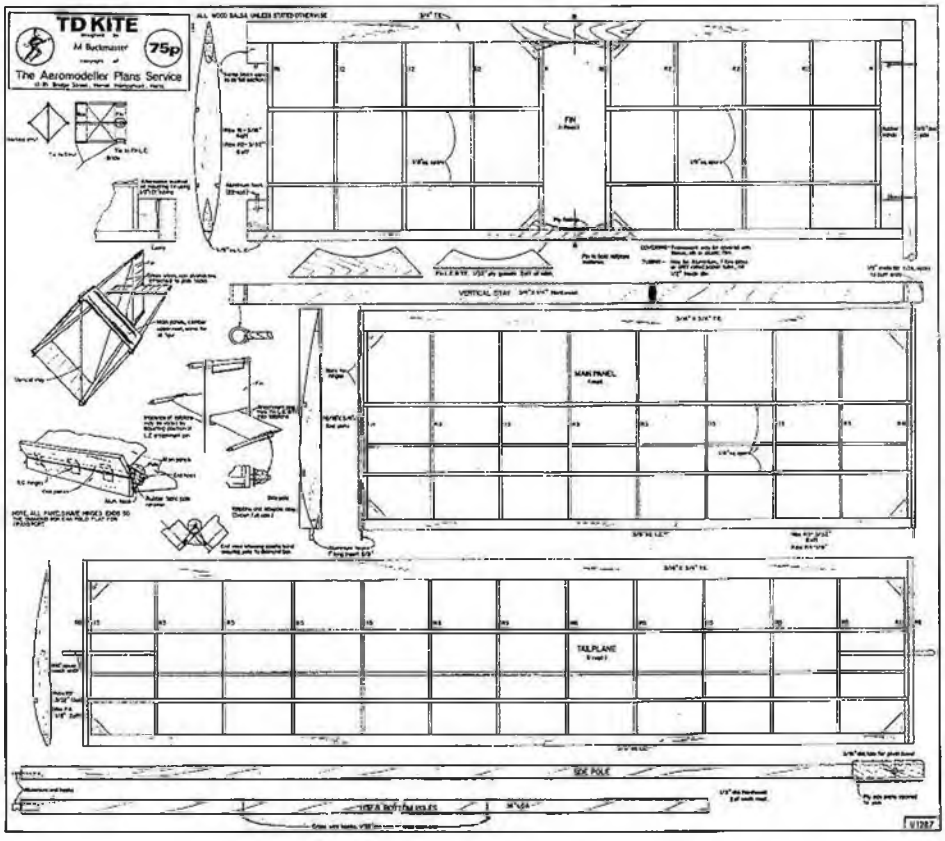
Landing the kite is simple, although practice may be needed to allow for gusts. By moving downwind with the towline the kite sinks and the rate of descent can be adjusted with towline tension; there is a lag between change in tension and response by the kite, but any

bumps encountered at touchdown will be absorbed by the structure which is quite flexible.

Conclusion

This box kite can be flown in winds that prohibit free-flight flying, and can be made to any size and/or length to suit its intended use. Although it is stable, the trim can be adjusted. It is an inexpensive model because there is no expensive component (engine, D/T timer or Wakefield front end), although expensive materials *may* be used to speed construction and finishing.

A kite has only a narrow flight envelope, so that flying a kite does not have the challenge, nor give the satisfaction, of free flight. But the knowledge that there is a true windy weather model in the model box, engenders confidence that a trip to the flying field in marginal weather conditions, will not be wasted. And finally, when your model is flying properly, have someone waiting downwind with a chuck glider or Wakefield and show him that you have a real TD KITE!



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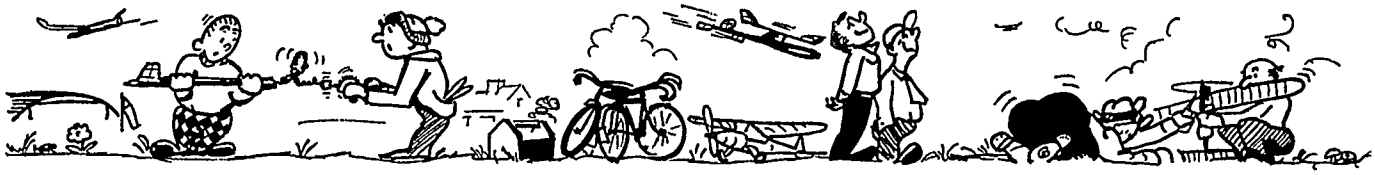


The Free Flight Scene

this month: Bob Bailey
photographs by Martin Dilly

I READ the Editorial in the May issue concerning the 'double blow' to aeromodelling administration with considerable interest. As Chairman of the Free Flight Sub Committee I have been somewhat involved in both issues, namely the Control of Pollution Act, with its consequences, and the Nationals.

To take the Nationals first, they have NOT been cancelled, but postponed until 14-15th August (the weekend before the very popular Pierre Trébod event in France – an event not to be missed particularly if one enjoys the social side of modelling). Unfortunately, the 'Nats' will not be a three day event, but will revert to the two days affair it used to be not so long ago – all thirteen 'usual' events will be flown, so it will be fairly rushed – not a dull moment! Venue is now confirmed as RAF Little Rissington. The reason for the mid-August date is (a) to avoid the haymaking period ending about 31st July and (b) to avoid clashing with either the Pierre Trébod, or the Indoor World Championships at Cardington the following weekend. It would seem quite possible that the Nats could move to the August Bank Holiday weekend in future years to avoid haymaking and the crops problems which bug free flight – why not...?

As regards the Control of Pollution Act, meetings have been held with representatives of the Department of the Environment; these meetings have been very helpful in clarifying the action needed from SMAE to *be seen* to exercise control over noise pollution. Briefly, the conclusions are:

1. A *Code of Practice* for model aircraft will definitely be issued, and must be seen to propose reasonable solutions as seen by reasonable people. The Code of Practice adopted will possibly be as drafted by SMAE if their current activity is maintained.
2. The aim of the C of P is to *minimise noise nuisance.* This does **not** necessarily mean reducing the noise itself, as has been assumed by some members of Council, who are trying to get a blanket silencer rule imposed on all models.
3. The Department of the Environment understands that differences exist between various branches and operating sites of models.
4. The C of P will be an explanatory document rather than a terse statement of requirements; the Appendices covering the different branches of model flying will be similar.

How does all this affect free flight? The F/F Sub Committee recognises that there *must be restrictions on running of engines which are unsilenced,* particularly on the ground, and the importance of this cannot be overemphasised. Remember we must try to reduce *noise nuisance:* keeping ground runs as short as possible, with screens to deflect the noise away from buildings etc. The SMAE F/F sub-committee is strongly opposed to silencers on competition F/F power models; it may well be that flying this type of model in parks or small public places will suffer some restrictions, a small price to pay for the privilege (if we get it) of not using silencers on F/F models

TWO PIECE WINGS FOR POWER MODELS

This is written with FAI models principally in mind, but there is no reason why the same ideas should not be used for Open Classes. Why use two-piece wings? The main advantage is that they take up *very* much less storage room than one piece wings; I have some of each on my FAI models and the difference in transporting and storage is very marked. How to join them properly? There are two principal methods in use on FAI models, namely:

1. Join the wings together and then strap onto the fuselage – this is the simpler and more damage proof method.
2. Plug wing halves onto the fuselage separately.

Method 1

For FAI wings, I recommend one 8 swg piano wire joiner in a brass tube to take flight and landing loads, together with one or more keying joiners of 16 swg wire or similar. *Figure 1* shows the root of the wing in cross section – note that the joiner is put in between the spars; this is the strongest constructional method. It is necessary to add webs between the spars to prevent them from separating under high loads, as for example when D/T'ing off the top of the climb when trimming. It is very frustrating to get the model nearly trimmed, D/T off the top too early while the speed is high, only to see an inner panel fold just outside the joiners as soon as the dethermaliser pops!

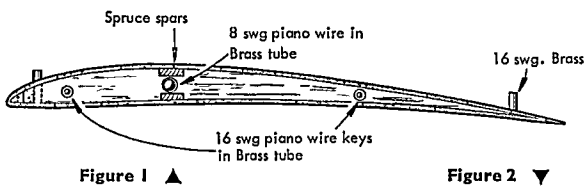
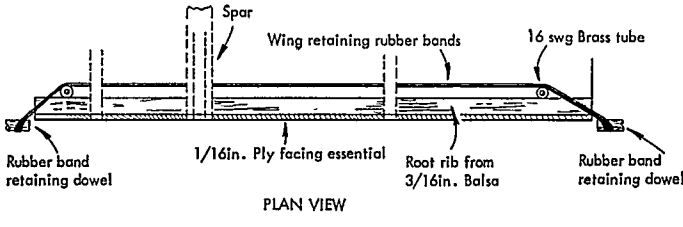


Figure 1 ▲

Figure 2 ▼



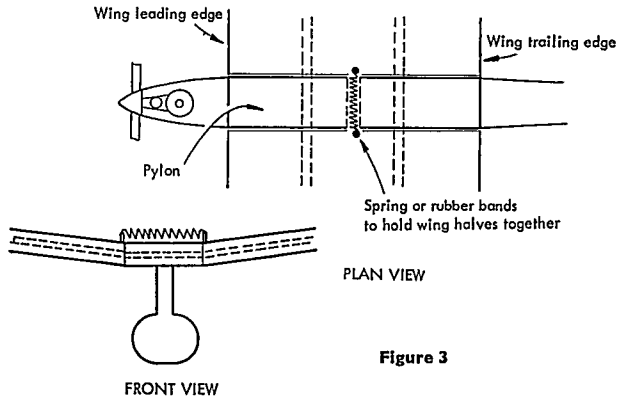


Figure 3

Figure 2 shows the plan view; note the 16 swg tubes set about ¼in.–⅜in. inside the root; these use the bands to hold the wing halves together and also prevent the bands from dropping in between the halves and separating them.

Two constructional notes may be of use. Use a 3/16in. sheet rib at the root; this can be chamfered to compensate for the polyhedral set up with the joiners, and *do not* forget the ply facing rib. Use the two ply facing ribs as templates for drilling the holes in the other ribs to accept the brass tubes, and when fixing these in, lay the two wing halves flat on the bench and use the joiners to line up the tubes as they are epoxied into position. All quite simple if done this way.

Method 2

Is merely an extension of *Method 1,* only the joiners are now fixed in the fuselage. Two joiners of around 10 swg piano wire are recommended; the wing halves are prevented from slipping off by a stout spring passing through the top of the pylon – see *Figure 3.* This latter method (in principle anyway) is usually used in conjunction with an engine cowling/pylon made from glass fibre.

Incidentally, two-piece wings have an additional advantage in that the joiners flex under D/T landing loads – one-piece wings often fail at the centre on D/T operation with FAI power models, due to their high landing speed.

RUBBER MODEL TRIMMING

My comments here apply equally well to outdoor (Open Rubber and Wakefield) as they do to indoor (EZB and 35cm microfilm) models. It should be emphasised that the main factor determining the rate of climb is the *torque* exerted by the rubber motor i.e. the amount of 'twist' delivered to the propeller. Torque varies during flight as shown in *Figure 4.* It will be noted that the torque is very

Chris Parry of the Biggles club displays father Noel's high aspect ratio tapered wing A/2; wing tapers from a 6in. chord to 3in. at the tips. Note also the tailplane mounted on top of the fin.

high at the start of the climb dropping off to a 'plateau' during most of the climb, and dying off quickly as the turns are run off. The most difficult part of the climb to trim is the first 'burst' due to the high flying speed.

The commonest fault in trim during this period is over-elevation, resulting in either a power stall, when the model goes straight or swoops around in a vicious turn, losing height before climbing away. Contrary to what might be expected, downthrust will *not* cure the straight power stall, extra sidethrust (1 or 2 degrees) is necessary. The second condition is most likely caused by too much sidethrust and/or too little tail incidence.

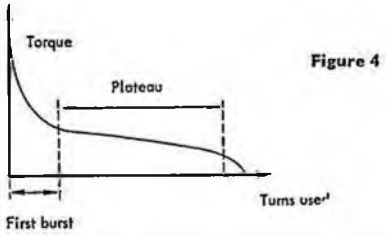


Figure 4

If the model loses height at the end of a power run (outdoor only!) excessive downthrust is being used or the model is under-elevated; this will usually show on the glide as well; if not, the centre of gravity is too far forward.

By necessity, the above is rather brief but I hope that it will help trimming. Effort put in here is very worthwhile since a larger percentage of the altitude gained occurs during the first 'burst', and this is particularly true of Coupe d'Hiver models.

COUPE d'HIVER TRENDS

Several French C d'H designs have been published or recently shown in this magazine; the most significant thing about these models is that they are big with wing areas almost up to Wakefield size. The French have demonstrated their superiority in C d'H under clement weather conditions, and this I think is due principally to the large aircraft which 'carry' 100g much more easily than the small models currently used in Britain. Admittedly, the French enjoy more of the 'decent' weather than we do, thereby allowing rather easier use of big models, but I feel that our 'state of the art' could improve greatly with the use of large models when the conditions are reasonable. It is vital to get that first power burst trimmed properly, otherwise the propeller folds just in time for the model to touch down! Why not give it a try, lads?

EZB SPECIFICATIONS

Martin Dilly pointed out a few months ago that the UK proposal for a provisional FAI class for EZB was referred back to the FAI sub committee for discussion. This may have been due to using a direct conversion from inches to millimetres, giving 'silly' numbers which look very messy in the rule book. I would suggest that the next attempt be based on the following:

(a) Maximum wing span projected 450mm (17¾in. – EZB wings are usually built to 18in. flat span so the change is minimal).

(b) Maximum wing chord 80mm (3·15in.).

Other rules would be as before, i.e. paper covered, no bracing, solid motor stick, tailboom and propeller blades and square outline flying surfaces.

This specification will allow existing EZBs to be used if the FAI class was adopted – an important consideration!

FAI RULE CHANGES

Several important rule changes were argued at the December CIAM meeting regarding free flight, to be effected as from 1st January 1976. The FAI have caused complete confusion by allowing the next committee up the FAI hierarchy (the CASI) to veto the above changes, so that the situation reverts to 1975 rules! This sort of action does not do anything to improve the FAI image or to encourage further support for FAI classes. FAI Power is the F/F class most affected by the change; although exiting spectator-wise, the fly-offs prove absolutely nothing in terms of selecting the *best flown* model to be the winner, since conditions in terms of lift vary so greatly during the fly-off queue if the number is large as at Plovdiv last year, and also at the Pierre Trébod. Incidentally, the engine run for FAI Power is still 7 seconds; fly-off procedures remain as last year.

WORLD CHAMPIONSHIPS 1977 OR 1978?

Big question at the moment is – where, if not when? Two proposals appeared quite quickly; East Germany or Finland in March on a frozen lake! The main trouble with the latter is that it would be all right for one day, and then when all the footprints etc, had frozen solid, a bit rough afterwards! Hard on D/T landings. This proposal was withdrawn but there are hopes that Finland might be able to host a W/C in the summer as at Kauhava in 1965; a great idea should it come off. East Germany have not yet made a formal offer. We'll have to wait and see at the December CIAM meeting.

Expatriate Now Zealander Martin Gregorie and short moment arm A/2 that has one of the bounciest stall recoveries around.

BALSA WOOD SUPPLIES
In his *Vertical Take-off* column of *Model Airplane News*, Dave Linstrum (who was the US Team Manager at Wiener Neustadt in 1973) points out a commercial use for balsa which has a tremendous demand – cryogenic (very low temperature) insulation. Shipbuilders world wide have been using premium balsa in vast quantities to insulate the liquified gases. One tanker can use more than 4 million 'board feet' – which is more than 8 times the volume Sig cuts annually. There are 20 such tankers recently built or under way, so you can see how big the demand is! Balsa is a naturally limited commodity, so modelling tends to suffer. However, tankers are now going direct from the yards into storage. The shipping world ha faced incredible slump and stacks of top grade balsa are plentiful (in theory) . . . for the time being the only limitation is that 4in. sheet will disappear and the price will inevitably climb.

A good tip for those searching for a piece of that elusive quarter grain wood – have a look in your local toyshop and you may find hidden away in a corner a large box of assorted sizes of wood; quite often of excellent quality!

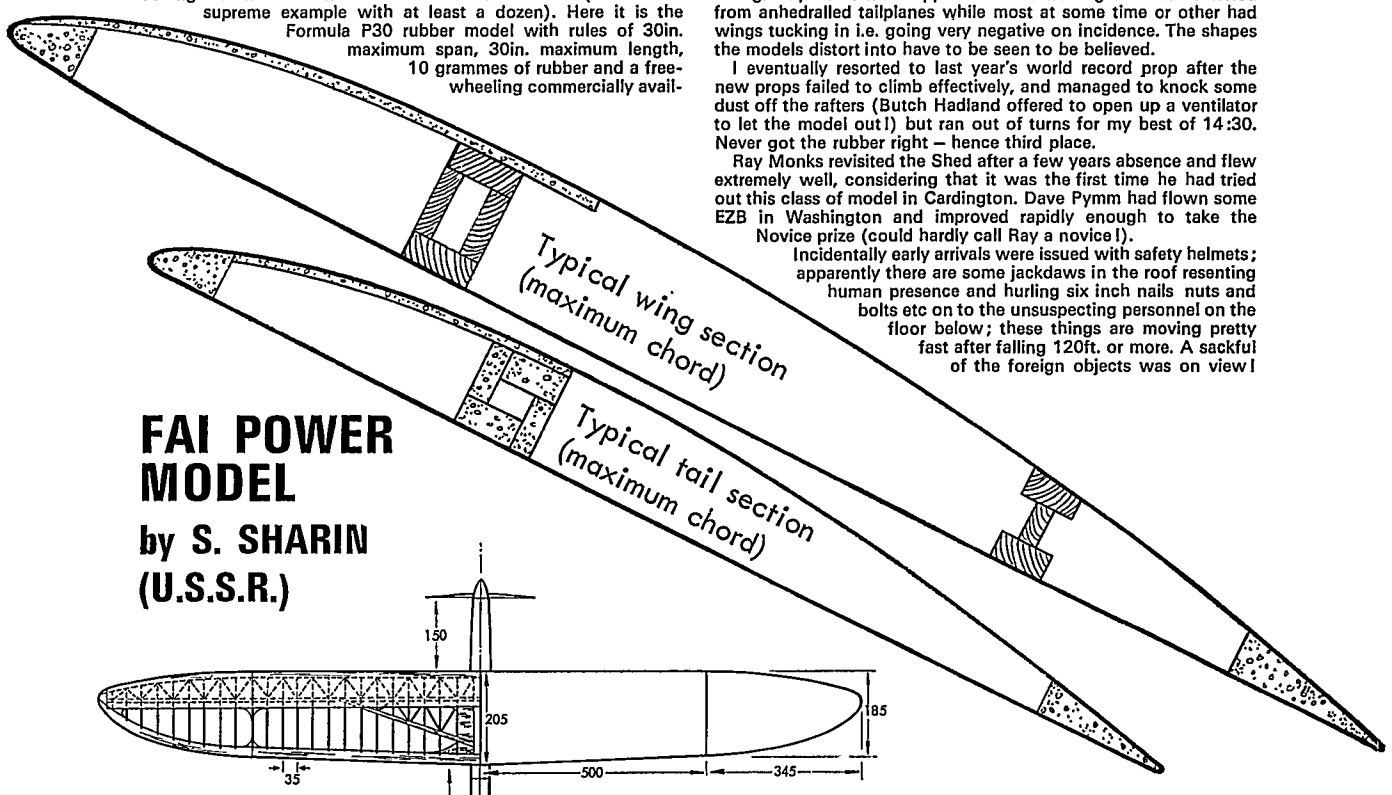
A NEW RUBBER CLASS
The San Diego Orbiteers maintain the American tradition of producing an enormous number of classes for models (indoor is a supreme example with at least a dozen). Here it is the Formula P30 rubber model with rules of 30in. maximum span, 30in. maximum length, 10 grammes of rubber and a free-wheeling commercially available plastic prop. The ideal prop seems to be the big green Peck-Polymer 9½in. prop (which is now available in the UK via The Modellers Den of Bath). Incidentally the class is flown in a 2 minute max so should be suitable for 'small fields.

