

# AERO

## MODELLER

### SPITFIRE STUNTER

Full-size plans for a classic beauty

### TRUE CONFESSIONS

One modeller's story...



### SCALE SUPREME AT SHUTTLEWORTH

Old Warden colour report





# Maritime Military & Aviation Book & Model Fair

SUNDAY 16th SEPTEMBER 10am to 5pm



New, secondhand and antiquarian books, magazines, models and prints covering almost every subject associated with transport, including Maritime, Military and Aviation travel on land, sea and air.

The stalls are all within the Museum complex among the historic aircraft. Over fifty book and model dealers offering over 20,000 publications and a variety of scale model kits.



The Book & Model Fair is included in the normal Museum admission charge

Royal Naval Air Station, Yeovilton. Off the A303/A37 Ilchester, Somerset on the B3151 Tel (0935) 840565

# THE BEST OF MODEL PLANS FROM GERMANY

GLIDERS • SCALE •  
SPORT POWER •  
VINTAGE • CONTROL LINE  
• FREE FLIGHT • BOATS •  
ENGINES

OVER 1600 DESIGNS  
ILLUSTRATED AND  
DESCRIBED IN THIS  
142 PAGE CATALOGUE



TEXT IN GERMAN LANGUAGE

Now ASP Plans Service offers easy access to the very best of West German model designs through FMT Plans Service. You may order conveniently here in U.K. and receive your plans by direct mail from West Germany.

ASP PLANS SERVICE  
ARGUS HOUSE, BOUNDARY WAY, HEMEL HEMPSTEAD HP2 7ST



## ADDLESTONE MODELS LTD

63 STATION ROAD  
ADDLESTONE, SURREY  
KT15 2AR  
TEL: 0932 845440

MAIL ORDER: POSTAGE UK ONLY  
Engines & Kits under £15 **£1.60**  
Kits over £15 **£2.60**  
Other Items **£1.20**  
Credit Card Holders Phone For Immediate Despatch  
EXPORT SENT V.A.T. FREE  
S.A.E. with all enquiries

HOURS OF BUSINESS  
9am - 6pm. Fri. 6.30  
Closed Wed. all day  
EASY FREE PARKING

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

PLEASE RING IN FOR DETAILS ON A.M., MERCO & M.V.V.S. ENGINES - NEWI CO BY MODELA ONLY £19.95

BOOKS Inc. P&P  
Fifty Years of Aeromodelling ..... 7.25  
Model Flying - The First 50 Years ..... 8.25  
Aircraft Plans Handbook ..... 2.75  
Ben Buckle Plans Book ..... 2.75

NEW ROCKETRY MANUALS  
Estes Catalogue ..... 1.68 Inc P/P  
Second Stage - Advanced Model Rocketry - Incl six computer progs! ..... 8.95 Inc P/P  
Handbook of Model Rocketry, 5th edition 367 pages of fascination! ..... 14.49 Inc P/P

KITS TO BUILD RUBBER POWER K.K.  
Achilles ..... 5.49  
Robin ..... 5.49  
Competitor ..... 7.49  
Ace ..... 8.49  
Gemini ..... 5.49  
Eaglet ..... 5.49  
Senator ..... 7.49  
Ajax ..... 6.49  
Pixie ..... 5.49  
Back in stock  
Union Electric  
Bellanca Champion ..... 17.99  
Cessna 150 ..... 17.99

CONTROL LINE MODEL - HOB  
Yayito ..... 15.95  
Mustang P51 ..... 17.95  
Smousen ..... 18.95  
Baron ..... 28.95

TOP FLITE  
Baby Fiske Streak ..... 9.95  
Fittle Stag ..... 19.95  
Junior Nobler ..... 19.95

PEGASUS  
Minitord ..... 9.95  
Warlord ..... 12.95  
Veron Colt Trainer ..... 11.99

YES! WE KEEP CONTROL LINE ACCESSORIES - PLEASE RING FOR DETAILS!

AIRSAIL  
Sportsman 20" 75 - 1.5cc 12.99  
Showman 23.5" 75 - 1.5cc 15.99  
Heron Gas Buggy 48" 1-2.5cc ..... 24.95

The Gleske Nobler 50" ..... 59.95  
"Back In" - KK Ladybird 42" F/F ..... 13.99  
Veron Cardinal 35" 5-1cc 12.99

One Only - V. Spacial C/L from Gullows - B17G Boeing Flying Fortress 1/28 scale for twin .049 - 35" w/ span Super project at ..... 49.95

COVERINGS?  
- Try Litepan, very light but strong £1.00 per sheet 36" x 20 choice of colours. Yellow, Orange, Red, Blue, Black, DK. (WWII) Green, Cream, Silver, White.  
New Fibafilm 72" x 27" ..... £4.20  
Light but added stiffness!  
Balsaloc Adhesive ..... 2.21

OLD VINTAGE FAVOURITES RETURN Thanks to BB & KK  
BB Pirate 34" 0.5 - 1cc ..... 16.45  
BB Bandit 44" 1 - 1.5cc ..... 19.25  
BB Outlaw 50" R/C 2cc ..... 24.20

ESTES MODEL ROCKETS  
STARTER SETS  
NEW! Screaming Eagle 1, over 1200 feet! ..... 22.95  
Ideal Starter Set - Vagabond 1 now in at ..... 31.05  
Sizzler 1 ..... 33.30  
Space Shuttle 2 ..... 36.30  
NEW! Rascal 1 ..... 36.95  
NEW! Meteor 1, nearly 1/2 feet tall! ..... 36.95

NEW IN! D ROCKETS AND ENGINES, AT LAST!  
MAGNUM 2 - includes see-through payload bay, 1/4 mile altitudes, with speeds up to 459 ft. per sec.!!  
For the ultimate Rocketry experience, ..... only £43.65

ROCKET KITS  
Number denotes skill level.  
NEW TO RANGE! JUST IN!!  
Meanie 1 ..... 4.95  
Meteor 1 - Big! ..... 8.20  
Athena 1 - No painting required! ..... 8.30  
Silver Streak 2 - 18" tall! ..... 8.65  
Designers Special - 75 pieces! ..... 34.45  
Yankee 1 ..... 3.95  
Wizard 1 ..... 3.95  
Javelin 1 ..... 4.45  
Alpha III 1 ..... 7.75  
Sizzler 1 ..... 7.95  
Big Bertha 1 ..... 9.10  
Mini Mean Machine 1 ..... 7.50  
Bulldog 12D 2 ..... 7.20  
Voyager II 2 ..... 7.95  
Ranger 2/D ..... 8.05  
Space Shuttle Columbia 2 11.55  
Helicopter 2 ..... 10.30  
Eggs press 2 ..... 10.30  
Novapayloader 2 ..... 7.95  
Blackbird SR71 3 ..... 14.30  
Stealth 3 ..... 9.10

Mercury Redstone 4 ..... 15.00  
*All Rockets and Starter Sets require paint & glue and sets also need 4 x AA alkaline batteries*

ENGINES  
1/2 A3 - 2T ..... 3.80  
1/2 A6 - 2 ..... 3.65  
A8 - 3 ..... 3.80  
A8 - 5 ..... 3.80  
B4 - 2 ..... 3.80  
B6 - 4 ..... 3.80  
B8 - 5 ..... 3.80  
C5 - 3 ..... 4.10  
C8 - 7 ..... 4.40  
C6 - 5 ..... 4.40  
D12 - 0 ..... 7.00  
D12 - 3 ..... 7.00  
D12 - 5 ..... 7.00  
D12 - 7 ..... 7.00

BOOSTER STAGE  
A10 - 0T ..... 4.00  
A10 - 3T ..... 4.00  
B6 - 0 ..... 3.80  
C8 - 0 ..... 4.10

ACCESSORIES  
Recovery Wadding ..... 2.10  
Parachute 12in ..... 2.20  
Parachute 18in ..... 2.75  
Igniters ..... 2.10  
Launch Pad II ..... 14.30  
Electron Beam Launcher ..... 17.55  
Alttrak - Altitude Finder ..... 14.40

ENGINES - COX  
New Queen Bee 049 ..... 36.99  
with Throttle/muffler  
Tee Dee 049 ..... 29.99  
Black Widow 049 ..... 19.99  
Babe Bee 049 ..... 17.99  
Pee Wee 020 ..... 15.99  
Cox Power Pod ..... 4.99  
049 Glow Head ..... 2.95  
Glow Clip ..... 1.65

P.A.W.  
80 Mk 2 ..... 25.30  
100 Mk 2 ..... 25.30

149 DS - 4 ..... 28.75  
149 Contest 4 ..... 31.05  
249 DS4 ..... 31.05  
249 Contest 4 ..... 33.35  
249 DS BR ..... 39.10  
19DS - 4 ..... 33.35  
19DS BR ..... 41.40  
29DS (inc Sil) ..... 46.00  
35DS (inc Sil) ..... 48.30

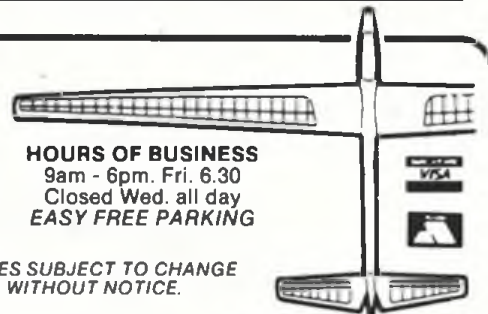
P.A.W.B.B.  
249 DSBR ..... 39.10  
19 DSBR ..... 41.40  
249 R/C BR W/Sil ..... 47.15  
19 R/C BR ..... 48.45

PAW R/C  
80 R/C ..... 31.05  
100 R/C ..... 31.05  
149 R/C (inc Sil) ..... 36.80  
249 R/C (inc Sil) ..... 39.10  
249 R/C BR (inc Sil) ..... 47.15  
19 R/C (inc Sil) ..... 41.40  
19 R/C BR (inc Sil) ..... 49.45  
29 R/C (inc Sil) ..... 48.45

NEW PAW  
Vintage 80 Classic DS-BR 31.05  
Vintage 80 Classic R/C Hi-Torque BR ..... 36.80  
80 mk 2 BR ..... 29.90  
100 mk 2 BR ..... 29.90

NEW PAW Competition Engines - Twin Ball Race  
80 TBR ..... 48.30  
100 TBR ..... 48.30  
249 TBR ..... 51.75  
19 TBR ..... 55.20  
249 TBR-GY Combat Special ..... 54.05

AE  
5cc ..... 27.60  
1cc ..... 26.45  
1.5cc ..... 27.60  
NEW! AE .2cc, Superb ..... 55.25





SEPTEMBER 1990

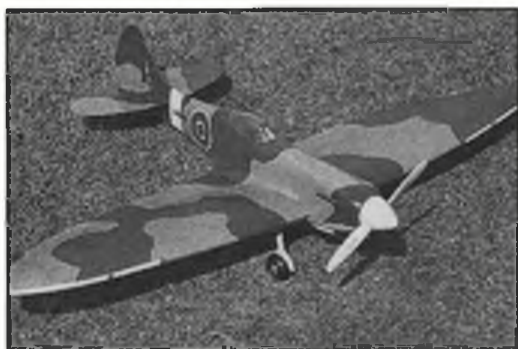
Volume 55

Issue 656

ISSN 001-9232

# AERO

## MODELLER



p. 499



p. 502

<b>Editor</b>	<i>Geoff Clarke</i>
<b>Editorial Assistant</b>	<i>Andrea Silver</i>
<b>Group Editor</b>	<i>Alec Gee</i>
<b>Art Editor</b>	<i>Peter Kirby</i>
<b>Design</b>	<i>Iain Houston</i>
<b>Advertisement Manager</b>	<i>Alan Cole</i>
<b>Advertisement Copy Control</b>	<i>Marie Quilter</i>

Cover: Albert Longbon's F/F Pfalz D.III from Aeromodeller plans was just one of the attractions of our Scale Weekend at Old Warden. Albert, brother of the late Fred Longbon, was happy to present the awards at the F/F Prizegiving. Our report begins on p.502.

<b>HANGAR DOORS</b>	News, comments and What's On	<b>484</b>
<b>TIME FOR A RESURGENCE?</b>	Jim Woodside with 1/2A Team Race thoughts	<b>486</b>
<b>SHEFFIELD SHENANIGANS</b>	Trevor Faulkner describes Indoor activity up North	<b>488</b>
<b>SHOOTOUT AT CHOBHAM COMMON</b>	A Percy tested - Peter Michel tells all	<b>491</b>
<b>SUNNY DAY AT OXFORD</b>	We visit a top Free Flight rally	<b>492</b>
<b>VINTAGE CORNER</b>	Alex Imrie at Old Warden - and on gas engines	<b>494</b>
<b>SPITFIRE STUNTER</b>	Noel Stephenson's latest version of a classic fighter is just right for .30 motors	<b>499</b>
<b>SUPER SCALE WEEKEND</b>	Great fun at Old Warden	<b>502</b>
<b>MOTOR MART</b>	Motors from China described	<b>524</b>
<b>BALSA CUTTINGS</b>	Cyano de Bergerac in the circuit again	<b>525</b>
<b>PER ARDUA AD... TERRA FIRMA</b>	John White's route to free flight competition success	<b>526</b>
<b>FREE FLIGHT SCENE</b>	Competition news - and a top Coupe	<b>528</b>
<b>NEW FROM NOVOSIBIRSK</b>	Russian motors for Combat announced	<b>530</b>
<b>MIND THE LINES</b>	Ron Prentice looks at the Old Time Control-line scene	<b>533</b>
<b>OF CF AND KEVLAR</b>	Propeller techniques described by Paul Rowledge	<b>536</b>
<b>READERS' LETTERS</b>	Your chance to respond	<b>538</b>
<b>TIM HERVEY</b>	An appreciation	<b>539</b>

# ASP

Argus Specialist Publications

Argus House, Boundary Way,  
Hemel Hempstead, Herts HP2 7ST



September 1990

483

# HANGAR DOORS

## Glasnost at the Nats

Make that date! 27-29th August – the weekend of the late summer Bank Holiday, in other words – is when to visit the 1990 BMFA Radio Control, Control Line and Scale Nationals. Besides hectic competition for Aerobatics, Pylon Racing and Soaring (the latter at Cranwell) in R/C, fierce competition in C/L, where Team Race, Speed, Goodyear, Aerobatics and Combat are on the menu, will be given extra spice this year because of attendance by model fliers from the Soviet Union. International events have revealed to past team members just how tough the Soviets are to beat; now the British club flier gets his chance to watch – or even participate! – on his home ground and to decide for himself the strength of the legend. Greatest USSR support is expected to be in Combat, but Aerobatics will also marshal entrants.

Demolition of the Iron Curtain has created instantly-better communication with Eastern Europe and beyond. Already Soviet fliers have appeared at unrestricted events on the continent (as opposed to competitions run at full International status), and, in turn, it is now possible to attend meetings 'informally' in the USSR as we have reported. Also, this liaison creates the chance not only to view at close hand the equipment used by the Russians but opportunity to negotiate for quantity supply of whatever appeals most. Hence, for example, fresh availability of the STELS Combat motor (featured elsewhere in this issue). Very interesting – so don't miss it...

Scale, too, should be well represented. Reports of various new

projects await Nationals verification; Scale modellers being – generally – reticent to brag about the latest creation, surprises usually await...

Where's all this happening? Where else but RAF Barkston Heath, familiar home of the Nationals for many years. A great holiday weekend ahead – but don't take our word for it. Go – and find out for yourself!

## Vintage Weekend – and Shuttleworth affairs

The pilgrimage is here! Our Vintage Weekend takes place on 18-19th August at – where else! – Old Warden airfield. Nowhere else can you meet such an excellence of selection of old-time models displayed in that timeless 'fun fly' atmosphere unique to this airfield. Of course, gentle competition will take place as conditions allow. As all SAM enthusiasts know, Vintage Weekend hosts a number of their own competitions, and we have our own Fireball Trophy for best, 'authentic' control line craft, the Keil Trophy for best Keil Kraft R/C model, and the Lancaster Cup for Midge Speed. All of these will be decided on the Sunday. After previous success, we can announce that Vic Smeed will again run a F/F Precision event for his own designs. Simple in the extreme, the aim is to land your model as close as possible to a golfing umbrella. So dust off those Popsies, Cherubs and Coquettes – and have a go!

This raises another point – which was also the subject of comment at Scale Weekend. Old Weekend is a crowded airfield on model flying days, so care is needed in the operation of F/F aircraft. It really shouldn't be



Close scrutiny at the Indoor Scale Nats as Dennis Thumpston and Chris Coote get down to business at Alumwell. Don't forget the October BMFA meet at the same location; see 'What's On!'

necessary to labour the point, but the correct technique is clear. Models and their 'pits' must be assembled at the upwind boundary, with movement onto the field only when the model is ready for launch. There is no need for dotted groups of enthusiasts – nor, emphatically, of spectators. It is not only unfair but dangerous to expect models to be flown otherwise. One correspondent suggested fluorescent tape to delineate 'flying' and 'non-flying' areas (in his own words, 'to protect the innocent from the witless') but this really shouldn't be necessary. Should it?

Another gripe concerns the invasion of disciplines at our Flying Days and Weekends – that is, appearance of sports models at Scale Weekend, for example. Really, the meeting titles should be respected. Not too much to ask, is it? Again, untrimmed models have no place at Old Warden. Get them flying right before you turn up – please!

At Scale Weekend our experimental layout of trade stands came in for some criticism (and, it has to be said, praise). Location of the 'trade' parallel to the main fence adjacent to the R/C area was tried in response to demand. It is appreciated that, in this case, access to the F/F area was made more difficult, and view of the airfield from the car park almost obliterated. There is no intention to standardise on this layout; but flexibility of approach means opinion is sought, and acted upon when trial is worth the effort (otherwise, meetings would have remained as 'days' rather than the selection of 'weekends' now on offer, for example.) We do listen...

Lastly, do remember that Old

Warden is a full-size airfield. Interaction with model flying is minimised (consistent with the fact that mere humans operate the system) but occasional interruption is necessary. This is one of the conditions of use of the airfield. But we like to think we are providing a unique series of meetings, and anticipate welcoming more and more of you to Old Warden in future. Starting with Vintage Weekend, of course!

## Congrats!

...to Malcolm Martin and his merry team who successfully negotiated their Channel crossing with R/C Hurricane, from Calais to Manston, on 13th July, helping the RAF Benevolent Fund thanks to healthy sponsorship, and getting into the record books in the process. Your editor accompanied the support crew on the day; results of the efforts will be published in October's RCM&E.

## Whose? What? Why?

Last month's mystery object, a tool for production of balsa wheels for vintage aircraft, was the latest creation of Alex 'Vintage Corner' Imrie. A full account of its use (which involved a fire during early experiments) will appear soon...

## They're on...

Omission of the BMFA Indoor Scale Meeting (to be held on 28th October at the Alumwell Centre, Walsall from last month's What's On doesn't indicate cancellation. Far from it! Doug Sheppard's sterling efforts deserve super support – so far the tops in Indoor Scale, take the road to Walsall. Details now restored to What's On!

At close of play at Scale Weekend, Richard Falconer's KK Ecoupe showed marked preference for copse-hunting – retrieved time after time with the aid of this rustic device. Quaint...





# WHAT'S ON

**11-12th August**  
**SCOTTISH F/F NATIONALS**  
 Venue: Newbigging, near Lanark. Saturday: F1A, F1B, F1C, Junior Kit. 11am start. Sunday: All-in Mini (9am-1pm); Open Rubber, Open Power, Open Glider, Vintage (12-5pm). Contact: Jim Arnott. Tel: 0383 419340.

**12th August**  
**THREE KINGS 21st ANNIVERSARY + REUNION DAY**  
 Venue: Old Croydon Aerodrome, Purley Way, Croydon, Surrey. General C/L flying and get together for all Three Kings members past and present. Silencers and proof of insurance essential. Contact: Wal Cordwell. Tel: 081 764 1661.

**18-19th August**  
**INDOOR NATIONALS**  
 Venue: Cardington. 'Heavy' models on Saturday; microfilm on Sunday.

**18-19th August**  
**ASP VINTAGE WEEKEND**  
 Venue: Old Warden Airfield. The annual pilgrimage! Meet friends old and new - see and fly those super designs from yesterday! Collectors' is a new feature for 1990. Model flying at its informal best! Contact: Aeromodeller. Tel: 0442 66551.

**25-27th August**  
**BMFA R/C, C/L AND SCALE NATIONALS**  
 Venue: RAF Barkston Heath. Three days of top competition. 1989 had more entries than the previous year - '90 promises to beat that! Come and add to the control-line revival - and watch top Scale and R/C in action. Contact: BMFA. Tel: 0533 440028.

**2nd September**  
**SMAE NORTHERN AREA FAI RALLY**  
 Venue: RAF Binbrook. Contact: Dennis Davitt. Tel: 0532 675433. SMAE members only.

**2nd September**  
**INDOOR AT CARDINGTON**  
 Venue: Cardington Airship Sheds. Index, league and Kenny Penny. Contact: Bob Bailey. Tel: Stevenage 723642. Essential to ring before attendance.

**9th September**  
**NORTH LONDON RADIO CONTROL MFC ELECTRIC FLY IN**  
 No venue given. Electric models only. No F/F. Proof of insurance needed. Contact: Richard Barley, 44 Orchard Avenue, Berkhamsted, Herts HP4 3LG.

**15-16th September**  
**FID EUROCHAMPS TRIALS**  
 Venue: Cardington. Contact: Bob Bailey. Tel: Stevenage 723642. Essential to ring before attendance.

**15-16th September**  
**ASP FOUR STROKE WEEKEND**  
 Venue: Old Warden Airfield. Informal action for four-stroke enthusiasts! Great fun for all! Contact: Aeromodeller. Tel: 0442 66551.

**16th September**  
**SMAE NORTHERN GALA**  
 Venue: RAF Binbrook. Contact: Dennis Davitt. Tel: 0532 675433. SMAE members only.

**16th September**  
**SMAE MIDLAND AREA RALLY**  
 Venue: Sutton near Eynsham, Oxford. R/C events: Class 1 precision, Flying 15. F/F events: 1/2A Power, Coupe, A1, F/F vintage events: LW rubber (36in span max), glider, chuck glider. Plus old time stunt C/L. Signposted from Eynsham roundabout on A40, West of Oxford. Contact: Charlie Newman. Tel: 086 77 3020.

**16th September**  
**CONTROL LINE SCALE MEETING**  
 Venue: RAF Hullavington. Contact: Martin Fardell. Tel: 0454 412488

**23rd September**  
**SMAE F/F SCALE MEETING**  
 Venue: RAF Barkston Heath, CO./Electric, Rubber and Poer. Contact: Charlie Newman. Tel: 086 77 3020. **23rd September DOUG BLAKE TROPHY MEETING**  
 Venue: Slip End, Luton. F2A Stunt. Contact: Glen Alison. Tel: 0923 772675.

**28th September**  
**SMAE INDOOR SCALE MEETING**  
 Venue: Alumwell centre, Walsall. 08.30 to 17.00. Peanut, Open Rubber Scale, CO./Electric, Air Racing, Biplane Kit Scale and Jet Prototype flyoffs. (Entry for the last three events on the day). Contact: Doug Sheppard. Tel: 0272 687595.

**30th September**  
**THREE KINGS C/L SCALE DAY**  
 Venue: Old Croydon Aerodrome, Purley Way, Croydon, Surrey. FA1 Scale and profile classes, best military. Silencers and proof of insurance essential. Contact: Wal Cordwell. Tel: 081 764 1661.

**14th October**  
**SAMS INDOOR FUN-FLY**  
 Venue: Watford Leisure Centre. Adults only from 9-11am; everyone welcome 11am-6pm. Contact: George Wallbridge. Tel: 076 388 384.

**28th October**  
**CROYDON WAKEFIELD DAY**  
 Venue: RAF barkaton Heath, F1B, Vintage Wakefield (4oz, 8oz and own design). 9.30am start. Contact: David Beales. Tel: 081 858 2714.

**29th December**  
**60TH MODEL ENGINEER EXHIBITION**  
 Alexandra Palace, Wood Green, London N22. Two days of model flying! DPR Model Flying Championships on 1st January. 10.30 start with the DPR Workshop in operation all day! Hit the Kit Competitions at 11am and 1pm for the under 13s, Junior Superfighters for the under 13s at 12.00, with the Junior and Senior National Chuckie Championship at 2.30pm. Super prizes! Send for entry form to DPR Models, Unit 9, The Vanguards, Shoeburyness, Essex S53 9QY with SAE. Return form before 21st December for free admission ticket to the Exhibition!

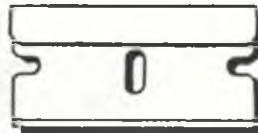
**Also - Fun-Fly Model Day on Thursday 3rd January.** Fly from 10.30 till late! Displays and competitions too. More details to follow.... Meantime, contact Aeromodeller on 0442 66551.

## SCOTLAND

FOR YOUR ESSENTIAL  
 AEROMODELLING SUPPLIES  
 YOUR *FIRST* REQUIREMENT  
 VISIT

## DUNN'S MODELS

3 WEST NILE STREET  
 GLASGOW G1 2PR  
 Tel: 041-221 0484



## INDUSTRIAL QUALITY RAZOR BLADES.

Single Edge Industrial Quality Razor Blades packed in boxes of 100. (One Hundred).  
 £8.50 per box including postage & packing.  
 Send Cheque or Money Order to:-

**EASTWOOD MODEL AIRCRAFT,**  
**1 Eastwood Road,**  
**Penryn,**  
**Cornwall. TR10 8LA**  
**Telephone (0326) 76886**



## POPULAR FLYING ASSOCIATION

The representative body for amateur construction and recreational flying in the U.K. authorised by the C.A.A. for the issue of "Permits to Fly" for amateur-built aircraft and some vintage aircraft, within defined weight and horsepower limitations.

### BUILD YOUR OWN!

Ever thought of building your own light aircraft? With over 200 designs approved for home building there is sure to be one that suits your abilities, be they for a single or two seater.

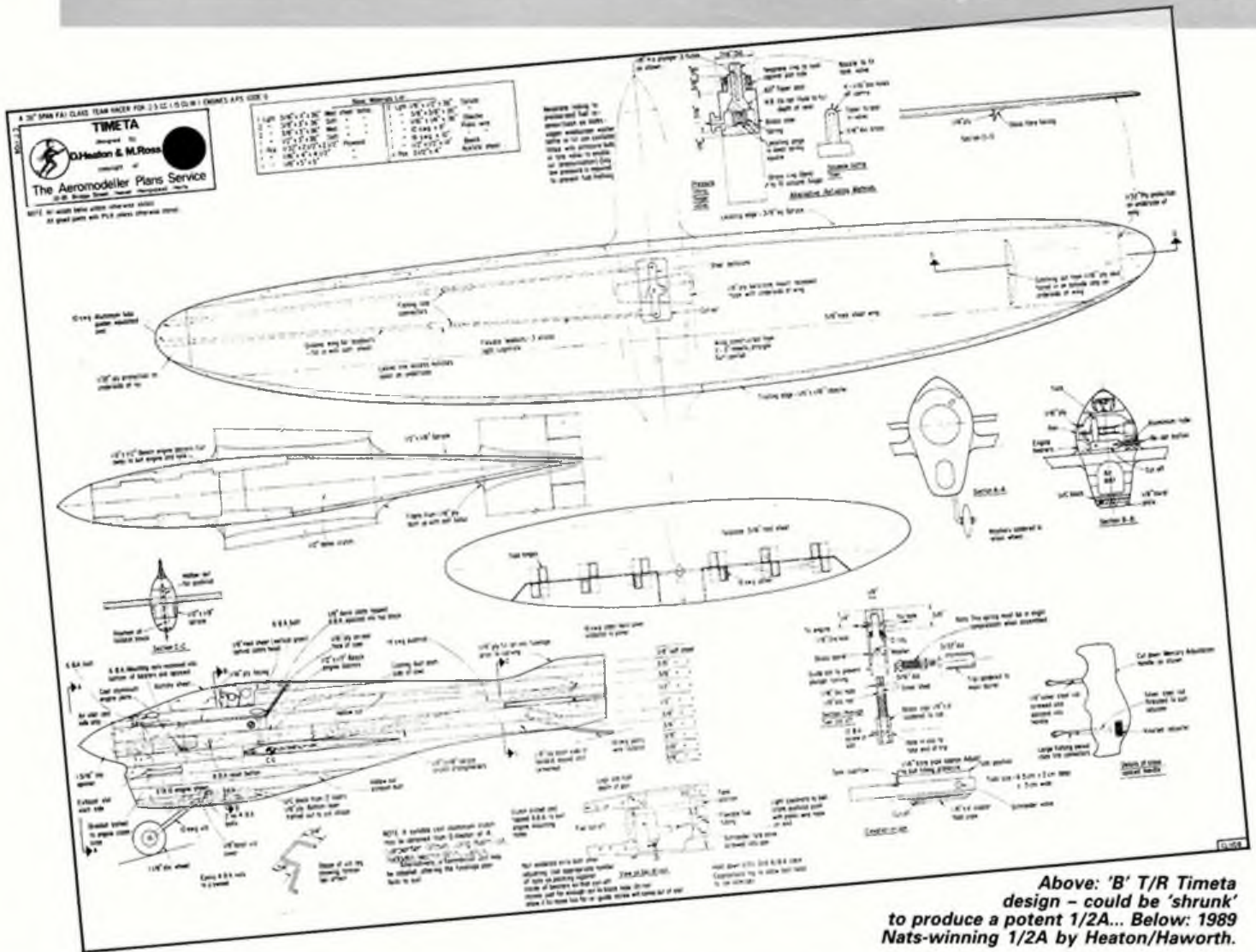
One method of building that is becoming more and more popular with our members, is the formation of Construction Groups. The advantages being; big reductions in costs for each member, a variety of skills available, construction time considerably reduced. (Some Groups are flying at around £20 per hour!) The latest figure of home-built aircraft flying in the U.K. is now over 800... - you could soon be adding to that!

- As a member of the P.F.A. you would receive:-
- Free copies of 'Popular Flying' magazine (6 per year).
- Free entry to the Annual P.F.A. Rally every July.
- Free passes to Aircraft enclosure at Rally.
- Advice on all aspects of building and flying Ultralight aircraft from our Engineering Department.
- Plus access to any of 40+ local P.F.A. Branches.

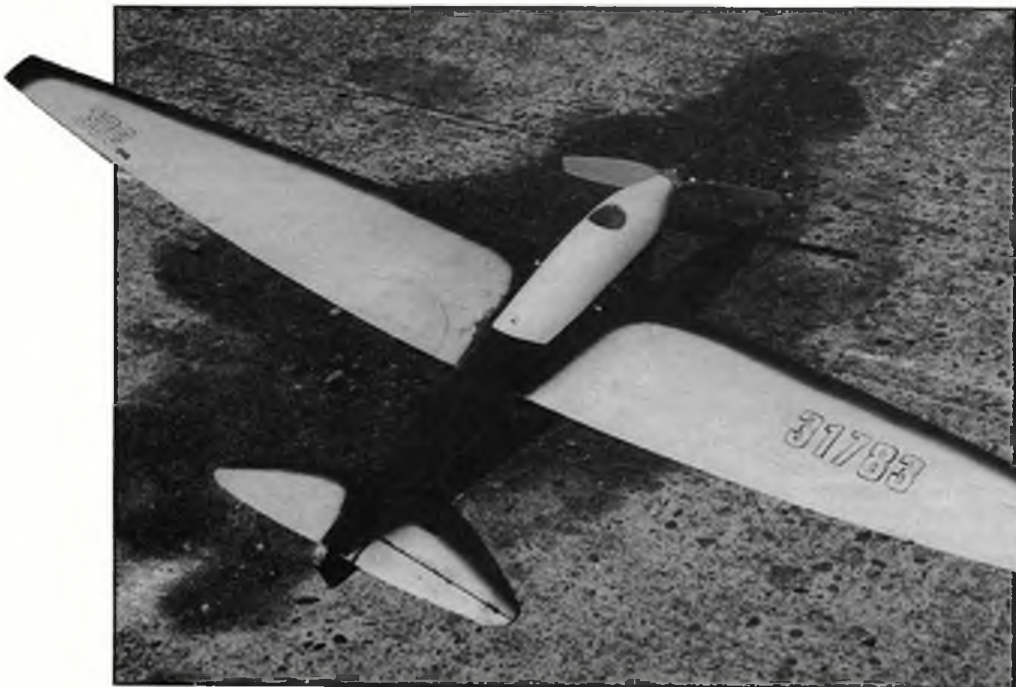
**If flying at affordable costs is your ambition,**  
 get the full facts before you - write now for your free info' pack to: INFO PACK (Dept. A), Popular Flying Association,  
 Terminal Building, Shoreham Airport, Shoreham-by-Sea, West Sussex BN4 5FF.



# TIME FOR RESURG



Above: 'B' T/R Timeta design - could be 'shrunk' to produce a potent 1/2A... Below: 1989 Nats-winning 1/2A by Heaton/Haworth.



**A**LTHOUGH the ultimate honours of competition such as record times or national championships usually fall to those with the ability to produce or obtain home built 'specials' the general health of a competition class will rest in two engine-related factors.

(a) The commercial availability of an engine of sound design and construction.

