

AERO

MODELLER



MODEL PUBLICATION

**NATIONAL
CONTROL
LINE
CHAMPS**

**MiG 25
FOXBAT
INDOOR
FLYER
PLANS**

**AUSTER
AUTOCAR
SCALE
DRAWINGS**

**MODEL
ROCKETS**



**Red Arrows
HAWK**

Control line plans

Worth £1

COMET



KIT No. 3404
Vought F4U-1
Corsair
20" Wingspan
Price £4.95



KIT No. 3403
Grumman I-16
Avenger
20" Wingspan
Price £4.95



KIT No. 3409
Meteor
21.7" Wingspan
Price £4.95



KIT No. 3406
Vultee A-35
Vengeance
20" Wingspan
Price £4.95



KIT No. 3401
Douglas SBD-3
Divebomber
20" Wingspan
Price £4.95



KIT No. 3402
Supermarine
Spitfire IX
20" Wingspan
Price £4.95



KIT No. 1624
P-51D Mustang
22" Wingspan
Price £6.95



KIT No. 3647
Sopwith Camel
32" Wingspan
Price £14.95



KIT No. 1625
ME 109
Messerschmidt
22" Wingspan
Price £6.95



KIT No. 2602
German
Albatross DV
28" Wingspan
Price £10.95



KIT No. 1620
Spitfire
19.1/2" Wingspan
Price £6.95



KIT No. 2601
British S.E. 5A
26 1/4" Wingspan
Price £10.95



KIT No. 1621
Focke Wulf
21" Wingspan
Price £6.95



KIT No. 3648
Fokker DR 1
Tri-Plane
27" Wingspan
Price £14.95



KIT No. 2603
Cessna 150
Aerobat
29" Wingspan
Price £10.95



KIT No. 3651
Piper Cherokee
235
31" Wingspan
Price £14.95

RUBBER POWERED Balsa Aircraft Kits. 60 Different Models to Choose From. Beautiful Scale Models, Many Adaptable for Electric Round the Pole — CO₂ OR IC Free Flight — Control Line — Radio Control.

SOLE U.K. DISTRIBUTOR



J. PERKINS

(Wholesale)

Toy and Model Wholesaler

STOCKISTS OF THE WIDEST RANGE OF TOYS AND MODEL GOODS

ALL AVAILABLE AT YOUR LOCAL MODEL SHOP

92-96 GREENWICH HIGH ROAD, LONDON SE10 TELEPHONE: 01-692 2451/2/ 3/4

AERO

MODELLER

NOVEMBER 1983

Publisher
Tony Dowdeswell

Graphics
Lorna Cullen

**Advertisement
Manager**
Glenn Robertson

**Advertisement
Director**
M. Gray

Editorial Director
R. G. Moulton

Managing Director
Gospatric Home

Cover

Tailless types are beginning to gain ground among vintage enthusiasts. All four designs seen here were successfully flown at the Aeromodeller Vintage day at Old Warden in August and include two examples of the Manx Monarch (foreground), Manx Queen (rear right) and wing design from the 1938 Zaic Yearbook. Inset is Bill Burkinshaws profile scale spats replica of the Red Arrows Hawk for Control Line fun-flying.

Subscriptions

Annual UK subscriptions, £11.40 Overseas £13.00 or \$26.00. Send remittances to Model & Allied Publications Ltd., Subscriptions Department, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead HP2 4SS (subscription enquiries Tel: 0442-51740). Change of address US Postmaster send address changes to Model & Allied Publications Ltd., PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts HP2 4SS, United Kingdom. U.S.A. subscription agent Joseph J. Dailedu, 4314 West 238th Street, Torrance, CA90505.