EZB CONTEST – *Cardington, 25th April*
This contest kicked off the 1976 Cardington season – good to visit the Shed with reasonably flyable, if not good, conditions; it was rather wet and soggy to start with, but this died out gradually as the day progressed. EZB is not easy to fly in Cardington really well, so most were starting off 'cold' without much practice. Laurie Barr sported very successful high pitch (24in. or 26in. pitch props) on a model with miniscule wing posts (⅜in. high) and a 5–6 per cent reverse cambered wing which is becoming very fashionable nowadays. He made the best job of sorting out the rubber, using over one gramme of ·045–·050in. rubber with a best flight of 15:38 and low rpm of about 100; this was good enough to keep him in the lead. John Blount had a very different approach using a small high moving propeller and got lots of altitude. Best flight was 14:55 for second place. On one flight the motor was so tight that the motor stick bent sideways like a longbow when fully wound! The model flew in right hand circles since the tail assembly was greatly offset in the opposite direction! Roger Melville suffered from anhedralled tailplanes while most at some time or other had wings tucking in i.e. going very negative on incidence. The shapes the models distort into have to be seen to be believed.

I eventually resorted to last year's world record prop after the new props failed to climb effectively, and managed to knock some dust off the rafters (Butch Hadland offered to open up a ventilator to let the model out!) but ran out of turns for my best of 14:30. Never got the rubber right – hence third place.

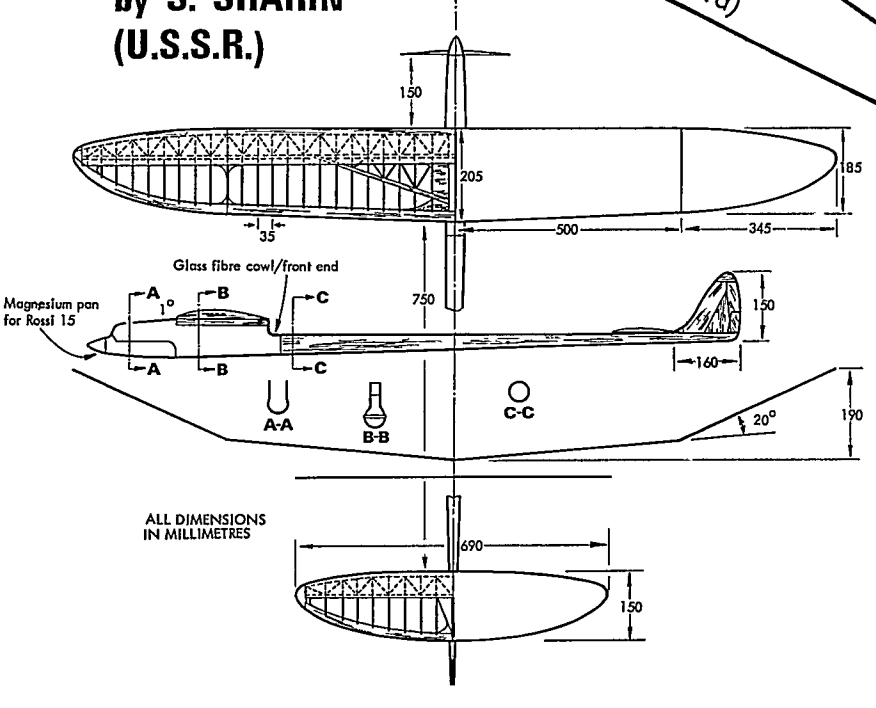
Ray Monks revisited the Shed after a few years absence and flew extremely well, considering that it was the first time he had tried out this class of model in Cardington. Dave Pymm had flown some EZB in Washington and improved rapidly enough to take the Novice prize (could hardly call Ray a novice!).

Incidentally early arrivals were issued with safety helmets; apparently there are some jackdaws in the roof resenting human presence and hurling six inch nails nuts and bolts etc on to the unsuspecting personnel on the floor below; these things are moving pretty fast after falling 120ft. or more. A sackful of the foreign objects was on view!



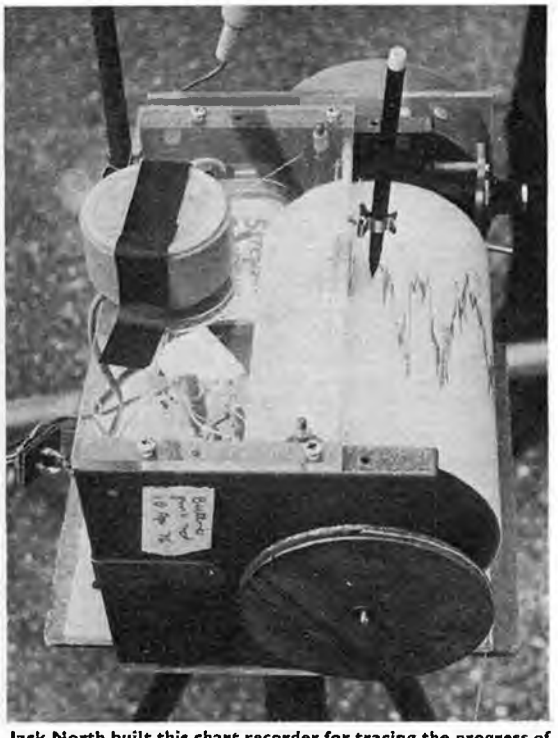
FAI POWER MODEL

by S. SHARIN (U.S.S.R.)



SPECIFICATIONS

Weight of wing	180gm
Weight of tail	35gm
Weight of fuselage	780gm
Centre of gravity positioned at 68% wing chord.	
Wing Area	29·3 dm²
Tail area	8·2dm²
Rossi 15 uses 182 x 95mm propeller.	
Wing is strut-braced.	



Jack North built this chart recorder for tracing the progress of thermals, using a converted alarm clock as the chart drive mechanism. Each flyer using the machine at the Easter FAI meet marked the appropriate indicated temperature rise, so that a useful post mortem could be conducted on the results.

SMAE EASTER FAI MEETING *by Martin Dilly*

The two day FAI meeting scheduled for Easter Sunday and Monday was hit by a major problem less than a fortnight before it was due to take place. The USAF notified us that they could only accommodate the contest at Sculthorpe on the Saturday and Sunday. As airfield confirmations have been getting later and later recently the SMAE newsletter *Model Flying* had carried F/F Technical Committee chairman Bob Bailey's address for final times and information, and everyone who thus troubled to contact Bob had received full details and in the event, only York's Keith Proctor arrived halfway through the contest on the Sunday morning.

Anticipating subsequent protests, the organising F/F sub-committee had considered running a 'contest within a contest', by counting Sunday's results separately from the overall two-day scores; as it happened John O'Donnell indicated his dissatisfaction with the late date change and, because there were 16 full houses in F1A on the Sunday rounds, two fly-offs took place for that event. Thus, if the objection is upheld by the SMAE Council, there will be a second set of results from which the British team for the European Championships may be picked.

If the administration faced problems, the weather was as near perfect as Norfolk in April can provide. Low cloud and mist early Saturday led to cancellation of the first power round after models vanished into cloud after five seconds! This round was re-scheduled at the request of the entrants, and took place at the end of the first day's flying.

As promised by the forecast the light to moderate wind and the sun began to clear the mist and the contest started at 10.40 am with the first Wakefield round. Ian Kaynes who finally took third place on the seven round results, soon found that the haze was still a problem as his aircraft went o.o.s. at 1:55, and several other Wakefield and A/2 flyers suffered from the visibility

In the Wakefield rounds in particular the predictions of the Croydon chart recorder and its associated upwind bubbles were watched with interest by all; having its first outing at a major event it certainly helped Ian Kaynes into third place and John Woodhouse, flying in his first Wakefield event scored well, by flying strictly according to instructions. Each indicated thermal on the recorder trace was marked to identify who launched into it, so a correlation could be made between temperature readings and resulting durations. Built by Jack North, the apparatus uses a pole mounted thermistor some three metres above ground level; the chart drive is based on an alarm clock mechanism. With a launch line in use, rather than individual poles, there was a marked tendency for Wakefield flyers to gather downwind of the Croydon mechanised oracle; maybe a course in Korean or deaf-and-dumb language for Croydon members will keep its advantages more exclusive.

Early in Wakefield round 2 Alan Jack found a strong patch of lift all to himself, and a few minutes later 8 or 10 aircraft were in the round's most popular thermal. During the afternoon the temperature rose and the wind dropped, so aircraft were going about a third of a mile in three minutes. The larger thermals in the glider rounds held 20+ models; Bob Wells' and Richard Cedar's A/2s collided a minute and a half after launch, both flyers opting for re-flights in what was left of the round, and maxing.

In general, the glider rounds were hectic, with 45 entries and the usual shortage of helper/timekeepers. Competitors with a non-glider-flying assistant were at an advantage, without the pressure of knowing that the chap with the stopwatch is waiting to fly in what time you leave him of the same 40 minute round. Circle tow aircraft seemed to be in the majority and, in the light breeze, several people decided to tow upwind, drift across and downwind along the side of the 'pack' and wait, circling, a hundred yards downwind and clear of the line tangles when the lift arrived.

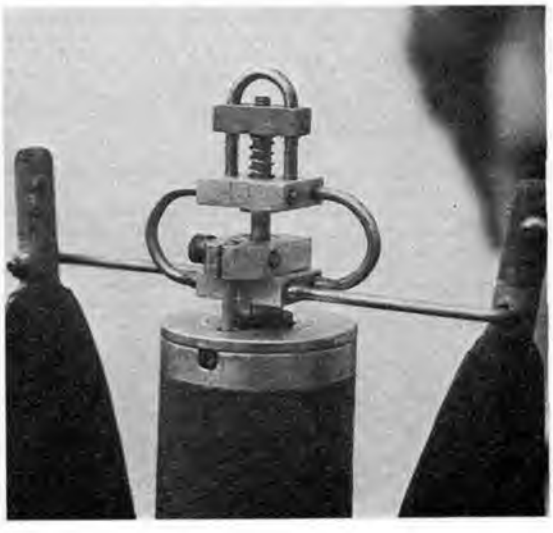
As is often the case at British A/2 contests, it appeared that most rounds had one large thermal and a smaller one later, but I suspect this is a function of the fact that there are more glider flyers than available helpers, resulting in some competitors having to pair up and take turns for first crack at the big, model-marked, thermals.

In round 2 of A/2, Mike Warren accidentally let go of his winch on a circle tow model, and saw it do 3:40, dragging the winch and line as it climbed to about 300 feet, knowing that the timer had not started and that he had already lost the score for that round. As an aid to keeping the inside wing low during the zoom release Mike uses a secondary line consisting of a yard or so of fuzzy string, attached to the towline and pushed under a rubber band along the wing leading edge at the dihedral break. After the ring separates from the hook, the friction as the string pulls through the band gives the wing a final tug down into the climbing turn.

To avoid similar accidents to Mike Warren's, John Cooper uses a wrist strap on his winch to prevent its release; I find that a pistol grip at right angles to the line pull is useful and allows the winch (light and home-made) to dangle from a little finger while the rest of that hand is free to hold loose loops of line for circle towing.

Leicester's Ian Fairgrieve was flying an interesting aircraft, using Dave Barnes's *Curved Air* airfoil, and a structure obviously designed to keep down the dreaded moments of inertia. He used an $\frac{1}{8}$in.×$\frac{3}{32}$in.

Trevor Grey's Loffler-type variable pitch propeller used on his latest Wakefield has a diameter of 22 inches, while the pitch varies from 18-30 inches. Model features triple fins, Burrows GF motor tube, 1/16in. balsa rear cone and nylon flexi-joint. Does not use either auto rudder or VIT.



spruce trailing edge and five ⅛in. square spars, spruce in the centre panels and balsa, tapering to ⅛in.×$\frac{1}{16}$in. in the tips. Total wing weight was 5½ ounces.

F1C saw several over-elevated power patterns among the 13 entrants. St Albans' Dick Johnson cracked two wingtips on two consecutive flights, and the resulting trim change dropped him from the leading place he held for the first four rounds. Back from a stay in New Zealand was Bob Taylor, flying for East Grinstead, but out of luck for the first contest since his return. With nobody managing seven three's in Power, the results seem to show that the motor run reduction from ten seconds to seven has produced a drop in the number of maxes, although without Dick Johnson's trim change the story might have been different. Both Pete Harris and Roger Baggott had new triple finned aircraft, Harris using a home-made prop blade moulded from glass and polyester resin.

Sunday dawned calm and clear and stayed that way, although the drift was variable and necessitated a couple of holds and shifts of launch point through the day. Later in the day the lift seemed rather harder to pick, although round 5 of A/2 saw 43 maxes from the 45 flying. The unlucky two were, unexpectedly, Crookham's Pete Stewart, whose D/T timer speeded up to deposit him on the Sculthorpe concrete at 2:55; and Liverpool's Dave Barnes, who failed to centre into the lift and 'donged out' after 1:41. The following round saw almost as many threes, and, by the end of the seven rounds, four flyers had 21 minutes on the scoresheet.

Because of the possibility of having to count only the Sunday scores there were two A/2 fly-offs, 16 having managed to do four maxes on the second day. The RAFMAA's Brian Baines finally overcame the combined might of Biggles F/F Team – John Cooper, Martyn Cowley and Steve Marriott, who placed second, third and fourth, with no obvious lift in the four minutes of the fly-off round to help any of them. Biggles honour was saved by Andy Crisp who won the 'Sunday Maxes' sub-contest with 3:06 in the fly-off, after losing one model with a timer failure, producing a flight of an hour before the model vanished into the Norfolk sky. For the fly-off Andy used a 92in. span aircraft, with a GF-6 airfoil, modified with a sharp leading edge and a turbulator ½in. back. Centre panels use a sheeted upper surface and date from 1966; tips are tissue covered, replacing a pair chewed by a dog at the '74 Nationals, and built the day before the contest at Sculthorpe.

In Wakefield only Anglia's Bob Wells managed seven threes, but, of the six who maxed out on day 2, only J. O'D elected to fly-off, the others settling for joint second places. On the final Wakefield round John had a malfunction on the delayed prop start mechanism; when the launch momentum ran out the model stalled 20 feet up and descended smartly onto the horrid, hard concrete. He then flew a single-bladed feather-equipped aircraft which he had used on some earlier flights.

F1A (*45 flew*): 1. B. Baines (RAFMAA) 21:00+2:49; 2. J. Cooper. (Biggles) M+2:20; 3. M. Cowley (Biggles) M+2:19; 4. S. Marriott (Biggles) M+1:15. **FIA** (*4 rds on Sunday*): 1. A. Crisp (Biggles) 12:00+3:06; 2. P. Williams (Richmond) M+2:50; 3. J. Hopper (Stanstead) M+2:36 (16 flyers scored 4 maxes). **FIB** (*21 flew*): 1. A. Webb (Anglia) 21:00; 2. G. Walker (B'ham) 20:08; 3. I. Kaynes (Croydon) 19:54. **F1B** (*3 rds on Sunday*): 1. J. O'Donnell 9:00+1:34; 2. Equal placed with 3 maxes each – A. Wells (Anglia), M. Duce (Liverpool), G. Walker (B'ham), D. Hipperson (Croydon), I. Kaynes (Croydon). **FIC** (*13 flew*): 1. R. Collins (Anglia) 20-22; 2. T. Smith (BAC) 19:47; 3. D. Pymm (B'ham) 19:32. **F1C** (*3 rds on Sunday*): 1 Equal placed with 3 maxes each – S. Screen (B'ham), R. Collins (Anglia), 3. T. Smith (BAC) and R. Baggott (B'ham) 8:20.

VULCANS THIRD ANNUAL F/F GALA, *RAF Elvington, 9th May 1976 – Report by D. Hipperson*

The hot spell that most of the country had been enjoying for the previous few days held to make this one of the most pleasant days of contest flying so far this year, with sun filtering warmly through haze for the first two hours or so and a very light drift diagonally across the vast expanse of concrete for which Elvington is famous. Lift was strangely patchy however and there was much use made of that Northern custom of re-entry – both Peers and Pollard being amongst the notables who used it in Open Rubber! The former added substantially to the prize money pool by re-entering many times in numerous events.

Only Ron Firth's organisation could have timed the eventual thunderstorm to coincide so precisely with pub opening hours. Heavy and continuous rain cooled the concrete for more than two hours, and flying did not resume again in earnest until around 3 pm. By this time there were a number of trebles in Rubber and Glider, but not Power. A combined Mini event flown to the eminently sensible K factor system (which was much more simple than it first appeared) kept activity very high in the smaller classes. Lift was much easier to detect after the rain and many maxed out in Mini even without the aid of the K Factor.

Croydon's Don Thompson and straight dihedralled A/2 glider at the St Albans Gala, Bassingbourn.

By the end of the day a half dozen had qualified for fly-offs in each of the events, apart from chuck glider (won by Barry Kershaw) and surprisingly Open Power. The winner of this, Julian Hopper, was nearly on his way home without his prize following a third flight of 2:45. As it happened this was enough to push Peers to second. John Carter came third. John O'Donnell topped a poorly supported special 100 gramme Coupe d'Hiver event which had been flown to three rounds and ROG. It took only a token third flight on his part to clinch it.

Fly-offs started at a little after 6 pm in very calm conditions. Most of the glider flyers took some time to decide to fly and then it was only Tom Cordes that hooked anything really usable. He won with a convincing 3:44.

Mini followed with O'Donnell flying his Coupe model after qualifying with his brand new A/1. This uses a rather different construction to the popular trend for this small breed: he uses a foam wing, all sheet covered and boasts a weight of some 4oz. just for this component! In conditions of virtually no drift, Dave Hipperson was first away with the nine year old ¼A power model he had used for the comp flights. Levey towed through the air Dave was in, and released into something better to have John O'Ds Coupe climb up underneath him. The Coupe model sank mysteriously after a good climb. Dave Hipperson was down at 2:25 and Levey held his good air to make 2:20 which when 'factored-up' won him the contest. Gerry Tideswell also connected good air and would have been 2nd had the processors not found his model to be substantially under weight.