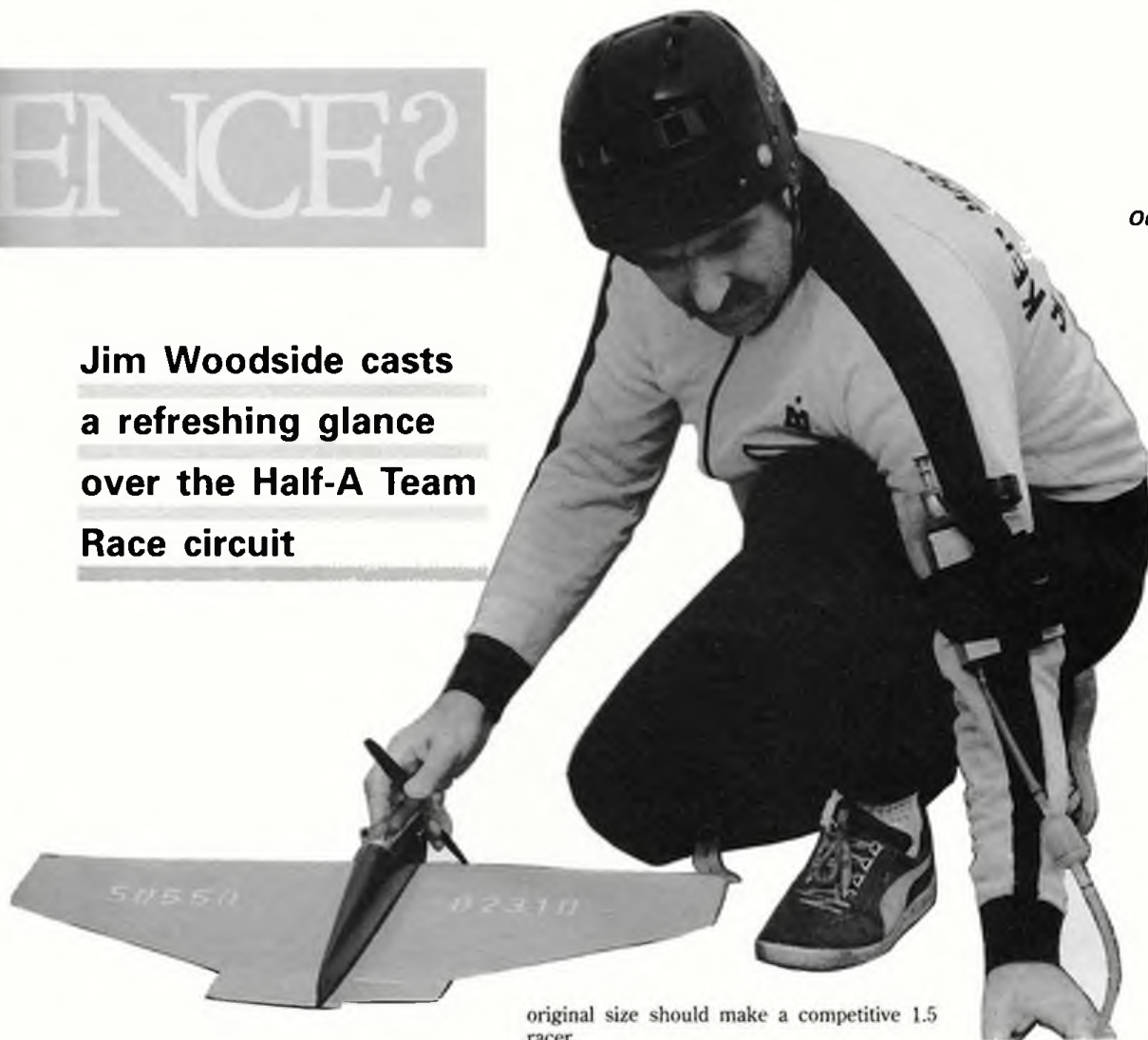
(b) That its performance be of something like 80-90% of the non-available specials - this makes places in semis and finals a distant possibility.

The discontinuance of the production of the Oliver Tiger range of engines is a serious problem, although there must be many hundreds of unused Cubs lurking in cupboards on these isles. Further, at this time, John Oliver still lists spares for all the recent marks of Tiger from 1.5 to 3.5cc, so this might be a last opportunity to repair damaged or worn out units.

Just a word of warning: most parts for the much loved MkIII 2.5 are not available, nor are original style crankcases for the 1.5 Cub.

# ENCE?

## Jim Woodside casts a refreshing glance over the Half-A Team Race circuit



*Our scribe takes time out to pit in F2C. Racing thoughts applicable to 1/2A just as much, though!*

### PAW 1.5 TBR

The good news is that Tony Eifflaender of PAW is producing a twin ballrace 1.5 motor. Recent evidence of the performance of the 2.5cc version in British Goodyear suggests that power and economy should both be very acceptable.

#### PAW 1.49 TBR

*Claimed bhp: 0.35  
Shaft: 10mm diameter – two ballraces  
Available in: 360 degree porting, £49.45  
Schnuerle porting, £51.45*

Factory tuned units are £59.80. This seems to me the sensible option as it is possible to have the crankcase adapted to the use of Cox-type peripheral carbs. The Schnuerle ported version may also be more economical in use. Further these units only weigh 4.1/4oz, making a light model more easily achieved. Serious enquiries will receive courteous treatment if they call Tony at the factory.

### Models!

My last 1/2A model was built in 1983 to accommodate the Australian Sesqui motor. It proved quite successful with a run of places in the major competitions. The critical point I want to make is that this model was much larger than the minimum size stipulated in the rules; both handling and stability improved. The model was in essence a scaled-down Tigress FAI wing and tail grafted onto a fuselage of modern technique: pan, multi-valve and so on. Rob Metkemeijer's 1/2A model is simply a redundant Turtle F2C with a couple of inches sawn off each wing tip! So any good wing and tail FAI model reduced to about 0.75 of its

original size should make a competitive 1.5 racer.

Such tricks are easily done on any modern day photo duplicator found in most high street print shops. Remember, you really only need half a wing and tailplane to fabricate these parts.

### Suitable FAI models are:

Name	Code No.	Price
Turtle		
Timeta	CL1108X	£2.50 + 69p postage
Klotzbug		
Tigress		
Nelson Spring	CL1351X	£3.75 + 60p postage
Timepiece	CL1375	£6.00 + 60p postage

### 1/2A Designs

Countdown	CL833	£3.00 + 60p postage
Broadside	CL1364	£3.00 + 60p postage

In line with modern practice most of the above designs would benefit from the fitting of a long tail skid to reduce their ground angle with consequent improved take-offs in breezy weather. Strangely, small flying wing models do not seem to work well – they appear too tiny for pitmen to handle effectively.

### Hardware

Suitable tank valves, shut-offs and wheels are all available from the busy hands of Ed Needham.

Engine mounting plates and pans are still available from Des McAnelly in New Zealand, although I do not have a lot of current prices. If you write do enclose a couple of reply coupons. Type AA4R is the 'Broadside' model variety; type AA12 is the fully-enclosed 'Pomadi' unit.

It is worth noting that both of these are nominally designed around the Oliver Cub crankcase width of 1.1/8in and thus will not be suitable for the PAW 1.49TBR, which is only 7/8in across the crankcase. Sawing and filing a suitable mount from 1/4in dural is not difficult. Using steel blocks as shown on either the Tigress or Countdown plan yields an adequately strong mount.

### The recommended combination?

A three-quarter size Tigress, Timepiece or Timeta, using a PAW 1.49 TBR Schnuerle motor with a delrin Cox carb, driving a Visionregal 6 x 7 prop. It will be necessary to check fuselage dimensions comply with the regulations and some lengthening of the tail movement may be needed to achieve a sensible CG point. I want to stress that the above is only an 'arm-chair' model but my experience suggests it might well be a useful competition machine.

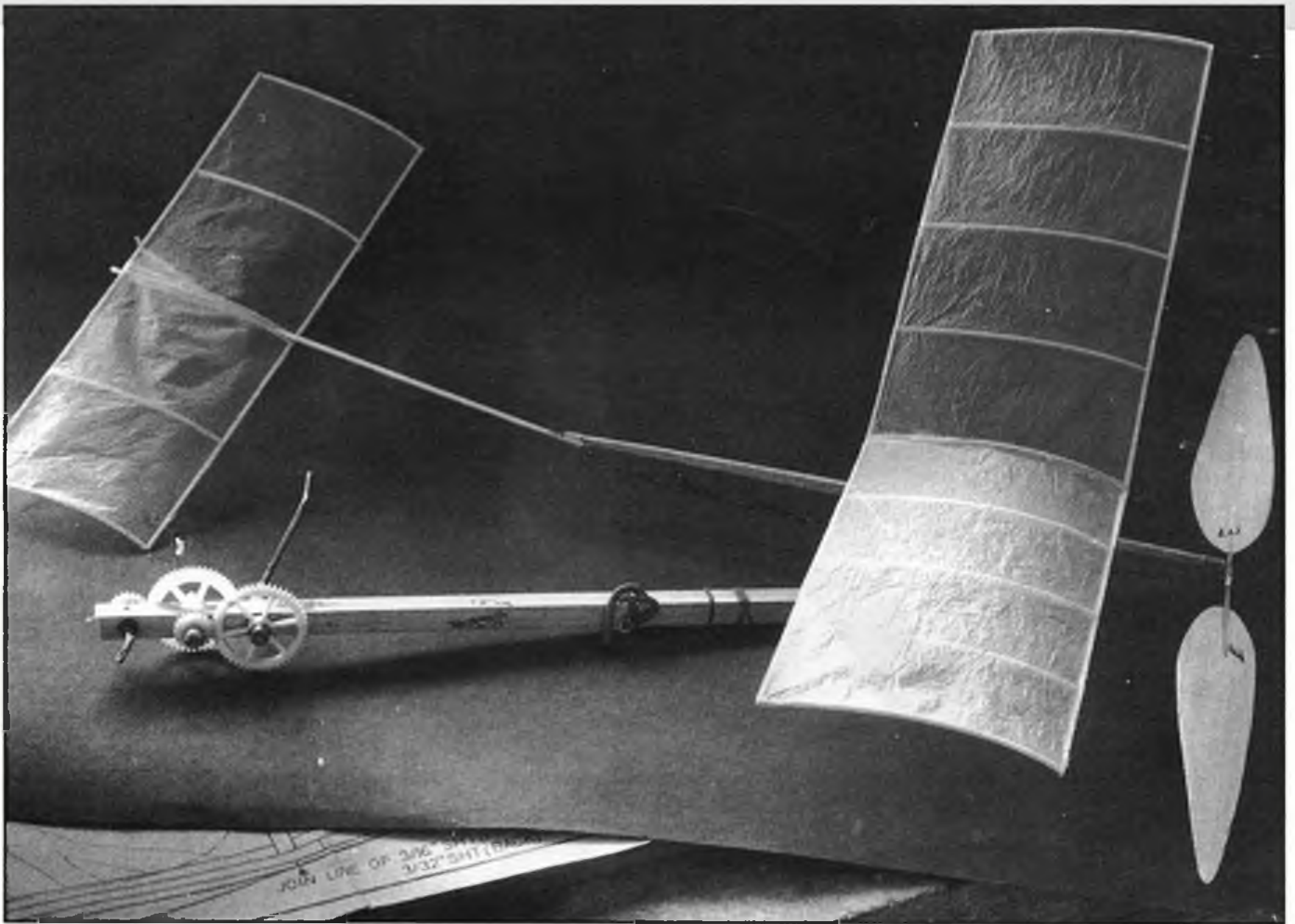
### Addresses

**PAW Engines**  
Union Mill  
Union Street  
Macclesfield  
SK11 6QG  
Tel: 0625 23891

**John Oliver**  
250 Ringwood Road  
Ferndown  
Dorset

Continued on p.540





## Trevor Faulkner takes a look at local low-ceiling adventures

**T**HE Sheffield Society of Aeromodellers (SSA) is a club of fifty years' standing, with a modestly enviable reputation for some of the best thermal-soaring and magnet fliers in the UK. But when it comes to Indoor flying we're a bit like a one-armed juggler - willing to have a go, but aware of our limitations.

The lack of top-class Indoor expertise has one positive side in that all members have a chance in a wide-open field. Models have to be robust as hazards are many and Friday night Indoor sessions get a bit crowded. Even very junior members participate - and a glider-trimming session in the confined space available would send any self-respecting Air Traffic Controller into a decline. But it's good fun for participants and spectators alike. Now, down to some basics.

### Rules and other inflexibles

(a) Any number of models may be flown; effectively, the model is the entrant.

*The author's own Open Rubber craft has kit-model origins - see text.*

(b) Timing stops when the model touches, strikes or demolishes an obstruction.

(c) The score is achieved by adding together the best four of five rounds for each Rubber model. Gliders have a test flight in each round and can opt to have this count as a scored flight, for there are three scoring flights per round.

(d) Juniors may launch from a chair or stool.

### Classes

Hand Launch Glider (HLG), All-wood Rubber, Open Rubber. There is no processing. Gliders must be of all-wood construction.

### Flying area

This is the really pivotal matter. The room we use measures 21 x 17 x 11ft high. Lamps hang from the ceiling and chairs (plus occupants) line the walls. Fortunately there are few draughts, but a sideways drift may be discernible. Hardly Cardington, but on the positive side, we haven't yet lost a model OOS!

### Times

Current records are as follows:  
Glider: 10.19sec -Lee Dolby

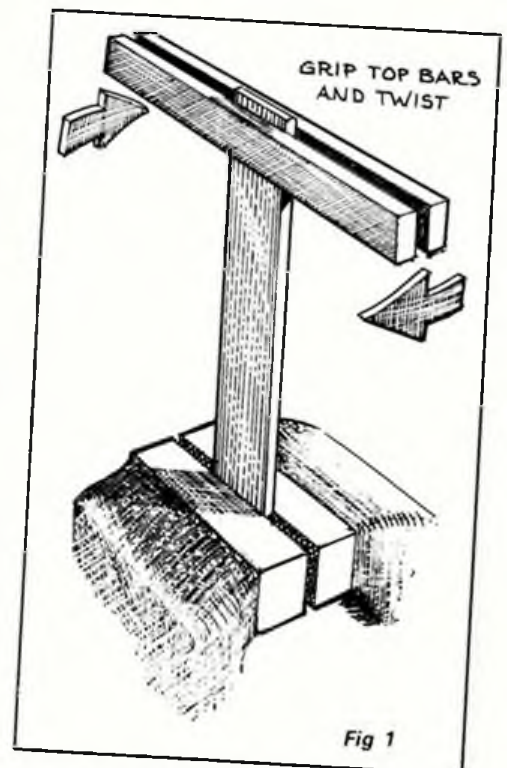
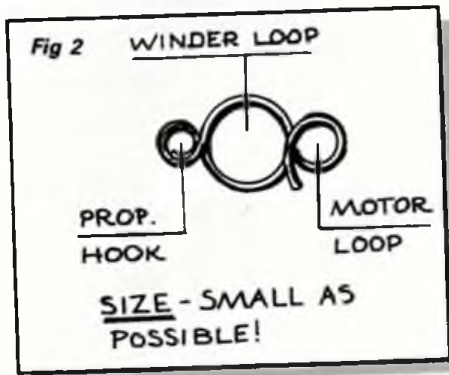


Fig 1

# Sheffield Sky





All-Sheet Rubber: 28.54sec - Brian Castleton  
 Open Rubber: 1min:02sec - Trevor Faulkner

Lee Dolby's record has stood since the 1987/88 season, when times started to rise from the six-and-a-half-second scores which were enough to win the occasional competitions thus held. Glider has done really well when viewed on a percentage basis, but the peak may have been reached. All-sheet Rubber started off at 20sec or so, and improvement has been relatively small. Open Rubber went up in ten-second increments, but once the magic 'minute' had been reached, progress slowed.

The reader might think that times are so low that competition is farcical. This couldn't be further from the truth. Good flights set

against existing records are always applauded, indicating the high interest factor, and everyone gets a lot of flying in a two-hour session.

### Model design

**HLG** - Many variations have been produced, often revealing that their designers are Thermal-soaring buffs at heart. Graham Freeston (once on the FIA team) has tried a large-area model with a minute tailplane, whereas Brian Castleton chose a tight-turning, small model which everyone swears could be trimmed in a telephone box. As they say, wood selection is of the essence - and Brian must have some nice timber stacked away.

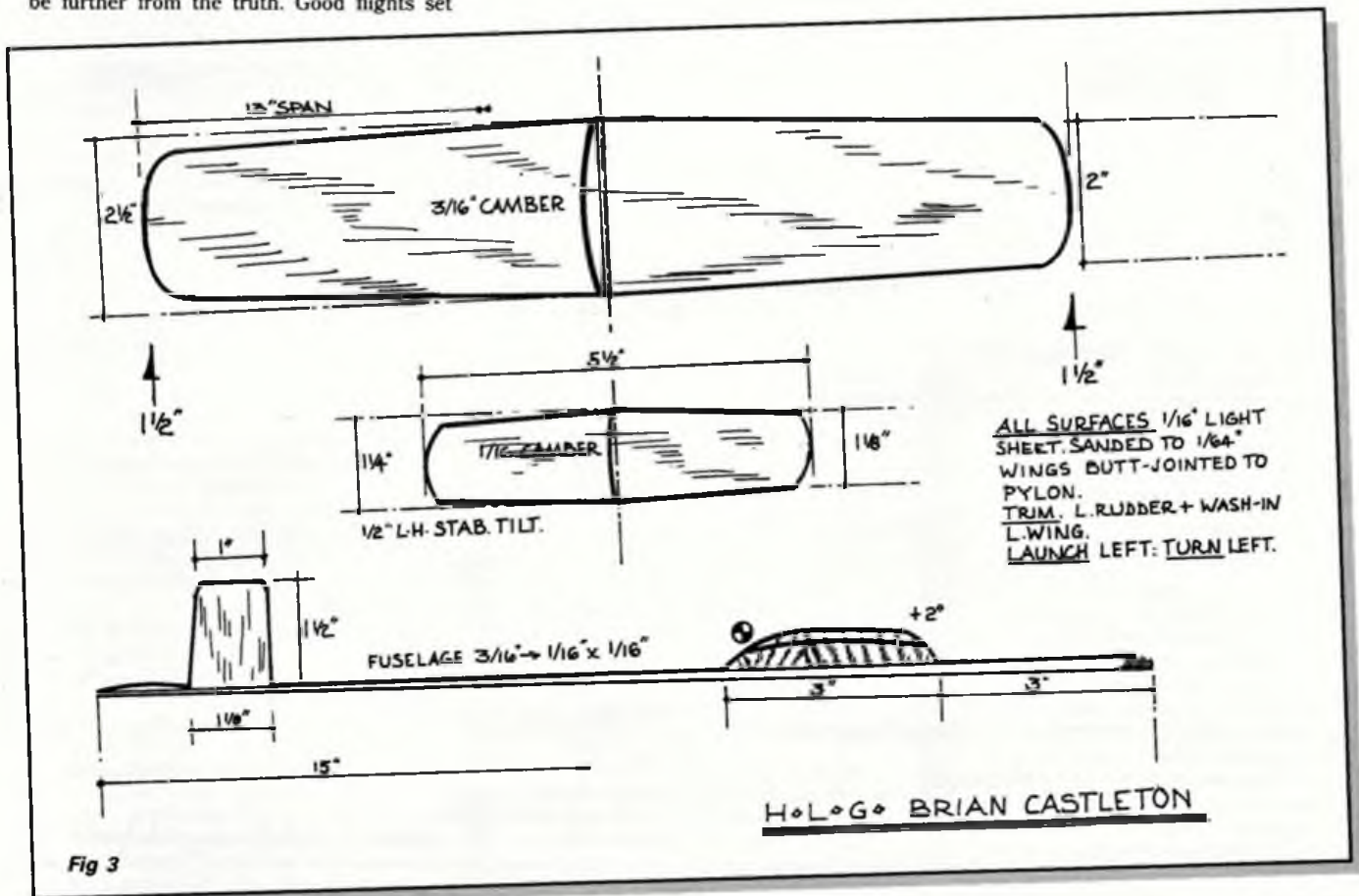
**All-wood Rubber** - is another class subject to the idiosyncracies of approach. Small, fast-revving props seem the norm, although size varies widely. Finger-turns (and no stretching) are sufficient, although one flier has tried an electric motor to save digital war-and-tear. A push-pull model once appeared; it looked interesting, even if it was not overly competitive, but at least it flew and looked original.

**Open Rubber** has obvious affinities with models in similar classes (Easy B and Pennyplane for example) although the direct ances-

tor of the models flown by Don Andrew and the writer (see photograph) was a kit of parts from Herr Dipl. Ing. Wolfgang Spies, better known for his production of Magnet steering units. This kit has a pre-formed, small prop, ready-cut ribs and condenser paper. The prop bearing was a small length of plastic tube with a glass bead twist prop and tube. Wings could be moved fore-and-aft for trimming and the entire construction was pretty robust as the kit was aimed at younger modellers, who would wish to fly in domestic surroundings.

### Developments

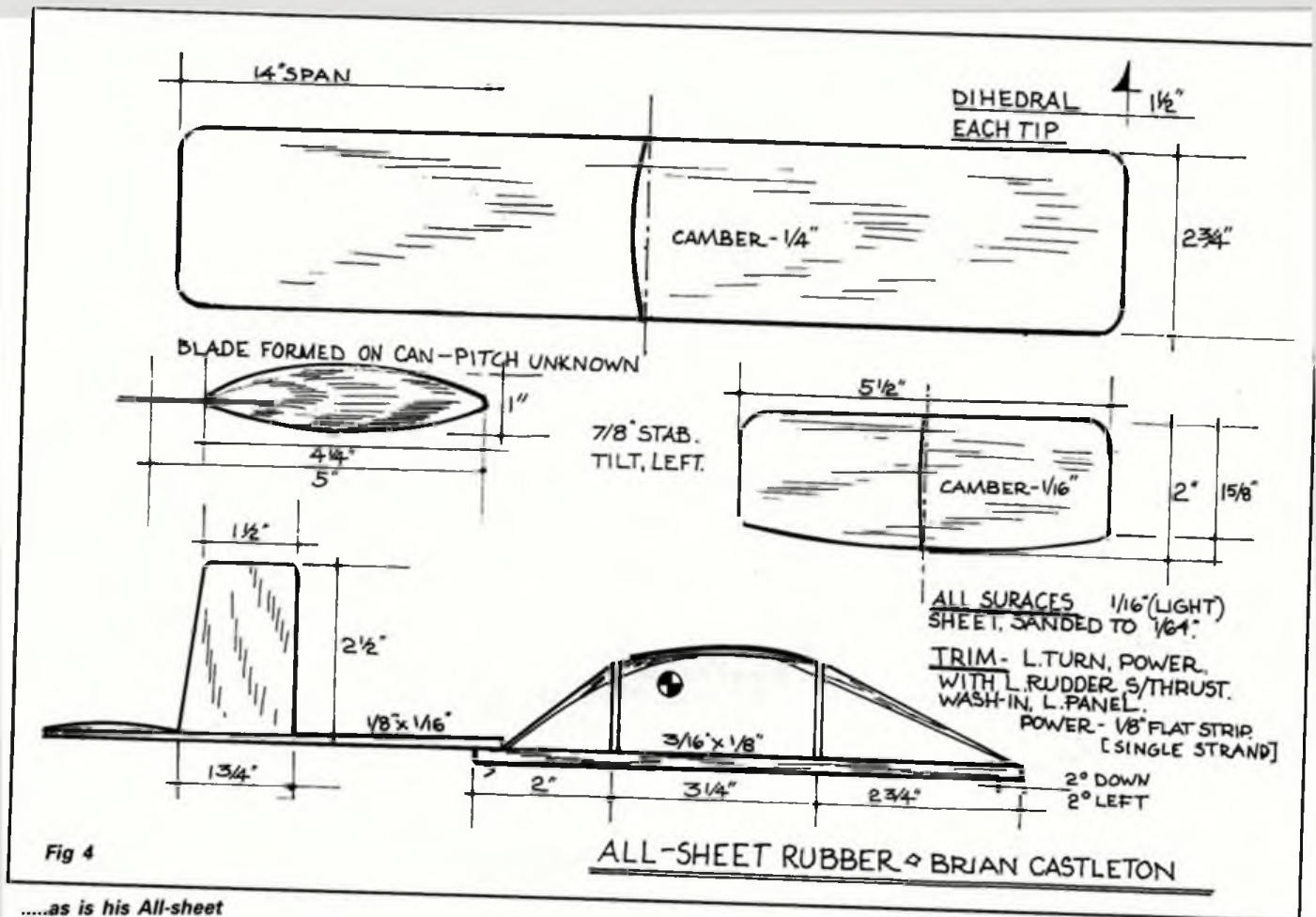
Developments have been influenced by Laurie Barr's and Nick Zotov's excellent articles in *Aeromodeller* (July 1983 and April/May 1978 respectively). Digressing slightly, Don concentrates on scale models, but has built and still flies a Korda Wakefield, Texaco R/C, and a bit of aerobatic R/C. Having flown Spits in WWII, early Jets, and been CFI of a University Air Squadron it was interesting to hear that he reckons to have learned as much from these small indoor jobs as any other type of model.



Brian Castleton's HLG is drawn to 3/8 scale...

# renanigans





.....as is his All-sheet Rubber machine.

Oh yes, he's won the RAFMAA Champs in the past and made a personal hole in the Defence budget by flying all over the place to represent the RAF at golf!

Don is an advocate of Sainsbury's Plastic film Food Wrap for covering not cling film. We have found that it is slightly heavier than condenser tissue; looks prettier though.

Personally, I wouldn't have the skill or courage to build a 'real' indoor job, but circuits in the living room are very therapeutic. Even at this level, some aids are desirable, and we have contrived a few things which aren't exactly lifted from other peoples experience and writings.

Being able to weigh things (see Aeromodeller, July 1983) is helpful, but model shops don't always have 14 thou' piano wire in stock. Happily, old wrist-watch springs can be used for the same purpose if small enough. Whiston's Catalogue lists wire down to 12.1/2 thou (30swg) for anyone plumb our of watches.

For quite a time, we all wound Open models by hand, counting (and losing count of) the turns applied. A simple winder soon made its appearance (my 6:1 version is shown in the photograph, and can be made in short time from standard plastic gears and a length of square alloy strip; no bearings, just a lubrication hole).

A slightly simpler version of Nick Zotov's torque-meter has now been made and, as he says, he can't think how he managed without one. Very useful in helping to avoid ceiling bashing; practice in use is needed. Another innovation arose because of a shortage of tin cans around which to form prop blades. Fastening one end of a 1.1/4in strip of stiffish alloy sheet some six inches long in the vice and twisting the other end using heavy pliers and a couple of steel strips, a reasonable approxima-

tion of a prop's twist was created. (See Fig 1).

The nice thing which was discovered later was that up to six blanks could be laid on the former after being boiled for 5 minutes, wrapped with crepe bandage and positioned strategically near a hot water pipe to set. The other good things are that the camber of the blades can be changed with a bit of judicious hammer-work, and the pitch angles are easier to check than would be the case with a tin can.

A final improvement occurred because I was personally too clumsy to make the neat little wire loops illustrated in Aeromodeller, May 1978. Mine would ping themselves off the prop-hook, shooting rubber motors here, there and everywhere. The 'triple loop hook' solved that problem and facilitates the transfer of motor to model. (See Fig 2.)

### Glider flying techniques

The low ceiling means that strong throwing arms are not required. A gentle wrist and finger flick will place most models within a couple of inches of the ceiling. From there the transition to tight circling glide flight must occur in minimum space. This is where smaller models score, as most larger jobs recover their glide path only after more losing height than their smaller counterparts. See Fig 3.

Tight circling flight involves quite a lot of tweaking on the spot, with accompanying heavy breathing. Of all models flown, Glider seems most vulnerable; an out-of-trim, diving model contacting a chair leg is likely to come off worst.

Sheet rubber models are almost all trimmed to turn left with torque (we have the odd left-handed exponent who flies right circles). Some spectacular flight patterns result from the fast-revving small props and the warps required to keep the turn tight and the inner wing up. Some models will get into a characteristic groove in which they seem to settle, repeating a 'zoom/turn/dive' sequence until the power runs out; others maintaining a steady spiral climb with a descent of similar but reverse pattern. (See Fig 4.)

Open Rubber has, so far, favoured the large-slow-turning prop (roughly 2:1 pitch/diameter ratio) model, although it is very dependent upon enough power (not too much though; ceiling contact ends the timing) to avoid a waffling stall. Smaller prop tend not to have such sensitivity to power variations, but shorten the cruise part of the flight.

The revelation via the torque meter was how 'backing off' a few turns reduces the torque. Careful adjustment can pay dividends. As was said earlier, we're all very much in the beginners class for Indoor flying. Several members who perform well with the Tx in hand and an Open Class Soarer whistling around tend to think it's a bit too difficult (not having served a F/F apprenticeship doesn't help) but at least they turn out to spectate. The real bonus is watching juniors competing, getting accustomed to being the focus of 'x' pairs of eyes and the clinical recording of the stop-watch. Let's hope this experience will bear fruit both in modelling and other walks of life.



# Shootout at Chobham Common

Peter Michel updates news on a favourite from 1942...

Following the evaluation of Ron Warring's 1942 rubber contest rubber model PERCY III by Peter Michel (*Aeromodeller*), July, 1990) we thought vintage fans might like to know how it fared in action. From Peter's account it's clear that Percy is as potent now as it was the best part of 50 years ago...

**I**MET fellow SAM 35 member Andrew Longhurst by arrangement at Chobham Common, Surrey, on Friday, 15th June, to record our flights for Fred Chapman's eagerly-anticipated postal competition. We were not to know that it was to be one of the most exciting flying sessions that either of us could remember.

The weather was just about perfect... warm and overcast with the threat of a huge storm brewing up from over Guildford way which, fortunately, did not materialise. The drift, what there was of it, was fluky and varying to all points of the compass, so we had no option but to set up camp as near the centre of the area as possible. As the afternoon progressed, it developed into a shootout between my Percy III and Andrew's Mick Farthing freewheeler – two highly-competitive but dissimilar vintage rubber designs. (Fred's two-class contest was for sub-Wakefield sized freewheelers with fixed two-legged undercarriages – a rather neglected breed. Max: Three minutes).

I was first away after waiting, would you believe, for a dust devil to go its demonic way. Yes, it was *that* sort of a day! The Percy, true to its pedigree, raced up into the following boomer and was a dot in the sky when the Tomy-operated tip-up tail cut in at three minutes. Peering directly up at it I thought it was a goner because I've lost models before at Chobham in those conditions when they won't come down, even under DT. But somehow it broke loose from the thermal and was down in 5min 30 sec landing 200 yards away. A soul-stirring, if nerve-racking start to the proceedings. Andrew followed with a rock-solid flight of 3min 15 sec, the model landing just 50 yards from launch point. Wonderful stuff to see!

## Lucky

Flight No.2 from the Percy... Missed it! (Lift, that is). But Warring's classic nosed about in the drift and at 2min 20 sec the wings wobbled! It had sniffed out a bubble of helpful air and just scraped a max at 3.03sec. Lucky? I'll say!

Andrew had his share of the luck on his second flight when the Mick Farthing soared away in drift which had done a 90deg turn towards Woking. With the flight well into its fourth minute it seemed certain that his Tomy system had failed and that the model would inevitably be lost, and with it his competition



chances. But at 3min 42sec the tail popped up and down she came by one of the pylons for 4min 27sec. Andrew diagnosed a slight bend in the Tomy spindle which, fortunately, was curable. It seems that the Tomy had slowed down, and had just managed to slip its line. There were only the two of us, but all this had the feeling of a tense moment at the Nats...

Percy flight, No.3, after a change of motor (50g, 16 strands, 1/8in. Tan FAJ): Straight into lift again, but this time the drift had veered through 180 degrees and the model was heading dangerously near the dreaded motorway. However, the Tomy cut in dead on three minutes again, and all was well. (This flight, incidentally demonstrated how important an accurate DT can be. Only another 30 seconds and the model could have been on the motorway).

## Rude awakening

So... I had a fly-off flight to make. By this time I was beginning to think that on that day it was just a matter of picking the thermals out of the air (come to think of it, where else would you find them?) but I was in for a rude awakening. My fourth, fly-off, launch found fate lurking in the shape of a huge hole in a surrounding plateau of lift, and the Percy ditched in the bracken for a disappointing 1min 46sec.

Andrew maxed his third flight in marginal air at 3min 8sec and so was also able to make a fly-off flight. Well, that's it, I thought. His beautifully-trimmed Mick Farthing just couldn't

do less than 1min 46sec in such conditions. But it *did*, and in amazing fashion. This model, which had looked unassailable, actually lost height on the latter half of the 'climb', such was the power of the sink that Andrew launched into, and was down in 1min 27sec! We could hardly believe it.

But after such a session, and with such wonderful flights to remember, it didn't matter a bit which one of us actually pipped the other in the shootout. It was a delightful aeromodeller's afternoon, and we both hoped that others taking part in the competition up and down the country were equally lucky with the weather – and with models on song to take advantage of it, be it said. And who would have thought six consecutive three-minute-plus flights possible without the restrictions of Chobham Common – seven, if you count another max by Andrew in a different class? This is what free-flight is about!

## No more bunches

**Footnote:** I mentioned in my July piece that I was having trouble with front-end bunching on winding full turns. That was with a motor of eight strands of 1/4in. (Tan FAJ). Keen-eyed readers will have noticed that I was using 1/8th. Tan FAJ at Chobham. That was the answer. No further bunching occurred and I have since been able to wind the 50gm motor to something approaching full turns without it getting stuck in the tube.





# Sunny Day at Port N

**We tour to the city of dreaming spires and experience a splendid Rally on 16-17th June**



**H**OW do you describe an event which continues to surpass its previous standards of excellence? Perhaps the nearest comparison is with the delights of the long lamented Northern Heights Galas of the late 50s. Each time the weather continues to oblige, the entries get even larger and, most importantly, the organisation welds the whole lot into a superbly enjoyable experience.

## Champagne

Although not as well supported as Sunday's main events, Saturday evening's Champagne Flyoffs still provided plenty of interest. Run in progressive maxes rather than one 'sudden death' flight, the event was ideal for the size of field and provided the usual surprises as to what

*The Oxford Rally is very much a family show. Here's Tim Gray and support crew to prove it!*

times could or could not be produced, just when needed. Gary Madelin topped A/1, being the only one to clear the 2:30 max. Perhaps the biggest surprise was in CDH when the 2:30 round still left three in the hunt; Roy Cheesely, Gerry Ferer and John White. Flying a large 280sq in, very slow-flying model the winner was... John White! His 2:54 was nearly half-a-minute in front of Cheesely with Ferer back in third. To knowledge this was John's first ever win and hopefully one of many more. To complete the evening Bill Colledge took the seven flight HLG comp with 5:08 ahead of Andy Crisp and Spencer Willis.



**Peter MacMahon won Coupe with this straightforward design.**

## Flyoffs in everything?

For Sunday the drift was light and southerly being virtually straight up the meadow. This drift coupled with the continued warmth of the previous week gave the prospect of high scores and 'Flyoffs in everything', a prospect nearly fulfilled.

CDH and A/1 were run in 1.1/2 hour rounds with remaining events flown at will and all except HLG to a 2:00 max. Though some may have thought this too little for events like Vintage Rubber the country around the meadow



**Mission Control – or, the organisers' tent. Note handbell on table!**

precludes higher maxes during the day (those who sampled it unintentionally found this to their cost). As if to prove the point the usual 'Unaccountably Dropped Flights' soon began to litter the scoreboard. Certainly the air was not as easy as many had supposed. This coupled with a ban on thermistors and streamer poles left one wondering if most had forgotten the basics of 'feeling' for the lift. By the end of round four only four of the original 42 (!) entries in CDH had a perfect score; A/1 flyers were slightly more fortunate with six.

By the start of the last round at 4pm the weather was decaying fast, much cooler and with quite a turbulent though not too strong a breeze. This inevitably took its toll and left three to fly off in A/1 and only a single full house in CDH from Peter MacMahon.

Vintage Rubber (34in maximum span) had fared better, most taking the opportunity to get

tie between perennials Mick Page and Pete Buskell, Mick taking the day with 40 secs to Peter's twenty-six. A/1 needed three tries to produce a winner. Lavis, Madelin and Gibbs cleared the first 3:00 max while Lavis dropped in the second leaving Madelin and Gibbs to go again. This time neither made it leaving Gibbs sixteen secs clear with 2:47. Vintage Rubber had produced no less than ten full houses but surprisingly the Flyoff was over in one go with Peter MacMahon taking his second win of the day and the only max.