Contents Volume 48 Issue No. 574

HANGAR DOORS	Latest news from the modelling world	516
CONTROL LINE NATIONALS	Full report from Barkston Heath, including Free Flight Scale	518
KIT REVIEW	Four rubber powered models from Bentom	524
PHOTO PRIZE MODEL NEWS	Win a 'Cosina' camera with Fiar Phil	526
FREE-FLIGHT SCENE	Free Flight news and contest results	528
'BAe HAWK'	Full size plan for 1-1.5cc power	531
'FOX BAT'	Full size plan — with a difference — for rubber power	538
AIRCRAFT DESCRIBED	Scale drawings and photo reference for the Auster Autocar	539
MODEL ROCKETS	Including three scale drawings for this unusual hobby	542
'SHINDEN'	Full-size plans for a rubber powered 'canard'	545
VINTAGE CORNER	Alex Innes news on the Vintage Scene including a full report on 'Vintage Day '83'	548
SHOP TALK	New model hobby products reviewed	552

This periodical is sold subject to the following conditions that it shall not without the written consent of the publishers be lent, re-sold, hired out or otherwise disposed of by way of the Trade at a price in excess of the recommended maximum price and that it shall not be lent, re-sold, hired out or otherwise disposed of in a mutilated condition or in any unauthorised cover by way of Trade or affixed to or as part of any publication of advertising, literary or pictorial matter whatsoever.

Aeromodeller Magazine (ISSN 0001-9232) is published monthly by Model & Allied Publications Ltd., P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead HP2 4SS England. Tel: Hemel Hempstead (0442) 41221. Second class postage paid in the U.S. at New York, NY. USA Mailing Agent Eastern News Distributors Inc., 111 Eighth Avenue, New York, N.Y. 10011. Distribution to North American hobby and craft stores, museums and bookshops by Bill Dean Books Ltd., 168-41 Powells Cove Blvd., Post Office Box 68, Whitestone, NY 11357, USA. Tel: 1-212-767-8832. Distribution to news stand sales by Eastern News Distribution Inc., 111 Eighth Avenue, New York, N.Y. 10011 USA. Tel: 1-212-255-5620.

The Advertisement Manager reserves the right to refuse or suspend advertisements without giving any reason. Every care is taken to avoid mistakes, but the publishers cannot be liable in any way for clerical and printing errors, or omissions. Receipt of copy for publication implies acceptance of these conditions by the advertiser. Whilst every care is taken to exclude advertisements from doubtful sources, no responsibility can be accepted by the publishers for the bona fides of advertisers. The copyright of finished artwork originated by the publisher's printers, whether editorial or advertising, remains the property of the Publisher and may not be reproduced without permission.

Change of address, US Postmaster: Send address changes to Model & Allied Publications Ltd., P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Hertfordshire HP2 4SS, United Kingdom.

CORRESPONDENCE anticipating a reply must be accompanied by a stamped and self-addressed envelope or international reply coupon. While every care is taken no responsibility can be accepted for unsolicited manuscripts, photographs or artwork, etc. Photographs should be accompanied by negatives where possible and can only be accepted for use on an exclusive basis for British Copyright.

AEROMODELLER incorporates the MODEL AEROPLANE CONSTRUCTOR and is published on the third Friday of each month prior to date of publication.

© Copyright Model & Allied Publications 1983



Model & Allied Publications Ltd

P.O. BOX 35, WOLSEY HOUSE, WOLSEY ROAD, HEMEL
HEMPSTEAD, HERTS. HP2 4SS.

Also publishers of:
RADIO MODELLER — RADIO CONTROL MODEL & ELECTRONICS — POPULAR
CRAFTS — SCALE MODELS — MODEL ENGINEER — MODEL BOATS —
MODEL RAILWAYS — WOODWORKER — MILITARY
MODELLING — MODEL CARS — MOVIE MAKER —
PHOTOGRAPHY — CLOCKS — NEW VOYAGER



NUMBER OF THE MONTH
BUREAU OF CIRCULATIONS

Aeromodeller is printed in Great Britain by Leicester Printers Ltd., The Church Gate Press, P.O. Box 20, 99 Church Gate, Leicester LE1 9FR. Mono origination by Multiform Photosetting Ltd., Cardiff, for the Proprietors and Publishers, Model & Allied Publications Limited (a member of the Argus Press Group). Trade Sales by Argus Press Sales and Distribution Limited, 12-18 Paul Street, London EC2A 4JS.

Great value
in Radio
Control!

SANWA CLUB FM2

Cheap and cheerful is what most two-channel R/C systems are about — pretty basic stuff at a basic price. But take a look at the new SANWA CLUB FM2 and see what it has to offer. Like for instance, the transmitter reversing switches for both control functions, the output meter and L.E.D. indication, plug-in crystals and changeable neutral position on the left-hand stick.

