MODEL MAGAZINE AN ARGUS SPECIALIST PUBLICATION

November 1985
£1.85

AERO MODELLER

2 FULL SIZE PLANS

Vickers Gun Bus for CO_2

Stormbird-Vintage glider

VINTAGE AT —OLD WARDEN

1985 BRITISH NATIONALS
Control Line and Scale

PLANS
Avro Triplane for electric R.T.P.

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November 1985

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Editor *Pete Freebrey*
Graphic Design *Jenny Hine*
Advertisement Manager *Jim Carrigan*
Group Editor *Alec Gee*

Cover:
John Watter's neat little *Vickers* 'Gun Bus' would make an ideal introduction to scale free flight - using CO_2 power there is no noise, no mess and no starting problems - also the model is light enough to bounce! Insert shows just two of the many control line models at the Aeromodeller Vintage Weekend.

MAP **Model & Allied Publications**

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HANGAR DOORS

Coupe d'Hiver 1985

Aeromodeller's annual Coupe d'Hiver event will be on 1st December. The venue will again be RAF Henlow, Bedfordshire. The close co-operation of the Royal Air Force continues to make possible the use of this, one of the largest all grass airfields in the country.

As is usual there will be two events: one for the 80gram class for the Aeromodeller Cup and the other for the 100gram class for the Boutillier Trophy.

For security reasons it is essential that we receive notification of anyone wishing to attend this meeting. Please inform the *Aeromodeller* editorial office of:-

1. Your name
2. which events you wish to enter (or if spectator)
3. car registration number
4. probable occupants *and* what events they wish to enter.
5. return address for further details

Last year competitors had to wait outside the airfield whilst the security side of things got organised - *this* year we *hope* to have things sorted out *before* you get there. BUT, we can only do that with your help...December seems a long way away but please send in the information above as soon as possible.

DPR...new model

DPR Models, famous for their range of beginners aircraft kits and the 'Chukkie' in particular, have produced their best model yet...

David and Janine Rawlins must surely be the most popular couple with all the youngsters that attend the Nationals ...for years, they have run their 'aeromodelling workshops' and taught the rudiments of flying to thousands of children all over the country but especially popular has been their appearance at the SMAE British Nationals.

This year they had a very special model on show for the first time, *Jenilee* Rawlins. *Aeromodeller* would like to add its congratulations and best wishes for the future to Jenilee. Perhaps she may be lucky and win a 'Chukkie' at one of those future 'aeromodelling workshops'!

Above, David and Janine Rawlins with latest model, at present earth-bound (cot-bound?) but doubtless basic training will include flying lessons.

Below, just one corner of D.P.R's popular 'aeromodelling workshops' at this year's Autumn Nationals, where the youngster's enthusiasm seems to know no bounds...

Viewpoint

In September *Aeromodeller* we printed one reader's Viewpoint (Dave Hipperson's, page 535). This cry from the heart on a topic Dave felt was important seems to have stirred things up ...not at all. Does this mean everyone agrees with him, or are we all too bored with competitions to care what and how competitors do? Do you have a *Viewpoint* - something fighting to get out of your system...you do, then let us know...perhaps someone may take more notice of that!

There does seem to be too much antipathy on things aeromodelling these days - even to getting your copy of *Aeromodeller*. We have a number (far too many...) of telephone calls or letters saying that potential readers are unable to find *Aeromodeller* on the shelves at the newsagents! Don't give up...fight for your rights (and the missing copy!)

The obvious answer could be that you take out a subscription - but that means an initial outlay of over £20.00. Alternatively you could place an order for it at that same newsagents. But whatever you do DON'T GIVE UP...make a fuss, ask for the manager, question stories that imply we have not been published that month etc. You could even write an article and get one free...

Aeromodellers of the World unite - demand the right to read the oldest and best...(*Well, my son likes it anyway...Ed*).

Richard Kohnstam

A true friend of aeromodelling has left us.

Richard Kohnstam succumbed to a severe heart attack on August 9th. Ever active, and always the most kind and gentlemanly 'boss', he had visited the Beatties Shop in Bristol, encouraging staff, discussing stock, taking the closest interest in all the complexities of a large store and departing cheerfully for his return home. Sadly his day terminated abruptly as he climbed to the 5th level of the car park. Duty done, he was to know no more : but his passing leaves an irreplaceable void in the model business.

From his cosmopolitan youth in central Europe and France, the son of a long established and highly respected family in

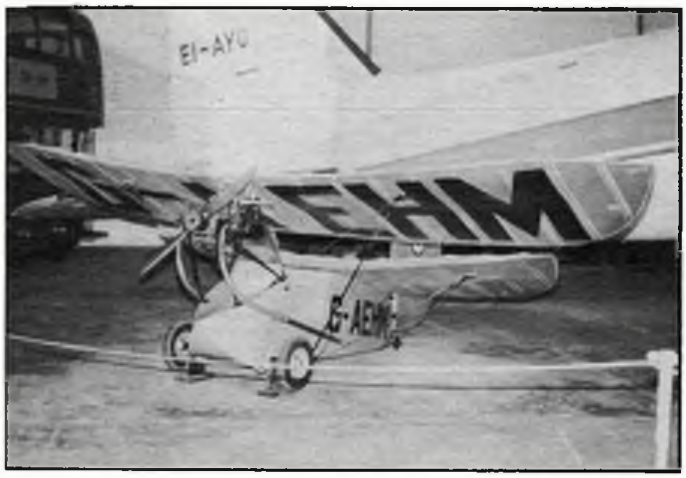
the toy trade, Richard had an extraordinarily successful, even legendary career. He created 'Matchbox'; was among the first to recognise the potential of Japanese manufacturers; launched the RIKO companies; expanded Beatties to a major chain of shops, - and all through, was a most keen advocate of the ready to fly model.

A regular visitor to Aeromodeller days at Old Warden, and somewhat private flier of electric R/C models, he was, for all his seniority in the higher echelons of business, the most humble and approachable fellow-modeller, a man who understood and appreciated conversation and whose interests were legion.

We know how disappointed he was that youth in the 80's should have foresaken basic aeromodelling kits but his remarkable foresight and so very honest outlook led him to urge the creation of kits of other types to suit the 'modern' outlook and so retain general modelling as a continuously developed activity among succeeding generations.

His 67 years were filled with rich experience, and his nature was such that anyone privileged to be close to him would benefit from his charm and charisma.

The model trade, the press, and all those who knew him will join us in extending every sympathy to his wife Gustl, daughter Sylvia and his many colleagues on their great loss.



This country has an enviable history in the world of aviation and for the interested modeller there are many 'museums' scattered around the country that have a range of fascinating aircraft on display. Some are not open all the year round but either have 'open days' or offer special facilities for those researching specific aircraft. The two aircraft (D.H. Rapide left, Flying Flea above) shown here are from the Science Museum's Wroughton 'out station'. Wroughton (Wilts) is open to the public on only a few days a year, 'phone 0793 814466 to find out when, or phone the Science Museum London 01-589-3456 (ext 632) to find out about all their museum sites.

Sponsorship and P.R.

Like any other sport or activity, aeromodelling can only gain by good PR - Public Relations. We hear too often of little old ladies or grumpy management types that complain of engine noise (sometimes even gliders!) and put paid to our models being flown at what has been for years our local flying site.

The loss of these local sites often has far-reaching effects ...One of the most important of which, is that people are not so likely to see us fly and so will not be encouraged to take up aeromodelling themselves.

This in turn puts more emphasis on the model aircraft displays that occur at fêtes, air shows and the other public gatherings. Not only must the modellers ensure that all safety measures possible are strictly enforced but at the end of the day the display itself has got to create the right impression.

Free-Flight models can obviously only be displayed as static exhibits and so the bulk of public displays tend to be control line or radio control. A number of clubs have become quite expert in this area and where sponsorship has been obtained, the displays often stand out in a most professional manner. Usually identical models performing formation manoeuvres that not only are attractive and thrilling to watch but more importantly encourage new generations of aeromodellers.

One of the latest 'team-ups' is that of the 'Avon Cosmetics Display Team' and *Cambria Model Aircraft*. Cambria are well known for their range of reliable, workmanlike kits; so this particular 'merger' should provide plenty of thrills for the crowds at next year' shows.

If your club participates in flying displays, why don't you try to get some sponsorship - if you don't ask, you don't get. Not only could you get good PR for the sponsors but for aeromodelling as well...

Below, the Cambria/Avon Cosmetics Display Team kitted out and ready for action.

What's On

October 13
HESWALL MAC OPEN C/L STUNT COMP.
Comps: F2B, Novice and Junior Stunt, C/L Scale. Venue: Neston Recreation Centre, Neston, Wirral. Contact: Jim Major. Tel: 051-355 4075.

October 13
NORTHERN AREA FAI F/F.
Comps: F1A, F1B, F1C. Venue: RAF Driffield. Contact 0904 705647.

October 20
DIESEL 'A' COMBAT
Venue: The Embankment, Peterborough. Contact: B. Waterland. Tel: 0778 343722.

October 20
DUXFORD FLYING DISPLAY
Venue: Imperial War Museum Duxford. Tel: 0223 833963. Historic aircraft from the Duxford Collection. Adults £2.50, Children OAPs £1.50.

October 27
MERCURY MIDGE COMPETITION
Venue: Three Sisters. Contact: Pete Farrimond. Tel: 0942 34068. Comps for Vintage Midge and Open Midge.

November 17
FALCONS FREE FLIGHT GALA
Events: OP, OG, OR, Vintage. Venue: R.A.F. Lindholme, Nr. Doncaster. Contact: Russell Peers. Tel: Crewe 60893.

24 November
NORTH OF ENGLAND LOW CEILING INDOOR MEETING
Comps: HLG, Scale, Peanut Duration, EZB. Venue: Wigan Technical College. Contact: Dave Yates. Tel: 0942 214725. Rules are available from John O'Donnell 061-427 3711.

24 November
SOUTHERN AREA INDOOR MEETING
Comps: Peanut, Open Rubber, CO_2, HLG, EZB, 'All Balsa Machine' SAM 35 Earl Stahl. Venue: H.M.S. Daedalus, Lee-on-Solent. Contact: Malcolm Leach. Tel: Emsworth (Hants) 5384. Also Fly-For-Fun. Entry £1.25 (per comp of F-F-F), under 16 free. Anyone going must inform Malcolm Leach at least one week before. Flying from 1pm to 8pm.

1 December
AEROMODELLER COUPE D'HIVER INTERNATIONAL
See opposite page for details

1986
26 January
SOUTHERN AREA INDOOR MEETING.
Comps: Peanut, Open Rubber, CO_2, HLG, EZB 'All Balsa Machin' SAM 35, Earl Stahl. Venue: H.M.S. Daedalus, Lee-on-Solent. Contact: Malcolm Leach. Tel: Emsworth (Hants) 5384. Aslo Fly-For-Fun. Entry £1.25 (per comp of F-F-F), under 16 free. Anyone going must inform Malcolm Leach at least one week before. Flying from 1pm to 6pm.

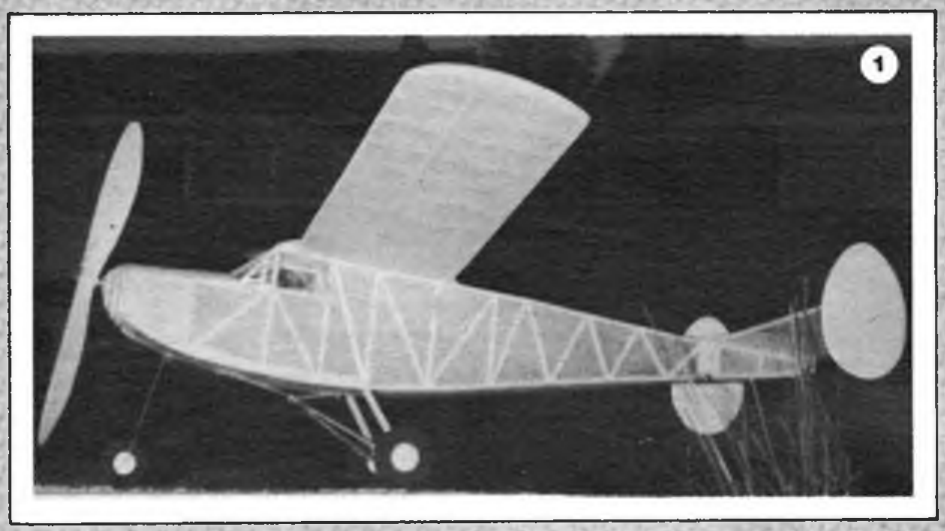
PHOTO PRIZE

Model News With Fliar Phil

Wood for the Winner

100 Sheets of balsa, nearly 200 lengths of strip wood — some prize!

All you have to do is send Fliar Phil your photograph – good quality black and white or colour prints will do, with your name and address plus details of the model, its construction etc on the back. Post your entries to Aeromodeller Photo-Prize Feature, P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead Herts HP2 4SS. Photos will be returned after publication.



Despite the fact that aeromodellers are an inventive lot, the vast majority of models built, are from plans or kits and indeed, most of the models in the photos Fliar Phil receives are from the same sources. Nothing wrong with this of course — but VARIETY (the *spice* of aeromodelling) comes from those creative aerobods who design their own models. So... "O.D. Modellers" take a bow. This months entries can take one too!

Photo 1

"Who's for some night flying?" It would appear from the dramatic lighting of his photo, that Haider Alyal, of Histon, Cambridge, could be considering a night take-off with his 'Dorland'. Haider's picture also captures the efficient and attractive lines of the 'Dorland'. A Model that has been around a long time, the 'Dorland' continues to be popular with rubber-power fans.

Photo 2

Talking of *own designs*, (right on cue), Mike Clews of Maidenhead, Berks, comes up with this impressive *own design*, cargo-carrier. Details are; Span 80in. Power: two *OS* 30s. *Futaba* R/C. Mike says the 'buggy' on the loading ramp is a little too heavy, but parachutists have been launched through the rear door, which is operated by a sail winch servo. A very stable flier. Nice work Mike!

Photo 3

Another one for the lads who like winding rubber! A fine portrait of a 'Ladybird', belonging to John Wilkinson of Liversedge, West Yorkshire. Flown on only 400 turns, test flights have turned in 70 seconds. John is carving a balsa prop to replace the plastic one. A 'rubber-powered' fan, John appreciates the contents of *Aeromodeller* and says "keep up the good work". We'll do our best John.

Photo 4 Winner

"In those cockpits are a woven pilot's seat and sliding gunners seat". That folks, is an extract from the description Derek Woodward of Truro, Cornwall, sent with his photo of this superbly detailed free flight *Bristol* 'Fighter' belonging to Jeff Turnbull of the R.A.F.M.A.A. Span is 39in. Power: 1cc diesel. A model that flies as well as it looks. Derek's photo - taken at the 1984 R.A.F.M.A.A. championships - also takes this month's prize.

Photo 5

The *Airco* D.H.5 with its unusual backward-staggered wings is always an eye-catcher, when it appears in model form (which is not that often!) The *Airco* D.H.5 in this photo, from Mark Braunlich, of Mentor, Ohio, U.S.A. is to Peanut scale, weighs 15gm without rubber and was built from Mark's own plans. That pilot adds a touch of realism to a fine model, Mark, Thanks!

Photo 6

No doubt inspired by the SE 5A free flight model by Bill Dennis (*Aeromodeller* July 1983), Mr. Martin from far-off Warkworth, New Zealand, built this somewhat modified version, powered with a *DC* 1.5cc diesel. Most of us at sometime, have come up against the problem of transport. Mr. Martin has mainly solved *his* problem - All the wings of his SE 5A. can be removed!

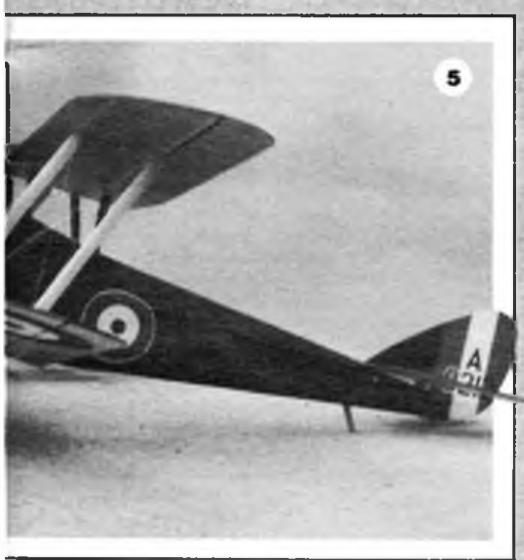


Photo 7

An interesting design with a touch of the Avro Vulcan about it, is this *APS* 'Vultan', sent in by Mr. R. Pickernell of Keymet, West Sussex, who first saw the drawings in *Aeromodeller* of March 1954, then lost touch with aeromodelling. He returned to the 'aeromodelling fold' 18 months ago, remembered the 'Vultan' - and built it. Good for him! Power, incidentally, comes from an *AM* 10...duly silenced.

That's this months feast — another mouthwatering menu next month! See you then folks.

Remember folks, this is YOUR feature and Fliar Phil needs YOUR photos to keep it going!

NATIONALS

Free Flight Scale

More than any other aeromodelling discipline, F/F scale is affected by the weather and this year's Nats was afflicted with continuous strong winds which sapped the enthusiasm of even the most dedicated. Even the trick of getting up at the crack of dawn did not help much, and the flying scores returned reflect this.

Entries in rubber and the recently introduced CO2 were gratifyingly high, but the power event attracted only five and appears to be on its last legs. Next month we shall look at some of the models in more detail so for the moment I will concentrate on the flying side of things...such as it was. All the events were delayed several times and eventually had to be squeezed into Monday morning.

Rubber Scale

The first and last attempt at an ROG was by Bill Dennis with his *DH* 60 'Moth'. After that it was hand launches all the way.

The model everyone wanted to see flying was Barry Hetherington's *Bellanca* 'Aircruiser' - about 50in span and not many ounces! In a striking green and gold colour scheme, its highly unusual shape was very impressive in the air. Even on low turns it floated away as if it was full of helium and it could be no exaggeration to suggest a DT might be necessary!

A surprising qualifier in the conditions was Richard Granger's *Fokker* RII, last seen at the indoor Nationals. I say surprising because of its total lack of dihedral, but nevertheless it managed a very good flight, gaining Richard second place. Third was taken by Barry Pursglove with his *Air Speed* 'Express', another model not over-endowed with dihedral. The 'Aircruiser' was relegated to fourth simply due to the very sketchy documentation.

Bill Dennis was quickly running through his attempts making trim adjustments to the 'Moth' which appeared to want to reach the ground as soon as possible, but on the very last go it produced a good flight to take the Model Flyer Trophy.

Power Scale

A disaster - nothing more or less. Only Terry Manley managed a qualifying flight with his *DH* 4 - a very good one in fact. However, both Eric Coates and Michael Smith crashed their models and Bill Dennis' Argosy - after a long straight take off - ran into a rough patch and wiped off the under-carriage; an annoying way to go out of a competition!

The only new model was a superb *Avro* 504N in blue and silver by Charlie Newman. The first trimming flight (!) looked promising, but it became apparent that it needed a bit more fiddling with, and Charlie wisely put it away. More of this one next month...

CO_2 Scale

When the invitation to fly was made to the CO_2 entrants huddled in the control tent, only Geoff Spencer was 'keen' to have a go, but once he had shown it possible with his peanut size 'Tiger Moth', the others sheepishly followed! Geoff; Indoor Nats winner was blown about badly in the conditions, but the larger models performed extremely well, none more so than Doug Sheppard's large *DH* 60 'Moth' which scored near maximums ...and deservedly gained first place. Second was Derek Knight with a beautifully made *Fairchild* 'Argus'. Derek was getting nowhere until he changed the *Telco* prop for a smaller *Williams*, when he also managed a near perfect flight, given the conditions

Fourth place was taken by Barry Hetherington with yet another *Bellanca* 'Aircruiser', which had no more documentation than his other one!

Thanks should go to Doug Hunt, Paul Briggs, Charlie Newman, Barrie Hotham and Chris Chapman for running the events in *very* trying conditions, and also those competitors who had a go and saved the day from a total washout.

Control Line Scale

Even before the closing date for Nationals entries it was clear that this year's Control Line Scale competition would have a lower entry than for many years and the final total emerged as just five.

The entry consisted of Ron Truelove with last years winning model, the *Heinkel* 219 'UHU' (Owl); Mick Staples with his *Bristol* 'Bulldog' (another previous winner); Wal Cordwell, *Beechcraft* 17 'Staggerwing' (brought out of retirement due to the second crash of his 'Spad'); Chris Bradford, with his large 'Dakota' now displaying extra scale details and fitted with a flashing navigation light system operated by a closed loop electronic circuit, and Pete Stiles with the *Nakajima* Ki 27 ('Nate') powered by a throttled *PAW* 19 diesel engine.

With the event due to get under way at 10.30 on Sunday morning, a meeting of the competitors was called and it was unanimously agreed that conditions were too windy for flying...so static judging commenced in the Scale Control marquee. This year Derek Bird and Geoff Burkett had volunteered to judge and after comparing each model carefully with the submitted documentation (very poor in several cases) the marks were awarded.

A further meeting of competitors on Sunday evening agreed to postpone flying again, this time until Monday morning when a glimmer of hope in the forecast suggested that conditions might be calmer.

Monday morning proved to be marginally calmer (or was it just that we were becoming used to leaning into the wind!) and with time running out, the competitors assembled at the flight circle for a flying order draw.

The draw resulted in a flying order of Wal Cordwell, Pete Stiles, Ron Truelove, Chris Bradford and finally Mick Staples. After assembling the *Heinkel*, Ron Truelove discovered that only the noseleg would retract; the main legs remaining firmly down and after investigation of both the mechanics and electronics Ron decided to withdraw from the competition (with some relief in view of the conditions?).

Wal Cordwell's options included a new one for this year - a parachute drop - but on the debit side

Heading picture, Barry Hetherington launches his Bellanca in Rubber Scale - model is much larger than appears here! Far left, winner of CO_2 was Doug Sheppard with his D.H. Moth. Left, well known figure in flying helmet is Chris Bradford - with winning C/L Scale 'Dakota'.

Left, Pete Stiles placed second in Control Line Scale with his Nakajima KI 27. Right, this is THE flight... Pete Halman shows grim determination to break F21 record - for the second time!

the undercarriage had been locked down, so drastically reducing his possible realism in flight, points potential.

Wal's engine fired up readily and after quite a short take-off run the model lifted into the air, but immediately went into a wing-over and dived vertically into the tarmac with terrific force. The engine fortunately survived but the model was a complete write off. A post mortem showed that the elevator push rod quick link had come detached from the bellcrank but this may have been as a result of the impact.

Mick Staples with his lightly loaded model was already having grave doubts about flying and the sight of Wal's crash was enough to persuade Mick to pack his model away for another day...

The two remaining competitors now sensed that here was a chance for a new name to be engraved on the trophy and so they prepared their models.

After some problems with the fuel feed, Pete Stiles flew the Nakajima for the statutory ten laps to qualify but every lap was a struggle and a heavy landing damaged the undercarriage and cracked the wing skinning.

Any possibility of flying recognisable options was out of the question, the wind by now almost gale force. Last to fly was Chris Bradford, the large 'Dakota' looking as though it would handle the wind as well as any of the models. On the first attempt the wind got under the tail before the model had gained flying speed and it nosed over, then after a quick restart the take-off run ended when one engine cut and the model was again blown over on its nose.

At this stage the 'first round' had been completed and the Judges took a break. This enabled Chris to sort out his problems and as there were no other competitors willing to have a go - he flew as soon as the model was ready.

The 'Dakota' got airborne successfully this time and completed ten laps with both engines running but nosed over on landing and then flipped onto its back, sustaining damage to the wing and fin, but recording a high enough flight score to be declared the winner, with Pete Stiles, the only other qualifier in second place.

Handicap Speed

In this event, some ten sub-classes of model with widely different specifications and engine sizes (049's to 60's) are pitted against each other on the basis of the existing Class Record in each case. The entrant scoring the highest percentage of the appropriate record being the winner. This results in a choice of model size, shape and systems to suit all tastes...albeit confusing to anyone unfamiliar with the intricacies of the rules.

With a cool moderate breeze blowing across Barkston Heath, Speed got off to a hesitant start on Saturday, most fliers preferring to wait for kinder weather. However, Pete Halman showed the way with his Formula 21 entry (3.5cc motors, two 0.4mm ungrouped FAI-length wires, doped fuel permitted), cracking his own record by a whopping 5%. His speed of 166.94mph was achieved with one of the first production model *Irvine* Speed 21's, which should be generally available when you read this report.

Sunday started a little brighter, but the breeze persisted, with rain forecast later on. Graham Bryant made 161.22mph with his *OPS* powered Formula 21, scoring 101.40% to take second place. Pete Halman had another try with his F 21, improving to 167.94mph (105.63%), tightening his grip on first place. Joe Myzska and John Allcock pulled their little *Webra* 'Speedy' based special out of it's little box and casually pinched third place with a flight of 130.63mph (96.90%) in Class II (Open .09), later they were to be pushed down to 4th. Around mid-afternoon, the rain arrived and play was abandoned by mutual consent in hope of better weather the following day...

Monday dawned bright like Saturday but still with that breeze. The forecast was better (unfortunately not fulfilled) but at least the rain held off. Being the last day, activity picked up a bit and the results board began to fill out...

The wind claimed only a few victims, which speaks well for the general standard of competence. Contrary to what you might think, speed models can be quite difficult to fly - high wing loadings allied with highly tuned motors which are liable to function more like ballast if they get off tune - which happens frequently. Also, unless the flying surfaces are well aligned and controls smooth, handling can get downright difficult.

Ronnie King's homebuilt monoline 60 (Class VIII) was coping fine with the wind, but the motor refused to complete a run without seizing. The motor was built entirely by Ron and had never exhibited this problem until now, a great shame. Greybeard, Mike Billinton had brought his latest ultra-light monoline 60 model (all up weight an astonishing 30 ounces, lighter than many 40 models) but suffered an infuriating failure of the monoline unit after pull-testing.

Ken Morrisey also had a 60 model, but two-line control, and apparently too much of a handful in the wind - an attempted low orbit (six inches below ground level) terminated his effort. Martin Radcliffe and Ray Cox got their 60's airborne, recording 182.31mph (90.55%) and 162.70mph (80.80%) respectively but not without exciting incidents.

Paul Eisner seemed to be fighting a losing battle with his *Rossi* FAI (Class IV) model, eventually got it together to gain the best result in this class with 154.97mph (94.35%). He then swapped the wing for a smaller one, changed to grouped wires and did a smoking 179.97mph (98.15%) in Class III (Open 15) squeezing into 3rd place. This was second only to Martin Radcliffe's best 60 flight in terms of sheer mph, and although this class (Open 15) allows doped fuel, Paul used normal FAI fuel (20/80 castor oil/methanol). Paul has found that even if the compression ratio is adjusted, doped fuel is counter productive in a motor with the high exhaust timing (190 - 194°) currently featured in FAI motors.

Dave Brewin had problems with his Formula 21 entry but eventually managed 146.97mph (92.44%). He was using the only other production-model Irvine 21 Speed in captivity, and if he had been able to spend his time optimising the propeller instead of debugging the fuel system, his results would have been much better but even so he took 5th place. Bob Gibbs had better luck than

Left, a jubilant Pete Helman after 167.94 mph record breaker. Right, winning ½A Team Racer by Don Howarth - flown to victory by John Horton. Below, second place in ½A TR - that hard working pair Derek Heaton and Jim Woodside.

Left, third place in ½ T.R. were Sladdin-Ross, here Malcolm Ross looks relieved its all over! Right, how far can they go... Steve Smith and Colin Brown after record breaking FAI TR final. Current World, European and National Champions.

usual, recording two official flights with a best of 143.58mph (87.41%) - not quite as fast as anticipated, but that's common experience, and both flights were tidy and consistent. Finally, your reporter (Dick McGladdery) bullied his poor old *Rossi* 15-powered FAI to a reluctant 150.14mph (91.41%) for 6th place.

Thanks for a good show are due to the entrants plus sundry wives, daughters and friends for their efforts in the flying and sharing the organisational functions such as timekeeping, pull testing, erecting and dismantling the safety nets, barriers and other necessary equipment.

½ A Team Race

Surely what every entrant at this year's Nationals wanted most was sunshine...Disappointment! Three days of strong winds and cool temperatures in the familiar pattern set in this, our worst summer(?) for decades.

The **First Round** on Saturday saw only ten times recorded as competitors struggled to fight the conditions with the least horse power in the racing classes. Regular successful team O'Neil-Bollen (Elliotts) broke their best model before even getting as far as the cage when a strong gust blew them out of the sky during practice. Still, Horton-Haworth (Wharfedale) showed what could be done when they put in a 3:40 in a two-up heat with Heaton-Woodside (3 Sisters) who recorded 4:00. Clarkson-Needham (3 Sisters) put in the only other sub-four in Round One with a 3:59 with their *Sesqui* despite its poor restarts. A strict Jury would also have probably DQ'd this team for pitting the model without at least one point of contact with the ground!

Round Two on Sunday simply did not take place - well almost. The wind, now aided by the lashing rain, meant an almost empty line check when the RAFMAA personnel called the first race. Ogden-Martindale (Widnes) flew a two-up race (4:45) to secure a Semis place and that was it for the day...

Monday saw some general improvement with winds which moderated throughout the day. In the first round of **Semis**, Sladdin-Ross (Novos) recorded at 3:54.8 with some measure of whipping (and a helping of wing-overs). Heaton-Woodside managed a 3:52 with their FMV powered model but unsatisfactory ground handling characteristics saw this model back in the box...The rest were over four minutes with Horton-Haworth in the lead with 4:04.

The second series of Semis saw Hill-Metcalfe put in their best challenge with a 4:09 from their *Oliver* powered model. The first secure Finals place came in the first race when a 3:47 went to Heaton-Woodside's *Sesqui* model. The second race had to be re-run after a line tangle during the first pit stop which saw the race snarl to an end! The Jury gave all teams the benefit of the wind. Horton-Haworth's 3:54.3 two-stopper just pipped Sladdin-Ross, which might have been useful had not the wind dropped away for the Final.

In the last race James-Campbell were going very well - overtaking the other teams several times in the first tank. Sladdin-Ross made 3:59 so it seems likely that had the Grantham pair not suffered a run-in, their time should have been sub 3:50. Ogden-Martindale's 4:18.8 was a personal best to date so they are, at least, feeling some sense of progress.,

The **Final** pretty well followed the form book. The Wharfedale Team had speed and 50 + laps. Three Sisters tried for 40 laps (4 stops) but ended up doing five pits (33 lap schedule). Novos had the lowest airspeed. And that is how it ran with the margins being approximately four laps and eight laps.

Thanks must be extended to the RAFMAA for organising the event and to the various bodies who mustered for Jury duty, including Dave Rudd and Mark Jarvis.

FAI Team Race

With no-one volunteering beforehand to organise the FAI Team Race at this year's Nationals it was left to certain stalwart individuals to come to the rescue and run the competition with what resources they could muster on the day. All praise has to be given to Dave Rudd and Mark Jarvis who persevered in difficult circumstances and their efforts ensured that a reasonable competition was held.

The weather over the weekend could only be described as awful with only Monday afternoon approaching anything like reasonable weather. Strong gusty winds made flying difficult but not impossible and choice of segment for take-off became important. Several teams suffered run-ins or damaged propellers from having to take 'Hobson's Choice' of the up-wind segment.

Times in **Round One** on Saturday were generally poor with only four teams beating the four minute barrier. Pole position went to Smith-Brown with a 3:35 followed by Heaton-Woodside on 3:40, both teams using *Cipolla* engines.

The only others under the four minutes were Fry-Thorpe with a very nice new *Nelson* powered model and Davies-Banks with a *Cipolla*. Of this year's total entry of 20 teams only three were using conventional models, the remainder all using flying wings of various designs and it was significant that in the windy conditions the wings handled far better.

Round Two on Sunday produced sub-four minute times for five more teams together with a 3:43 for Smith-Brown to underline their superiority. Several interesting engines were seen in action in this round with Langworth-Broadhead making 3:49 with a 'Burford' *Nelson* (standard *Nelson* moving parts and a Gordon Burford crankcase). Nicely machined by Bernie Langworth, this engine did not seem to give any more performance than a standard *Nelson* but being side exhaust it was reported as being easier to use than the rear exhaust *Nelson*.

James-Campbell turned in a 3:51 with a Don Haworth prepared *Nelson* borrowed from Jim Woodside after their own standard *Nelson* suffered a rear bearing failure in Round One. Don's modifications included his own piston/liner assembly, all made to Don's usual impeccable standards.

Wilson-Gardiner showed their usual form in this round with 3:44 from a 'Nelson' *Nelson* and the last place in the Semi Finals was taken by

Perhaps not surprisingly all three FAI TR finalists used flying wing designs, on the right that of Wilson-Gardiner (2nd) and below Langworth-Broadhead (3rd).

'B' Team Race was fast and furious with all three finalists using OPS engines and tuned pipes. Above far right, Gordon Yeldham a very satisfied pit man after Steve Smith piloted his model to 1st place. Right, third place was this model of Sladdin-Campbell.

Sladdin-Ross who were using one of the latest side exhaust *Nelsons*. Installed in a very nicely made new model. This engine features a very impressive crankcase casting but curiously with the exhaust pointing to the centre of the circle.

The cut-off time for the semi-finals this year proved to be 3:59, exactly five seconds slower than last year but considering the high winds still a good standard.

Teams of note who failed to make the cut were Hill-Metcalfe who recorded two no-scores despite very high airspeed (18.6 - 18.8 secs/10 laps) from their *Cipolla* powered model and Oddy-Horne who were the innocent victims of a Second Round mishap which left their brand new model written-off and a very fast *Cipolla* badly damaged. This was a great shame as they were flying at 19.0 secs/10 laps in the race and could well have been potential finialists.

The Semi Finals on Monday started with a two-up race for Fry-Thorpe and Heaton-Woodside after Ed Davies and Dave Banks failed to show up on time. The European Champs runners-up made 3:41.7 using their Euro final Don Haworth 'Special' engine. This is basically a cut down *Nelson* fitted with a integrally finned cylinder incorporating Don's port layout. A slightly hard setting throughout the race probably cost them a place in the Final. The second Semi-Final resulted in a refly for Langworth-Broadhead after Wilson-Gardiner were disqualified and Salisbury-Whorton retired. Smith Brown really pulled one out of the bag in the last race with a superb 3:31.7 to book their final place.

The second round of the Semi Finals started off with reflys for James-Campbell and Wilson-Gardiner after Martin Sladdin caused an obstruction by landing well outside the flight circle resulting in his disqualification.

The second race saw Langworth-Broadhead turn in a super 3:39.1 from their 'Burford Special' flying against Heaton-Woodside who managed 3:45.7 from their *Cipolla* powered model. The last place in the Final was taken by Wilson-Gardiner with 3:40.3 from their two-up refly at the end of the round.

The line-up for the **Final** featured three very different engines. Steve Smith and Colin Brown were using a 1984 series *Cipolla* with drop in liner, plain bearing backplate in a one piece crankcase with six hold down locations. Pre-race practise showed 19.7/10 laps from a *Vision Regal* 166 × 175mm propeller, Steve flying with his usual practice style of slightly holding back the model.