### That Man again

CDH had another tie to resolve, this time for second place between Trevor Grey and yet again John White (Quote from bystander: 'Now he's got into Flyoffs we can't keep him out...'). Both launched fairly close together and having tied at 9:45 in the main contest promptly proceeded to do it again – 1:27 each.

Tailless followed and produced another tie, Grey and Longhurst maxing while Russell Peers had dropped out of what had looked good air for 2:56. Neither Grey's (hooked on telephone wires) or Andrew Longhurst's (on a roof nearby) models could be recovered in a sensible time so both shared first place.

To end the continuing saga of CDH Andy Crisp decided on a five-minute launch period. Again both launched within seconds of each other *and*, would you believe, a second tie at 1:54! By now the still largish audience that had gathered for the prizegiving was enthralled. In fact the atmosphere was becoming rather like a major championship with each camp collect-



Caroline Grey holds Dad's second-place Coupe in tranquil sunshine.

# Meadow



John Cooper explains a point about his latest A/1 to Gary Madelin who holds the model. Colin Sharman, just in shot at left, seems mildly amused; Gerry Pink practices his lederhosen act...

their flights in quickly during the morning when conditions were easier. By contrast Vintage Glider was the only class not requiring a Flyoff – perhaps due to the A/2 size restriction or the fact that class is less popular than rubber and rarely flown separately. Nonetheless Geoff Smith from SAM dropped only thirteen seconds with his 'Satu' to win. Tailless was extended this year to include canards; sadly, only one materialised for the contest flights in the capable hands of Chris Strachan. Despite the lack of Tailless contests, ten keen entries were produced with more about but not flown competitively. This is now the only event apart from the Nationals for this fascinating class and given the real interest more contests are needed – CD's please note!

And so to the Flyoffs; as predicted, in nearly everything, though not always for first place. Given the steadily declining weather and the surrounding terrain, CD Andy Crisp wisely decided to go for a fixed max (three mins) rather than unlimited time. Each Flyoff had a ten minute period, giving little time for mistakes. HLG was first away to resolve the 4:30

ing its supporters and helpers. This time the CD called for a simultaneous launch having had the participants wind and prepare in advance. On a count of ten (very dramatic this) John's distinctive coupe climbed ever so slowly away, as it had all day, to reach about 70 feet. Grey launched hard and nearly vertical, with VIT and a 50 sec prop run; the normal sized model finished at about 150 foot and then glided on the damp and now diminishing drift for a solid 2:54, nearly a minute ahead of White's 1:56.

Despite the extended proceedings a considerable number still remained for the prizegiving featuring – as always – Andy Crisp's beautifully crafted pottery backed up with copious bottles of wine; a wonderful end to a wonderful day. As a postscript, consider that what started as just another club event has grown to be one of the jewels in the gala scene, this year there were nearly 170 entries with 42 alone in CDH. What is it that attracts so many? Simple! Enthusiastic organisation... Andy Crisp would be the first to admit that what he does is not unique but he and his team just want to do it well. Long may it continue!

### Oxford Rally

Sat 16th June: Champagne Flyoffs – 30 sec increments

#### A/1 Glider (6 flew)

1 G.Madelin	Crookham	1:00 + 1:30 + 2:00 + 2:30
2 C.Sharman	B & W	1:00 + 1:30 + 2:00 + 2:22
3 G.Beal	N. Yorks	1:00 + 1:30 + 2:00 + 2:15

#### Coupe d'Hiver (12 flew)

1 J.White	Croydon	1:00 + 1:30 + 2:00 + 2:30 + 2:54
2 R. Cheesely	Crookham	1:00 + 1:30 + 2:00 + 2:30 + 2:27
3 G.Ferrer	Timperly	1:00 + 1:00 + 2:00 + 2:30 + 2:15

#### HLG: 7 Flights, 1 min max (7 flew)

1 B. Colledge	B'ham	5:08 total
2 A.Crisp	Oxford	4:03 total
3 S. Willis	SAM	3:29 total

### Sun 17th June

#### A/1 Glider (19 flew) 5 x 2 mins

1 A.Gibbs	B'ham	10:00 + 3:00 + 3:00 + 2:47
2 G.Madelin	Crookham	10:00 + 3:00 + 3:00 + 2:31
3 B.Lavis	Biggles	10:00 + 3:00 + 2:04
4 C.Sharman	B & W	9:37

#### Coupe d'Hiver (42 flew) 5 x 2 mins

1 P.MacMahon	P'borough	10:00
2 T.Grey	E'Grinstead	9:45 + 1:27 + 1:54 + 2:54
3 J.White	Croydon	9:45 + 1:27 + 1:54 + 1:56
4 D.Davitt	Morley	9:37

#### Vintage Rubber (30 flew) 3 x 2 mins

1 P.MacMahon	P'borough	6:00 + 3:00 Raff V
2 J.Cooper	Biggles	6:00 + 2:40 Raff V
3 A.Longhurst	SAM	6:00 + 2:31 Reg. Parham
4 J.Tipper	Lee Bees	6:00 + 2:28 Tiercell

#### Vintage Glider (13 Flew) 3 x 2 mins

1 G.Smith	SAM	5:47 Satu
2 G.Beal	N.Yorks	5:15 Mick Farthing
3 J.Cooper	Biggles	4:52 Lulu
4 J.Dorren	S.Bristol	4:23 Sunanvind

#### Tailless/Canard (10 flew) 3 x 2 mins

=1 T.Grey	E.Grinstead	8:00 + 3:00
=1 A.Longhurst	SAM	6:00 + 3:00
3 R.Peers	Falcons	6:00 + 2:56
4 A.Brocklehurst	B&W	5:37
5 C.Strachan	Biggles	4:51 (Top Canard)

#### HLG (30 flew) 5 x 1 min

1 M.Page	P'Borough	4:30 + 0:40
2 P.Buskell	Crookham	4:30 + 0:26
3 J.Guest	C/M	4:27
4 I.Clark	Grantham	3:36
T.Hopgood	SAM	2:50 (Top Vintage)

#### Gala Championship (Total Time)

1 T.Grey	22:43
2 J.Cooper	19:42
3 G.Smith	17:15
4 P.MacMahon	16:00

#### Top Junior

A.Abell	5:36 (Vintage Rubber)
---------	-----------------------



# VINTAGE CORNER

*Orlan Corben, the full-size designer of both the Ace and Super Ace sportplanes built this Hoosier Whirlwind powered compressed-air model (see text).*



## Alex Imrie visits Scale Weekend – and compresses air

**S**CALE Weekend is one of the most popular meetings on the Old Warden calendar, and the turnout this year was, as usual, very high. On the Sunday a strong wind persisted all day and obviously produced scale gale-like conditions that seriously affected the flying of the slower R/C models, some of which rocked around alarmingly in the turbulence. The more highly-loaded models took the weather in their stride and the windspeed certainly did not detract from the way that they performed. A fine DH Mosquito, in particular, seemed to be in its element. A number of excellent models were to be seen in the model enclosure; some new, others being old stagers that had appeared in previous years.

I took particular notice of the three large Fokker Dr I triplanes (two of them in Richthofen-red) but a close examination of these models revealed how far from scale they really were. The type has been modelled so often one would have thought that the shape of the full-size machine would have been well captured by now – but not a bit of it. There still seems to be a need for a carefully researched Fokker Dr I drawing, since the basic features are currently not being convincingly portrayed. The National Insignia displays too were incorrect and detail markings were, for the most part, wrongly shown or omitted altogether. These anomalies are less noticeable and tend to be accepted in small scale models, but in the larger sizes they become quite offensive to the eye. As it was, the triplanes looked wrong and might well have been enlarged from some inaccurate 1/72nd scale plastic kit...

At times the windspeed was such that some modellers did not risk taking their models from the safety of their cars to run the gauntlet of

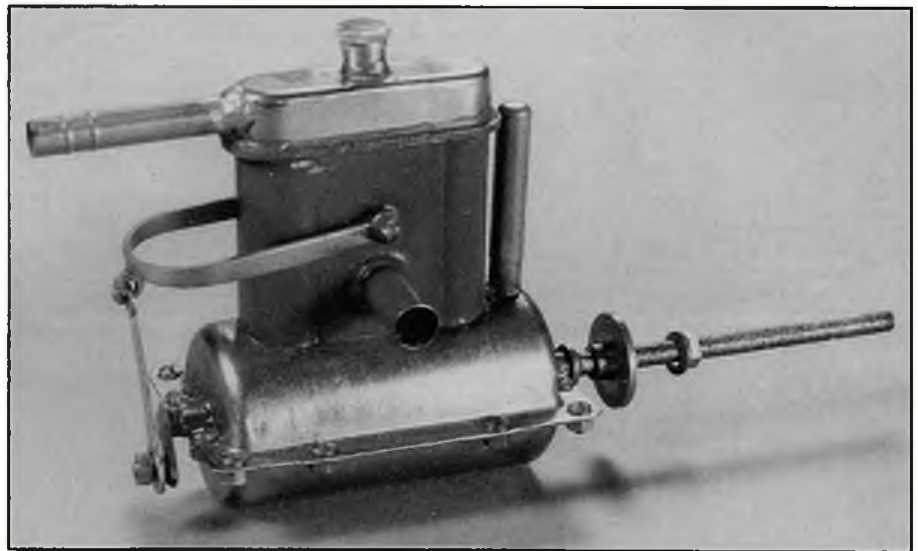
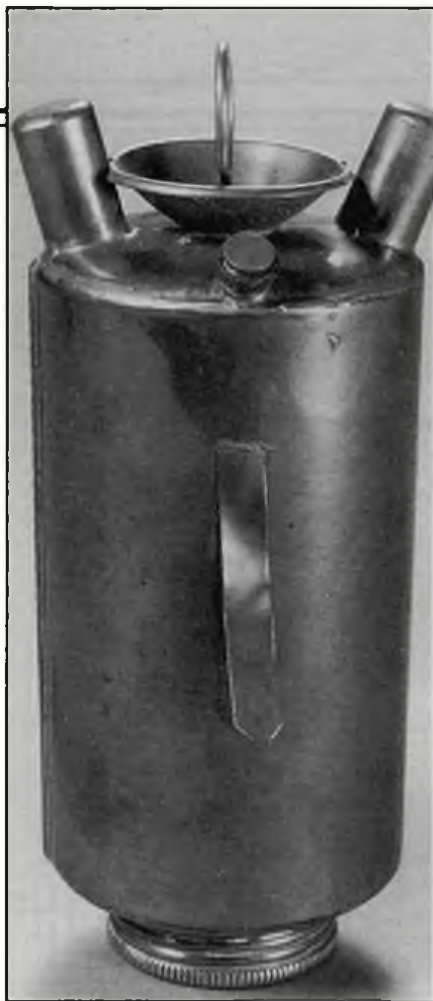


*Bob Knutson holds his 1929 Harley Rich model. Bob's first CA flight was 55 seconds duration.*

carrying them across the aerodrome to the lee of the trees where the free-flyers were operating. Those that did find an area of relative calm in which most small light models performed well; however, if the models strayed out into the aerodrome, the turbulent wind inevitably took its toll. All sorts of models abounded, from the flying tea trolley and a red fish (that some wag said was 'scaled!') to the many fine flying scale machines powered by a variety of power sources. It was, after all, a scale occasion, and a host of vintage flying scale models were present, many of them rubber-powered some of which were entered in the following competition.

## Masefield Trophy

Flying in the three rounds, where a bonus percentage for different model characteristics adjusts the total flight endurance to a final score, has proved a fairly accurate way of handling the varied models entered in this competition, now in its sixth year. There were sixteen entries flown by fourteen contestants, a nice touch being the Struhl Lockheed Saturn proxy entered by Rod Knight as a tribute to the late Vic Dubery, the originator of this contest. However, a trimming problem resulted in a nil score for this twin-motored design that stood to reap the highest bonus allowance of 2.7. Mike Hether-



Above: The IMP Tornado S-2 - a real gas motor. Gas generator, seen at left, weighs five ounces.

ington was flying his S R Crow-designed Leopard Moth, resplendent in an all-red colour scheme but the best that he could do in the conditions was to average 34 seconds - no bonus percentage, of course, with this 36in high wing model to augment his final score, resulting in ninth place.

There was the usual clutch of Earl Stahl designs, three Veron Comper Swifts and three Keil Kraft designs, one of which, a Piper Family Cruiser by Pete Robinson, achieved the best flight of the competition with 51 seconds and made him third-place man. Butch Hadland's Earl Stahl Waco E gave the most consistent results of 40, 40 and 39 seconds respectively and when this total was adjusted by the biplane bonus percentage it earned him second place. However, the winner, as in 1988, with several high placings in other years, was Lindsey Smith's 13in Comet US Navy Racer seaplane, a 1932 design whose performance benefited by its 1.8 percentage bonus factor. This model's flying has always been a show-stopper, and this year was no exception. Possibly due to the localised nature of its flight pattern, it remained in less turbulent air than its competitors, which, ven-

occasion capably managed by Ron Knight and Alan Wiggs who pitched their camp just out of the sheltered area and were thus exposed to several hours of continuous draft at this decidedly breezy Old Warden meeting.

### Compressed-air antics

Despite the apparent flutter of interest amongst enthusiasts last year when we devoted two issues of Vintage Corner (May and July) to compressed-air engines and models little progress seems to have been made with the application of this mode of power in the vintage connotation. There has been of course, the excellent coverage by Doug McHard in the April and May issues of Aeromodeller relating to the plastic engine and container which is currently commercially available. A few items are mentioned here to keep interest alive in the old time aspect of the game (needless to say, they come from Mr CA himself, Bert Pond).

Firstly, Bert points out that the aforementioned plastic engine would appear to be 'SAM-legal' after all, so in my May 1989 article I was apparently not correct in stating that an engine had to be of '1920s type', although my copy of the SAM official rule book uses that description. Bert merely simplifies the SAM CA requirements as '150psi, build model, ROG (no dates on model or engine)'. If this is so, it looks like the sky is the limit, and now surely there

remain the vintage compressed-air engine. Getting a model to fly well with one will always present a challenge. Being allowed to design your own model using modern know-how and a plastic air container was bad enough; now being able to use the plastic engine as well, completely removes such aberrations from the vintage scene. Modellers who build such machines will obviously get results, but they will never experience the sheer thrill of fighting against gravity that the recreation of a hardwood-and-silk Pavely or Camm design with its ancient power plant provides.

Readers who intend to use the Tizer-type plastic bottle air container will be interested to hear of the attempts made to destruct these made by US pioneer modeller Hewitt Phillips. Bert relates '...Hewitt found that he could not burst the bottle and pressure did not increase on his hydrostatic test. The bottle just expanded endlessly after attaining 180 psi. He then wrapped the bottle with fishing line and the bottle grew lengthwise 1.1/2 inches with some increase in pressure!' There is thus no question of its safety when used at the SAM limit of 150 psi.

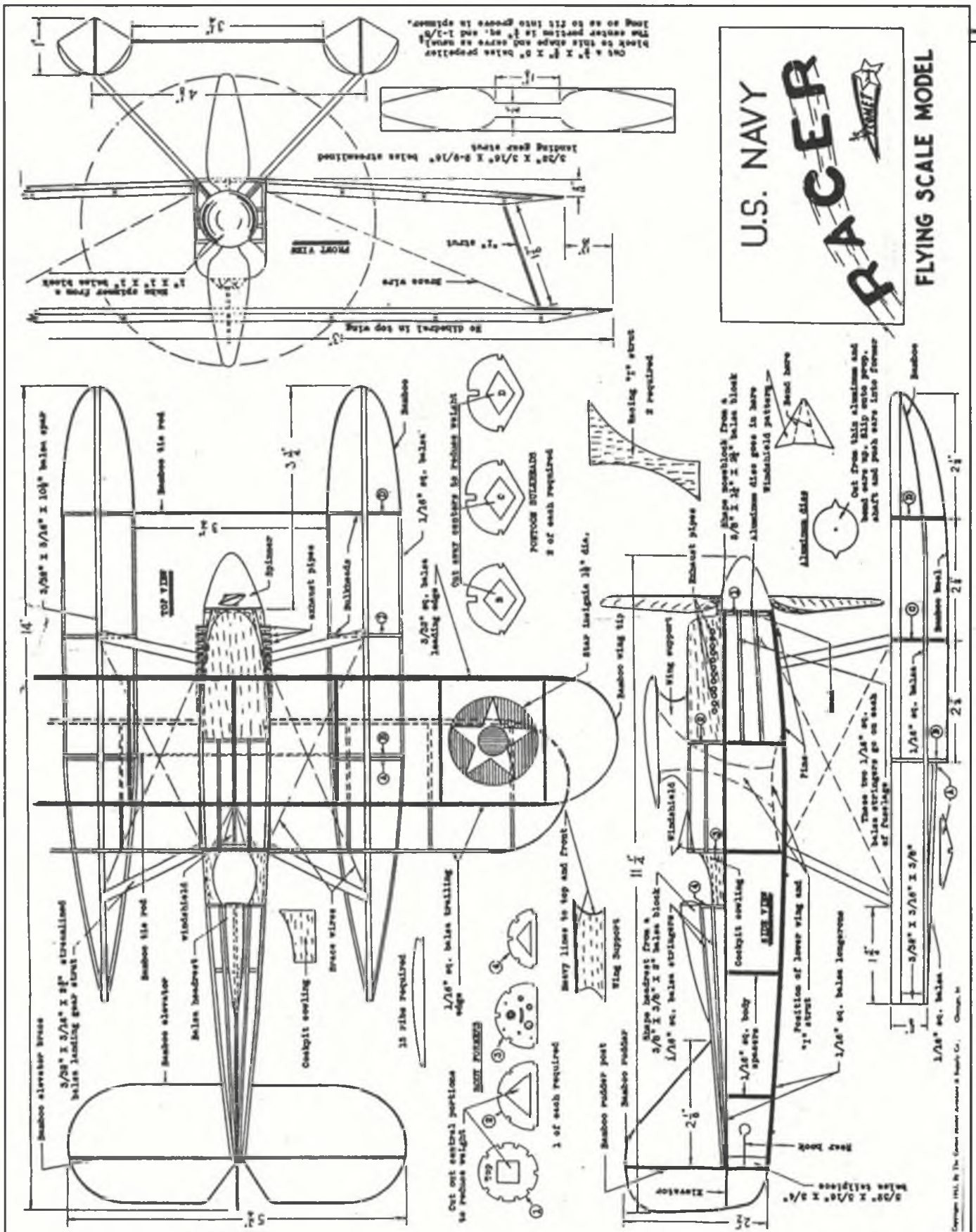
Bert also sent some photographs to keep interest alive in vintage compressed-air matters. The shot of him holding his five-beer-can air tank model was taken at Coyle Drop Zone in New Jersey which is used for parachute training. The wing of this model used tetrahedron stick torsion bracing instead of the heavier veneer D-Box type and was externally wire braced - hence its fancy curvature. Wheels were of foam plastic, treads hardened with cement. This model flew well but eventually caught some tent guy-ropes and was damaged. Bert also sent a photograph of his bottle baby No. 2 in flight. Details of this small and interesting model were given in the May 1989 Vintage Corner with the review of his book Expansion Engine Powered Model Aircraft. The machine won the 1985 SAM Banaszak Trophy and has three different wings that Bert selects from according to conditions. In the photograph taken at Bong, Bert is seen with Bob Knutson who is holding his Harley Rich 1929 model just after its first flight, which was of fifty-five seconds duration. This early design uses a flat-topped inverted cambered

Masfield Trophy: Top Ten (60 sec max)								
			Bonus Factor	1	2	3	Flight	Score
1	Lindsey Smith	Comet Navy Racer	1.8	37	30	28	119	171
2	Butch Hadland	Stahl Waco E	1.4	40	40	39	119	167
3	Pete Robinson	KK Piper Family Cruiser	1.2	36	37	51	124	149
4	Ron Brownson	Veron Comper Swift	1.4	31	35	35	91	127
5	Ron Brownson	Stahl MiG-3	1.3	31	25	31	87	113
6	Ray Jenyon	Stahl MiG-3	1.3	33	29	25	87	113
7	Bob Walden	Veron Comper Swift	1.4	36	27	18	81	113
8	Michael Falconer	KK Ercoupe	1.5	25	20	29	74	111
9	Mike Hetherington	Crow Leopard Moth	1.0	32	39	32	103	103
10	Brian Faulkner	Stahl Blackburn	1.3	25	24	22	71	92

turing out of the lee of the trees, were subject to turbulence that resulted in the short durations witnessed. The diminutive seaplane had a new fuselage this year, and no doubt needed it in order to stand the 1000 or so turns that Lindsey puts on the motor. A very enjoyable

can be no holding back a flood or compressed-air powered models; many, I hope, of the flying scale type. However, I trust that there will still be a number of enthusiasts who will wish to dabble with the old sort of engines fabricated from brass tube. For me personally this will





tailplane and is of extremely lightweight construction. Bob used a container of 3.1/2 inches diameter to drive the Hoosier Whirlwind three-cylinder engine. This model was fully described in Bert's book. Attention is drawn to the size of the flying field, which was planned to have become an airfield at the close of WW2; its surface is criss-crossed with gravel tracks. The last of Bert's pictures shows a compressed-air

powered model of the Corben Ace that was built by the fullsize designer himself, Orlan Corben, in the early 1930s, and is fitted with a Hoosier Whirlwind three-cylinder engine - a motor that Bert designed and manufactured in the late 1930s and still supplies today! The air pump seen in the picture was one of those furnished with the German Bing Autoplan kits that were sold world-wide before WWI. The full-size cabin

Corben Ace later had a redesigned fuselage with an open cockpit and became the better known Corben Super Ace.

### New Edition

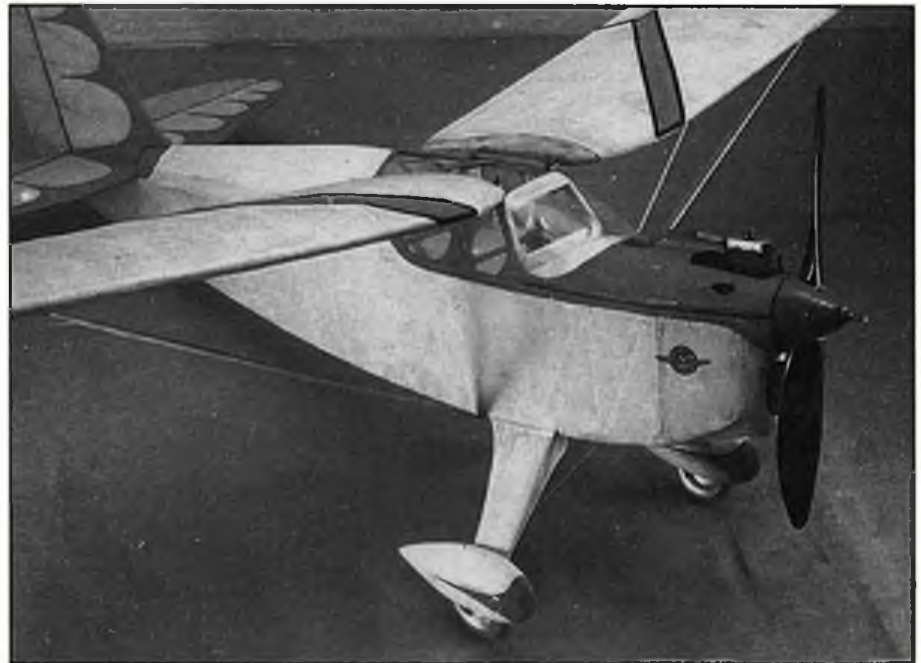
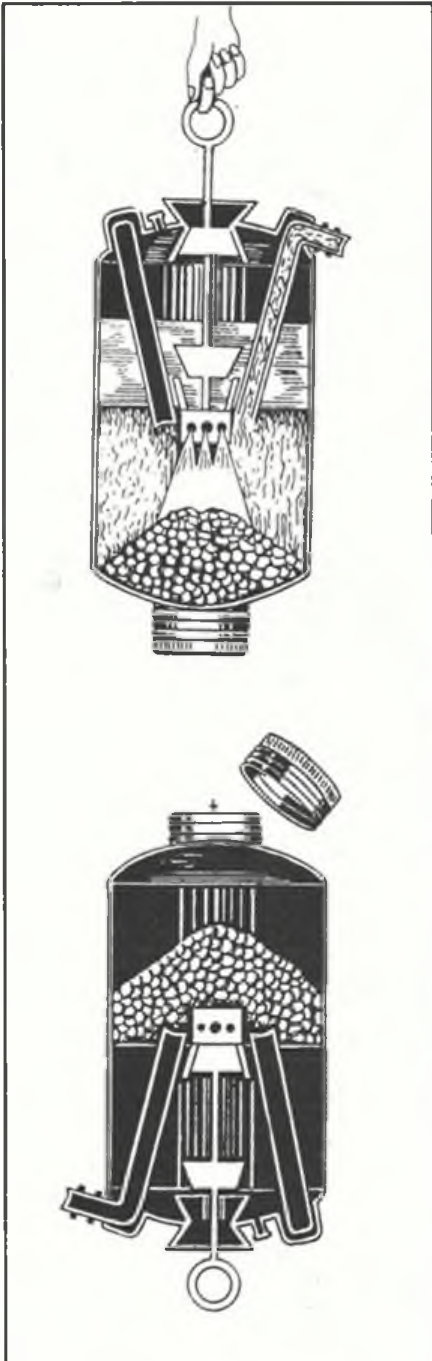
Finally, if you missed out on Bert Pond's excellent book mentioned above you might wish to avail yourself of the second edition which is now available updated with some new plans



included plus details of a German CA patent. To avoid currency exchange problems UK readers should send \$23.95 for surface delivery (takes about three weeks) or \$30.95 for airmail. Payment should be by banker's draft or IMO for these amounts in US dollars, or US banknotes sent by registered mail. Please do not send personal sterling cheques. Additionally, Bert requests that purchasers enclose their own address label to avoid errors. Order from Bert Pond, 128 Warren Terrace, Longmeadow, Mass 01106, USA.



IMP motor and generator with original boxes (and instructions within).



The cabin roof of Joe Ott's Rearwin Speedster was left open in order to insert the loaded gas generator, which stood vertically in the spacious fuselage. Builders were advised to test fly their model with rubber power before installing the S-2. Note that 12in mahogany propeller of quite fierce pitch!



One of Joe Ott's youthful helpers with the AC:CO gas powered 64in Rearwin Speedster for the S-2 engine. This model, kitted by IMP sold for \$10.00 complete.

Opposite page: Xerox enlarge this drawing to the sizes stated, build your own Comet Navy Racer from the scrapbox and give Lindsey a run for his money in the Masefield Trophy! Above: Two schematic views from the instruction sheet showing the container with carbide covered with dry ice. When inverted, pulling the plug created the gas.



The advertisement for the IMP S-2 powered Rearwin Speedster from November 1936 Model Airplane News. Note that the weight of the model is given as 18.1/2 ounces (see text for weight breakdown of power plant which totalled 17 ounces).

### IMP Tornado

I recently had the opportunity to examine one of these interesting 1935 engines and its gas generator. These were available from International Models Company of New York. Although claimed to be a '...new source of power that will revolutionise model flying...' in early 1936 advertisements, curiously, mention of these engines (there were two models, the S-2, a two-cylinder in-line and the V-4, a four-cylinder 'vee' engine), did not appear to get the enthusiastic publicity that such a new power source would seem to deserve, until at the end of 1936 Joe Ott designed (and IMP kitted) a 64in Rearwin Speedster specially for the S-2 motor, although the design could also be powered by a petrol engine or rubber. There was now an increase in the frequency of the advertisements for these engines, and even the appearance of an imitator of the S-2, in the form of the Mercury Ace which was sold both ready to run and as a kit of parts. These engines could also be run on compressed-air. During 1938 the S-2 and V-4 were being sold mounted on high-pressure compressed-air containers as the SA-2 and the VA-4 respectively. Thus it would seem that the original source of power was less than satisfactory.

F J Camm, editor of Practical Mechanics, wrote enthusiastically about the IMP Tornado motors, stating that they were of Japanese origin, and far superior to normal compressed-air engines. They were also cheap, the S-2 including generator cost approximately £1.5s. 0d (£1.25p) while the complete V-4 was only about five shillings (25p) more expensive.

Gas was generated in a brass container with inner chambers for dry ice and carbide onto which mixture, water was allowed to drip, thus generating AC:CO gas instantly and at high pressure. The addition of dry ice meant that the gas was non-explosive, and unlike compressed-air, the pressure was constant during the run, which varied from three to six minutes. The S-2 motor, which weighed 2.1/2 ounces, was said to develop 1/12 hp at 3500 rpm and was capable of swinging a 15in propeller. The V-4 engine weighed 3.1/2 ounces and was credited with 1/8hp driving an 18in propeller at the same rpm as the S-2 (the V-4 was also self-starting whereas the S-2 required a flick to start once the gas was reaching its slide valve). The operation of the safety clip (which is miss-

**Bert Pond with his five beer-can air container model (see text).**



ing from the motor examined) is not clear, but it would appear to release excess pressure to atmosphere without blowing the gas supply tube

off the spout of the generator. One obvious disadvantage of this power source concerns the necessity of cleaning, and thoroughly drying, the interior of the gas-producing chamber between runs, since any moisture present during re-charging would mean immediate generation of gas. Another disadvantage is the total weight of the unit ready to run. To the weight of the S-2 engine and generator (7.1/2 ounces) must be added a one-ounce estimate for the supply tube and safety clip, plus 1.1/2 ounces of carbide, 2.1/2 ounces of dry ice and four ounces of water. Since the engine crankcase has to be half-filled with lubricating oil, we are speaking of seventeen ounces without engine mounting and propeller. A suitable airframe for this installation is given as 60 inches span, 12 inches chord; fuselage length 42 inches and a total weight of just over 24 ounces. Thus a lightly built King Burd or GHQ Robotaire would seem to fill the bill. Does any reader have experience of operating these engines, and can confirm whether in their original form they were actually capable of flight? We would be pleased to hear from anyone in this regard...

# Complete Kit for 64 in. Scale Model Rearwin Speedster

Can be Powered with Gas, "IMP," Air or Rubber Motor

Specially Designed by **JOE OTT**

- 64 in. Wing Span
- Weight—18½ ounces
- Gliding Ratio—6 to 1
- Adjustable Angle of Incidence
- Wings Removable for Convenient Carrying



## Big Value Kit with Many Special Fittings

This remarkable Kit has been specially designed for International and offers the finest value obtainable in a popular priced Model Kit. This Model can be powered in four different ways: (1) by any of the popular gas motors, (2) by the "IMP" Tornado Motors, (3) by Compressed Air Motor, and (4) by Rubber Motor. The Kit contains:

- 3¼ in. Cork-Aluminum Balloon Tire
- Wheels.
- 12 in. Mahogany-finished "IMP" Paulownia Wood Propeller, fully finished
- Finished Nose Piece, with special attachment for Rubber Motors.
- 1½ in. "IMP" Propeller Shaft for Rubber Motors.
- 1½ in. Cork-Aluminum Skid Wheel.
- Artist's Brush and Cement Brush.
- 4 oz. can of special Cement.
- 4 sheets, 24x36 in. Bamboo Fibre Covering Paper.
- 1 sheet each Red and Black Jap. Tissue for Decorating.
- Complete Plan in full size on sheet 34x44 in. with details in accurate scale.
- 24 Ribs Printed on Soft Balsam sheets.

- Front and Rear Spars and Trailing Edges of Medium Texture Balsam.
- Leading Edges and Wing Struts of Hard Balsam.
- Pants Sides fully shaped from Medium Balsam, with Cores fully shaped from Soft Balsam.
- Fuselage Strips of Medium and Hard Balsam.
- Special Pine Wood for Wing Braces.
- 6x12 in. Sheet Cellophane.
- Set of Landing Gear Wires (Piano Wire)
- Soft Metal for Hinge Straps
- Bolts and Nuts. Metal Lugs for Clamps.

**Complete Kit \$5.00 ONLY**  
(Plus 25c Postage)  
(See special offer below)

## Power your Model with the "IMP" S-2 TORNADO MOTOR



Model S-2 "IMP" Tornado Motor: two cylinder, weight 2½ oz. Fits Models 3 to 6 in. size. Complete with Generator, Feed Line and Safety Clip \$5.00 (Plus 25c Postage)  
Send 3c for New Catalogue Listing Lowest Prices for "IMP" Model Airplane and Boat Specialties.

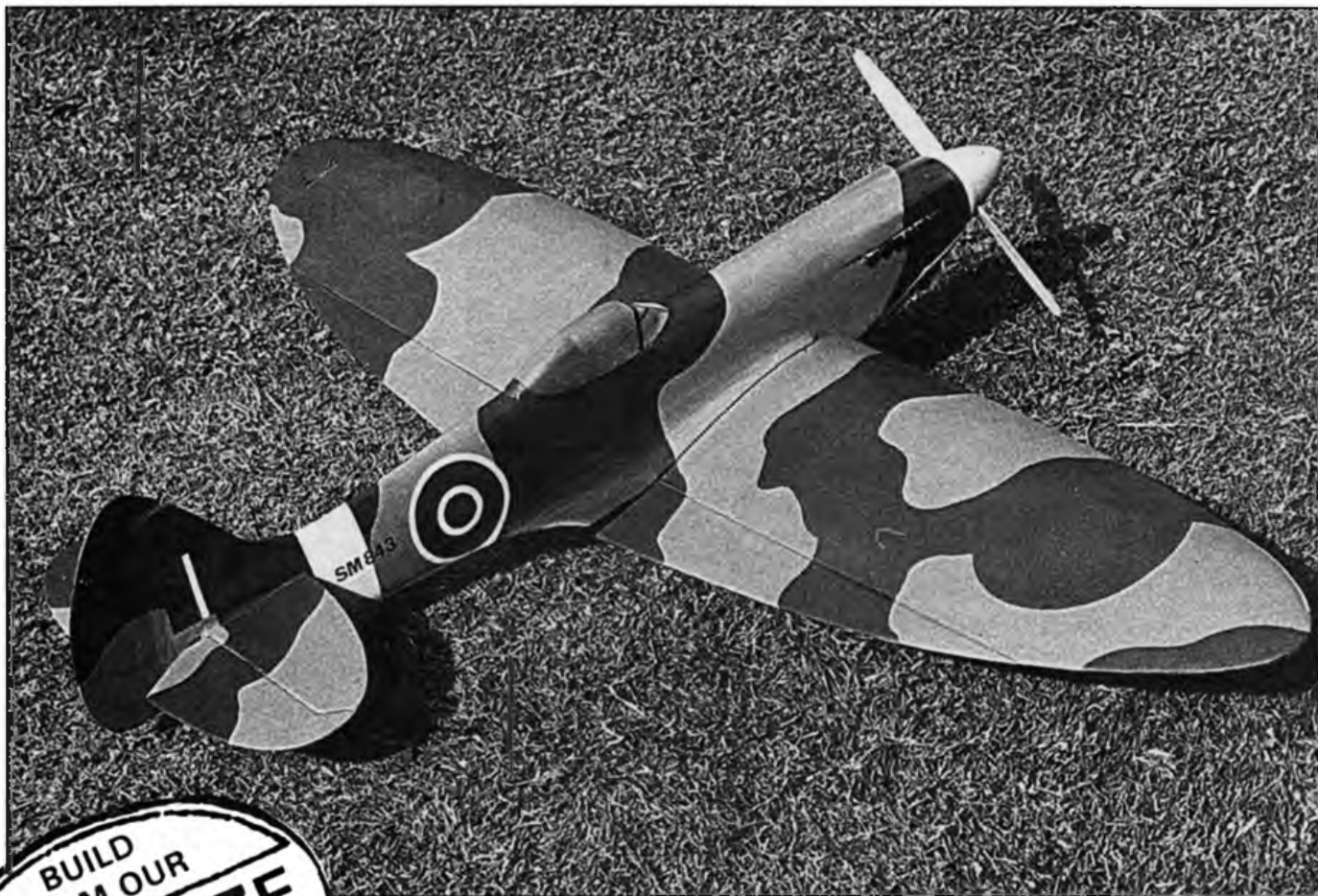
Easily installed in the Rearwin Speedster, or other type Model. The simplest, safest, most reliable and lowest cost power unit for any Model. Starts instantly, runs on AC:CO Gas generated by the "IMP" Generator; safe, economical. Will also run on compressed air.