Last was Open Rubber. It was still very calm with plenty of light enough to see the models down. The seven qualifiers flew at intervals during the first five minutes or so of the period and the times were remarkably close. I believe Nelson flew quite early but most were seen down into or just behind some of the shrubs off the side of the drome. Carter and Hipperson did rather poorer flights than might have been expected, but Hipperson at least was not using a fly-off model. What was curious was O'Donnell's flight. His model was appreciably higher than anyone else's, and although sinking looked good for eight minutes. Neither he, nor others who witnessed it from various points on the field, were completely happy with his eventual third place – it looked like a case of mistaken identity in the air.

A proper prize giving followed which was a pleasant surprise for the far travelled Southerners who have grown used to the organisation leaving before they have a chance to return from the fly-off flight! It should also be pointed out that the organisation supplied a leaflet of rules and special notes and address labels for the venue. Very nicely organised and well worth the petrol from London especially as substantial cash prizes were awarded in all classes. How is it that some clubs can do this?

Open Glider: 1. A. Cordes M+3:44; 2. J. Kay M+2:24; 3. A. Cooper M+2:19. **Mini:** 1. G. Levey M+2:48; 2. D. Hipperson M+2:25; 3. J. O'Donnell M+2:21. **Open Rubber:** 1. W. Nelson M+6:25; 2. J. Barnes M+6:30; 3. J. O'Donnell M+6:29. **Open Power:** 1. J. Hopper 8:45; 2. R. Peers 8:36; 3. J. Carter 8:32. **100gm Coupe d'Hiver:** 1. J. O'Donnell 3:15. **Chuck Glider:** 1. B. Kershaw.

Latest Engine News

by Peter Chinn

Latest from OS is a 10 cc four-stroke. This is the prototype of the new OS FS-60 with pushrod operated overhead valves. Should be much quieter than the typical two-stroke .60.

OS 10cc Four-Stroke

A SURPRISE NEWS item from Japan is that OS are producing a 10cc overhead-valve four-stroke aircraft engine. Our photograph shows the prototype unit that was seen at the Osaka Model Show on 24th-25th April. Delivery of production models should begin in the Japanese market almost immediately and should presumably follow to the UK and other export markets later this summer.

One does not, of course, anticipate a power output equalling that of the existing OS high performance 10cc two-strokes, the Max-60F-SR and Max-H60F-GP, but it should be possible to make the FS-60, as it is code-named, a good deal quieter than any existing two-stroke and it may well be of considerable interest to scale enthusiasts.

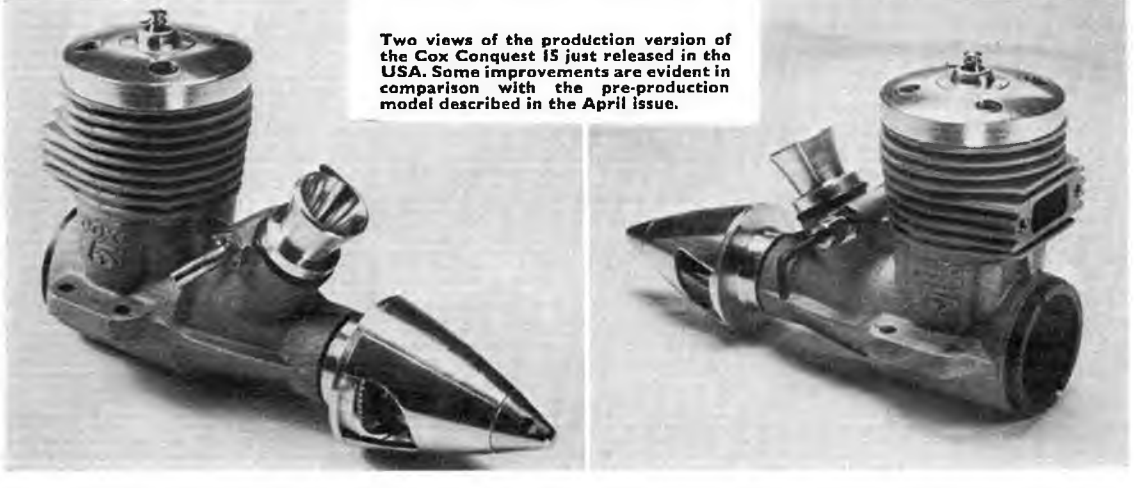
As the photograph shows, the FS-60 is a good deal less cluttered in appearance than the few four strokes that have preceded it over the past thirty or forty years. The timing gear is at the rear of the engine's crankcase and operates the valves via push-rods and rockers. The carburettor, with barrel throttle, is mounted at the rear of the cylinder and a curved induction pipe carries the mixture up to the cylinder head.

Bill Atwood 'Retires' (?)

Bill Atwood, pioneer American model engine designer and manufacturer who, for the past 15 years, has been responsible for engine design and development at the L.M. Cox Manufacturing Co. Inc., retired from that company towards the end of last year. Whether this means real retirement or whether Bill, whose involvement with model engines has spanned something like 45 years, will continue to exercise his talent, remains to be seen. Whatever should be his decision, we all owe Bill a great deal for his good work in the commercial model motor field which started with his association with Mel Anderson in the design and production of the Baby Cyclone more than 40 years ago and progressed through many other famous engines, the Super-Cyclone, the early Torpedo (from which K&B sprung), the Atwood Champion, Triumph and Wasp, early Wen-Macs and eventually the Coxes.

One day we will try to trace the history of the Atwood engines in an article. Meanwhile, the news is that Bill's successor at Cox is Bruce Tunberg and he is now responsible for the new Cox engines that are beginning to come off the production line at Cox's Californian factory.

These include, of course, the Cox Conquest 15. As we mentioned last



Two views of the production version of the Cox Conquest 15 just released in the USA. Some improvements are evident in comparison with the pre-production model described in the April issue.

New Cox has large dia. (11mm) shaft journal with special balancing system and a tapered gas passage. New lengthened intake venturi no longer uses multiple surface jets.

Cox Schnuerle ported cylinder has separate jacket. Very light piston is of sintered iron. Head uses separate glowhead insert. Backplate has O-ring seal instead of gasket.

month, the production version of this differs from the version illustrated and briefly described in the April issue. Changes include a longer intake venturi which also has an enlarged choke increasing choke area to some 40sq.mm or about 40 per cent more than that of the last standard front induction Rossi 15 *Normale* that we examined and 21 per cent bigger than the R.15RV choke.

Our photographs show the present standard production model Conquest 15. This is intended primarily for free-flight and carries the catalogue no. 2800. (There is also an R/C version – cat. no. 2810–which differs not only in having a Perry carburettor and a different cylinder head (finned, with a conventional glowplug) but also has modifications to the crankshaft and cylinder-liner/piston assembly.)

The general design and construction of the Conquest 15 has already been commented upon in the April article. Other data, including external and internal dimensions and port timing, will now be found in the accompanying data table.

The emphasis on free breathing, already apparent in the engine's large choke area, is also seen in the porting and port timing. A check on one of our two test samples revealed a rotary-valve period of 204 degrees of crank rotation, beginning at 34 deg ABDC and closing at 58 deg ATDC. Mixture is admitted through a large rectangular port in the shaft from an offset rectangular intake aperture. The exhaust period is a generous 150 degrees of crank angle and the transfer periods are equally generous at 140 deg for the main transfer ports and 136 for the third port. (Measured timings for the last Rossi we handled were: exhaust 152 deg, all transfers 136 deg and rotary-valve 41-62 deg). Incidentally, the Cox also has a short sub-piston supplementary air induction period of approximately 18 deg each side of top dead centre when the piston skirt clears the lower edge of the exhaust port.

Whereas the earlier Conquest 15 examined had a multi peripheral jet intake assembly, this system (a Cox innovation many years ago, subsequently copied by several other manufacturers) has been abandoned in the latest Conquest 15. The tangent mounted needle-valve assembly now feeds directly into the venturi choke via a slot in the latter.

A feature of the Cox is its low reciprocating weight. The piston is of sintered iron and weighs only 4·3 grammes or 5·1 grammes with gudgeon-pin, which is just about the lightest ferrous piston we have encountered among current 2·5cc engines. (Piston and pin weights for some of the others are 6·0g for the Rossi and Super-Tigre G.15RV, 6·6g for the Taipan 15TBR and 6·8g for the TWA 15. The exception was the 1973-4 Super-Tigre X-15 ABC whose aluminium piston weighed, with gudgeon-pin, only 3·8g.

The Conquest has a unique crankshaft counterbalance system. The shaft has a full circle crank disc but instead of peripheral slots each side of the crank pin, it has three carbide counterweights inserted into the disc opposite the pin and held captive by a machined aluminium cover.

Speculation as to whether the Conquest will successfully challenge the well entrenched Rossi for free-flight honours should be resolved very soon. Present rumours are pretty conflicting ranging from 'not nearly as good' to 'much better'. The proof of the pudding will be in the flying. Meanwhile our Conquests will have been fully tested by the time these words appear in print and we shall be following with a full report as soon as possible.

Super-Tigre G(X)15FI

Future generations of model engine collectors are surely going to have problems agreeing about the identity of certain Super-Tigre motors. For example, the G.20 and G.21 designations have covered a multitude of

DATA—COX CONQUEST 15

Nominal Bore and Stroke:
0·591 × 0·550in.

Nominal Swept Volume:
0·1509cu.in. – 2·472cc

Checked Weight:
181 grammes – 6·38oz.

External Dimensions:
Length from prop driver face to backplate: 71·0mm
Overall height, less plug: 62·6mm
Crankcase width: 27·5mm
Width across mounting lugs: 42·0mm

Bearings:
Main (ball journal): 11 × 22mm 8-ball
7 × 14mm 9-ball
Big end: Plain unbushed
Small end: Plain unbushed

Crankshaft:
Main journal o.d.: 11mm
Crankpin o.d.: $\frac{7}{16}$in.
Gas passage i.d.: 6mm at front diverging to 8mm at rear

Piston/Conrod Assembly:
Total weight: 6·8 grammes
Piston only: 4·3 grammes
Gudgeon-pin only: 0·8 grammes
Connecting-rod only: 1·7 grammes
Gudgeon-pin o.d.: 0·157in. (4mm)

Porting:
Scavenging system: Schnuerle – rear exhaust
Induction system: Crankshaft rotary valve
Exhaust opens: 75 deg BBDC
closes: 75 deg ABDC
Transfer opens: 70 deg BBDC
closes: 70 deg ABDC
Third port opens: 68 deg BBDC
closes: 68 deg ABDC
Rotary-valve opens: 34 deg ABDC
closes: 58 deg ATDC
Sub piston induction period: 36 deg
Carburettor choke i.d.: 0·282in.
Effective choke area: ·062sq.in.=40sq.mm

Above: Parts of the (final?) G15FI. At right—for collectors only—is the Dragon 16, available from Maple Models of Luton. Assembled from new spares, these vintage engines are however non-runners.

quite different groups of models made in the past 25 years. A G.15 can mean a ·15cu.in. engine and a G.60 is a ·60, but a G.20 is never a ·20cu.in., it will usually be a ·15 or a ·22 (otherwise known as a G.20/231) and a G.21 can be anything from a ·29 to ·46cu.in. but never a ·21 . . . In 1973 a rear exhaust X.15 speed engine was announced but it carried the legend 'G.15RV' on the crankcase – the result of using a part of the previous side exhaust, rear rotary-valve G.15 casting.

Now, just to add a little more to the confusion, the latest version of the G.15FI has 'Super-Tigre X.15FI' on its crankcase! The reason why the engine is not an X.15FI (quite apart from the label on the box) is that it uses the G.15 internals. See photo. It has a G.15 type piston and cylinder assembly and a G.15 crankshaft. The cylinder has Garofali's original racing type porting with large inclined transfer ports timed to open almost simultaneously with the exhaust port and used in conjunction with a lapped cast-iron deflectorless piston. The X.15FI, on the other hand, has Schneurle scavenging with the option of an ABC piston/cylinder set-up. The disguised G.15FI has the standard G15/7N crankshaft with cutaway web flanks, whereas the X.15FI has a full disc crankweb with enclosed peripheral slot counterbalancing.

It is not clear why the factory is putting G.15FI parts into an X.15FI casting. This particular hybrid is not listed in the current Super-Tigre catalogue, nor is *any* engine based on the old G.15 case, although the G.20/15 is still available. Possibly no more G.15 type castings are available and the idea is to continue to satisfy demand for the G.15FI until customers become used to the idea of using the X.15FI instead.

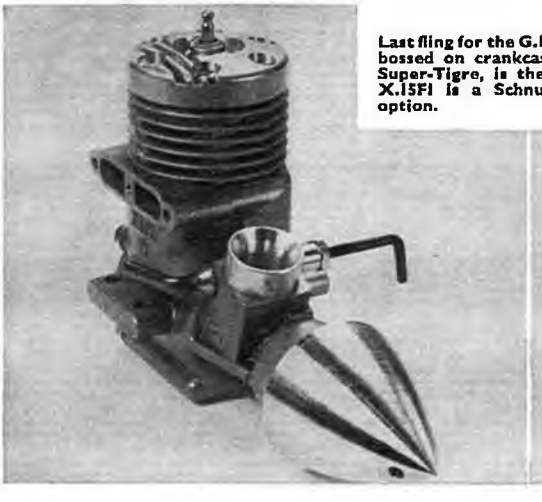
Outwardly, the X.15FI casting differs frow the old G.15FI casting in that it has a slightly squarish appearance, particularly when viewed from the transfer side. A large bore circular aluminium intake venturi replaces the rectangular plastic insert of the G.15FI but it still feeds the shaft rotary-valve via a long parallel sided port offset in the direction of rotation. The venturi has an enormous throat diameter (9mm) which, after allowing for the very slight intrusion of the tangent mounted spraybar, gives an effective choke area of approximately 60sq.mm.

This 'GX.15FI' model has the same mounting dimensions as the G.15FI and weighs just a trifle more at 176 grammes (6·2oz.) complete with spinner assembly.

COLLECTOR'S CORNER

Michael's Models of Finchley have advised that, in addition to the MVVS range of engines from Czechoslovakia, and the Remco 29 spark-ignition 4·9cc unit from the United States (£40.50), they now have the Spanish Zom 2·5cc diesel (£14.50) and the Thunder-Tiger 2·5cc glow engine (£6.95) from Taiwan.

Last fling for the G.15? Despite X.15FI embossed on crankcase, this, according to Super-Tigre, is the latest G.15FI. 'Real' X.15FI is a Schnuerle unit with ABC option.



KIT REVIEW

A pair of gliders examined by Joe Goodchild

CAMBRIA'S *MERLIN & MISTRAL*

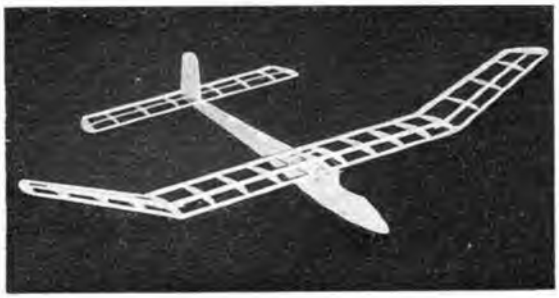
CAMBRIA, a name well known in radio controlled circles, have recently extended their range to cover other branches of aeromodelling, *Merlin* and *Mistral* being two gliders out of their present range of four. *Merlin* is of 33in. span and is aimed at the newcomer to this hobby, whilst *Mistral* at 55in. span, though not difficult needs some experience. Both designs are similar with tip dihedral to the wings, sheet fuselage and built up tailplanes; *Mistral*'s underslung fin, auto rudder and dethermaliser being the main design differences. First impressions are that here is an ideal father/son or elder/younger brother (or sister) combined project.

The contents of both kits are very much the same; all parts being die cut in well graded balsa and ply (*Mistral* only). The various spars and shaped trailing edges are also suitably chosen both for size and grade. Dowel, wire, clear celluloid and tissue complete the list of parts. The plans are both clear and well laid out, and in the case of *Mistral* have sketches to show more tricky points in the construction. The separate instructions are examples that should be copied by other manufacturers, being written in plain and simple language that take builders through every step of construction, covering, finishing, trimming and flying. Experienced builders will no doubt go their own way, but even they might pick up a few tips if they care to read them.

I find at this stage that it pays to sort out the various spars etc and mark each piece with its functions. In the *Mistral* kit one of the trailing edges was considerably heavier, and all the lighter of the tip spars were consequently marked for this side. Everything, including the die cut sheets, were then sanded – this not only helps extraction of the die cut parts but saves a tremendous amount of time and work at later stages of construction. All the balsa parts came away from the sheets with the minimum of help from the razor blade, the die cutting being well up to present day standards. The ply parts in *Mistral* need a little extra help, but nothing to worry about. Unfortunately the *Mistral* fuselage side sheets were found to be badly warped; no doubt these would have been replaced if a complaint had been made to the manufacturers but time was pressing and ten minutes in front of a steaming kettle got rid of the worst and the pieces were pinned flat on a board to dry out thoroughly.

Meanwhile a start was made on the wings. Both are similar in plan form but *Mistral* features an undercambered airfoil section and built-in washout at the tips. *Merlin* has a $\frac{3}{16}$in. sq. leading edge, $\frac{1}{4}$in. × $\frac{1}{8}$in. trailing edge and a single $\frac{1}{4}$in. × $\frac{1}{8}$in. spar overlapping at the dihedral breaks for strength, whilst *Mistral* has $\frac{1}{4}$in. sq. leading edge, $\frac{3}{8}$in. × $\frac{3}{16}$in. trailing edge, two $\frac{1}{4}$in. × $\frac{1}{8}$in. spars and one of $\frac{1}{8}$in. sq.; three $\frac{1}{16}$in. ply braces strengthen the dihedral joints. The instructions cover the construction very well and no snags were encountered.

Mistral's tip washout is built in with the aid of tabs attached to the ribs, these being removed at a later stage; in fact contrary to the instructions they were left on whilst the three portions of the wing were joined together. This meant that the packing up of tips was made much easier and ensured equal washout at both tips. *Merlin*'s wing, with its flat bottomed section presented no problems and went together quickly. The tailplanes were tackled next, *Merlin*'s being a simple structure of $\frac{1}{8}$in. sq. leading edge, $\frac{1}{8}$in. × $\frac{1}{8}$in. trailing edge and $\frac{3}{32}$in. sq. spar, whilst *Mistral* features diagonal rib construction for additional anti-warp protection, sizes of leading edge, trailing edge and spar being $\frac{3}{16}$in. sq., $\frac{1}{8}$in. × $\frac{1}{8}$in. and $\frac{1}{8}$in. sq. respectively. The trailing edge supplied in the *Mistral* kit was not long enough to make the scarfe joint detailed on the plan, so a butt joint was made at the centre, hoping it would be strong enough (it hasn't failed yet!). Due to the diagonal



Spread of contents for the 'Merlin' reveals the many die-cut parts – 'Mistral' kit is equally well equipped. Picture of the uncovered 'Merlin' below reveals the simple structure, making it ideal for the novice.

spacing, the spar slots in the ribs require opening out but this point is covered in the instructions.