Bernie Langworth and John Broadhead were pulling a 164 × 185mm propeller of Bernies' manufacture on their 'Burford Special' engine which was fitted in a model which featured a fuselage constructed from rolled 1mm plywood.

Dick Wilson and Ian Gardiner were also using a *Vision Regal* propeller (158 × 185mm) which gave 20.0/10 laps in practice from their standard *Nelson*.. At the start signal all three models were instantly away with Steve Smith showing the highest airspeed at some 19.2 secs/10 laps and assuming that no mistakes were made looked the likely winner.

All three pitmen performed excellent pitstops, with Colin Brown being slightly the fastest on ground time. The race was remarkable for its lack of incidents in the centre, all three pilots seemingly on their best behaviour and not wishing to test the Jury for a change. As predicted, Steve Smith and Colin Brown flew a faultless race to emerge the victors for an incredible seventh consecutive time with a new British record of 7:10.3. Dick Wilson and Ian Gardiner finished a creditable second with 7:27.8...in what was reputed to be Dick's last team race competition - we shall have to wait and see if he means it. Bernie Langworth and John Broadhead followed on in 7:41.9 to complete an excellent final.

Class 'B' Team Race

The entry for this year's event was disappointingly low, only eight teams entered of who six attempted to fly. The low level of participation did not seem to deter the competitors, who generally recorded times far better than when 'B' was in its heyday. In **Round One**, only three teams managed to record a time, Sladdin-Campbell setting the pace with a very fast 3:15.0 for the 10Km with two pitstops and an airspeed of around 140mph.

Dave Campbell had set his *OPS* 29 for 40 laps at maximum speed and was running a propeller of only 170mm diameter to get the motor really on the pipe.

Next up were John Broadhead and Ian Gardiner with a 3:35.7, John changing from his usual pitman role to deputise for Dick Wilson and showing that he is quite a capable team race *pilot*...Joe Myzska and John Allcock were the only others to return a score in this round but had problems and only just beat four minutes.

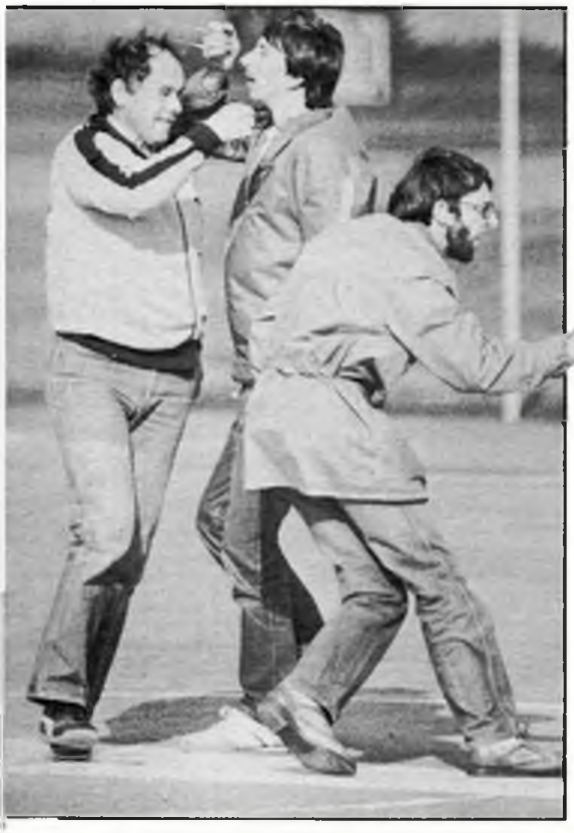
In the **Second Round** on Sunday, Gordon Yeldham got his model sorted out at last, to record a fast one stop 3:20.0 from his *OPS*. He did have a slight advantage in that he had recruited current World and European F2C Champion Steve Smith to hang onto the handle!

Mike Fitzgerald and Mark Thomason almost claimed a final place with a fine 3:37.7 having repaired overnight a broken fuselage from a too rapid landing the day before. Joe Myzska improved slightly to 3:42.9 but was off his usual pace. Sladdin-Campbell and Broadhead-Gardiner exercised due discretion and elected not to fly in this Round, preserving their models for the Final the next day.

All the teams used *OPS* engines of one version or another, some preferring the *Rossi* tuned pipe to the *OPS* by virtue of it's reduced weight.

Tactics for the three teams in the **Final** were interesting. Ian Gardiner was hoping for a two-stop race with the slowest model (still over 120mph) Gordon Yeldham was going for a fast three stopper while Dave Campbell was going flat out for four stops. Such are the plans of mice and men...that none of this was to actually happen in the race.

At the start Sladdin-Campbell were first away and initially had the highest airspeed but it was obvious that something was amiss, the engine finishing very lean and digesting its glowplug. After a plug change the model was returned to the fray but refused to hold anything like the setting. The fault was eventually traced to a loose car-



Left, Richard Scully and Bob Walker's 'Polecat' Mini Goodyear placed a very creditable third - next year they'll have an engine cut-out! Below, Alison Thorpe and Kerr Crozier had a very functional and well finished model - placing 2nd in Mini Goodyear.

Open Goodyear requires nerve, concentration, precision and much more besides. Above, a race displaying Goodyear's best was this semi-final with Dave Clarkson, Tim Andrews and Alan Pegg. Right, the eventual winners were Clarkson-Needham, who used this AD 15 engine to good effect...

burettor which caused the team's retirement.

Meanwhile Smith-Yeldham were blasting on unabated trying to build up a sufficient lead over the long range model of Broadhead-Gardiner. As it turned out both teams required an extra stop to complete the distance and it was Steve Smith and Gordon Yeldham who emerged the winners with a fast 7:01.9 followed by John Broadhead and Ian Gardiner who came home in 7:39.0

If Gordon Yeldham had not required that extra stop we would certainly have seen a new Final record set, being only 2 seconds short of the existing mark...

Open Goodyear

Following a period of stagnation in the early 1980's, the level of performance over the last couple of years has risen year by year and this story continued at this year's Nationals despite the most unhelpful weather, for the Semi-Finals qualifying cut-time improved by 4 seconds to 4:15 and in the semi-finals we saw a new heat record of 3:40.6 set by John Allcock and Joe Myzska of the Bilston Club - a record that will be very hard to better...

No doubt influenced by the cold and the wind, both Rounds of the Heats could be termed 'trouble-ish' (a magnificent word invented by Rob Metkemeijer a few years ago). At the end of the **First Round** Allcock-Myzska stood fastest a 4:10 whilst previous double winners Catlow-Jephcott could only manage 4:12. Last year's winners Clarkson-Needham were over 5 minutes whilst the first team to break the 4 minute barrier, Andrews-Horwood, had only achieved a 4:17 Heat. Everyone seemed to be suffering loss of both air-speed and re-starts.

Things did not improve much in the **Second Round** although previous winners Green-Malcolm did improve to 4:03 and Andrews-Horwood to 4:08. Clarkson-Needham recorded another for them poor time caused by reluctant re-starts but a stop-watch mal-function forced them to re-fly at the end of the round. Meanwhile a clutter of times in the low 4:10's was building up and it was becoming evident that quite a few different engines could make the grade.

The round ended with the Clarkson-Needham re-fly. To make sure of a reasonable time they had switched from their very fast but inexplicably troubled *AD* 15 motor to their third-stream motor a *Nelson* 15 FI which was slow but started. Teamwork and this motor change resulted in a 3:49 just 0.3 sec outside the existing heat record and the fastest time in the heats...

At the end of the heats, the following teams had qualified for the **Semi-Finals**. Equipment details are given, as unlike other forms of team racing, in Goodyear options *do* exist concerning equipment, models and operation. Surely this is the big attraction of Goodyear and many present demonstrated their feeling that the rumoured introduction of a 30cc tank size limit by the *SMAE* would adversely affect this diversity by signing a petition to that effect.

Not included in these Semi-Final qualifiers are the names of two girls Alison Thorpe and Sue Barnes (Sue pitting for Steve, no less) who were not far short from gracing the Semi-Finals.

The Semi-Finals opened with Allcock-Myzska's new Heat record and after that everything else seemed an anti-climax. Nevertheless, in their shadow Clarkson Needham got their reliability going with times of 3:52 and 3:55 whilst Irish Champions, Jarvis-Snowdowne from Stockport, gave themselves the chance of being double champions by shading Catlow-Jephcott out of the final by just 0.1 sec at 4:05. The rest just could not find the improvement needed, not an easy thing in the prevailing cold and wind.

As always and thanks to John Horton's record keeping efforts, two finals were held, a Novice Final and an Open Final. This is another attractive feature of Goodyear for newcomers, if outperformed by the experts, still get a chance to *win*. In the **Novice Final** Barker-Tomkins just made it in front of two teams from North of the Border, Thorpe-Swinburne and Munro-McInnes - nice to see the Scots doing well but when are we going to see a Welsh team? After all, the Welsh don't have as far to travel.

The **Open Final** was a fascinating prospect, a real 'hare and tortoise' contest...The 'hares' Allcock Myzska were in front up to their second stop. After this stop their motor didn't come on song and the resulting four stroke run cost them their lead *and* a few pitstops whilst they got it right. Their lead became a 12 lap deficit to Clarkson-Needham, for Ed. Needham was producing a string of first-flick re-starts. Sadly at lap 120 John Allcock's inability to keep his model down at legal flying height meant the big DQ for them, to really spoil their day. A sad end to a final of real prospect for without the DQ the result would have been close at the end. As it was, the faster of the 'tortoises' Clarkson-Needham cruised

Open Goodyear — positions before Semi Finals

	Best Heat	Model	Engine	Fuel System
1 Clarkson-Needham	3:49	Mr. D	Nelson 15 FI	Pressure
2 Green-Malcolm	4:03	Plum Grey	Rossi 15 FI Mk II	Pressure
3 Andrews-Horwood	4:08	Argander Spl.	Nelson 15 FI	Suction
4 Allcock-Myszka	4:10	Argander Spl.	Rossi 15 FI Mk 11	Pressure
5 Catlow-Jephcott	4:12	Oi Blue	Rossi 15 FI Mk III	Pressure
6 Pegg-Thorpe	4:13	Mr D	Rossi 21 (Conv)	Pressure
7 Jarvis-Snowdowne	4:13	Mr. D	OPS 15 RE	Pressure
8 Bryant-Chambers	4:14	Miss San Bernardino	Cipolla AAC	Suction
9 Crozier-McAlpine	4:15	Argander Spl.	Rossi 15 RV	Suction

Above, 'two-flick Horwood' pitted for winning Mini Goodyear pilot Nigel Higgins winning the final by a clear 40 secs. Right, most unusual Mini Goodyear was that of Richard Tear...

Below, the diesel rules O.K. - Tony Eifflaender with PAW 35 powered 'Freebird 3' swept to a commanding victory in winning the Gold Trophy for control line aerobatics.

Left, Mini-Goodyear finalists, left to right Nigel Higgins, Alison Thorpe and Richard Scully. This event is aimed at the novice and although entries were down, several youngsters turned in good times in what was their first ever competition.

through to win in 8:10 followed by Jarvis-Snowdowne just one place short of the double.

Class 2 Goodyear

Unkindly called 'Wally' Goodyear by some, and more truthfully 'Milk Float Racing' by others, Class 2 is the low technology form of Goodyear. This year saw it raced to the new shorter race distances of 80 laps for the Heats and 160 laps for the Final, much more satisfactory distances for both competitors and spectators alike. Maybe these shorter distances have brightened this event, for this year saw the largest entry yet and a few new faces into the bargain.

In the Heats, acknowledged experts dominated with Clarkson-Needham and Pegg-Thorpe contesting the lead with 4:36.3 and 4:36.4 respectively. The surprises of the Heats were Andrews-Horwood crashing *unaided*, in both rounds, and the very high relative airspeed of Morrisey-Fleming (of which more later).

Because both newcomers and experts were involved, the organisers opted for two Finals a 'Newcomers Final' and an Experts Final instead of running Semi-Finals. A most sensible decision which sets an admirable precedent for the future.

Drama struck after the Newcomers Final for it had seen Morrisey-Fleming win easily over Taylor-Worgan and Higgin-May (both of South Bristol club). The deciding factor was the greatly superior airspeed of the two Kens and so it was no surprise to find, after a protest, that their motor was an illegal one - a *PAW* 19 BR which resulted in the big DQ for them. Neither knew that their borrowed motor was illegal for neither had looked ...but when the manufacturer Tony Eifflaender checked, there was no doubt.

The Experts Final was, as expected, almost a one-motor event, the *PAW* 249, and with motor tuning not permitted, very close in the air. So the half lap shut-offs by Dave Clarkson and one flick re-starts by Ed Needham produced their second Goodyear win of this Nationals. Their time of 8:44 as with their Heat time being a new *SMAE* record. As in the Novice Final of Open Godyear it was two Scottish teams who took second and third, those being Pegg-Thorpe and Munro-McInnes respectively.

Aerobatics

There may not have been a 'Gold Trophy' this year if the Nottingham Club had not stepped in at the last minute to run the event after the original organisers withdrew. All competitors were extremely grateful to them. Under the directorship of Ken Reeves there were four rounds flown over the Saturday and Sunday with each flier having two flights in each of two circles. A pilot's best score from each circle was added in order to produce a twelve man fly-off on the Monday.

The fly-off was in effect a separate three round contest, with the best two flights to count.

When flying started on the Saturday the weather was bright but very windy and this caused the demise of a few models. One of these was a *Merco* 61 powered 'Skyscraper', a famous design of the legendary Bob Palmer, on this occasion flown by Ron Prentice. The model will soon be kitted by 'Complete-a-Pac'. Another unfortunate was Gerry Pearce when the nose of his *ST* 46 powered 'Stiletto' broke off whilst in the bunts, just goes to show what forces are generated in strong winds. A few fliers opted not to fly, in the hope that the wind would ease by Sunday. This was not the case however and if anything it was worse...Some fliers were then forced to fly, in order to stand a chance of getting into the fly-offs and one nameless scribe wrote off his model in the attempt!

So to the 12 man fly off on Monday. The wind was still very strong. The top three contenders had completely differing styles and approach. Barry Robinson had his very large *Merco* 61 powered 'Northwind' design, Tony Eifflaender, a much smaller lightweight model 'Freebird 3', powered by one of his own '35' diesels, that flew very fast and smoothly. Bill Draper flew his medium sized *Enya* 45 powered 'Superhawk', almost like a compromise between the other two extremes. In the event however it was the light, diesel model of Tony Eifflaender that handled the wind best...or was it the pilot? Anyway it was a sensation, being the first time a diesel powered model had won since 1958 (Pete Ridgeway using a *PAW* 249!) Congratulations Tony, a remarkable achievement after only a few years of competition experience.

Novice Stunt had fewer entries this year but the weather (at, and for some months prior to the Nats) has not been conducive to encouraging the newcomer to enter competitions. First place was taken by Sandy Sanderson flying his own design, foam wing 'Europa' (watch *Aeromodeller* for the plans...). Second and Third places were taken by John Walker and Barry Pickles respectively.

Control Line Carrier

The 1985 National's Carrier events were somewhat marred this year, mainly by the very poor weather, Saturday and Sunday being literally a blow-out. After much discussion, it was decided to go for it on the Monday, no matter what ...After all it was the Nats!

Entries were a bit on the low side. Most notable by their absence were:- Norman Ashford (Norwich) and Don Powell (Witham). Monday morning found us all at the end of the runway, still windy and with the threat of rain. The deck was assembled over the grass...to soften the vertical blows.

Profile 40 Carrier: First up was Peter O'Sullivan (Witham) with what was a very nice profile model about 1½ laps out it dived beneath the waves! It was found that extreme tail flutter had locked the controls. So out had to come the spare model...

Next to fly was Jeremy Peacock (Norwich) with his new 'Viking' Profile model (not yet painted), it looked good in the air, and with less wind, would have performed very well (*Carplan* or *Dupli-color* do some nice colours Jerry...). Fortunately he managed to get it down in one piece.

Vaughan Miller (Hayes DMAC) flew his U2G Profile model (yes they are used on flat tops). Off goes his 'Black Blur' to record a flight, that had a slow run almost as fast as the high speed section. And...he managed to 'trap' it back on the deck first time, for 100 points, more by luck than good

Left, Sandy Sanderson, winner of novice stunt, with extremely neat and well finished own design 'Europa'. Right, second place in Carrier Profile 40 was Brian Youngs, model seen here before 'exciting' first flight...

Right, top two in Class A Combat out of 28 entrants were Ernie Burles 1st and on the right John James 2nd.

Right, ½A Combat was a real battle with the wind Colin Flood placed third using this modified 'Tamerlayne.

judgement - to put him into the lead...but not for long.

In the air next was Brian Youngs (Norwich), last years Open winner. Also with a new Profile model, he recorded a good flight, missed the deck a few times, but eventually got it to hook-up. Even with the loss of landing points, Brian went into the lead with a better flight score. He then found that his fuel tank has split, and had to set about repairing it...

Young Jason Elmar also of Norwich proceeded to put the wind-up everybody with his Profile 'Kingfisher' which can only be described as *huge*, it's almost as big as Jason himself, in fact it would look more at home with a 90 in it. It flew very well, even in all the wind and with his flight and landing score went in at third spot. Jason is certainly going to be a force to be reckoned with especially when one considers he has only been in competition for a year. A few more like him would not go amiss!

Open Carrier: Meanwhile in the Open 40 Class there was a big battle going on between Peter O'Sullivan (with his spare Profile model), Jeremy Peacock with his Profile and clubmate Brian Youngs with his scale Grumman 'Guardian' Prototype, which has the advantage of 100 scale points on top of his flight and landing score.

Brian proceeded to fly with his 1985 prop hanging technique during his slow flight, which resulted in his model tail sliding into the wet stuff, removing most of the fin and rudder. (He then goes to find his Super Glue!)

Back with the Profiles, things were beginning to hot up quite a bit. Vaughan took the U2 to the air again, to record a much better flight, and another 100 point landing to go back in front. Brian took up the challenge and had a really good flight, but unknown to him, his hook had straightened out and could not arrest, he ran out of fuel and had to swim for it...

Open 40 was now being fought out by Peter and Jeremy. This class only went to second place because other entrants were too engrossed in the Profile event or didn't want the scale jobs damaged, in that wind - who is to blame them...

½ A Combat

The British summer did its best to ruin the ½ A event. Models have progressed but not to combat the high winds...too frequently, models and streamer literally 'stopped' in the up-wind part of the circle to leave pit crews over worked. To stay in the air for the four minute period would virtually guarantee winning the heat.

In the quarter-finals, last year's winner Nick Stowe lost to P Carroll of Urmston while Mike Whillance, last year's runner-up, lost to Colin Flood of Eire, those Irish were back again! In the other quarter-finals, Martin Leeper beat L Holmes and Mervin Jones beat combat veteran Pete Freebrey.

The Semi-finals saw Mervin Jones beat Martin Leeper and Peter Carrol beat Colin Flood. The fly-off for a third was a win for Colin Flood, whilst in a hectic 'smash and grab' final, Mervin Jones emerged the victor.

Class 'A' Combat

The wind continued and the models got faster. The majority of Class 'A' models are converted FAI and on the principal of one model per heat some heats were short lived. Maybe this is the time to allow two models a heat as FAI, or put restrictions on the models used. This event was the best supported of the combat events with 28 entries. After four rounds including the loser's round, eight flyers remained.

Steve Malone beat Nick Stowe, Dave Harrison beat the Aussi Rob Fitzgerald while John James eliminated the last of the Irish, Colin Flood and Ernie Burles beat Pete Grange.

In the Semi-finals, John James beat last year's winner Dave Harrison. After a quiet start two quick cuts from John and a 'mid air' saw John the victor. Steve Malone was flying a purpose built 'A' model, light weight and covered in nylon, a 'mid air' early on impaired the models performance, but at least it was flyable. Ernie took the advantage and beat Steve by three cuts to one. A fly off for third and fourth saw Dave Harrison beat Steve Malone.

The wind played its part yet again in the Final with ground time being the deciding factor, the result being a win for Ernie Burles over team-mate John James.

FAI Combat

Sunday afternoon and FAI got off to a start, many pilots complaining of the air-speed of the model...that wind again! The entry was the lowest we have seen, only 18. Increase in line thickness has not solved any problems, a return to basics is necessary if FAI is to continue as an event with any credibility, but that is another story.

In an early round, Mervin Jones destroyed one *USE* engine. Twenty assorted people, on hands and knees, equipped with magnifying glass, scoured the turf. The motor was recovered, but Mervin switched to the sedate *Super Tigre* G/20 powered models.

After four rounds of the double elimination

Scale

Rubber — Model Flyer Trophy 11 entries

1 W. Dennis	DH 60
2 R. Granger	Fokker FII
3 B. Pursglove	Air Speed 'Express'
4 B. Hetherington	Bellanca 'Aircruisa'

Power — Superscale Trophy — 5 entries

1. T. Manley	DH 4

CO_2 — 10 entries

1 D. Shepperd	DH 60
2 D. Knight	Fairchild 'Argus'
3 G. Spencer	DH 'Tiger Moth
4 B. Hetherington	Bellanca 'Aircruisa'

Control Line Scale (Knokke No 2 Trophy)

1 C Bradford	Dakota
2 P Stiles	Nakajima
3 R Truelove	Heinkel
4 M Staples	Bristol 'Bulldog'
5 W Cordwell	Beechcraft

Below, the FAI Combat final between Gary Flood (left) and Mervin Jones. Gary proved superior (this time...) with a win by three cuts to one.

system, only six flyers remained for round five, of those, only Mervin Jones had not lost a 'life'. The Irish were back, yet again, with Gary Flood first defeating last year's winner, Dave Harrison. John James beat Nick Harkins and Mervin Jones beat Martin Leeper flying Supre Tigre G/20 powered Zingers.

This left three flyers. The first heat between John James and Mervin Jones saw John winning and Mervin finally losing one of his 'lives'. John then lost to Gary Flood, to take third spot, leaving a Final between Mervin Jones and Gary Flood of Eire. Gary had been using 'foamies' powered by *USE* all day. Mervin borrowed a couple of *Nelsons* to 'compete' which was possibly his undoing in the final. Mervin quickly removed all Gary's streamer and three quick cuts from Gary left us with an Irish victor for the first time in FAI combat.

	Flying	Static	Total
	756	932	1688
	760	770	1530
	556	592	1148
	547	374	921
	842	1041	1883
	832	992	1824
	806	932	1738
	454	822	1276
	726	126	852

Static	Flight 1	Flight 2	Total
872	—	320	1192
785	186	—	971
1070	—	—	—
1094	—	—	—
782	—	—	—

Speed

Handicap Speed

1 P. Halman	105.63%	Formula 21	167.94mph	5 D. Brewin	92.44%	Formula 21	146.97mph
2 G. Bryant	101.40%	Formula 21	161.22mph	6 R. McGladdery	91.41%	Class IV FAI	150.14mph
3 P. Eisner	98.15%	Class III .15	179.97mph	7 M. Radcliffe	90.56%	Class VII .60	182.31mph
4 J. Allcock/ J. Myzska	96.90%	Class II .09	130.83mph				

Team Racing

½ Team Race

		Heat	Semi	Final
1 Horton-Haworth	Wharfedale	3.40	3:54.3	7:47.1
2 Heaton-Woodside	Three Sisters	4.00	3:47	7:55.3
3 Sladdin-Ross	Novos	4.28	3:54.8	8:12.1

FAI Team Race

		Best Heat	Best Semi	Final
1 Smith-Brown	(Feltham)	3:35.4	3:31.7	7:10.3
2 Wilson-Gardiner	(Novos)	3:44.5	3:40.3	7:27.8
3 Langworth-Broadhead	(W'dale)	3:49.5	3:39.1	7:41.9
4 Heaton-Woodside	(3 Sisters)	3:40.7	3:41.7	
5 Fry-Thorpe	(Feltham)	3:46.1	3:56.8	
6 James-Campbell	(Grantham)	3:51.1	3:59.0	
7 Davies-Banks	(Grantham)	3:58.6	4:05.8	
8 Salisbury-Whorton	(Feltham)	3:58.8	Disq.	
9 Sladdin-Ross	(Novos)	3:59.4	3:51.1	

Class 'B' Team Race

	Best Heat	Final
1 Smith Yeldham (Feltham/Elliott)	3:20.0	7:01.9
2 Broadhead Gardiner (W'dale/Novos)	3:35.7	7:39.0
3 Sladdin Campbell (Novos/Grantham)	3:15.0	117 laps
4 Fitzgerald Thomason (Wharfedale)		Best Heat 3:37.7
5 Allcock Myzska (Bilston)		3:42.9
6 Davies Banks (Grantham)		Rtd

Goodyear

Open Goodyear
1 Clarkson-Needham
2 Jarvis-Snowdowne
3 Allcock-Myzska

Open Goodyear Novice
1 Barker-Tomkins
2 Thorpe-Swinburne
3 Munro-McInnes

Mini Goodyear
1 Higgins-Horwood
2 Thorpe-Crozier
3 Scully-Walker

Class 2 Goodyear
1 Clarkson-Needham
2 Pegg-Thorpe
3 Munro-McInnes

Class 2 Goodyear Novice
1 Taylor-Worgan
2 Higgins-May
3 Heaton-Heaton

4 Tribe-Tribe
5 Heaton-Heaton
6 Freebrey-Freebrey

Aerobatics

Gold Trophy — 27 entries

	Points	Model	Engine	Propeller
1 A. Eiffaender	8400	Freebird 3	PAW 35	11 × 7½ Wood
2 W. Draper	8254	Superhawk	Enya 45	11 × 6 Nylon
3 B. Robinson	8019	Northwind	Merco 61	12 × 6 Wood
4 J. Hamilton	7606	O/D	ST 60	12 × 6
5 P. Arkley	7597	Superhawk	ST 46	11 × 6 Wood
6 N. Dickinson	7556	Norstar	OS 45 FSR	12 × 6 (3 blade)
7 M. Doyle	7531	Aquarius	ST 46	11 × 7 Wood

Novice Stunt — 5 entries

1 Sandy Sanderson	826	Europa Irvine 40
2 John Walker	706	
3 Barry Pickles	550	
4 William Brown	530	
5 Ron Prentice	217	

Carrier

Carrier Profile 40

1 Vaughan Miller (Hayes DMAC)	389.97
2 Brian Youngs (Norwich MAC)	372.50
3 Jason Elmer (Norwich MAC)	274.29

Carrier Open 40 (Scale)

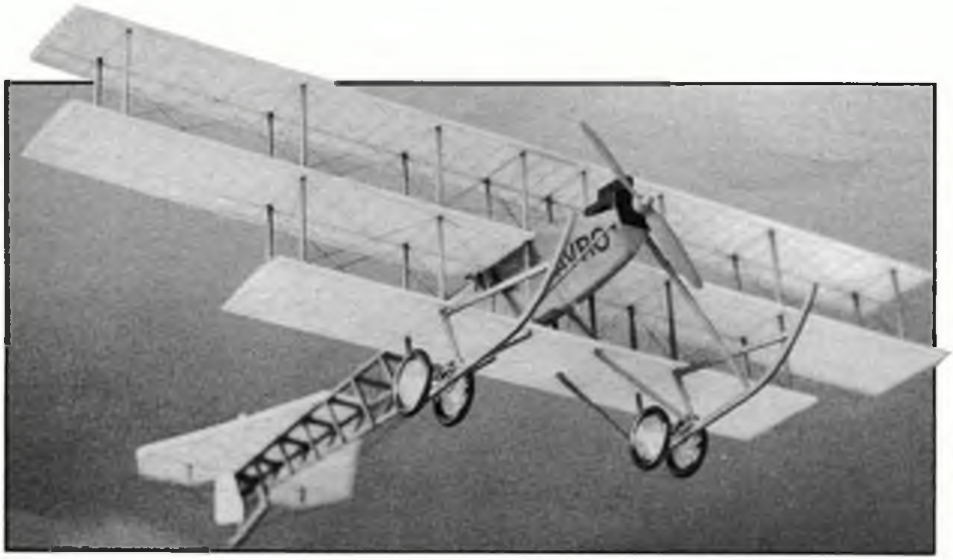
1 Peter O'Sullivan (Witham)	189.30
2 Jeremy Peacock (Norwich)	260.01

Combat

½A Combat
1 M. Jones
2 P. Carroll
3 C. Flood
4 M. Leeper
5 P. Freebrey
= L. Holmes
= N. Stowe
= M. Williams

'A' Combat
1 E. Burles
2 J. James
3 D. Harrison
4 S. Malone
5 R. Fitzgerald
= C. Flood
= P. Grange
= N. Stowe

FAI Combat
1 G. Flood
2 M. Jones
3 J. James
4 N. Harkins
= D. Harrison
= M. Leeper



Although I have considered it many times, the 'Triplane' is a very difficult aircraft to model for radio control mainly because the original utilises wing warping for roll control. The short nose moment could possibly introduce C.G problems, and the profusion of wire braces would get all oily if a model I.C. engine were used (although with modern four-strokes this may no longer be a problem).

Fortunately with Electric Round the Pole flying, it is very clean, and providing you get the centre of gravity about right, practically anything with wings will fly.

Constructional Notes

Wings: The three wings are fairly straightforward to construct. Make up a 1/32in. plywood rib the correct shape and start cutting ribs; with a total of 108 ribs its

electric round the pole

AVRO TRIPLANE

Build this 24 inch span show-stopper by Martin Tuck...

IT IS NOW twenty years since the film 'Those Magnificent Men in their Flying Machines' had its World Premiere in London on June 3rd 1965. Although I was only five, I can just remember being taken by my two elder brothers to our local cinema to see this new film...

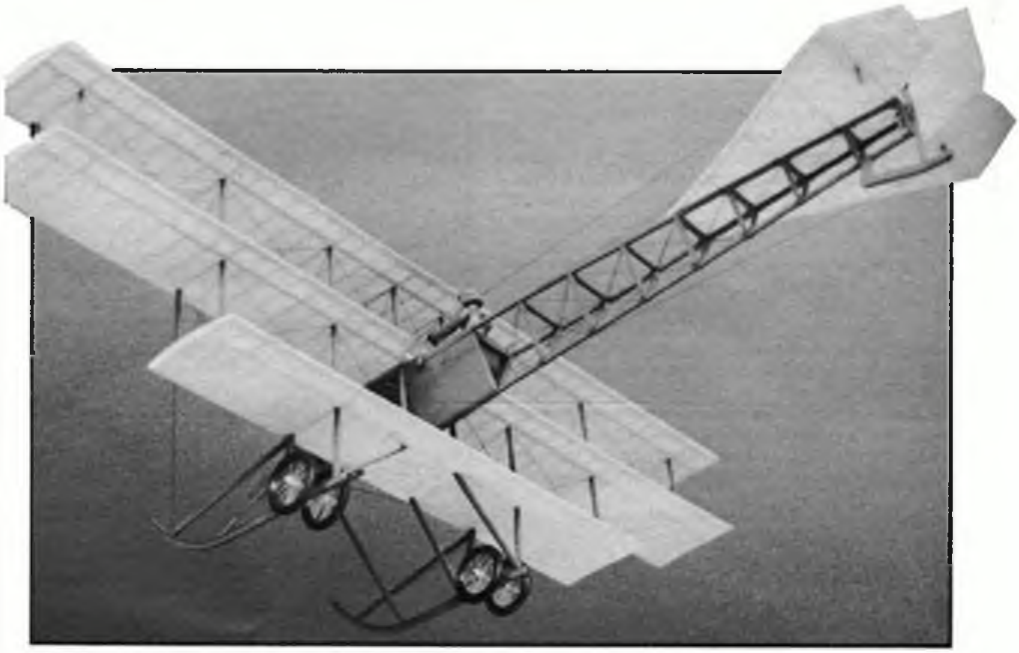
The film of course, is one of the great aviation film classics - not so much for the comic storyline which revolves around the great 1910 cross channel air race which never in fact took place, but more for the many replica aircraft used in the film. From the start, the film director (Ken Annakin) insisted that the aircraft should be authentic and that the principal types should be capable of flying under their own power.

The five aircraft eventually chosen for construction were the Santos Dumont 'Demoiselle', the Latham 'Antoinette', the Bristol 'Boxkite', the Eardley Billing biplane and the Avro 'Triplane' Mk. IV. The only major concession from strict authenticity was that modern engines should be fitted (suitably camouflaged) to obtain the necessary reliability. Some innovations in the controls were also made after the flying began, to obtain better responses.

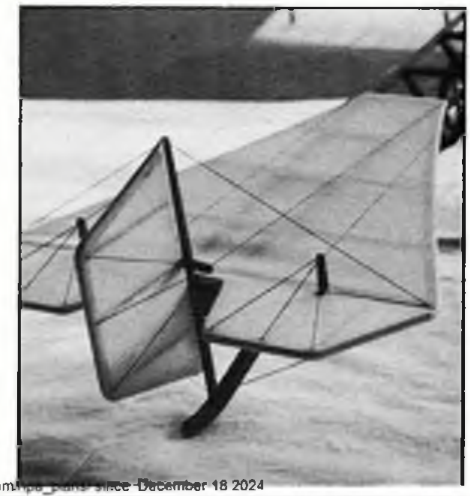
Air Commodore Allen Wheeler, at the time director of the Shuttleworth Trust, was appointed to supervise the production and flying of the aircraft, and a number of individuals and organisations were drawn into the production programme: Personal Plane Services ('Demoiselle'); F.G. Miles Engineering Co. ('Boxkite'); Hants & Sussex Aviation Co. ('Antoinette'); the late Harold Best-Devereux (Eardley Billing) and the Hampshire Aero Club ('Triplane').

Also used in the films' flying sequences were the Vickers 22 (Bleriot type) which was built some years before by Doug Bianchi of Personal Plane Services and the Shuttleworth Trust's Deperdussin Monoplane and Blackburn 1912 Monoplane.

The Avro 'Triplane' was always my favourite, although in the film it came to grief on top of a train, (a problem I suppose if your only means of navigation were the railway lines!). That of course, was a mock-up and the original still flies (on calm days), along with the 'Boxkite' and Blackburn Monoplane at their permanent home at Old Warden in Bedfordshire - home of the Shuttleworth Trust.



Above, how about this for a winter project... Martin Tuck's triplane is a real stunner in the air. Just make sure that your 'pole' is well secured to 'terra firma' before take-off. Below, detail of tail assembly shows simple structure enhanced by the addition of control horns and rigging 'wires'.



sure to keep you busy, but I found that by cutting enough for one wing - making that up, then while it is drying carry on cutting ribs for the second wing, and so on, you'll soon find all three wings finished.

Notice how all the ribs are let in to the trailing edge to stop warping when covering. Don't forget to cut out the small wing strut keying points where shown, for the wing and undercarriage struts.

Shape the leading and trailing edges carefully using a file and finishing with a sanding block. Always sand away from yourself with those small components or the wing may just fold up! When you are happy with the trailing edge just cut away about 1/8 in. to prevent it curling when you cover the wing.