SANWA CLUB FM2 suits either dry battery or rechargeable nicad operation and offers you all these features at a price that will really make you cheerful!

SANWA CLUB FM2 £59.95*

SANWA CLUB FM3 £65.95*

Nicad conversion kit £36.95 with charger
Extra Servo (Sanwa S394) £14.50

*Denotes
price as
supplied for
dry battery
operation.



IRVINE ENGINES LTD. Tel: 01-361 1123/4

IRVINE



SANWA

UNIT 2, BRUNSWICK INDUSTRIAL PARK, BRUNSWICK WAY, NEW SOUTHGATE, LONDON N11 1JL

SUPER SUPER TIGRE

A full list of currently available stock from your local dealer or direct if they can't (or won't) supply.

ENGINES

ST35 Combat P.D.P.	£27.12
*ST35 F1 R/C	£32.74
G21/46 STUNT W/M	£33.57
G21/46 R/C W/M	£41.82
S40 F1 R/C W/M	£46.95
S45 F1 R/C W/M	£48.95
S40 ABC F1 R/C W/M	£52.93
S45 ABC F1 R/C W/M	£54.93
ST60 F1 R/C	£50.02
*X11 F1 R/C W/M	£23.62
X15 F1 COMBAT TST	£30.18
X15 F1 R/C W/M TST	£39.39
X21 CLUB 20 W/M TST	£38.98
X21 F1 R/C W/M TST	£43.80
X21 SE CAR TST	£40.99
X21 RE CAR TS	£48.96
X25 F1 R/C W/M	£34.65
X25 F1 R/C ABC W/M	£44.49
X29 RE R1 SPEED TS	£47.48
X40 F1 R/C RE TST	£46.28
X45 F1 R/C RE TST	£50.90
X60 F1 R/C RE TS	£67.83
X61 F1 R/C RE TST	£73.15
S61 F1 R/C Ring W/M	£59.03
S61 F1 R/C ABC	£67.25
S75 F1 R/C Ring W/M	£63.33
S2000 F1 R/C	£77.95

FI = Front Induction
RI = Rear Induction
W/M = With Silencer
SE = Side Exhaust
RE = Rear Exhaust
TS = Transfers Schnuerle Port
TST = Transfer Super Tigre Port
ABC = Chromed Brass Sleeve

ACCESSORIES

S15 SILENCER X15 TO X25	£5.36
S29 SILENCER G21 SERIES & S40.45	£5.76
M56 SILENCER FITS ST60	£5.76
M60 SILENCER FITS G60	
X60 SE	£5.76
X40 45 TRANSVERSE SIL.	£4.69
X21 TUNED PIPE	£14.10
X40 45 TUNED PIPE	£14.75
X60. G60 SE TUNED PIPE & X60 RE	£19.61
STANDARD GLOW PLUG	£1.25
KW IR CI GLOW PLUG	£1.48
IDLE BAR GLOW PLUG	£1.57
X29 CAPTIVE PLUG	£1.00
NEEDLE VALVE	42p
IDLE NEEDLE	£1.15
FULL INLET R/C SPRAY BAR 3 SIZES	£3.20
STUNT SPRAY BAR 2 SIZES	£1.50
PRESSURE NIPPLE 2 SIZES	42p
CAR HEAT-SINK FITS, X21	£4.99
X21 90° MANIFOLD	£3.50
R/C CARB G20	£8.41
R/C CARB G21 X21.25	£9.60
R/C CARB X40 TO X60	£9.95
R/C SLIDE CARB SIDE & REAR X21	£18.24

No labour charges on Super Tigre repairs irrespective of age or condition.
All engines are ball-raced except where marked *
X Series motors are ABC except †

Super Tigre engines are also available from Micro-Mold stockists. Tigre, Tigre in the sky — oh how well you make my models fly!

TIGRE ENGINES, Unit 10, Paramount Estate, Sandown Road, Watford, Herts. WD2 4NV. Tel: 42859.