By this time *Mistral*'s $\frac{1}{32}$in. fuselage sides had dried out and were reasonably straight. Following instructions, the fuselage sides were joined with the centre formers. The instructions now state that the addition of the remaining formers and joining at the ends should be done over the plan, but this will be found much easier if the fuselage is built upside down, adding packing at the tail end to compensate for the break in the top fuselage line at the wing seating. *Mistral*'s fuselage is entirely covered top and bottom with $\frac{1}{16}$in. sheet, but only *Merlin*'s nose portion is so covered. The fins of both models are simple sheet affairs only requiring sanding, after which the rudder on *Mistral* was hinged with the cloth supplied. The tow hooks and *Mistral*'s auto rudder and D/T hooks were then bent with the aid of pliers to the shapes shown on the plan; take care with these as the length of wire supplied is only just enough, and does not allow for any mistakes. *Merlin*'s hook is simply bound to a piece of $\frac{1}{16}$in. sq. and glued to the right hand fuselage side. The ply plate to which *Mistral*'s hook is bolted had extra holes drilled in case adjustment was needed on the flying field and it was considered easier to do at this stage. Before fitting the transparent cockpit cover a name and address label was fitted underneath (just in case).

White tissue is supplied in both kits, but in the interest of saving weight, a spare sheet of orange tissue was used on the fuselages, fins and *Mistral*'s wing tips. Coloured dopes could be used on the fuselages, but go easy!

The underside of *Mistral*'s wing needs care in covering as it is essential that the tissue is stuck to each rib to maintain the undercamber. The tissue was watershrunk followed by two coats of 50/50 dope thinners pinning the flying surfaces down between coats; the fuselages had an extra coat. All surfaces were lightly sanded between coats which certainly improved the finish.

Considering that this was the first tissue covering I had done for some time, as recent models have tended towards foam wings and plastic film covering, no one was more surprised than the reviewer that no warps had occurred at this stage in the procedure!

The final touches were then added, namely the auto rudder and dethermaliser on *Mistral*, and fixing dowels on both models. A surprising omission on *Mistral* is the provision of a snuffer tube for the D/T fuse, but a suitable alloy tube can be let into the rear of the fuselage or epoxied to the extreme rear of the fuselage side to overcome this.

The models were finally balanced at the design points by adding pieces of lead sheet to the weight boxes, 2½oz. being required by *Mistral* (I should have done some more sanding on the tailplane) and just under ½oz. for *Merlin*, total flying weights being 7½oz and 2oz respectively.

Finally the wind dropped sufficiently to enable one to venture out to the local club's flying field; a fair breeze was still blowing but at least it was steady. Test glides with both gliders showed that very little adjustment was needed. The instructions state that with the rudder/fin neutral the glide should be straight with just a hint of a stall. *Mistral* required $\frac{1}{32}$in. packing under the tailplane trailing edge to achieve this, but none was required for *Merlin*. Releasing the auto rudder on *Mistral* and $\frac{1}{16}$in. offset bent in the *Merlin*'s fin gave the necessary amount of right hand turn needed to kill the stall. Little else could be learned by more hand launches, so 50ft of nylon towline was run out and tow launches commenced. The behaviour of both models under tow was immaculate; a few paces to put tension in the line and then stop and watch as the

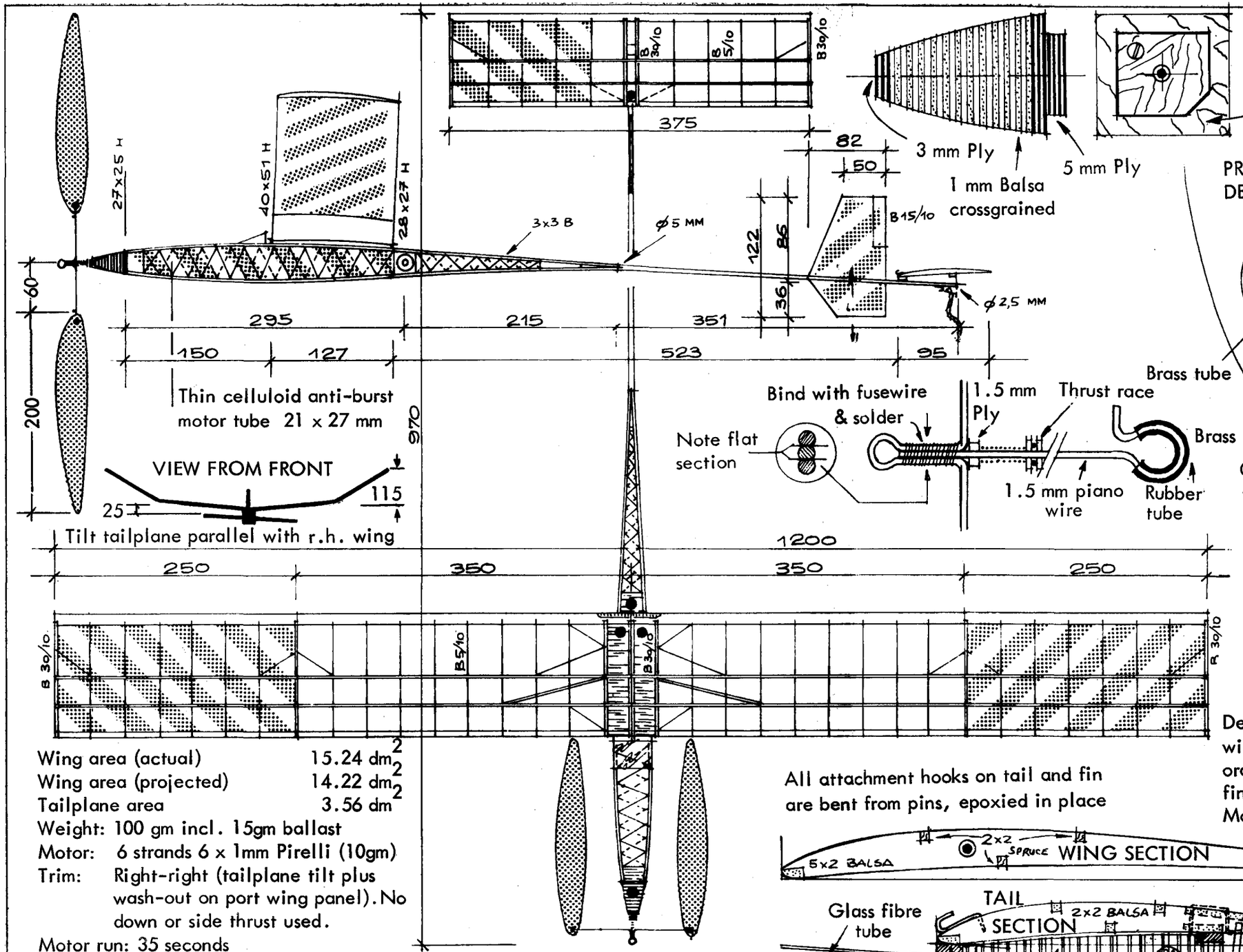
'Mistral' features a distinctive underslung fin, and the design is fitted with both auto rudder and dethermaliser – tail shown here in 'activated' position. Rudder uses neat piano wire horn which doubles as an adjustable stop for deflection.

model kited up to almost an overhead launch. *Merlin* achieved times of up to 35 secs from this length of line, and *Mistral* slightly longer getting very close to 60 secs on one occasion. A longer length of towline resulted in *Mistral* landing a couple of fields away due to increasing wind after a 1 min 50 sec flight, but wiping off the underslung fin in the process. This appears to be a weakness and possibly a laminated fin of $3 \times \frac{1}{32}$in. thicknesses might cure the problem. *Merlin*'s offset tow hook certainly counteracts the rudder offset, provided the tow is not too fast. In fact the wind speed had risen somewhat on the last flights so that I had to walk towards the model to slow things down. This terminated the test flying but enough had been learnt to say that *Mistral*'s dethermaliser is not just for show and the name and address panels are essential. In calmer and warmer conditions both models are capable of picking up any patches of lift that may be going, and I feel that perhaps even *Merlin* could use a D/T if conditions are right.

Summing up, *Merlin* represents the ideal beginner's model, simple to build, trim and fly following the kit's instructions with a performance that can only encourage the beginner to better things, as nothing is worse than having spent some hours constructing the model to see it reduced to scrapwood on its first flight. At a price of £1.60 it is very good value indeed, and well within today's pocket money range.

Mistral at £3.65 is also good value for money; an ideal model for club 'one design' contest and trimmed out fully will not disgrace itself in more sophisticated company. Judging by recent adverts in the model press, gliders of this size seem to be making a comeback, possibly due to increased restrictions on power flying and *Mistral* makes a welcome, and competitive, addition to this range. Both models are distributed by **Ripmax** and should be obtainable at most model shops.

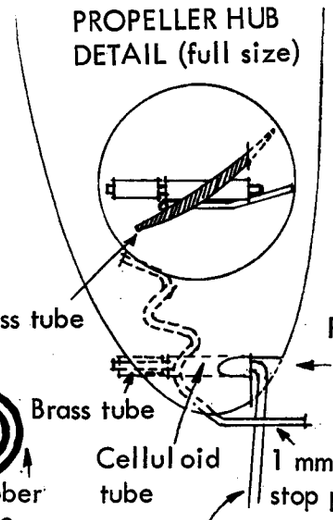
Bearing a strong 'family' resemblance to the 'Merlin', the 55in span 'Mistral' flies as well as it looks – and that means it's good! Construction is straightforward, aided by the excellent instructions.



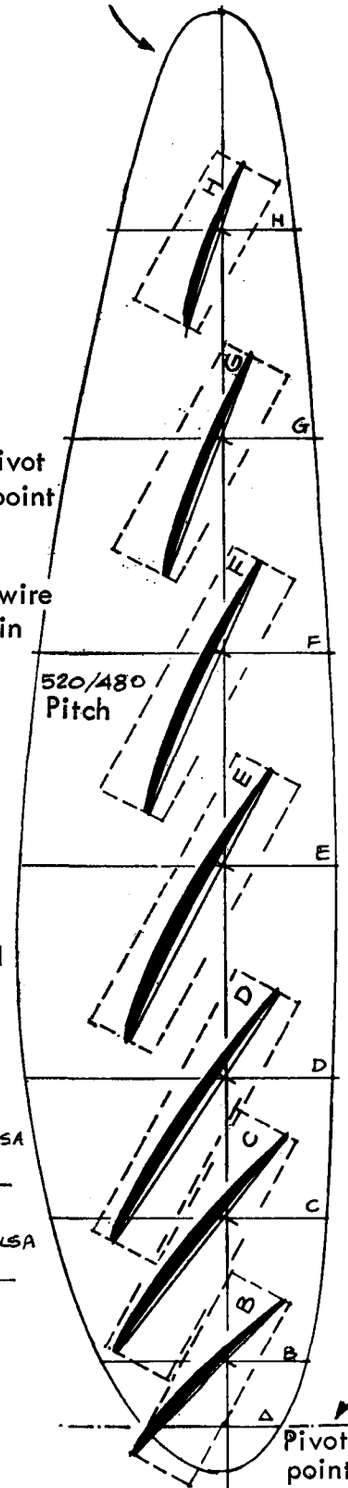
NOSE DETAIL (full size)

Two laminations of 3 mm ply

PROPELLER HUB DETAIL (full size)



PROP BLADE (drawn full size) cut from 10 mm sheet



Denotes areas painted with fluorescent orange - remainder finished with yellow Modelspan tissue

Wing area (actual)	15.24 dm^2
Wing area (projected)	14.22 dm^2
Tailplane area	3.56 dm^2

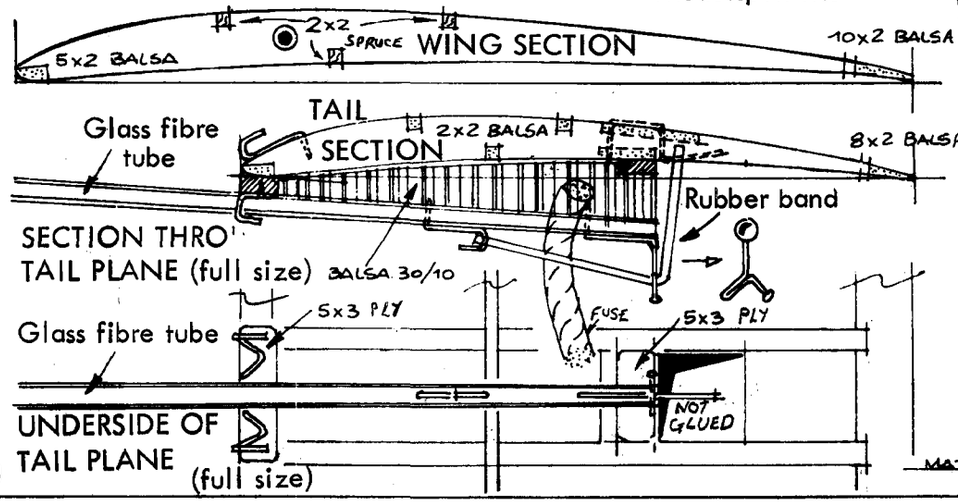
Weight: 100 gm incl. 15gm ballast

Motor: 6 strands 6 x 1mm Pirelli (10gm)

Trim: Right-right (tailplane tilt plus wash-out on port wing panel). No down or side thrust used.

Motor run: 35 seconds

All attachment hooks on tail and fin are bent from pins, epoxied in place



LES TRUMEAUX

"COUPE D'HIVER" TRIPLÉS de GEORGES MATHERAT

VAINQUEUR DE LA COUPE COTE D'AZUR 75

120+120+120+180 CHALLENGE PIERRE ANDREIS

SECOND CHALLENGE AEROMODELLER 75 - HALTON (ENGL.)

MATHERAT 1/1/76

NORWIND

—*BLOW* by *BLOW*

John O'Donnell looks back on the winter series of indoor events

Billy Lee gets his Bob Bailey influenced EZB away, watched by Bert Spurr, making a return to indoor flying after some fifteen years.

Concepts:
LOW CEILING indoor flying has had a resurgence of interest in the last few years. Moreover such events are now regarded seriously – rather than as little more than clubroom fun flying. The change probably owes much to American influence and promotion of low ceiling activities.

Historically, North West Area activity originated with the Liverpool club who sponsored and ran several successful meetings from late 1972 onwards. Although contests have continued ever since, the balance of power has shifted since Liverpool's interest declined whilst enthusiasm appeared elsewhere.

Local preferences have kept these meetings as essentially a winter-time pursuit – for the simple reason that so many participants have outdoor (flying) interests in the warmer weather!

Co-operation between fliers from several clubs led to a policy decision to plan the 1975-76 programme as a co-ordinated whole, rather than having separate meetings arranged on an *ad-hoc* basis. Hence the "interested parties" gathered together last autumn to arrange an organised series of meetings and to make a determined effort to avoid the obvious pitfalls.

Suitable venues, of the indoor sports-hall variety, appear to be relatively plentiful – provided the modellers can afford to hire them! Size, shape, ceiling configuration and clutter, not to mention geographical location, are obviously important factors. A good hall in an obscure spot will attract less fliers than an inferior, but more convenient, site.

Four meetings, equispaced through the winter months, were considered a reasonable aim. Calendar considerations, and the need to avoid clashing with known outdoor meetings (not to mention Christmas and New Year), influenced the choice of dates.

Bearing all this in mind, it was decided to schedule two of the four meetings at Wigan Technical College (the best "known" site) and at least one at Southport YMCA. On the basis of previous demonstrated interest, the contest categories were fairly obvious – Easy B, Chuck Glider, and what has become known as "Keyhole Scale". "EZB" had caught on locally whereas other duration classes (Penny-plane, microfilm, etc.) had practically been ignored. Chuck glider was not only popular, but attracted many youngsters eager to fling a glider "like Daddy's". The scale rules evolved in the N.W. had proven to give a good balance between the conflicting realism and flying requirements. No-one in the Area seemed to want anything resembling a rivet-counting event!

Despite the lack of local interest in microfilm, it was decided to offer (and advertise) the opportunity to fly such models on the Saturday at the two Wigan meetings. This facility was not intended to be competitive, but more in the nature of a "bonus" to any long-distance arrivals.

Merely scheduling a list of events is hardly sufficient to make a meeting into a proper competition. It has to be run as such – and provide some tangible rewards at the end. Looked at another way the event should *matter* to the organisers as well as to the fliers. A policy of recruiting a Contest Director and of arranging worthwhile prizes (of the household goods variety) was agreed.

Finance was a definite problem in that it was necessary to pay for the rent of the halls and buy the prizes. Fortunately, the N.W.

Pylon racer Alan Clarke (right) has been bitten by the indoor 'bug', and with a reasonable degree of success. Helping is Jack Muncaster, better known perhaps for his team racing skills.

Alan Jack, aided by his wife, prepare to wind his Easy B – which also is strongly influenced by Bob Bailey's record holding design.

Area has a policy of subsidising any nationally advertised contest to the tune of a "fiver". The Area was also persuaded to meet the balance of the rent for one specific contest. The clubs involved (Liverpool, Whitefield, and Wigan) were willing to provide some backing – but the remainder would have to come from the modellers attending the meetings. Profiting from previous experience of people who would fly all day – but would not compete on the grounds of inadequate performance – it was decided to charge everyone who *flew*, and allow "free" entry to the contest proper.

All this effort had to be justified by adequate response from the modellers – in quantity as well as quality. Hopes of attracting new blood, as distinct from merely the known devotees, led to the meetings being well advertised in this magazine, the SMAE's *Model Flying* and elsewhere. A hall *can* be over-filled, at least from the flying point of view, but this was a calculated risk – and far less disastrous than the opposite alternative. We knew which we preferred.

Moreover we were making a deliberate move to counter the "closed shop" approach characteristic of the semi-private meetings known to be held in other parts of the country. In short we wanted to spread the gospel, not to preach to the converted!

Contests

November

The first meeting of the series was held over the weekend of 22/23rd November in the sports hall at Wigan Technical College. This hall is ideal for indoor flying being 110×60×25 feet, and having a flat slatted ceiling with no obstructions.

As already reported by Bob Bailey in March's *Free Flight Scene* the meeting was attended by him, Ron Green and the Barrs. Others from outside the N.W. were Derl, Morley and John Billam. The hall was first tried for size as regard microfilm by Derl, who did over 12 minutes with a 35 cm design. Subsequently Ron Green aired one of his FAI models – but was content with some very cautious flights of around eight minutes or so.

The Southern contingent dominated the EZB contest – with models that "opened the eyes" of the N.W. fliers. By our standards the London models were extremely light and used wood sizes that looked inadequate from rigidity considerations. Obviously this was not the case, and the low weight gave very high performance – not to mention a low flying speed reminiscent of microfilm rather than tissue models. This, in turn made steering very easy – as was demonstrated by Laurie Barr's skill with a roach pole.