Tailplane and Rudder: The tailplane is very easy to construct. The bulk of it is made from 3/32 × 1/8 in. balsa strips. You will notice how all the cross pieces are rebated into the tailplane. This again is to provide a strong structure for covering. The rudder and elevators are made from 3/32 × 1/8 in. balsa for the main frames and 1/16 × 1/8 in. balsa for the ribs. You may cross brace the tailplane with cotton prior to covering although this is mainly for show.

Right, power for the 'Triplane' is provided by a Ballard's 4554 motor (Ballard's - ad on page 656 - stock all you need for RTP).
Below left, cockpit detail is up to you, Martin keeps this to fairly basic requirements - pilot and steering wheel!

Fuselage: Remembering that this is a triangular fuselage, it is best to start with the top deck. Using the plan view, lay up the 1/16 in. balsa forward decking first and follow it up with the 1/8 in. sq. balsa longerons. The 1/8 in. sq. spacers form the basic fuselage shape. When dry, keep the top deck on the plan and add fuselage formers F3 and F4. Notice how, because of the major cut out in F3 it is backed up with 1/64 in. ply for strength.

The third main 1/8 in. sq. longeron can now be added followed by all the 1/8 in. sq. side members. As you work your way down the fuselage ensure that the third underside longeron remains *straight*. Leave to dry thoroughly. All that remains now is to fit the two 1/16 in. sheet fuselage sides together with F2 and carefully pulling together to meet at F1.

Covering: While the fuselage is drying off completely, you can be covering the wings. You can use tissue but I can thoroughly recommend 'Antique' *Solartex*. I only took about 30 minutes to cover the prototype. Beat that tissue and dope lovers! Do be careful not to have the iron *too* hot as it can pull quite a bit. Cover the underside of the wing first then the top surface with about a 1/16 in. overlap. Cover the 1/16 in. fuselage sides from F1 to where the sheeting finishes.

Assembly: Cut away the covering at those strut 'keying' points where the wing struts will go. Cut each wing strut - they are all the same length and sand them all to a streamlined section. Glue each strut into its key starting with the bottom wing and add the middle wing. Keep the wing *square* and *true*. It is best to wait until it is dry before repeating the operation with the upper wing.

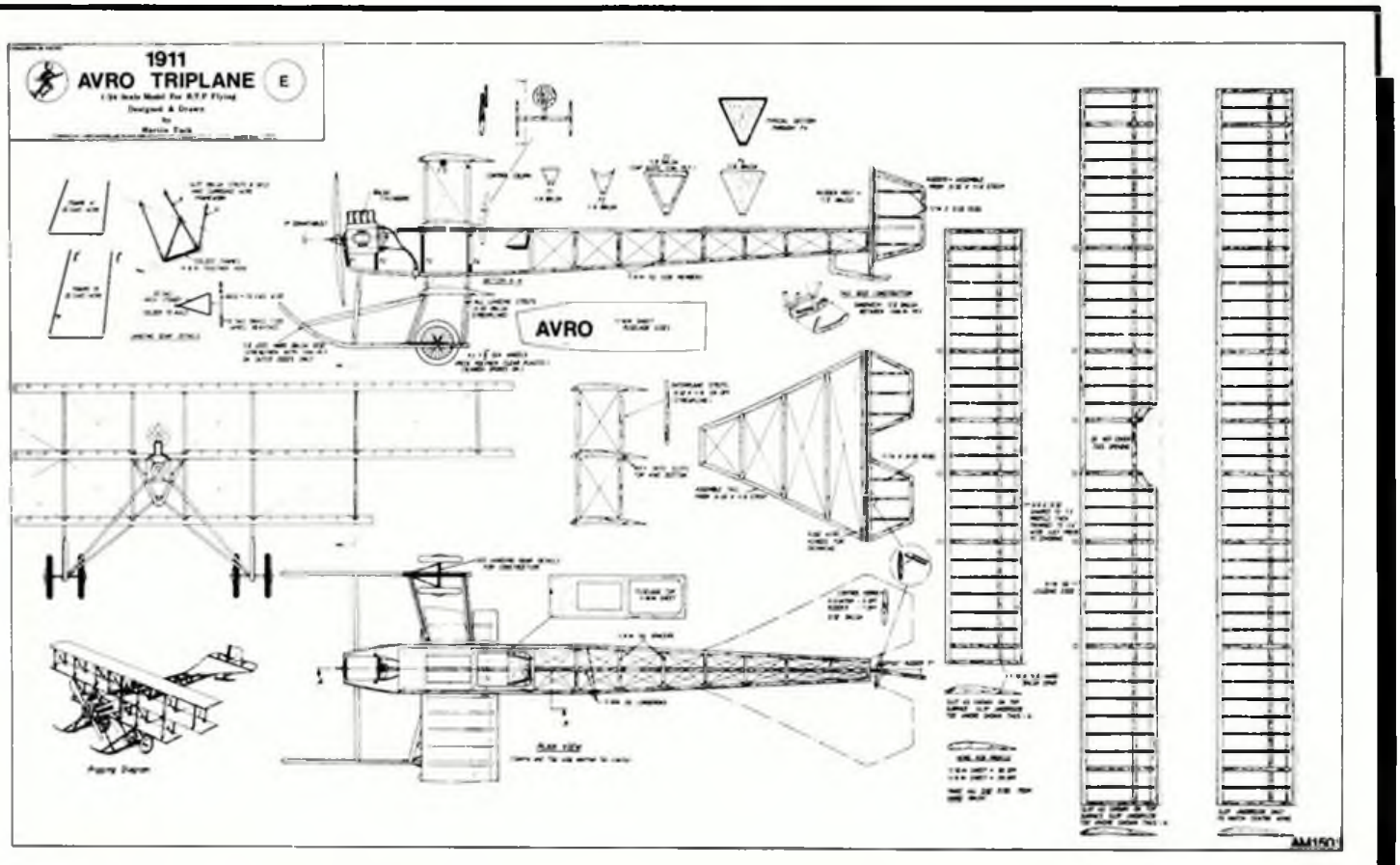
Add the elevators to the tailplane using fuse wire. The elevators will then be trimmable for initial flight testing.

When dry, give the wing struts, fuselage and any other exposed areas a coat of light brown enamel paint.

The wing joins nicely onto the fuselage with the centre spars glued between formers F3 and F4. The lower wing is also attached using more strut material in an inverted 'V' form. (See front view).

continued on page 636

Full size copies of this 1/6 scale drawing may be obtained from Aeromodeller Plans Service, Wolsey House, Wolsey Road, Hemel Hempstead, Herts HP2 t £3.00 plus 50p post and packing. Please quote Plan number AM 1501.



ENGINE TEST

Brown Junior A-23: Mike Billinton puts this little gem under his microscope...

THE AMERICAN 'larger than life' philosophy is hardly a complete picture because, as just one example, the production of what is probably the world's smallest commercial model engine, shows their capacities at quite the other extreme. Seemingly almost *too* small to use - even Indoors - the Brown Junior 'Peanut Scale' CO_2 motor tested here must have been daunting in concept, let alone in its practical realisation.

At two grams weight, this incredibly miniscule reciprocating engine is easily lost amongst a few 4BA nuts and bolts...and when disassembled, items such as connecting-rod are almost indistinguishable from a typical modelling pin! All-up weight with the standard small 2.5cc CO_2 'fuel' tank is barely six grams (¼oz), making a viable prospect of the ½oz-'Dining room' model aircraft.

The speed control is the highly effective piston operated ball valve and adjustment to its duration of openings (by raising or lowering the whole cylinder) leads to the expected trade-off between power and duration of run - as shown on graph.

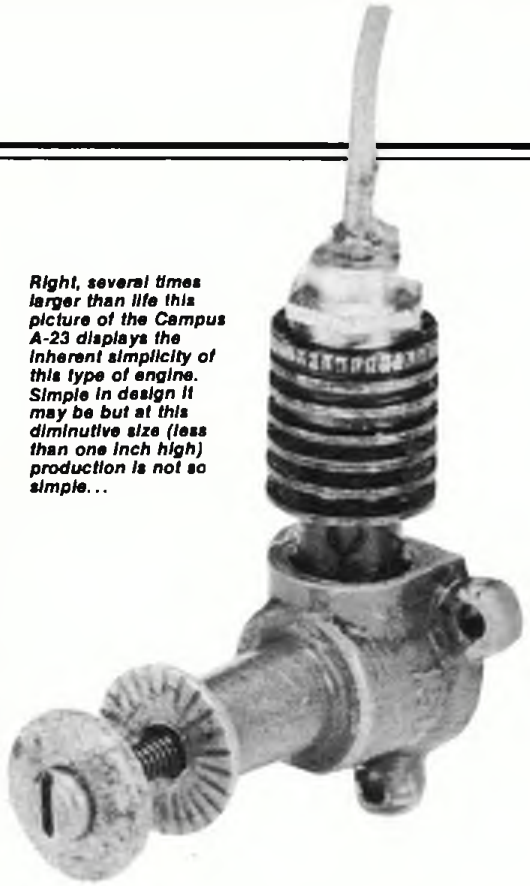
Mechanical details

Cylinder: Turned from mild steel-complete with finning and serrated upper edge to assist finger adjustments. Bore size is a nominal ⅛ inch and actually appears to be honed to final finish...not a nice task at such a small hole size. The lower end of the cylinder is threaded and then slotted to give a 'sprung' screw fit into the lower crankcase - thus providing the required freedom of movement for finger adjustment, without unwanted rotation during engine operation itself. The top end of the bore is also threaded to receive the aluminium alloy cylinder head, which incorporates the one-way ball valve and rubber seals. Thin aluminium tubing (.040in dia) takes the 700lb CO_2 pressure from filler valve to flight tank and from that tank to the top of the cylinder head. This tubing is even more fragile than the customary copper tubing found on CO_2 engines, and much care is needed to prevent kinking and fracture. The advised method of fixing a new length of tubing is by use of 'Instant' Cyanoacrylate adhesive to seal the aluminium tubing to both cylinder head, filler and tank cap. No doubt the adhesive will be easier to obtain than the tubing itself, so this reinforces the need for care, in handling the tubing which comes ready fitted to the engine.

Piston: Formed in plastic with a protusion on the crown to actuate the ball valve. The top edge is slightly expanded so that, when fitted into the bore, it acts much like a piston ring.

Connecting rod: Turned from aluminium alloy, with the shank being approximately .045in diameter. The ball-end plugs into a matching piston socket, to provide a fully rotating 'little-end' joint. The big-end is a drilled hole in the lower end of the connecting rod.

Crankshaft: A one-piece turning in mild steel, and features a counterweighted crankweb. The mainshaft is drilled right through, enabling lubricant to be injected into the base of the engine after the propeller bolt has been removed. The crank-pin is a minute .045in diameter (1.1mm), whilst the crank nose is splined to provide the required friction to the propeller driver.



Right, several times larger than life this picture of the Campus A-23 displays the inherent simplicity of this type of engine. Simple in design it may be but at this diminutive size (less than one inch high) production is not so simple...

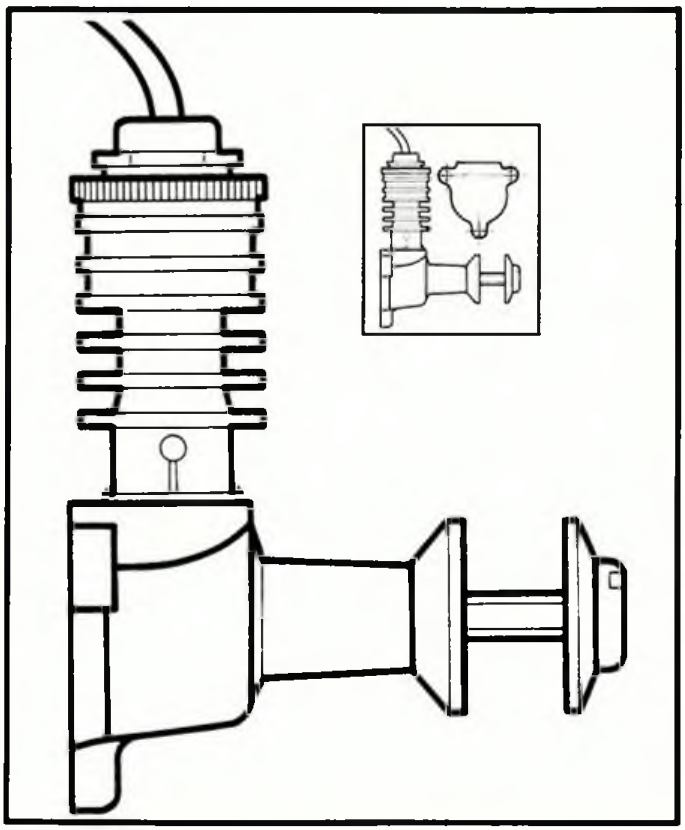
Crankcase: An aluminium alloy casting, subsequently bored out to accept the crankshaft and the screwed cylinder liner.

All these relatively mundane features take on new meaning when their very small size is fully appreciated! The piston and con-rod can literally fit under a fingernail! Which is not surprising, as their combined weight is less than that of a standard small postage stamp!

Performance

The standard propeller provided with the Brown 'Peanut Scale' engine is a plastic

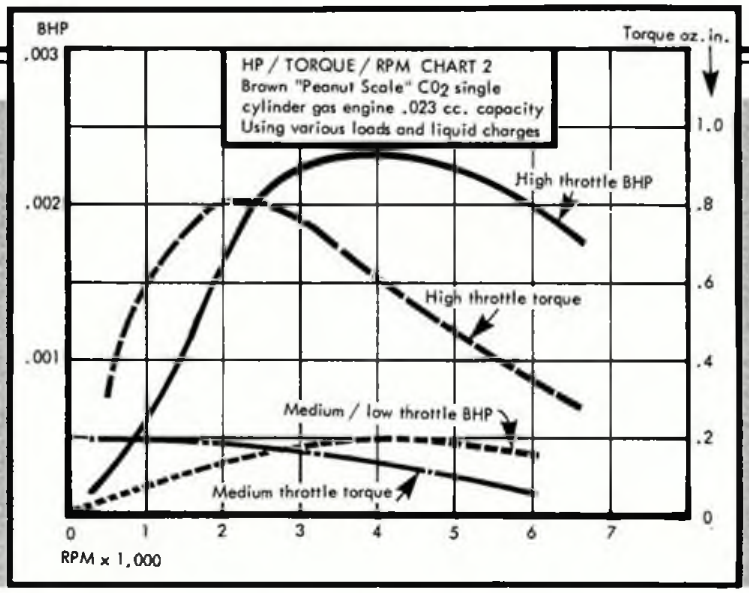
Right, as the full size drawing might have been overlooked we have included a 'four times' side view for longsighted readers. Below, all these parts could be hidden behind one (new) penny! The Campus A-23 is available in the U.K. from SAMS (see ad on p. 656).



4¼in diameter, by 4in pitch. It has generous area and an undercambered section - in fact is a quite high load/high lift device for such an incredibly small capacity unit. Therefore the rpm attained at high throttle openings are really quite creditable. The various torque readings during this test indicated that the propeller is well matched to medium/low throttle settings and which result in running times of between one and two minutes, at rpm around 2,000. However, achievement of longer durations demands either much lower rpm or a larger tank capacity. The use of larger propellers to force lower rpm is both a quicker and, of course, much lighter route to longer durations; ie those more akin to propellers used on the typical Indoor Rubber Scale model. Although no such propeller was to hand during this test, one of the test beams used to measure torque at high throttle/low rpm was certainly of a similar order, being constructed on 'air paddle' lines, ie 2in square paddles set one at either end of an 8in diameter narrow beam. This very high load kept rpm down to 330 at high throttle/liquid charge/and standard tank, in which set-up duration time was around 3½ minutes.

Alternatively, using the standard prop/large 20cc tank/liquid charge/low throttle, led to rpm around 1,000 and a duration of 30 minutes.

As can be surmised (and surely known by all experienced CO_2 operators) there are many combinations of load and throttle settings and resultant rpm which can be used, and of course a wide range of types of models and flight patterns to be achieved. At this stage of 'information gathering' therefore, this writer is uncertain which of the various modes of operation are of greater value during these dynamometer tests. There are some problems in obtaining meaningful torque readings during the rapidly changing power levels on high throttle/high rpm settings, and with this particular sized engine the actual torque being produced at the lowest throttle settings happened to reach down to the lowest possible scale reading of the electronic balance used on this small dynamometer (1 gram steps.) At all other throttle settings the dynamometer proved amply sensitive enough to react swiftly to the various torque levels.



After some 30 separate runs the engine performance began to decline, and it proved necessary to apply lubricating oil (SAE 5) to the running parts; after which the rpm immediately recovered. This and other points are covered in the helpful *Brown Junior* instruction leaflet.

Apart from an initial repair to one of the aluminium gas lines, all operations were trouble free, and the motor was unscathed at the termination of the tests.

Summary

In spite of its very small size, the Brown A-23 proved to be a fascinatingly practical power unit, evidencing no sign of problems resulting from its diminutive size and the manufacturer is surely to be commended for such an audacious subject. Lastly, it does not seem likely that a smaller unit will be made available - to this writer at least - and this is maybe just as well, for the sheer difficulty of seeing and locating such a small device can only become more of a problem with the passing years!

Brown Junior 'Campus A-23' Gas Engine

Dimensions & Weights:

Capacity	- .00147 cu.in. (.0241 cc.)
Bore	- .121in. (3.07mm.)
Stroke	- .128 in. (3.25mm.)
Stroke/Bore ratio	- 1.06/1
Crankshaft dia.	- .0984 in. (2.5mm. nominal)
Crankpin dia.	- .0457 in. (1.16mm.)
Crank nose thread	- .057 in. x 80 TPI (Amer. 0-80)
Connecting rod centres	- .250 in. (6.35mm.)
Width	- .44in. (11.2mm.)
Height	- .90 in. (22.8mm.)
Length	- .55 in. (14mm.)
Mounting holes	- 3 equispaced .050in. holes on ⅜in. P.C.D.
Frontal area	- .21 sq. in.
Weight	- 2 grams (bare). 6 grams (with small tank and piping.)

Performance:

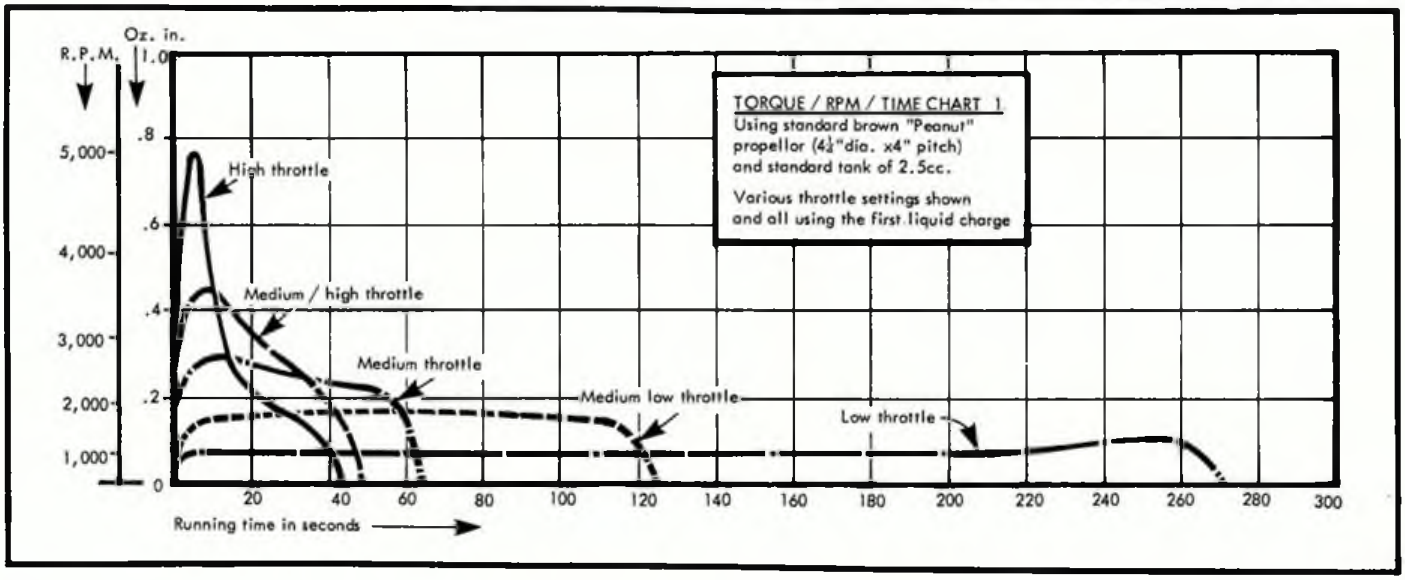
bhp: .0023 at 4,000 rpm (high throttle.)
.0005 at 4,000 rpm (medium/low throttle.)
torque: 8 oz. in. at 2,300 rpm (high throttle.)
.2 oz. in. at 1,000 rpm (medium/low throttle.)
rpm: 5½ x 3 nylon - 4,500 (high throttle.)
4¼ x 4 nylon - 5,070 (high throttle.) & 2,000 (medium)
4½ x 2 nylon - 5830 (high throttle) & 2,700 (medium)
5½ x 6 nylon - 1,200 (medium)

Performance Equivalents:

bhp/cu. in.	-1.56
bhp/cc.	- .095
oz.in./cu.in.	-544
oz. in./cc.	- 33.2
bhp/lb.	- .174
bhp/kg	- .38
bhp/sq. in. frontal area	-.011

Manufacturer:

Brown Junior Motors Inc.,
PO Box 77,
Pine Grove Mills,
Pa. 16868
USA.



Kit Review

UNION PIPER CUB

Bill Burkinshaw reviews the latest scale kit from Amerang

Below, although a little tricky to apply, the pre-printed tissue really sets this model off...

DON'T EVER let anyone tell you that 'box art' doesn't matter; with this Kit from *Union* of Japan, one glimpse was enough to set my fingers itching!

The prototype modelled is a clipped wing J3 *Piper* 'Cub' and the 474mm span rubber powered model should make an ideal first attempt at a small scale rubber model, incidentally the model does cry out for CO2 conversion...

Virtually all the hard work is done, not that the resulting kit does not present challenges, even the wording on the box indicates that this is an expert's model. I would guess that most reasonably competent modellers would achieve success however, the kitting is so good.

The contents of the box is impressive, very precise die cut balsa, plenty of strip wood, including spindle moulded leading and trailing edge stock, vacuum formed dummy engine parts, two rubber motors, two propellers of different sizes, piano wire, glue, glasspaper, injection moulded polystyrene noseblock and the 'piece de resistance', a beautifully moulded kit of parts to assemble a reduction gearbox.

This latter item incorporates a free wheel mechanism and can be assembled to provide three different gear ratios. Finally the tissue - this is pre-printed in the box top colour scheme enabling even me to produce a perfect representation of the 'Sunburst' colour scheme of the 'Cub' modelled.

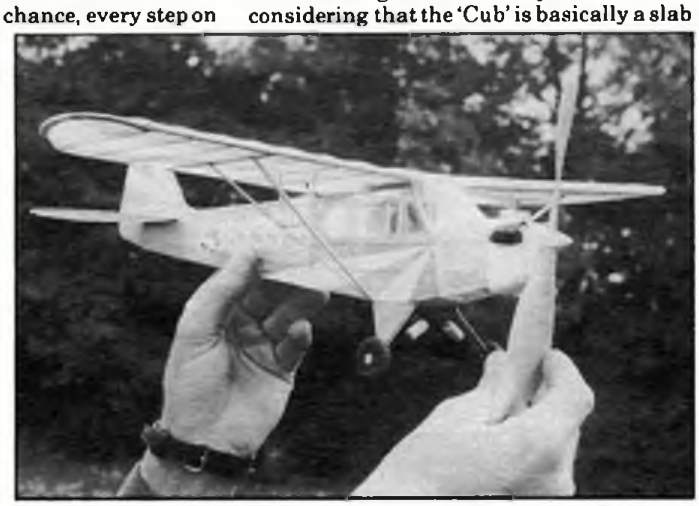
Puttin' it all together

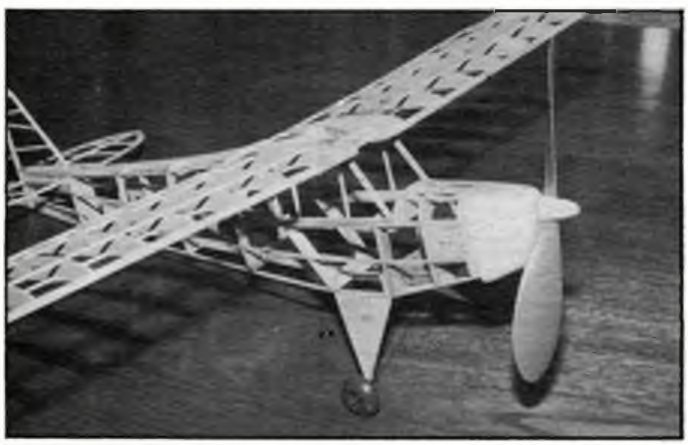
Both plan and comprehensive instruction sheet leave nothing to chance, every step on the way to completion is illustrated. The bulk of the text is in Japanese, but there are sufficient English notes to do the job. I used cyanoacrylate throughout the construction, it is very quick and light too. Construction is all from ribs, formers and stringers with the exception of the moulded nose block already mentioned.

The fuselage is not entirely orthodox and considering that the 'Cub' is basically a slab sided box could be thought to be 'over-engineered'. In common with either elliptical or cylindrical fuselages, the *Union* 'Cub' is built onto a central crutch, the fuselage shape could have been achieved by laying a stringer down either side of a plain box instead of this more complex method...

However, the system worked, rapidly building into the classic 'Cub' outlines. All

Right, initial flights proved very satisfying with good flight times being the norm rather than the exception!





Left, construction does seem a little 'over engineered' but goes together well and the final result was well worth the extra effort.

the die-cut parts came out of the sheet cleanly with a little judicious help on the tiny cut-outs for the 1/16in square stringers.

The undercarriage wires are intended to be assembled by gluing and binding but in the very small sizes used, I felt that I would make a tidier job of soldering the joints. The minute amount of solder required should not really add significantly to the weight.

Using cyanoacylate glue, the construction takes little longer than it takes to lay out the pieces and apply the glue...

Flying surfaces

Entirely conventional, the tip outlines are built up in classic style with a number of small segments of the curve joined end to end, all the grain does run in the right direction too! The spindle moulded leading and trailing edges make easy work of finishing of the wing, eliminating shaping tiny section balsa attached to flimsy structures, which is tricky even for the most skilled.

I did make one mistake on my model which will be evident to any one who builds the model and compares it with the photographs, I fitted the sheet balsa infill pieces in the wing centre section to the upper surface of the wing instead of the lower...

That printed tissue

I confess to being sceptical, I was wrong! The tissue pieces all matched my airframe and I make no claims to being a perfect builder. For me, it was not the easiest of tissues to use, I have always used tissue paste, thirty-five year old habits don't shake off easy folks! The type of tissue supplied does not have a great deal of wet-strength and the first piece of tissue I applied nearly dictated an instant change in colour schemes as it started to disintegrate around the edges of the lower wing surface I was covering...

An immediate stop until the paste had dried a little, salvaged the surface and thorough massaging of the paste tube mixed up the contents a little better so that all the 'runny stuff' was eliminated. With one minor exception I think I made a fair job of applying the tissue, the top rear of the fuselage mismatched by a small amount... otherwise a good result.

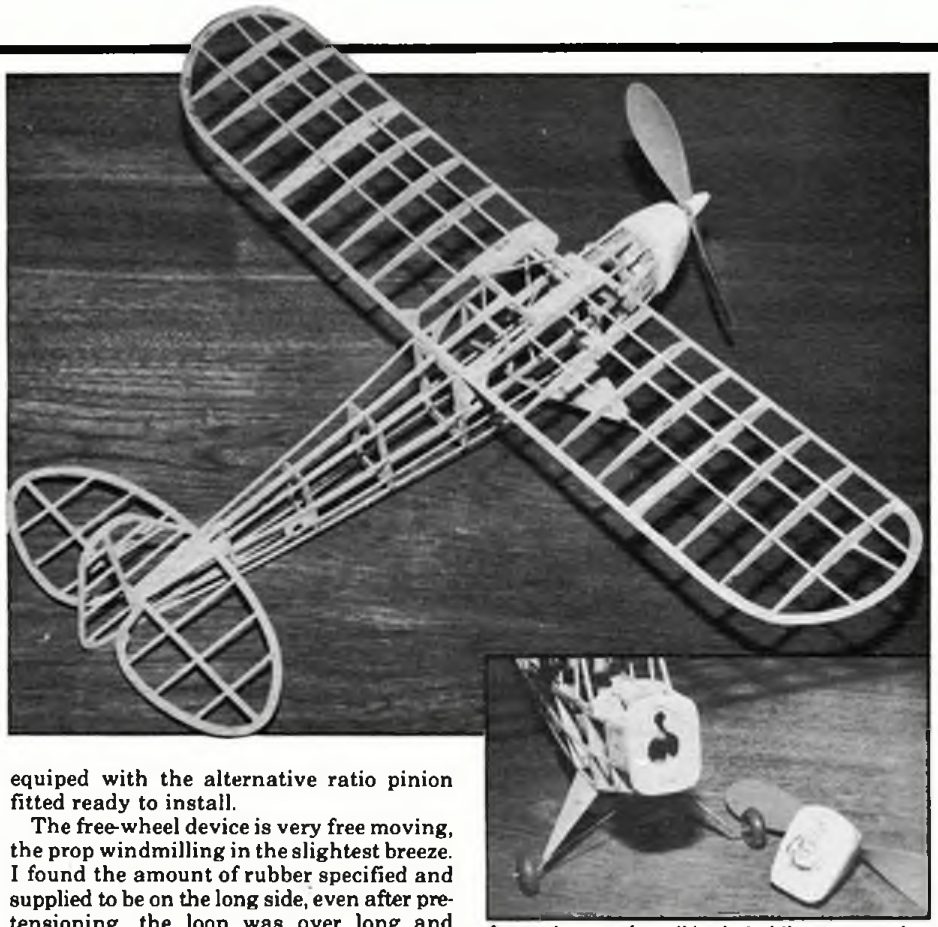
Spraying with water indicated that the tissue was not a powerful shrinker so a coat of 50/50 dope and thinners with a few drops of castor oil mixed in was applied. The structure remained remarkably warp free so a second coat was applied that produced a slight sheen to the surface.

Cockpit glazing was a disaster, by the time you read this I will have re-done it but the photographs tell all! I happened to have a tube of the new thick cyanoacrylate by me and although I used thinned down contact glue for fixing the flat bits, decided that the curved screen was an ideal candidate for trying out this cyano...

I should have remembered the last time I used cyano for fixing acetate, for exactly the same thing happened this time! As the glue goes off, the fumes released fog the adjacent area of the acetate giving the appearance of heavy condensation in the cockpit.

Gearbox

The gearbox is a gem, precise injection mouldings click together with a choice of gear ratios. A spare output shaft is provided so that one can go to the field already equiped with the alternative ratio pinion fitted ready to install.



As can be seen from this shot of the uncovered model, everything fitted perfectly - not a 'kink' anywhere! The nose block conceals a neat gearbox offering various alternative ratios for the flyer to experiment with...

The free-wheel device is very free moving, the prop windmilling in the slightest breeze. I found the amount of rubber specified and supplied to be on the long side, even after pre-tensioning, the loop was over long and tended to drop off the hook at the end of the run. The amount of rubber is terrifying for such a small model: 2.1 metres of 3×1mm in six strands.

Two propellers - 150 and 180mm in diameter and ratios of 2:1, 2.4:1 and 3:1 provide plenty of scope for experiment.

The gearbox is a push fit into the polystyrene nose block and it is only when you fit this that you realise that some liberties have been taken with the true scale outline, the nose has been lengthened. The tiny vacuum formed cylinder parts for the dummy engine did defeat me, I resorted to scrap balsa for these but still used the cooling air deflectors supplied. A spinner finishes off the front end neatly.

Assembly

The model is a one piece job, easily stuck together using the ubiquitous cyano, followed by the few finishing touches such a struts, transfers and motor peg reinforcements. The foresight of the manufacturers was well evident now, as the supply of self tapping screws provided to ballast the model to the correct balance was needed.

Last of all, the piece of piano wire provided to form the motor installation probe was formed into a hook at the other end to enable the motor to be retrieved when it dropped off the hook! A check on the digital office postal scales revealed an all-up weight of 49 grams.

Flight tests

A hand launch confirmed that the free wheel worked and that the glide trim was very close to the optimum. Hand wound turns indicated a power stall was very likely, the necessity for extra downthrust was confirmed as the turns were built up. I do not like trimming a model to power out of stall situations by side thrust very much. I realise that this method does work, but I do not like it, I prefer to trim power stalls out with downthrust.

A full 1.5mm of packing was needed and this so spoiled the scale appearance that a re-think was going to be necessary.

Experiments with side thrust indicated that just as much side thrust as down thrust would be necessary to kill the stall so I reverted to the original thinking.

With some willing assistance at hand I managed to find a sheltered corner in a local park and proceded to build up the turns. Stretch winding 200 turns onto the motor, using the 3:1 ratio and the 180mm propeller produced a wide sweeping flight pattern with the model returning almost to my feet.

Encouraged, I tried again, this time making a check on the flight time, the resulting 25 second flight being very satisfying. As the grass was very wet I had no wish to prolong the flying session further than was necessary to prove the airworthiness of the model and assess its potential.

I would guess that with a calm evening and full turns a flight of around 40 - 45 seconds could be expected. Final trim settings were just over 1.5mm of downthrust packing and a tweak of left rudder, slight warping of the wing necessitated this but a little warmth and judicious twisting should eliminate this!

Conclusion

An eminently satisfying little model to build *and* fly. *Union* have managed to kit a model that any modeller could be pleased with, both from the building *and* flying standpoints. Such quality and specification does not come cheap however and at £10.99 the kit is a mite expensive. However, for a really good chance of success in a first rubber scale model this one will be a real confidence booster.

FREE FLIGHT SCENE

with Dave Hipperson

Above, Neil Cliff launches in Open Rubber at the Club Champs - obviously a 'family favourite' as his son also flew a similar model...

Covering problems.

Some problems are often mentioned in reader's letters, let's look at one I regularly see examples of, even from quite experienced builders. Adhesion of tissue - particularly Jap or heavyweight *Modelspan* - to the undersurface of undercambered wings (Fig 1).

It is common practice to use dope for sticking tissue onto airframes. Although tissue pastes are available, dope is both light, neat and of course *always* available but it does introduce certain problems when adhesion has to be very firm. If tissue pulls off the undercamber of a wing section after doping, it not only destroys the shape of the section but also ceases to support that part of the rib.

This can then cause the rib to buckle from the general chordwise pull of the covering, particularly if it is a lightweight structure or a heavyweight covering. Any rib buckling will in turn of course, further distort the section and invariably lead to local tissue wrinkles - horrible mess.

The way I have avoided this...and I use Jap exclusively, but the same applies to *Modelspan* even though it is less troublesome...is as follows. *Don't* dope the structure first as some people suggest. It raises the grain which then needs to be sanded down again. If you miss a bit, which undoubtedly you will, the raised grain at this point will tend to hold the tissue off slightly and encourage pulling away later.