SAE WITH ALL ENQUIRIES

VISITORS BY APPOINTMENT ONLY

EVERY TOYMAKER HAS BEEN WAITING FOR THE



Whether you make soft toys for pleasure or profit you will find all the know-how in this super value publication. PLUS 8 full size patterns. Choose your favourite from Pepe Poodle, Eloise Elephant, Paddy the Polar Bear, Willy Whale, Mortimor Mouse, Percy Penguin, Polly Parrot and Rebecca Rabbit. Why not make them all — it's so easy to follow the clear step-by-step instructions, backed up by hints and tips on all aspects of toymaking — including that all important one of how to make money from this enjoyable craft. **On sale NOW at your newsagent price £1.95. Or in case of difficulty send direct to the publishers, add 25p for post and packaging.**



Model & Allied Publications Ltd

Wolsey House, Wolsey Road, Hemel Hempstead, Herts HP2 4SS

WOULDN'T YOU RATHER BE DREMELLING?

Whatever your modelling or hobby project there's a Dremel tool to bring your skills to life. When you're using Dremel – the finest range of mains voltage power tools – there's no limit to the jobs you can do – no limit to your imagination and creativity.

WITH A DREMEL POWER TOOL

576 JIGSAW

738 DISC/BELT SANDER

580 TABLE SAW

2214 D-VISE

292 ENGRAVER

The Dremel Moto-Tool Kit. Almost a complete workshop in itself – complete with 35 accessories for cutting, carving, polishing, grinding, filing, de-burring and engraving. Router attachment and drill stand also available.

0 2509 CONSTANT SPEED MOTO-TOOL KIT £58.00

0 359 VARIABLE SPEED KIT £75.70

MAKE IT WITH MICROFLAME

Ring or write for further information and name of local stockist.

Sole U.K. Distributors
Microflame (UK) Ltd.,
Vinces Road, Diss, Norfolk, IP22 3HQ.
Tel: (0379) 4813/4/5 Telex: 97492 G

NAV-LITE[®]

ANTI-COLLISION STROBE LIGHTING



DESIGNED AND MANUFACTURED IN THE U.K.

- ★ Features
SINGLE CHIP LOGIC CONTROL
- ★ 5mm L.E.D. INDICATORS
- ★ ANTI-PHASE SEQUENCE

- ★ FREQUENCY AT 1Hz
- ★ LOW POWER CONSUMPTION
- ★ NO SOLDERING REQUIRED

NAV-LITE[®]

For complete real time miniature display lighting!!
FOR FURTHER DETAILS SEE YOUR LOCAL MODEL SHOP

ELECTRONIC MICRO-SYSTEMS, 5 Oak Tree Place, Chestnut Lane, Amersham, Bucks. HP6 6LH. Telephone: (02403) 21671

DAV = CAL
LIMITED
 HILL'S MEADOW, DOUGLAS, ISLE OF MAN.
 Tel: (0624) 4224

QUICKSTART PRODUCTS

DART 0.5cc Aero	£13.30
MERLIN 0.75cc Aero	£12.20
SPITFIRE 1.00cc Aero	£13.60
SABRE 1.5cc Aero	£13.99
<i>(incl. VAT)</i>	

BRITISH DESIGNED & MANUFACTURED.
 Use the best handles for your flying.
 D.C. all-metal control-line handle only
£2.87.
Spares available all engines.

NOW AVAILABLE: **SILENCER UNIT FOR YOUR DART ENGINE - ALSO . . .**
RADIAL MOUNTING PLATE

Write or Phone:
DAV-CAL LTD., HILL'S MEADOW, DOUGLAS,
 ISLE OF MAN. Tel: (0624) 4224

Have fun with a DPR MODEL



THROWLEY PRIMARY SCHOOL, FAVERSHAM, KENT

OFF TO A FLYING START WITH D.P.R. MODELS!

A new generation of complete, top quality balsa wood kits for today's young enthusiast!

Available from Hamleys, Beatties, Taylor & McKenna and all leading model stockists.

NEW 'HYPER CUB' AVAILABLE SOON! . . .

D.P.R. Models, Unit 9, The Vanguards,
 Vanguard Way, Shoeburyness, Essex. SS3 9QY.
 Tel: (03708) 5110



**HIGH PERFORMANCE MODELS
 EASY TO BUILD AND FLY**

RADIO CONTROL AIRCRAFT Extra £1.75

Colours can work for you

Covering Materials

Flight

Value £1.50!

Mini-Eros

Selecting the Engine

Schneider Trophy

Black Beauty

JET! T

Vintage R/C Assist

PACKED!