Investigation revealed that most of the "secret" lies in very careful wood selection. Much has been made of the use of *Micro X* wood and other products over recent years. But even such "amazing quality" timber still varies and quite considerably. With the no-bracing rule fundamental to the EZB concept *stiffness* is all-important and this is the key to both wood selection and model performance. Since wood is sold only by thickness, grain and density, a random mail-order purchase involves a considerable measure of luck when it comes to getting *exactly* what is needed. The implications are pretty obvious. It is appropriate to comment that other indoor classes particularly microfilm, are much *less* critical in this way than the so-called Easy B – since wire bracing provides a straightforward way to stiffen wings, tails and even fuselages.

There were less surprises in the other classes. Laurie Barr's super lightweight *Piper Cub* peanut scale model scored well in static, thanks to being nicely built even though the covering was translucent, and was easily top in duration. It did prove necessary to clip the propeller tips to achieve an r.o.g. On points Lauries' approach proved superior to Mike Reeves' middle-of-the-road and reliable *S.E.5.* Chuck glider remained a local speciality with winning scores in the 25-26 second region.

Contest organisation followed the well tried system of devoting the morning to EZB, followed by a free-for-all lunch-hour-cum-test period. Then an alternation of chuck glider and scale took most of the afternoon, followed later by a second EZB session. This procedure avoids spectacular collisions between EZBs and more substantial models. It has been found necessary to clear the floor for chuck glider official flights, and then call the fliers out in sequence. A competitor is allowed three successive launches so he can profit from mishaps and make minor trim adjustments. Two "circles" can be accommodated quite easily in the hall, at Wigan, and such doubling-up saves a lot of time. Obviously

R. Hepple with his nicely built Comper Swift Keyhole scale design.

fliers, timekeepers and positions can be rotated in order to equalise any possible bias. The whole system works well, but does demand a man-in-charge of the meeting – Pete Farrimond in this case.

The meeting closed with the formal presentation of the glassware prizes and other merchandise by local beauty queen Julie Rose.

December

Staged at short notice, this "extra" meeting came about through the availability of *two* halls at Balderstone School, Rochdale – thanks to the influence of Tom Hughes of Rochdale *Radio Control* Model Flying Association. This gentleman teaches an evening class (in general modelling) at the school and helped run the meeting along with Whitefield's Mike Reeves and Jeff Kilburn. All in all, this was a thoroughly co-operative effort.

The combination of limited word-of-mouth publicity and a date only four days prior to Christmas affected the attendance and hence, to some extent, the performances.

To make best use of the facilities EZB was flown in one hall, whilst chuck glider and

Julie Rose poses with scale models at the February meet. 'Bristol Monoplane' (left) is by Mike Reeves, while at right is Jeff Kilburn's 'Puss Moth'. If both aircraft had originated from the same factory, it could have made the caption-writer's day . . .

Also at the February meet held in Wigan, Reg Boor winds the motor for his KeilKraft SE5 which he flew in the Keyhole scale contest. Stuart Bower holds. With the apparent decline in Peanut scale popularity – could this be a more practical class?

Above: Ian Turner rom Milton Keynes with his EZB Note model box on legs, torque meter with universal mount and model in stand. Won the February meet At right is Ron Pollard with Lee Hines' Sweepette 16 chuck glider.

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The second hall was much larger but had a complex girderwork roof that looked a most efficient model trap for EZB. Nevertheless the hall was fine for chuck glider and scale – with the top spots going to some familiar names.

January

The New Year saw a return to the YMCA Sports Hall in Southport, scene of the early Liverpool meetings. The fall-off in Liverpudlian interest, plus the small hall, and the far from central geographical location, made for a rather disappointing turnout. Potential distraction was provided by the Northern Area arranging their winter rally for the same day – but in the prevailing weather it can scarcely have mattered. It was certainly better in than out.

In contrast to the attendance, flying was good, especially in EZB – even though Contest Director Pete Branigan had decided to ban *any* form of steering. The top three in EZB all had a seven minute odd flight, despite a great deal of frustration with hang-ups in the roof girders. These were only about two foot deep – but had holes in the vertical web of just the right size to let a model *half* way through! Chuck glider and scale went very much as usual.

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Hopefully this was intended to be the prestige meeting of the series with the N.W. Area sponsoring it to the extent of paying completely for the hall hire. As I ran this meeting I can hardly judge it objectively!

There had been much discussion on the merits and otherwise of allowing steering – a clear advantage in many situations. Initial concern centred on possible (and indeed witnessed) disregard by the steerer for anyone else's model. Then the accent shifted onto the availability (or cost) of the required pole, whether private, communal or even organisational. Finally other implications appeared, such as the technique of thermal flying – by repetitive "prodding" to keep the model in a localised patch of helpful air! Clearly there was a lot more to the technique than merely preventing the model from colliding with a wall.

In the end I decided to allow steering, but required an observer to discourage any blatant attempts to push the model up to a greater height. With our limited experience we had found it much easier to "lead from behind".

Turnout was encouraging – with a record entry in EZB and several long-distance participants, notably John Blount and Ian Turner from the Deep South and Ron Pollard from the far North-East. The first named made some impressive flights with an FAI microfilm model on the Saturday to the delight of a representative of the local

NORWIND RULES
(note: not as per SMAE)

"Easy B" Rubber Duration
maximum projected wingspan 18ins.
maximum chord 3ins.
maximum projected wing area 54sq. ins.
all flying surface outlines to be straight lines
all balsa propeller
no wire or thread bracing
solid motor stick and tail boom
tissue covering on flying surfaces (no microfilm)
score: best two flights from any number of attempts

Handlaunched Glider
no restrictions on design or construction
score: best two flights from nine attempts

"Keyhole" Rubber Scale
rubber power only (no CO_2)
no span limitation
no weight limitation
no maximum duration limit
no minimum qualifying flight limit
unlimited number of flight attempts permitted
score: overall placing in event will be decided by lowest aggregate of scores obtained in each of the three categories shown below. Tied scores to be decided by highest R.O.G. duration score.
flight duration: sequence placing decided by two best flights, only one of which may be handlaunched. (1st Place=1 point, 2nd Place=2 points, etc.)
static realism: sequence placing decided by judge on basis of general appearance. (1st Place=1 point, 2nd Place=2 points, etc.)
flight impression: sequence placing decided by judge on basis of in-flight realism. (1st Place=½ point, 2nd Place=1 point, 3rd Place=1½ points, etc.)

Juniors
Up to age 15yrs. (i.e. must not have reached 16th birthday). Over 12yrs. MUST be builder of model

Duck! Jeff Kilburn launches his DH Puss Moth Keyhole scale model.

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newspaper. A couple of these flights exceeded 13 minutes without apparent effort or risk.

The Sunday saw much activity in EZB, and for much of the time the air was thick with models. This led to a plethora of midair collisions – harmless to the models but the end of many promising flights. This event saw Ian Turner reap the benefit of much concentrated effort and quite a lot of trimming. He managed several flights of over eight minutes and one of just over nine – but only through steering in order to counteract the drift that took models the length of the hall in five or six minutes.

Chuck glider was still topped by the resident experts – but third place went to Ron Pollard flying a *Sweepette* – hastily retrimmed right/right after earlier flying right/left in a larger hall. Keyhole scale had old names in the top positions but with new models. Both Mike Reeves and Jeff Kilburn showed that a spray-painted job can still fly, and fly well! Nonetheless the real showstopper was a magnificent 58 second flight that earned spontaneous applause for *junior* entrant Steven Carr. His model was a *Micro X* kit *"Piper Cub"*.

One innovation was tried with great success as regards adherence to the timetable. Scale was flown first and judged *afterwards!* Not only did this enable the judge to peruse the models at leisure (whilst EZB was being concluded); it also kept the scale fliers present until the prizegiving! No-one objected, especially as Julie Rose came along again to distribute the awards.

March

The final meeting had been the subject of much misgivings. The date had been published, but not the venue. Wigan was available and liked – but was expensive enough to make finance a problem. The earlier meetings had been far from self supporting, and the prospects of further subsidies seemed unacceptable to the interested clubs.

However certain *individuals* seemed willing to "put their hands in their pockets" to see the meeting held. Consequently a poll was taken at the February event – and established that most people would pay £1 (less for juniors) to fly, with any deficit being contributed privately. In practice this worked out fairly well – and not too hard on the "rich uncles".

The meeting itself went well, apart from the absence of a few scale regulars, and the disappearance of the younger element in chuck glider. Strangely enough there were six juniors in EZB out of a total entry of 17. Perhaps the giving of junior prizes helps the explanation.

Steering was allowed in EZB, and from a survey taken by C.D. Pete Farrimond it would seem that most objections would disappear if the organisers provided the means. Roach poles cost from £8 upwards – sufficient to deter the less enthusiastic.

Man of the meeting was Roy Roberts, who won both EZB and scale, plus second in chuck glider. This clinched his hold on the *Eaves Trophy* awarded for the best overall performance over the Norwind Series. Roy has obviously put a lot of work into his indoor flying with much building and a steadily improving performance in EZB. At the final meeting he got things just right and turned in a best time of 9:26. Another remarkable performance came from Doug Barber who cleared eight minutes despite very little indoor background.

Conclusions:

The programme just described can justifiably be rated a success. Low ceiling indoor flying is certainly a worthwhile and engrossing aspect of aeromodelling – and can provide keen competition. Nevertheless it presents a complex and far from static situation, and has lots of implications often overlooked.

Sites appear plentiful, but are usually pricey to rent. Finance is therefore a problem. Clubs and Areas will provide some sponsorship but only when *they* are interested (and most of their membership is not). A realistic "flying fee" can run to £1 a head – and this strikes many modellers as expensive.

Prizes have proved to be virtually a necessity. Household goods appear to be well received, and (being obtainable at good discounts) can give very good value for money. On the other hand prizes add to the financial burden.

Many modellers consider themselves outclassed as regards competition, but are happy to fly all day. Hence the adoption of a policy of a flying charge rather than a contest entry fee.

As standards rise, entries fall. This is especially noticeable in view of the low luck element compared with outdoor flying. There has been a remarkable fallout in chuck glider – once the scene of much activity with lots of juniors flying either their own models or family rejects. Exactly the same phenomenon was witnessed at the various Indoor Nationals held in the Manchester Corn Exchange some 15-20 years ago.

Keyhole Scale is a good event, as a variety of approaches have worked well. The emphasis on flying seems to suit local demand. Even so, a well detailed and finished model that still flies well is sure to win – as indeed it should!

Top chuck glider scores have stabilised at 24-26 seconds irrespective of the venue Since few of the better models use all the available height, some improvement would seem possible.

Easy B is a complete misnomer! Whilst this class is superficially attractive as a means of getting the beginner airborne, the drawbacks soon become apparent when real performance is sought. To get substantially more than, say, six minutes under a 25ft. ceiling requires the right materials and technique. As already mentioned, wood selection is too important for the event to be

Roy Roberts breathes some wing warp into his 'Peanut' Andreasson biplane.

open to all. Strangely enough rubber has not posed the same problems, despite the current lack of quality material. Most entrants seem to have been able to obtain short lengths of "olde" Pirelli – and custom stripping has been available in the N.W. – often on site at the contest. The steering technique needs to be made acceptable to the fliers.

An alternative rubber duration class might well be needed. Penny-plane has never been tried seriously in this County – but American trends have been extreme. Microfilm models are easier than their reputation suggest, but demand a significant investment in time, trouble and ancillary equipment.

Some change might be beneficial if only to break the "evolution chain" and start off everyone again. A *braced* version of EZB could well be a realistic suggestion – *pro tem* at least.

Continuation:

Certainly there will be another series next Winter – as there have been plenty of satisfied customers. Provided the modellers are prepared to pay around £1 a head the meetings can be viable. From what has been learnt, they should continue to be worthwhile and successful.

Events need to be tailored to demand – and may not be quite *"the mixture as before"*.

The need to advertise and hence attract people is self-apparent to us – *this* article is your first invitation!

CONTEST RESULTS

'Keyhole' points quoted on basis of reverse system to rules i.e., last received 1 point up to winner who received number of points equal to entry. High total thus wins.

VENUE Date	WIGAN 23 Nov.1975	ROCHDALE 21 Dec.1975	SOUTHPORT 11 Jan.1976	WIGAN 8 Feb.1976	WIGAN 7 March 1976
EASY B Best 2 from any number					
1	L.Barr 21:39	P.Branigan 14:22	J.O'Donnell 14:32	I.Turner 18:06	R.Roberts 18:10
2	A.Barr 20:39	J.O'Donnell 12:22	R.Roberts 14:07	J.O'Donnell 15:41	D.Barber 15:38
3	R.Green 19:56		B.Picken 13:05	P.Branigan 14:53	J.O'Donnell 14:50
No.of entries		7	6	19	17
CHUCK GLIDER Best 2 from 9 (Seconds)					
1	P.Branigan 52:4	B.Picken 48:8	P.Branigan 48:4	B.Picken 50:5	B.Picken 50:5
2	M.Duce 50:3	P.Branigan 47:9	B.Picken 46:5	P.Branigan 50:1	R.Roberts 49.2
3	B.Picken 47:6	M.Reeves 40:1	M.Duce 45:4	R.Pollard 48:7	S.Carr 48:1
No. of entries		8	13	14	10
KEYHOLE SCALE (Points)					
1	L.Barr	M.Reeves 7	M.Reeves	M.Reeves 20½	R.Roberts 11½
2	M.Reeves	R.Roberts 6	J.Kilburn	J.Kilburn 18½	S.Carr 11
3	R.Roberts	P.Sutherland 5	P.Reeves	S.Carr 14	R.Boor 10½
No. of entries		7	7	9	6

"Eaves Silver Trophy" (overall championship) Roy Roberts – Wigan

Instigator of the meeting, Michael Beach attends to starting the McCoy 49 spark ignition engine in David Deadman's all black 'Challenger', as the latter steadies the machine.

excellent support for the first vintage control line rally

FIREBALL TROPHY 1976

HOW WRONG can you be? When Michael Beach first suggested that vintage control-line flying should be actively encouraged, we could see little point. Of course pre 1950's free flight has a strong following, but when did *you* last see a control liner from a similar era (certain currently available kits excepting, of course). Happily though, Michael persisted and backed his judgment by producing a splendid trophy, and drawing up a set of appropriate rules, while the venue of Old Warden seemed a 'natural'. After all, does this home of the Shuttleworth Collection not reek of nostalgia? In addition, this has always been the 'home' of the *AeroModeller* Scale Meetings, with their friendly, informal atmosphere – and this was just what was needed for such an event.

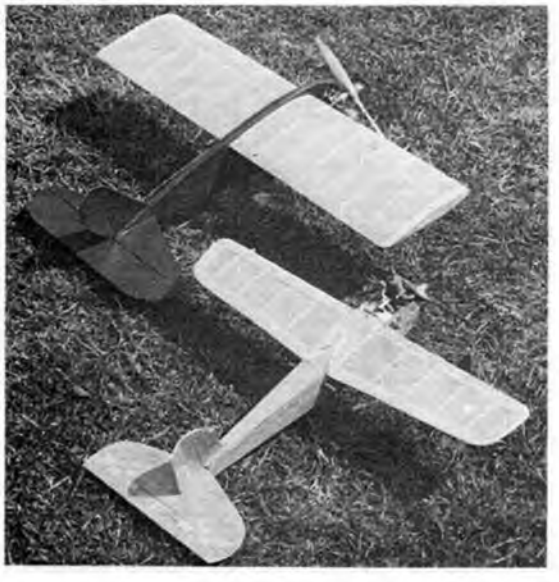
Thus the first *Fireball Trophy* meet was planned – and a most encouraging 40 models appeared despite the rather breezy conditions; a far better turnout than originally anticipated.

The rules were certainly lax – provided the model was pre 1950 and actually flew, then it was eligible. Naturally engines from the correct period were preferred, but this was not essential, nor was a great deal of prowess on the control handle. To avoid a certain Mr Beach from 'cleaning up' his own trophy with his superb and truly authentic machines, he was enrolled as a judge, together with model historian Alwyn Greenhalgh and Ron Moulton – who of course was responsible for introducing 'whizz bangs on string' to this side of the Atlantic some 30 years ago.

A wide variety of designs were evident, many being quite sleek designs of 1948-50 built from *AeroModeller* 'X' list designs, mainly for the reason that plans are still available. However, the resourceful Three Kings club had acquired a stock of *Don Models* plans and kits when a model shop owner was clearing out old stock, and they produced some very 'different' machines – not to say ugly! Others scoured early magazines for suitable machines, the quarterly issues of *Model Aviation* of the 1948 period being especially fruitful.

A surprising number of both ED and Mills diesels were to be seen, plus the occasional rasping crackle of a petrol engine and the roar of an unsilenced Frog 500 glow. Great stuff!

Eventually the judges agreed their findings, and Malcolm Sexton's *Hotshot* (originally published in the 1949 *Aero-Modeller Annual*) topped the rest for its balance between appearance and performance, despite the 'modern' AM35 powerplant which just goes to show that a vintage engine is not essential. All agreed the meeting was a great success – and the firm intention is to repeat this meeting annually, strictly on a bring-a-model-and-fly basis, with no pretension at making it a 'serious' event.

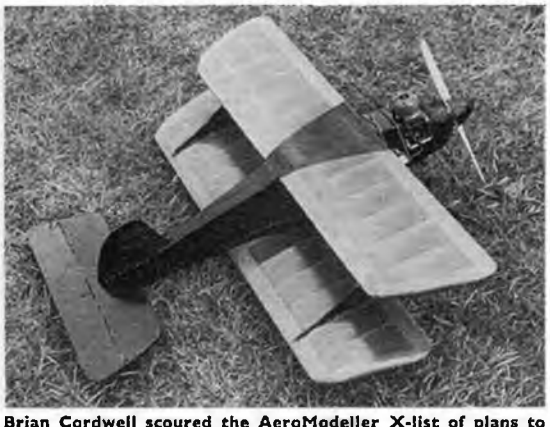


At left are two of Geoff Burkett's models. In the foreground is a 'Rival' from Don Models plans, powered by a Mills 1.3cc. The exhaust stubs on the motor are due to the fact that it was very recently removed from a boat installation – it's not an unidentified 'mystery motor'! Behind is his 'Kan Doo' – one of twenty such aircraft seen on this occasion, and which is fitted with an ED Comp. Special.

Right is Malcolm Sexton of The Three Kings club with his winning 'Hotshot' model – very modern appearance despite its pre 1949 heritage.

Cheer up Bernard, it flies OK! Bernard Sexton produced this beautifully finished 'Weather Man', built from plans published in a 1947 Model Aviation magazine. A Mills 1.3cc diesel plus Frog Tru-flex prop power this all sheet trainer.

Fellow 3Ks member, Wal Cordwell, produced this Pusher Pup from a Don Model kit. Spanning just 18in., and using an AM10 for power it features rubber bands to retain booms to wing and to tail. Probably the ugliest (model) at the meeting!



Brian Cordwell scoured the AeroModeller X-list of plans to discover the 'Yolks' biplane (plan no. CL334X, price 85p including postage) in which he installed a Nordec 60 glow. Would have sounded great, but we never saw it run . . .

Beautifully finished in a red and white colour scheme was this Veron Stunter by C. Crawley of the Finchley club, who used Mills 75 power. Mills engines were certainly the most popular make seen.