I simply dope the structure with thin dope and lay the tissue on quickly. By *thin* I find 50/50 dope/thinners or *thinner* ideal. Now obviously this doesn't stick very well and it sinks in and evaporates quickly but against this it is of course lighter and much less messy than thick dope. Most important is that the low viscosity allows the dope to *suck* the tissue on by capilliary action. You do have to be fairly quick but any obvious dry spots can be lifted and re-doped easily.

Always cover the bottom surface first and when dry run more dope, this time 50/50 mixture *or thicker*, along all the balsa to tissue contact lines likely to be stressed when the covering shrinks (Fig. 2). A very small sable hair brush is ideal for this. We are talking about the rear two thirds of each rib, along any rear spars and also very important, along the leading edge of the trailing edge - so often where the lifting begins, especially on wide section trailing edges.

When this 'dope fillet' is completely dry - leave it overnight - check that it has done its job, by trying to push the tissue away from the important points. The slight shrinking effect of the dope fillet should just be visible from the outside surface of the tissue. This will disappear later in the water shrinking and doping.

When you are completely happy with the underside the top surface is covered in the same way except that there is of course no need to get at the tissue to balsa contact as the top surface tissue will automatically shrink down onto the structure. It is still worth remembering those vulnerable rear portions of ribs so prone to buckling. Special attention should always be given to 'sticking' this portion well, even when covering the top surface.

I pin down to water shrink - you may prefer not to. Whichever method you choose, when doping, *do not* use too thin dope for the first coat. Even on a lightweight rubber model wing I would use 50/50 dope/thinner not less. Very thin dope, although shrinking less violently, will penetrate the tissue and soften the adhesion to the undercamber. It can then still shrink enough to pull the tissue away! I never have any trouble with 50/50 - but subsequent coats can and should be thinner of course.

If after all this effort you are still unlucky enough to suffer the tissue lifting somewhere, then the final solution, at least for small areas, is to puncture the tissue where it has lifted and run in some cyano, allowing its capilliary action to spread along the dry area. Pressing down on the offending area should stick it in place (and probably your finger to the structure too). I will tell you how to get out of *that* mess another time.

Peter Gaunt's Slimline F1B

It was with this model that Peter placed a very close 2nd in the Boxall Trophy for Wakefield at this years Nationals - one second off a full score, you can't get much closer than that! Rapid success really, as the design is a result of intensive development over a mere two years.

Peter had been a keen modeller a long time back but competitive motor cycling took over in his mid-teens. This led in turn to works rides in motor cycle trials for such teams as *Royal Enfield*, *Yamaha* and *Honda* amongst others. This took him to victories in many British and Continental major meetings and he went on to do road racing and moto-cross up to the early sixties when he retired from all this at 39.

If you think chasing free flight is physical you should just try moto-cross! During that time and since, he stayed in touch with aeromodelling developments but it was not until 1983 that he attended his first Nats. Here he was so taken with some model performances, that he began building again in earnest and had a major *SMAE* trophy win under his belt before the year was out - the Caton for Open Rubber at a very windy and cold Northern Gala.

Wakefield is now his main interest, this design being inspired by Ivan Taylor's models and Lother Doring's successes. The wings are constructed from *Joe Maxwell* panels cut to Peter's specifications and are thin by any standard...

The fuselage is a composite of *Rony Tube* and carbon fibre boom and the prop-assembly comes from *Mike Woodhouse*. All in all the most 'purchased' model we have ever presented!

A heavy fuselage precludes the use of DT timer - as did the early Ivan Taylor models I believe. Hence no VIT is available and therefore the rather unorthodox minimum decalage/trailing edge CG set-up is necessary to handle that short motor run.

Peter now estimates the design to be capable of 3:10 still air and proved it has potential with another placing a few weeks after the Nats in the Thurston Trophy at the RAF Champs.

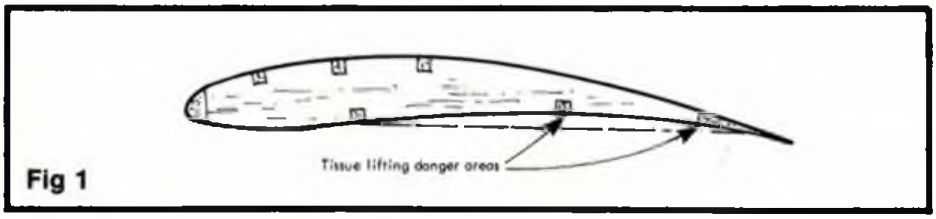


Fig 1

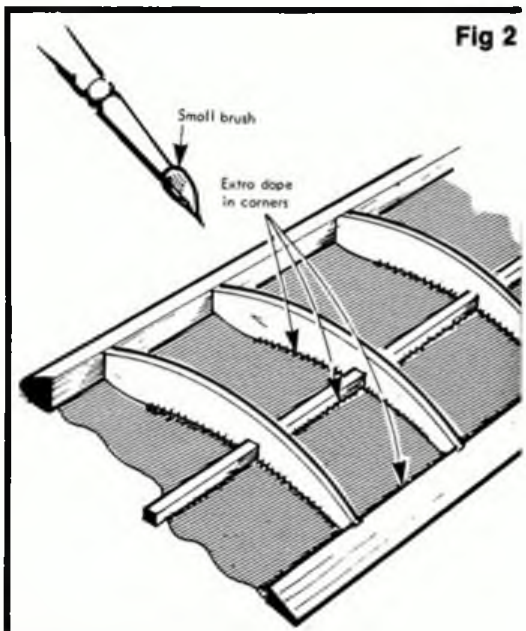
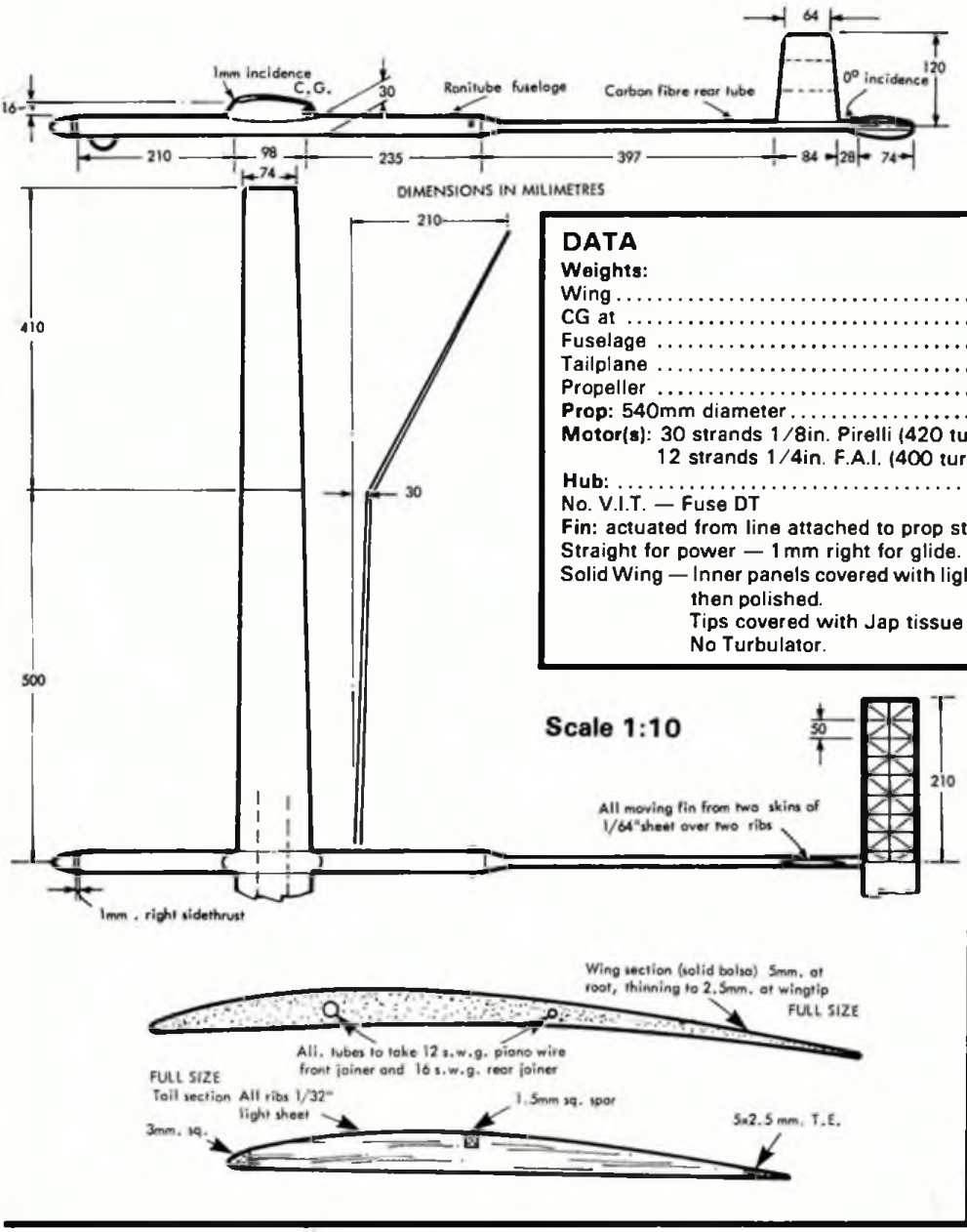


Fig 2

Slimline F1B
by Peter Gaunt



DATA

Weights:

Wing	62g
CG at	98% wing chord
Fuselage	75g
Tailplane	5g
Propeller	49g
Prop: 540mm diameter	run: 35-38 secs.

Motor(s): 30 strands 1/8in. Pirelli (420 turns)
12 strands 1/4in. F.A.I. (400 turns)

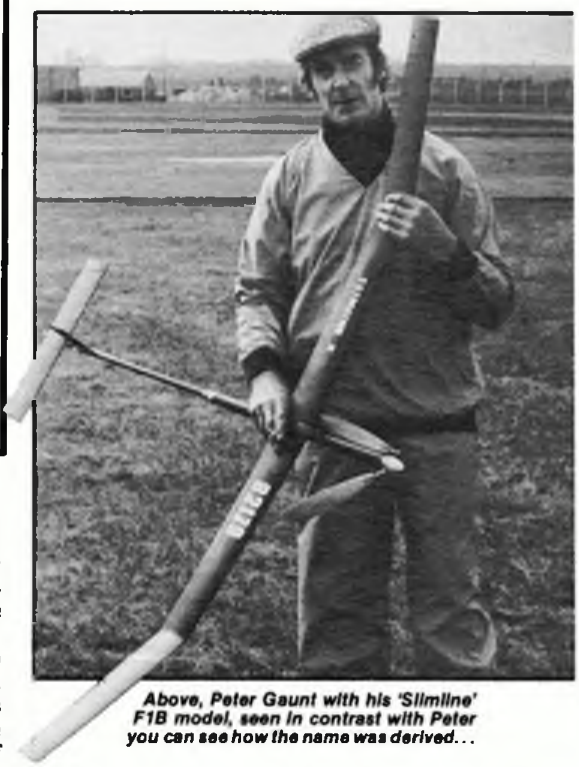
Hub: Mike Woodhouse unit

No. V.I.T. — Fuse DT

Fin: actuated from line attached to prop stop,

Straight for power — 1mm right for glide. **Trim** Right/Right No warps.

Solid Wing — Inner panels covered with light glass cloth and thin epoxy resin — then polished.
Tips covered with Jap tissue and dope.
No Turbulator.



Above, Peter Gaunt with his 'Slimline' F1B model, seen in contrast with Peter you can see how the name was derived...

What is circle tow

The circle tow facility allows the glider flyer to circle his model on the line to assist in thermal detection. The circling model, with line slack, can be observed just as if it had actually been released.

A circuit that holds height is more likely to be in good air than one that looses height. What is more, when practised in the art the flyer can position himself and his model anywhere on the field ready for release. This is usually downwind of other competitors of course - even if he had the initial restriction of an official launch point.

Add to this that keeping the model airborne on the line in this fashion is far less exhausting than having to run continually to maintain line tension, particularly on a calm day, then you begin to see how circle tow begins to show gains worthy of attention.

To enable the model to circle freely on the line yet stay under control is not as simple as might be imagined. Over twenty years ago I saw the French team using a very simple system at the World Champs in Finland. This required an off-set hook which compensated for a pre-set glide turn. Really the sort of arrangement that was in use even before auto-rudders were universal.

Although it still allowed the models to circle when line tension was reduced, it did not however allow very much control in this mode and of course there was always the small problem of the tow ring slipping off the hook prematurely.

Today's systems in their simplest form allow the flyer a straight tow for as long as he likes and then by slackening the line, a circle of usually quite a lot smaller diameter than the eventual glide turn. Then if he has drifted off too far downwind ... more straight towing until he is ready to circle again or release.

This can be repeated as necessary to either position himself or search for lift. The reduced diameter of the circle on the tow allows him to keep up with the model on the downwind leg, even in quite windy conditions. The hook unit is attached well up in the fuselage and in one place only. From that point it is allowed to pivot freely. This for-and-aft movement can then activate various rudder settings depending on where and how the hook is 'stopped'.

To eliminate the problem of the line becoming detached when slack was the number one obstacle. How could the line be securely attached to the model but released when required. Early systems used a loose and fully pivoted loop in place of the hook

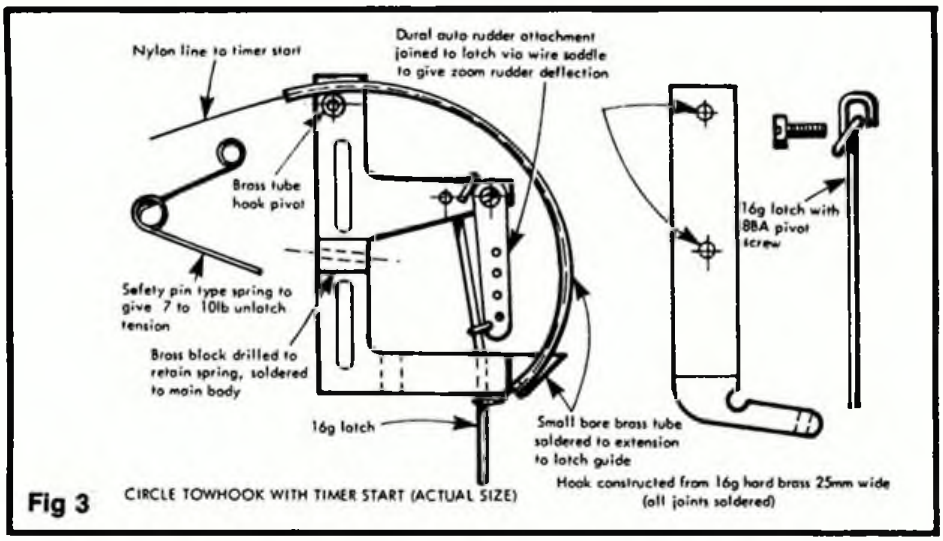


Fig 3 CIRCLE TOWHOOK WITH TIMER START (ACTUAL SIZE)

and then a hook in place of the loop on the end of the line.

Such a configuration was found to stay connected well - the problem was releasing it. The only way was to introduce a spring into the top of the line so that when taught the line could be 'twanged' when release was required. This would flip the hook up just enough to release it from the loop on the model.

It worked well and unknowingly gave birth to the idea that would eventually allow genuine catapult releases. Far from the taut lines being a problem at release it was now actually preferable. The spring on the line was dispensed with and instead the loop on the model was spring loaded.

In turn, 'twanging' was found to be unnecessary as long as line tension could be released very quickly in another manner. That was discovered to be releasing the ground end of the towline altogether. (Remember - only when a line is disconnected from the winch may this be done - otherwise it is both very dangerous and against the rules).

Thus the circle tow and catapult release was born. The model could be now played on the line and then brought up overhead with a rush when required and pinged off a taut line at high speed, where positive height gain would be possible...once the knack was learnt.

It was this phase of the release that was the next to be improved. The spring loaded ring could just as easily be replaced with a similarly spring loaded hook. If it were spring loaded to the correct weight, then that downward movement on the hook at maximum line tension could be used to release a latch pin, which until that moment had been preventing the tow loop sliding off.

It is now quite common to see additional functions 'driven' by this up and down movement of the hook. The most popular being an interim rudder position. Slightly more turn than the straight tow position, but not nearly as much as circle or glide settings. If this comes in momentarily at maximum tension and during acceleration up to release point then it assists the climbing model into its glide turn. Needless to say it is a most critical adjustment as speeds are at their highest at this time on the tow, just prior to release.

Both hook and loop equipped models can have these and other functions not to mention timer start of course. There are a host of ways of arranging the stops and adjustments on the various rudder settings - no two glider experts use the same methods, but the illustrations previously shown in *Aeromodeller* by Tony Cordes and John Cuthbert show two approaches. John's tow hook (fig 3) is constructed almost entirely in 16swg hard brass -25mm widths of which seem to be readily available from model shops. This has allowed soldered joints to replace the time consuming drilling and tapping necessary in dural constructions. Brass is stronger too, and the slight weight penalty of a few grams of little consequence, particularly at this central point on the model. For more details of Tony Cordes hook see the construction article in the May '85 issue of *Aeromodeller*.

A freewheel stop system

If you, like me you would prefer to avoid having to pre-tension your rubber motors even in freewheeling prop Vintage model applications...there is a way around it. I pinched this idea from Bernard Aslett who uses it on his 'Lanzo' Wakefield.

The dodge is to introduce the simple screw stop and spring system popular on many folding prop arrangements. The sprung shaft engages on the end of the screw stop on wind-down, allowing as many turns to be retained on the motor as you require but at the same time allowing the clutch to disengage and the blades to freewheel.

It does leave an unsupported length of shaft protruding in front of the nose block but although vulnerable to bending it may well save broken blades in a heavy landing. The other slight draw-back one has to accept is actually more frightening to think about than in practice - shaft runs!

Once the stop engages, the prop freewheels. However that removes all rotational loads from the shaft so that if - as is common - the loop at the back of the shaft 'skips' a few times on the end of the screw stop either at the end of the run or later in the glide when the motor has recovered slightly and contracts a little - you have a shaft run!

This of course is on low turns and of very short duration...two or three revolutions, as immediately the tension eases, the stop bites again, but believe me it is disconcerting noise. Hopefully the model is too high by this time for you to hear it...

The Falcons Gala

This has been brought forward a week to 17th November and the organisers can confirm the venue as Lindholme. The three Open classes plus Vintage are to be run with guaranteed prizes down to fourth place in all classes. However they have obtained Lindholme on the condition that engine running is kept to an *absolute minimum*...

Obviously engines are required for Open Power but you are asked to run motors as little as possible. A minimum of trimming and obviously no protracted ground running. The Falcons Club apologizes for this restriction but it is best to be on the safe side...as certain parts of the perimeter at this venue are becoming very hostile to noise.

RESULTS

South Coast Gala 27th, 28th July

All Open events 3×3 minute maxes

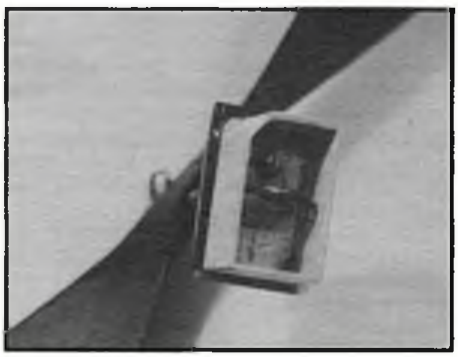
Open Glider	
1 K. Smith	5 00
2 W. College	4 43
Open Rubber	
1 C. Chapman	9 00
2 J. Carter	6 41
3 N. Cliff	6 00
Open Power	
1 R. Peers	6 00

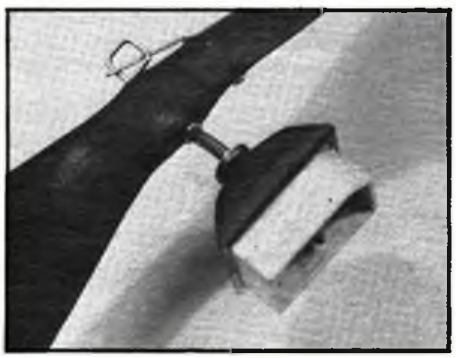
All FAI events 5 × 2.30 maxes

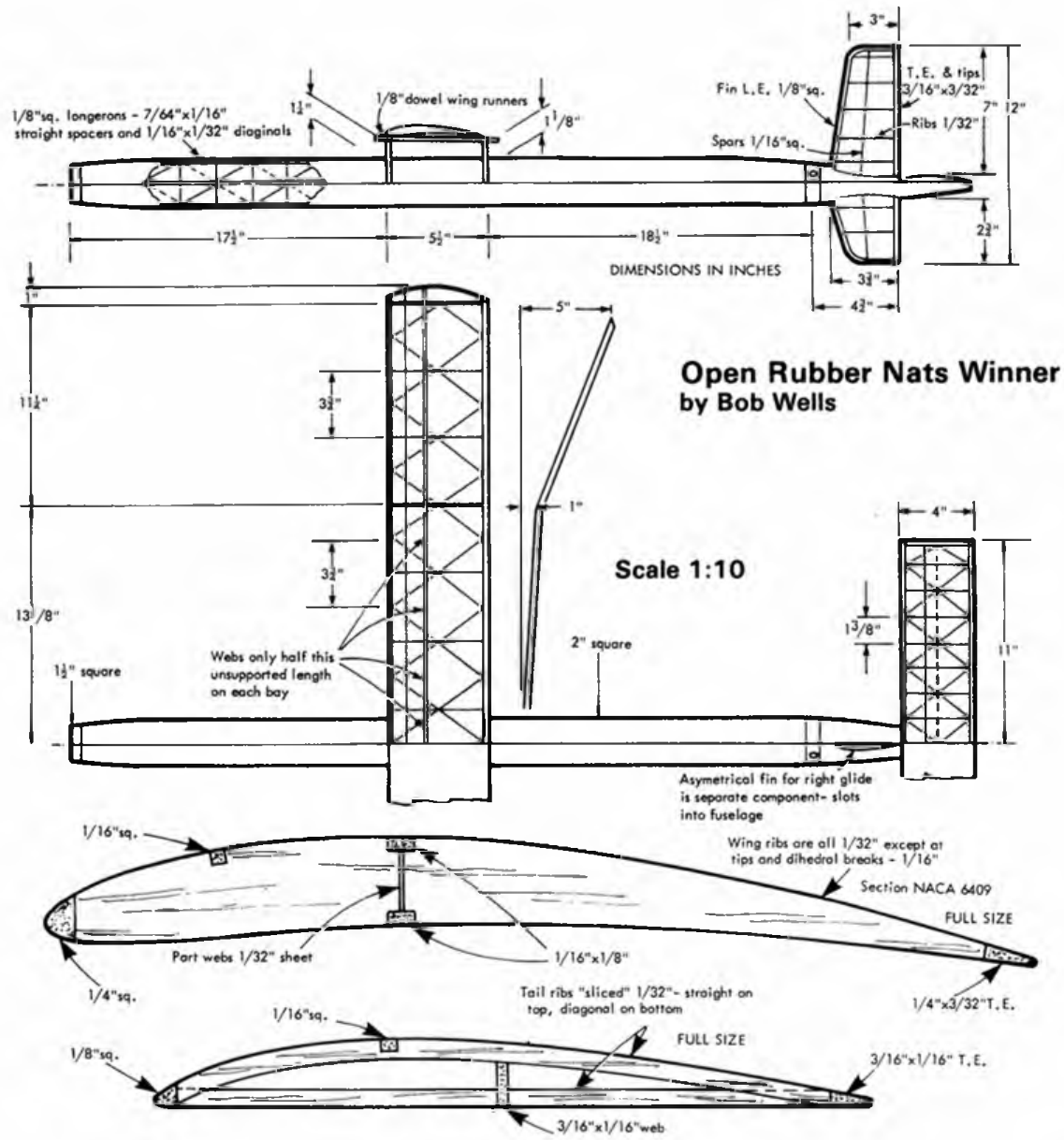
F1A	
1 C.P. Williams	11 18
2 W. College	10 59
3 C. Pudney	8 07
F1B	
1 C. Chapman	10 16
2 I. Kaynes	10 13
3 G. Pink	9 24
F1C	
1 P. Watson	1 30

Conditions: Terribly windy -- rain nearly all the time and poor visibility whenever the wind did drop.

Below, two views of Dave's 'freewheel stop system', on the right showing the tensioning spring and on the left, the rubber motor's viewpoint...showing the rear end of the shaft bent in a loop and the screw 'stop' in the back of the nose block.





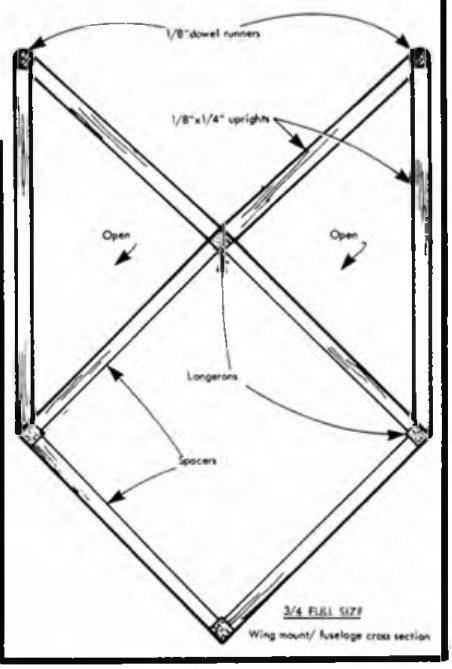


DATA

Weights:

Fuselage	35g
Wing	30g
CG at	75%
Propeller	20g
Tailplane	6g
Fin	3g
Motor	130g

Prop 24in. dia × 30in. pitch
(eliptical blades) (2in. washout at tip i.e. 28in. pitch)
Blade Chord 21/8in. at 8½in. radius
Max undercamber 3/32in. carved from block.
Hub: Wire
Motor: 52in. **Prop run** 1:45
Rubber: 14 strands F.A.I.
Covering: All Mike Woodhouse 'Jap'



Open Rubber Nats Winner by Bob Wells

It would be no exaggeration to class Bob Wells as one of the very most experienced rubber fliers in the Country. He had been doing well for ages before I started more than 20 years ago. It is extraordinary to find therefore that he had never won the Nationals before this year, although he appeared in the top placings on numerous occasions. The design used, for the winning 1985 flyoff flight, is somewhat larger than Bob usually flies. He had been rather reluctant to move up from the Wakefield sized wing that has proved so consistent for him for so long.

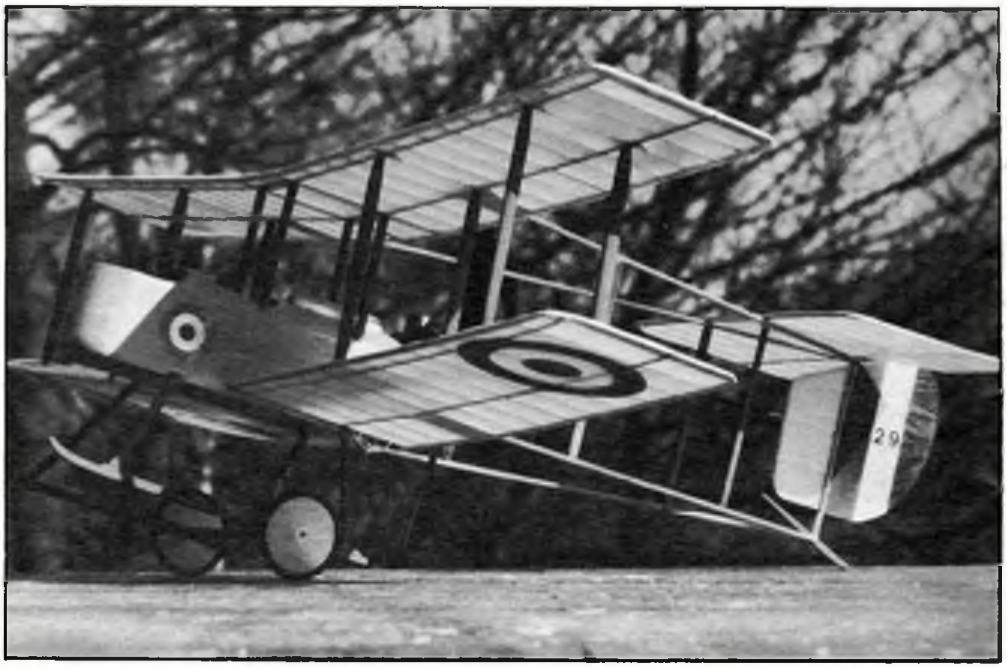
This model has a 280 sq. in. wing - still quite conservative if compared with some of today's extreme examples - and still a shade smaller than my 'Skywalker 130'. With a structure weight under 100 grams as the fuselage is very light and so is the tail, the only real novelty is the very neat slot-in fin, which is exactly the same way as detachable fins on Vintage models make for more compact storage and localise damage at very little weight penalty.

The model had only one contest flight behind it before the Nats outing and on that occasion it had turned too tightly on the glide. However nothing had been altered for the Nats flight. Bob launched very late in the period - last I believe - when conditions at least where I stood felt quite discouraging. Once again the glide proved to be rather tight but opened out very wide for a period in the middle of the flight then tightened again at the end. Perhaps even this model is not fully trimmed yet?

THE F5B (Fighter Biplane 5) designed and built by *Vickers Ltd.*, first entered service with No. 11 Squadron R.F.C. in February 1915. Although not one of the fastest or most manoeuvrable aircraft of the time, for a few months after it's introduction, it did useful work both in aerial fighting against the *Fokker* 'Eind-decker' and in light bombing duties.

As better known German fighters began to appear on the battle fronts, the surviving F5B's were relegated chiefly to training duties.

Having an interest in First World War aircraft and having built some of the more conventional types, the idea of building a pusher scale biplane model was for me, a new venture. As a model the 'Gun Bus' looked to have good area proportions, and not too difficult a structure. This model is in



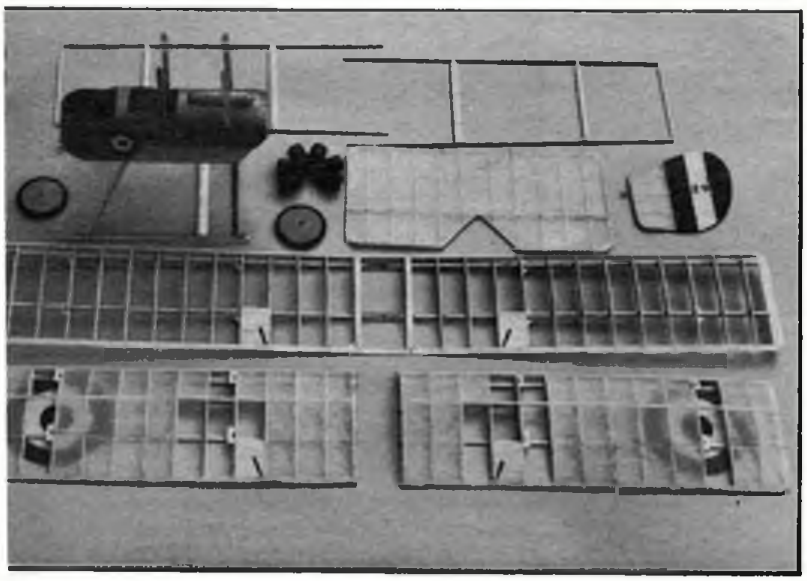
Vickers

F5B GUN BUS

Full size plans for a CO2 powered scale free flight model of something a little different...by John Watters.

fact the second F5B I have built, the first one was completed but never flown, due to it meeting an undignified (cat-astrophic) end at the hands (or paws) of our pet cat. This partial destruction did in fact show up a few structural weaknesses. 'Not surprising', I hear you cry but the damage sustained was similar to that which could have occurred during a heavy landing or even careless handling...

What it did prove was that with this type of model, selection of wood and fuselage boom design was important. As you will probably be able to see from the photographs, the structure that did survive was re-used to complete the model.



Above, John's 'coffee stained' (see text) 'Gun Bus' looks as though the pilot could climb aboard and take-off. Left, one set of almost completed parts - perhaps not a beginner's model, but still not difficult to construct...

Fuselage

Construction for the fuselage should start by first bending to shape, from 22 swg wire the cabane and undercarriage wires. Cut out the fuselage formers, F1 and F2 from 1/16in. sheet and 1/8in. sheet respectively. The fuselage sides and bottom should be cut from 1/32in. medium sheet balsa.

Assembly of the body should begin by attaching the undercarriage wires, onto the bottom of the F1 formers. The method I used was to simply fix them in place with masking tape, without using any glue.

Former F1 can now be glued into position on the fuselage bottom sheet and allowed to set. Both fuselage sides should next be glued into position and former F2 added. Next add the nose section onto the body, which can either be built up out of pieces or from a block.

Assembling together the undercarriage legs is not as difficult as it may look. With the aid of thin fuse wire, or thin wire stripped out of electric cable, bind the ends of the undercarriage legs onto the skid wire. Complete both sides, and with the structure sitting flat on a board making sure all is square - solder the joints. Complete the structure by binding and soldering the axle in place. The whole assembly you will find is quite strong, but with a slight amount of springing. The cabane strut wires can now be glued in position onto the inside of the fuselage sides. Use pieces of scrap balsa to keep them in place whilst the glue sets.

Now cut out the engine mounting plate from 1/16in. plywood and drill the plate to take the 10BA fixing bolts. The engine plate should now be glued in position, using either masking tape or elastic bands to hold it while it sets.

The motor assembly can now be fitted, take your time over this...I needed a few attempts to position the tank and pipework satisfactorily. Fitting the charging valve onto the plywood plate is an option; but after having had a pipe joint fracture in a model with a free charge valve, resulting in major surgery to remove and rectify - I now find it best to always fix the valve rigidly.

The top sheet to the fuselage can be cut to shape and cemented in place. The cockpit shapes can then be marked onto the top sheeting and cut out using a sharp blade.

All wire parts should be faired in to a streamlined shape using stiff pieces of balsa. The method I used to do this was, first

cut a small groove into the strips and with the strips cut to the correct length, balsa cement them onto the wires. Sand the strips to shape and then cover all the struts in lightweight tissue (doped on). This makes them quite strong, especially the front struts which will take most of the landing knocks.

Depending on the colour scheme you are going to use (not that there is a great choice for this particular aircraft), I did all the painting of the fuselage and struts, before adding the wings and booms. This way, and as there is not much to paint, you don't have to poke your paint brush through the boom structures or struts...

Fuselage Booms

As the booms (or top and bottom longerons) form one of the main parts of this aircraft, not least one of its main features, they should be constructed with some care. One of the major considerations with this model is not to have any excess weight *behind* the wings. As I mentioned in the introduction the first model ended up with all the booms being cracked. The original booms were constructed from 0.5mm ply, cut into thin strips and flanked on either side with 1/32in. balsa.

This construction gave a strong sandwich but the glueing together of all the strips added extra weight. It's also not that easy to get the section down thin enough.

For this model I used strips of spruce. The smallest section I could find was 3/16in. × 1/16in., these pieces were cut to length and then carefully whittled and sanded to shape. This method produces a far more satisfactory longeron.