72 Pages — 3 Plans
FIFTEEN FEATURES FOR THE SPORTSMAN with a vintage theme. Plus the latest on Engine Selection, Covering, Jets, Schneider racers, Pushers and Electric Flight with **FULL-SIZE PLANS** for **MINI-EROS**, a two-function half-size version of the '50s favourite. **PATTERN PARTS** for The **Gladiator**, a 1940 champion, with R/C assist and **Black Beauty**, a 10cc 80in. wing-span enlargement of **Black Magic**.

At your local Model Shop or in case of difficulty send direct, add 25p p&p.

ANOTHER WINNER FROM



Model & Allied Publications Ltd

P.O. BOX 35, WOLSEY HOUSE, WOLSEY ROAD, HEMEL HEMPSTEAD, HERTS. HP2 4SS. Tel: 0442 41221



RIPMAX FUTABA

2MR

LOW COST DRYCELL COMBO

**INCLUDING
SERVO
REVERSERS**

Yes — another breakthrough from RIPMAX Futaba Custom Electronics — continuing their world wide reputation for top Quality Performance — and RELIABILITY. In a smart new Transmitter style designed to appeal to all types of modellers. Neat, functional carrying handle. Offset telescopic aerial. Properly positioned twin sticks with separate trim. Battery indicator. Front Crystal access. And — saving the best to the last — **SERVO REVERSE** switching on both channels. To go with it is the R102GS receiver and two new S128 induct-drive servos. And of course, you get all the usual Futaba extras such as battery box, wiring harness with switch in a very complete Drycell outfit. So if you want to update your 2 channel radio equipment at a really affordable price, the **2MR OUTFIT** is the **only** logical choice. A best buy too if you are just starting in radio. Ask about the low cost L Series Drycell Combos also. Available at all Ripmax stockists.



For all those Fine cutting jobs



SWANN-MORTON C10 CRAFT BLADES

OBTAINABLE FROM MOST GRAPHIC ART SUPPLY STORES

MAINLINK SYSTEMS

**MAIN LINK SYSTEMS
HOME FARM HOUSE,
HORNE LANE, POTTON,
BEDS. Tel: 0767 80860**

LOST MODEL BLEEPER



Don't say that you don't lose models in long grass from time to time. This unit has been primarily designed for use with radio control but we now offer it with simple PP3 type connector for the **FREEFLIGHTER**. It will sound a clear pulsed high pitched tone that can be heard over long distances. With it, C use it normally runs via the receiver and only starts pulsing when the transmitter is switched off. The electronics for this is contained inside so that the bleeper can be altered at a later stage if this is required. It is easily mounted in any convenient place as long as the bleeper hole shows externally. Also Top Quality Std. No. Gads AA size 90p each 85p 5 to 10 off. Sub. C size £1.90 each £1.85 5 to 10 off. Send SAE for further information or phone (0767) 80860.

Now Available 1983-84 EDITION

Up-to-date edition includes latest designs described and illustrated.

SAVE MONEY WITH OUR SPECIAL SUPER SAVER COUPONS



PRICE 95p PLUS 30p P&P (Overseas accelerated surface post 65p)

MODEL & ALLIED PUBLICATIONS LTD
Sales Dept. P.O. Box 35,
Wolsey House, Wolsey Road,
Hemel Hempstead, HP2 4SS.
Delivery 21 days

To: MODEL & ALLIED PUBLICATIONS LTD, Sales Dept. P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, HP2 4SS.

Please supply _____ copies of Plans Handbook No. _____
NAME _____
ADDRESS _____

INDOOR FLYING

THIS IS A NEW REDESIGNED HELLDIVER, WINGSPAN 508mm. CATALOGUE No. 4578. IT HAS A COMPLETELY NEW PLAN AND INSTRUCTIONS AND CAREFULLY RE-SHAPED DIECUT PARTS. COMES COMPLETE WITH WHEELS, UNDER CARRIAGE, TISSUE, BALSA CEMENT AND DECALS. IN THE RIGHT HANDS IT IS AEROBATIC. AVAILABLE FROM ALL GOOD MODEL SHOPS. PRICE £3.95. RECOMMENDED MOTOR 4551.