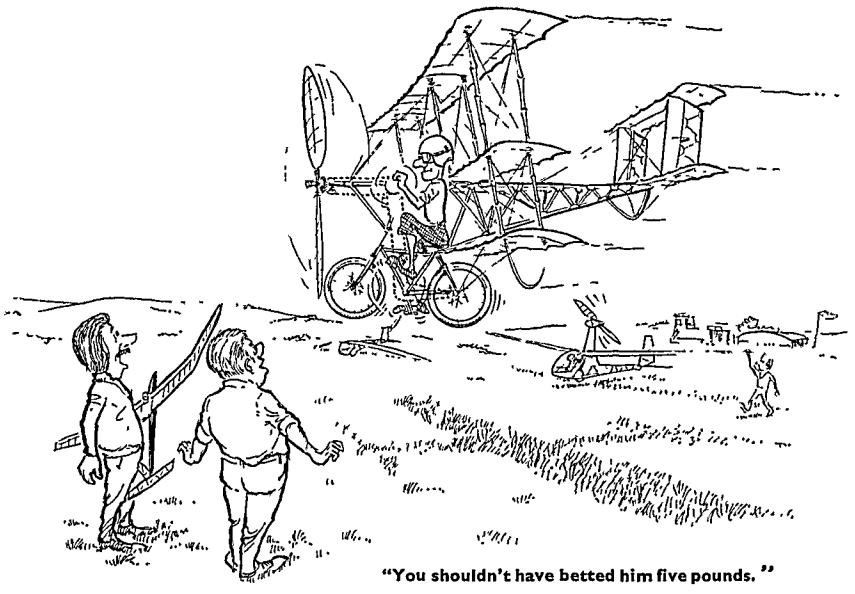
Peter Miller had a real piece of one-upmanship, when he produced a can of genuine Mills diesel fuel to accompany his Mills 1.3 powered 'Cheetah' design!

The original 'Stunt King' won the 1949 British Nationals in the hands of Brian Hewitt, and was subsequently kitted by the Keil-Kraft company. Note the mini-flaps! This version was constructed by Barry Swindles of the Sudbury club.

topical twists

by 'Pylonius'

illustrated by Sherry



"You shouldn't have betted him five pounds."

Noises Off

MOSTLY the reason why we have a Noise Pollution Act is because we have too many people crowding in on each other, all hysterically conscious of the noise the others are making. Perhaps what we should have is a *People Pollution Act*, though the problem here would be to seek a remedy without stirring the Royal Humane Society into undue activity.

This thought occurred to me upon reading those articles on the historic development of the model plane. What began as an idyll, of wide open spaces, blue skies and gently drifting models, wound up into a frenzy of screaming missiles in a mad maelstrom of conflicting interests. In the days before everywhere was built on and every lane a motorway, you had all the peaceful, empty countryside in which to fly your then noiseless model. As the model soared dreamily over the long summer grass all that could be heard was the cry of a startled bird:

"*Coo, what's that up there, Fred?*"

And even today Fred's reply is censored.

Now, it is almost impossible to wrap a bit of empty space about yourself wherever you may try to fly. Go to launch your model on a public space and you're almost certain to nudge some bit of highly activated humanity in the ribs. Whereas in the old days the parkland humans kept a low profile – some extremely low – they are now all dashing around like mad, chasing or hitting balls of various sizes and density, and urging canine companions to new heights of doggy frenzy. Then you have the enemy listening posts to contend with, that is, the houses surrounding the open space. Many of these houses are of recent development, and the objections of the occupiers come a bit audacious – like someone going to Africa and then complaining about the behaviour of the monkeys.

Nor are the airfields quite the havens of peace they once were – not like the days when we had Faireys at the bottom of our garden. You daren't venture on the tarmac for fear of being run down by the hurtling masses constantly circulating the airfield. First a fleet of land yachts come tacking in a wild zigzag, then the groups of charity walkers, the keep fit runners, and sundry people, mechanised and otherwise, doing all sorts of silly things other than sensible model flying. If only people would stay back in their homes and gardens like they used to, and leave the model flyers to enjoy the open countryside, things wouldn't be so bad.

Boyhood of Rally

Now for a quiz. That little boy in the old model meeting photograph. Who did he grow up to be? Was it:

(a) Air Vice Marshall Sir Prangem Proper, DFC, DSO, VAT and Bar?

(b) Lord Stumpington-Cody of Farnborough, Chairman of the British Aircraft Council, and Chief Advisor to the Chipping Balsa Model Club?

(c) Charlie Higgins, General Labourer?

Fast-'ideous

Yet another quiz. What was the object the young man in the picture was holding? Was it a do-it-yourself loft ladder, an adventure playground climbing frame, or a multi storey boot scraper?

The accompanying text revealed, quite surprisingly, that it was none of these things, but a model plane. Now, just why it was thought necessary to produce a model of such appalling ugliness is not revealed. Not that it really matters what a combat model does look like, as the quickness of the handle deceives the eye, and all we see in flight is a blurred impression of a tapeworm doing the twist. If the combat model, then, is not a thing of beauty, neither is it a joy for very long either, so the more it looks like what it is going to end up like, the less the trauma when it crashes. Or so I suppose. Carry on blasta-ing.

Span Wise

From small beginnings (thirty feet or so across the wings) pedal power interest now spans the universe – and could do so, quite literally, if they extend the wings much further. But the universal aspect comes from pedallers in so many countries taking an interest in the big prize money, making the whole thing like a postal type contest for slightly heavier than air machines.

On evidence it would seem that the only fuel-free power flyers of the future will be champion cyclists turning out once a year for a sort of aerial milk race. But the pedallos-for-all hope is not quite dead. If there is a limit to how far you can spread your wings, the ultimate answer might be a form of a pedicopter; one has already been developed.

Fly-Over

Manual piloting has now become a bit archaic and barnstorming. The modern pilot is no longer a joystick jockey, but more of a switch flicker who has spent most of his training in a hangar mock up. Little wonder, then, that the with-it model flyer is following suit. He has already made a start with a self fly C/L model and, no doubt, we will soon see the fully computerised radio model being put through its 'no hands' schedule, perhaps without the flyer even leaving his car.

Come to think of it, car to car flights could be the next big thing in model flying. Not only would it dispense with the need for flying fields, but could allow the executive type to pursue his hobby even on business trips – and put it down tax-wise to overhead expenses.

FLYING SCALE COLUMN

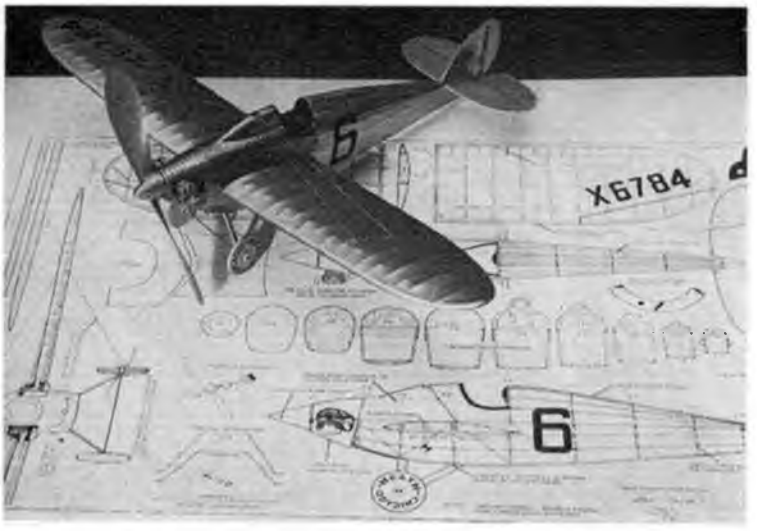
by Eric Coates

IS INDOOR SCALE on the decline in England? If attendance at the SMAE Indoor Scale Nationals held at Cardington on 2nd May is anything to go by, then it most certainly is. The date was advanced this year from its more usual August slot because of complaints of clashes with summer holidays. I personally think that the novelty of indoor flying which was 'rediscovered' some five years ago has worn a bit thin. As I discussed earlier this year, the difficulties of making a fully detailed small scale model fly well are enormous. Paint and detail mean weight, which equates to lousy performance in any aeronautical book, let alone at the Reynold's Nos which models spanning 20in. and under are working. Sad to relate, latest victim to fall into this trap is John Blagg, whose magnificent *Hurricane* 1 showed even less inclination to fly at the Nats than my 11*c* did at the March meeting. Not surprisingly for John's masterpiece gives no quarter to stability – scale dihedral and tail areas allied with 2¼oz. weight, on a basically unstable subject as a *Hurricane*, can only spell disaster. I should put this one on the top of the 'Telly' John and save it for the *Model Engineer* and other such like non-flying competitions!

With the withdrawal of the obvious No. 1 model from the Open Competition, a close tussle for first place developed between the *Bristol M1B* of Mike Reeves and the huge 1/12th scale *Lacey M*10 of Butch Hadland. (This one is as big as an 'Ajax' as well). Both these subjects flew very well indeed. The *Bristol* in fact topped the flight scores with more realistic take-offs and landings than the *Lacey*. This latter machine flew as if on rails – circular ones – it even took off in a semi-circle, although the large diameter prop rather upset the landings, always striking terra firma before the wheels. Notwithstanding, it was Butch who took top overall honours, by just three marks, due to his superior scale and construction score. Third and fourth place was also in close contention between the *Andreason BA*4 of B. Aslett and the *Puss Moth* of Jeff Kilburn. The *Puss* was basically built from my drawings but in the long range 'Hearts Content' version of Jim Mollison.

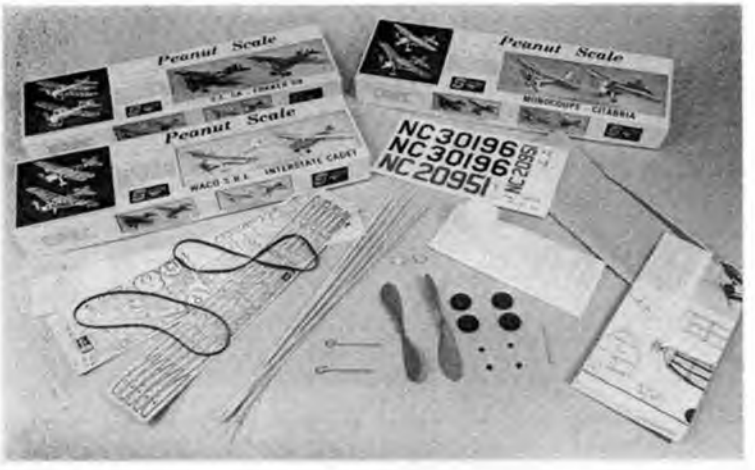
Butch Hadland was also the victor in the Peanut competition flying his well known small *Lacey M*10. (I shall have to call this one 'Achilles' now!). Butch in fact topped out the static scores but was second in the flying whereas Laurie Barr, flying his now well worn *Fike*, topped the flying and was second in static. Both, therefore, score three place marks. Under the current SMAE rules, ties are broken by means of a quality fly off. Laurie's model, however, was evidently 'hors de combat' at the conclusion of the competition so, therefore, Butch automatically took first place. Another *Andreason*, by K. Fordham of Cambridge came third.

Not a single entrant was forthcoming in the CO_2/Electric event. When this competition was scheduled it was



Heading picture shows the 'Ajax' and 'Achilles' of the indoor scale world. This pair of Lacey M10s by Butch Hadland won both the Open and Peanut classes respectively at the Indoor Nationals.

At left is a beautifully constructed 'Heath Baby Bullet', made from the 'plan kit pack' supplied by Gene Thomas in the USA (see text for details). This is an entirely new way of presenting Peanut scale models, and provides plenty of information on the subject in hand - certainly enough to convince judges of the scale accuracy.



Sterling, the American kit manufacturer well known for their small scale models, have now branched into the Peanut market with 'double kits' - each box containing two designs. At present the range consists of an SE5A/Fokker D8, Waco SRE/Interstate Cadet and Monocoupe/Citabria. All parts are printed onto balsa sheet while cowlings, wheel spats etc. are vacuum formed plastic. Plans are well drawn, and transfer sheets are provided. Available from Ripmax agents.

hoped that a British motor would be readily available in the shops by now, but this is not so. Nevertheless there are many Brown engines in the country and many CO_2 models have been flown at Cardington in the past, so one would have expected some entries: another competition in this class is scheduled for 7th November, so let us hope for better support then.

Open Scale

		Best Flight	*Static*	*Total*
1. C. Hadland	*Lacey M10*	83	78	161
2. M. Reeves	*Bristol M1B*	92	66	158
3. B. Aslett	*BA4B*	65	54	119
4. J. Kilburn	*Puss Moth*	42	73	115

Peanut

		Static	*Posn.*	*Flight*	*Posn.*	*Posn. Points*
1. C. Hadland	*Lacey M10*	37½	1	129	2	3
2. L. Barr	*Fike*	32½	2	152	1	3
3. K. Fordham	*BA4B*	32	3	31	5	8
4. B. Aslett	*Cougar*	19½	6	96	3	9

* * * *

Although the number of people flying at Cardington has diminished, the choice of what to build has never been so great. Five years ago if you didn't design your own indoor job you had to build from a vintage plan which then could be difficult to obtain. Today literally hundreds of plans, from both sides of the Atlantic, are offered together with many kits and accessories, much of the latter being exclusively American in origin. The quality of many of these plans, particularly the vintage ones, can leave a lot to be desired. Among the many samples which have flooded my mail in recent months, I can recommend two for CO_2 by **Alan Callaghan**. The first, a 1/20th scale *Udet Flamingo*, is an adaptation of his familiar rubber model I acclaimed last year. The second is a 1/18th scale version of that very popular and flyable subject – the *Sopwith Tabloid*. Both these designs feature rib for rib scale accuracy and laminated balsa wing tip and tail outlines. Not quick to build but very rewarding and should be relatively easy subjects to trim. See Classified Ads.

From the other side of the Atlantic, i.e. **Gene Thomas**, Box 681, Melville, N.Y.11746, comes a series of well detailed Peanut drawings for the *Heath Baby Bullet*, *Heath Super Parasol*, *Alexander Bullet*, *Church Midwing* and a 1911 *Cessna*. Butch Hadland flew one of these machines at Cardington recently. All tend to feature extensive use of 1/32in.sq. bass wood construction, a material not in general use in the UK, but one which is to be recommended for complex delicate structures.

These models are also available in the form of a 'plan kit pack' which are beautifully presented; if the *Baby Bullet* pack sample I was sent is anything to go by. As well as the plan one receives a 12 page booklet, printed on fine art paper giving the history of the machine, three views, many photos and construction gen, printed sheet balsa, rubber motor, plastic prop and a sheet of transfers. All one adds is the stripwood and covering material. At $3.50 this represents fair value. I understand that a larger

Mike Reeves' Bristol M1B gave Butch Hadland's 'Lacey' a very close chase in the Open Scale category at the Indoor Nationals. In fact, it received a higher flight score, but just lost out in the static judging.

A cautionary tale! John Blagg's superb 'Hurricane I' looks a treat on the ground - but unfortunately it shows a great reluctance to leave that position. Being exactly true to scale and an excess of weight is the cause.

1½in.=1ft. version of this model is also available.

The American Lee's Hobbies range of 13in. span Peanut Kits is now available from The Modeller's Den, Bath. These are all of WW1 subjects – not the easiest of Peanuts to make fly and surprisingly the most suitable subjects are not chosen. The full list is as follows: *Halberstadt D-II, Thomas Morse S-4C, Lusac II, Hansa-Brandenberg D*1, *Albatros DII, Austin Ball AFB*1, *Bristol Scout D, Avro 504K, Fokker DR*1 and *Dornier D*1. Of that lot only the Bristol and Avro have any worthwhile dihedral and both these and many others would require a 'ton' of lead in the nose to bring the CG in the right place. Construction is simplified with very few ribs. The quality of wood is good but I don't like the printed paper, pasted on to the sheet-wood, rather than printing direct on the wood. Cutting paper is the quickest way of blunting a balsa knife that I know of! The kit is completed with the usual rubber, plastic prop and tissue etc. A bit pricey at £1.75, but with the present exchange rate prevailing we cannot expect more.

Many modellers have been asking about the availability of lightweight silk. The Modellers Den also has managed to obtain a supply – not the lightest grade though. I would recommend its use direct over the airframe without tissue underneath – only for models over about 45in. span though. Price is £2.50 a square yard! The lightest silk available at the moment is the Japanese Esaki which is marketed in the USA by SIG at $3.75 a sq.yd, but I do not know of a British stockist at the moment.

* * * *

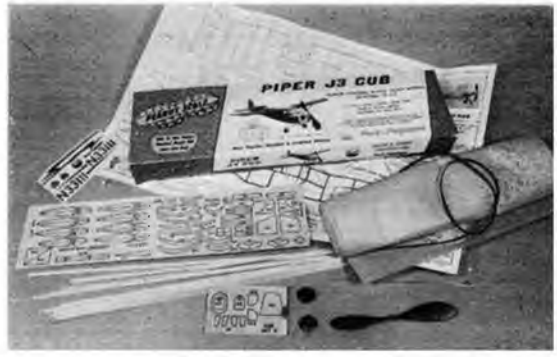
With the Noise Pollution Act now coming into force we shall all have to fly as quietly as possible, although scale modellers are not noted as being amongst the noisiest of modellers. In fact only operators of control line and radio models usually have need to fit silencers: the average diesel powered F/F model, swinging a large prop, is virtually inaudible from a couple of hundred yards. Perhaps users of the high revving small glow motors should consider silencing though.

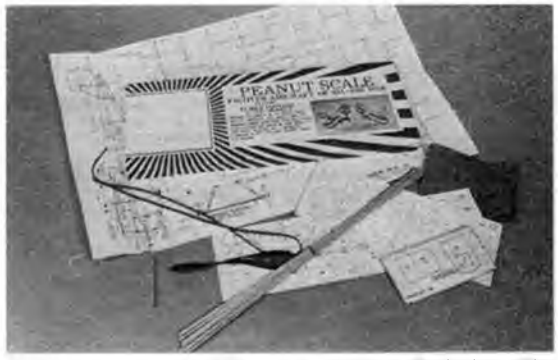
I have recently been testing one of the new Somoso extension silencers on my *Klemm L25d* R/C model. Incidentally this model was built by me, in about six weeks, this past winter as a scale flyabout hack from a German *Krick* kit. This is the first large scale model I have built from a kit and I must say I enjoyed the exercise: it was an excellent kit with clean die cutting and superb wood. I powered it with an HB20 motor but I am afraid that the close fitting cowl left no room to fit an internal silencer. The exhaust stack protruded through the cowl side and the standard silencer was mounted directly to the stack externally. Although, being a relatively small engine the noise was not all that loud, it had a harsh crackle at full power. Fitting the Somoso extension reduced it to a nice purr, and at tick over it sounds more like an electric motor. No apparent power loss occurs, but it is turning a 10 x 3in. prop relatively slowly. If used on a smaller diameter prop, for racing purposes, then some power loss would be bound to occur.