### SPECIAL OFFER

Special Rearwin Speedster Model Kit and "IMP" S-2 Tornado Motor sent fully prepaid for.....\$10.00  
(Canada and Foreign) Kit alone.....\$5.50  
Motor alone.....5.50  
Kit and Motor together.....11.00

**INTERNATIONAL MODELS CO.**  
251 West 55th Street, (Airplane Division) New York, N. Y.  
British Agent for all "IMP" Products: Model Airplane Stores, 42 Derby Road, Prestwich, Lancs.





BUILD  
FROM OUR  
**FULL SIZE**  
PLANS!

**Noel Stephenson's semi  
scale classic is ideal for .25  
engines. Easy to build too!**

**T**HIS aeroplane was built in 1983, a direct descendent of a very successful semiscale model which won C/L Stunt at the RAFMAA Champs in 1978. Although intended as a sports/exhibition model, its outstanding aerobatic performance allowed it to follow in its predecessor's flight pattern, placing second in C/L Stunt in the RAFMAA Champs in 84 and winning in 89! My opponents complained that the Spit's sheer good looks gave me an unfair advantage! In the intervening years it was flown extensively in Hong Kong, where it excited great interest. Perhaps it is significant that, after seven years of hard flying, the only modification I would consider is a slight increase in tailplane/elevator areas to improve square corners.

The model is designed along Al Rabe's principles, with wing, fuselage and tailplane outlines all to exact, but different, scales (1.25ins,

1ins and 1.5ins/ft respectively!). The wing is detachable, and the original model has the bellcrank in the fuselage, with a swing-down pushrod to make flap connection easy. However, it would be a simple matter to conceal the bellcrank in the wing, with an idler system in the fuselage, as used in my little Spitfires and Miles M20 (see *Aeromodeller*, March 87 and October 88). Similarly, if you fly mainly over grass, the undercarriage could be made detachable as per the little Spits. Similarly, the engine and fuel tank bays are completely accessible via that large lower cowl, which is retained with a simple hook latch.

**Pussycat**

Perhaps surprisingly in a model with such graceful lines, there is no requirement for complicated or advanced building techniques

(the designer is not the world's best builder!). Although the plane is a pussycat to fly, it can't be recommended to a first-time builder. However, anyone who has got a few simple scratchbuilts into the air will have no difficulty with this one. Accordingly, instructions will be limited to the sequence of building rather than nitty-gritty (take the scalpel in the right hand) basic detail. There are a few areas which require extra care, rather than skill, notably around the engine mount and in the fitting of the wing, but these will be described in a little more detail.

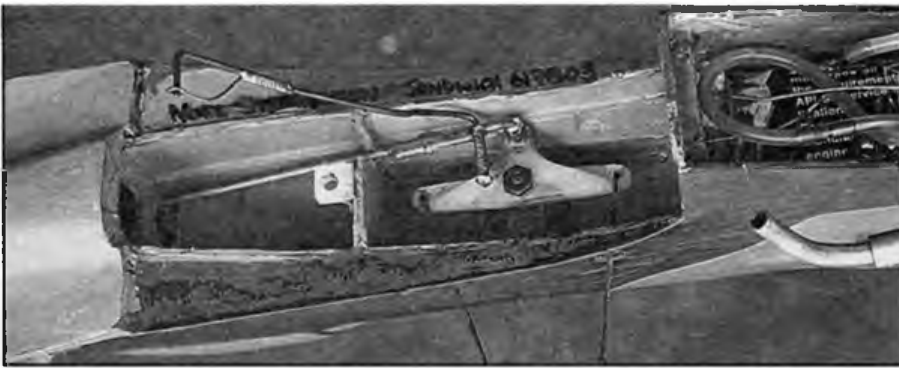
The plan allows virtually any Spitfire in the Mk14/18/19 range to be modelled, so the very first thing you must do is to find a drawing or (preferably) a photograph of your favourite late-model Spitfire. Note all the details (clip- or elliptical-tipped wings, shapes of fin and rudder, cannon and radio mast and type of windscreen) individual to the aircraft, make any modifications necessary to the plan; then, to the building board!

**Adhesives**

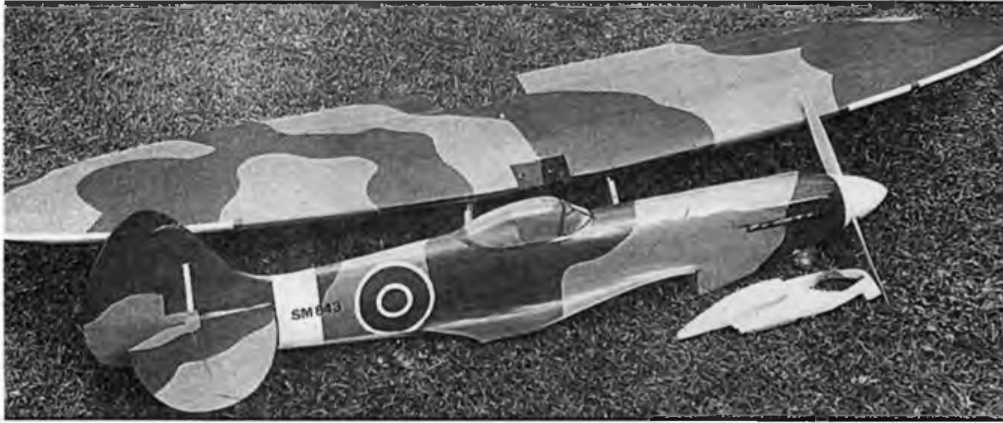
I used Araldite Normal for the engine bearer/Joining Plate/F2/F3/F4 assembly and the undercarriage spar and bellcrank mount-

# SPITFIRE STUNTER





*Nylon bellcrank used here; note quick-release (and 'attach!') flap pushrod.*



*One-piece wing is located by dowels and wing bolt. Will fit any car boot!*

ing, Thixofix for attaching the ply doublers to the fuselage basic sides and Borden white glue everywhere else. The aircraft was built in '83 and is still flying (1990) with no structural failures, so I suppose you can say it's been well proved. If I was building it today I'd use cyano instead of the white glue.

### Sequence

Start by cutting out all the parts; that is, make a kit! Components from block (upper and lower cowls, and fuselage top and bottom sheets) should be cut out generously oversize. Doing things this way invariably results in a considerable saving in materials and enables easy matching of spars and fuselage sides where uniformity of bending is of prime importance. Remember that care and accuracy at this stage will be repaid many times over in ease and accuracy of construction. End of lecture.

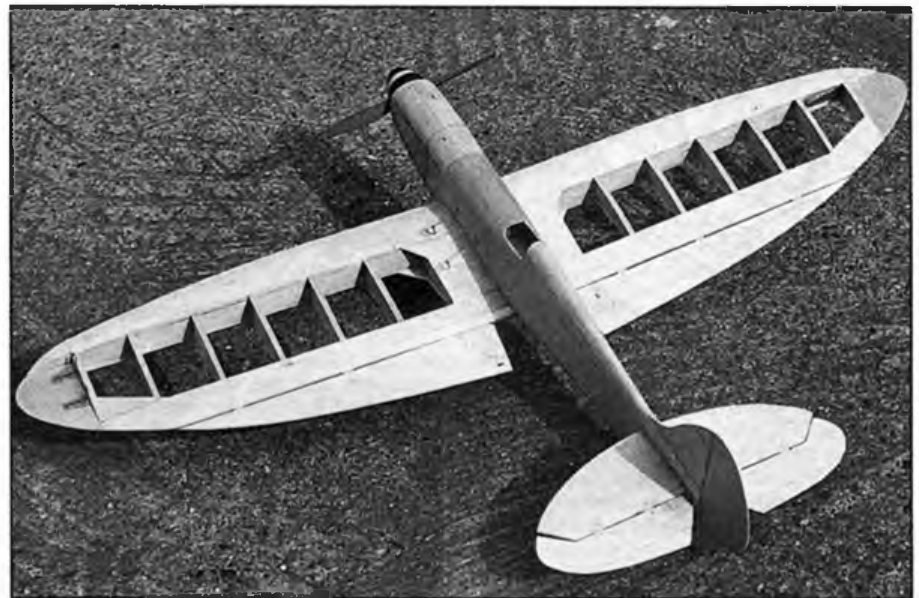
The wing and fuselage may be built in parallel up to the point where the wing is complete except for sheeting at the lower leading edge and centre-section, and the fuselage complete except for the rudder and wing root fairings.

### Build your fuselage...

On the 1/8in ply bearer joining plate mark the positions of the engine bearers, F2, F3 and F4. Attach the bearers to the plate using Araldite and small panel pins (saves clamping!) and, following a dry fit to ensure all is square and straight, epoxy F2, F3 and F4 in place. Check after an hour or so that the formers have retained their positions (minor adjustments are usually still possible) then put aside to cure for at least hours.

Assemble the 1/32in ply doublers to the fuselage sides (Thixofix, remember?). Being a super builder, you'll also remember to make left-and right-hand sides, won't you! Then mark most accurately the position of the formers and locator strips on the inside of the fuselage sides and glue the locator strips in place. Leave to dry.

Make the 1/8in engine packing piece. I used dural, but Paxolin, Tufnol or even brass will do. Fit the prop and spinner to the engine, position it on the bearers, mark through and drill for the engine bolts. No engine offset was used on the original model. I used anchor nuts



*Construction is uncomplicated – just take care with sanding to final contours.*

epoxied in place on top of the bearer plates, as I have found that bolts strip more often than nuts!

Now you've arrived at one of the areas requiring extra care. Lay the bearer assembly (less engine) over the plan and trim the outside of the bearers and plate to conform to the fuselage taper between FD3 and F4. Dry-fit the fuselage side assemblies, making sure that the locator strips fit snugly against the underside of the bearers and into the slots in F4. Check that the ends of the sides align without forcing or twisting. When all is square and straight, use generous amounts of epoxy to assemble the sides to the bearer assembly, clamp up well and put aside to cure. All this care will be well repaid in longevity and strength. The original survived a thrown prop blade and a head-on crash into a flight box, either of which would normally write-off the front end of a fuselage. Now relax, as it's all downhill from here on.

Assemble the tailplane/elevators/control horn using R/C-type or tape hinges. It is essential that everything moves freely from 50 deg up to 50 deg down (all right, I know you'll never use that much movement in normal flight, but it's a good target!). At all stages in the installation of controls this 'full and free' movement must be an essential feature. Make up the tailwheel assembly and epoxy it in position on the lower fuselage block.

Glue formers F5 to F8 in position on the locator strips. Run a bead of glue down the edges of the formers and use masking tape to pull and hold the sides to the curve of the formers. The curve is quite and gentle and it should not be necessary to damp the outside of the side assemblies. Do not glue the rear of the fuselage sides together at this stage! Set the whole thing aside to dry

### ...and controls

Make up the bellcrank assembly, with the exception of the flap pushrod. Dry-fit the assembly in the fuselage, cutting away the locator strips if required to give the aforementioned full and free movement (about 45 deg each way with a 2.1/2in bellcrank). Dry fit the tailplane assembly and elevator pushrod; now you see why the back end of the fuselage was not glued up! When all is OK (elevator neutral at bellcrank neutral, 'f and f' movement everywhere), glue the tailplane in place, using a straight-edge

across the wing root for lateral reference and glue the fuselage side rear ends together. Do not install the bellcrank permanently just yet; it may have to be removed later to permit flap pushrod adjustment. Fit top and bottom rear fuselage blocks (the lower block with the tailwheel assembly installed) and fin and sand to correct profile.

Fit Former F3A and complete the fuselage decking between it and F4. Fit upper nose block, tack-glue the lower cowl block in position and carve and sand to correct profile (a good photograph of the correct Mark will be invaluable here). Drill many small holes in the Micromold wing fitting and epoxy it to the rear face of F4.

### Next – the wing

The wing is pure Aldrich, with ribs slotting into a full-depth mainspar and LE sheeting completing a classic D-box. Those of you who

have built a Nobler will recognise it instantly!

Assemble the wing spar/spar doubler/spar joiner and make up the trailing edge strips. Make the 1/8in ply UC spar and bind and epoxy the UC assemblies in place, building up a good fillet of epoxy around the torque tubes. If you wish to fit a removable UC, disregard the torsion bar assembly, just make up a simple version which plugs directly into tubes bound and epoxied vertically to the UC spar. Join the legs with a simple spreader bar which will fit under and be retained by the dummy air intake on the lower cowl.

Build the wings one at a time, propping up the other panel as required to accommodate the dihedral. When the basic structure is complete epoxy the UC spar assembly in place. Fill in the top and bottom of the wing root bays between the UC Spar and the LE with 3/16in med sheet and sand to profile. Complete the LE sheeting and upper centre section sheeting. Note that at this stage the wing-root 'Gull' effect has not yet been produced. Offer the wing up to the fuselage and check that all is square and straight. Sand the wing seat gently to achieve perfect alignment. Now mark through for the wing dowls and the rear wing bolt. Fit the dowls (epoxy), the wingtip weight and line guide and complete the wing sheeting. Now sand the wing root leading edges gently to produce a simulation of that characteristic gull-wing. Don't get carried away here, only a hint is necessary, a good paint job will complete the simulation. Make and fit the underwing fairing block, drill through for and fit the rear wing fixing bolt.

Make and fit the flaps. Note that it is essential to use a separate horn for each flap, the horns should be approx 1/32in apart at the top when flaps are neutral. The wing may now be completed and decorated. I used Solartex, one coat of 50/50 dope/thinners for weathersealing and decorated with Humbrol Enamels.

### Assembly

Offer the completed wing up to the fuselage and make adjustments necessary to the wing seat. Now make and install the flap pushrod, ensuring that flap neutral occurs at elevator neutral. Elevator movement should be  $\pm 45$  deg, flaps  $\pm 35$  deg. When all is satisfactory install the bellcrank and rod permanently. Using cling film to protect the wing upper surface, bolt the wing in place and make the wing root fairings



*Stunt Spits in three sizes. Middle one is featured here; wingspan is 46 inches.*

from soft 1/16in sheet. Do not make the gap between the fairings and the flaps too small; 3/32in is about right.

### Back to the fuselage

Remove the front lower cowl (remember it was only tacked in position) and fit the engine. Using lots of 'fit and try', carve the interior of the cowl to give adequate engine cooling. Remove the engine again and fit the cowl retaining latch. Fit the tank and associated plumbing,

cutting away F2 as required to clear fuel lines etc. Remove the tank and give the inside of the engine and tank bays a coat of epoxy. Now finish the fuselage in the method of your choice. Rudder, cockpit canopy, exhaust stacks, cannons, wheel fairings and aerials are best decorated separately and fitted at the very last moment.

### Final assembly

Give the whole aeroplane a coat of matt fuelproofers. When this is dry install the engine and tank and assemble the aeroplane for a CG check. For optimum performance the CG should be 3/4in aft of F3. Make a final check of the flying controls and then, off to the flying field!

### Flying: What you've all been waiting for!

The prototype aircraft weighs 35oz and is powered by an ancient OS Max 25. Using a 9 x 4 Graupner prop and 55ft lines, the performance is excellent. I tend to operate the engine on a 'fat' two-stroke, (ie, I don't even try for the classic 2/4/2-stroke changeover) as I find this suits both the aircrafts, which looks and flies better at slightly high airspeed, and my own style of flying. One of the more surprising characteristics of my fixed-uc prototype is the ability to operate from quite long grass! I would not noticeably inhibit performance, while the improvement in side and front views should be significant. Now, where's that photograph of the Mk 18?

*OS Max 25 is neatly cowed. Whole section is removable for plenty of access.*





# Showers and Scale at **OLD**

**O**LD Warden's reputation as a haven for untroubled Scale flying remains intact – but only just, after a flirtation with the breeze and showers on the occasion of our 1990 Scale Weekend. Happily, radio flying was largely unaffected, and a region of calm air in the lee of the famous Shuttleworth copse meant that many and various were the small F/F craft to take the air, particularly on the Sunday when attendance was as high, and merry, as ever. Even a field-clearing drenching in the later afternoon was only a temporary setback, and some gentle, 'silent' flying continued until seven o'clock to take full advantage of the evening.

## Radio control revelations

Several stars presented for approval. Every year we think 'what can beat this?' but there's always new delights. This time we were treated to Dave Chinery's latest all-electric stunner – a Bristol Brabazon with contra-rotating props too, if you please.

Flights were stately and impressive, although we fancy the adrenalin pumped a bit when a mighty gust bodily shifted the silver giant twenty yards out of position during fly-by... Dave's colleague Bob Mahoney flew the Chinery AW Atlanta in company with the Brab, making a neat, helicopter-like descent and landing to prove the wind strength!

But for sheer nerve and breathtaking display we just couldn't fault Steve Brett's one-eighth scale Mosquito for Saito 50 power which made the lowest passes of the weekend – under perfect control. Bill Burkinshaw's Fokker EIV, wing-warping and all, and Vic Sinclair's Kania S-3 impressed with flights that were about as scale-like as one could wish for; while smaller craft were well represented by (amongst others) Dereck Woodward's DH 53 and The cheerful Great Lakes Special of Gordon

Whitehead. Shuttleworth Trophy recipient for 1990 was V Knight whose Bristol Boxkite flew splendidly in conditions that might well have grounded the original; a great achievement. Tiger Moths, Spitfires and Hurricanes were in profusion; and with every type of aircraft from Pioneer to Jet fully represented by over one hundred models in all, we must refer you to our sister publications RCM&E and Radio Modeller for more news. But we can't leave the R/C scene without mentioning Bob Guntrip's lovely Comper Streak, worthy winner of the Brian Peckham Memorial Trophy in its first year of presentation by Anita Peckham. Most appropriately, the prizegiving ceremonies were closed by a fine display from Chris Bradford flying the ex-Brian Peckham Arrow Active to Pink Floyd's music; 'poignant' was the word.

## Control line circuits

Unprotected from the worst of Old Warden's turbulence, crunching down from the hangar roofs, only the most brave of the control-liners flew. Naturally, this included Geoff Burkett with the faithful SE5a – a worthy effort which netted him the Jack Carter Memorial Trophy for best C/L biplane. We liked Bernard Seale's latest, a Yak-18 created using Felix Pawlowicz's APS scale drawing as a basis, even though it remained prudently grounded during Sunday. But Hugh Watton deserved top marks for perseverance and pluck. Custodian of the Marlborough Club's APS Vickers Viscount, now rebuilt with quadruple electric 'buggy' motors for power, and a multitude of battery packs to suit, he determined to air the elegant airliner and rewarded spectators with stately circuits terminated only by a heavy landing thanks to an unkindly gust. Damage was largely superficial and we're sure the VC7 will be airborne again soon. Geoff Spriggs kept his Heston Racer safely tucked away for most of the day for this was another craft to deserve better conditions. But tell us – where are the big twins, jet subjects and aerobatic bipes of previous years?

## Free flight fun and games

Once again the centrepiece of the F/F activ-

## Our 1990 Scale

**Weekend banished  
the showers and  
caught the sunshine**



*Dave Bishop and your editor take a break from the microphone as Ron Moulton presents the Jack Carter Memorial Trophy to Geoff Burkett for best C/L Biplane – the faithful SE5a triumphing again.*



*Worthy winner of the Shuttleworth Trophy for best replica of a Collection subject was V. Knight's fine R/C Bristol Boxkite which braved the breeze and impressed.*



*As yet unflown, but worthy of a second look – Albert Longbon's Grumman Duck. News of flight trials eagerly awaited...*

# WARDEN

*Bill Burkinshaw's Fokker EIV featured 'as per' wing warping and after a couple of shaky attempts broke ground to enter the R/C circuit in true scale style.*



*Above: Most spirited display of the weekend came from Steve Brett's DH Mosquito which delighted with super, low passes at full throttle. Left: Dave Chinery flew new Brabazon on full electrics (conta-props and all) in company with Bob Mahoney at the controls of the AW Atalanta. The Brab flies by low and slow at above left.*



## Old Warden Scale Weekend

### Free Flight Awards

- 1 Mike Hall Bristol M1C
- 2 Richard Granger Huntington H12 and Sabre
- 3 Dave Goodenough Space Shuttle

### Control Line Awards

- 1 Hugh Watton Vickers Viscount
- 2 Bernard Seale YAK 18
- 3 John Roberts DHC-1 Chipmunk

### Jack Carter Memorial Trophy

Geoff Burkett SE5a

### Fred Longdon Trophy

Dave Johnson Fieseler Storch

### P E Norman Trophy

Alan Jupp Fokker Triplane

### Masefield Trophy

Results appear in Vintage Corner column

### Shuttleworth Trophy

V Knight Bristol Boxkite

### Best R/C Flying Performance

Steve Brett DH Mosquito

### Best R/C Achievement

Dave Chinery Bristol Brabazon

### Best R/C Civil Aircraft

Vic Sinclair Kania S-3

### Brian Peckham Memorial Trophy

R A Gruntrip Comper Steak

ity was the display of original models built by the late P E Norman and Fred Longbon. These included such favourites as the Gamecock and Mew Gull, which eluded flight, and Fokker DVII and Puss Moth. In other words, a jolly variety, augmented, as usual by the current models of custodians Alan Jupp, Ted Horne and colleagues. Fred's brother Albert Longbon brought along two brand-new and untried models – a Savoia Marchetti S-55 and a Macchi M33. The S-55 – that most unusual twin-boom flying boat, famous for its famous pre-war 'Balbo' transatlantic formation flight – was powered by a duo of PAW diesels totalling 2.5cc, which should be more than adequate. Could be tricky to launch, though...

Despite the fact that conditions were largely unsuitable for 'power' F/F there was a clear winner of the Longbon Trophy for best APS design. Dave Johnson's Fieseler Storch performed as if on rails (after a modicum of trimming). About ten years ago there was correspondence in these pages about whether a Storch could be made to fly without lots of dihedral, following publication of a photo of such a model with about fifteen degrees' worth. Dave's had none... The soft aluminium, vertical centre wing tongue clearly offered substantial

shock-absorbing qualities during the Storch's period of adjustment for stable flight. But by far the most impressive and exhilarating flights were those of Alan Jupp's version of the P E Norman Fokker Triplane design. This was built 'as per' with all the bamboo, cane and fibre shown on the plan. If anyone had any doubts about how strong this type of construction is, the first flight would have dispelled them for the Dr I hit bad turbulence at about thirty feet and ploughed in with tremendous force, looking a definite 'bin-liner' case – but there was literally not a scratch. The triplane made two more show-stopping flights. On the second it flew high and straight ahead, passing through a number of R/C models (including a very startled Aeronca C-3) at great height, completely steady in conditions that were causing the radio craft to twitch all over the place. It then veered off, passing safely over the wood with fifty feet to spare before descending in a flat glide. Fantastic – and a worthy winner of the P E Norman Trophy.

The most popular model was the Found Centennial designed by Rob Presnell and featured as a full-size plan in the May 1989 issue of this magazine. At least five were present, notably Phil Stubb's version equipped with the Powermax Z compressed air motor – a form of propulsion now making considerable impact on the Scale scene, for Mike Hall's Bristol M1C,

Richard Granger's Huntingdon H-12 (is this really a scale model, or a Walt Mooney joke?) and Harry Perrens' Lacey were so-equipped.

A large Comet Lockhead Vega by Simon Firth was another eye-catcher. Copious fuselage lettering was very neatly executed. Apparently today's photocopiers can transfer designs onto transparent, adhesive film which can then be applied directly to the model. Very useful...

Alan Campbell perseveres with ducted fan models. This time he tried a new Sabre, powered by a potent-sounding 2.5cc glow motor, but insufficient power was being developed for sustained flight.

And so many others – including a very neat Albatros CIII for Acoms electric power by Anthony Druce, and, unforgettably, Dave Goodenough's Mills-powered Space Shuttle which just had to receive a prize (even though we'd have preferred it to be trimmed-out before attendance. Not an individual gripe; see Hangar Doors this month).

Once again F/F proceedings closed with its own prizegiving in the shelter of the trees, Albert Longbon having undertaken to hand over the ASP trophies. Included in the ceremony was the Masefield Trophy, run by Ron Knight and Alan Wiggs on behalf of SAM 35 – and reported upon by Alex Imrie in Vintage Corner this month.

At the close, time to reflect upon another successful meeting – not without further comment being necessary. Again, we refer to Hangar Doors.

Thanks to all who attended, and enjoyed. See you all at Scale Weekend 1991!

## Indoor Scale at Walsall

Omission of the BMFA Indoor Scale Meeting (to be held on 28th October at the Alumwell Centre, Walsall) from last month's What's On doesn't indicate cancellation. Far from it! Doug Sheppard's sterling efforts deserve super support – so for the tops in Indoor Scale, take the road to Walsall.



Bernard Seale's latest for C/L is this neat YAK-18 to one-seventh scale for Meteor 60 power. Features retracts and flaps.



Alan Jupp with astonishing Fokker Dr I from P.E Norman plans which took the P.E Trophy thanks to memorable flights....





Top left: Simon Firth with neat Winnie Mae from Comet plans. Below that: Another Simon (Mr Rogers this time) displays his impressive Sopwith Bat Boat. Below that: A crafty peek into Mike Hetherington's model box reveals this 60in Mosquito for rubber power. Above: Also by Simon Rogers - Antoinette is rubber powered. Top right: Alan Campbell's latest ducted fan - NA Sabre was out of luck this time. Note MiG 15 too. Below that: Dave Johnson's fine-flying Fieseler Storch from ASP plans won the Longbon Trophy. Below that: Phil Stubbs flew the Found Centennial to great effect - features Powermax Z-model compressed air motor. Above: Neat Comper Swift prototype by Geoffrey Woodward promises much.









Top left: Dave Goodenough's all-sheet Space Shuttle is Mills .75 powered. Trimmed out beautifully. To the right: PE Norman's original Gloster Gamecock being prepared by Alan Jupp. Above left: Neat DH88 snapped in the C/L circuit. Above: Huntingdon H-12 ready for pump-up action by Richard Granger. Far left, centre: Paul Lumsdon's APS Sopwith Camel performed well. To the right: Bristol Monoplane by Mike Hall - another for compressed air. Left: Museum quality cockpit of Pete McDermott's F4C Sopwith Triplane. Bottom left: Characterful Demoiselle for DC Dart power by Peter Lindridge. Below centre: Hugh Watton's C/L Viscount has quadruple electric power. Flew most effectively. Above that: Faithful C/L SE5a - again the Carter Memorial Trophy winner for Geoff Burkett. Left: Team Roberts prepare familiar C/L Chipmunk. Below: First day out for Peter Jones's Nieuport modified for K&P electric power form Guillow's kit.





# MOTOR MART

We take a look – in colour – at the latest CS motors to hit the UK shores



Chinese-built CS glow engines look robust and capable of absorbing hard work. At top is the .061 in F/F trim with tuned pipe. Actual example gives 27,000 rpm on 25 per cent nitro, pressure fed from pacifier. .049 at centre, left shares same casting. Trio at centre, right are the .15 F/F, .09 F/F and .049. The .09 looks promising on suction feed with 3mm venturi – a good bet for 1/2A Team Race as well as Combat. Above photos show that .061 again in company with the .15. Inset: ABC piston/liner from the .061. Other motors soon to be available are an .11, available in 'Normal' and 'Speed' versions and is a popular choice for baby pylon racers in Japan; the Speed AAC .15 with pipe, a piped .21 and diesel .15 for Team Race. Engine weights: .049 and .061: 93 grams; .061 (pipe only) 15gm; .09: 114gm; and the .15 weighed in at 175 grams.

Motors were supplied by Peter Carter whose advertisement listing all variants and prices appears elsewhere in this issue.

# BALSA CUTTINGS

Cyano de Bergerac noses – and sneezes not!

## Atissue not to be sneezed at

One thing the aeromodellisti never tire of is the search for the perfect wing-tip-friendly covering material – quick job, light weight, no warps and no wrinkles. What haven't we tried, apart from roofing felt and hospital-quality lino-leum? (Oh, dear, now for the letters – *Dear Sir, I have been using Ottershaw's Roofing Felt on my models for many years now and strongly object to you...*). Oiled silk, not-oiled silk, linen, nylon, cotton, Daily Mirror, Xmas wrap, Mod-elspan, bamboo paper, cream rag, messyfilm, condenser tissue, Russian stuff, Swedish Hard; oddly enough, not everybody is sappy about the venerated pre-war Jap. Deep in The Rid-ings, where the BMFA Special Reserve Battal-ion and even the crack troops of the Argus House 2nd (Ron Moulton's Own) Brigade cannot get at them, is a band of stalwarts who say it tore too easily along the grain, took up too much dope and was brittle. But no-one, *no-one*, has ever come it strong in favour of stationers' tissue. Flower-makers' tissue, that is. Large variety of cheerful colours, and doesn't cost much for 10 sheets 30 x 20in. And it's light. The B. Cttngs Tissue Research Wing (d'you get it, *Wing?*) cemented up four bits of quarter square into a frame the size of a flexible friend, covered it with stationers' tish, and slobbered thereon two coats of unthinned clear dope, which were allowed to dry. Then a circular metal thing 1.1/2in in diameter with radiused edges (actually an upside-down 2oz weight off a grocer's scales if you really have to know) was placed in the middle of the tissue membrane, and loaded up. And the tissue just split. Yup – as soon as the load went over fifteen pounds! It split. There has got to be a use for this stuff, if only as a substitute for roofing felt.

## Name that mag!

Even if you go back to Issue No.1, you'll find that the title of this magazine has nearly always been presented in very well-styled characters. Perhaps the most classic is the current effort, the exact form of which dates from July '83, and reflects the observation in Vic Smeed's *Fifty Years of Aero Modeller* that originally it was two words... 'subsequently occasionally hyphenated, eventually one word.' Well, that's as may be. It's two words at the top of this month's title page, yet one word in the publisher's guff underneath. ASP adverts for binders call it *Aero Modeller* one month and *Aeromodeller* the next. The free plan in last Feb's issue was from the *Aeromodeller*, and in May '73 the MAP sister mag *Model Engineer* carried a panel urging the expenditure of 15p on the June issue of the – wait for it – *Model Aero Modeller*. Those evergreen McGillicuddy stories tell of an imaginary journal called *The Aeroyodeller*, although it is said that the original proposal (tersely turned down) was for *Aeromuddler*. Can't think why. (*All right, all right. GC.*)

September 1990



## Nature lesson

A propos something this column is always on about, some years ago a quite big club acquired, for a pretty steep rent, the use at weekends only of a lumpy, often muddy field hemmed in by ash trees. Along the western boundary, the clay has been eroded by long-forgotten waters, and the sand breaks through in smoothly-rolling well-drained acres, spoiled for flying only by two huge old limes strategically obstructing the central area. These looked as though they would prosper under sunshine and a Preservation Order for another couple of centuries, but one fell in the Hurricane and the other in last January's gale. This now-perfect bit of land was then put up for sale, and the MFC longed to bid, but they hadn't any money. It was bought, at an agonisingly reasonable price, by half a dozen very ordinary old boys who had been keeping an eye open for just such a site. They flogged the fallen trees to a timber merchant who hauled them off and paid cash on the nail, which was spent on topsoil and turf to cobble up the holes they'd left. That took a whole afternoon. Then some of them went whanging round with a sixty-four year old gang mower to make a start on the greens whilst others scooped out the bunkers by hand, plonked down some concrete and got on with assembling the clubhouse. The rest, as they say, is history. Report by courtesy of the village postman, a founder-member of the golf club who used to be a member of the MFC as well.

## Fifty years ago

The Few. Don't forget them.

## Can you hack it?...

The bad news is that in 1995, metrication will be here to stay. If you can afford to, you'll still be able to buy beer and milk by the pint

(probably with francs!) but substantially, measuring will be mucked up, permanently. How those of you will manage who don't know or care that 1.5mm balsa is just Eurobilge for the real one-sixteenth sheet, time alone will tell. The good news – the best since Monty Zoomer flew an Aztec – is that once again we have the proper weapon for cutting that lovely stuff. Look through the adverts. Single-edge razor blades are back!

## ...yes, we can!

So we flew nothing louder than CO<sub>2</sub>, glider, rubber and chuck, and *still* this geezer complained. He wrote to the chairman and grumbled about this activity taking place on his Sunday afternoon. Well, a soft answer turneth away wrath (Proverbs, 15.1) but what are you supposed to do – grovel? Bearing in mind the successful grounds of appeal by certain stores prosecuted for trading on the Sabbath, our secretary sent a tart reply saying we were flying on a Sunday within the provisions of The Treaty of Rome. *That* shut him up.

## Hope springs eternal

Charles Gardiner advises any newcomer to radio control gliding to make contact with a local club where he may buy a used model which, 'after learning', he can probably sell for what he paid for it. Of course you realise that, 'after learning', to clinch the deal you may have to throw in the bin-liner as well.

## Will we do, Vicar?

Our parish magazine may not have much to do with aeromodelling, but surely a publication which advocates 'aid for the most deprived and needy' must have something for everyone.



# PER ARDUA AD... TERRA FIRMA?

**Born-again  
competition free-flyer**  
John White describes his  
own individual approach  
towards the top

*John poses with latest Sir John Shelley (Tailless) craft. An ideal class for the writer's unfettered approach to flourish...*

**I** STARTED making rubber driven model aeroplanes around 1941 at the age of ten, and bought my first copy of the *Aeromodeller* for one shilling (about two weeks' pocket money) in May 1942.