THERE ARE NO DIFFICULT NOISY ENGINES TO START NO EXPENSIVE FUEL TO BUY AND ITS QUIET AND POLLUTION FREE. MAIL ORDER CATALOGUE AND GUIDE £1 UK OR OVERSEAS INC. P&P YOU CAN START FOR AS LITTLE AS £12.50. ALL ENQUIRIES S.A.E. TRADE ENQUIRIES WELCOME.

Try Night Flying with the RTP Lighting outfit Cat. No. 4529 95p.

BALLARD'S R.T.P.

(INCORPORATING HARRY BUTTLER MODELS)

54 Grosvenor Road, Tunbridge Wells, Kent. TN1 2AS. Tel: 0892 31803



Right: Woodvale '83 had a magnificent gathering of scale subjects, the majority being large with engines of 35cc and over. Roy Godfrey's Stosser in the foreground has a Tartan Twin inside its cowling.
Below right: The Radio Control Aircraft Extra A must for the shelf of every Aeromodeller.

"le Grand Fête" de l'aeromodelisme

700 participants from 43 regions of France went to Courbessac, Nimes for "le Grand Fête" de l'aeromodelisme in July. We were intrigued. The event was widely reported yet it is not the regular 'Nats'. The winners appeared to be Juniors and the models fairly simple. So we enquired. It transpired this was a National assembly of French youngsters brought together by the Centre laique de l'Aviation Populaire (CLAP) Wonderful! So we asked why — when the FFAM has gone over 10,000 membership and French Junior activity seems to be at a higher proportion than in other Nations, should the modelling magazines and newsletters from France show concern over the future of aeromodelling, especially free flight and control-line? We're told on good authority that although the schools programme is excellent and the annual fete is well supported very few of these juniors carry on with modelling as a hobby after having it as part of their school programme. Hardly credible yet understandably, the French situation reflects the difficulty of recruitment amongst younger people which exists throughout the world.

Woodvale '83

Woodvale '83 was the biggest, warmest, best run yet in its long series. Police reports estimate an attendance of over 80,000 and with hardly a square foot of the airfield left unoccupied we can believe it. What started as a model show now embraces a big funfair, flea market, craft stands, vintage vehicles of all kinds plus a hangar full of model stands and a big air display. Microlights were part of the show this year, John Bridge among those showing how the



Radio Control Aircraft Extra

Latest Special Edition in the M.A.P. series is RADIO CONTROL AIRCRAFT EXTRA now on sale at £1.75. Introducing a vintage theme, it carries full-size plans for Mini-Eros, a half scale version of the favourite of the '50s. The 42" span mini-model has been specially designed by David Boddington to fly on the power of a 75cc engine with 2 function R/C. Full size pattern parts for another famous vintage design, The Gladiator, Maurice Schoenbrun's Champion of 1940

in the U.S., is for up to 10cc power and R/C assist, whilst the third design is Black Beauty, an 80" span enlargement of Fred Hemsall's classic free flight design.

Backed up by specially commissioned features on learning to land, selecting the engine, getting started in R/C soaring and dealing with those perpetual problem areas for the novice, covering, colouring and dealing with vibration, this is a fact-filled package which should be on every aeromodeller's shelf.

Actual on-sale is now October 7th.

rag-wings can float by in formation, and the Tiger Cub biplane — covered in Solartex no less — made its Woodvale debut. Among the models which ranged from the big HP24 by Pete Neate to the 200+ mph Dutch Jets, was a fine range of scale types which entertained the vast crowd.

End of Season Vintage & Electric Meeting

Difficulties in finding a suitable venue until the very last minute have prevented the SMAE South Midland Area from providing details of their Vintage and Electric fly-in until now. Thanks to the generosity of the Shuttleworth Management, Old Warden Airfield has been made available for Sunday October 23rd.

Both Vintage and Electric power enthusiasts will be sure of a welcome from the S. Midland area organisers and it is expected that some simple impromptu events will be run on the day. Admission to the airfield is free, a charge will be made for entrance to the Shuttleworth Collection however. Old Warden Airfield is situated at Old Warden, Beds., off the Bedford to Biggleswade Road.