Construction of the booms themselves should be carried out as follows; pin the shaped longerons down over the plan and cement in position the balsa spacers. Each end of the spacers can be slightly notched to key them into the longeron. Build up both booms, one on top of the other, as you would any fuselage sides. When the structures have set, remove them from your board, trim off any surplus glue, and set them aside for later.

Tailplane and Fin

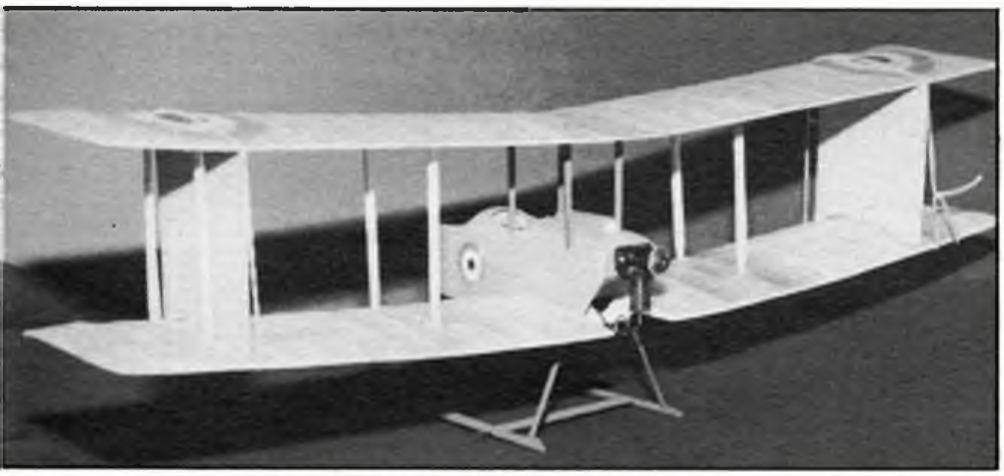
Both tailplane and fin are of conventional construction, the only consideration to be made is in the choice of wood. The lighter these two surfaces can be made the better...and be sparing with your glue! Although I have used a built up leading and trailing edge there is no reason why a laminated construction can not be used.

Wings

With this size of model, a true scale rib depth, is a little bit on the thin side so some deviation from scale has been used...

Wing ribs should be cut from 1/32in. and 1/16in. medium balsa sheet. Cut blanks slightly larger than the finished ribs and assemble them together in a sandwich between either thin ply or card rib templates. With the templates and ribs pinned together the blanks should then be sanded to the rib profile.

Because of the number of ribs involved I usually make up the ribs in two stages i.e. one set for the top pair of wings and one for the bottom. After sanding the ribs, either saw or cut out the position for the spars and trim the ribs to length.



Far above, this viewpoint of the 'Gun Bus' shows gas tank position – keep as much weight forward as possible. Above, card templates ensure wings are 'rigged' correctly. Right, pay special attention to prop diameter, make sure there is clearance between the booms. Note filler valve beneath nose.

Starting with the bottom set of wings, pin down the leading and trailing edge strips over the plan but try to pin either side of the strips rather than through them.

Glue the first and last wing ribs into position, not forgetting to set the inner dihedral rib to the correct angle. When these ribs have set, push the two bottom spars through the slots in the ribs, and pin them in place, leaving the spars sticking out about 1/16in. past the dihedral rib. Now glue into position all the remaining ribs. I did not add any riblets to my model, but for any one who wishes to do so add them at this stage.

After the ribs have had time to set, glue the wing strut guide pieces into position on the ribs. Remove the wing from your building board and sand to shape. Build up the other bottom wing in the same manner.

Both top wings are constructed by the same method as for the bottom wings, but with the top wings the two spars should be left long enough to meet together in the centre of the wing centre section. To allow the wing to be set to the correct angle, before fitting the spars, they should be trimmed off to suit the dihedral angle.

The wing centre section is built as you would any wing, but without any spars. With the centre section still pinned down, cement in position one of the wing halves, propping it up to the correct height (5/16in.), if the centre spars are too long trim them to meet on the centre line of the centre section.

Now glue in place the remaining wing and allow the whole structure to set. To finish the top wing, remove the assembly from your building board and add the cabane strut locating strips to the centre section.

Covering

Before any part of the model is assembled i.e. wings, tail etc., all the flying surfaces should first be covered with lightweight tissue. As I mentioned previously there are not a great many colour schemes for this particular aircraft, the surfaces being usually clear doped linen.

The nearest equivalent to the aircraft's natural colour is of course with tissue. There is one method I have found which works quite well, to colour the tissue and shrink it at the same time. This is instead of water spraying the surfaces mix a small amount of 'coffee' and water and lightly paint this on to the tissue, with a soft brush. This not only tightens the tissue, but when it dries out, leaves the tissue a light buff colour. If you try this method be careful not to saturate the tissue as this can lead to the balsa structure becoming stained.

The roundels were cut out from red and blue lightweight tissue. Drawn onto the tissue, and then cut out using a very sharp blade. If you want to use this method for the roundels, remember that if you are dying the tissue with 'coffee', leave an equivalent clear area for the white circle of the roundels!

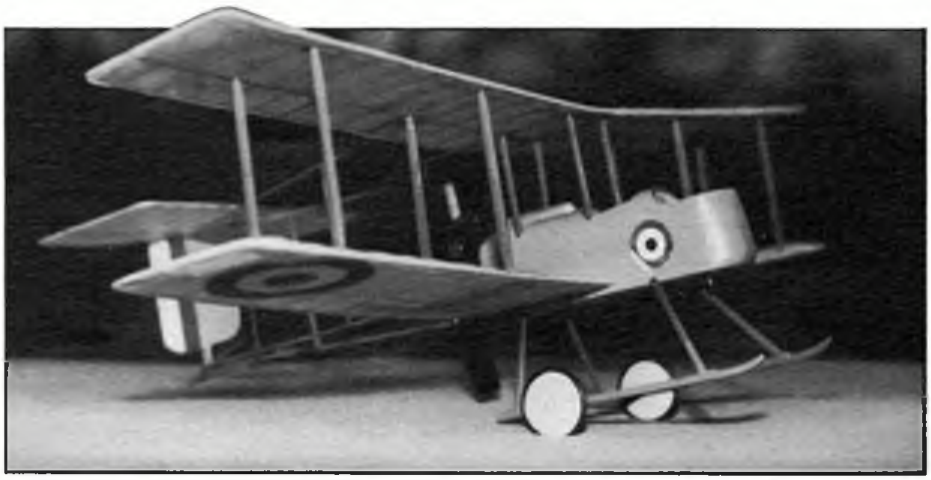
When the water shrunk surfaces are dry, pin them down individually before clear doping with the thinned down 50% dope 50% thinners mix. The tissue roundels can then be applied, again using the thinned dope. Rudder stripes can also be made up from red and blue tissue. With the rudder there is no need to 'coffee' dye.

Assembly

Having completed all the major items for the model, start the assembly by first cementing the top wing into position on the cabane strut wires, it may be necessary to nick the dihedral ribs on the underside to allow the wires to fit correctly.

Next pin one of the bottom wings into position on the fuselage side, using the ends of the wing spars as locating pegs. Using either a card or balsa template (see photograph) to position the bottom wing at the correct angle, fit, and glue the interplane struts into place. When these have set, slightly move the wing away from the fuselage and cement the dihedral rib onto the fuselage side. Repeat the procedure for the other bottom wing.

To position the booms, slide the top and bottom longerons into the slots in the wings. The fit for these longerons should be a tight push fit. With both booms in place, position the model over the plan and line up the booms as shown on the plan.



Not only must the prop clear the booms but also the ground!

The tail ends of both booms can now be cemented to either side of the fin, and when dry, cement the tailplane onto the longeron, completing by adding the remaining bottom boom spacer. To set the horizontal position of the tailplane move the longerons either in or out, of their slots. When correct position has been obtained, glue only the *top* longeron in place, cementing the bottom one comes later...

Add all remaining items, tail-skid, wheels, engine etc., and the model is just about complete. The booms and struts can either be painted or stained whichever you prefer and any other detail added.

To keep the model within scale proportions the standard *Telco* propeller will have to be trimmed down to miss the booms. Don't forget to fit the propeller on the opposite way round, to give the correct pusher effect.

Flying and Trimming

Balance the model at approximately mid-span, obviously with this model, some ballast will be required in the nose. My model complete and balanced in flying trim weighed 45 grams.

For initial test gliding, pick a calm day...and a patch of longish grass. Your launch technique will have to be developed - a bit awkward to launch these pushers.

With the model being relatively light and having quite a bit of built-in drag don't expect a long glide, but you should be able to notice if the model is diving or stalling.

Now in a conventional aircraft arrangement i.e. one with a solid fuselage and the tailplane above or below the rear fuselage, changes to overcome diving or stalling are usually done by packing up the tailplane where necessary... With the 'Gun Bus' I have utilised the boom structure to do the same job, hence not gluing the bottom boom into the wing slot. You will notice that by moving the bottom boom in, or out, of its slot in the wing, how it alters the tailplane angles, therefore to correct a dive pull the booms out, and push them in to overcome any stall. With the glide established, the booms can then be cemented in place.

First power flights should be carried out using a gas charge, that is by holding the charging unit pointing upwards when filling the tank. If you are not too keen on launching the model by hand, try the model rising off from the ground (R.O.G.) a piece of old carpet or length of cardboard can be utilised for this purpose.

For power trimming remember that, with a pusher engine 'power stalling' is cured by using up thrust at the motor. For modellers still interested in electric round-the-pole modelling (as our Whitefield Club has been over the winter months), the 'Gun Bus' is a little bit different and quite easy to convert...

For further information on the 'Gun Bus', reference sources are:- *Aeromodeller Scale Plans* Ref No. 2810 and the *Harborough Publication* 'Fighter Aircraft of the 1914-1918 War'.

Avro Triplane
continued from page 625

The tailplane and rudder can now also be attached to the fuselage, at this point, offsetting the rudder a few degrees away from the centreline to keep the flying lines taught whilst the aircraft is in the air.

Undercarriage: Bend the four undercarriage frames (2 × 'A' and 'B') from 20 swg wire and epoxy into the lower wing. Solder 'A' and 'B' together with the axle and axle steady. Bind the axle lightly with some very thin fusewire. Try the wheels on at this point. All four of course, *should* be touching the building board but if they are not, just touch the soldering iron *lightly* onto the axle just to melt the solder at that joint.

Cover the wire frames with the balsa skids. It is as well to cover one side of each skid with 1/64 in. ply for strengthening. Paint all undercarriage parts light brown.

Finishing off: The motor can now be added, which should pull the Centre of Gravity forward more or less to the correct position. It is just a matter now of adding all that rigging using grey cotton (using a curved needle), and the small details like the control horns, the pilot, and the tail skid.

Flying: Never rely on just the small connection plug to tether the model, so epoxy a small 20 swg piano wire loop on the wingtip of the centre wing. A small paper clip tied to the flying lines can then be attached. The model is now safe from flying off due to the quite strong 'G' force the aircraft can experience whilst flying.

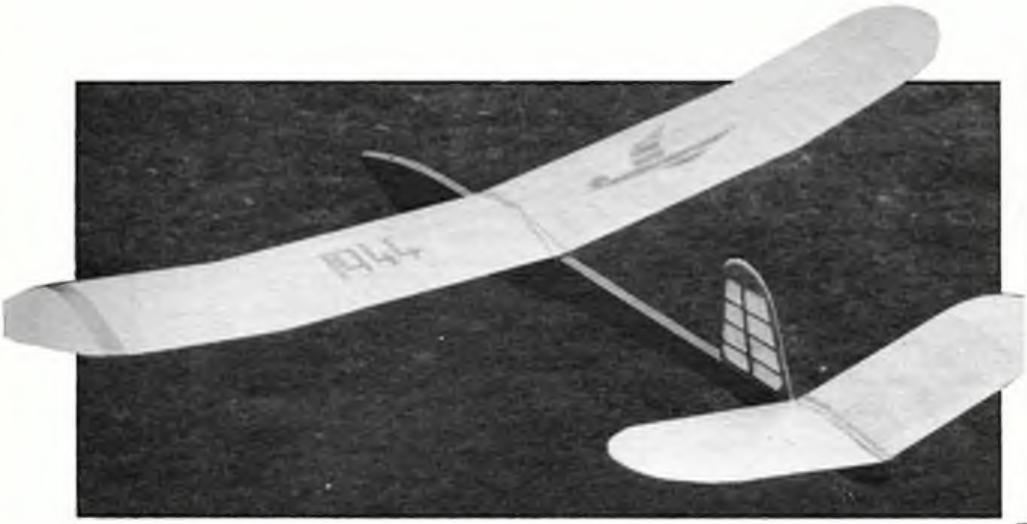
It is best for the model to fly in a clockwise direction otherwise the propeller torque may make the model turn *into* the flying circle at the start of take-off.

The take-off run will of course depend on the weight of the aircraft so you may have to experiment with the trimmable tailplane.

History of the Avro Triplane IV

The Avro Triplane No. 4 (Roe IV) was Alliot Verdon Roe's final triplane in the series. It was a large single seater, powered by a 35 hp. Green engine. The wings spanned 42ft. and lateral control was affected by a differential warping of the upper two wings.

The fuselage, 30ft. in length terminated in a large single tailplane with substantial elevators. A single seater weighing some 650 lb loaded, the Avro Triplane IV was used for instructional purposes at Brooklands, Surrey. The forward end of the triangular-section fuselage was clad in thin aluminium sheet.



STORMBIRD

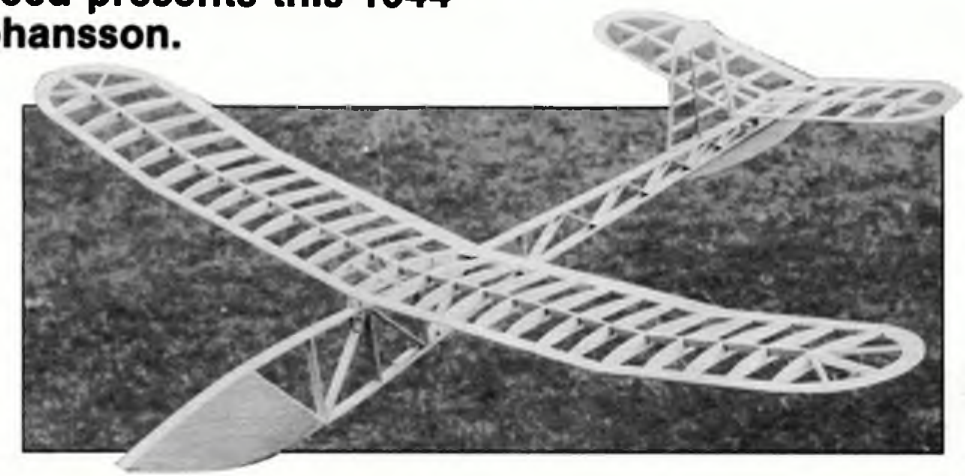
Full size plans: Vic Smeed presents this 1944 'floater' by Nils-Ake Johansson.

THE SCANDINAVIANS especially the Swedes, were into model sailplanes to a much greater extent than most other organised model fliers in the 1940's - indeed, the A1 and A2 specifications originated there and A2's were known initially as the 'Nordic' class. Before World War 2 there were very few gliders (or sailplanes) other than the all-sheet chuck variety; the only competition appeared to be in association with the King Peter Cup (Yugoslavia) which led to the well-known Chasteneuf "20-minute Glider".

A few drawings were published, in *Zaic* and elsewhere, but mostly they were small fun models. Developments in, notably, Germany, France, Switzerland and Scandinavia were occasionally mentioned but rubber power was the main focus of attention, followed of course by the relatively new petrol engine.

It was not until late 1946 that the writer first handled a glider, and that was a built-up profile fuselage design of around 4ft. span, built entirely in poplar and tissue and bought in France by a local businessman for his two young sons. It had been pranged and needed repair; the two boys, incidentally became keen and proficient members of the Pilgrims club and retain an armchair interest to this day.

Possibly the model which did most to awaken general interest in gliders was the 'Sunnanvind', available for 10s. 6d. (52½p) as a kit imported from Sweden by *Paramount Aviation*. This quite small (under one metre) model had the Sigurd Isaacson touch - it introduced many to his very efficient and, at the time, unusual airfoil sections - and although it was not the easiest to tow, it had superb performance.



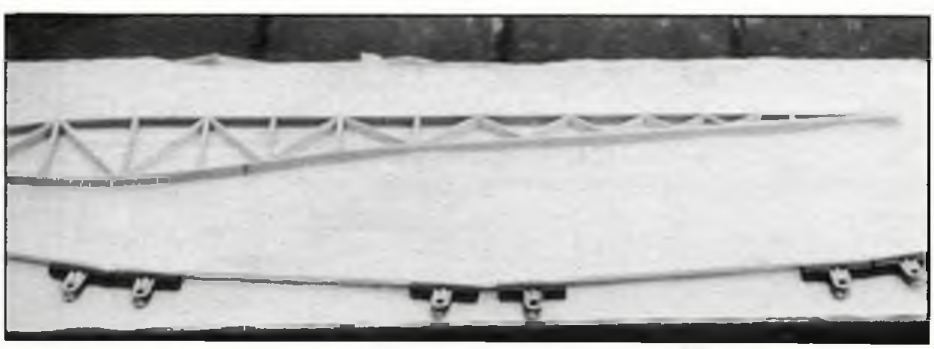
A number of manufacturers had begun to kit gliders and many were good, consistent performers, but the 'Sunnanvind' seemed to be particularly thermal-sensitive. Only a very few top competitors used dethermalisers in those days, of course, and then only on high-performance rubber models, and the 'Sunnanvind' earned quite a reputation for flyaways.

What was not particularly clear at the time was that the Swedes had a series of classes, S1, S2 etc., presumably based on a maximum area and minimum weight per class, and that the 'Sunnanvind' was a typical example of the S1 class. During the war years a considerable variety of designs for this class had appeared, some very strange to British eyes but in general pod-nosed, frequently with tip dihedral and a mainly flat wing and quite often twin fins. The area limit for S1 was possibly 15 dm^2 and nearly all the designs published in *Hobbyboken*, the Swedish magazine of the time, appeared to be slightly under 1m span.

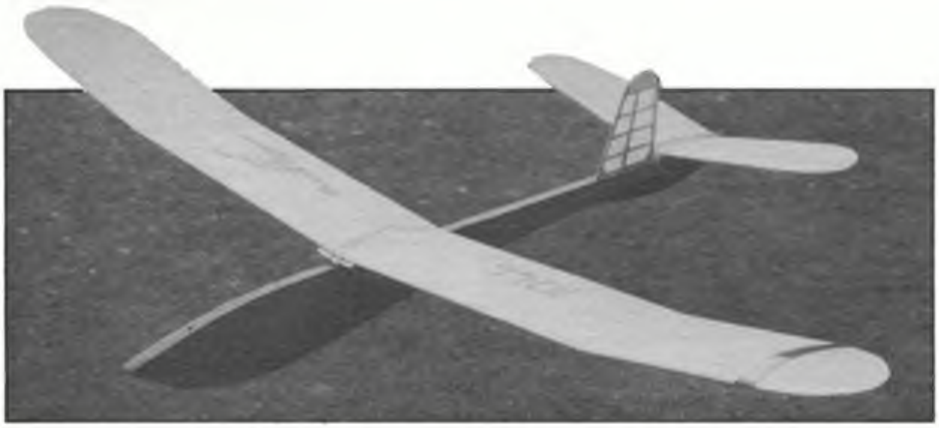
This was all brought to mind when Derek Ridley, writing in the British *SAM 35 Speaks* referred to the 'Vanda Plaque' competition for gliders up to 40in. span, published or kitted before the end of 1950. Although a fun event, the average flight time of 30 secs. quoted for the 1984 competition seemed incredibly low and it seemed that one of the S1 designs should improve on that, as, indeed, should eligible British designs like the 'Mick Farthing Lightweight Glider' (*APS* plan G 228).

A look through *Hobbyboken* three-views came up with 'Stormfageln II" (Stormbird) of 1944 vintage, by Nils-Ake Johansson of the well-known Linkoping club. This profile-fuselage 1m span model looked as though it should behave reasonably on the towline and according to sinking speed figures should average 80-100 secs from a 50m line, assuming it could be released at about 30m altitude.

Actually, the quoted figures cannot be taken too seriously as the sinking speed is shown to decrease markedly if a 100m line is used and it might therefore be that the figures were obtained from average flight



As can be seen from the photographs the 'Stormbird' is a very straightforward model to build. Aeromodeller would be very surprised if it didn't win one of those Vintage events next year...



times, in which case the longer line/greater height could increase the chances of encountering gentle lift.

Although the three-view shows single-line structure there are no material specifications and the wing section is described as 'modified SI 63008' which of course could mean anything. The full-size plan here is thus an interpretation, though it is hoped, a reasonably close one. For a wing section we have used our own modification of 63008, which was used on a similar size model in 1947 and gave good results, including one memorable 13:37 o.o.s, launched from only 20ft. of line towards a small dip in the ground...

The top and bottom longerons of 1/8in. × 3/8in. spruce (or hard balsa if you so wish) will need thoroughly wetting or steaming and pinning to shape over the drawing. Allow to dry completely before cutting and fitting the uprights and diagonals. The model shown used double-cemented balsa cement joints, but presumably PVA will be preferred by some builders. Fit the 3/8in. sheet to reinforce the nose joint before unpinning; the other bit of scrap 3/8in. to take the three dowels can also be added. Allow to dry thoroughly, then lift and sand both sides with a *large* sanding block.

Lay the frame on 1/32in. ply and draw round the nose, cut out and glue one side in place. Before adding the second sheet of ply we cut a piece of sheet lead and fitted it in the nose bay with some scraps of balsa to hold it in place, but regrettably omitted to weigh it. However, the fuselage balanced at about 1in. ahead of the front dowel when the second ply sheet was fitted. When dry the rear edges of the ply were sanded down to avoid too much of a step in the covering.

The hooks are placed as shown on the original drawing but only one is ever likely to be used and in fact the front hook was omitted on our model. The inside ends of the wires can be turned sideways and scraps of balsa, appropriately grooved, cemented over them, or they could be bound in place with thread. Make the outside bends last, using taper-nose pliers...and that's the fuselage ready to cover. Ours used some oddments of *Solartex* but heavyweight tissue will do, or you could double-cover with lightweight tissue.

Buy a 2in. sheet of hard balsa, or soft obechi (it does vary) and slice off the wing and tailplane trailing edges (you can also slice off 3/8in. strips for the fuselage diagonals). The trailing edges can be pre-sanded to a taper on the bench edge, but *sand the flat side as well* to prevent bowing. The ribs are best cut round a 1/16in. ply template, with two pinholes in the template so that you can mark through with a pin and later pin all the ribs into a block for a light sanding.

Cement dihedral braces to each end of an inner panel spar and to the outer end of the other inner spar, then pin down the trailing edge, blocking its forward edge up on scraps of 1/16in. Pin down the leading edge and fit ribs, followed by the spar.

When dry unpin and build second panel, blocking up the first so that the second panel is built on to the first. Repeat for the tip panels. This has always seemed easier than building separate panels and joining them later, but if you prefer to work this way, carry on!

Note that the 1/8in. sheet tips allow for a 36in. trailing edge. The same could be done for the leading edge, no doubt, to avoid the necessity of buying two 36in. lengths of either 1/4in. sq. or 1/4in. pre-shaped leading edge. The mainspar finishes at the end rib and the tip part is balsa. Two tip braces are cut from 1/16in. sheet and need only be 1/4in. deep at the rib, tapering to nothng on top and notched beneath to fit over the tip sheet. Short lengths of 1/16in. × 1/4in. fit between the centre ribs to prevent rubber bands wrinkling or damaging the tissue. Add the gussets, check all joints, sand all over and cover with lightweight *Modelspan* or similar.

The only unusual thing about the tailplane is that it is dihedralled and thus needs a ply brace, but otherwise construction is conventional. The fin is a flat plate of 1/8in. sq. and soft 1/8in. sheet; both these items can be covered in *Modelspan* or a lighter tissue. There is a fairly substantial sub-fin of 1/8in. sheet, part of which could be made into an autorudder if you're unhappy without one, but it isn't really necessary.

One dodge of 30-plus years ago was to fit a small, freely hinged tab out on the trailing edge of one wing-tip. This would blow flat at towline speeds but drop at normal gliding speed to provide a wide turn. However, a model with quite a strong natural or trimmed turn can be coaxed up to the top of the line with a little practice, without resorting to gadgets...

One area in which you may wish to depart from the plan is the wing and tail seating arrangement. Although 3/8in. blocks will provide reasonable steadiness if the surfaces are strapped down fairly firmly, they are tissue rippers if the surfaces move. You may wish to sheet in the wing underside or add a platform as drawn, or larger, for both wing and tail. If so, round off the edges to reduce the built-in headwind as much as possible.

Reasonable care is needed when shrinking and/or doping the tissue surfaces, to avoid warping. In fact the structure is fairly stiff so that if the tissue is applied evenly and shrunk evenly, little problem should arise. Add any decor required before balancing the complete model, and complete details such as the wire hooks and snuffer tube for the dethermalizer. Use a thread through pin-holes in the tail trailing edge, passing under the fuselage and locating in a nick in the underfin, to limit tail tip.

Drill a hole through the top longeron about 5/32in. dia. and ream out to accept the plastic plug from a ball-point pen, as shown. If you filled up the nose bay with lead and balsa packing, this hole can open into the front part of the second bay, so that any lead shot or slivers introduced will fall to the bottom. A generous squirt of cement through the hole (holding the fuselage so that it drops down to the corner), will secure the loose ballast. If your initial ballasting was too heavy, it would be possible to drill right through nose ply and lead to remove a little, patching the holes on the outside with discs of ply. The aim is to balance the completed model 2¾in. back from the leading edge, say between ⅜ and ½in. behind the mainspar.

Up, Up and AWAY

By pure chance the amount of lead put in the nose during construction of the model shown was exactly right and the first tentative hand glides were superb. The brief details on the original do not inlcude a weight but given a loading of 12g/dm² which may be assumed to be *wing* loading (as was usual at that time, rather than adding in tail area) and this gives a total flying weight of almost exactly 5½oz. We thought our model was likely to be a shade heavy, but in fact it weighed in at 5¼oz.

On the line it tows very steadily on the back hook, but it tends to continue its initial direction of travel so it is essential, on this hook, to start it off dead into wind... Only one short launch was tried on the front hook (i.e. the middle one as drawn) and this tendency to carry on in the initial direction was even more marked. A tip to ensure that the launch is truly into wind is to hold the line in a limp curve so that it is just clear of the ground and check that it hangs vertically.

The first flight of our model was in a light breeze from the windward side of a large recreation ground, on about 40ft of line, in one of the few recent dry and gale-less spells. It flew across and out of the ground over a border of trees, crossed a main road and landed on the roof of a house then out of our sight, slid down the far side and plopped on to a terrace. When we got there we didn't know which house and in the rush to get it test flown we hadn't stopped to put on the essential name and address, for the first time in years... As it happened, it could be seen a couple of doors away from the first house we tried and the people were nice about it. However, this model is definitely a 'goer' and a name and address and D/T are emphatically needed, even for early test flights.

Materials

2 36 × ⅜ × ⅛in. spruce (or hard balsa) - fuselage outline, some spacers.
1 36 × ¼ × ¼in. hard balsa t.e. (two preferred, but one can be made to do).
1 36 × ⅛ × ¼in. spruce - mainspar.
1 36 × 2 × 1/16in. Obechi (or hard balsa) - wing and tail t.e.s (can also be used for fuselage spacers).
2 36 × ⅛ × ⅛in. hard balsa - tailplane spars, rudder.
1 36 × 2 × 1/16in. med. hard - wing and tail ribs.
Scraps of ⅛ and ⅜in. sheet, 18swg wire, ⅛in. dowel, 1/32 and 1/16in. ply, 2 sheets tissue, cement, dope, etc., plus lead and stub of tube for D/T snuffer.

FROM THE HANDLE

CONTROL LINE NEWS

Racing with Jim Woodside

Vintage Team Race
Some definite proposals

When I last put up the idea of Vintage T.R. in the August 1984 *'Aeromodeller'* as an 'Aunt Sally' I did receive some letters of encouragement and one from Australia which accused me of trying to slow down progress, as I could, perhaps, not keep up with the pressure any longer. While the opinions expressed here are not always my own, there may be some truth in the Australian view as a simpler class may be attractive to older and/or vintage modellers.

Grantham & D.M.A.S. have written with some firm proposals for 1986 to test the water and these are reproduced below for the guidance of those who may wish to take up the offer.

Table I shows only a selection. There are perhaps as many as twenty other eligible designs but in each case the onus will be on the competitor to prove eligibility. The final decision will rest with the Contest Director.

Models must resemble the prototype and be built in the spirit of the event; construction and finish in the style prevailing at the time. Details of construction may be varied providing the overall appearance is unchanged. Under Grantham rules the following *will not* be allowed!

a. monowheel undercarriage
b. glassfibre carbon-Kevlar laminations in any part of the model (including finish covering)
c. internal leadout hatches - unless shown on plan
d. internal leadouts - unless shown on plan.
e. circular bellcranks
f. pressure re-fuelling tank to be as per plan.
g. glass or carbon props - props to be wooden or commercially available nylon or glass filled nylon.

1. *Events:* Grantham & D.M.A.S. will host a couple of C.L. meetings at Barkston Heath for such events as 'Midge' speed, A & B teamrace, vintage, stunt etc. Dates will be announced after publication of the *SMAE* calendar to avoid unnecessary clashes.

2. Rules: these will *1956* SMAE Class A & B

	Class A	Class B
a. Engine capacity	2.5cc max	2.51 - 5.00cc
b. Min. effective wing area	70 sq. ins.	125 sq. ins.
c. Max fuel capacity	15cc	30cc
d. Min. fuselage width	1½ins.	2ins.
e. Min. fuselage depth	3 ins.	4 ins.
f. Min. wheel diameter	1½ins.	2ins.
g. Line length	46ft. 8ins.	56ft.
h. Race distance: 5 mile heats	90 laps	75 laps
Race distance: 10 mile final	180 laps	150 laps

Race conduct to current rules and interpretation: safety rules, circle markings protective headgear etc.

3. *Eligible Models*: any published design or kit at 31st December 1957.

Copies of the full rules are available but also note the following:-

a) a scale head must be carried.
b) wing aspect ratio must be between 4:1 to 8:1
c) Models *must* be semi scale appearance.

An initial look at possible models would include those shown in Table I.

4. eligible engines. Any engine produced in commercial quantity and available for sale prior to December 31st 1957 is permitted. viz: *Oliver* 'Tiger' Mks I, II, III, *E.D.* 'Racer', *Elfin* 2.48 BB, *Webra* 'Mach 1', *ETA* 29 up to Mk 6c, *McCoy* 29, *Dooling* 20. Such engines can be manufactured later than 31/12/57 but not of a later mark i.e. Oliver Mk IV not eligible.

Otherwise any non-schnuerle port plain bearing engine is permitted i.e. *PAW* 2.49 *PAW* 29 etc.

Those who would like a full copy of the 1956 rules and list of known permitted designs should send a SAE to Dave Campbell, 2, Sycamore Close, Burbage, Hinckley Leics. LE10 2JU.

By the way this is the address for the carbon Kevlar F2C fuselages featured in the July, 1985 *Aeromodeller*. A printing error left out the all important address. My apologies.

APS designs

Class A		Class B	
Footprint	CL 589X	Bluebottle	CL 526X
Black Chiffon	CL 486X	Lazy Daisy	CL 428X
Jabberwocky	CL 514X	Tantivvy	CL 530X

Kits

Keil Kraft Scout	Keil Kraft Pacer
Mercury Mac	Mercury Thunderbird
Veron Minibuster	Veron Philbuster

Table I

Above, a 'Jury eye view' of pilots at the Nat: an individual's style can so easily be misinterpreted - get someone to take some photographs of YOU in action...

U.S.A. Team Trials... 17, 18 August

Stoo Willoughby sent me the results of these team trials at Whittier, California for the 1986 World Champs. They were held in smoggy overcast conditions but with temperatures in the 80's. The F2C Jury comprised of Walt Perkins, Doc Jackson and Don Jehlik, who were reported as being fairly lenient. Tim Gillott, who has so often had the best potential but poor results, got it right this year, to take the No 1 spot. All of the seven teams used *Nelson* engines with Henry himself using the only side exhaust version. Notable amongst the pre-race performances was that of McCollum-Knoppi, who were timed at a Soviet like 17.5/10. However this was not translated into anything better than a 3.52 owing to 'over enthusiastic' compression settings and/or lack of range.

Processing was carried out at the *K&B* factory where the hot news is a 40 under development by Bill Wisneiwski. Main features are AAC, integral liner and a plain bearing which is reputed to be faster than ball-races!

USA Team Trials Results

F2C Team Racing

1. Hollfelder/Gillott	3:38	3:38	3:41	10.57
2. Kusik/Nelson	3:38	3:47	3:41	11:08
3. Willoughby/Oge	3:38	3:38	4:02	11:30
Res. Fluker/Lee	4:01	4:02	4:09	

F2A Speed

1. Carl Dodge — 167 mph best
2. Chuck Shwettee
3. John Newton

Res. Cliff Norman

Famous Quotes No. 3
Aeromodeller August 1957

Picture the 8th Criterium of Europe, Belgium 15/16th June 1957. In team race most of the twenty-six entrants are *Oliver* 'Tiger' powered and are putting in times much faster than the previous season. Although the Brits have the best airspeed other problems have meant zero scores. On the second day Ray Gibbs and Mike Bassett 'go for it' and in a two stop race put in a time of 5:03. The report states: "We doubt if 10 kilometres could ever be covered at a faster speed in F.A.I. racing. Henry Stouffs of Belgium went on to win the final in 5:50".

The present record stands to the Russian team of Kramarenko-Kutnetsov with a time of 3:19 set at the 1983 European Champs. Again this was a two stop race but with a tank capacity of less than half that allowed in 1957. Such is progress...

Stunt with Claus Maikis

Change your tone

It seems we're living in a somewhat eccentric time. On one hand modellers have increased engine power to an unbelievable level. A few years ago nobody would have believed possible the performance and revolutions we are quite familiar with today. It's a common sight to see, for instance, combat flyers doing their duty equipped with ear protectors. This item is regarded as an essential accessory as a screwdriver...

On the other hand the public has become so over-sensitive that they actually feel disturbed by the distant engine sound of a glider(!). Model clubs going to court to defend their "life" and "limb" is quite common these days. Many a club has survived only by accepting severe restrictions in its activity.

One of these is the Bietigheim model club, which by now is famous for its annual control line contest. Situated in Southern Germany this contest usually attracts flyers from as far away as Austria, Switzerland, France, and the Netherlands. Even Czechoslovakia and last, but not least, England - remember '79, Pete Tindal - have sent competitors.

During the last few years, this club has experienced increasing troubles with noise. As it has turned out now, flying on this site is permitted with a maximum sound level of 84 decibles only. This posed a big problem for the combat event. The club tried to run the contest under this restriction. The result was that the number of combat participants sank drastically and this year the combat event was dropped (should be food for thought for this class)!