Most of my early models, whether own designs or kits (I built four Ajaxes and three Achilles at five shillings and three shillings-and-eight-pence a time respectively) did little more than powered glides, seldom reaching much more than head height.

## Improvement

Things did improve a bit after my twelfth birthday when I was able to join the Streatham Aeromodellers and get expert help and advice from people like Bill Challoner (club president and model shop proprietor) and Ronnie Rock (who later raised the Class A RTP record to 5min 53 sec).

I well remember my first model to reach tree top height on my local field at Wandsworth common. It was a parasol-wing, own-design of 18in span; doping had warped the wing into unintended, elliptical dihedral. There followed a series of Flight Cup models (max wing area 144sq in, min all-up weight 5oz, max rubber weight one ounce; SMAE fuselage formula), the last of which I renovated for the SAM 35 stand at the 1986 ME Exhibition, and medium light-weight jobs of around 30in span. Nearly all these followed the fashion of the day with fat, slab-sider fuselages to SMAE formula (Min area of max cross section = length squared divided by 100) and two-wheeled undercarriages. I also built all three of the Mick Farthing lightweights published in *Aeromodeller* between 1943 and 1946.

In those days my models seldom turned in flights of greater than 90 seconds, when other people were regularly getting 2.1/2 to three minutes in 'still air'. Needless to say, my efforts on competition days at Epsom Downs were abysmal. I would be interested to examine the full results of various decentralised rubber competitions (such as the Gamage Cup and ME No1 Cup) of that period in the SMAE archives to see if I actually did come last out of the 300 or so entries...

## Wake up!

It wasn't until the end of the war, or just after, that I built my first Wakefield, an APS Isis. Up to that time the sheer expense and difficulty of getting enough rubber had deterred

me. I reckoned I could produce a 30in lightweight for about seven-and-six or ten bob, but a Wakefield with its 4oz of Caton's or whatever substitute was available would knock me back about a guinea.

On one occasion I made a 30-mile cycle trip to Dorking and back to pick up enough Government surplus rubber to make a motor for my Isis. The following Sunday, on the way to Epsom Downs, the rubber leaked out of a hole in my model box and wound itself round my rear hub where it became broken into tiny pieces.

I later went on to build an APS Dusty VIII together with a series of own design Wakefields, one of which was lost out to sea off Thorney Island where I was stationed during my National Service.

*John spent a few years on kites before returning to aeromodelling. Here he airs his 21ft Delta Conyne Kite on Parliament Hill in 1981.*



## High point

The high point of my aeromodelling career came when I placed second to Ian Dowsett in the Thurston Trophy at the 1951 RAF Championships at Coningsby with the last of these O/D Wakefields. My ROGs on that occasion were somewhat dubious with at least one other member of the Flying Training Command Team helping to hold the single-leg retracting undercarriage down. As Ian suggested at the time it was probably underweight and would no doubt

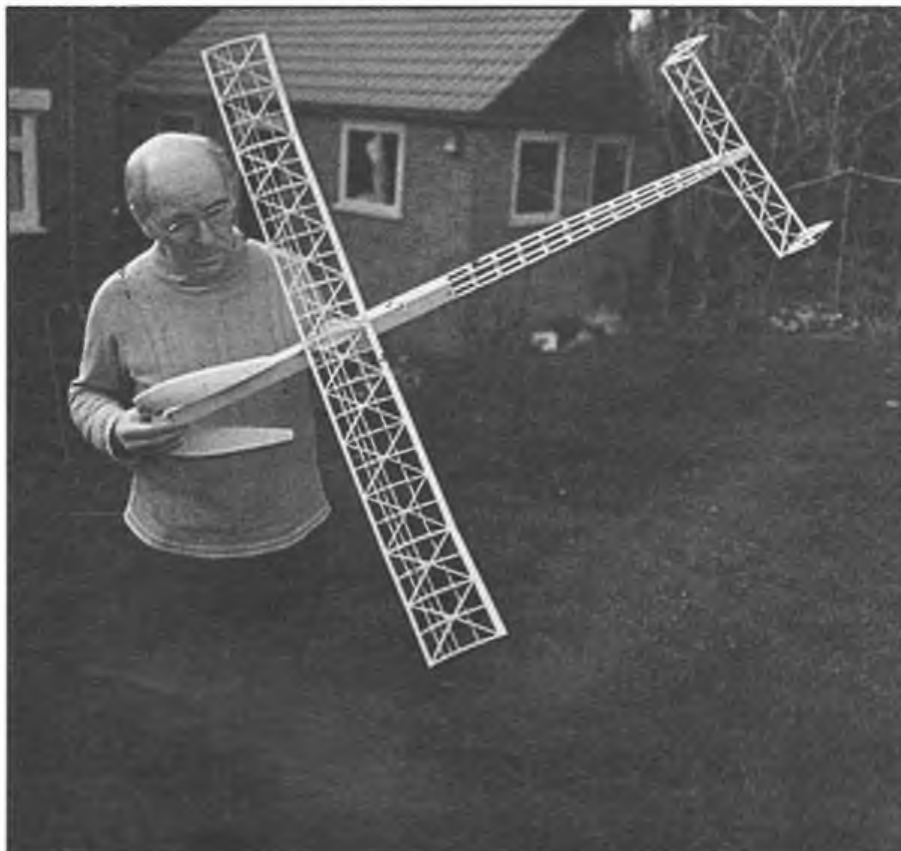


**John's 6ft Tailless Glider, originally designed on a sheet of school graph paper in 1948, was built in 1983. Consistent half-minute flights.**

have been disqualified had any official checks been made. At the same meeting I averaged just over two minutes with my lightweight to gain me about fourth place in Open Rubber (I think there were more than four entries).

The same year I had a walkover (or should it be a glideover?) in the Jetex event at the Southern Counties Rally on my home ground of Thorney Island flying my Jetex 350 powered 'Fizzer' (serial number 252). This won me a fifteen-shilling voucher to spend at Ripmax on my next leave.

**All-Square 48, seen ready for covering, was John's first own-design Wakefield for 38 years. 60in open version managed four out of five maxes in this year's Weston Cup.**



## Brixton days

By this time Fairlop Aerodrome had displaced Epsom Downs as the main model flying venue and those noisy things on strings had made their appearance and become part of the aeromodelling scene. Before my national Service I had also joined the Brixton DFC presided over by the then Captain Taylor, who, years later, as Major Taylor, was to become the SMAE's first full-time paid secretary. My main flying companions then were two of my school mates; Dick Taylor (who was also to be Secretary for a while after his father's death) and Teddy Brain (who specialised in German-influenced gliders with names like 'Fits der Modelboks' and 'Pokeshold in der Model Boks') together with Ken Glynn (who later moved to Surbiton and represented Britain in the World F/F Power Championships).

My glider efforts were even less successful than my rubber jobs. I never managed to tow up my ugly ten-foot canard at Fairlop and my final model in 1952, before giving up for 30 years, was a six-foot, low aspect ratio slabslider which I cannot recall even having brought along to the flying field.

## Back again

In January 1982 I visited the ME Exhibition and met up with Dave Baker and Vic Dubery on the SAM 35 stand. I wasn't sure whether the word 'antique' in the title referred to the models or their builders but anyhow I decided to join then and start building again.

My first effort was an ungainly six-foot span - and length - Open Rubber model with both wing and fuselage in two parts (I had just read a report of the Open Rubber Trophy and gathered they were building them big these days). I carved a huge spoon - shaped single bladed folder for it of which Mick Farthing might have been proud except that he would probably have

carved his the right way round. I stuffed the model full of Pirelli (from what must have been one of the last hanks sold over the counter at HJN's) and on its one and only outing to Chobham Common, it performed the sort of powered glide I had experienced over 40 years before - back to square one!

Having been greatly impressed with the performance of Peter Michel's Isis I dug out my old APS plan and proceeded to build two of them. So far neither of them have lived up to my expectations but then I'm not an expert flier!

My first contest for over 30 years was the 1982 Aeromodeller Coupe d'Hiver for which I built four models (never having seen a Cd'H model in the flesh before, I was - as it were - working in the dark). Two of the fuselages were covered in 1/64in ply and since, with their tall pylons, they looked like submarines, I called them Nautilus I and II. They also flew like submarines. The other two were lighter being covered in 1/32in sheet balsa on top of which I stuck some silvery plastic material, so I called them Poisson d'Argent I and II. My comp flights that day mostly averaged around 30secs, sometimes climbing to around twice head height (quarter maxes). Some years later I weighed the Pirelli motors I had used on that occasion - they averaged around 7gm; at the time I had no means of weighing them but had been told that five feet of 1/4in rubber weighed about 10gm, the prescribed amount.

Over the last eight years the performance of my Coupes has steadily improved with flights of a minute or more and even the occasional max but I'm still not up with the winners.

I have also tried tailless on the assumption that with the usual small entry, it should not be too difficult to get into the top 10 in the Lady Shelley. Unfortunately for me, this class is gradually becoming more popular so that, in the last Nats, I actually had beat someone to hold onto my pace in the top ten.

## Thanks!

I cannot conclude this account of my more recent aeromodelling activities with saying 'thank you' to all my fellow free-flyers who have given me so much help and encouragement. To David Baker and Ian and Glenda Bracken for their help in bringing my gear to and from the flying fields before I had a vehicle of my own, for much useful advice from Jack North, Dave Hipperson, Andrew Crisp, Ken Smith, John Pool, Ted Tyson, Pete Redhead and others too, notably Martin Dilly whose tree climbing skills have saved models of mine on more than one occasion. Finally, Geoff Clarke, the current AM editor and Ron Moulton for the interest that have taken in me.

Back in the early 40's when I first joined the Streatham Aeromodellers there was some vague talk about a war going on against some chap called Hitler but we knew our real enemies were the Croydon DMAC and the Park Model Aero League. In those days each club kept to its separate pitch on Epsom Downs and it was considered almost treasonable to be seen hobnobbing with chaps from another club.

Nowadays clubs seem much less parochial; in fact free-flight seems almost like one big club which knows no national boundaries, as I found out when I travelled to France for the 50th Anniversary Coupe d'Hiver.

Vive Le Vol Libre!

*Readers should be aware that John's enthusiasm is paying dividends, especially in Coup0e d'Hiver where his latest, large, slow-flying and relatively low-altitude craft has been involved in recent flyoff success, culminating in a well-deserved win at the Oxford Rally. GC.*



# FREE FLIGHT SCENE



Ian Dowsett with Stuart Savage's 100gm coupe, proxy flown for Canada many times since the 1970s. Compare with Gerry Ferer's latest drawn here.

## Third Area Centralised Event: 13th May. Dave Hipperson reports

Weather for this one was superb throughout the country, with the exception of the very South-eastern part, which was having their driest early summer on record – but not their warmest nor sunniest. It was actually chilly at Ashdown Forest and Joe Foster's eventual flyoff placing in Glider was after patient waiting – some half-an-hour – before his last flight.

Further around the South two great efforts in the flyoff in the same class broke an otherwise complete domination of all the classes by the huge entry at Barkston. At Beaulieu (after a complete wind reversal before the flights and

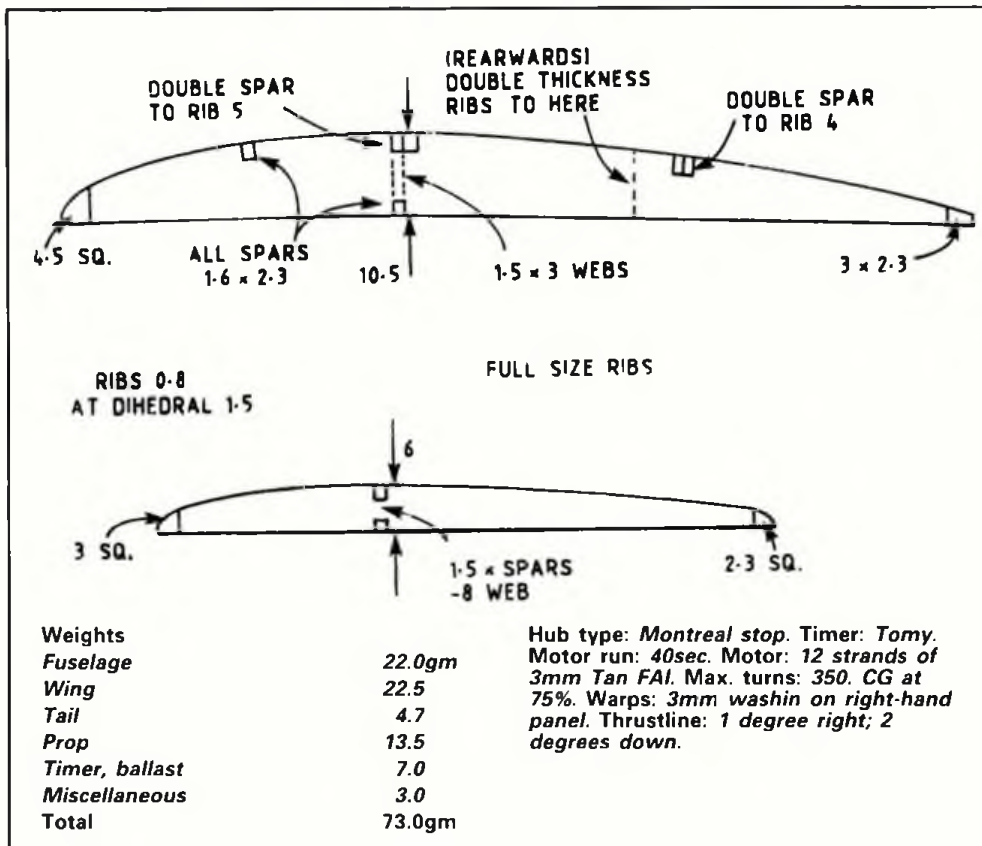
following a very calm, warm, sunny day) Mike Fantham and Pete Stewart contacted light lift that went on and on. Fantham D/T'd down at ten minutes, with height enough for another three; and Stewart, who had actually set an even longer 'fuse' glided in a minute sooner. Both models travelled only part-way across the heath. Earlier, at the same venue, the ever-popular John White, with the help of Phil Uden's thermostat, had produced his best ever result in FIB with a string of maxes spoiled only by one duff flight.

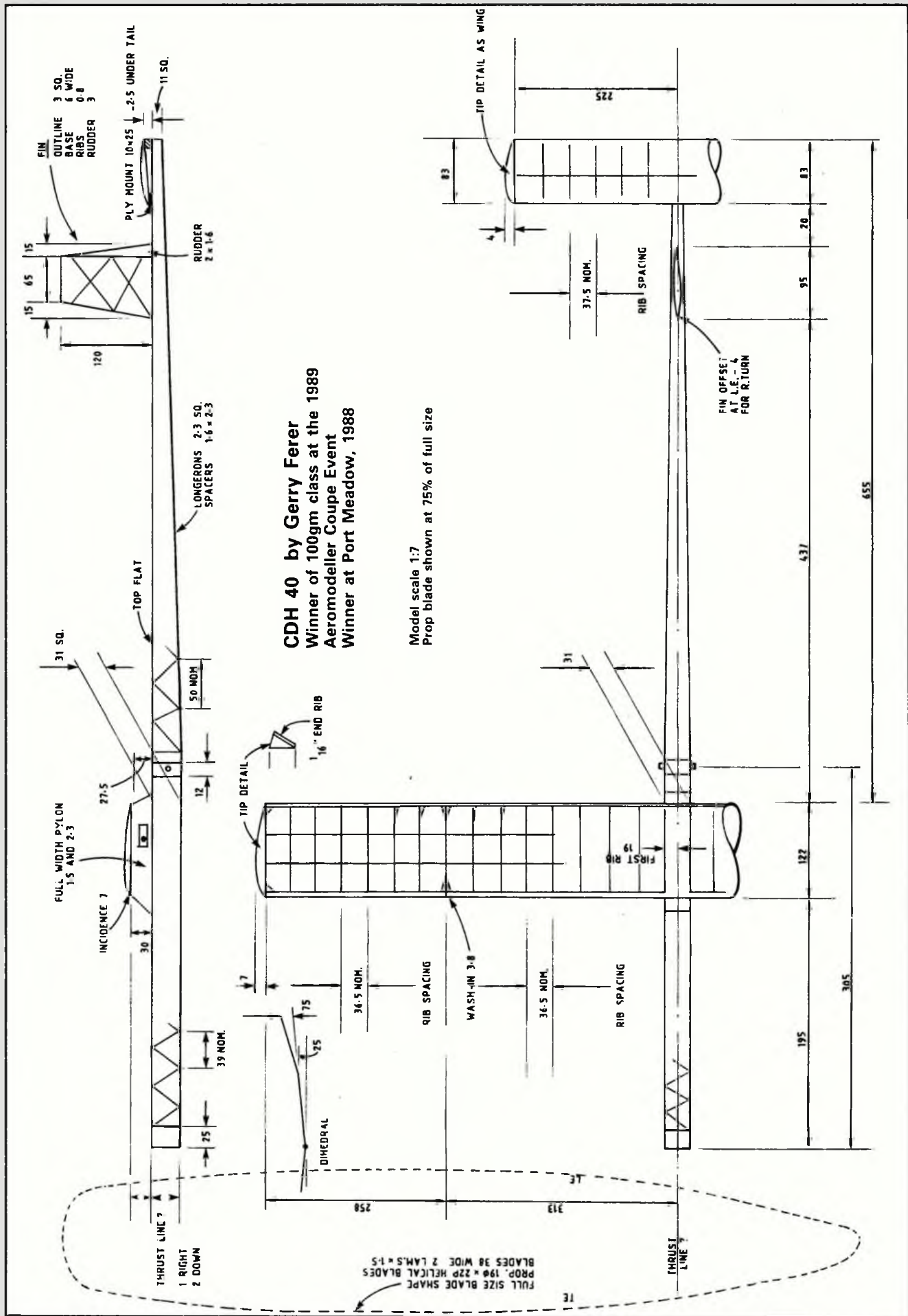
The remainder of the country had light north to north-east winds: only the haze at Barkston's flyoff prevented enormous scores. Glider got a

Third Area Centralised SMAE Free Flight event: 13th May		
<b>Open Glider (no trophy: 54 flew)</b>		
1	M. Fantham	Beaulieu
2	P. Stewart	Beaulieu
3	J. Cooper	Barkston
4	J. Williams	Barkston
5	P. Chamberlain	Barkston
6	J. Foster	Ashdown
		7:30 + 10:36
		7:30 + 9:26
		7:30 + 8:34
		7:30 + 7:35
		7:30 + 7:25
		7:30 + 6:58
<b>FIB Wakefield for Weston Cup and Plugge Points (54 flew)</b>		
1	B. Lavis	Barkston
2	I. Taylor	Barkston
3	J. Bailey	Barkston
4	B. Horsley	Barkston
5	M. Chilton	Barkston
6	B. Aslett	Merryfield
		12:30 + 9:28
		12:30 + 8:51
		12:30 + 8:45
		12:30 + 8:23
		12:30 + 7:25
		12:30 + 5:33
<b>Open Power (White Cup: 26 flew)</b>		
1	R. Peers	Barkston
2	P. Ball	Barkston
3	R. Monks	Barkston
4	R. King	Barkston
5	R. Baggott	Barkston
6	S. Screen	Barkston
		7:30 + 11:35
		7:30 + 8:06
		7:30 + 6:59
		7:30 + 5:48
		7:30 + 4:48
		7:30 + 4:43
<b>Plugge positions after three events:</b>		
Bristol & West		733
Birmingham		648
Crookham		585
Biggles		455
Vikings		431
East Grinstead		306

rotten deal here being programmed last and flown at 7pm. Nevertheless times were considerable – six people exceeding four minutes at that venue alone. The haze cut into the FIB flyoff times harshly. Reflective models look lovely in bright sun but in fog they look fog-coloured – and fog-coloured models disappear quick! Ivan Taylor found this out. Brian Lavis's bolder outline was seen for longer. The top four were pushing the nine-minute mark, but distances were quite tiny – half a mile or so off the drome apart from just one flyer in Power. This class followed FIB at Barkston and once again those that flew took the top places nationally. The 'field' got away promptly – Phil Ball and Russell Peers electing to wait. In Ball's case, this was a little too long – the lift dying under his .40 model but still helping it to clear eight minutes and take second place. First went to Peers again. It has to be said he comes out fighting. How many of us would have the audacity to even contemplate a seventeen-minute D/T? That's a dozen or more divisions of fuse – over six inches of it! He flew on a temperature increase and climbed quickly to a considerable height on the glide. The Northerly drift took the model conveniently down the Roman road. He kept in touch with it on his bike and saw it D/T hundreds of feet above him. He was right there when it hit the ground, more than three miles away almost to Spitalgate, the next aerodrome down the road! It was just past 7pm; he had launched it at about 6:40. Most of the opposition must have been hoping the seven-second rules would clip his wings, but no. Wonder what they will suggest for rule changes to challenge him next year? And had the FICs and such that he was flying against hit his good air he would still have beaten them with that brave D/T length – way outside their range. Magnificent tactics – a big win and the model back unscratched. Not bad for the country's currently most successful Wakefield flyer on an off day...

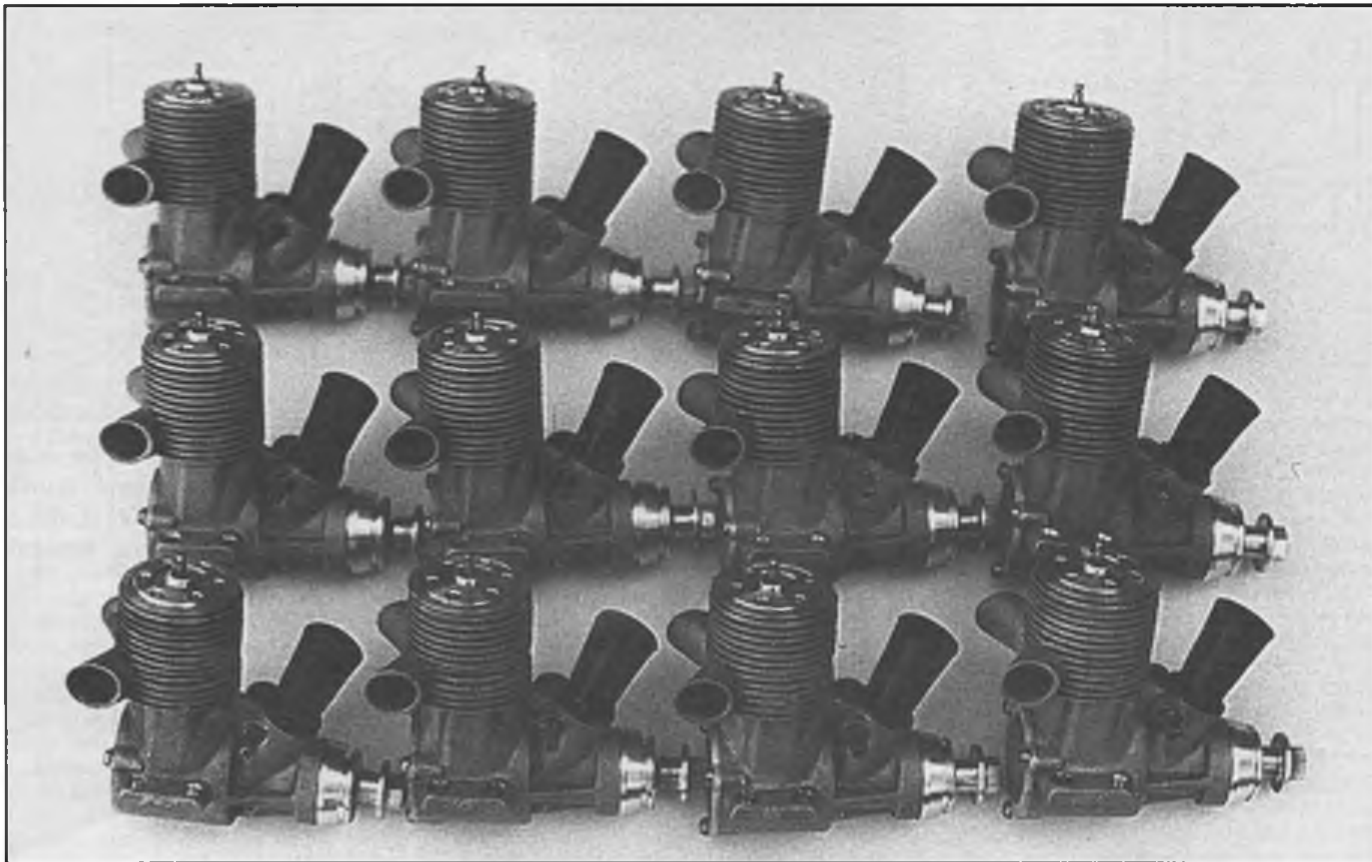
Bristol and West consolidated their position in the Plugge cup with three members in the FIB flyoff. Bernard Aslett's excellent five-minute-plus being good enough only for sixth individual but backed by the unlikely pair John Buskell and Mark Croome (both flying models built with the minimum of frills and especially for the occasion). All this once again underlined the fact that judging the air is more important than delayed props, wing wagglers and VITs.







# NEW FROM I



## Dave Clarkson explains the reasoning behind appearance in the UK of a fresh Combat motor from the USSR

*Twelve of the first production batch of forty STELS F2D motors.*

**T**HERE can be little doubt that the world's best 2.5cc motors are built in the USSR. One has only to look at the results from Control-line World and European Championships over the last ten or more years to realise that. Sadly none of these motors from such world respected craftsmen as Kalmykov, Krasnouretsky, Lebedev, Onufrienko, Muznetsov or Sureav have been produced in anything like quantity so I, like most of my fellow aeromodellers, have just had to dream about owning or using one.

Things are changing now in the USSR (as the TV and newspapers tell us every day) and one result is the advent of commercial production of world quality motors there; motors like the STELS F2D Combat engine and products for F1C, F2A and FC from the Kalmykov co-operative in Novosibirsk. To date the Kalmykov commercial production engines have not appeared in the West but the STELS F2D Combat engine is now available in numbers and with full spares and service back-up here in the UK.

### World class

Why have I included the STELS in this recital of world class motors from the USSR? Well, it is the motor that the current F2D Combat European Champion Viacheslav Beliaev uses. Those who saw his stuff working at the 1989 Euro Champs at Three Sisters will know that it is world class.

STELS (Sports Equipment and Electronic Systems, when Anglicised) is a State Enterprise with production facilities in Leningrad. It is staffed by aeromodelling engineers headed by Alexander Gievskiy, for many years Beliaev's pitman. It was Alexander who came to the first SMAE Centralised at Three Sisters this year with one of his co-workers at STELS, Svetlana Fillipova (they both flew F2D Combat there) to break the news that the STELS F2D Combat engine is in commercial production and to sort out arrangements for their sale in the West.

Alexander impressed us all with his confidence and energy, and his immense knowledge and skill. My subsequent visit to STELS in

Leningrad convinced me that these are people with the facilities, knowledge and skill to produce the goods and maintain the quality. Definitely people who could do the business – Alexander, Larissa, Svetlana, Valentin, Vitaly, Vladimir, Vladimir and Vladimir...

To the engine itself. The pictures and captions hopefully show a fair deal and to these I add the important technical details.

### Crankcase

Gravity diecast aluminium extensively cored for spraybar, venturi, crankshaft, bearings, liner, transfer and exhaust passages. Width between bearers 27mm.

### Crankshaft

Machines, hardened and ground steel with a surface hardness of 50-55 Rockwell C. Main journal 12mm OD with square cut induction hole connecting to 8mm ID induction passage. Measured induction timing 30 degrees ABDC to 65 degrees. ATDC. Front journal 6mm OD threaded M6 0.75 for prop sleeve nut. Crankpin is integral with crankshaft and is 4.5mm OD x 4.5mm long. It is chrome plated and is tapered towards the crankweb by 0.02mm in diameter.

# NOVOSIBIRSK

## Bearings

High quality Russian-made metal caged ball bearings to ISO metric dimensions front bearing 6 x 15 x 5mm, rear bearing 12 x 21 x 5mm.

## Conrod

Machined dural equivalent 27.5mm between journal centres. Big end Phosphor Bronze bushed. One oil hole drilled in each end.

## Gudgeon Pin

Machined, hardened and ground steel drilled hollow to one blind end. Retained in piston with two bent wire circlips.

## Piston

Full machined sintered aluminium/silicon composite containing approximately 28 per cent silicon. OD relieved at top edge and on skirt. Accurate OD engraved on piston crown for matching size to liner.

## Liner

Two versions: Brass or Mahle 124 Aluminium. Porting similar to Rossi 15 MkII; measured timings exhaust 154 degrees, transfer 133 degrees. Bore chrome plates and finished by none to diameter and taper. Accurate ID engraved on liner for matching size to piston.

## Head

Copy of Rossi G2 glow head. Clear range from piston controlled by shims. Held in crankcase by machined aluminium retainer ring screwed M22 x 0.75 on its OD.

## Backplate

Thin walled gravity die-casting secured to crankcase by three M2.5 x 0.15 machine screws. Surface facing crankshaft chrome plated for wear resistance.



*Bare crankcase with venturi and rubber muff. Venturi is inserted into muff; assembly is pressed into crankcase boss. Spraybar is then pressed into place to fix the lot.*

## Propdriver

Machined aluminium retained on crankshaft by machined aluminium split collet. Propdriver extends rearward to fit closely over machined OD of front bearing housing.

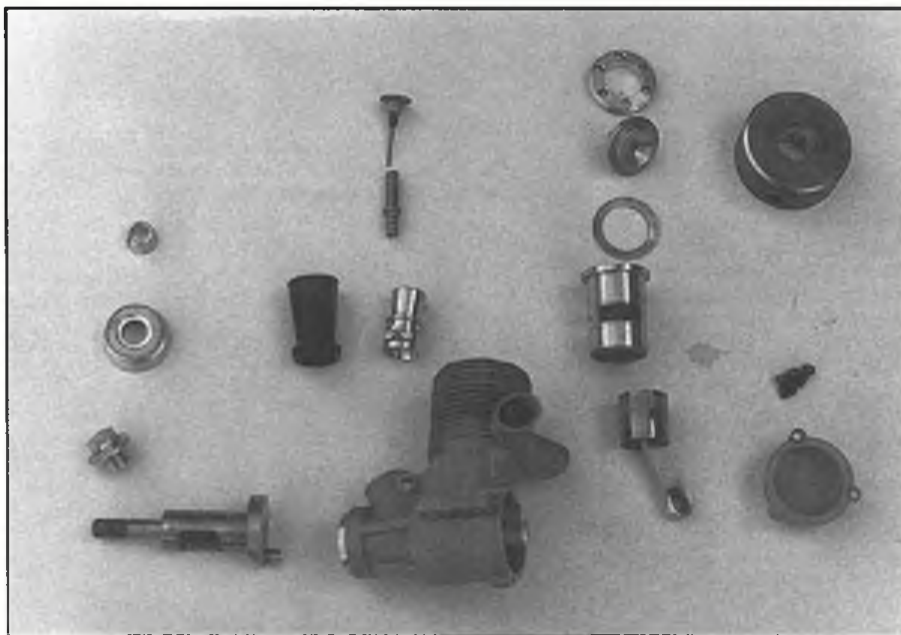
## Venturi

Machined aluminium with 4.0mm ID throat and 20 degrees included angle exit. Fuel inlet downstream of throat. Fitted with moulded rubber muff which extends well beyond ven-

turi entrance. Muff folds over venturi preventing direct ingestion in crash. Muff and venturi retained tightly into crankcase by pressed in machined Brass internally threaded spray bar. Needle is machined threaded hardened steel of minimum projection to the side of the venturi. Fitted with a 15mm OD Brass clockwheel for easy and accurate adjustment. Needle sealed to spray bar with silicone rubber seal. Needle screws into spray bar.

## Propnut

Machined aluminium sleeve nut with 8mm OD sleeve tapped internally M6 x 0.75 to screw onto crankshaft. Machined hexagon flats at front to accept standard glow plug spanner for tightening and removal.



*All the bits. Head-removing tool at top right.*

## Quality

Quality, design and purpose is written all over this specification. It should be no surprise that the checked weight of the complete engine is 115g for the ACC version and 125g for the ABC version for low weight is very important in an F2D Combat engine. Such low weight is very attractive for SMAE Diesel A Combat and Open Goodyear; a diesel version is under development and should be available as this article is published. Maybe free-flight power enthusiasts should give the STELS glow motor consideration for it must have the best power to weight ratio of any motor currently commercially available anywhere.

There are a few of these specification details which are of particular interest. The raw crankcase castings we saw at the STELS factory in Leningrad are quite the best designed and executed I have ever seen. The intricacy and completeness of the die and coring is without equal. It is a compact and light item requiring the minimum of machine finishing operations and yet with more than enough wall thickness where important. Equally well designed and executed is the crankshaft - extremely light

with 12mm OD main journal whilst retaining a 2mm wall thickness for this main journal. The reason for its low weight is its shortness; hence the slightly tapered crankpin to ensure that its top surface is at 90 degrees to the conrod axis at TDC when the motor fires and the ballrace clearances adjust accordingly.

The piston is very interesting for it is machined from vacuum sintered 28 per cent silicon aluminium slugs. We have known that the Russians have been using sintered pistons in their AAC and ABC competition specials for some time but this is the first known use of such a piston material in a commercial production motor. High silicon content is known to be essential for low thermal expansion and ear

resistance in AAC and ABC engines. The problem is that the silicon content in eutectic alloys is only 11-13 per cent and this is not enough.

At higher silicon contents a two-phase alloy results with the silicon phase lighter than the eutectic phase. The result is that when cast, the silicon phase in the ladle and casting separates from the eutectic phase, giving silicon content variation. A further difficulty with castings is that at Silicon contents above 20 per cent the silicon phase grain size is very large. So large that it is easily visible to the naked eye and in fact approaches the wall thicknesses of the pistons used in 2.5cc motors. Sintering avoids these problems completely for silicon distribution and grain size is easily controlled by mechanical operations prior to the sintering operation.

External features of note include the rubber muff over the venturi, the needle valve assembly, the screwed head retained ring and the small hole drilled through the lower crankcase shaft web, and of course those unique circular twin exhaust ducts. The rubber muff is an up-



to-date version of the Bunsen tubing used by Oliver Tigre users in Combat years ago and achieves the same purpose of stopping dirt entering the venturi when a crash buries a motor.