Available in three sizes numbered II, IV and VI they are suitable for 1·5 to 4cc, 5 to 6·5cc and 7 to 10cc motors respectively. They are fabricated in aluminium alloy, anodised black and weigh between 30 and 65 grammes each.

I mounted mine externally for convenience, the connection being effected by a short length of silicone pipe, but if one was designing the model from scratch it would be a relatively simple matter to build the silencer entirely within the confines of the fuselage.

Highly recommended; available from Somoso Products of 60 Oxford St, Southampton. Prices: No. II £4.65, No. IV £4.95 and No. VI £5.25 plus 30p postage.





Yet two more ranges of Peanut scale kits available from The Modellers Den. At top is the 'Piper Cub' from the well established Tern Aero Company's listing - featuring excellent balsa with nice, fine die printing of the component parts. Above is an example of the Lee Hobbies offerings - ribs and formers etc are printed on paper which is glued to the balsa wood. Plans are very detailed.

* * * *

The critical airfield availability problem is playing the very devil with the SMAE programme this year. Latest victim is the *Scale Fly In* scheduled to be held at Little Rissington on 11th July. Due to the hay crop this field is not useable until August and as a suitable alternative cannot be made available, this meeting has had to be cancelled.

Our columnist's Klemm L25d (his latest R/C creation, built as a 'hack' fun flying machine, rather than a serious scale model) fitted with a Somoso extension silencer. This is connected to the standard HB silencer via a piece of silicone tube. These add-on silencers look very smart, are quite light, and certainly reduce the noise levels appreciably.

BETWEEN THE LINES

with Dave Clarkson

Brian Wilkinson of the Wharfedale Club built this Dumas, semi-scale Mustang stunter and this will shortly form the basis of a 'Kit Review'. Meanwhile, we can report that this 48in. span model with 408 sq.in. wing area can tip the scales at 39oz. These kits are distributed to the trade by Irvine Engines.

MAKE IT EASY – Combat Model Pacifier Compartments

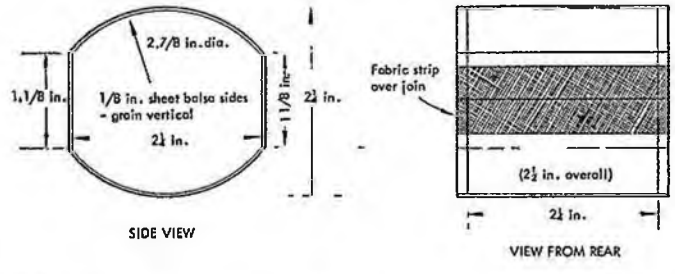
It seems nowadays that the 'Standard' combat set-up is a Super Tigre or similar glow motor using a 'Pacifier' for the fuel feed. Pacifier tanks must be the easiest type of tank to assemble, so an equally easy-to-make compartment in the model makes the whole thing ideal. I first saw the type of compartment described below on the all-foam models currently being used by the Outlaws combat team (the source of so many good ideas in combat just now) but am quite prepared to believe that someone else discovered the trick first, because it is such a simple idea.

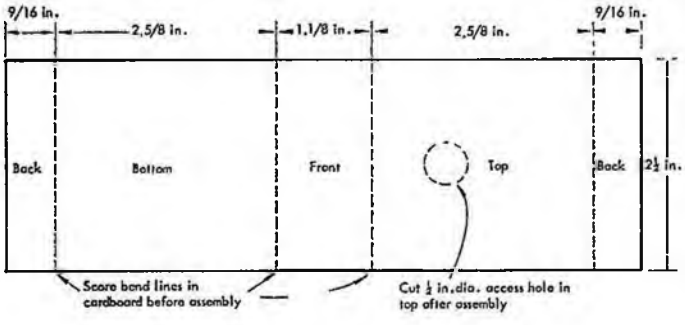
The problem with Pacifier tanks is that the pacifier inflates with the fuel into a sphere, if this sphere is significantly distorted by the compartment then dual risks are run of pacifier damage leading to failure, and an initial 'false' needle setting. Thus the compartment has to be big enough to take a spherical pacifier containing sufficient fuel for a 5 minute motor run. Using low nitro fuel, 80 to 90cc of fuel seems enough for a 5 minute run, and this means a sphere diameter of 2⅜ to 2½ inches. The final compartment requirement is that it must be easy to 'drop into' any wing, i.e. preferably must have vertical sides where those sides are contained within the wing.

The cardboard pacifier compartment uses two vertical sides from ⅛in. balsa with cardboard of 0·8 to 1·0mm thickness wrapped round those sides in one piece to give the front, back, top and bottom of the compartment. Assembly is done with 5 minute epoxy glue to attach the cardboard to the balsa sides and a piece of sticky tape or, better, glued-on fabric sealing the join between the ends of the cardboard on the back face.

Typical dimensions for a 2½in. diameter compartment to fit in a 1⅛in. 'flat' wing section are given in the accompanying sketch.

Once assembled, cut out the access hole in the top and pour in a few ccs of Ripmax *Tufkote* or other really fuel proof paint like K & B *Super Poxy* or Humbrol *Epoxycote*, and do your marracas act for five minutes with your finger over the hole so as to coat the inside thoroughly. Now pour out the excess and paint this over the outside to give your completed, fuel resistant and now very strong but light pacifier compartment.





SMAE CENTRALISED MEETING – *RAF N. Luffenham, 18th April 1976*

In sharp contrast weather-wise to previous runnings of this, the first SMAE C/L contest of the year, we had almost perfect conditions – windless, dry and warm with clear skies (in 1974 we had a storm and in 1975 a blizzard!). Despite a very short notice venue change and some confusion as to what events were scheduled to be run, entries were quite decent and some of the performances in the racing events anyway were more than good.

FAI Team Race

Except for Rudd/King (Feltham) just about all of the fastest teams in the country had entered so, as expected, the heats were quickish:

Heaton/Ross	*Bugl*	4:20
Clarkson/Daly	*Rossi FI*	4:22
Gardner/Wilson	*Rossi FI*	4:27
Smith/Fry	*Rossi FI*	4:31
Horton/Haworth	*ETA*	4:31

Only Clarkson/Daly and Smith/Fry improved their times in the single round of semis run, with 4:16 and 4:25 times respectively but things looked good for the final. A very fast and close final it proved to be too:

1.	Heaton/Ross	(Norwest)	8:43
2.	Clarkson/Daly	(Norwest)	8:44
3.	Smith/Fry	(Feltham)	9:34

Now *if* Heaton/Ross had made their 40 lap schedule, *if* Clarkson/Daly's Rossi had not had their last three tanks very hot and a bit slower and *if* Smith/Fry's Rossi had not spent a lot of time on the ground, what a final it would have been! Bodes well for the coming season.

Surprise of the meeting was the performance of the Rossi FI's present. Gardner/Wilson (Tynemouth) had possibly the best, doing 23·0 sec/10 laps for a comfortable two-stop range, although restarts seemed a problem. Clarkson/Daly's was the fastest by far, doing 22·5 sec/10 laps for 29 laps, whilst Smith/Fry's had 23·0 sec/10 laps airspeed but just did not get the necessary 33 lap range. I don't know how the others were set up, but here is our finishing configuration:

Motor Internally standard R 15 FI Normalé with 3·0mm ID Cox type insulated venturi, 6·4mm ID exhaust restrictor, 2-part contra piston, new head and extended prop driver.

Model Developed *Sprint* with Metkemeijer style 'wobbly wheel', a bent brass 'Dutch tip', a *Turtle*-type integral pan/canopy unit and Larsson/Rylin cooling.

Prop, etc 178mm dia x 180mm pitch Graham Howard 'South African' prop (not enough pitch?). 12 thou 7-strand 'Pylon Brand' cable lines.

For a first-time out model and motor, our 4:16 and 8:44 times were better than we had expected; will have to see how it develops.

½A – Team Race

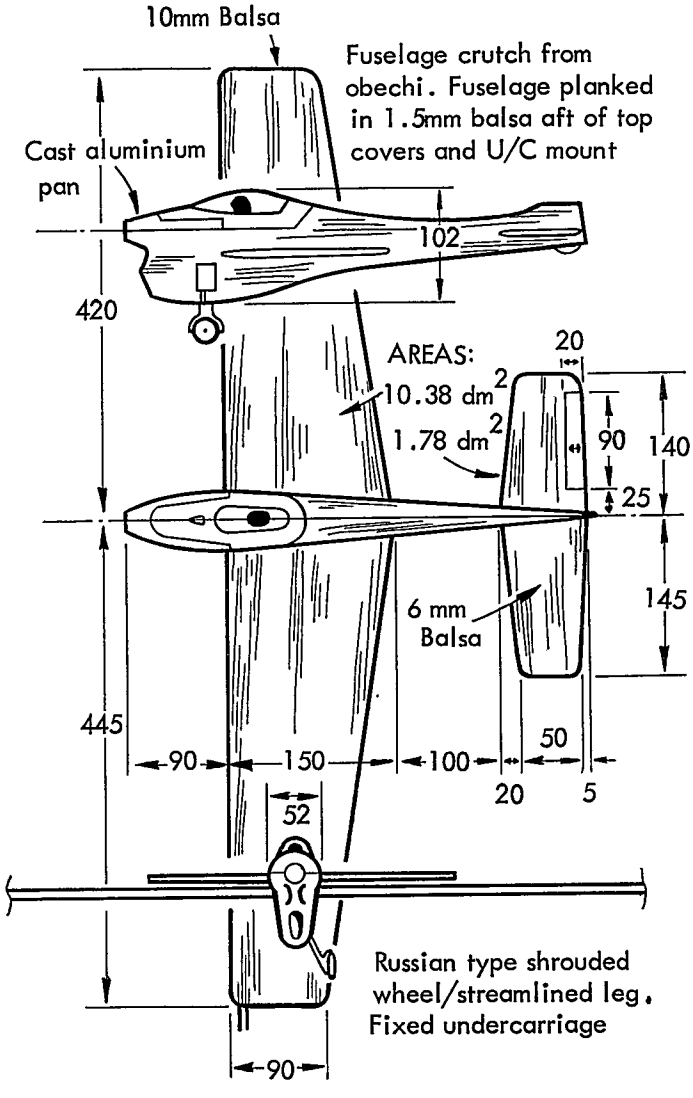
Even less enthralling than usual due to at least one well-known team having left their model at home, thanks to the event confusion, ½A involved very little organisation, therefore this brief coverage:

1. Davies/Broadhead (Wharfedale) 9:13
2. Horton/Haworth (Wharfedale) 9:47
3. Gardner/Wilson (Tynemouth) 10:42

FAI TEAM RACER

by HEATON/ROSS

(U.K. final and heat time record holder)



Motor: Bugl 15 with John Grey propeller ('large' MVVS style)
All-up weight: 450 gm

Class B – Team Race

'B' is one event where new models do not seem to appear until half-way through the season. Heaton/Ross broke this rule and brought out their brand new model complete with an Alan Lee/Malcolm Ross RV rear exhaust Schneurle special. However it was Dick Giles' 3 year old beauty that wowed us all with record breaking heat and final times – an equally old ST G21/29 RV with a steel liner providing the horses.

1. Giles/Harknett (S. Bristol/Feltham) 7:49·4*
2. Heaton/Ross/Horwood (Norwest/S. Bristol) 8:11
3. Taylor/McGladdery (Feltham) 9:04

*New 20km final record. Also new 10km heat record with 3:52 in the heats.

Combat

Miles away from the racing circles, so I did not get to see any of the Combat. Therefore I depend on hearsay for the news and Bob Horwood (SMAE C/L Chairman) for the results (supplied the rest of the results too, thanks Bob).

Notable was the absence of John Hammersley whose 'magic finger' was not available therefore to keep the *Outlaws* airborne. Nevertheless, with Chuck Thomas doing the flicking, 'Wilky' was well served as the results show. One thing the results do not show is the presence of four Dutch entries – unfortunately their highest placing was 10th but, no doubt their 'spying mission' was successful (and disturbing, I hope).

1. R. Wilkens (Outlaws)
2. R. Bamford (Nottingham)
3. V. Hunt (Alfreton)
4. M. Kizel

Glows win once more. With Mick Lewis, Richard Evans, Mick Tiernan, Dave Wood etc having switched to them THE WRITING IS ON THE WALL.

SMAE CONTROL-LINE CHAMPIONSHIP

As in previous years, the SMAE control-line Championship is under way again. This Championship is determined in a rather complex manner as published in *Model Flying* (SMAE Newsletter) a few months ago using the results from SMAE events only. Following the 1st SMAE centralised at Luffenham, the placings computed by Bob Horwood so far are:

		points
1. Heaton/Ross	(Norwest)	175
2. Davies/Broadhead	(Wharfedale)	165
3. Horton/Haworth	(Wharfedale)	155
4. Giles/Harknett	(S. Bristol/Feltham)	125

Of course there is a long way to go yet before the real Champion for 1976 is known but I can give a good tip on who it will be.

NEWS FROM DOWN UNDER

Had a long (long) letter from Andy Kerr giving some news of recent Australian performances by the Sydney lads. The photos came from Andy too.

Oddy/Reichardt oddly (sorry Hutton) not on the Australian team for the World Championships have just confirmed their position as fastest FAI-TR team in the Southern Hemisphere with a 4:25 heat and 8:48 final. With a nice, new Bugl to replace the one that blew up just before the Australian Nationals (which were also their Team Trials) in a smooth looking model, such times really were to be expected once a tarmac flying surface had been found. The Sydney flyers found such a site so . . . message received in Melbourne? Not surprisingly, Hutton Oddy and Julius Reichardt are now NSW State Champions at FAI-TR, winning the championship event held over Easter with 9:01 final.

Andy himself took 10cc speed still using the ST 60 RV ABC powered model described in this column last month – the only difference being that his winning time for the half mile was 9·03 secs – a magnificent 199·2mph – attributed to a switch from the normal Top Flite 9 x 13½in. 'narrow' wood prop to a Top Flite 9 x 12½in. 'wide' wood prop. Just who is going to be the first Australian to exceed the magic 200mph in an 'official' flight?

NORTHERN AREA MEETING – *RAF Elvington, 9th May 1976*

A small meeting, thank goodness, for flying only started mid-afternoon following an enormous thunderstorm. After the rain, the conditions became warm and calm but extremely humid – not the best of conditions for what happened.

Pleasing lines aided by attractive colour scheme used by Peter Galloway on his latest stunter, which shows perhaps more than a little Roy Brown influence.

Pete Tindall just cannot stop making those Chipmunks! Latest is a 'Super Special' version, with much effort expended on a detailed cockpit and first class paint job.

Things are warming up in FAI-TR folks for the heats saw a 'lazy' seeming 4:11 from Heaton/Ross. Clarkson/Daly were still experimenting with a Rossi FI (changing venturis and props) and threatening similar potential to Heaton/Ross. However, it was Heaton/Ross's day as the final shows.

1.	Heaton/Ross	(Norwest)	8:15·8*
2.	Horton/Haworth	(Wharfedale)	9:21
3.	Clarkson/Daly	(Norwest)	Rubbish!

*New UK Final Record. The fastest non-grouper final time outside Russia?

A stupendous performance directly witnessed (and certainly not aided) by John Horton and myself. Their 'Verviers' model still bearing its scars plus a Ross modified Bugl and a John Gray prop gave 23·0 sec/10 laps for 40+ laps; perfection piloting and pitting did the rest. A 'good run', yes, but what a result; I fear to think what their retracting U/C model will do.

Besides this, all the rest seem of little importance. Goodyear, organised by Wakefield club, saw elevator failures on both diesel converted Taipan 3·5 BB Schnuerle powered entries (those of Heaton/Ross and Horton/Haworth) and Clarkson/Daly eliminated by the humidity that so swelled the wood around the internal bellcrank that the controls seized solid! Meanwhile, Daly/Howard showed their newly discovered first-flick re-start technique on their Rossi FI to win.

Open Final

1.	Daly/Howard	(Norwest)
2.	Goddard/Temporal	(Wakefield)
3.	Berry/Hayes	(Stockport)

Novice Final

1.	Sykes/Crabtree	(Wakefield)
2.	Jarvis/Stubbs	(Stockport)
3.	Morrell/Seward	(Whitefield)

No doubt discouraged by the conditions. only three entered 'B' so I hope it suffices to say that Heaton/Ross won easily despite Malcolm generously calling for and getting an extra pitstop on lap 177!

In summary: May the 9th of 1976 at Elvington was quite a day.

Left: Oddy/ Reichardt after breaking the Australian FAI team race records with their Bugl powered machine

Hardware on the new Australian record breaking FAI racer (right) reveals neat short pan housing the Bugl - note inboard mounting of tank.

DUTCH C/L TRIALS

Just received from Holland are the results of their Trials for the 1976 World Championships. In aerobatics they will be represented by Louis van de Hout, Rolf Edel and Peter van Doesburg, while their speed interests will be seen to by Bas Buser, Keef van den Bergh and Winifred Holle, who recorded 223, 222 and 221 km/hr respectively.

Major interest however centres on the team race results – and here they were really spectacular, with Flores/Van der Voort recording a superb 3:58.4! However, under Dutch rules, six rounds are flown, the fastest and two slowest times being discarded, and the remaining times averaged. Thus the pair 'lost' this incredible sub-four minute heat, but still averaged 4:07.3 thanks to really consistent flying. Incidentally, their worst time was 4:29.0 – and this was the result of flying 'rubbish' back-up equipment! In second place were the ever consistent Metkemeyer brothers with a 4:13.8 average – and in addition Bert placed third in aerobatics (standing down in view of his T/R commitments) and Rob came fourth in speed, losing by just 1 km/hr!

The team will be completed by Helmich/Krom who averaged 4:18.4 (best heat of 4:13.2) and in fourth place was Visser/Buys at 4:24.8. Obviously, the Dutch have a very strong team for 1976 – a real achievement for a country where so few practice this particular sport.

STUNT NEWS by *Glen Alison*

Encouraging support for CLAPA, the *Control Line Aerobatic Pilots Association* with membership now near the 100 mark. The response is very surprising just showing what latent interest was there waiting

READER'S LETTER . . .

Dear Sir,

My attention was recently drawn to your April 1976 issue, featuring myself and *Kan Doo*. Although delighted to find myself remembered in this way, I was at the same time rather saddened to see what some unknown designer had done to my ancient masterpiece. If my memory serves me correctly, I have never supplied drawings of the *Kan Doo* to anyone for publication, and those printed in your magazine must be someone's guess at how the model was constructed.

By crawling about in my loft I found the original plans and remains of my last *Kan Doo* (which someone walked over at a demonstration). Reference to these has restored some memories.

If any of your readers build models to your published drawing, they will first of all discover that they are unable to keep the weight within the specified limits: I expect that the models will in fact be double the specified weight and will have great difficulty in flying at all with the ED 2cc motor. The general proportions and outline shapes shown in your drawing are roughly correct but some structural details are not. The most alarming discrepancy is in the fuselage, shown as $\frac{1}{4}$in. or $\frac{3}{8}$in. plywood; this should be $\frac{1}{8}$in. or $\frac{3}{16}$in. plywood which is fretted out at every convenient spot to reduce weight, and then covered with light $\frac{1}{16}$in. balsa. The undercarriage was of 14 or 12 gauge – not 10 gauge – and the tailskid was 18 gauge. The bellcrank was of duralamin and was supported on a single plywood plate which was *not* attached to any part of the wing structure. The engine used in the contest was an ED 2cc Standard (not Comp. Special) but it was fitted with Comp. Special fins and compression screw and had a shortened piston.