Until now, stunt flyers do not seem to have had severe problems with noise. For many years we have had a muffler rule, and top performance (revolutions) is not our goal anyway. Nevertheless, I feel we shouldn't completely overlook this area. *Firstly*, the day may come when houses are built closer to your flying field and *secondly*, you might find an excellent flying site which can only be used with a whispering motor. *Thirdly* - quite frankly I find it highly interesting to solve a technical problem, even if I'm not forced to...

At Bietigheim they used a decibel meter to make in-flight measurements. The organiser wanted to be sure that nobody would endanger the noise limit! Pilots in question would be given advice about how to quieten down their engines. Also, acknowledgement would be given to the flyer with the least noisy model! A helper checked the models in flight from about 10ft. outside the circle. An average from two flights was recorded.

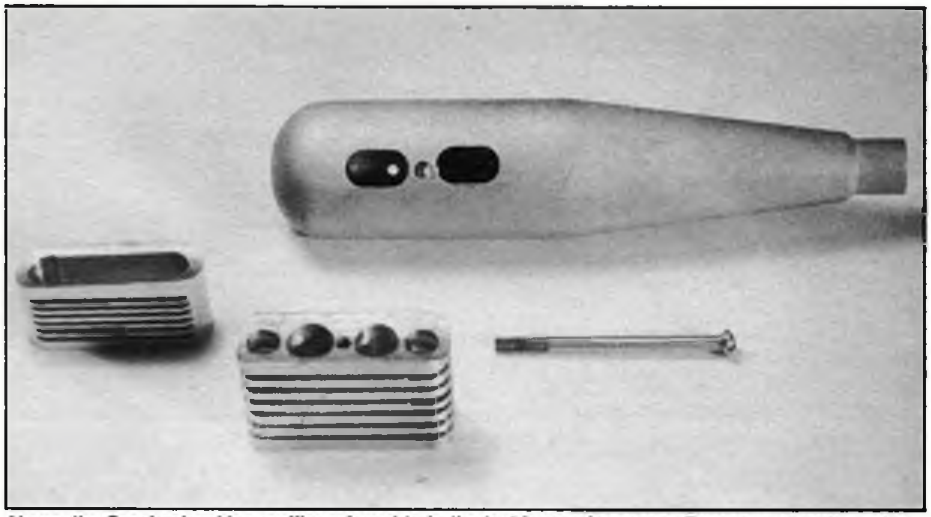
Results were partly as expected, partly surprising. Models which were subjectively felt noisy recorded the highest readings. Some models with a pleasing sound recorded a higher figure than expected. These were two models with a *Super Tigre* 60. While subjectively felt to be in the lower range, these models scored only 'average' with 83 decibels. Those with the lowest figures were models equipped with the *Super Tigre* 46 and a Czechoslovakian type silencer, which is familiar to Continental *ST* 46 users.

Propellers were 11 × 6in. *Top Flite* two or three blades. Three flyers with this equipment were 'heard' at 80 to 81 decibels. The lowest figure checked, came from a flyer using a unique combination, an *HB* 50 engine with *Webra* 60 silencer - he recorded 79! The flyer with the noisiest model flew a *Webra* 40 'Blackhead' with original silencer. The manufacturer's catalogue says that his silencer will 'effectively' cut down engine sound!

I've made quite a lot of noise tests lately. The reason...pure curiosity. I fly on an R/C site and this club has had some court cases in recent years. In order to prevent future difficulties, this club regularly checks the member's models. From the results, I reasoned that different propellers could well give me some answers to the noise problem...

The other day I grabbed my engine test stand, a few propellers, a noise meter and a tachometer, and two engines. After several hours, a few sheets of paper were full with figures and notes. Comparing the results I realised that they were of little value! On the other hand some basic knowledge *was* gained. After all, an engine running on the ground doesn't give any indication of how much that displeased grandfather is annoyed by your *flying* model. So off to the flying field with another handful of propellers - I needed some practice flying anyway...

I think the only practical way to make noise tests is to compare the sound level of your model at actual, optimum flying speed. I made many flights with each propeller until I had reached the optimum speed for that particular aeroplane. Since each propeller works differently, this speed (5.2 sec/lap optimum for my model) is obtained at quite different engine revolutions. Usually I needed two or three flights to arrive at the optimum setting. Noise was checked at a distance of seven metres, with the aeroplane on the ground, held in the stooge on asphalt. After starting the engine - a short sprint to the noise meter, read, write down, hurry to the handle and fly. Jogging is nothing!



Above, the Czechoslovakian muffler referred to in the text is popular among European stunt flyers (at least those who meet Czechoslovakian modellers!) It is available with different adaptors, is very effective and very light at only 25gms.!

The results given are only a suggestion as to what to expect. Imagine: the tests were carried out over a period of several days and if the temperature changes, so does air density. In different densities you need different revolutions to get the same air speed. In extremely hot weather you might even need more speed to get the same flight characteristics from your aeroplane (density is lower, lift is lower). The tests were made on asphalt. Grass will give other results. The *official* test conditions are with the aeroplane one meter off the ground - I couldn't do that! After all, different noise meters will produce different 'answers'. Remember this when comparing my results...

The results below, were obtained with a

Super *Tigre* 46, Czechoslovakian silencer, plus a silicon tube about 10cm (4in.) long and an inner diameter of 10mm (exit diameter of silencer). Additional tests were made by cutting down this tube to half length each flight. With the tube totally removed, readings were about 2dB higher.

Top Flite 12 × 6 wood	76 dB
Graupner grey nylon 12 × 5	77 dB
Robbe red plastic 12 × 5	over 80 dB
Top Flite 11 × 6 three blade	75 dB
Schiffler glass 11 × 6	74 dB

This was about the biggest gain of all this testing. Those who have seen Stanislav Cech's aeroplane at the 83 European Champs at Utrecht will remember the long silicon tube he attached to his muffler. Maybe this cuts down top performance a bit but since we don't fly at top revolutions this additional muffler doesn't really hurt our performance. And an effective muffler this is! Besides, it keeps your aeroplane clean of that nasty oil and it will give your engine that wonderful purring sound. Be careful, though. Some engines don't like too much heat, especially *Super Tigres*, since they are quite sensitive to increased temperatures. If you use an additional muffling tube continually, watch your engine's behaviour to see whether it will stand the heat...

Something else will catch your attention too... Using a tube behind your muffler will increase your flight time considerably. So with this item you can kill two birds with one stone. This was of great help to me at the '84 World Champs when I was short on flying time because of the local fuel. With a piece of silicon tube attached to the muffler, I could extend my flight time as desired. A 5cm (2in.) piece will give about one minute additional running time. Keep this is in mind if your tank is *already* big enough.

I think the time when a roaring engine was felt impressive is really over. If the simple addition of a plastic tube to a commercial silencer can prevent noise problems so easily, I see no reason why we shouldn't lead a development from which all modellers could benefit (especially since we wouldn't have to pay the price of performance reduction). I hold it to be the duty of those who CAN - to DO it!

The 1985 CLAPA Championship

This event, held annually at the Essex Showground near Braintree as part of the St John's Ambulance Association Gala, probably now outranks the Nationals as the No. 1 stunt event of the contest calendar. This year, it was unfortunate that the date clashed with the end of the European Championships held 200 miles away at the Three Sisters site at Wigan and this reduced the entries somewhat. As the top three contenders Bill Draper, Barry Robinson and Tony Eifflaender were competing at the Euro Champs it left the field wide open for the other middle ranking fliers to take the honours.

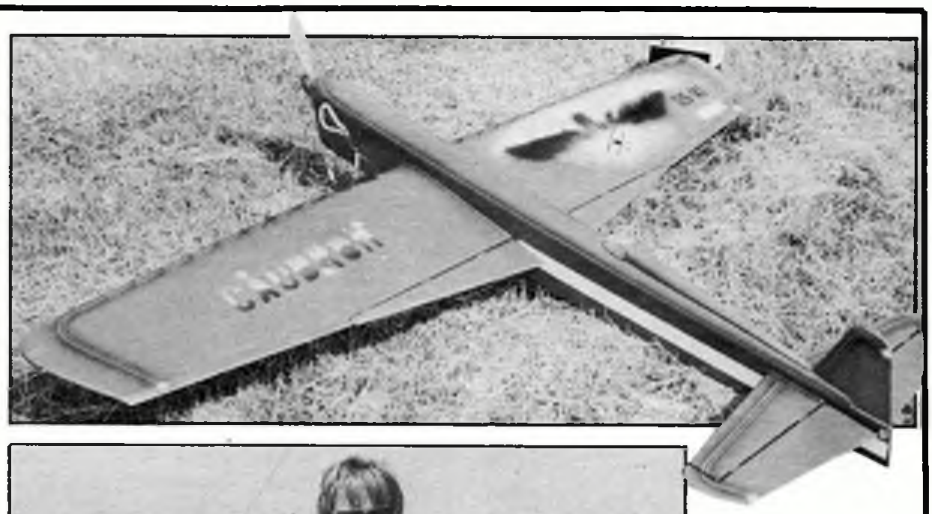
It is a two circle, two day event where a flier's best score from each circle is added together for an aggregate. The top seven from this are in a fly-off.

The weather was fine but gusty on the Saturday when the contest got under way. Prime interest was created by the appearance of Gilbert and Veronique Berringer from France with identical models which were not only very unusual in aerodynamics layout but also powered by *OS* 60 four stroke motors which ran superbly through the schedule. The models styled on the 'Caudron' racer, featured, short nose moment due to the heavy engine, and a very long tail moment. The flaps were very small and the centre of gravity only 10mm from the wing leading edge. Unusual but certainly effective as the couple eventually took 1st and 2nd prizes respectively. The cornering ability was certainly better than any other model present.

Other fliers in contention for the top places included Pete Tindal, back after a year's absence from competition flying. Another old faithful was John Lynch following the current trend in squeezing a *Super Tigre* 60 into an old model - his 'Eagle' which previously had a '46' size motor in it. The lazy power of the big engine on a constant four stroke makes a model very pleasant to fly slowly.

A few fliers were rather dissatisfied with the bumpy surface of the circles which caused a few nose overs on take-off with broken propellers etc. Arthur Tipper damaged his model whilst landing...

The weather deteriorated on the Sunday, so there was little if any improvement on Saturday's scores, although there was still stiff competition to get into the fly-off.



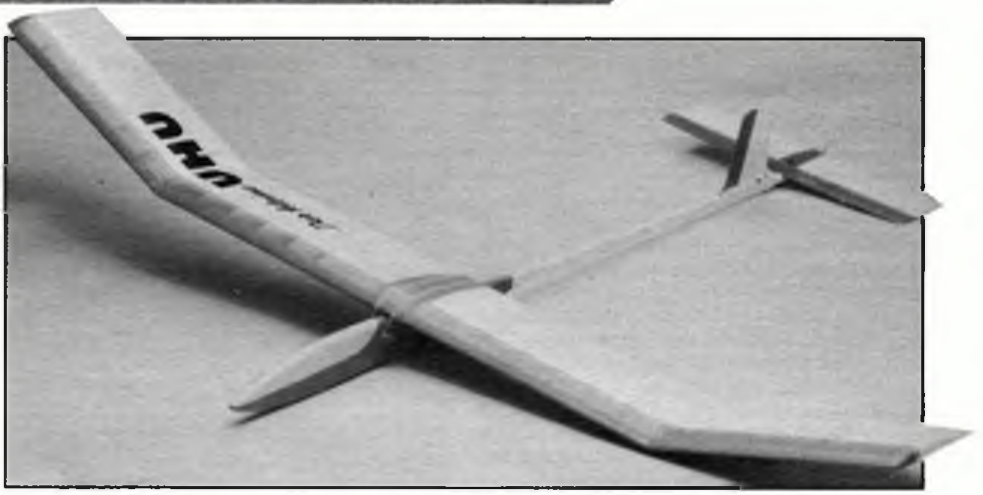
Above, winning model at the CLAPA Champs was that of Gilbert Berringer, powered by an O.S. 60 four stroke. Left, Pete Tindal with Merco 61 powered Krier 'Chipmonk' placed 3rd but had lots of engine trouble...

Right this smart looking machine is Arthur Tipper's ST 60 powered 'Tara' - unfortunately it suffered some damage on landing on the rough ground.

Kit Review

Graupner UHU GLIDER

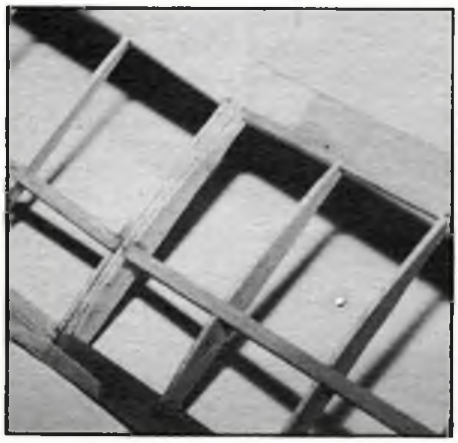
Andy Crisp reviews the latest improved version of this old favourite...



Above, the UHU glider has a long pedigree that has proved successful for many thousands of young aeromodellers in Germany - where one-model competitions have attracted tens of thousands of entrants...

EVER SINCE I was a young lad I have been a compulsive 'own designer'. May be the odd plan was built somewhere along the line (certainly many were cribbed!), but rarely did I build kits. When the Editor asked me if I'd like to review the latest 'UHU' I was quite taken by the idea - no more self-made templates and hours of sanding parts to fit, but some relaxed building with all the tedious bits done for you! In my opinion many kits seem to be designed to be sold and not flown, but 'UHU' has the attributes of attractive packaging and, if built correctly, good flying potential.

The name 'UHU' (owl) covers a series of A/1 sized gliders by *Graupner* which goes back to at least the 1950s. Indeed, in an article in the 1965 *Aeromodeller Annual* on how different countries approached the beginner problem. Ron Moulton, the author, mentions the 'UHU' most favourably. The design at that time had a 'V' dihedral wing compared with the tip dihedral of the latest version, and no plastic parts, but the concept (foolproof assembly and a layout which gives a reasonable chance of



successful flights) remains basically the same.

Ron in his article, mentions a national youth competition sponsored by the UHU glue company, which encouraged enormous entries. This still goes on today, and the kit contains an entry form for such an affair. Unfortunately all the literature in the box was in German *(there are now English instructions...Ed)* not being fluent in that language or reckoning the average young beginner to be so, I set about making the model as he or she would find it, purely from the clear diagramatic instructions.

First impressions: The 'UHU' comes in a striking coloured box with a handsome photograph of the actual model on it. Inset is a small photo showing the nose with d/t timer installed - an aid to the prospective purchaser. Technical information (wing span, area, weight etc.) is also on the box, so that the more experienced aerobod can size up the design before parting with his cash.

Inside one finds a bundle of strip wood, printed and die cut sheets, many plastic and wire bits and even rubber bands. Tissue is included, albeit of a rather coarse nature, as well as a *Polycell* - like powder which makes up into a paste to stick it on. There are two very well laid out plans one with the flying surfaces, the other with the fuselage and instructions both verbal and visual. These are exceptionally complete and one would have to be extremely slow on the uptake not to be able to follow them and produce some sort of a flyable finished article.

The wood supplied was cleanly cut with the leading and trailing edges beautifully milled to section, but in general was rather harder than I would have chosen, especially the material for the all sheet tailplane.

A word about the design of the 'UHU' - the aircraft fits the A/1 specification but is quite a bit under area. This is surprising as there is enough L.E. and T.E. wood in the kit to make the wing span about 3ins. larger thus bringing it up to the allowed maximum and reducing the wing-loading at the same time. The wing itself is a simple parallel chord, with a stout monospar.

The tailplane is all sheet with a plastic centre rib which serves to keep the camber and act as a d/t pivot and hook. Plastic mouldings are also used for the front of the fuselage which is of pod and boom style, the boom being a nice straight piece of pine. The tow hook is fixed in one position, but an auto-rudder is produced with neat metal adjusters at the fin. A d/t timer is optional but no means is shown for starting it when the tow line is cast off. A suitable device from a pull out pin is easy enough to install.

Building: I decided to build the 'UHU' as a beginner might; using simple tools, following the instructions and resisting the temptation to add the inevitable 'modifications' that experience dictates! A normal modelling knife will suffice for the wooden parts, but a heavier *Stanley* knife is very useful for removing the 'flash' on the plastic parts. Included in the kit is a tube of 'balsa' type cement. This was fine on the

Far Left, accurate wing dihedral is achieved by using an insert of trailing edge stock...clever! Left, centre section on the review model was strengthened by 1mm ply brace, note tapered ends of brace.

wood and was equally effective on the plastic.

I always start with the tailplane to get the 'hang' of the model. As this is sheet over camber keeping ribs, it is a good idea to fine-sand it before assembly. The tail is precoloured with a blue stripe and this was not affected by a couple of coats of thinned clear dope.

The wing die-cut ribs came away cleanly, need only a light sanding on the edges and the slot was a good fit on the spar. I'm afraid I did cheat a bit here and added a 1mm ply doubler to the spar in the centre 200mm of the wing, years of A/2 glider flying have taught me the value of not having the same spar 'value' at the tips as at the root or centre!

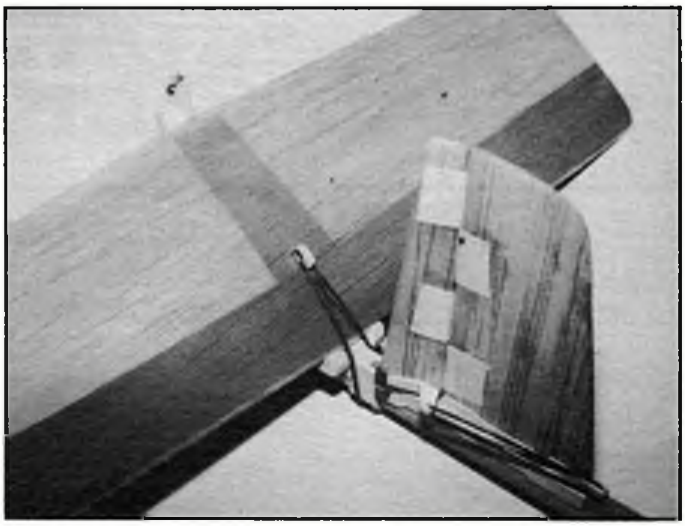
The attachment of the tip panels is rather novel. Between them and the centre section is a piece of trailing edge wood which automatically gives the dihedral angle and does away with tricky sanding procedures. It is quite easy to do, but still requires plenty of glue in the end grain of the spar members if the tips are not to be too easily knocked off. When the joints are complete they are reinforced with cement filled gauze.

Using the paste supplied, the tissue went on easily in six panels. Just to make sure, I water shrank it and it came up nice and tight. I gave it three coats of 50:50 dope/thinners, and because of the tissue's slight roughness, sanded lightly with worn, wet and dry paper between applications. Blue tissue trim was added to match the tailplane.

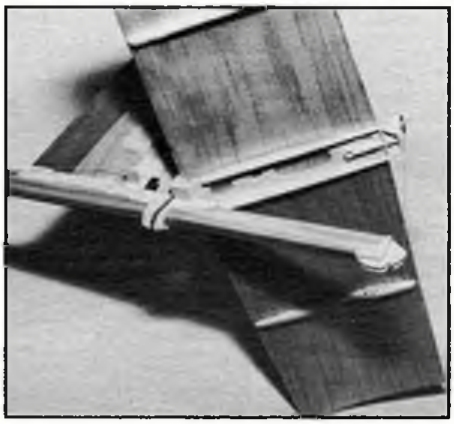
The fuselage was almost too simple! Glue the moulded shells together using plenty of rubber bands to hold it firm (not forgetting the tow hook installation) then poke the boom into the rear of the pod and cement well. The fin is attached to the body by a plastic fitting which also acts as a limiter for the rudder positions.

For balancing, assemble the model and pour lead shot into the nose compartment until it lays level when supported by the fingers on the small tags on the wing mount (which is integerally cast with the fuselage). When the balancing is correct secure the weight with a squirt of PVA glue, and cut off the tags, which will stop them digging onto the wing when packed for transporting to the flying field.

When I was building the model I kept thinking how heavy it felt, but on completion it only scaled 225 gm., which compares favourably with the suggested weight of 260gm on the box!



Right, auto-rudder on the UHU is of conventional layout but makes use of several plastic components to make construction easier and more reliable. Below, more plastic can be found in the components for the tip-up dethermaliser.



Many a model comes to grief on the field for lack of what might be called 'pre-flight checks'. While hardly a rigging check, make sure that you have your name and address prominently displayed on the model. A 'phone number is useful and will often prompt people to contact you about a fly-away when they can't be bothered to write...

Assemble the model and check the balance point again just to make sure. Put plenty of small well stretched bands on the wing so that it sits securely and does not rock around. A small piece of thin ply or celluloid glued on to the trailing edge in the centre of the wing will ensure that the bands will not 'dig in' on a rough landing.

Sight the model from the front and make sure that the wing and tail line up (i.e. there is no tail tilt). Finally, check that whatever system you have chosen for the d/t works, (fuse or timer) and that the auto-rudder operates without too much tension being required to move the rudder to its stops. Adjust the pull on the rubber band if necessary.

Flying: The weather in the early part of 1985 was pretty atrocious for testing new models, so I had to wait a long time for a decent day to give the 'UHU' an airing. This in itself was not a bad thing as it allowed the flying surfaces to settle down.

First test glides with the incidences and rudder settings shown, produced a dive with a tight turn to the right! Packing was added under the tail T.E. until a reasonably flat glide was obtained. It was much faster than the A/2 glider that I was flying on the same day, but of course the 'UHU' has a simple flat bottomed wing section. Now for the tow!

The model went to the top of the line in a light breeze, quite easily, then promptly stalled all the way down on release! For the next flight I reduced the tail packing and launched it quite hard with a right bias. It then spiraled in! And so it went on all afternoon; in fact I flew it with every combination of setting I could think of but still could not get a consistent performance.

Slightly crestfallen I went home and had a good think! The model would either weave on the line or peel off to one side and be difficult to pull back (perhaps too large a nose area). The model would not recover from a disturbance (bad launch etc), which is usually symptomatic of high moments of inertia. The model was very sensitive to rudder setting as there was very little difference between the turn being too open and producing stalls or too tight and producing spiral dives. I put this down to the fin area being too small and possibly lack of washout in the wingtips.

As the model was built I could not do much about the long nose, heavy wingtips etc., but I could add more fin area, this I did in the form of an under-fin situated below the main fin, so as not to get in the way of the tail hold-down bands and d/t line. I also steamed in about 5mm washout (trailing edge up) in the wing tips (see fig 1).

It was evident from hand glides that I had a completely changed model! A slight stall was evident, caused by the weight of the underfin at the back end. This was cured with a bit more nose weight. The 'UHU' was gentle on the tow line and in fact I put the model in a fat thermal on the first try and it d/t'd overhead from a great height - very satisfying! I've had the model out on further occasions and the modifications seem to have cleared up the initial bother.

Conclusions: At approximately £12 the 'UHU' is not a cheap kit, but it is very complete and beautifully produced. It would be ideal for the young beginner (say 10 years upwards) to build with a little help from a more experienced modeller (for covering, fitting up auto rudder etc). or for an 'old hand' wishing to get back into the game. With the recommended modifications it would make a useful introduction to free flight competition flying, or indeed be a good subject for club 'one-design' events.

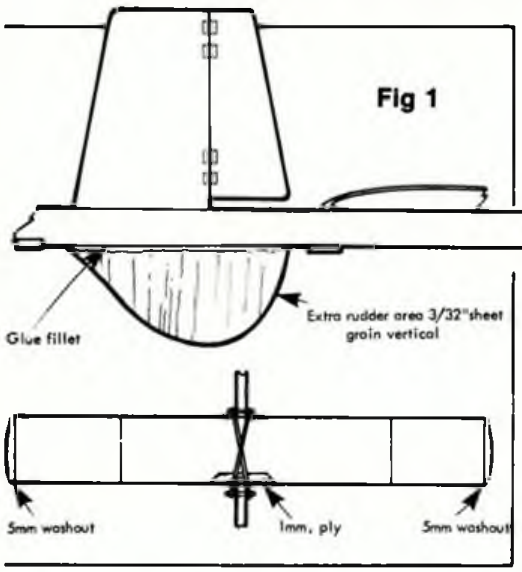


Fig 1

Although *Graupner* do not disapprove of Andy's modifications, they point out that many thousands of 'UHU' kits have been built and have not required any alterations to the plans provided.

VINTAGE CORNER WITH ALEX IMRIE

Aeromodeller Vintage Weekend 17th - 18th August

THE WEATHER, (worst summer for years) relented at last, and gave good conditions for this initial part of the first ever, two-day vintage meeting at Old Warden. Not overly patronised, it seems that Saturday chores still have to be done by some, although the regulars appeared to have organised their weekend to ensure a two day attendance, since they were very much in evidence.

A strong US contingent attended, and it was a pleasure to meet Jim Adams, Larry Fair, Andy Faykun, Dan Garofalow, Carl Hatrak, "Doc" Martin, Mik Mikkelson, Lee Norcross, Bert Pond, Alan Richardson, Bert Striegler, Ken Sykora, Sal Taibi, John Targos, Wade Wiley and Woody Woodman, also to renew acquaintances with Joe Beshar and Danny Sheelds...

They had all enjoyed themselves during their (in most cases) two week stay, culminating for most with this thing called Old Warden, and some had actually found time and energy to build models during this period and brought them along to fly.

During conversation with them I found myself apologising for the British weather, but the wind and rain that had been part and parcel of their stay had not damped their spirits in the least. To a man they spoke of having 'had a ball' and were visibly impressed with the enthusiasm that abounds here for vintage models (*Old Timer* models to them).

Above right, George Blair from Edinburgh likes some 'pep' in the vintage with his Frog 500 glow motor powered 'Senator'. Above, Mike Hetherington with his fine replica of Rupert Moore's 'Twin Gull' pusher Wakefield. Left, Phil Cox shows his double-sized 'Tubby', a 1936 design by Elbert J Weathers based on the Aeronca layout.

They had been taken care of by various *SAM 35* members but mainly by Dave Baker and his long suffering wife, Hilda. Sleeping an extra ten bodies at 22 Ellington Road must have been some feat, and although the Bakers take this sort of thing in their stride, it is nice to know that their efforts were greatly appreciated.

Spar-Es Contest

The only competition (I cannot comment on control line activity and Andy Brough will tell us about that) held on Saturday was for this Danish vintage rubber model resurrected by Vic Smeed and described in the March 1985 *Aeromodeller*.

Some 20 examples of 'Spar-Es' were to be seen, but apparently the model can be difficult to trim, and only seven models entered the competition, and of these only five produced flight times. Brian Harvey's blue machine flew well and clocked 79 seconds on its first flight, a time that was equalled by Simeon Bull from Canterbury, the eventual winner, on his second flight. Most consistent flyer was Wade Wiley (USA) whose three flight times were 59, 64 and 59 seconds.

Because of the lower numbers of modellers present than on a one-day vintage meeting as hitherto, one had that joyous feeling of being able to wander about on the aerodrome, willy nilly, see the action and talk to the modellers, this surely is what the business is all about, and this day evolved into a really enjoyable relaxed fly-for-fun meeting.

Unusual Wakefields

A model not previously seen was Rupert Moore's 'Twin Gull Wakefield' (plan still available as D/201 price £3.00 plus 50p postage) which was described in the July and September issues of the 1943 *Aeromodeller* a splendid example being produced by Mike Hetherington. This machine utilises a single skein motor in the fuselage, driving twin pusher propellers via the patented 'Moore Drive'.

After Mike had wound-up the motor in the wrong direction and established that downthrust is actually upthrust on this layout, the model did make a short circling flight, but at this stage it is not seen as a serious contender in Wakefield competitions, although Rupert Moore was of the opinion

Right, two active youngsters, present at every meet. Mark Leavesley on the left and Stephen Edkins stretch wind their 'Orlik' (see text).

Mass Wakefield Launch. 32 models were released causing only two collisions, Ron Moulton's camera caught 27 of the models here just after they took to the grey Old Warden sky.

Left, Car Park Distraction. Three 'Frog' personalities found at the mobile 'Frog' exhibition, Richard Lines (son of one of the Lines Brothers) holds a 'Silver Arrow' at left, Bert Judge in the centre with a Mark IV 'Interceptor' and David Carpenter with a replica 'Meteor' balsa model (see text).

that the model would be just as efficient as its single propeller equivalent. We await development with interest, Mike has surprised us before and he does have the patience of Job, so just stand back and watch 'Twin Gull' fly!

Don Knight's experience with Fred Rogerson's Wakefield biplane is a case in point. Previously, I personally have only witnessed short hesitant flights from this model, which is made from the drawing that appeared in the 1937 *Frank Zaic Yearbook*. I gave some historical background to the design in a previous 'Vintage Corner' (February 1984) and believed Rogerson's reasoning that 20 degrees of negative stagger and large gap would work with the C-72 aerofoil section...

Whether due to this aerodynamic set-up or not, Don has now got this machine 'hacked', and made some beautiful flights. Mike Kemp, one of our Wakefield aces rates this "...the best achievement at Old Warden in 1985". I tend to agree with him and the sight of that biplane going 'upstairs' is an indelible scene that I will always associate with the first 'Vintage Weekend'.

Right, Simon Rogers from Plymouth with his A B Clark 1914 'Tractor Biplane'.

Vintage with Pep

George Blair, down from Edinburgh was flying his 'Senator' a 60 inch span Carl Wheeley pylon design that was described in the March 1949 issue of *Air Trails*. When he cranked up the *Frog* 500 glow motor it sounded like a 'Super Cyke' and the model flew correspondingly, going up in a screaming spiral. Even Sal Taibi turned round to watch! This is the first time for ages that I have seen a vintage pylon power model fly as it should, so if you feel that vintage power models are getting tame, try a pylon model with a hot engine and put some pep into vintage!

Other models seen included a 'Junior 60' (*PAW* 249) and an *Aeromodeller* 'Mini Simplex' (*DC* 'Dart') made by John Stevens, also a 'Simplex' in standard size (*PAW* 19) by Paul Hoey. These models were R/C Assist and since they looked new, asking about them, I learned that both John and Paul from Norwich were glider enthusiasts who, wanting something different to fly, had built the three models in the last two weeks! Hope that they flew OK, welcome to the vintage scene, chaps...

As I fully expected, the boys from *Mike's Models* of Northampton, that I mentioned in 'Vintage Corner' (August issue) were present, Mark Leavesley and Stephan Edkins (the tree climber!). I came upon them stretch winding their 'Orlik', a beginners high wing cabin model, (plan available as D/1109 price £1.80 plus 50p postage) enjoying themselves in a way impossible to obtain with the majority of today's ready cooked, no effort pastimes.

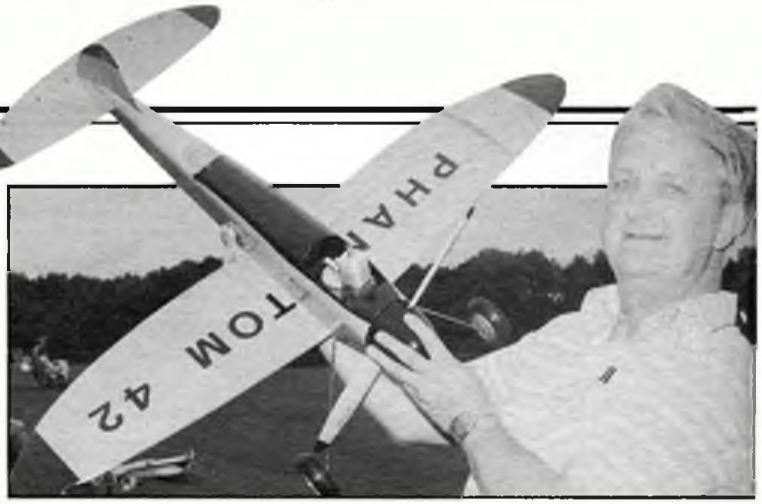
So this was a great day, worth double really, since all the while one had to remind oneself that this was only Saturday, another full day of vintage to come before that humdrum workaday Monday morning!

Sunday 18th August

Quite apart from the reversion of the weather situation to normal with the return of a strong wind with rain in the late

afternoon, this second day was a different kettle of fish! The car park was soon full to overflowing, in fact it has become so difficult to find one's own car at such gatherings, that this year, I made a blood-red miniature windsock and flew it from an eight foot bamboo pole as a car locator - it works, but many people thought that I was selling something!

Activity in the car park was intense, there was just too much going on to absorb it all. If one could patrol the lines of cars rapidly enough, models of all types could be seen emerging from car boots, it was catastrophic to linger awhile, talk to modellers and take photos of their latest creations, gone was the relaxed feeling from the previous day, one just had to keep moving.



Right, Gordon Consell with his double-sized 'Phantom', which was awarded the Eddie Kell Trophy, just look at that monster diesel modelled on the faithful Mills...has a capacity of almost 8cc!

Left, Sal Talbi holds while Danny Sheelds hooks the motors to his winder before putting the turns onto his 1928 'Burnham' in the Twin Pusher event.

Then there was the publicised car boot sale, and this soaked up more time. Enthusiasts who had previously arranged with others to bring certain items to Old Warden for them, developed the habit of casting furtive glances behind them when the actual transactions were taking place, in case a dreaded official was lurking all ready to hand out the receipt for £10 (fine for unofficial selling).

This threat did not seem to put people off, and some cars displayed notices giving details of goodies inside, while other modellers just spread out their wares and sold them regardless. Although the dealers on the trade stands were probably justified in opposing the 'wheeling and dealing' that takes place at every such meeting, the notice put out by MAP (Hangar Doors, August issue) was possibly the most unpopular announcement to appear in recent years in this journal!

Frog Exhibition

The trade stands this year took on a new look, and one of these seemed to be selling old iron, one fully expected to see Steptoe's horse in the background, there was even a stand selling potted plants! Nestling amongst the trade stands was a *VW* Bus housing David Carpenter's *Frog* exhibition, here to see were many of the fondly remembered ready-to-fly models like the 'Interceptor' (both Mark IV and V), 'Puss Moth', 'Tadpole' indoor model, 'Tern', 'Meteor', 'Raider', 'Silver Arrow' and others.

Some were of necessity replicas, carefully made in the best *Frog* tradition, there was also a built-up little 'Heston Phoenix' made from one of the flying scale kits that followed *Frog's* first balsa flying scale model kit of the *Miles* 'Hawk Major' which appeared in 1936.