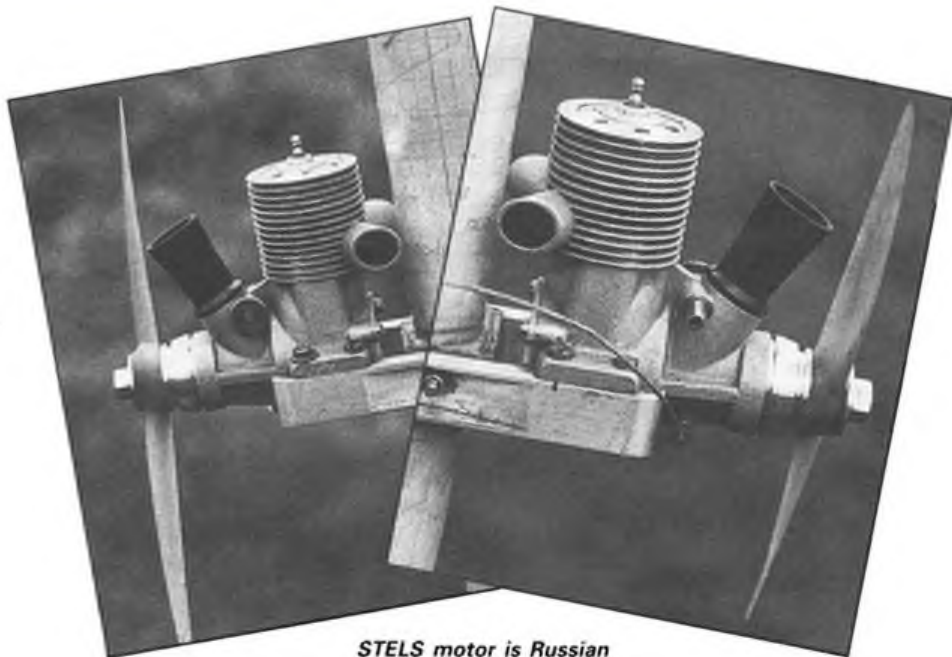
The needle valve projection is so short that it is impossible to contact it with your flicking finger when starting the motor and has the added advantage that its breaking moment of inertia in a crash so small that damage is very unlikely. In use the needle valve assembly is the easiest and least critical to adjust that I have found as well as giving beautifully runs on the high fuel pressure supplied by the surgical tubing tanks so popular in F2D Combat today. That little hole in the crankcase web is to take the motor safety cable the current FAI rules require. (Why is it that no other F2D Combat motor has this nice and so necessary touch?) The twin exhaust gases cannot melt foam leading edges on models. The screwed head retainer ring means no head screws to loosen or strip and also ensures that the glow head is held down with absolutely uniform pressure right round its periphery. All of these are well thought out features that ideally suit the engine to its purpose.

### Performance

In terms of design, materials, manufacturing standards and features to STELS F2D Combat engine must be the best of its class available in the world today. When used by works fliers like Viacheslav Beliaev its performance is right at the top of its class. But who is to say that the works engines are the same as the production items? Ed Needham, who was the chief of Processing at the 1989 Euro Champs here in England, stripped, examined and measured Beliaev's engines there and has assured me that those engines are identical to the production motor so maybe we should not worry too much about that. What was noticeable at those Euro Champs was that works STELS were ABC motors and ACC motors. The certain answer to the performance question will come in competition here in the West when we will see production STELS motors in non-Russian hands up against the best that we use and Henry Nelson can produce.

Already one pointer to the outcome has been seen for at the Third SMAE Centralised Ken Miles' STELS noticeably out-powered John James' Nelson 15 F1 SE AAC enabling Ken to outfly John and beat him in the air by two cuts to nil. All that I can say about the performance of the standard production engine is that of the static rpm tests done on the 40 motors now in the UK every one did 28,600 on a Beliaev 165 x 90mm glass fibre prop using Model Technics GN-10 fuel.

As indicated earlier, the STELS F2D



**STELS motor is Russian Combat model. In addition to rubber venturi muff, note motor safety cable and fine casting detail.**

Combat engine is available in quantity and with full spares and service back-up here in the UK from, Engines from Russia, 12 Heathland Terrace, Shaw Heath, Stockport, Cheshire SK3 8DU. Tel: 061 477 7395 (evenings), fax: 061 477 7395 (office hours).

Potential purchasers should note that the price of £120 excluding postage is competitively pitched mid-way between that of the USE 15 F1 AAC and the Nelson 15 F1 SE AAC. The STELS comes in a stout cardboard box attractively

labelled and containing the special head tool needed to remove and fit the cylinder head and a fully detailed information sheet.

*Editor's note: The fact that Dave Clarkson and Ed Needham have partnered to bring the STELS motor to the UK should not diminish the views in this report. Both are wise and experienced enough to comment fairly upon what they see. Performance in use is the final arbiter of choice and, so far, the STELS appears remarkably competent. GC.*

**Using the special tool to remove the cylinder head. Note very short needle valve projection. Beliaev 165 x 90 glass-fibre prop fitted.**



# MIND THE LINES

## Ron Prentice takes the old-time line trail to Rubery Hill...

ONE of the highlights of the flying season (and usually the first of the competitions to take place) is the vintage control line rally organised by Peter Martin and the South Birmingham Club at Rubery Hill Hospital on the outskirts of Birmingham. This year it took place on 20th May, which was a little later than usual due to the unavailability of the site. However the delay of a couple of weeks made a tremendous difference to the weather, which for some years has been what you would expect in late April – cold, wet and windy! I remember shivering last year whilst wearing a wool jumper, two coats, waterproof over trousers, wellies and a hat, waiting for the rain to stop. This year was just the opposite, with almost no wind, brilliant, hot sunshine and hardly a cloud in the sky. As usual the meeting was well attended and everyone had a great time in the totally relaxed way that only the vintage scene can offer. As well as fun flying, an Old Time Stunt competition was arranged and judged by Dick Downs, who also ran a Stunt King 40th Anniversary competition later in the day, whilst in another circle the obligatory Midge speed event was taking place. It was nice to see some new faces this year. In particular it was pleasant to welcome back to the control line circles that doyen of free flight modellers and holder (I believe am right in saying) of the British Indoor Microfilm Record, Bernard Aslett. Bernard turned up with an OS 25 powered Devil Bat, a Nobler, a SIG Twister and a model which he designed and built in 1959 while serving in the



Above: Makes a change from free-flight! Bernard Aslett at Rubery Hill with his OS 25 FSR powered Devil Bat. Below: Cal Smith's Wittman Bonzo (See Bonzer Bonzo, overleaf).

RAF in Singapore. Amazingly, Dick Downs, who was also in Singapore at the same time, said that he could remember the model being flown at that time. It's a small world... (I understand that there is no truth in the rumour that Bernard had been flying a microfilm stunter in the airship shed at Cardington!).

- 5 Bob Arnold
- 6 Dave Nelson
- 7 Alan Walker

- Clipper Fox 19.
- Lil Abner ST G20.
- Musketeer Fox 35.

### Stunt King 40th Anniversary

- 1 Mike Downing
- 2 Ray Gordon
- 3 Dave Nelson
- 4 Bob Arnold

- Amco 3.5.
- Frog 500.
- Forster 31.
- AM 35.

### Midge Speed

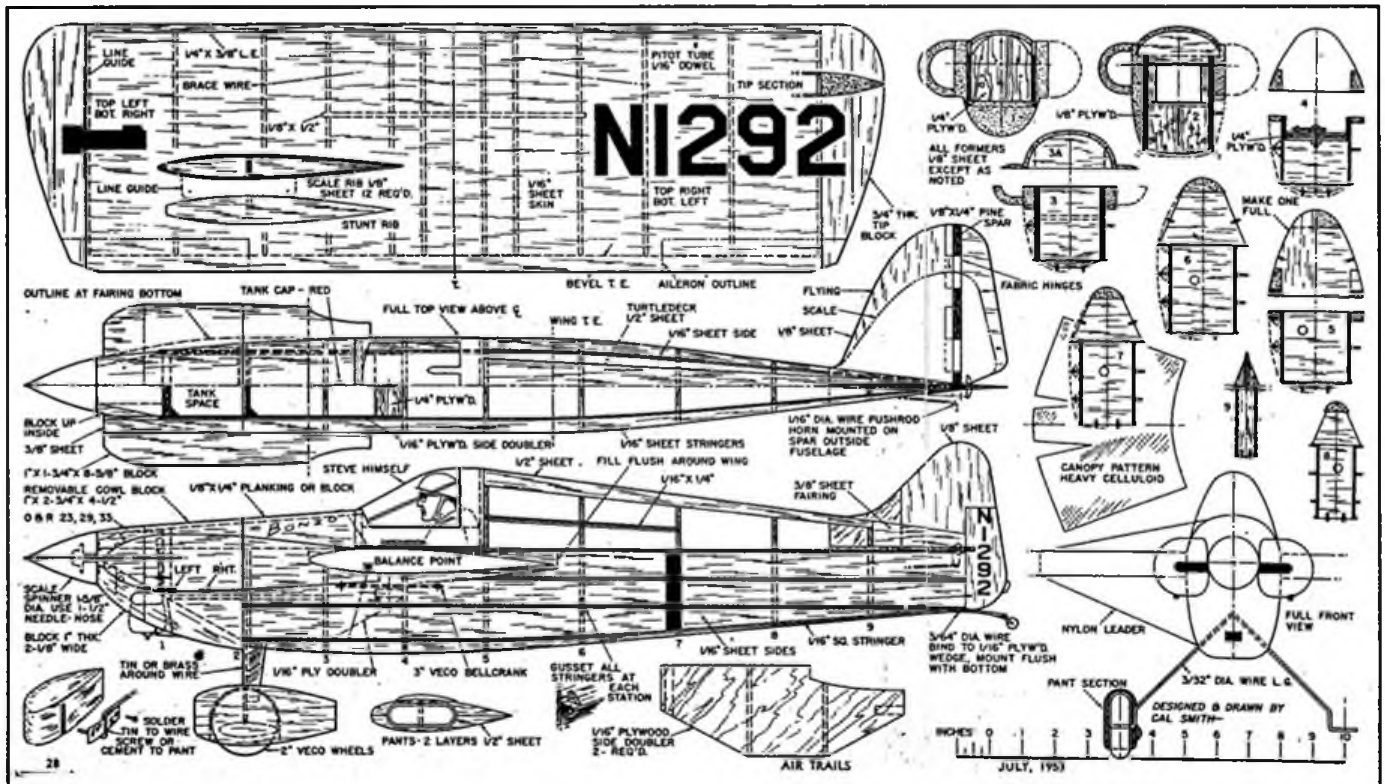
- 1 Brian Lister
- 2 Sam Skitt
- 3 Andy Brough
- 4 Les Pilgrim
- 5 Terry McDonald

- Frog 150.
- PAW 149.
- Frog 150.
- PAW 149.
- Frog 150.

### Old Time Stunt

- 1 Dave Day
- 2 Ron Prentice
- 3 Ted Lloyd
- 4 Peter Gorst

- Barnstormer, ST 35.
- All American Snt, Fox 35.
- Stunt Queen PAW 19.
- Ambassador PAW 2.49.





The next meeting at Rubery Hill is scheduled to take place on 21st October, when in addition to OTS and Midge, they will be running a Stunt Queen 40th Anniversary Competition in which the model may be powered by any engine.

### Forsaken

As you saw from the competition results, Dave Day has now forsaken his Elfin-powered Ambassador for a rather larger model. His Trixter Barnstormer was immaculately finished and flew just as well as it looked. However, during the course of the day, several flyers raised the question of the date of the model, saying that they thought it had not been advertised until 1952. As there seemed to be some disquiet on the matter, I decided to check with my sources in the United States. So, here is the 'pukka gen' direct from the designer Lou Andrews. The Barnstormer was designed in 1947 and first flown at the New York Mirror

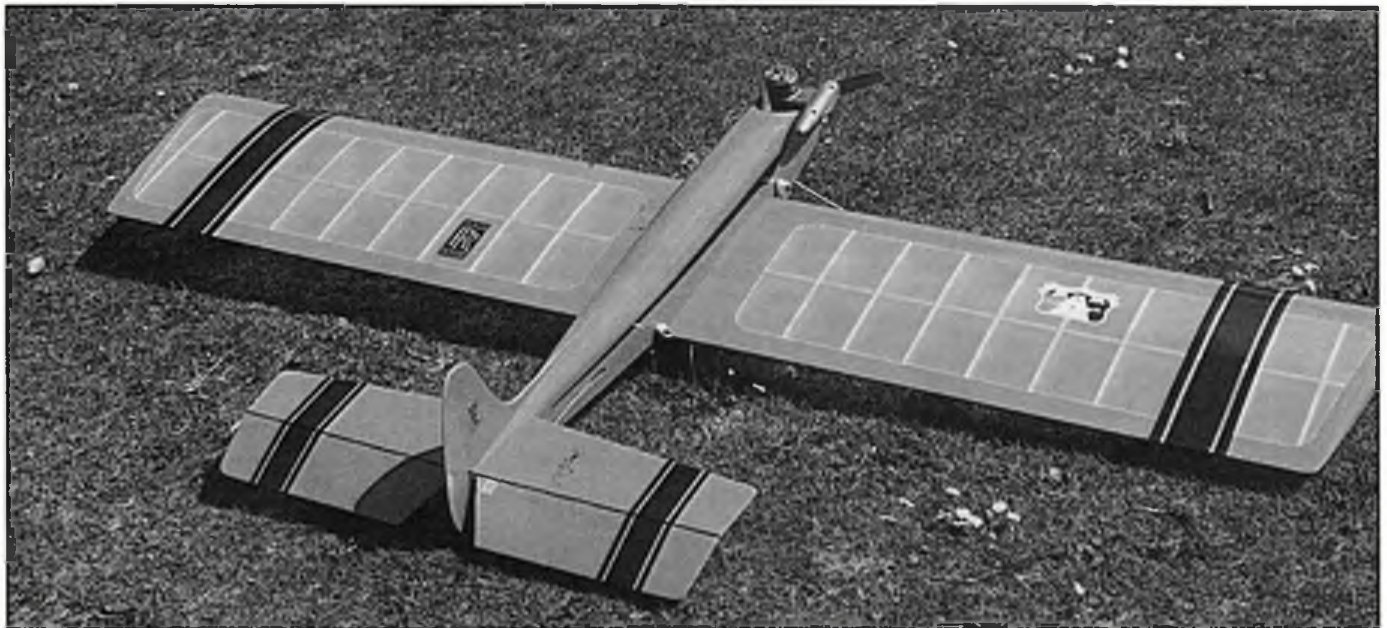
a range which includes the All American Senior, Barnstormer, Magician, Super Pow-Wow, Oriental, Ares, Imitation, Wittman Buster, Galaxy, Tomahawk (early version), Oriental (Profile kit) and Super Clown. In addition they are stocking 2oz, 2.5oz and 3oz Uniflow tanks, Sig lines, 2oz and 5oz Sig fuel syringes, bellcranks, etc. It's nice to see a new firm selling these hard to get control line items, so drop them a line to get details of prices etc. I am hoping to arrange a review of one of the kits shortly, so keep watching this space!

### Kites now...

Have you ever done any kite flying? Like the recently-retired Ron Moulton, I have become interested in flying kites. I was in my local public library recently when my 12 year old son brought my attention to a book called 'Making and flying Modern Kites' by Jim Rowlands. The very colourful cover caught my

competitions in which they try to cut each others lines, rather like control line combat. Tony told me that Jim Mannall is having a lot of success flying stunt kites of his own design which incorporate a moveable rudder operated by the two flying lines and which he flies with one hand using a converted control line handle. Perhaps when the Nationals are temporarily suspended because of high winds, we could have a stunt kite competition instead - Bill Draper would probably win that too!

Those of you who wrote to me for the photocopies of the magazine plan of the Dick Ealy Firecracker may be interested to know that thanks to the generosity of an American reader, I now have the full size plans available for the cost of copying and postage. Long time aeromodeller Charles V. O'Donnell wrote to me from Bloomington, Illinois, as follows: *Dave Shipton and I noticed that in your Mind the Lines column you mentioned the Dick Ealy model of the Schoenfeldt Firecracker, the Keith Rider*



Meet that year with a two-bolt Fox 35. A line broke and the model was totally destroyed. Model number four won the 1950 US Nationals. In Model Airplane News March 1951 there is an article called 'Stunt Outlook for '51' which features a photograph of the Barnstormer. All of which is pretty conclusive evidence of the model's early existence.

The Barnstormer is a very good performer in the hands of both novice and expert alike. The only problem in competitions could be the difficulty of finding another design of similar or earlier date, which could challenge its performance, in order to get those very important extra bonus points. So, if you can't beat them, join them as the saying goes - and build a Barnstormer.

As chance would have it, the same model crops up again in the next item. Regular readers may remember that I mentioned the availability of reproduction vintage and nostalgia era kits from Control Line Classics and AJ's Free Flight Service in the USA. I am happy to tell you that these kits are now obtainable in the UK. Messrs. Modusa & Co. of 4 Arundel Road, Kingston upon Thames, Surrey, are importing

interest, so we took it home. Needless to say we made a few of the designs shown in the book and took them down the road to Ash Priors Common and tried them out. On the whole they take only a couple of hours to make and cost very little. What is more they can be flown when the wind is too strong for control line flying, or any sort of model aeroplane flying for that matter. 'What is the point of talking about kites in a control line column?' I can imagine you are all saying. Well, it is this - have you ever wondered what happened to Jim Mannall, that well known control line stunt flyer of some years ago. He who wrote that masterly guide to the modern stunt schedule in the July and August 1973 Aeromodeller? Since discovering kiting I have joined the Kite Society and upon looking through their journal, my eyes lit upon the name J.Mannall as the winner of numerous stunt kite competitions. In addition one of the 'contact' names seemed familiar, so I phoned to make some enquiries. The contact was none other than Tony 'The Arm' Slater who had such success with his SLARMI chuck glider in competitions some years ago and in recent years is a successful competitor in Fighter Kite

### Alan Walker's Atwood Champion equipped Taurus seen just before its successful maiden flight at Rubery Hill.

R-4. Since Dave has the full-size drawing in his archives and I have access to a large print machine which my boss doesn't mind me using, we thought we'd send you a copy. We both enjoy the vintage columns in Aeromodeller. I go back to 1946 in control line, flying (not too successfully) on ignition and Dave, who has a model museum in his barn, is still a control line and free flight man. I still read all the control line columns though, and someday I may succumb to the temptation of Old Time Stunt. Many thanks for sending the plan. Charles: and when you have read the report entitled 'Keepers of the Flame' on the second US Vintage Stunt Champs in the July issue of Flying Models, you will be well and truly hooked on OTS. Here we go:

*'In times prehistoric, whenever need arose to move quickly from one place to another, one dependable and respected elder tribesman was assigned the task of making sure that the community fire didn't go out during the passage. His title "Keeper of the Flame" was both an honour and a great responsibility'. So writes well known*



stunt flyer Bob Hunt in Flying Models. He goes on to say that he had spent four extremely enjoyable days at Tucson, Arizona with fellow modellers who have earned the mantle of 'Keepers of the Flame' as it relates to the control line stunt event. I must admit that I hadn't thought about the older generations of control line modellers including myself, in that vein, but I suppose our efforts in the late 40s and early 50s lead to the improved designs of the 60s and then on to the current F2B stunters, although they don't seem to have changed a great deal for quite a time. From the article in Flying Models it seems that they had a wonderful time and are already planning next years Championships. The other day my wife mentioned that she would like to visit her brother in the States next year - I wonder if we could plan the trip to accidentally coincide with Vintage Stunt Champs 3?

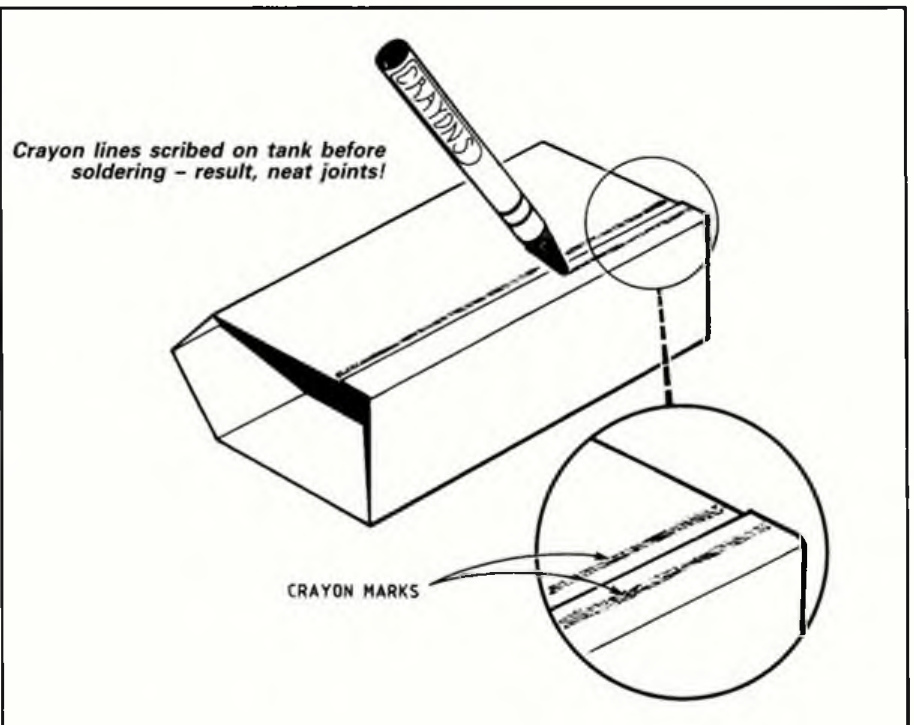
### Bonzer Bonzo

If you are at a vintage team race meeting and you overhear someone talking about Bonzo, you can be assured that they are not discussing their dog or even the Bonzo Dog Do Dah Band (that should test your memories). They are probably talking about the very smooth looking midget racing aeroplane designed by Steve Wittman and raced by him in many Air Races of the early 50s. Bonzo's configuration set the style for many of its competitors. The high wing with engine fairings flowing smoothly into the wing is probably the most copied feature, whilst construction followed standard light plane practice with welded steel tube fuselage, stringers and fabric covering. Tails are steel tube, fabric covered; the wings are of

wooden structure with plywood skin. The original aircraft was powered by an 85hp Continental engine. In July 1953 Cal Smith, well known model aeroplane designer drew up plans for a model of Bonzo which was published in Air Trails and which I found in Bob Hawkins scrap book along with Firecracker and Challenger. If you want a photocopy of the magazine sized plan, drop me a line enclosing an SAE.

### Top tips

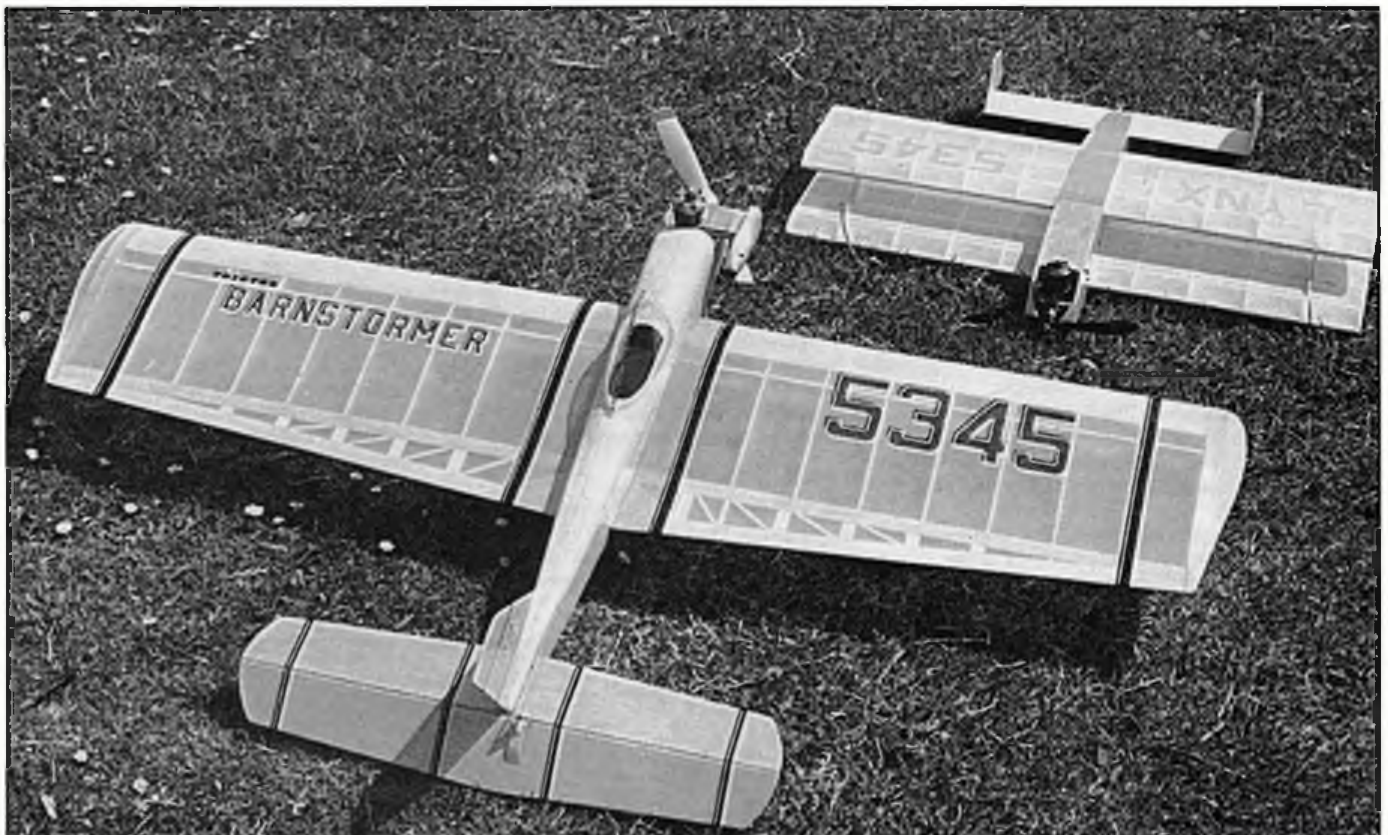
Finally this month a couple of useful tips from the PAMPA magazine Stunt News. The first is a little trick you can use when soldering up fuel tanks.



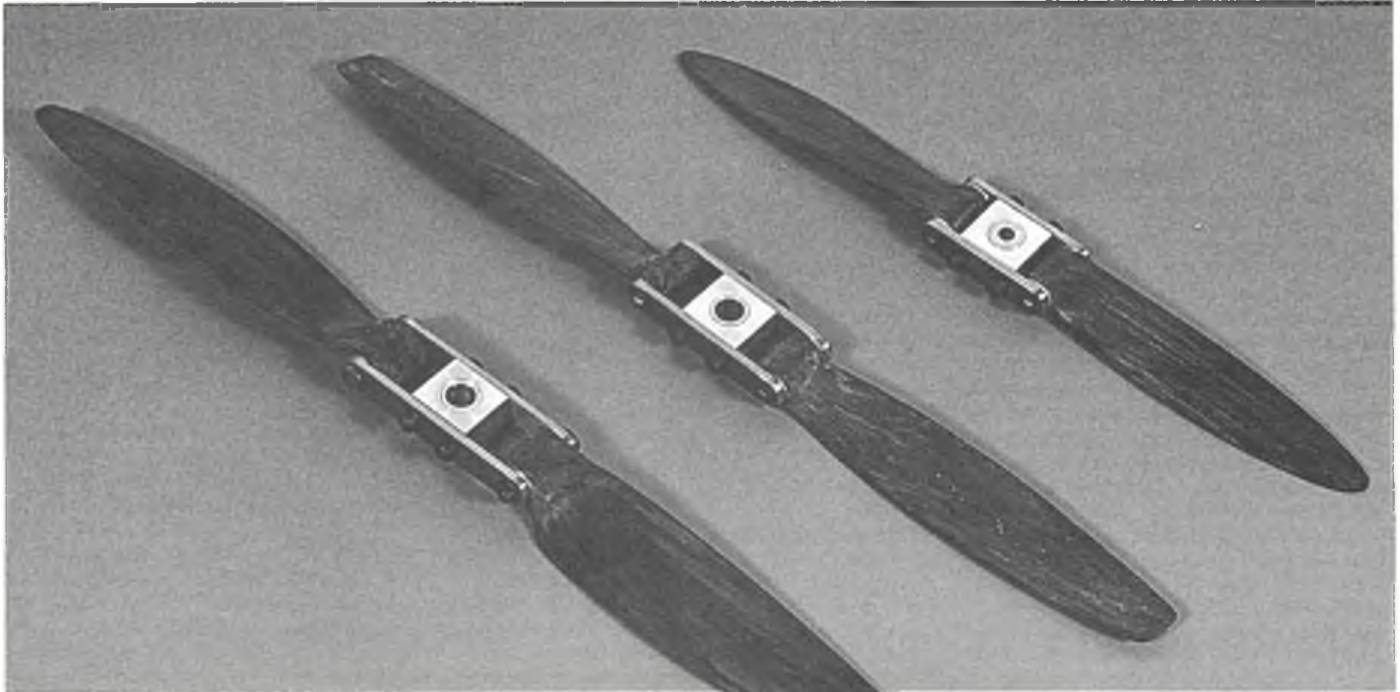
(a) Clean and tin edges; (b) clamp together; (c) Draw crayon border lines; (d) Solder together...

The greasy crayon restricts solder flow, making for lighter, neater joints. It will not withstand endless heat! Two crayons taped together will draw both lines at once. The second tip concerns leadouts. When making up line and leadout ends, coat the wrappings with clear silicone glue, let dry a few minutes, then smooth with a wet finger. Soldering heat can weaken the wires, and Cyano is too brittle. Silicone smooths over the rough edges, looks clean, and keeps the wrappings a bit flexible to discourage localised fatigue breaks.

Also at Rubery - Dave Day's Barnstormer and Performance kits Lynx biplane. Rather a contrast...







*A trio of props created from techniques described here – for Open, F1C and 1/2A Power.*

## Paul Rowledge reveals secrets of prop moulding for competition free flight

**A** THOROUGH grounding in propeller technology from long-time colleague, the late Jim McCann (who started my interest in this fascinating field) means today that not only am I incredibly busy keeping up with demand but I have broadened into other aspects of F1C technology.

Knowledge of tremendous stresses generated in the operation of folding Power props has led to the inescapable fact that only epoxy resin is a good enough medium today for the necessary mouldings. Various improvements have been incorporated into the process as it presents today. They are listed under headings as follows:

1. Mould making material
2. Mould design
3. Release agents
4. Resins
5. Materials.

Let's examine each in turn.

### 1. Mould making material

The original choice was Plastic Padding. This eventually had to go. Strength and shrink properties were unsuitable for use with epoxy resins – and accuracy in form was unacceptably low.

Tremendous assistance from Roy Collins (Flamingo designer, and a pattern-maker at the Ford Motor Company), and constant friend and mentor throughout my years of sixteen years

of F1C development) focussed my attention on mould-making techniques and materials. The following are the best materials I have yet used:

CIBA GEIGY Tool King Epoxy Resins  
 Araldite CY219  
 Hardener HY219  
 Accelerator DY219

A minor problem has been the limited shelf life of the hardener, which is at its best before six (or at the latest, nine) months. Don't buy too large a quantity. Wasteful!

Suitable fillers are marble powder and slate powder.

Why use fillers?

- (a) Lower cost of product
- (b) Reduced shrinkage on casting
- (c) Decreased exothermal temperature rise on casting
- (d) Reduced expansion and contraction with temperature change
- (e) Higher deflection temperature
- (f) Improved heat ageing properties
- (g) Improved abrasion resistance
- (h) Improved surface hardness

### 2. Mould design

As can be seen from the diagram, a three-point location has been chosen. This ensures accurate alignment of the halves. If carbon is kept clear of these points, very precise closure of the mould will result.

### 3. Release agents

The following process is used on all-metal and epoxy moulds. I have used this for the past five years. Before this a lengthy process of cleaning, and application of QZ 19 (another CIBA-GEIGY product) which dried to form a poly-vinyl-alcohol coating, was necessary. This was perfectly satisfactory but it generally needed repetition after each component was produced.

I clean a new mould with acetone, then coat it with Ambersil A290 – a silicone release resin that gives a durable film on drying in air, and a semi-permanent release coating where transfer of the release film is undesirable – through the medium of a fine brush.

Normal air drying for one hour at room temperature is recommended. This is followed by a wipe-over with a soft rag to impart a coating of CIBA-GEIGY QZ 13, a colourless low-viscosity liquid containing silicones. This application is necessary after each lay-up; it is all that is necessary to keep the moulds in healthy, serviceable condition. Use of this process on absorbent materials is limited, but it is ideal for steel or aluminium moulds.

### 4. Resins

Araldite LY and HY 1927 GB is a two-part, solvent-free, cold setting epoxy resin system of low viscosity. Used with carbon fibre, kevlar or glass fibre it will give high-strength composite structures.