I think I built 18 *Kan Doo* models, all basically similar but differing slightly in proportions and structural details. The model flown in the Gold Trophy contest in 1948 was the best of the bunch but was handicapped by having an overweight repaired nose section, the wrong propeller, and was made to fly on lines longer than it was capable of carrying in such windy weather. Remember – the minimum line length rule announced only about one hour before flying started was the same as applied to 10cc powered models. I had to hurriedly make up new lines and put in a practice flight during which I lost line tension at an awkward moment and crashed. The nose was broken off the model and I had to make emergency repairs by bolting two plywood stiffeners to the engine mount. I believe that observers at the time thought that this repair was in fact the original structure and may have led to the belief that the fuselage was $\frac{3}{8}$in. plywood.

I was rather ashamed of my performance in the contest – the model (and perhaps the pilot) having previously done much better during 'Fly for fun' sessions. Firstly I had to take-off from grass which was so long that I could not see the model from the centre of the circle – and broke two propellers in the attempt. Secondly, the wind speed was such that at times the model could make no headway against it and had to more or less hover waiting for a lull to get it round to the other side again. On occasions *Kan Doo* passed close to my nose on slack lines. I remember on one occasion going inverted by means of a half roll. This was achieved as follows: Just as the model is coming into wind, run towards it and let the lines go as slack as you can; the model then turns away from you and goes back the other way with the wing-tip carrying the lines now on the outside of the circle; step back smartly to regain line tension and thus pull the outer wing-tip over to the inside, then proceed inverted. Unfortunately the same procedure doesn't work too well for going back to normal flight – you have to get it back some other way.

It has been a dream of mine to fly *Kan Doo* in the Gold Trophy contest again one day. I let the 25th anniversary go by, so perhaps I might be able to make the 50th if I can get an ED engine again. Incidentally, I have never seen the Gold Trophy and have often wondered what it looks like.

Totton, Southampton *P. Cock*

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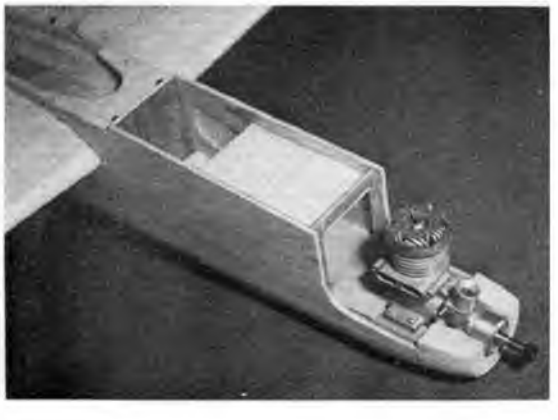
for an outlet. Its third newsletter *Claptrap* is now out and contains letters from members, contest reports, league table positions, competition dates and technical information relating to stunt flying. In addition there are the results of the election of the technical committee, who are Bill Draper, Ron Parsons and John Newnham; all respected and well known flyers.

Also encouraging is the general upward swing in competition entries so far this season which are in the order of 20-25. This is causing a headache for organisers trying to get two flights in for each flyer let alone three which is preferable. It may become necessary to start using two circles and two judges in order to cope. Earlier starting times would also help but as many flyers have families with them and a long journey as well, this may not be too popular.

At right is Australian Julius Reichardt 'at work' servicing his FAI team racer. Below is the front end of Ted Fowler's latest stunter. Note use of detachable (foam) wings plus tank readily accessible through the front former. Below right is the hardware from Andy Kerr's Class B racer.



CLUB NEWS

WITH ALL THIS bruhaha going on about Noise Pollution what is desperately needed is a bit of give and take on both sides. We so often get complaints about model flying which are out of all proportion to that which would be considered a nuisance by any tolerant, reasonable person. On the other hand we get model flyers who are not prepared to make any concessions to the public's point of view. But what certainly mollifies any opposition is the readiness to make such concessions, and the more model flyers are prepared to co-operate with local authorities and anyone who might be affected by their activities the brighter will be the outlook for all concerned.

First to hand this month is the April *Northern Area News*. It is largely given over to commentary on the twin SMAE dramas: the ill fated Nationals and the Noise Pollution Act. On the Nationals issue it seems clear to me that the main stumbling block is not poor organisation but the lack of suitable airfields – a situation made worse by the high price put on the hay crop yield of certain fields. In future the event could be held later in the year, over the August Bank Holiday, perhaps, but apart from things getting just that bit jaded towards the end of the season, many would-be participants would be on holiday, and the high traffic density would not help matters either. On the question of the Noise Pollution Act and its related Code of Practice it would appear to be all very indefinite, with no two possible situations likely to be the same, and much will depend on purely local judgments. One thing, though, we cannot depend on, and that is the weather, and the opening F/F Area event in March was held, just about, in that stay-at-home type of weather we now all too often get in the early part of the season. Only Glider got any sort of support with 11 entries, whilst Open Power summoned but one doughty flyer.

From Mr N. Warner, the Publicity Secretary of the **St Albans MAC**, comes a report on an Open Thermal Soaring Competition held on its famous Nomansland site. April turned out to be the cruellest month for this event, as on the very day the weather changed from balmy to barmy, with a chilly wind and grey overcast skies, so low that models were getting lost in the murk. Little updraught, then, but Ken Kirby did find some lift with his aged, maiden aunt type glider. Seemed the old girl enjoyed her little ramble, but got a bit hysterical in the tenth minute, flapping, fighting and flouncing till she was eventually floored in the eleventh minute – all good stuff, much appreciated by the crowd. Despite being on their home ground St Albans could achieve nothing better than a fourth place. Visitors therefore triumphant but chilly, the tow-ers uppers all warm and a-glow, and the ice cream man very despondent. Winner was Mr Wisher of Basingstoke, with Mr Shaw of Oxford second.

A good safety point made in the **Watford Wayfarers MAC**'s newsletter. At a recent meeting it was generally agreed that the further away the flying patch is from the pits area the better. In most set-ups they are one and the same thing, making for too much clutter where models are taking off and landing. But such considerations are second to the requirement of somewhere to actually fly. To show how critical the situation is, the club is prepared to pay £300 per year for a Sunday only concession on a 50-acre field. Since the membership is a modest 38 this seems an awful lot of money.

It is always difficult to exercise tight control over radio transmitters when flying is occasional rather than a full club turnout, and because of one or two incidents lately, the **Worcester MAC** is looking into ways of meeting this problem. One way is to always have a 'Tx controller' on duty, however few the flyers may be. Not always easy to arrange. Nor, for that matter, is a coach outing. Only 19 seats were taken on the Sywell Expo Coach trip, which means an all car show for next year. However, those who did attend the Expo enjoyed all the fun of the air fair,

YOU & SMAE

INSURANCE – An Introduction

Third Party insurance is something that all model flyers should hold. The SMAE feels so strongly about it that it insists on its members carrying suitable insurance and defines precisely what 'suitable' means. SMAE also consults the Insurance profession for expert advice.

The purpose of a Third Party insurance is to protect you from financial claims which may be made against you as a result of damage or injury caused by your model flying activities.

This is *not* to say that model flying is unsafe. It is solely a responsible acceptance of the fact that, on rare occasions, accidents may happen – as they may in all other sports and normal life.

There are four common ways of getting insurance cover:

(a) Via a HOUSEHOLDER'S INSURANCE – if you have such a policy it is usually possible to extend it to cover you for model flying;

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(c) Via a PUBLIC LIABILITY POLICY which is simply a third party policy covering many aspects of normal life and which can include model flying;

(d) Via a SPECIAL INSURANCE designed for model flyers, usually through a club.

The above notes can only cover the subject briefly and there are several other factors of which you should be aware – particularly if you fly on Ministry of Defence land, fly under a club policy with other club members, organise or take part in public displays, are a 'junior' etc.

Future SMAE bulletins will cover these aspects in more detail, so keep watching this space.

Now, if you are an SMAE member, the whole subject would be covered comprehensively in a 4-page pamphlet which would be available for the cost of an SAE. *Just another SMAE service.*

* * *

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including full size displays and model demos. But it's more expertise than expenditure in the world of Indoor modelling, and one other than maestro Reg Parham came along to the club's April Indoor Meeting to show how it is done with an interesting range of models from a 1934 Baby r.o.g., job (still in the APS range) to an FAI microfilm model with some 30 minute plus flights under its belt. The club has the use of Nunnery Wood School hall for their indoor endeavours, and members have found the May *AeroModeller* article on the novice Easy-B model of particular interest, as it is especially suited to such halls.

We are reminded in the **Leicester MAC** Bulletin that radio is an older form of model control than C/L. Well, radio controlled aircraft have a quite long military history, and model wise – I have an old pre-war American mag describing a controlled gas model. But how much longer will we have worthwhile radio control? asks the Bulletin. About as long as the Post Office can resist pressures to open up a citizen band *a la* the USA, where everybody can have a go on 27 megs on a "*to hell with modellers*" basis, is the depressing answer. No wonder people are retreating Indoors. And for the Leicester boys this means the Stoneleigh School Hall. Chuck gliding is still very much the thing, but Gerry Ferer and R. Quilter appear to be getting the hang of the tricky rubber models, with Gerry putting up a new club record of 3 min 24 secs. A big indoor event of another order was the judging of the uncovered section of the Winter Building Contest. No less than 25 sizeable craft were on view, representing the main model categories, although free flight did not have much of a representation. Top marks went to G. Croft's F/F Power *Gyrofly* with M. Pitcher's *A.V.22s* R/C scale model close behind. This is, understandably, the most popular competition in the club calendar – and, no doubt, the most spectacular.

Pete Lindridge, PRO of the **Coventry & DMAC**, reminds us that his club is very much a going concern. The club has no less than three flying sites which are used on a basis of suitability to the time of year. Most branches of the hobby are covered by members, and just now there is a keen interest in thermal soaring, with some people feeling the urge to enter some of the numerous contests that have sprung up for this form of flying. The club can, on occasion, muster a goodly collection of models, as it did for a recent Model Engineer Exhibition. The club meets on the first and third Monday of each month at the newly opened Arts Centre in the Charter House, London Road, Coventry. New members welcome.

The **Penrith & DMC** of Cumbria have issued a nicely printed information sheet about the club for the benefit of would-be members. Quite a useful idea. This, of course, is in addition to the monthly club newsletter, the *Fellside Falcon*. A letter in the newsletter explains why one member does not attend the Pint Patter nights: he claims to be strictly a flying field man, model wise and socially, having given up drinking and smoking in order to take up modelling. That's the spirit.

Ian Wyllie, writing in *Nitro*, the **Belfast MFC** newsletter, points out, quite rightly, that the growth factor in the model hobby comes not from the air-struck youngsters as it did in the past, but from the affluent adult going straight into radio and the full works therein. I am not so sure he is right in criticising the C/L and F/F flyers as penny-pinching misers. If they do not spend lavishly on their hobby it is often because they prefer to make things rather than buy things. And a good thing, too, as the poor man can keep his end up by sheer skill and industry, regardless of wallet size. Much of the newsletter is taken up with a remarkably cheap form of flying: Indoor. A fly-in at the Queen's Hall, Holywood, saw the EZB's of

continued overleaf

Contest Calendar . . . .

June 19-20th		**CLWYD SLOPE SOARING MEETING.** Saturday: R/C Intermediate. Sunday: R/C aerobatics, Pylon, Scale. Also magnet steered (or non-controlled F/F) - Senior & Junior. Limited entry for R/C events - pre-entry 60p/event (3 or more £1.50) to C. R. Filtness at 26 Raymond Street, Chester, by 7th June. Venue: Mold Famau, Near Mold, N. Wales.
June 19-20th	*	**INDOOR F/F DURATION NATIONALS.** EZB, Penny Plane. Open and FAI microfilm, HLG. Venue: RAE Cardington, Beds.
June 20th		**N. BERKS R/C CLUB 20 PYLON RACE** for Irvine Trophy. Pre-entry plus SAE to T. Franks, 46 Edwin Road, Didcot, Oxon OX11 8LE.
		SMAE C/L CENTRALISED MEETING. FAI and ½A team race, Speed, Combat, Mini Goodyear, Junior/Novice Stunt. Venue: RAF North Luffenham, Leics. SMAE members only.
June 27th		**ELLIOT C/L RALLY.** FAI and Goodyear T/R, Stunt. Details: R. James, 21 Rochester Crescent, Hoo, Rochester, Kent. Venue: Elliot Bros. Airport Works. A249 off M2.
		OXFORD MFC R/C THERMAL SOARING. Pre-entry (50p) with SAE to D. Powles, 47 Mark Road, Headington, Oxon. % Slot rules. I & L proof required. Venue: Port Meadow, Oxford.
		SMAE CENT CLUB CHAMPIONSHIP. Venue: RAF Barkston Heath, Lincs.
July 4th		**LONDON AREA C/L CHAMPIONSHIP.** FAI and Goodyear T/R, plus Combat at Charville Lane, Hayes.
		***BUTCH HADLAND PEANUT CONTEST.** Venue: RAE Cardington, Beds.
		R/C THERMAL SOARING, at The Roodee, Chester. Cash prizes to 4th place. Limited entry. Pre-entry (60p). to C. R. Filtness, 26 Raymond St, Chester by 21st June
July 11th		**SMAE SCALE FLY IN.** Cancelled.
July 18th		**SVAS OPEN DAY.** Sports day, mainly for F/F and C/L at Old Warden, Beds.
		NORTHERN AREA (SMAE) THERMAL SOARING. To SMAE rules, RAF Driffield. Pre-entry to A. M. Barker, 1 Bramley Garth, Appletree Village, York YO3 0NQ. SMAE members only.
		SMAE 4th AREA CENTRALISED. Team glider, FAI Power, C d'H. Area venues.
July 25th		**N. BERKS R/C SCALE FLY-IN.** Pre-entry (50p) plus SAE to T. Franks, 46 Edwin Road, Didcot, Oxon.
	*	**SMAE INDOOR MEET.** General fly-in at RAE Cardington, Beds.
		SMAE FAI OPEN-INTERNATIONAL EVENT. FAI rubber/glider/power. Venue: Sculthorpe, Norfolk.
July 23-26th		**COMBAT '76.** Note: new venue for this International event - now at Belper Sports Centre (on A6, 8 miles N. of Derby). Full facilities as before. Details P. Siddall, 112 Coronation Drive, South Normanton, Derbyshire.

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Rex and Rod Galway in action, who together with Maurice Doyle, demonstrated just how well these craft fly in small halls. Best flight in the Tissue event was Rex Galway's 3:23, nudging the ceiling in the process. Some gentle drifting to good purpose, too, in the thermal soaring event held in April. Conditions, sunny, with light winds, were ideal for the sport, and gave a good day's flying to the 14 entries from three clubs. Ian Wylie came first and D. Warren of the NIMSA, second.

Apropos to remarks in the previous para on the nature of the modern modeller we have quite a euphemistic portrait of the artist as a young modeller in *Torque*, the newsletter of the **Christchurch MAC.** It takes us through the evolution of a model plane, from its creative conception, projection onto plan, the building of the artefact to the exciting first flights. But how true is such a picture today when the lavish kit is so temptingly proffered? The newsletter is full of events flown and events to come, all making for a very lively portrait of model flying in New Zealand.

I should have thought by now that free flight practice was pretty well uniform all over the world, but I see in *WMC Patter*, the newsletter of the **Willamette Modellers Club** of Oregon, USA, a discussion on the pros and cons of VTO (vertical take off). I am surprised that people still opt to launch by a method last seen in this country in the fifties – and not very often then, but it seems to have its advocates, at least in America. Listed in the newsletter are Peanut Scale Judging Rules. There are no less than 16 different factors taken into account, making hard work for the judges. Personally I would like to see the way out, wide chord monoplanes more heavily penalised so that the events do not become a walk-over for dull looking, high performing stodge.

Your reports and newsletters welcome.

Clubman

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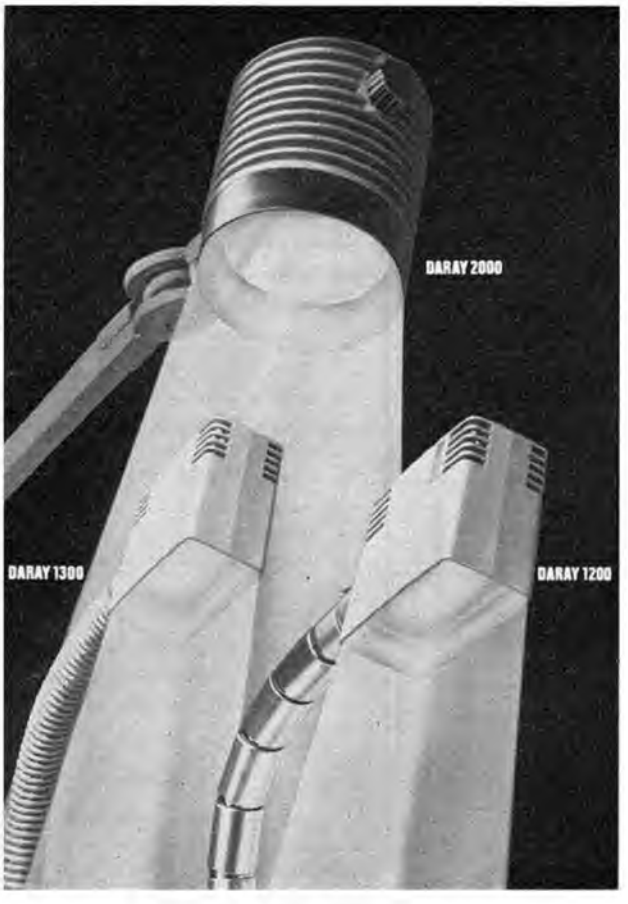

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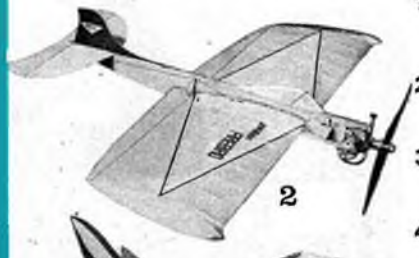

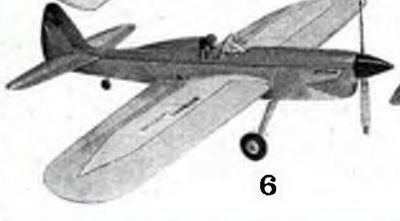

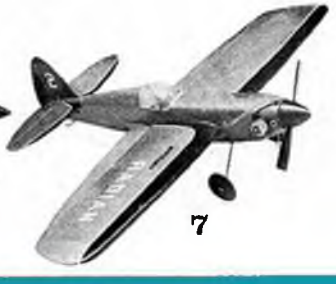

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