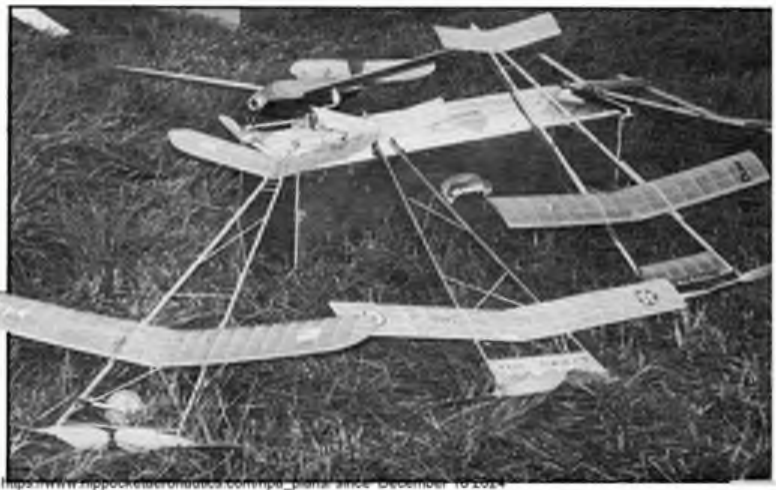
It was a pleasure to meet Mr. Richard Lines, a son of one of the *Lines Brothers* who were the Sole Concessionaires for *International Model Aircraft*. On hand too was Albert Judge, who joined this organisation following his Wakefield win in 1936. Enthralling indeed to be in on their conversation. Although no organised *Frog* flying competition took place many modellers brought along *Frog* designs including 'Frog 45' (one was a double sized example), 'Saturn' and 'Firefly'. One of the last named models was powered by a *Doonside Mills* .75 and was made by David Larkins - now Canadian and living in Belgium!

Distractions

The musical hum of a rotary engine caused attention to be focussed on a group of enthusiasts around yet another vehicle. Here Arthur Bodily from Northampton was running a beautiful nine cylinder 'Gnome' which represented 18 months of his spare time. He also had with him a *Bentley* 'BR2' and a free lance nine cylinder four-stroke radial engine.

These engines were fitted to heavy wooden baseboards and it was the work of seconds for him to undo the large 'G' clamps that secured the baseboards to the arms of his running rig and change engines. After standing in the slipstream and inhaling the incomparable aroma of burnt castor oil I tottered off determined to reach the *MAP* tent. I never got there, being accosted en-route by RGM who piloted me to John O'Donnell's boot sale where Bert Pond was searching for missing numbers of magazines to join the many thousands already in his collection!

Bert just had to show his walking beam single cylinder compressed-air engine, cleverly engineered in order that springs take up the lost motion in the linkage. Born in 1901 in Peru, Indiana, he has been making model aeroplanes since 1912, and compressed-air has always been his thing, his most recent win being with his 'Bottle Baby No. 2'. This is a T-tailed model with a plastic bottle air container, powered by a three-cylinder engine and weighs only 6 ounces ready for flight!



Above right, Arthur Bodily of Northampton on the 'fine adjustment' needle of his Gnome 9-cylinder rotary. He had other engines with him...what a sideshow... Right, A-Frame twin pushers made in the five days before the meeting by members of the US contingent. Most of the American models were of the Pavely (1926) type.

Above, Group Captain James Pelly-Fry DSO RAF (Retd) re-enacts a job he did in 1933 when he proxy flew Gordon Light's model in the Wakefield Contest. Here he lets Alywn Greenhalgh's replica go.

In the 1920s living in Chicago he was a member of what was then the leading club in the whole USA, the Illinois MAC and flew with such record breakers as Jaros, Lefker, Brock and Lathrop. Not that Bert didn't break records too! He held the ROW record in 1921 with a time of 2 minutes 52 seconds with a twin-pusher! What a tale Bert has to tell and I could have been there still, I wanted to ask him about my 'Hoosier Whirlwind', after all, he made it and thousands like it, but I really had to get onto the aerodrome. Ron Raddon aptly summed up the situation when he said *"Flying model aeroplanes is actually interfering with this vintage meeting!"*

Cruiser Pup and Jackdaw Competitions

Eight 'Pups' entered for the C A Rippon Trophy, the winner being decided by the best flight. With no thermals about Ron Brownson (with that model that flew through Brian Ferrett's 'Mechanair' propeller as related in 'Vintage Corners' April and August 1984), John Lawson and John Wingate produced flights of over 60 seconds, but the highest times were scored by Chris Strachan and Peter Michel who tied with 75 seconds, winner of the simultaneous launch fly-off was Chris Strachan, whose model did 64 seconds.

Only two 'Jackdaws' entered for the Rupert Moore Memorial Trophy which was to be decided on a percentage error based on the first flight time. Don Knight's model did 57 seconds so his target became 171 seconds while Phil Siddall achieved 37 seconds giving him a target of 111 seconds. In the event Phil's three flights netted him 105 seconds, while Don clocked up 156 seconds, lowest percentage error was Phil's 5.4% thus he won the competition.

When this event was first introduced it was felt that interest might wane for the original model chosen, and another type could be nominated. How about going for some other Rupert Moore design like 'Viper', or the 'Twin Gull Wakefield'?

Wakefield Mass Launch

This competition for the Chobham Trophy was decided by maximum height gained after 45 seconds, a difficult thing to decide especially with varying wingspans. The Americans had never seen anthing like this and they eagerly joined in. There was great activity during countdown with the whirr of winders, and on the release whistle models took to the air like a cloud of locusts!

There were two collisions, and some other models returned prematurely to terra firma, one being Sal Taibi's 'Nelder' which spiralled in. The field were however, away, climbing furiously. A goodly number of models must have been lost since when last seen some were gliding down behind the trees beyond the road. Chris Strachan was declared the winner with his yellow 'Korda'.

David Boddington brought back Stan Horne's 'Airyda Master' which had virtually landed at his feet. Picking it up he was surprised to read the name of the owner since he had made repeated calls on the PA system for a gentleman of like name whose spectacle case (and specs) had been handed in the previous day. Delivering these properties into the care of one of Stan's associates David said "...he will never be able to find his model anyway because he has lost his specs too!"

Junior Achilles Competition

Two classes of entry this year, as related in Vintage Corner in September issue. Five entries in Junior, keenly fought out under far from ideal conditions, where only five seconds separated 1st place (Richard Dyer) and 3rd place (Alan Hardwick), in 2nd place was Robert Lamb with 84 seconds for the three flights.

Nine entries in the Open class where Ron Brownson obtained 1st place with an aggregate of 138 seconds, followed by Rupert Kemp with 136 seconds, while in 3rd place with 131 seconds was Adam Beales. Hopefully this improved response in entries will decide Alan Wiggs to continue the 'Achilles Contest' which was in danger of being discontinued. Let's find some more youngsters of the calibre of Richard, Robert and Alan for the 1986 event, it will be a sound investment for the continuance of this thing called vintage...

Earl Stahl Flying Scale Competitions

The 'Low Wing' contest was run off by grouping the 17 entrants into four heats, each having three rounds, the four winners of their respective heats then took part in a final fly-off to decide the winner. Most popular model was the *Miles* 'Magister', six examples being entered, and the first three places all went to flyers of this machine. First was Ron Brownson, followed by Don Knight and then Rex Oldridge, the last named had returned the highest flight time of the competition of 47.4 seconds.

The 'High Wing' contest was still run on the three flight card system and 13 competitors flew, although seven did not manage to complete the schedule, four of them retiring with damaged models. The most popular model was the 'Taylorcraft', four examples being seen. It came as no surprise to learn that Don Knight's 'Skyfarer' won with a total of 179 seconds for his three flights, next best time was 105 seconds by G Spencer with his *Fairchild* 24, followed by Chris Strachan's *Stinson* 0-39 whose flight time was only one second less.

Right, Dave Tappin and Co built this beautiful 1.1/3rd size Mick Smith 'Mercury IV' powered by OPS 30 four-stroke. Completely enclosed control surface linkages. Below, veteran modeller Bert Pond with two of his compressed air engines, Hoosier Whirlwind with a 'solid' frame at right, the other is his single cylinder 'walking beam' engine.

A-Frame Mass Launch

The fact that there were four 1928 'Burnhams' in the field of 11 competitors was surely Danny Sheelds's teaching, since he rates this model as the best twin-pusher ever! Unfortuntely he had to hand over the Trophy, that he kindly donated for this competition some years ago to Phil Siddall who was flying a machine of more modern design, a 1934 'Ginetti'!

John Haggart and Norman Lane Trophies

It was decided to run these two precision power contests in conjunction, and the best 'Junior 60' performance would receive the Norman Lane award. Due to the wind direction, the longest aerodrome length was

Above, Tony Turner is really hooked on Rupert Moore's 'Viper II' design. Two years ago he made the rubber powered original version, and now he has built a 'times two' R/C example with a beautiful laminated propeller.

monopolised by other events at around the time that the competition should have started, so things did not really get going until the 'goofers' from the Wakefield and A-Frame Mass Launches had moved away, their departure hastened by the onset of rain.

A 30 seconds target of total flight time was decided, for which there was a disappointing five entries. Ron Raddon wrote-off his 'Scrappy' (*O&R* 23) when his engine cut in a steep climb without sufficient height to recover from the resulting stall, and John Partridge's 'Junior 60' (*O&R* 23) completely overflew the target time, but Peter Harvey's 'Junior 60' clocked 27½ seconds to win the Norman Lane Trophy. John Berryman from Bristol, who was one of the few entrants who had adhered to the desired pre-entry procedure won the John Haggart Trophy with a time of 26½ seconds with his *Mills* powered *Keil Kraft* 'Rover'.

I must accept full responsibility for the lack of organisation and low number of entrants, after the chaos of this hastily run event one is left with the thought that in future it can only get better! Where I would have been without the support of the 'magnificient five' does not bear contemplation.

Postscript

Everyone I talked to thought that the two-day event was just great, and hoped that it will continue. Many preferred the slower pace less competitive fly-for-fun Saturday, there is just too much going on on the Sunday that one cannot possibly see, absorb and enjoy all the action...

It was certainly too much for your humble reporter, and I wish to thank Alan Wiggs, Mike Kemp and John Lawson for information on the *SAM 35* events that I have included in this narrative. That the right atmosphere prevailed was to be expected when such a large number of vintage enthusiasts get together.

There was no need for period dress, although the American headgear came pretty close to it, not to mention Danny's pants, or Joe Beshar's blue and white striped dungarees that made him a character straight off a Norman Rockwell cover of *Saturday Evening Post!*

The most important fact that emerged from this Vintage Weekend was proof positive that enthusiasm for vintage is still increasing, and exposure of the present day aeromodellers to its delights can only result in even more of them swelling our ranks...now, how about a three day Vintage *Long Weekend?*

Results

C.A. Rippon Trophy	C. Strachan C/Pup
Rupert C. Moore Memorial	P. Siddall
Danny Shields Trophy	P. Siddall 2.12
Chobham Trophy (Vintage Wakefield Mass Launch)	C. Strachan Burd Korda
M. Taylor Cup (Vintage C/L Stunt)	Mick Taylor Reinhard Int'l
Frog Vanda Plaque	G. Beadle
Earl Stahl *High Wing*	R. Brownson
Low Wing	D. Knight
Achilles Trophy	
Junior	R. Dyer
Senior	E. Brownson
John Haggart Memorial	J. Berryman
Norman Lane Memorial	P. Harvey

AT THE LAUNCH PAD

with John Wheddon

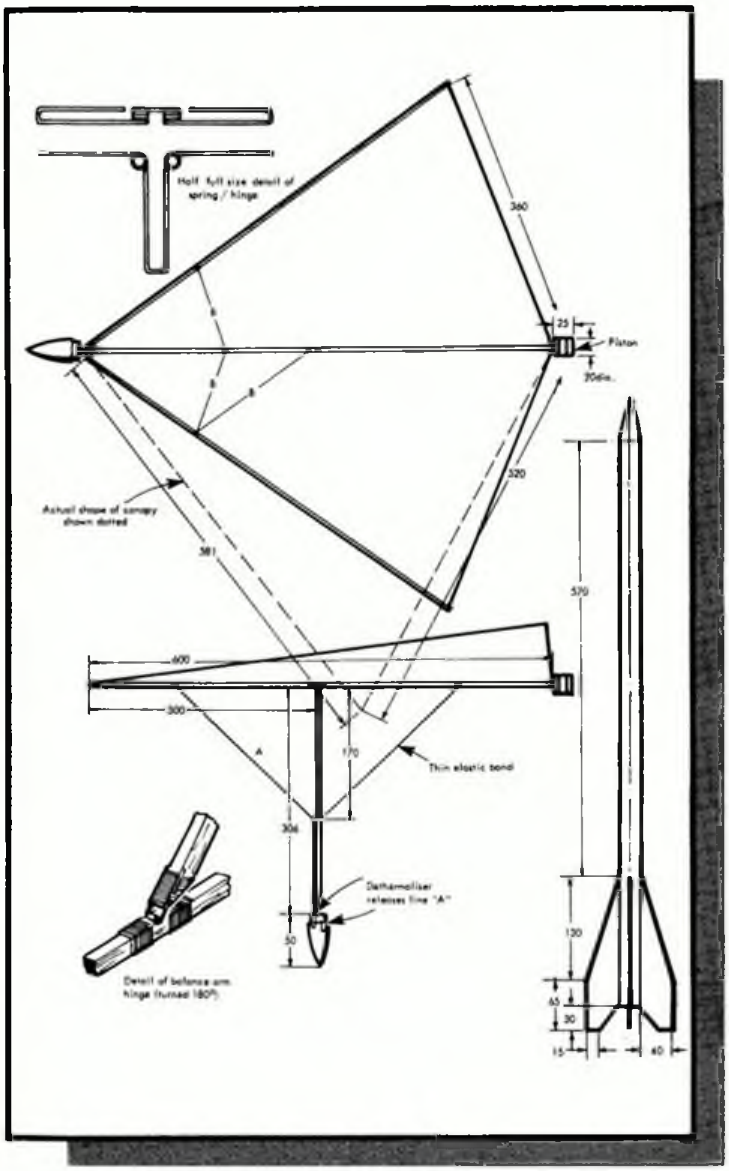
Flex-wing Boost Gliders

During the late 1940's Francis Rogallo developed a series of flexible kites, perfecting the idea in his home using a large electric fan to create a makeshift wind tunnel! Although they were patented and marketed in 1948 the USA was not yet ready for these kites and the project had to be abandoned.

However, Rogallo became involved with the space programme and the flex-wing concept was very extensively researched as a recovery device for spacecraft. Expediency in the 'Space Race' to the moon resulted in NASA eventually adopting a 'quick' method of recovering capsules by parachuting them into the sea and Rogallo's principles were once again discarded.

The idea did not go entirely unnoticed and the modern hang-glider developed very rapidly through the sixties to become an effective soaring machine, often limited only by the endurance qualities of the pilot.

Right, all the vital dimensions to enable the construction of a flex wing boost glider... This model is based upon that of Russian space modeller O. Belous and is intended for 40 Ns motors. Below, Ian Dowsett's flex wing - using similar construction techniques, the stripes on the wings are only marks on the plastic!



Where model rocketry is concerned the idea of packing a flex-wing boost glider inside a slim booster rocket is such a delightfully simple concept that it was almost completely ignored by the hobby for several years!

Bulgarian modellers were not so reluctant to adopt the flex-wing and produced a whole team equipped with them at the 1980 World Championships. The sight of the bat-like gliders floating at enormous altitude over Lakehurst amply demonstrated the tremendous potential of such models.

It was back to the drawing board for many boost glider flyers and Ian Dowsett produced a model based on the Bulgarian designs which he has flown successfully in competition.

The model drawn was designed and built by O. Belous of the USSR. Designed for 'E' (40 N sec) engines the glider is quite large but it illustrates the principles well...

For the launch, the glider is carefully folded and packed into the booster body tube which is finally closed by the nose cone assembly. After launch the glider is expelled by the engine's ejection charge; the plug fitted at the rear acts as a piston and also protects the glider from the hot ejection gases. Once free of the booster the glider literally springs into shape with the leading edges held at the correct angle by the strong threads shown as 'B'. The nose cone, mounted on the hinged arm swings down below the glider under the action of thin elastic bands to stabilise the model during flight. Fine trim can be adjusted by varying the length of line 'A' to position the balance arm and obtain the best glide.

A fuse type dethermaliser can be fitted (must be!) in the nose cone which then allows the balance arm to be released, by breaking line 'A'. The arm then swings aft to destroy the stable trim of the model.

Construction is quite simple and will not really break the bank. The main keel member can be $\frac{1}{16}$sq. spruce with the leading edges also $\frac{3}{16}$sq spruce but in this case tapered towards the tips. The plug piston is laminated from balsa and ply and should be a snug, sliding fit in the booster body. The actual flexible wing material should be light mylar film - Ian Dowsett used 0.0025in thick material for his model.

The booster rocket is straightforward and construction techniques have been discussed in other articles in this series. Models of this length really benefit from having two launch lugs spaced evenly about the CG position of the model in launch trim. A simple streamer, attached to an external shock cord and stowed just under the nose cone completes the model.

ADVERSE YAW!

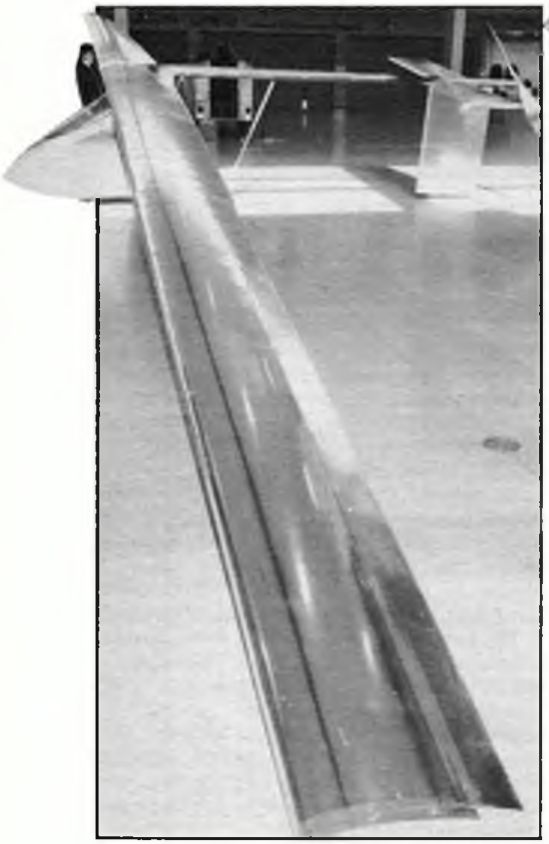
A regular, irregular view on the world of aviation from Ron Moulton...

Right, fancy a ride in a 44-lb aeroplane? Gunter Rochelt's Musculair 2 is a marvel of ingenuity born out of his free flight experience. Like most other adventurous projects it is all composite plastics except for control runs and the chain drive.

THE FASCINATION of aeronautics is to me not so much the achievement of speed, range, aerobatics or sheer efficiency but the diversity of the whole business. Boffins will tell us that everything stems from the theories derived in the first decade of this century. In which case Lanchester, Cayley, Prandtl *et al* have a lot to answer for. There have been innumerable 'rediscoveries' in the meanwhile and theorists regularly emerge to tell us how and why airflow over and under a wing can be improved to the level of perfection.

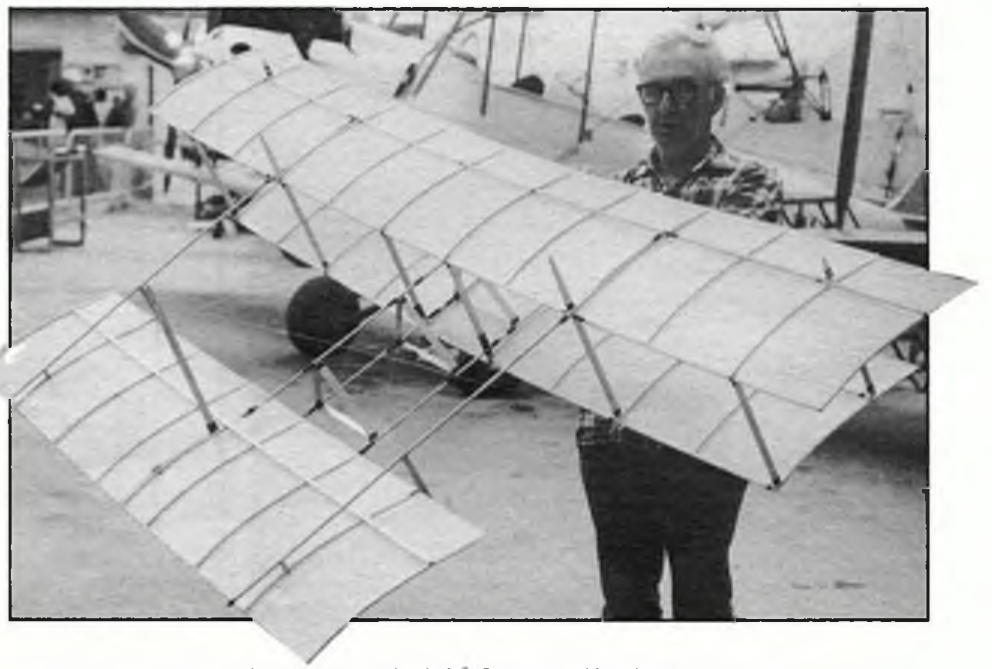
Earlier this year when I visited the Smithsonian in Washington USA, I found a vast display area had been given over to a workshop with large inspection windows. One could gawp through the plate glass to view scattered pieces of bent spruce amid the benches and if one were not better advised the scene could well have been a splints and crutches factory in a clinical institute. It was in fact the American way of showing off the original Wright 'Flyer' under restoration.

Below, superb wing surface on Musculair 2 is formed by a glass and foam sandwich over styrofoam ribs and a carbon reinforced spar. Span is 65ft. 8ins.



For more than a few bemused moments I pondered on how the pieces fitted. Then it came clear that two very long 'U' shapes were actually the leading edge, tip hoop and rear spar all in one piece! In '85, such assembly seems strange, - until one reflects that these parts were originally made 82 years ago. Now the 'Flyer' is complete and suspended again in the main hall of NASM. Hopefully the glue will hold together and the 'new' fabric remain unperished for at least another 82 years until 2067!

From the Wrights' machine to A V Roe's canard biplane was only a five year step, so the exposed rib booms and curved plate sections were still in vogue. We're all going to be reminded of this when Mike Beach's next replica takes shape. Not content with finishing an SE5, Bleriot XI, Curtiss 'Pusher', renovating a Kronfeld 'Drone' and more lately, Prince Bira's vintage sailplane, Mike is taking on the formidable ROE 1...



Above, no it isn't A.V. Roe in a time warp, this is Ian Granger making delivery of a scale model of the Roe 1 biplane to Mike Beach who had added the famous bipe to his list of amazing full scale replicas.

Geoffrey Verdon Roe is helping with finance and the object is to prove that A V Roe really did make the first ever flights in the UK. As modellers, we should all have a special interest here because Roe found the cash to make his first machine by winning a 1907 *Daily Mail* prize from 200 competitors for a model which had to make flights indoors and out, and be judged for design and workmanship.

One of the witnesses of his early flights was the late Col Taplin of model diesel engine fame. All of this came to mind in the midst of the Aeromodeller Vintage Weekend when Ian Granger arrived from Scotland with a ⅕th scale model of the Avro. One couldn't help but contrast it with the myriad shapes that abounded on those two marvelous days of reminiscence. Then only two weeks later came the absolute comparison...

Gunter Rochelt's exploits into man powered aircraft have been described before (May issue page 237) but when he arrived for the 'Zapple' sponsored Human Power Festival at Milton Keynes with a Mark 2 version of 'Musculair', he eclipsed all previous concepts. Everything about this machine spells genius. It weighs barely 20kg - that's 44lbs! It is 20 metres span with an aspect ratio of around 25:1 and door mat

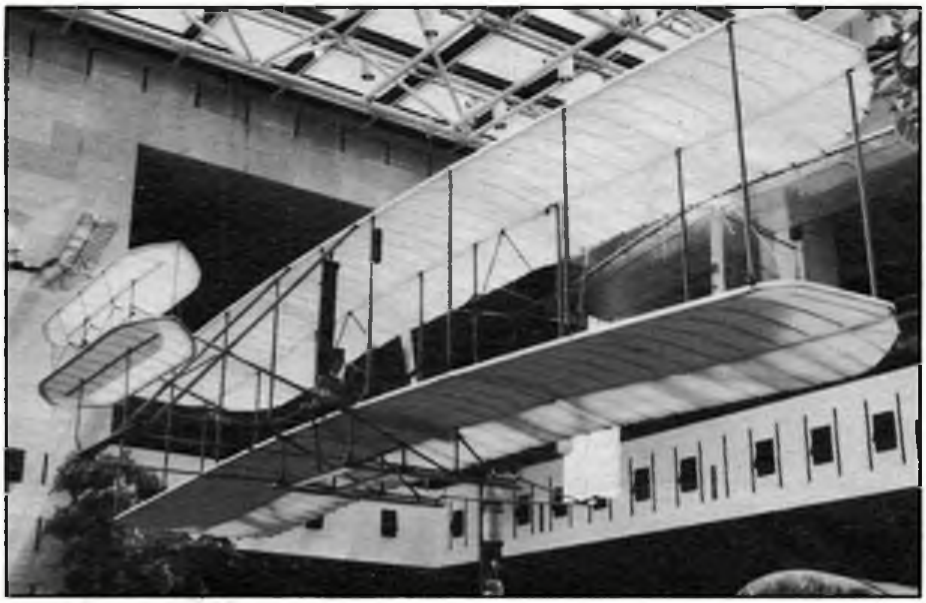
size all-moving tail surfaces.

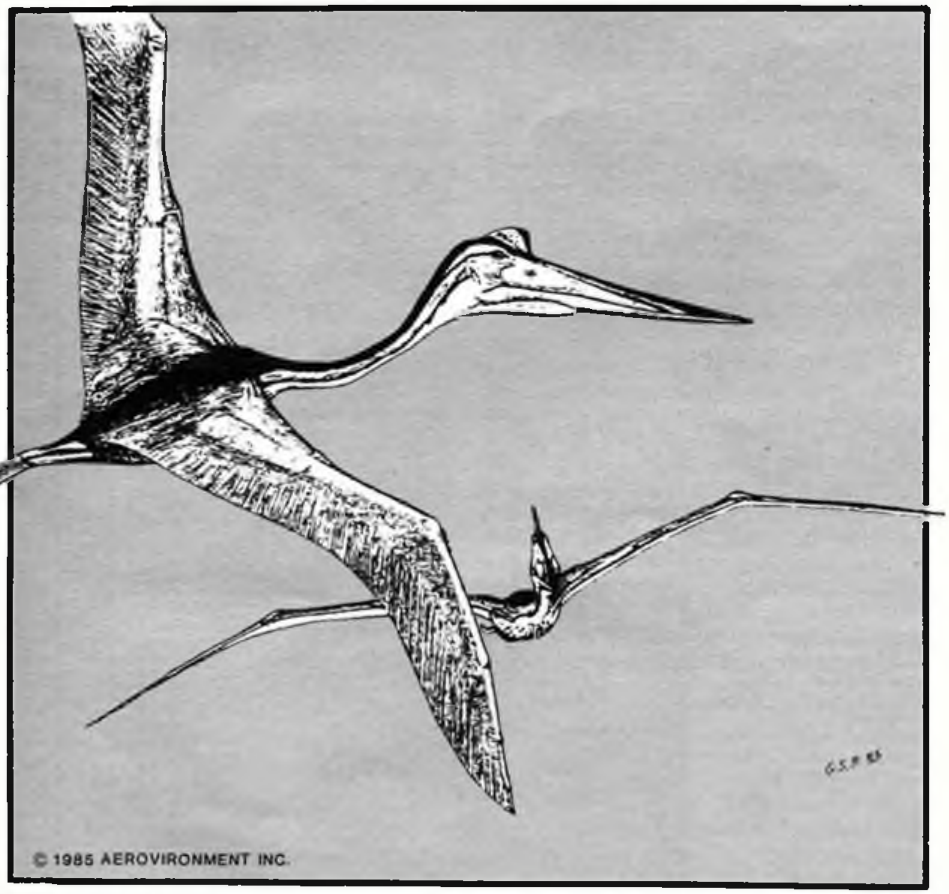
Flight controls are from a two handed twist grip system on a tee bar in the cockpit, tailored to fit son Holger and the degree of ingenuity within the simple all enveloping nacelle is a marvel. Gunter detached one tail panel from its stub tube at the root and it seemed to weigh but an ounce or two. If prizes were around for one-to-one scale models this must take first place.

Seldom have I seen such open admiration for design and construction than among the well qualified audience at Milton Keynes. This including our own ex-Ed Martyn Cowley, now with Paul MacCready, and crew chief for their 'Bionic Bat'. Martyn was fresh from the Free Flight World Champs at Livno and full of the technical advances he'd seen in 'all composite' power models with latest skinning process on the wings. I don't think he expected the Rochelts to have used the same foam and glass sandwich method and daresay we'll be hearing of 'Bionic Bat the Second' before long. That is, if the 'Pterosaur' project permits. Which brings me back to diversity...

Back in April 84, the NASM (Smithsonian) initiated a feasibility study for a flying replica, life size, of *Quetzalcoatlus Northropi* or Pterodactyl to we ordinary folk. To be 11m span, radio controlled and propelled by wing motion, the 'Ptero' would be an enormous challenge to anyone, but Paul MacCready took it on, and so far, the stage by stage experiments have been most encouraging for the group - that includes a diverse range of specialists from paleontologists to inventive modellers.

Below, Flying high in NASM, Washington again is the original Wright Flyer, now re-covered and with all its structure logged in detail following a complete dismantling operation earlier this year.





Imagine the situation. A 'model' as big as a Cessna 172, self contained, filled with servos to actuate flap, twist, and variable sweep, all auto stabilised by sensors and the whole to be robust enough to land on its own feet! Martyn's personal account is studded with gems like the ribs have to be in carbon fibre that flexes and springs back to original shape under the latex skin.

Head movements on a half size 'model' control the yaw, and only a few cheats like using elevators and spoilers have been applied to accellerate the tests. These included clever application of a dumped auxiliary tail boom for early checks on the big, otherwise tailess plan form which has a huge neck and head out front. Just look at the sketches to see what it all means.

Early benefits on the learning curve through two powered ornithopters and the scaled 'Pterosaurus' have been the design of a novel drive mechanism, some ingenious autopilot systems and super-fast servo units; but the part that tickled my fancy was the application of the old reliable rubber band spring balance to sort out the loads, up and down, on those huge wings.

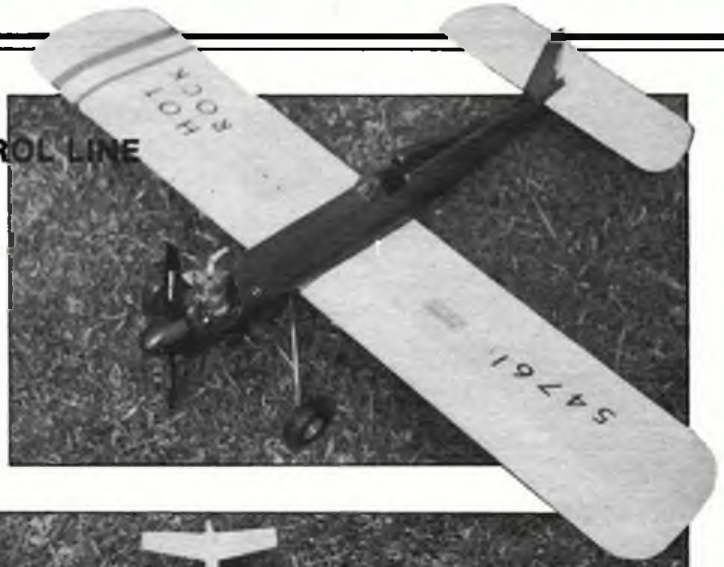
Just goes to show you can't get away from rubber strip - and long may it be that way.

Left, under construction for Smithsonian are reduced scale models to prove control and propulsion systems for an eventual life size reproduction of the Pterosaurus. Object is to make a flight over the Mall in Central Washington.

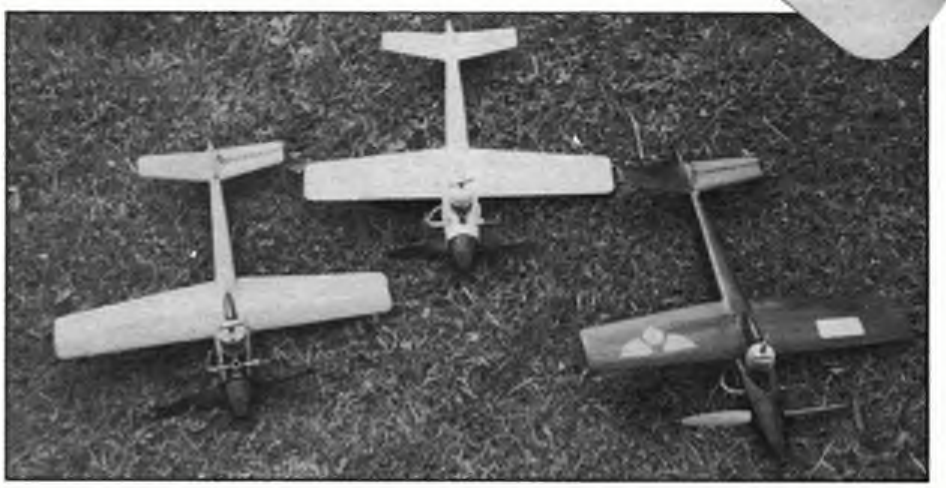
MIND THE LINES

VINTAGE CONTROL LINE

with Andy Brough



Right, winner of the Fireball Trophy was this 'Hot Rock' by R. Clews, powered by a Frog 500 (spark ignition of course!). Below, just three of the many 'Midges' present, note variety of engines, AM 15, Elfin 1.5 and Allbon Javelin.



Aeromodeller Vintage Days 17th, 18th August

After such a poor summer, and the dreadful weather leading up to the weekend, it was most pleasant to awake on the Saturday and travel to a meeting in sunshine! Perhaps *Aeromodeller* was going to come up trumps yet again at the Old Warden venue. Indeed, Saturday turned out to be a perfect day, especially for the 'Midge' event where the light winds made the event a real treat. Sunday brought some more wind and some rain, but it also brought a very large contingent of model aeroplane whirlers. I'll leave the general scene setting and non-control line activities to Vintage Corner and dive right into the C/L news.

Lancastria Cup

This excellent and re-furbished cup is presented annually to the winner of the 'Midge Speed' event. Unfortunately last year's winner Geoff Clarke was unable to attend to defend his title but the cup was safely returned in a highly polished state (rather better than when I looked after it). Saturday was the day and 2 o'clock the time and, although not that many other control line models were to be seen 'Midges' appeared as if by magic and the entry list boasted fourteen (better than an *SMAE* event!). It was an amazing sight to witness the fourteen competitors and helpers laying out lines, tuning engines, changing props etc.

The speeds soon shot up over last year's winning speed of 75 mph. At the end of the first round we had a tie for first place between Mick Taylor and Mike Downing at 83.33 mph and your editor was next at 78.26 mph. The second round speeds really set the pace alive with 80 plus mph's becoming common place and just when Mick Taylor thought he had it in the bag with an 85.71 along came Sam Skitt who produced a 94.73 which left us all speechless. Well done Sam! To show it was no fluke Sam did it again the following day when Peter Martin ran an impromptu Midge comp for those who could not attend on Saturday. This time he managed 97.8!