1927 consists of two parts, described as follows:

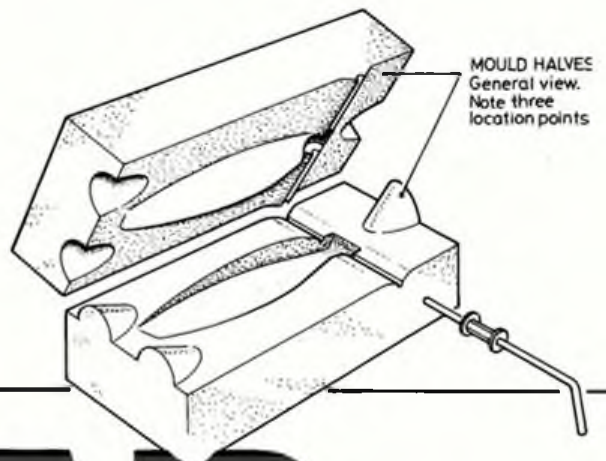
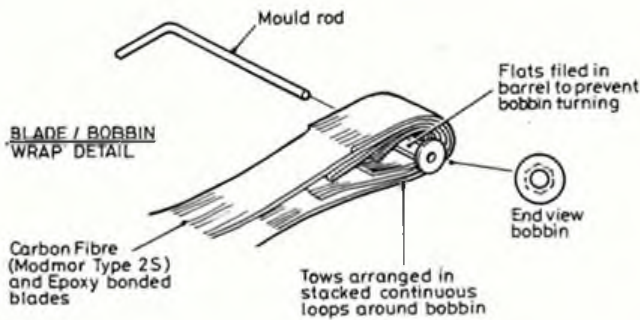
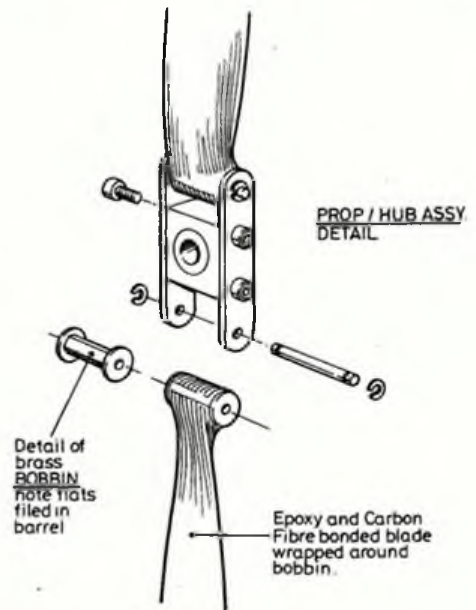
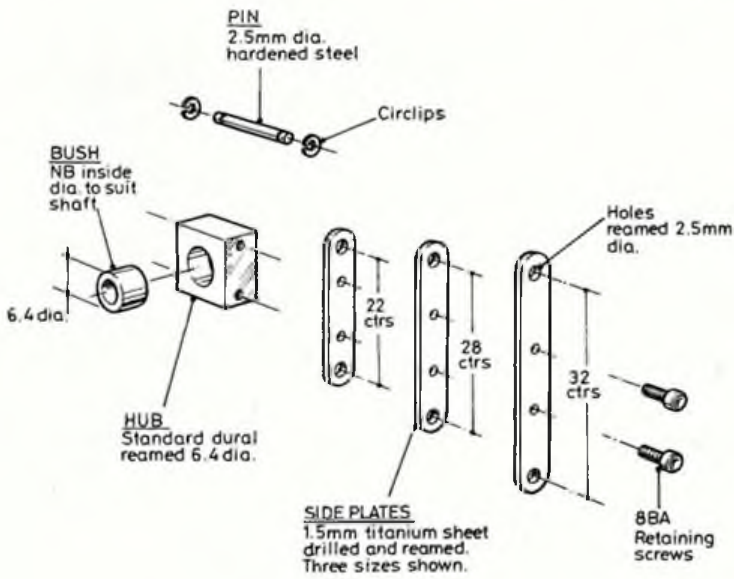
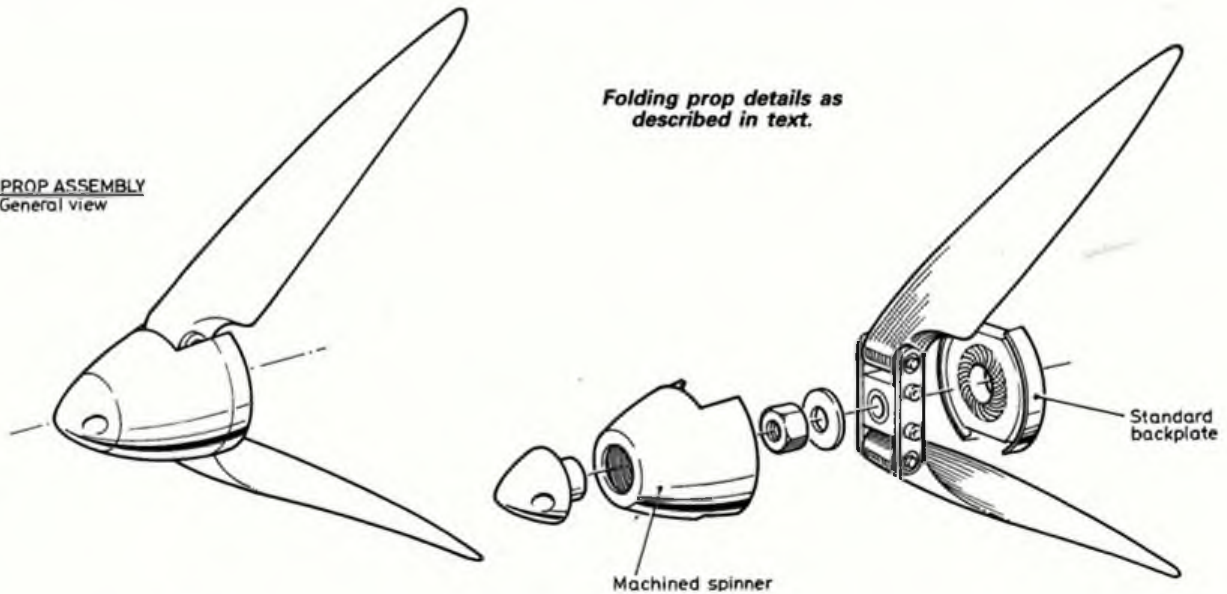
LY 1927 GB resin:

a golden coloured, medium viscosity epoxy resin. **Continued on p.540.**

# OF CF AND

Folding prop details as described in text.

**PROP ASSEMBLY**  
General view



# REVULAR





# READERS' LETTERS

## Trimming triplanes

Dear Sir,

I read your Fokker Triplane saga with interest and amusement (*Aeromodeller* August 1989), for two reasons. Firstly, I know PE Norman, on a modelling basis, during the late 1940s and early 1950s. Secondly, over that period I struggled with free-flight biplanes, triplanes and yes, a quadraplane. Perhaps my thoughts may be helpful, insofar as the Fokker is concerned.

I'm certain that it is right to assume that the CG position is too far back. Somewhere like two inches behind the LE of the top wing is nearer the mark.

The wings must have a graduated incidence pattern, such as three degrees, two degrees and one degree from the top wing downwards. I found, after experimenting, that 3.1/3 deg. +2, and +1 worked for my Fokker Triplane.

To cure the bunting tendency, retain the existing down-elevator movement and increase the 'up' by another two or three degrees. In combination with a change of incidence pattern this should cure the problem. If not, try a very little more up elevator.

Lastly - don't forget the pernicious effect of that aerofoil axle box. Small though it is, the moment given by that long Vee undercarriage is considerable. I never saw PE's triplane flying with the axle box fitted (or the outboard struts for that matter!). At the very least check that the incidence is neutral - particularly under load in flight.

All that said, you may care to note that PE was no great stickler for scale accuracy. The bottom wing of the Tripe had nearly 1.1/2in of dihedral; perhaps more as it flexed in flight - no wing struts, remember. With pendulums this amount of dihedral should not be necessary, but if desperate... A flexible, bottom section to the 'I-struts' might be the solution.

PE's models were a triumph of strength, knock-off structures and, for those days, very high power. Few, if any, of his designs could compete with a plumbers tool-bag in the glide (I like that description). When the engine quit they just fell out of the sky. His Typhoon descended at an angle of 60 degrees, usually, but not always, nose first.

I recollect one occasion at Fairlop when it came to rest on the roof of an Armstrong Siddeley saloon. In the process it punched a hole in the top. The combination of a metal spinner and a steel airscrew (pre-plastic/nylon era) was lethal. In this instance the Typhoon was flying five minutes later.

Close up of his flying circus of scale models was unimpressive. Dirty, oily and lacking detail; perhaps not too accurate. But, in the air, they were really quite magnificent, and at a time when the received wisdom was 'scale models don't fly', he led the field. My abiding memory is of a tubby, friendly man, stripped to the waist - it was always sunny - in a self-erected, roped-off enclosure holding up to six or seven scale models.

I was a proponent of the 'keep it light' brigade. My own three triplanes, Sopwith, Fokker and Albatros, were Mills .75/Amco .87 powered, and lightly constructed of balsa, covered with precious pre-war Jap tissue. The Sopwith flew like a dream from the start, being quite thermal-conscious. Nonetheless, it was pretty accurate. The Fokker's flight profile was another story, but with pendulum ailerons in addition to elevator and rudder it became quite reliable.

Devizes, Wilts

Victor King



## Delete detection?

Dear Sir,

After recently flying at Andy Crisp's excellent Oxford meet I am even more convinced by my long-held belief that the direction of free-flight competition is moving ever-downwards. Don't get me wrong; what Andy does at his contests is absolutely correct. Although there are several matters at which I beg to differ concerning the current contest scene, the particular one I'll take up here concerns thermal detection - the Oxford meet bans the use of thermistors, and this simple act points to a most fundamental aspect of our sport.

It should be recognised from the outset that those people who regard winning as the only reason for turning up will not understand a word of what follows, so I turn my attention to the rest.

At the beginning of model aircraft competitions, the purpose was to compare models against each other, and this included the quality of design, construction and performance. In those days a thermal was an unlucky happening which carried the model away to be lost. As understanding grew it was found to be advantageous to seek thermals to assist duration, and competitions revolved around the attaining of preset maximums. In this environment the competent flyer now included thermal detection with the former qualities in order to win competitions, and was respected for such ability.

In the last decade we have taken this to its conclusion by use of electronic thermal detection equipment and the like to tell us when to fly.

So, why not? What is wrong with that?

It's very simple. Before thermals were understood, the competition compared models and modellers. Having 'discovered' thermals they are not going to go away, but we have to admit the truth that placing your model in a thermal gives precious little indication of its worth. Anyone who has lost a D/T'd model upwards will know that half of a house-brick will go up given a strong enough thermal, so we have to include that thermal in our competitor's skill, and the only way we can do that is to ensure that he or she uses their own sense to detect them.

It may be said by some that it is clever to read the instruments, but as an electronics engineer who has designed computer controlled temperature measuring equipment, it is comparatively easy to build something which will tell you when to fly.

So, if the instrument is correct, you launch when it says so, and the thermal is strong enough to take a D/T'd model up, what have you proved? I suggest very little, and I will not do it. The spirit of the competition was shown at Oxford,

Doing it right - Andy Crisp, competent CD at Oxford

and apart from the usual piggy-backing (which also should be frowned upon), the winners were those who did their own work.

I hereby call upon the Free Flight Technical Committee to implement a ban on all forms of external thermal detection. I know that the cry of 'what about the Continent?' will go up, but that is another story. Here in the UK can we not see where the spirit and the point of competition lies? **Balsham, Cambs** **Mike Bull**

(The point of competition is to win. How do other competitors feel about the points of view expressed in this letter? GC)

## Masefield Trophy thanks

Dear Sir

May I take this opportunity of thanking you for allowing us to run the Masefield Trophy on Scale Sunday and sharing your facilities for the prize presentation.

As the only competition control is the Free Flight area, the public tended to use us as a complaints and information facility. Among the callers we had were a gentleman who suffered a severe cut to his face at an event last year, and was looking for witnesses to the accident.

Could we do anything about the general spread of people picnic-ing on deck chairs in the middle of the flying area?

Our problems seem to have been aggravated this year by the wind direction curtailing the area that was useable for free flight. Though having said that, it would seem that the boundary for Radio seems to be pushed further North each event at Old Warden. It would seem that now this dividing line between radio and free flight is working against us. (The boundary is the same. GC.)

Part of the problem of the public moving onto the field with their wheel chairs and deck chairs is due to the Trade Stands blocking all possible view for people who wish to sit near their cars and watch proceedings. Not only did the Traders block the view, but they formed an unbroken line from the control tower to the radio control. To get to the fence one had to climb over their caravan tow hitches and tent pegs. It has been said before, but the Traders should really be placed at the back of the parking, along the face of the hangars.

Radlett, Herts

Alan Wiggs

(See Hangar Doors for further discussion. GC)

**A**NY lifespan of 94 years is remarkable; but when so filled with creativity and excitement of the calibre experienced by Tim Hervey, we are talking of one who truly trod on enchanted ground. His aeronautical interests were fired by the achievements of the Wrights, Bleriot and Latham. As a boy he created a kite large enough to propel brother and pram like the celebrated Char Volant, and went on to make A and T-Frame pushers at his Southport home before apprenticeship with the Bristol Aeroplane Co. when 19 years old.

Volunteering for the RCA as an Observer, he served with distinction, eventually to achieve his ambition to become a fighter pilot alongside such aces as Ball and Bishop in 60 Squadron, flying the Nieuport 17. Their adversaries were the Richthofen Circus; and on 8th April 1917 he was shot down behind German lines and taken prisoner.

As we would so often say, this incident was to save his life. So many of his colleagues were to perish in that 'bloody' April. He had been awarded the Military Cross and Bar, and now incarcerated at Freiburg, his aim was to escape. Though successful was ingenious evasion, he was twice recaptured after travelling as far as the German border. His exploits became well known and he was mentioned in despatches.

Emigrating to Australia, he joined Shaw-Ross Aviation as a commercial pilot, founded Central Aviation, and became involved in gliding as a founder-member of the Gliding Club of Victoria. All this time he retained his interest in models and he began to think of an ideal single seater lightplane which he first created in model form for rubber power. It was called the Ariel; the year, 1935.

Then in '36 he returned to the UK to take up the appointment as manager and first CFI of the London Gliding Club at Dunstable and so began a long association with the Chilterns and the Bedfordshire countryside. He built an improved Ariel but another twelve years were to elapse before it was published in *Aeromodeller*, September 1948. Meanwhile he was to serve with further distinction through the Second World War as advisor to MI9 on escaping techniques, and as Squadron Leader of the Glider Pilot training school, Haddenham, where Army personnel were taught on Hotspurts in preparation for the invasion of Europe using the troop carrying Horsas.

Returning to both gliding and aeromodelling, he was approached by D. A. Russell to join the Eaton Bray Modeldrome project in 1946 and so became aerodrome manager. His links with flying led to some stunning air displays at the 'Bray', and the establishment of the bold venture of a central model flying facility at Eaton Bray, only a few hundred yards from his picture-book thatched cottage.

The Modeldrome failed, alas, for many reasons; but saw the genesis of this very publishing house, and its annual programme of exhibitions and modelling events as enjoyed today, some 44 years later.

At the 'Bray', Tim was part of a talented team for whom very few individual credits emerged. They were known collectively as the 'Technical Staff', but designs such as the Arnhem Glider, Dorland and the *Aeromodeller* Wakefield each had their Hervey stamp upon them in a subtle way and to his Zephyr, also in the Plans Service, was due the distinction of being the first published Jetex design.

A true lover of the countryside, Tim had turned his creative interests to novel miniatures made from the smallest natural morsels his acute eyesight would discover in the local fields. Seeds, twigs, barks, small dried flowers and teazles were fashioned into three-dimensional pictures, each featuring a bird or animal. So



# TIM HERVEY — an appreciation

skilled was his craft that he could soon command a sophisticated clientele, including Royalt and his exhibitions in London galleries sustained a constant backlog of orders, right through to his last 94th year.

He had to give up his Licence for Ballooning at 90, having helped to establish the London Balloon Club fifteen years earlier, and though as he would say, 'a trifle weak on the pins', he always enjoyed watching, if not able to participate in the Vintage days at Old Warden and the LMA meeting at Woburn Abbey. At one of these, he was able to surprise a Nieuport 17 builder by complimenting him on the realism, particularly of the cockpit and he was overjoyed at the resuscitation of his Ariel by Doug McHard in the October '86 issue (*Plan* RSS 301). His enthusiasm, through to the end, was a joy to witness. One always felt honoured

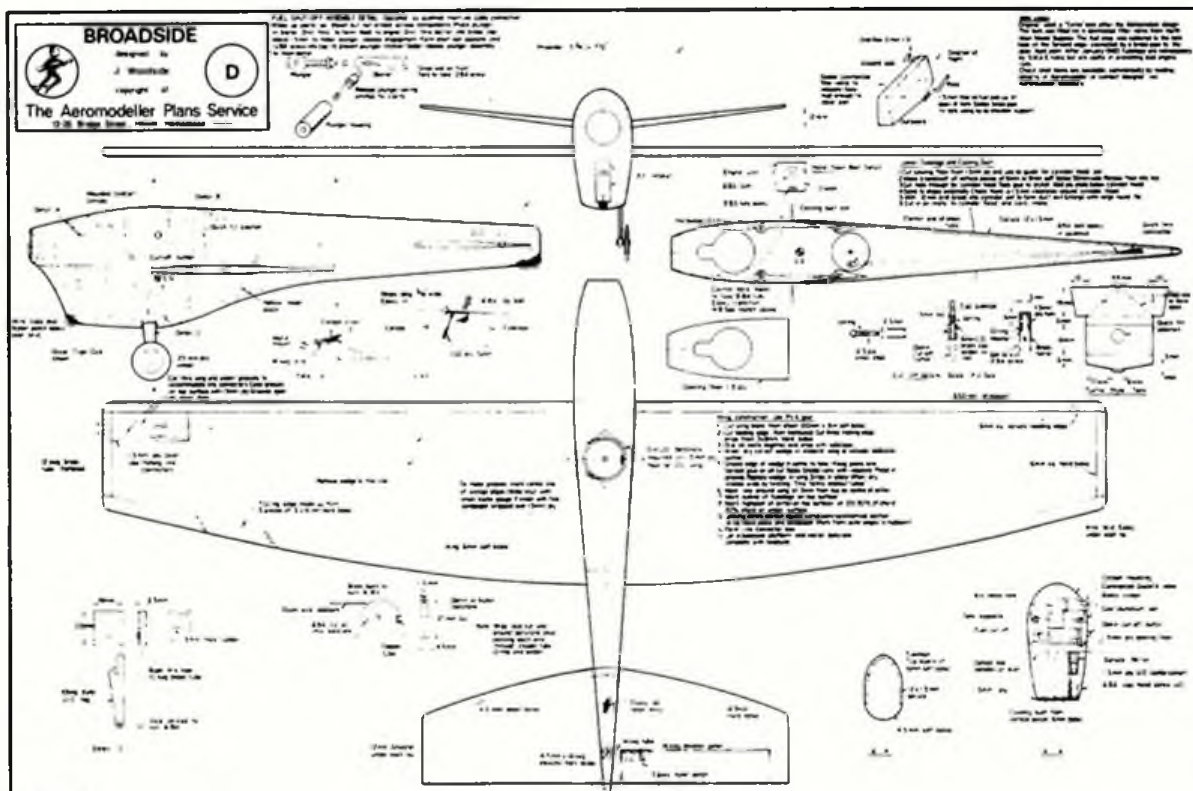
that this so genteel man who had seen and participated in the progress of aviation from earliest days, could relate with enthusiasm, all the simple pleasures of aeromodelling experiences, from spruce and oiled silk to balsa and tissue. What more would one hope for in a life so fulfilled?

Our sympathies are extended to his wife Constance, always the supporting companion who brought him to the model events, and to his two daughters. **RGM**

*The portrait above, reproduced by courtesy of the Royal Aero Club, conveys a certain determination of character...*



*Broadside, designed by Jim Woodside, is a classic of its type. Try one - scale down an F2C as recommended here.*



**Time for Resurgence**  
Continued from p.487

**Visionregal Props**  
21 Rochester Crescent  
Hoo Rochester  
Kent  
ME3 9JH  
Tel: 0634 251932

**McAnelly Model Products**  
47 Norwood Street  
Invercargill  
New Zealand

**Ed Needham**  
100 Lowfield Road  
Cale Green  
Stockport  
SK3  
Tel: 061 477 7395

**Of CF and Kevlar: from p.536**

HY 1927 GB:  
an amber coloured, low viscosity hardener.

Resin and hardener are mixed before use. Self-colouring composites can be produced by the addition of Araldite colouring paste.

	Mixing	
	Parts by weight	or Parts by volume
Resin	100	100
Hardener	36	44

**Laying-up**

A general, and most important rule is to work with a 40/60 resin-to-materials weight ratio.

**Curing Schedule**

Seven Days at 20 degrees C  
24 hours at 20 degrees C + 16 hours at 50 degrees C  
24 hours at 20 degrees C + 5 hours at 80 degrees C  
24 hours at 20 degrees C + one hour at 100 degrees C

**5. Materials**

One is spoilt for choice nowadays. Proposed application (and depth of pocket) determine what to go for. I have been using Modmor High Modulus Reinforcing Carbon Fibre 'Type II' (surface treated) from day one. It's available in two thicknesses with 5,000 and 10,000 elements. (To lay up CF spars I use the thinner tow to ensure no unwetted areas, although it takes twice as long to fill the mould.

Woven CF and Kevlar is readily available. Lightweight woven carbon cloth is undergoing trials as a propeller materials. Kevlar is as little

use because of its inability to be cleaned up satisfactorily but as a 'sandwich' filling its applications are endless and its strength/weight ratio outstanding.

Pre-impregnated materials are now available. These require different moulding methods - will the autoclave become part of our equipment in the future?

**The story so far**

I have been producing components for F1C since the early 1980s. It is a totally fascinating class in which to fly and requires a strict discipline, from building technique right through to trimming and flying. Although I consider I have mastered the former, the latter provides evidence of a chequered career...

Correct propeller choice is vital to success. With careful design and manufacture the folder can be a better bet than a conventional, fixed prop. There are unquestionable structural advantages. The main claim to fame is much less susceptible to damage and breakage, especially upon landing when a potentially vulnerable blade will simply pivot back out of harm's way.

Minimising the need to change props avoids having to re-trim during rounds. Also, if the blades are allowed to align with centrifugal force, bending stresses due to thrust loads are greatly reduced.

Given the mixed selection of F1C motors now available, my latest prop design incorporates some changes to allow it to adapt to the many different shaft and collet sizes. I have developed a standard, centre hub assembly with a reamed centre which can be fitted with a bush of standard outside diameter and of inside diameter to fit the shaft in question.

Centres are jig-drilled and reamed. Titanium

endplates are fitted; these may vary in length as shown in the diagram.

Maintaining a universal width of blade hub makes for a standard moulding bobbin. The hardened steel retaining 'E' type fastener.

It is vital that regular, visual checks are made - not always easy, for fatigue in CF may be difficult to detect. If in doubt, always replace.

And as to the future - although my main involvement has been with F1C, I have responded to requests for a 1/2A, and latterly an Open Power prop. With motor runs now reduced to seven seconds in Open, folders must be the way to go given their universal acceptability in F1C.

**Contacts**

A letter to either of the following companies will bring a copy of their Technical Data Sheets. Their handling and storage recommendations are required reading for anyone who chooses to work with the materials described above. Many of the chemicals used have low flashpoints. Please handle and use with care!

**CIBA-GEIGY**  
Plastics Division  
Duxford  
Cambridge

**AMBERSIL LTD**  
Whitney Road  
Daneshill  
Basingstoke  
Hants

Enthusiasts requiring more news of Paul Rowledge's propeller range may write c/o Aeromodeller. Letters will be forwarded.



**EXCLUSIVE**



**READERS OFFER**

**2 GREAT BRUSH SETS SELECTED BY MODELLERS FOR MODELLERS**

As modellers we appreciate that your needs for brushes are different to that of a painter.

So we have carefully selected two sets of brushes chosen to suit modelling purposes.

**The ASP Modellers Sable**

A set of 5 pure sable hair brushes suitable for fine detail and small area coverage. Sizes 000, 00, 1, 2 & 3.

Made using the finest quality materials, these brushes will wear well, ensuring that stray hairs don't paint out of line.

The stock holds just the right amount of paint helping prevent drips or dry-runs.



**EXCELLENT VALUE £8.95** inc. P&P

**The ASP Modellers 'Flattie'**

Four brushes sized 18, 25, 37, & 50mm made from high quality natural hair. They will hold just the right amount of paint in the stock helping you to cover either large areas (using the 50mm) or a smaller area (using the 18mm) quickly and evenly ensuring the desired end result.

**SUPERB VALUE £7.95** inc. P&P



**0442 66551**

PLEASE POST COMPLETED COUPON TO:  
AERO MODELLER READERS OFFER, DEPT. AM/0990  
ARGUS HOUSE, BOUNDARY WAY, HEMEL HEMPSTEAD  
HP2 7ST.

Please allow 21 working days for delivery.

Please send me (QTY)

SET(S) \_\_\_\_\_ ASP MODELLERS SABLE BRUSHES at £8.95 Per Set

SET(S) \_\_\_\_\_ ASP MODELLERS "FLATTIE" BRUSHES AT £7.95 Per Set

Total amount £ \_\_\_\_\_

Please debit my (tick)  Access  Visa

Card No.

Expiry date \_\_\_/\_\_\_/\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

Please return coupon to AERO MODELLER Readers Offer, Dept. AM/0990 Argus House, Boundary Way, Hemel Hempstead, HP2 7ST

Please note information supplied may be used for marketing purposes

Whenever you need the sharpest, most reliable blade, you know you can trust Swann-Morton. Our blades have a reputation for quality that is as keen as their edge.

Every blade is produced on high precision machines under strict quality control. And every one is carefully inspected both before and after packing.

There's a Swann-Morton blade and tool designed for all studio and craft work. So when you're looking for the finest cut, give yourself the edge. Insist on Swann-Morton.

**Swann-Morton Limited**  
Penn Works, Owlerton Green  
Sheffield S6 2BJ, England  
Tel: (0742) 344231  
Telex: 547538

**Be Quiet!**  
Use an **EFFECTIVE** sander

GRADE "A" SHEET BALS				BIRCH AIRCRAFT GRADE PLYWOOD			
PRICE PER SHEET				ITS THICKNESS:			
1/32	36x3	36x4	1/64	12' x 12'	4' x 36'	12' x 36'	12' x 48'
1/16	32p	50p	1/32	£1.40	£1.40	£3.95	£5.35
3/32	33p	54p	1/16	£0.85	£0.85	£2.40	£3.25
1/8	40p	57p	1/8	£0.85	£0.85	£2.40	£3.25
3/16	47p	66p	1/4	£0.90	£0.90	£2.95	£3.55
1/4	58p	79p		£1.00	£1.00	£2.95	£3.65
3/8	67p	£1.00					
1/2	88p	£1.33					
	£1.12	£1.73					

LIGHT PLY - LIGHTER & STRONGER THAN BALS TWICE

OBECHE VENEER CANNOT BE SENT UNLESS THE ORDER INCLUDES 2 PIECES OF PLY THE SAME SIZE PRICES CORRECT AT TIME OF GOING TO PRESS  
POST & PACKING - WOOD £2.50 4H WOOD & KITS £3.00

**(0480) 411519** INWOOD MODEL SUPPLIES  
5, ST MARGRETS WAY  
STUKELEY IND EST, HUNTINGDON, CAMBS PE18 6EB



# Join the High Flyers T-Shirts & Caps



**T-Shirts**  
**£5.00**

**Caps**  
**£4.50**

Mail order to: Reader Offers, Argus House, Boundary Way,  
Hemel Hempstead, Herts. HP2 7ST  
or you can telephone or fax through your order:  
**Telephone: 0442 66551 (24 HRS) Fax: 0442 66998**  
*Please add £0.75p for p&p*

T-Shirt  Medium  Large  Ex. Large   
Caps\*  Royal Blue  Navy  Red   
Caps printed either  Aero Modeller  R.C.M. & E.  
 Radio Modeller

Cheques/P.O. payable to **A.S.P.** or debit my Access/Visa  
Total £ .....

Signature ..... Expiry .....  
Name .....  
Address .....  
.....  
*Please allow 28 days for delivery (U.K. only - overseas upon request) Sept 90*

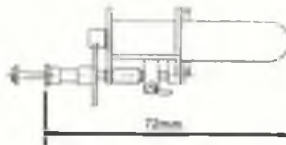


RECHARGEABLE  
ELECTRIC  
FLIGHT UNIT

**KNIGHT & PRIDHAM LTD,**  
Castle Road, Rowlands Castle,  
Hampshire. 0705 412172

**NEW**

- 10:1 Ratio Winder for 'Peanut' sized models (4mm rubber max) **£5.50 50p pp**
- KP 01a + accessories **£21.00 50p pp**
- KP 01b + accessories **£19.50 50p pp**
- KP 01a + prop only **£18.50 50p pp**
- KP 01b + prop only **£17.00 50p pp**
- Speed Control trimmer **£1.70 30p pp**
- Motor/Gear Assy **£6.00 50p pp**
- Flight charger for KP01a:-  
**£16.00 80p pp**
- Flight charger for KP 01b:-  
**£14.50 80p pp**
- Mains charger for above:-  
**£9.50 80p pp**
- Sodastream adaptor for CO2  
**£16.50 50p pp**



Complete with welded battery pack.  
KP 01a - 3 cell, KP 01b - 2 cell

**Accessories:**  
2 propellers spare pinion 3 nuts,  
screws & washers, wire, marking  
out template, jack plug and  
resistor for DIY flight charger.

ACCESS/MASTERCARD/VISA

## WHAT ARE THEY

- SOLARFILM -** the original British iron-on plastic film covering
- SOLARTRIM -** self adhesive trim film - cut-out, peel off, press on.
- SOLARLAC -** fuel proof paint, in Solarfilm & Solarspan colours
- LITESPAN -** super strong, iron-on covering to replace tissue & dope
- BALSALOC -** white emulsion that dries to a clear heatsal adhesive
- SOLARTEX -** iron-on fabric covering for maximum strength and toughness
- SOLARSPAN -** stronger, tougher version of Solarfilm
- CLEARCOAT -** resin solution to fuelproof wood **before** covering or as a clear finish on Solartex



Please send S.A.E. for details to:-

**Ackhurst Road, Chorley,  
Lancs. PR7 1NH  
ENGLAND.**

# ARGUS ADHESIVE SERVICE

## Highest quality - Lowest cost

### 200 gram FLEXIPOX KITS



Flexipox is a New rubberised acrylic bonding system. Consisting of two distinctively coloured parts (pink & green) which can be either beaded together using the compression of the joining materials creating a substantial bonding or used as a pre-formed mixture for direct application.  
FLEXIPOX will bond metals, plastics, woods, glass, ceramics, etc. Will continue performing even in high temperatures (up to 120°C), it supercedes all other Epoxies in toughness and durability and will never become brittle. FLEXIPOX has a high impact resistance and allows filleting. (cures through volume).

**IDEAL FOR CONTAMINATED SURFACES**  
Order Ref. AS1 £9.95 + 75p p&p

### THREAD LOCK

In a clear labelled container Thread Lock is a medium strength anaerobic adhesive based on a di-Methacrylate resin. It is designed for threadlocking all sizes of nut and bolt assemblies up to 3/4 inch. Allows parts to be dismantled if required. This product will fill gaps up to 0.25mm, has a shelf life of 1 year and is non toxic. Cure time to handling strength, 16 mins. Full cure 24 hours temperature range from -18°C to 180°C. N.B. The container is only half full, this is essential to prevent the anaerobic setting of the adhesive.

### CYANOACRYLATE MEDIUM

Container with clear liquid contents. Numbered 956 Medium Viscosity but also identifiable by observation as this glue runs smoothly. Medium viscosity Rapid Set Adhesive is ideal for all general applications, will set cure rapidly bonding in seconds, fills up to -06 gap. Most suitable for bonding plastics, rubbers and balsa wood including EDPM and SRBP and some of the more difficult-to-bond plastics. Product dries to a hard clear bond.

### SUPER LUBE

Super Lube is unlike any other lubricating penetrants because it contains Teflon for lasting lubrication on dry joints. Super Lube is water resistant and is an excellent cleaning agent for cutting through grease, oil etc. Whilst maintaining lubrication. Super Lube comes in ozone friendly aerosol complete with a jet lance for accuracy and less waste



Order Ref. AS5. Complete set £9.95 + 75p p&p



**0442 66551**

PLEASE RETURN COMPLETED COUPON TO:  
**ADHESIVES, READERS SERVICES, ARGUS HOUSE,  
BOUNDARY WAY, HEMEL HEMPSTEAD HP2 7ST**  
*Please allow 28 days from receipt or order.*

PLEASE SUPPLY ME ( ) KITS OF \_\_\_\_\_ AT £ \_\_\_\_\_ PER KIT TOTAL AMOUNT £ \_\_\_\_\_

PLEASE SUPPLY ME ( ) KITS OF \_\_\_\_\_ AT £ \_\_\_\_\_ PER KIT TOTAL AMOUNT £ \_\_\_\_\_ COMBINED TOTAL \_\_\_\_\_

Cheques/P.O.s made payable to **A.S.P.** should be crossed.

Please debit my Access/Barclaycard with £ \_\_\_\_\_ in respect of the above order

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

Card No. \_\_\_\_\_

Expiry Date \_\_\_\_\_ Signed \_\_\_\_\_

Please return completed coupon to **ADHESIVES, Readers Services, Argus House, Boundary Way, Hemel Hempstead, HP2 7ST.**  
*Please allow 28 days for delivery from receipt of order. Please note any information supplied maybe used for marketing purposes.*

# AERO MODELLER

delivered to your door **FREE!\***



That's right, if you take out a year's subscription to Aeromodeller we will make sure that it is delivered to your door each month at no extra charge\*. Just fill in the coupon below and send it to the address given with a cheque, money order or credit card instructions to cover the cost of the subscription. We'll do the rest.

UK: £23.40; EUROPE: £28.20; MIDDLE EAST: £28.40;  
FAR EAST: £30.20; REST OF THE WORLD: £28.70  
or USA: \$50.00

Airmail Rates on Request.

\* Overseas subscription rates include postage.

Please commence my subscription to Aeromodeller with the ..... issue. I enclose my cheque/money order for £..... made payable to ARGUS SPECIALIST PUBLICATIONS

Or Debit my Access/Visa

No.

Valid from ..... to .....

Signature .....

Name .....

Address .....

Postcode .....

Send this form with your remittance to:

SELECT SUBSCRIPTIONS LTD., 5 River Park Estate,  
Billet Lane, BERKHAMSTED, Herts. HP4 1HL,  
United Kingdom

## AEROMODELLER Introduces An Easier Way To Pay For Your Subscription

You can now subscribe to AEROMODELLER by Direct Debit, a new service we are able to offer to our readers.

Paying for your subscription by Direct Debit is quick and easy and has advantages:

- ★ ONLY ONE PIECE OF PAPER TO SIGN - SIMPLY COMPLETE THE DIRECT DEBIT INSTRUCTION.
- ★ YOUR BANK DOES ALL THE WORK - THEY WILL MAKE PAYMENTS ON YOUR BEHALF.
- ★ AUTOMATIC RENEWAL OF YOUR SUBSCRIPTION - NO MORE DELAYS AND ISSUES MISSED.
- ★ POST FREE SUBSCRIPTIONS.
- ★ SPECIAL SUBSCRIBER ONLY OFFERS

If you've been thinking about subscribing to AEROMODELLER then now is the time to do so - it's never been easier and it only costs £23.40 a year!

If you want to receive a regular supply of the Worlds leading modelling magazine, then subscribe today by Direct Debit, simply complete and return the order form below.

The Direct Debit payment facility can be offered to UK subscribers only.

I wish to subscribe to AEROMODELLER at the annual rate of £23.40  
INSTRUCTIONS TO YOUR BANK TO PAY DIRECT DEBITS  
Please complete Parts 1 to 5 to instruct your Bank to make payments directly from your account.

Originator Identification Number

1. The Manager ..... Bank plc  
.....  
(Full address of your Bank Branch.)

Banks may refuse to accept instructions to pay Direct Debits from some types of accounts

2. Name of Account Holder .....

3. Account Number           4. Bank Sorting Code

5. Your instructions to the bank and signature.

- I instruct you to pay Direct Debits from my account at the request of Argus Specialist Publications in respect of my Subscription Advice.
- The amounts are variable and may be debited on various dates.
- I understand that Argus Specialist Publications may change the amounts and dates only after giving me prior notice.
- I will inform the bank in writing if I wish to cancel this instruction.
- I understand that if any Direct Debit is paid which breaks the terms of this instruction, the bank will make a refund.

Signature(s) ..... Date .....

Title Mr/Mrs/Miss .....

Address .....

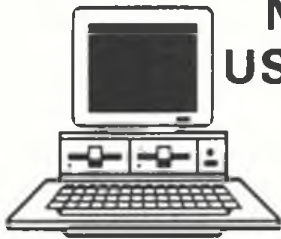
.....  
Postcode .....

Return this form to: Select Subscriptions Ltd.,  
5 River Park Estate, Billet Lane, BERKHAMSTED,  
Herts HP4 1HL. AMDD/3



# AEROMODELLER Reader Service

## NEW COMPUTER SOFTWARE FROM THE USA USE YOUR PERSONAL COMPUTER TO HELP DESIGN YOUR MODELS



Plot and print wing ribs on your Dot Matrix printer



### LOOK WHAT IT CAN DO:

- ★ Plot standard wing ribs to 45in. chord from a library of 40+ sections
- ★ Modify library sections in thickness and camber as required
- ★ Plot individual ribs for tapered chord wings
- ★ Plot spar, LE, TE positions and skin thickness on ribs
- ★ Allows input of ordinates for additional sections

# PLUS

The Model Design Program enables you to do all of the above and

- ★ Plot ribs for wings with differing root and tip sections
- ★ Plot ribs with washout
- ★ Print wing or tail plans to scale (even full-size if your printer permits)
- ★ Plot fuselage sections - rectangles, circles, ellipses and combinations of shapes

Order from: AEROMODELLER Reader Services, Argus House, Boundary Way  
Hemel Hempstead, Herts. HP2 7ST.  
Telephone:- 0442 66551 for Credit Card orders



Now 3 library disks of section data available including RAF, NACA, Quabeck, Eppler, Goettingen, Ritz, Girsberger, Selig and many more sections, 180 in all.

AVAILABLE FOR IBM COMPATIBLE COMPUTERS ONLY (needs a printer for output of data) Any IBM Compatible computer with MS-DOS 3.2 or later Operating System, a 5.25in. 360k Disk Drive and an Epson Compatible printer, e.g. Amstrad PCs.1640 etc.

Prices Airfoil Plot £15.00 inc. VAT & Postage RORM10  
Model Design - £25.00 inc. VAT & Postage RORM11  
Data Vol. 1 - £7.00 inc. VAT & Postage RORM12  
Data Vol. 2 - £7.00 inc. VAT & Postage RORM13

Please supply Qty ..... RORM10 - Airfoil Plot @ £15.00 inc.  
Please supply Qty ..... RORM11 - Model Design @ £25.00 inc.  
Please supply Qty ..... RORM12 - Data Vol. 1 @ £7.00 inc.  
Please supply Qty ..... RORM13 - Data Vol. 2 @ £7.00 inc.  
Total £ ..... Expiry Date .....

Or debit my Access/Visa

Signature .....

Address .....

U.K. only (overseas upon request)

Please note your name may be used for marketing purposes

## GUERNSEY

Look!  
low prices

KK Conquest .....	£3.78	Futaba Attack Sport	£36.00
Mercury T. Moth .....	£13.00	Megatech Junior .....	£60.00
Chris Foss WOT 4 .....	£42.70	JR Beat 202 .....	£45.00
Prince 20L AFR .....	£52.15	JR Max 202 40MHz	£60.69
Flair Magnatilla .....	£34.37	JR Laser 4 (40 MHz)	£102.00
Flair Baronette .....	£42.00	PAW 80 .....	£19.93
Coupe 66 .....	£40.00	PAW 1.49 .....	£19.00
Mascot .....	£43.46	PAW 2.49 .....	£21.02
MiddlePhase .....	£32.70	PAW 19 DS .....	£23.02
Irvine Fauvette 905 .....	£32.15	PAW 29 R/C .....	£34.00
Volsplane .....	£44.15	OS 15 R/C .....	£33.50
Futaba Attack 4 .....	£117.00	OS 25 FR R.c .....	£37.17
Futaba Attack 40 MHz	£62.00	OS 40FP R/C .....	£48.44
Sanwa Conquest 6	£112.86	Irvine 30 R/C .....	£42.27
JR Max 6 .....	£126.78	Irvine 61 R/CV .....	£72.61
PAW 100 .....	£19.93		
PAW 1.49 Contest .....	£19.98		
PAW 2.49 R/C .....	£26.00		
PAW 29 .....	£35.88		
PAW 35 R/C .....	£39.88		
OS 20 FP R/C .....	£34.73		
OS 35 FP R/C .....	£40.44		
Irvine 20 R/C .....	£38.50		
Irvine 40 R/C .....	£52.13		
K & B 20R/C .....	£34.73		

Many more Aero and Marine. New Zealand orders welcome. Send 50p P.O. for lists. Duty free-Export only. VAT Liable UK customers.

THE MODEL SHOP  
(Guernsey)  
18 Fountain Street  
Guernsey, C.I.

## MICHAELS MODELS

MAIL ORDER HOTLINE  
081-445-6531  
Licensed Credit Brokers

646-648 HIGH ROAD  
NORTH FINCHLEY  
LONDON N12 0NL  
TEL: 081-445 6531

Open: Mon - Fri 9am - 6pm.  
Saturday 9am - 5.30pm



<b>COX</b>		61 Stunt	£69.95
Tee Dee .010	£32.99	<i>EXPECTED SOON</i>	
Pee Wee .020	£15.99	30 Diesel Stunt	£44.95
Baby Bee .049	£17.99	30 Diesel RC	£49.95
Black Widow .049	£19.99		
Tee Dee .049	£29.99	<b>AE from D.J. ALLEN</b>	
Pee Wee .020 R/C	£18.99	2cc Diesel	£55.25
Queen Bee .074 R/C	£36.99	5cc Diesel	£27.60
		1cc Diesel	£27.60
		1.5cc Diesel	£27.60
		1cc R/C Diesel	£29.50
		1.5cc R/C Diesel	£36.80
<b>IRVINE ENGINES GLOW</b>			
21 RE ABC Speed	£88.75	<b>NEW!</b>	
(We can now offer the)		<b>POWERMAX Z</b>	
(IRVINE 15 R ABC FF/Combat)		Compressed Air Motor	£24.95
(converted to diesel)	£119.75	Compressed Air Motor including	
Irvine 15R Speed/Piped	£105.50	Jonathon Kit	£35.00
Irvine 15R F/F	£84.75		
<b>IRVINE ACCESSORIES</b>		<b>CO2 MOTOR</b>	
15 Size Tuned Pipe	£21.40	Modella	£19.99
20 Size Tuned Pipe	£20.60	Teico	£34.99
20 Size Muffled Pipe	£27.50		
<b>IRVINE SPARES - 15 R ABC</b>		<b>MVVS</b>	
Glow Head	£3.22	1.5cc Plain Bearing Diesel	£19.99
ABC Piston/Liner - 15 FF	£26.75		
ABC Piston/Liner - 15 Speed	£26.75	<b>RUSSIAN ENGINES</b>	
(Full IRVINE spares available)		Mk 17 1.5cc Diesel	£30.15
***		KMB 2.5cc Diesel T/R	£60.00
<b>A M GLOW</b>			
1cc inc Tank/Silencer	£26.95	<b>NEW FROM IRVINE ENG.</b>	
1.5cc inc Tank/Silencer	£27.95	All ABC P/L	
<b>A M DIESEL</b>		Irvine 20 Plain Bearing Diesel for	
1cc inc Tank/Silencer	£28.95	Combat	£55.00
1.5cc inc Tank/Silencer	£29.95	Irvine 20 Ball Race Diesel for	
		Stunt	£57.60
		Irvine 20 Ball Race Diesel RC	£62.65
<b>MERCO Inc Silencer</b>			
30 Stunt	£34.95	<b>IRVINE ENGINES</b>	
35 Stunt	£39.85	<i>EXPECTED IN 6/8 WEEKS</i>	
40 Stunt	£44.95	Irvine 40 R/C Diesel	POA
50 Stunt	£54.95	Irvine 15R Diesel for Combat	POA

POST & PACKING: UK - Engines 95p, F/F kits £2.00, Vintage Kits £2.75, Accessories 75p  
Overseas - Deduct 13% on orders over £25.00. Postage & Packing at cost. PAYMENT: UK - Cash  
(Registered Mail), Postal Orders, Cheques, Visa, Access, Am Ex, Diners, Overseas - Currency  
(Registered Mail), Sterling Cheques/Bank Drafts, Visa, Mastercard, Am Ex, Diners, Credit/Charge  
Card orders - Please quote Expiry Date - All orders despatched within 1 day. If stock not available for  
immediate despatch customers will be notified of the delay.

# CLASSIFIED advertisements



We accept  
Access/Barclaycard



Private and trade 54p + VAT, minimum 15 words. Display box rate £11.00 per single column centimetre (minimum size 2.5cm). All advertisements are inserted in the first available issue, unless specified otherwise.

Write your advert in **BLOCK CAPITALS** indicating the section you wish it to appear in, **INCLUDING YOUR NAME AND ADDRESS** and send it to: **AEROMODELLER CLASSIFIED ADVERTISEMENT DEPARTMENT, ARGUS HOUSE, BOUNDARY WAY, HEMEL HEMPSTEAD, HP2 7ST.** Irene Benedickter Tel: 0442 86650.

## FOR SALE

## SERVICES

### VACUUM FORM MODEL PARTS TO COMMERCIAL STANDARDS

A NEW LOW COST QUALITY MACHINE TO FORM 228 x 305 6mm (max) THERMOPLASTIC SHEET. RING FOR BROCHURE

**C.R. Clarke**  
A Company Limited  
ARMANFORD, DN50 5A18 TEL 0269 593860

**COLLECTION OF PETROL ENGINES FOR SALE** including McOys, Forsters, Ohlssons and Crowns. All are like new. Send sae to 124 Westgate Rd., Beltun, S. Yorks DN9 1QG.

### AUTHENTIC REPLICAS OF CLASSIC DIESEL ENGINES:

Swiss DYN0 2cc (1942), complete with original instructions, without tank DM350  
Italian MOVO D2 2cc (1945), complete with original box, instructions, plexi or alum. tank. DM 345



64 page catalogue including many German vintage kits, Diesel and Spark engines and accessories. Please send International Reply Coupons worth DM 5. - AMZ - Im Strasser Feld 29, D-5120 Herzogenrath, F.R. Germany 00492406/5952

### THE PEATOL LATHE



£140 including 3 or 4 jaw chuck Milling attachment and other accessories available Centre height 2 1/2". Distance between centres 9"

Please send SAE for full details  
Peatol Machine Tools, A.H. 19 Kington Road, Harborne, Birmingham B17 9PS Price inc. VAT

### C.S. (CHINESE) COMPETITION ENGINES

Glow - Normal or Pumped for Tuned Pipe, ABC  
049 061 09 011 15 21  
Speed dedicated 15 AAC + Pipe Stunt/Radio 60 ABC  
Sport 15 ABC + Silencer  
Marine 21 + Baffled Tuned Pipe Set  
Diesel - 15 AAC T/R + Carb. Various Ancilleries - Leads C/F Props. T-shirts etc.  
Most Motors in stock.  
Combat Specials Glow + Diesel - Still Developing  
£2 (redeemable against first order) + 32p A4 SAE for brochure & prices to:  
**Peter Carter, 27, Alexandra Road, South Woodford, London E18 1PZ Telephone & Fax 081-530 5360**

**AM, COX, FOX, P.A.W.**, Silver Swallow, Motor Spares & Services. John D. Haytree, The Haven, Rixey Park, Chudleigh, Devon. TQ13 0AN. Tel (0626) 852330 Access, Visa.

## WANTED

**WANTED** - Ready-built model aircraft, boats, yachts, cars, steam-driven models, also engines, kits, radio control equipment etc. If you are selling up, Tel: Godalming 21425. T/C

**MODEL AIRCRAFT Engines?** Private collector of British diesels will pay fair market prices if you have any engines (or old books) for sale. Please phone Chris E. Escritt on 0234-240003 (evenings) to discuss.

## MULTI PLEX

### In IRELAND

MULTIPLEX FM Module R/C Systems  
SPORT - COMBI - PROFI - the top WEST GERMAN 35MHz Equipment

### O.S. ENGINES

IRELAND'S LARGEST SELECTION OF KITS & ACCESSORIES by:  
Kavan, M.F.A., Ripmax, Veron, Zinger, Multiplex, Irvine, Humbrol, Micro-Mold, Keil-Kraft, SOLARFILM, etc.

FUTABA R/C SYSTEMS

**W.J. OWENS** 41 Main Street, Bray, Co. Wicklow.  
Tel: Dublin 853864. Wed. - Closed 1pm

**SAMS**  
INDOOR, FREE FLIGHT, VINTAGE. SAMS 1500 ITEM CATALOGUE 90/91, YOURS FOR THE ASKING. SEND SAE (8x7 - 40p stamp)

**SAMS**  
The Chapel, Roe Green, Sandon, Nr Buntingford, Herts SG9 0QJ  
Telephone (076) 388 384

Available also in French. Overseas send 4 Postal Coupons. Sorry no callers.

**STELS F2D** Combat Engine £120 incl VAT excl. Postage. The best combat motor in the world as used by 1989 Euro Champ Viacheslav Beliaev.

**ENGINES FROM RUSSIA**  
12 Heathland Terrace, Shaw Heath, Stockport, Cheshire SK3 8DU

tel (eves) fax (office hrs) 061 477 7395

**ENGINES**, many second hand AM, Elfin Mills, Cox, Miles, Frog, ED, DC, etc. 0420 64246.

## GLIDING HOLIDAYS

### Try Somewhere Different...

Visit our ridge top gliding site at Nympsfield in the Cotswolds. We can teach YOU to fly at our superbly situated scenic site. We have a residential clubhouse, bar and professional instructors. Treat yourself to an excitingly different holiday. Courses run from mid April to October.

For further information please call

Slan Franklin on 0453 860342/860060 or write to the Bristol & Gloucestershire Gliding Club, Nympsfield, Stonehouse, Glos. GL10 3TX.



## GLIDING HOLIDAYS

### GLIDING HOLIDAYS

**SLOPE SOARING - TRY YOURSELF!**  
Five-day holiday course for beginners and early solo pilots. May to September. Beautiful Peak District. Tuition and full board £206 to £227 incl. No hidden extras. Apply:  
Course Secretary (RM)  
Derby & Lancs. Gliding Club,  
116 Chorley Road, Sheffield S10 3RL.  
Tel: 0742 301831 (7pm-10pm)

### ELATION LEISURE SPORTS

- ★Paragliding
- ★Hang-gliding
- ★Micro-lighting★



Now for the first time under one roof you can experience all three of these exciting adventure sports over the beautiful Wiltshire Downs.

For details: Send 20p see to Elation Leisure  
The Old Barn, Rhyll Lane, Lockeridge, Marlborough, Wiltshire SN6 4EF or Tel: 0672 88355 or 0800 246 555



**Rates:** Lineage 54p + VAT per word. Min 15 words. Display box rates £11.00 per single column cm (minimum size 2.5cm).

Write your advert in **BLOCK CAPITALS** in the grid below, specifying the section you wish to appear under including your name and address in the word count and send it to: **AEROMODELLER CLASSIFIED ADVERTISEMENT DEPARTMENT, ARGUS HOUSE, BOUNDARY WAY, HEMEL HEMPSTEAD, HERTS. HP2 7ST.**


**ALL CLASSIFIED ADVERTISEMENTS MUST BE PRE-PAID. THERE ARE NO REIMBURSEMENTS FOR CANCELLATIONS.**

I enclose my Cheque/Postal Order for £..... for..... insertions, made payable to Argus Specialist Publications. (\* Delete as necessary) or

PLEASE DEBIT MY ACCESS/BARCLAYCARD NO. .... EXPIRY DATE .....

£..... for..... insertions

Name .....

Address .....

..... Post code .....

Daytime Tel. No: .....

Signature ..... Date .....





# Model Shop Directory

## THE COMPREHENSIVE MODEL MAKERS GUIDE

Rates:- £12.80 for 12 series

£14.00 for 6 series (exclusive VAT)

Classified Advertising Tel. no. 0442 66551.

### NOTTINGHAMSHIRE

**NOTTINGHAM** Tel 0602 412211  
GEE DEE MODELS LTD  
19-21 HEATHCOTE ST  
OFF GOOSEGATE

Open 9.30am - 5.30pm  
Early closing Thursday

### SHROPSHIRE

**MODEL WORLD** Tel: 0691  
103 BEATRICE STREET 6555560  
OSWESTRY  
SHROPSHIRE SY11 1HL

Open Mon - Sat 9.30 - 5.30 Fri 9.30 - 7pm

### BUCKINGHAMSHIRE

**MILTON KEYNES** Tel. (0908)  
MAPLE MODELS II 678153  
692 SILBURY BOULEVARD  
CEN. MILTON KEYNES BUCKS

Mon to Fri 9.45am - 5.30pm Sat 9 - 5.30pm  
Late evening Thurs to 7.30pm

### HAMPSHIRE

**FAREHAM** Tel 0329 239018  
FRATTONS OF FAREHAM ★  
126 WEST STREET  
FAREHAM

9.00 - 5.30pm 6 days

### LONDON

**LONDON** Tel: 071 703 4562  
MODEL AIRCRAFT SUPPLIES LTD  
207 CAMBERWELL ROAD SE5 ★

Open: Mon. - Sat. 10 am - 6 pm.  
Fri. 10 am - 7.30 pm.  
Closed all day Thursday

### SURREY

**EWELL** Tel: 081 393-3232  
MICK CHARLES MODELS  
192-194 KINGSTON ROAD

Mon., Tues., Thurs., Sat., 9.30-5.30  
Friday 9.30-7.00  
Access Barclaycard Mail Order

### CAMBRIDGESHIRE

**PETERBOROUGH** Tel: 0733  
ORTON MODELS 68200  
36 HERWARD CENTRE ★  
CAMBS. PE1 1TF

Open Mon - Fri 9.30 - 5.30 Thurs 9 - 6  
Sat 9 - 5

### HERTFORDSHIRE

**STEVENAGE** Tel. 0483 743530  
MODELS IN MOTION  
57 HIGH STREET  
OLD STEVENAGE, SG1 3AQ

Out of hours: 0836 208090

Kyosho, Tamiya, Parma, Demon, Schumacher

**LONDON** Tel: 071-607 4272  
HENRY J. NICHOLLS & SON LTD.  
HOLLOWAY ROAD N7 ★

Open  
Mon, Tues, Wed, Fri 9.30am-5.30pm  
Saturday 9.30am-5.00pm  
Thursday 9.00am-1.00pm (half day)

### SUSSEX

**BRIGHTON** Tel: (0273) 430751  
HARRY BROOKS  
15 VICTORIA ROAD  
PORTSLADE

Tues - Sat 9am - 6pm  
Mon (Late night) 9am - 6pm.

### CORNWALL

**FALMOUTH** Tel: 0326 317475  
HARRY BROOKS  
MARKET ON THE MOOR  
THE MOOR  
FALMOUTH, CORNWALL

Open every day except Sunday

### KENT

**CANTERBURY** Tel: (0227) 453896  
CANTERBURY MODEL SHOP  
4 BUTCHERY LANE ★

Open: Mon - Sat 9am - 5.30pm

**FULHAM** Tel 071 385 9864  
PATRICKS TOYS 071 385 2187  
AND MODELS  
107-11 LILLIE ROAD

Open Mon - Sat 9am - 6pm  
SWITCH

### YORKSHIRE

**LEEDS** Tel: (0532) 646117  
THE MODEL SHOP  
(late Flying Models) ★  
88 CROSSGATES ROAD  
CROSSGATES, LEEDS LS15 7NL

Mon. - Sat. 6 am - 5.30 pm

### DEVON

**PLYMOUTH** Tel 0752 263133  
RUNWAY SOUTHWEST ★  
22 FRANK FORT GATE  
CITY CENTRE

Mon - Sat 9.00 - 5.30pm

### LANCASHIRE

**MANCHESTER** Tel 061 499 0303  
THE AVIATION SHOP  
SPECTATORS TERRACES  
MANCHESTER AIRPORT M22 5SZ

Stockist of Airfix, Ravell, Wooster's

**LONDON** Tel: 071-228 6319  
E.F. RUSS  
BATTERSEA RISE SW11

Open Mon-Sat 9am-6pm  
Early closing Wednesday 1 pm.

**BRADFORD** Tel: 0274 726186  
MODELDRONE  
217 MANNINGHAM LANE  
BD8 7HH

Open 9.30am-5.45pm  
Closed all day Wednesday

### ESSEX

**UPMINSTER** Tel: (040 22) 50272  
RADIO ACTIVE MODELS  
UPMINSTER LTD  
54 ST MARY'S LANE, UPMINSTER  
ESSEX

Open Mon, Tue, Wed, Thur, Sat,  
9am - 6pm Fri 9am - 7pm

**LANCS** Tel 0254 65358  
BLACKBURN MODEL SUPPLIES  
126 LIVESEY BRANCH ROAD ★  
EWOOD, BLACKBURN, LANCS.

Open Mon - Fri 9.30-6pm late night Tues till  
8pm. Sat 9.30 - 5pm  
Balsa Mart

### MIDDLESEX

**HARROW** Tel. 071 863 9788  
THE MODEL SHOP  
190-194 STATION ROAD

Mon.-Sat 9.30-6.00  
Wednesday 9.30-5.00

### SCOTLAND

**GLASGOW** Tel: (041 221) 0484  
DUNNS MODELS ★  
3 WEST NILE STREET

Open: Mon. - Sat. 9.00 am-5.15 pm.

★  
**MAIL ORDER  
WELCOME**

### LONDON

**AERONAUTICAL**  
MODELS Tel 071 485 1818  
CAMDEN TOWN 071 485 4867  
39 PARKWAY NW1 ★  
Mon-Fri 9.15-5.30 Sat 5.00pm Londons leading  
model specialist American Express

**HARLINGTON** Tel. 081 897 2526  
HEATHROW MODEL CENTRE ★  
214 HIGH STREET  
UB3 5DS

Mon - Sat 9-6pm  
Fri - 7pm

### WALES

**ABERGAVENNY** Tel: 0873 2566  
ABERGAVENNY MODEL SHOP  
32 FROGMORE ST ★  
NP7 5AL

Open Mon - Sat 9-5.30pm  
Sanyo, Nicad Distributor

### HAMPSHIRE

**PORTSMOUTH** Tel: 0705 827117/  
FRATTON BARGAIN 750774  
SHOP ★  
171-173 FRATTON ROAD, FRATTON

Open 9.6pm 6 days a week  
Access, Visa, American Express, Diners Card

**KINGSBURY** Tel. 081 205 6177  
AERO MODEL MART 205 0817  
165 CHURCH LANE (24 hr) ★  
NW9 8JU Fax: 081 200 7438

Mon.-Thurs. 9-5 Fri.-Sat. 9-6  
Access - Visa - Instant Credit

### WEST MIDLANDS

**WOLVERHAMPTON** 0902 26709  
WOLVERHAMPTON MODELS &  
HOBBIES 1 MEADOW ST  
CHAPEL ASH

Open Mon - Sat 9 - 5.30  
Mail Order Welcome

### HONG KONG

**HONG KONG**  
RADAR CO LTD. SHOP No 245 ★  
OCEAN GALLERIES, HARBOUR  
CITY, CANTON ROAD.  
TSIMSHATSUI Tel 3-680507

Open 10am-6pm Closed Sundays

If you cannot find the exciting new **DREMEL®** Tools at your local shop  
ask the Nationwide DREMEL Distributors for free catalogue and prices:  
**MICROFLAME HOBBY & CRAFT TOOLS • DISS • NORFOLK IP22 3HQ • 0379 644813**

**IF YOU'RE READING THIS - SOMEONE COULD BE READING  
YOUR ADVERTISEMENT! FOR A FRIENDLY, EFFICIENT  
SERVICE, WHY NOT CALL IRENE BENEDICKTER  
ON 0442 66551 FOR MORE DETAILS.**



# CANTERBURY MODEL SHOP



THE LARGEST SELECTION OF ROCKET KITS IN ENGLAND.

4, BUTCHERY LANE CANTERBURY KENT  
TEL 0227 453896 Fax 0227 459564

## ROCKET PRICE LIST

Description	Skill level	Price	Description	Skill level	Price
<b>STARTER SETS</b>					
Alpha III Starter Set	1	£28.90	Mosquito	1	£2.20
Sizzler Starter Set	1	£33.30	Mini Mean Machine	1	£7.95
Space Shuttle Starter Set	2	£36.30	Mini TriPak (3 Rockets)	2	£7.95
			NASA X-15	3	£6.35
			Dragonfly (Boost Glider)	3	£6.95

### Rocket Kits:

Longshot	1	£6.95
Yankee	1	£3.95
Wizard	1	£3.95
Alpha III	1	£7.75
Sizzler	1	£7.95
Big Bertha	1	£8.95
Astrocam 110	2	£37.00
Bull Pup 12D	2	£7.20
Sentinel	2	£10.30
Space Shuttle Columbia	2	£11.55
Helicopter	2	£10.30
Eggpress	2	£10.30
Nova Payloader	2	£7.95
SDI Satellite	2	£10.30
Tornado	2	£3.85
Iris	2	£6.10
Strike Fighter	3	£12.20
Recruiter	3	£11.10
SWAT	3	£18.85
SR-71 Black Bird	3	£14.30
Ram Jet	3	£5.95
Nike-Apache	3	£7.05
Geo Sat LV	4	£16.30
Space Shuttle	4	£23.65
Mercury Redstone	4	£17.00
Jupiter C	4	£13.40



Description	Skill level	Price
<b>2 Stage Rocket Kits</b>		
Clipper	2	£5.85
Super Nova	2	£9.95

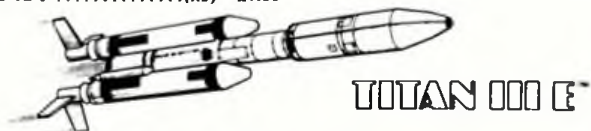
### D Engine Rocket Kits

Mean Machine	2	£18.10
Commanche 3 (3 Stager)	3	£10.30
Black Brant II	4	£10.90
Explorer Aquarius (Boxed)	4	£18.85
Super Big Bertha (Boxed)	2	£24.45
Pathfinder	3	£11.55
Mega SIZZ	2	£12.10
Titan III (Boxed)	4	£28.90
Saturn V (Boxed)	4	£58.10



## LAUNCH SUPPLIES PRICE LIST

Description	Price
<b>ENGINES:</b>	
1/2 A 6-2 (x3)	3.65
A 8-3 (x3)	£3.80
A 8-5 (x3)	£3.80
A 4-2 (x3)	£3.80
A 6-4 (x3)	£3.80
A 6-6 (x3)	£3.80
A 8-5 (x3)	£3.80
C 5-3 (x3)	£4.10
C 6-3 (x3)	£4.40
C 6-5 (x3)	£4.40
C 6-7 (x3)	£4.40
D 12-3 (x3)	£7.00
D 12-5 (x3)	£7.00
D 12-7 (x3)	£7.00
<b>Booster Engines:</b>	
A10-OT (x4)	£4.00
B 6-0 (x3)	£3.80
C 6-0 (x3)	£4.10
D 12-0 (x3)	£7.00
<b>Mini Engines</b>	
1/2 A 3-2T (x4)	£3.80
A10-3T (x4)	£4.00
<b>Accessories</b>	
Porta-Pad Launch Pad	£14.30
Electron Beam Launch Controller	£17.55
Igniters (x6)	£2.10
Wadding	£2.10
Alltrak	£14.40
Fin Alignment Guide	£15.55
Estes Illustrated Catalogue (colour)	99p
1/8" Two Piece Launch Rod	£3.95
3/16" Two Piece Launch Rod (Maxi Rod)	£5.28
Blast Deflector Plate	£2.75



A full selection of Rocket Parts and Spares are now available.

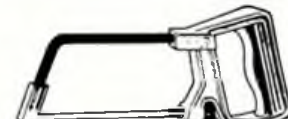
See our illustrated catalogue (£1.95 + 35p P&P)

All mail order orders: £2.00 Post & Packing

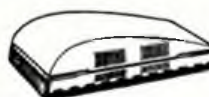
# PROOPS BROTHERS LIMITED



**MINISAW**  
95p each + c/p 50p



**JUNIOR HACKSAW**  
£2.25 each + c/p 75p



**HANDY SANDER**  
£1.45 each + c/p 50p



**HANDY KNIFE**  
£1 for TWO + c/p 40p



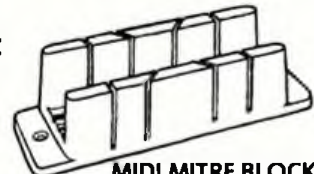
**MINI MITRE BLOCK**  
95p each + c/p 50p



**SLIM KNIFE**  
£1 for FOUR + c/p 25p



**TWEEZER SET**  
Set of FOUR £4.95 + c/p £1.15



**MIDI MITRE BLOCK**  
£1.45 each + c/p 75p



**PRECISION SCREWDRIVER**  
Set of SIX £1 + c/p 50p



**MINI PLIER SET**  
Set of SIX £6.50 + c/p £1.25



**FILE HANDLES**  
Pack of THREE assorted  
95p + c/p 40p



**HAND DRILL**  
£12.50 each + c/p £1.50



**GIMLET** Pack of THREE  
(3mm, 4.5mm & 6mm)  
£3 + c/p 50p



**PLASTIC CALIPER GAUGE**  
£1.25 each + c/p 65p

### SPECIAL OFFERS ON MINIATURE POWER TOOL ACCESSORIES

- Set of 4 Carbon Steel Drill Bits: (1mm, 1.5mm, 2mm and 2.5mm) ..... £1.50 + c/p 40p
- Set of 2 Drill/Router Bits: (1mm and 1.2mm)..... £1.00 + c/p 40p
- Diamond Saw Blade for Glass and Metal: (Dia. 50mm, Dia. of hole 10mm) ..... £2.00 + c/p 40p
- Pack of 8 Assorted Brushes: (inc. Brass, Steel & Nylon) ..... £3.00 + c/p 40p
- Pack of 8 Assorted Milling Cutters:..... £3.00 + c/p 40p
- "Super Pack" containing at least 30 Different items (inc. HSS Tungsten Drill Bits, 3 types of brushes, cutters and grinders) ..... £7.50 + c/p 60p

### SPECIAL OFFERS ON "ENGLISH MADE" FILES

- Riffler Files ..... £1.95 each + c/p 50p
- 6 Assorted Rifflers for ..... £10.00 + c/p £1.00 (All different shapes)
- 10 Assorted Needle Files for ..... £5.00 + c/p £1.00 (inc. Round, Flat, Half Round, Triangle etc.) (please note no specific shapes and sizes offered)

## PROOPS BROTHERS LIMITED

RETAIL & MAIL ORDER  
21 Masons Avenue

Harrow - Middlesex HA3 3AH  
Tel: 081-861 5258. Fax: 081-861 5404.  
Open Tuesday to Saturday  
9.30am to 5.30 pm. Closed Mondays

RETAIL ONLY  
Technology House

34 Saddington Road - Fleckney  
Leicester LE8 0AW  
Open Friday & Saturday ONLY  
10 am to 4 pm

**TRADE ENQUIRIES WELCOME**



# THE BIGGEST REVOLUTION IN 50 YEARS OF POWER

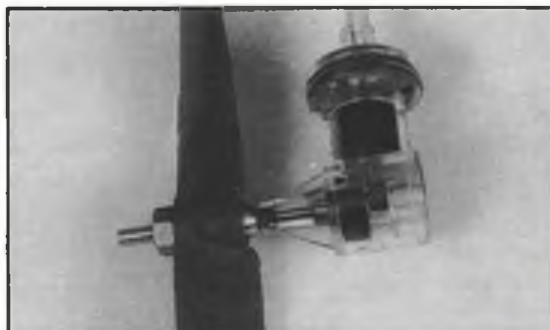
(THATS WHAT WE BELIEVE!)

IF YOU WANT REAL, CHEAP, EXCITING FUN FOR ALL POWER FLYING ETC....

## POWERMAX - Z IS IT!



Runs for up to 2 minutes!



MOTOR & RESERVOIR KIT

.....£24.00  
P&P £1.50

Jonathon ARTF Balsa model.  
Just stick the ready made wings together, pump up the air tank and fly!!

JONATHON KIT .....£35.00  
P&P £3.00

**JOIN THE REVOLUTION NOW!**

FOR A CATALOGUE OF ALL OUR PRODUCTS SEND £2.50 TO:

**MEGA MODELS, Lancaster House, Bentinck Street,  
Farnworth, Bolton. BL4 7EP.**

**TEL: 0204-792921**

**FAX: 0204-792922**

# STEAM CLASSIC



Order your copy now

The new magazine for Lovers of Steam

Steam Classic tells you what you want to know about British Steam locomotive design, history, operation and performance.

Emphasising what can still be enjoyed in today's lively preservation scene. This magazine is a stimulating mix of past and present.

Cover price: £1.50

Published: 2nd Friday of each Month



## Appendix - Links to the plans

The issue comes with a free plan (Spifire Stunter) printed front/back on a pull out banner of eight sheets. The banner is not included in the document.

### Timeta by Derek Heaton, Malcom Ross

Jim Woodside with his thoughts on 1/2A Team Racing. From Aeromodeller July 1971.

[https://outerzone.co.uk/plan\\_details.asp?ID=12060 ...](https://outerzone.co.uk/plan_details.asp?ID=12060)

[Document Page: 6](#)

### US Navy Racer by Comet

Scale rubber powered biplane racer. Presented in "VINTAGE CORNER"

[https://outerzone.co.uk/plan\\_details.asp?ID=3964 ...](https://outerzone.co.uk/plan_details.asp?ID=3964)

[Document Page: 16](#)

### SPITFIRE STUNTER by Noel Stephenson

CL Stunt Semiscale

[https://outerzone.co.uk/plan\\_details.asp?ID=7532 ...](https://outerzone.co.uk/plan_details.asp?ID=7532)

[Document Page: 19](#)

### Wittman Bonzo (Bonzer Bonzo) by Cal Smith

CL Vintage Racer. Presented in "MIND THE LINES"

[https://outerzone.co.uk/plan\\_details.asp?ID=7348 ...](https://outerzone.co.uk/plan_details.asp?ID=7348)

[Document Page: 37](#)

### Broadside by Jim Woodside

Jim Woodside with his thoughts on 1/2A Team Racing. From Aeromodeller April 1979.

[https://outerzone.co.uk/plan\\_details.asp?ID=13446 ...](https://outerzone.co.uk/plan_details.asp?ID=13446)

[https://www.hippocketaeronautics.com/hpa\\_plans/det ...](https://www.hippocketaeronautics.com/hpa_plans/det)

[Document Page: 44](#)

SCALE SUPREME AT  
SHUTTLEWORTH  
Old Warden colour report