Johnny Hall who placed 12th was a noted speed flyer from way back, and was the first in the U.K. to do 150 mph with a motor of less than 10cc. He was also the first to do over 100 with a *McCoy* 19...33 years ago!

Two observations could be made at this year's event. One was technique in that there were no crashes on launch even though they ranged from the combat 'fling' to under or over arm throws. The second was the emergence of the *Frog* 150 as a motor to be reckoned with. At one ounce less than a *PAW* one can achieve a better glide (hence the model flies better) without recourse to tailweight.

In Sunday's comp. Brian Waterland's 'Vibromatic' (Reed valve) *Frog* 150 achieved 90,9 mph. So *PAW*s don't have it all their own way. Of note was Dick Robert's clockwise flying model complete with *AM* 15 and single bladed propeller!

Some comments were made about whipping, inevitable but, if we aren't careful we'll have pylons and safety cages (we may need cages if they go any faster!) Next year we shall only allow whipping up to speed, then hand on chest, lines at right angles to body and timing starts two laps after hand is raised...

A really excellent turnout, very good competition and great fun. Roll on 1986.

Old Tyme Stunt

This event on Sunday, was very well organised by Ron Prentice and his two very expert judges Henry J. himself and noted F2B flyer Glen Alison. A two circle system was in use, one flight in each, which greatly reduced the time to run the event but used much of the available space. Many entrants were to be seen practising, for some, the first since last year, but not only is it the manoeuvres that need practise, but also the *number* and *sequence*. In Henry J's circle Heather Taylor kindly sat in the middle and shouted at us to keep in the 'Groove'. Not withstanding this, poor Tom Jolley got confused with the *sequence*, and yours truly did *four* horizontal eights instead of three!

Impressive models were Mick Taylor's Reinhardt, 1950 Internationals winner *Fox* 35 powered. As ever, John (I never use a starter) Perry's 'Taurus', Laurie Glover's own design 'Devil Bat', of which many examples were to be seen, but Laurie's was

Right, 'Mind the Lines' junior with Tom Hughes' Elfin 1.8cc powered 'Kandoo'.

1¼ times full size with a *Fox* 59 nose weight, which had not been run since bought in 1957! Charlie Crawley, who arrived with his usual private air force of models had a slight bump on one flight, and your scribe 'landed' at the bottom of the vertical eights.

Impressive flights that I saw, competing myself means I missed many, were Tom Jolley's and Ron Prentice's both of whom flew fast, quite large manoeuvres very crisply.

A certain amount of confusion arose regarding hand signals and the number of laps between manoeuvres but a good spirit prevailed and Ron Prentice says he will make the general stunt rules a little clearer. One fact is clear...we all need to practise!

Right, Charlie Crawley looking pleased with his Amco 3.5cc powered 'Monitor'. Below left, a general view of just part of the 'control line pits'...

Fireball Trophy

Here, we had a slight change from previous years. Rather than a formal entry and flight, Mike Beach (who originally donated the trophy) and Ron Prentice walked about the control line area and picked out certain models and asked the owners to fly them. This is similar to the Scale Day arrangement and essential with the vast increase in the number of vintage control line models.

The criteria used was to look for models that captured the spirit of the era of the late forties. It didn't matter what type of model, but wheels, engines, transfers and finishing materials were considered along with workmanship. The models chosen all had vintage or replica vintage engines, wheels etc. They were flown and marks out of ten given for the combined effort. Poor Andrew Prentice's *Mills* would not start and so could receive no marks.

The eventual winner was R. Clew's magnificent spark ignition *Frog* 500 powered 'Hot Rock' that flew every bit as good as it looked. If I recall correctly, Phil Harrison's *McCoy* powered 'Arkansas Traveller' speed model was a first control line effort. (Phil is better known for his Radio Assist versions of the *Model-Drome* products). Tom Hughes' 'Kandoo' didn't do as all 'Kandoos' do - if you see what I mean!

Impressions

I have the feeling, shared by one or two others, that some of the carnival atmosphere was missing this year, although more models were present than ever before. Whether it was the poorer conditions on the Sunday compared with previous years, or the formal competitions which took up much of the available space, I don't know but my own view is that vintage weekend is very much a fun event and the maximum amount of space should be available for people to fly. Perhaps the stunt competition should be on Saturday as was the 'Midge' competition leaving Sunday with only the informal Fireball trophy to be flown.

As for the models, well, far too many to mention them all, but here is a sample of those that took my fancy, in fact, the first model took everyones fancy; Gordon Counsell's twice size Keil Kraft 'Phantom' powered by a twice sized *Mills* (twice linear size giving 8.2cc!) The engine was very impressive and was made by Mr. Williams and turned a 16 × 10 prop with ease. It handled like a 'proper' *Mills* and sounded like one too only just a bit louder. Ron Moulton liked it also and presented Gordon with a years subscription to this magazine (now that's worth something).

Charlie Crawley's previously mentioned airforce which comprised of the following. 'Speedee' (two boomed job), 'Stunt Queen' (*Frog* 500), 'Monitor' (*Amco*), 'Stunt King' (*Frog* 500), 'Phantom' (*Mills* 1.3) and 'Mills Bomb' (*Elfin* 1.8). Sorry if I missed any Charlie! R. Davenport's powered 'Yoicks', Alan Callaghan's 'Little De Bolt Stunt Wagon' (got the plans Alan?), John Perry's 'Icarus', Dick Robert's 'Arkansas Traveller', Sam Kidd's 'Speedwing', Chas Taylor's 'Tantivvy' Team Racer and Steve Betney's 'Mite Mare' (from June 1948 *Model Aircraft News*); all these and countless more were there for all to enjoy. Well done chaps, let's do it even better next year. Photos of a great many of these models should appear over the coming months...

Monitor and Small Fry

Talking to Ron Prentice on the Saturday, it appears that with their commitments, *C.A.P.* will be unable to produce the above kits, do not worry...Ron is going to kit them himself. I snapped up one of the first. If not *the* first, of the 'Small Fry' kits and will do a review shortly. Stay tuned to this channel...

Results

Lancastria Cup (Midge speed)

Competitor	Engine	Best Speed
1 Sam Skitt	PAW	94 7
2 Mick Taylor	PAW	85 71
3 Mike Downing	Frog	83 33
4 Andy Brough	PAW	82 56
5 Pete Freebrey	Frog	81 81
6 Dick Roberts	AM	79 64
7 Steve Betney	Elfin	76 27
7 Brian Waterland	Frog (vibro)	76 27

Sunday's Midge Comp

1 Skitt/Clews	PAW	97.8
2 B. Waterland	Frog Vibro	90 9
3 M Taylor	PAW	88 2

(12 entrants)

M. Taylor Cup (Vintage Stunt)

1 Mick Taylor	Fox 35	Reinhardt winner
2 Ron Prentice	AMCO 35	Monitor
3 John Perry	?	Taurus
4 Tom Jolley	OS	Curtiss Swift
5 B Waterland	?	Devil Bat
6 M Rolls	Fox 25	Magician
7 L Glover	Fox 59	Devil Bat × 1¼

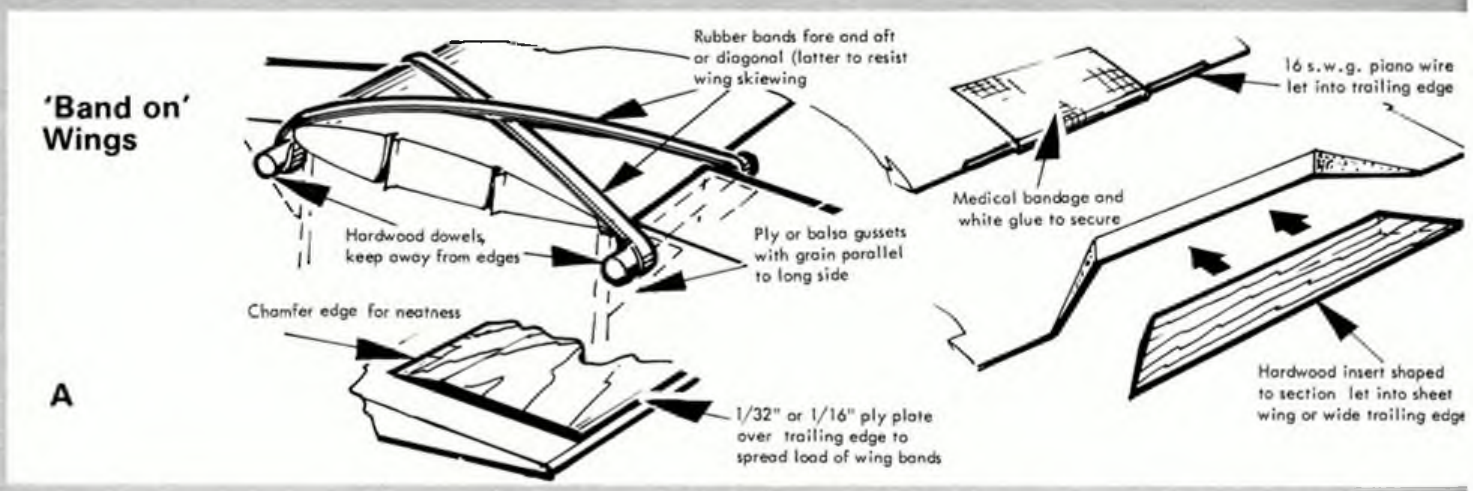
Fireball Trophy

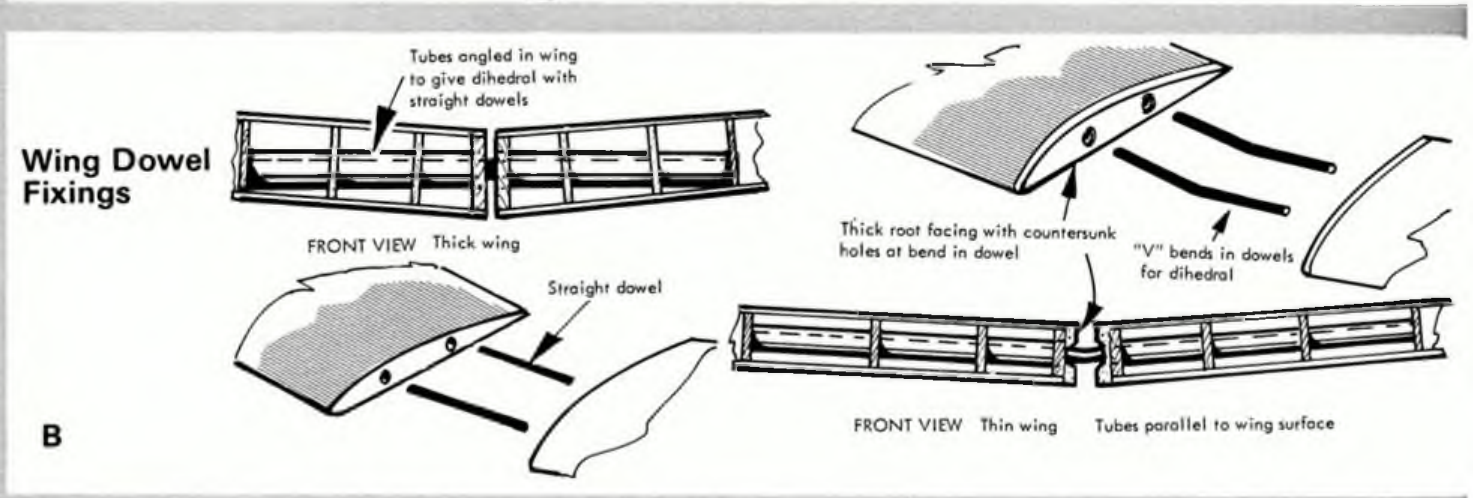
1 R Clews	Frog 500 spark	Hot Rock
2 Phil Harrison	McCoy 60	Arkansas Traveller
2 Steve Betney	Mills 1.3	KK Scout
4 Mr Rowbarts	ED Mk 4	Philibuster
5 Mick Taylor	ED COMP	Kandoo
5 Brian Hunt	Mills 1.3	Weatherman
7 Tom Hughes	Elfin 1 8	Kandoo
8 Andrew Prentice	Mills 1.3	Snorter

HOLLAND'S HINTS

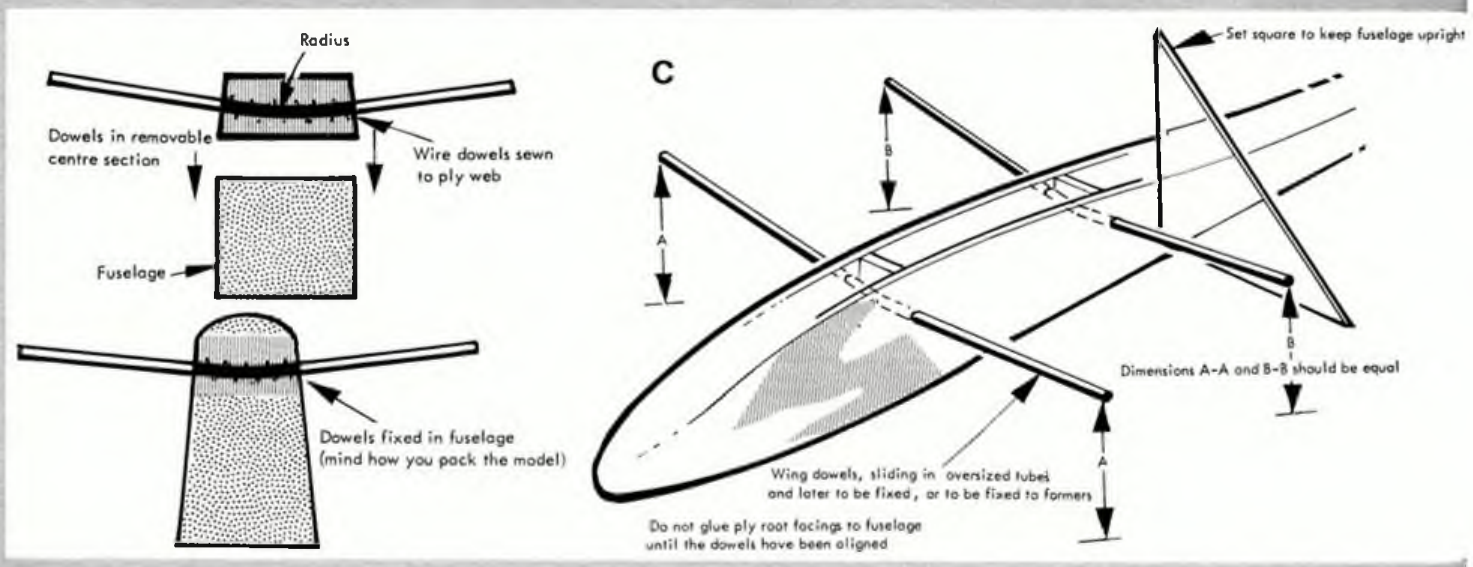
There are many ways of building...this series offers groups of sketches from Peter Holland's construction notebook. Each of the series deals with related details in the enthralling business of making various types of aircraft... There are workshop and field tips too. This month, Peter looks at a few free flight-wing fixings and sub-assembly building boards.

by Peter Holland

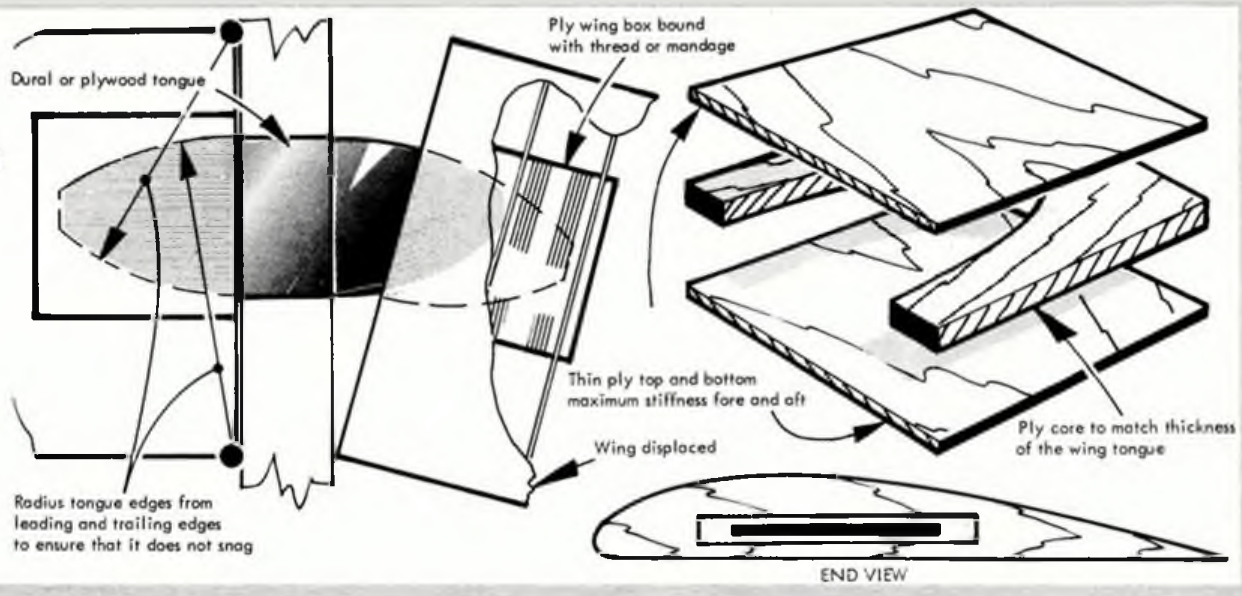




A. Traditional band-on wings are fine for the average model, allow the wing to slew with fore and aft bands, diagonal ones give a stiffer action and help to hold wing halves together if jointed here. Dowels near the edge or not gussetted may tear out. The bands will cut into the trailing edge (TE), so add wire, ply or hardwood reinforcement. **B.** Wings joined at the centre with wire dowels absorb towing stresses. Straight dowels are only practical for thick wings when there is dihedral. **C.** Fixed dowels have to be bent back to shape when over-stressed - Use the same setting-up method for checking when building or after re-adjustment. If the wire needs much force to do this, support it both sides of the fuselage, or the fuselage may suffer.



Wing Tongues



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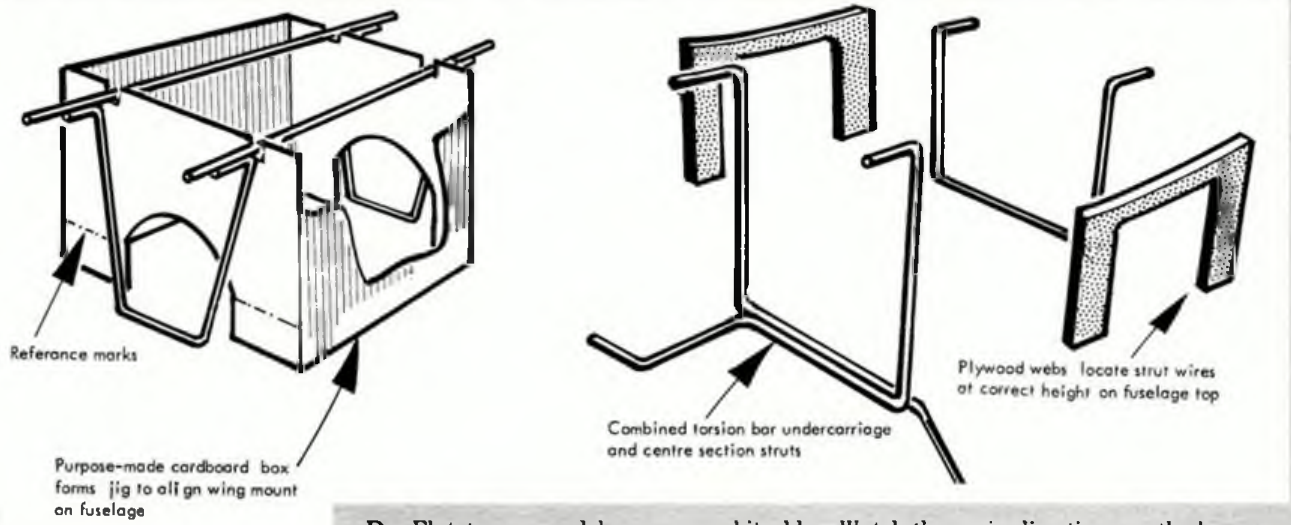


E

Wing Pylon or Cabanes

D. Flat tongue and boxes are a bit old-fashioned, but useful on some low wing types. The wing must swing back or forward, so radius the front and rear tongue edges from *root* trailing and leading edges. Watch the grain directions on the boxes.

E. Cabanes or centre section pylons must be fitted carefully. Use a cardboard box jig or permanent ply webs to set the incidence ...Dodges on wire bending in later issues...

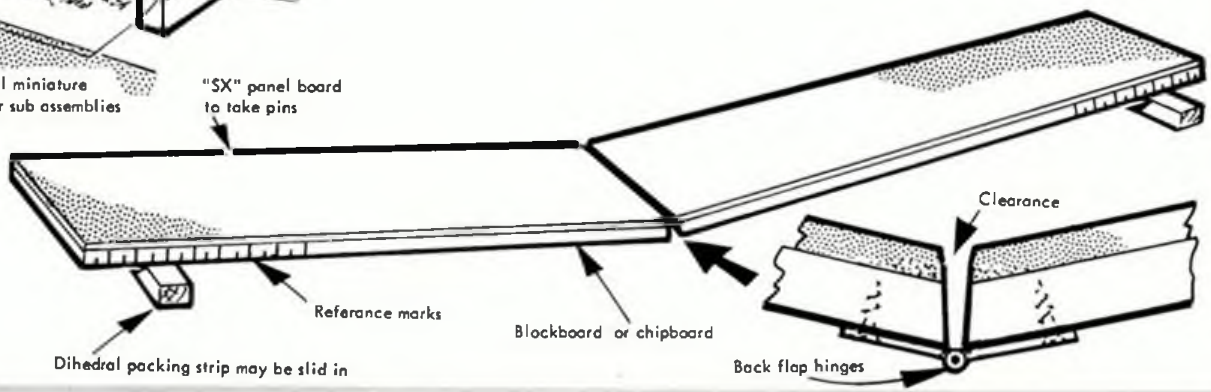
Building Boards

F

F. Blockboard or ½in plywood is fine for a wing board, Sub-assembly boards can be ¼in ply. Pins are hard to push into ply, but gaboon ply is relatively soft - so its just possible. For the 'soft fingered brigade', try facing the boards with medium density panel board. *Essex* or *Sundella* board from the timber or builder's yard is ideal. Insulation board is too soft. An ideal building board is a gaboon ply faced domestic flush door - quite cheap and jolly quick, same source, but rest it on a firm table as unsupported, it will bend with age. Never work directly on a wallpaper paste table...You get dihedral where you don't want it.

If space is at a premium, wingtips, tails and other small components can occupy little space whilst drying. Dihedralled wing panels can have a board to themselves - useful for permanently joined wings, or main panel to tip panel joints.

...Happy building!



Very Wet!

"If those aren't rain clouds, then I've never seen any!" Such a comment, voiced at 8.30am halfway up the motorway to Barkston Heath, did not augur well for *SAM 35's* second Wakefield Anniversary Event; but the diabolical weather that indeed set in by the afternoon was combatted by a healthy swipe of honest enthusiasm, and the meeting was by any standards another success.

Right, Sal Talbi, fresh from winning ½A at the US Nationals only 48 hours before, hands the 4-oz Class Trophy to Peter Michel in the welcome shelter of an Air Force tent.

SAM 35

Wakefield Anniversary Meeting

The weather just could not dampen the enthusiasm generated by this reminder of 1935's premier event...

The level of support for the Wakefield competitions was just as high as at Warwick last year, and with the scene enlivened by the appearance of nearly a score of American visitors, it is pleasant to report that honours fell evenly to the UK and the US.

Over forty enthusiasts had already passed through the gate by the time we arrived at the airfield, and the first thought was that most of them were wrestling with the processing marquee. Just as it was finally pegged down, the rain (forecast to begin during the middle of the afternoon) infuriatingly began to fall, and to keep it company the wind freshened...

Left, Alan Richardson waited for a dry moment in late afternoon to make a third max with his 'Korda' but returned soaked to the skin after an hour's frustrated search around the cornfields. Luckily Dave Hipperson found this winning model, (but lost his own!), just in time to catch the American contingent as they left the airfield. George Hollingdale times in background.

This tent was to prove an absolute boon. It became a haven for congregations of nattering modellers when the weather did its worst (which was most of the time). To an outside observer later in the day, the proportion of moisture in the air could be accurately assessed by the level of hubbub emanating from the marquee!

Models and modellers

Instead of relying entirely on proxy-flown efforts this year, the Americans turned up in force with a full complement of models (three entries in the 'eight-ounce' and a stunning eight in the 'four-ounce' class) with support to suit. They were ferried to the airfield in two minibuses driven by Ken Hinton and David Baker. We gather that these vehicles were buffetted about considerably en route, not only by motorway gusts but as a result of the gales of laughter within!

All day long there was much good-natured banter and wisecracking from our Transatlantic friends, but they worked as a team, and anyone who imagines those guys weren't serious should look at the results.

Registration and processing - the latter a simple matter of plonking the models on some scales - passed without problems, although one or two competitors had to add extra rubber bands to bring their models up to weight (we understand that this is how John O'Donnell's original 'Borderline' was named!) and Bob Wells' 'Voo-Doo' needed a wrapping of lead shim about its undercarriage leg for the same reason.

The variety of Wakefields was immense. One could recognise the well-known (the *Keil Kraft* 'Gipsy' was the most popular choice, with six entered - that of Bob Wells, his reserve model, had been built in 1964); the expected (the 1939 'Korda'); the correct (the 'Gordon Light'); and the esoteric (the 'Fullarton Wake' of Stan Fairless, for example). In fact, the entry list reads like a *What's What* of classic designs. Great support, too, with a grand total of fifty-five entries (34 in '8oz' and 21 in '4oz').

One great advantage of *SAM 35* Wakefield events is that unpublished designs from the Vintage years are allowed to compete. In this reporter's opinion, such a sensible rule, which treats contestants as trustworthy and permits research into rare and interesting craft, is above reproach. And it works, for here at Barkston were Keith Horry's 1950 own-design, reproduced with the aid of notes, photos and memory, and Reg Parham's 1950 Gutteridge Trophy model. An example of Reg's earlier streamlined Wakefield was entered by Trevor Simpson.

Two original models were also aired; Ron Brownson's 'Samantha' (which finished equal-fifth with Keith Horry's previously-mentioned model) and Peter Capon's 'Coeur de Lion' Mk II, a 'streamlined slabslider' from 1949, and the oldest model on the field. This was proxy-flown by Don Knight. The robust conditions meant that very few true streamliners were seen. It was a day for the simpler approach!

The Flying

The big plus at Warwick last year had been the ROG requirement which, coupled with a strict take-off order, meant that everyone could keep a close eye on what was happening. Here at Barkston, with the weather so awful (and every prospect that it would deteriorate still further) contest director and event organiser Colin Watts made the decision to run the competition in rounds, with hand-launch permissible.

Less of a spectacle maybe, but it helped to ensure that the greatest number of models got to the finishing line. Even without ROG, many flights were hazardous...and some plain disastrous.

Right, off into the gloom... Ken Sykora's 'Gordon Light', one of four entered in the 4-oz class.

Left, Jim Adams checks the washout on his Concours d'Elegance winning 'Korda' amidst the extreme humidity of Barkston Heath which must have been quite a revelation for man and model more accustomed to the desert atmosphere of Taft! Right, 2nd place in 8-oz was taken by Chris Strachan with his Chuck Wood 'Yankee IV', a very practical design with excellent performance.

There was considerable turbulence to affect models in the early part of their flights; and a further hazard was that in spite of much shuttling up and down the flight line the two-and-a-half-minute max - reduced to two minutes for the final round - was taking many models into, or beyond, the missile compound.

Jim Adams 'Isis' suffered a catastrophe in the second round because of (one suspects) a combination of turbulence, wet flying surfaces and a tweak too much of extra right rudder. It really was a violent crash, but Jim had some reward later in the day when his '4oz' 'Lanzo Duplex' was judged winner of the Concours d'Elegance. It flew well in some of the worst weather, too. Jim is editor of the Stateside *SAM SPEAKS*. Whatever he has to say about an English summer's day, let's hope he won't be too modest about his achievement.

Best performance of all was undoubtedly that of fellow American, Alan Richardson, whose 'Korda' maxed in all three rounds; a unique and remarkable achievement on the day. Alan was thus the worthy winner in the 'eight-ounce' class. After a wet and fruitless search for his model he was lucky to get it back when it was found at the end of the day by Dave Hipperson during a wet, fruitless search for his own model!

Chris Strachan, second in 'eight-ounce' with his 'Yankee' IV, was let down by a first flight which was just nine seconds short of a max. Maybe a fly-off would have been too much for everybody... Dave Hipperson, third, suffered a relatively poor second-round flight (sandwiched between two maxes).

Over in the 'four-ounce' class, which was run concurrently with the post-1937 competition, the superiority of the 1936 'Copland' was evident, with Peter Michel in first place despite failing to max, and Ted Hopgood in third. Separating the two was Phil Ball's 1935 'Ying', which showed its true potential by maxing in the first and third rounds. This design was also a popular American choice; Mik Mikkelson, Ed Wallenhorst (whose model was proxy-flown by Martin Dilly) and Lee Freeman also entering examples.

Other Competitions

A variety of side-line events had also been scheduled but as at Warwick, support for these was low in comparison with the main Wakefield extravaganza. The Rolie Lelliott Trophy for Open Vintage Glider was retained by Geoff Smith, whose trusty 'SATU' put in a final-round flight of sufficient duration to beat John O'Donnell's lightweight. John also proxy-flew his brother Hughie's large own-design model, but this original sustained damage on tow.

Potentially a very rewarding competition, Derek Ridley's organisational efforts, and his enthusiasm, deserved more than a handful of entries. Also scantily attended was Vic Smeed's competition for the 'Spar-Es' (the free plan in April's *Aeromodeller*) but this was really no day for baby rubber models. Chris Strachan won the event. The 'Midge' and 'Unlimited' control line events were postponed, and no free flight Precision took place.

Very few models were aired on a fun-fly basis but several sport jobs were forlornly assembled in the vain hope that conditions would improve. Particularly interesting was Charles Havis' 1946 'Bowden Trophy Winner', a be-strutted parasol-wing design by A.H. Wilson. This featured an expertly fashioned metal cowling - the whole model looking delightful in green and black. At the time of writing, it awaits its maiden flight.

Similarly untried was Peter Harvey's 'Fleetwing', an angular, but attractive, cabin rubber craft from the drawing board of Ted Evans. Lots more models were half-glimpsed through driving rain or steamed-up car windows, but it was not to be their day. That belonged to the Wakefield contestants.

During the drier intervals, and in *that* tent, energetic chat sessions bubbled up. It was pleasant to see Pat Fillingham, a member of the 1935 English Wakefield Team; and good to meet Albert Bolton, who proxy flew E.O. Gregory's Australian 'Jaguar' in the 1949 Wakefield Contest. Danny Sheelds revealed that during his stay in the UK he was hoping to locate a *Rolls Royce* 'Silver Cloud' or a London Taxi. Wonder which he ended up with? Then there were discussions about old engines, jet propulsion, the activities of the LSARA - but space runs short, and much remains to be told another time...

Prizes!

So to the prizegiving. Colin Watts (who received a vote of thanks for all his efforts) called upon a "young man who has built and flown a model or two" to present the prizes. This was Sal Taibi! The ceremonies were commendably short.

As the 'eight-ounce' trophy is held for just one year, it was pointed out to winner Alan Richardson that we would be able to welcome him next year when he returns it!

Presentations over, thanks went to the Grantham Club, Phil Ball, Keith Harris and the CO of RAF Barkston Heath for making the arrangements to accommodate us at relatively short notice. There was much thought about what might have been, had the weather relented; but support was high and enthusiasm bright nevertheless. Just wait until next year!

Wakefield Anniversary Meeting Results

SAM 35 4oz Wakefield

		Model	1st Flight 2:30 MAX	2nd Flight 2:30 MAX	3rd Flight 2:00 MAX	Total
1	P. Michel	36 Copland	2.14	2:13	1 21	5:48
2	P. Ball	35 Ying	MAX	0:45	MAX	5:15
3	E. Hopgood	36 Copland	1 39	1 33	MAX	5:12
4	M. Mikkelson USA	35 Ying	1.57	1:23	1:36	4.56
5	E. Wallenhorst USA	35 Ying *	1.57	MAX		4.27
6	J. Adams USA	Lanzo Duplex	1:18	1:24	1 27	4:09
7	J. Brooks	36 Judge	1:22	1:42		3:04
8	K. Sykora USA	Gordon Light	0:37	1:17	0 52	2:46
9	B. Aslett	Lanzo	MAX			2:30
10	R. Parham	Gordon Light	2 18			2:18
11	L. Barr	36 Copland	1:42			1:42
12	J. Beshar USA	Gordon Light		0:30	0:47	1:17
13	M. Hetherington	Gatsla	1.16			1:16
14	W. Wiley USA	Boelha			1:14	1:14
15	L. Freeman USA	35 Ying	0 37			0:37

* *Proxy flown by Martin Dilly*

SAM 35 8oz Wakefield

		Model	1st Flight 2:30 MAX	2nd Flight 2:30 MAX	3rd Flight 2:00 MAX	Total
1	A. Richardson USA	39 Korda	MAX	MAX	MAX	7:00
2	C. Strachan	Yankee IV	2:21	MAX	MAX	6:51
3	D. Hipperson	39 Korda	MAX	1:58	MAX	6:28
4	A. R. Wells	Voo-Doo	2:26	2.11	1.47	6:24
5	R. Brownson	Samantha	2:16	MAX	1:35	6:21
5	K. Horry	O D 1950	MAX	1.51	MAX	6:21
7	P. Michel	Earl Stahl Gypsy	MAX	1:14	1:54	5:38
8	B. Yearley	Yankee IV	0.59	MAX	MAX	5:29
9	T. Hall	39 Korda	MAX	1.43	1:13	5:26
10	J. Lawson	Simon	1:46	2:05	1.16	5:07
11	A. Faykun USA	Jaguar	1:37	2:29	0.58	5:04
12	G. Stephenson	Nelder	1:17	MAX	1.01	4:48
13	M. Kemp	Hereward	MAX	1:46	0.09	4:25
14	R. Alban	Gipsy	1:53	1 36	0.44	4:13
15	J. Meaney	39 Korda	1.23	1 42	1.04	4:09

Above top, 'Mik' Mikkelson placed 4th in 4oz with his 1935 'Ying', maintaining a steady average of 1:38 - this was one of four 'Yings' entered. Above, Ken Sykora applies a light to his Gordon Light (4oz) as Lee Freeman checks the prop.

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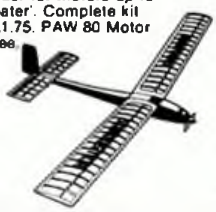

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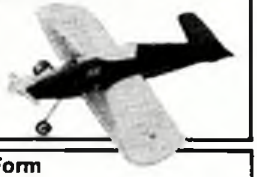

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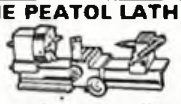

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RTP Scale Model
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