SMAE/EVER READY BRITISH NATIONALS PRIZE DRAW

Prize	Winners Name and Address	Donated by
1st	Mrs. M. Dixon, 5 Milton Road, Branton, Doncaster DN3 3NX	Mick Reeves
2nd	Mrs. E. Beaven, 27 Monk Road, Bishopston, Bristol, BS7 8LE	PRM
3rd	Mr. D. Cleobury, 36 Silkstone Crescent, Kettlethorpe, Wakefield WF2 7EX	Balsa Cabin
4th	RS Hanson, Lochnagar, Main Street, Craiselound, Haxey, Nr Doncaster, S. Yorks.	Model Land
5th	Mr. D.D. Martin, 4 Wells Close, Washingborough, Lincoln.	Inwood
6th	Miss S. J. Whiteley, 6 Harrowby Lane, Grantham, Lincs	Sloec
7th	Mr. M. Clews, 46 Castle Hill, Maidenhead, Berks	DPR Models
8th	Mr. I. J. Taylor, 139 Grampian Way, Thorne, Doncaster, South Yorks.	Leicester Model Centre
9th	Mr. D. P. Benstead, 38 Church Lane, Heacham, Kings Lynn, Norfolk PE31 7HJ	Star Electronics
10th	F. G. Coleman, 10 Beech Avenue, Bourne, Lincs. PE10 9RW	ABC Models
11th	AVG Hagedorn, 50 Spring Grove, Loughton, Essex, IG10 4QD	SMAE/Inwood
12th	Mr. T. Myers, 21 Somerset Road, RAF Wyton, Huntingdon, Cambs	Vintage Models
13th	Mr. B. Richards, 10 Talls Lane, Fenstanton, Huntingdon, Cambs	Ben Buckle
14th	P. Bailey, 65 Welby Lane, Melton Mowbray, Leics.	Stag Models
15th	S. Knox, 'Fairfields', Gipsy Drove, Gipsy Bridge, Boston, Lincs PE22 7DB	Southern Model Craft
16th	Mr. G. Davison, 38 Windmill Court, Templemere, Sprowston, Norwich	Sky Leader
17th	Mr. C. Fearnley, 28 Eskdale Road, Grantham, Lincs	Don Stothers
18th	Mr. B. Gray, 160 Havelock Road, Brighton, Sussex	Irene's Wool & Knitwear
19th	Mr. C. Pask, 'Chetwynd' Barrowden Road, Ketton, Stamford, Lincs.	SMAE Inwood
20th	A. R. Parker, 17a Fennel Street, Loughborough, Leicestershire	Gills Jewellery
21st	Mr. M. Chapman, 9 New Station Road, Bolsover, Chesterfield, Derbyshire	D & D Models
22nd	Mr. H. Smith, 13 Oak Drive, Wheaton Aston, Staffs ST19 9PS	D & D Models

What's On .

October 16 **SUPERGLOV CHUCKIE CHAMPS' FINALS**. Middleton Hall Milton Keynes Central Details from DPR Models, Unit 9 The Vanguards, Vanguard Way Shoeburyness, Essex O3708 5110

October 16 **FIREBIRDS M.C. AUTUMN R/C FLY-IN**. Fairthorns Manor, Botley, Hants. Entry £1.00 per flyer on day. Proof of insurance is required. Refreshments available. For details contact Lou Fisher, Southampton (0703) 692784

October 23 **THIRD WITCHFORD MEETING**. FAI and Mini start 0930 and including the Croydon Wakefield Cup. Contact: Newham Beaumont Tel 01 393-4398

October 28-30 **SOUTH MANCHESTER MODELS GROUP EXHIBITION**. Aircraft, boats, railways, ships, trams and engineering. Free car parking. Venue: Blessed Thomas Holford School, Urban Road, Altrincham, Cheshire. Details: Mr B. Billington, 18 Cholmondeley Ave., West Timperley, Altrincham, Cheshire WA14 5BB

October 30 **CENTRALISED MINI CONTEST A 1 GLIDER, COUPE D'HIVER, A POWER HLG. CO**. Contact: Dave Hipperson Tel 01 207 0179

November 6 **NYFFG FREE FLIGHT MEETING**. Lindholme. Further details from Dave Hipperson 35 Anthony Road, Boreham Wood, Herts

November 12-13 **2nd FREE FLIGHT EUROPEAN CHAMPS TRIALS** (10 flights). Sculthorpe. Further details from Dave Hipperson 35 Anthony Road, Boreham Wood, Herts

November 27 **ANGLIA WAKEFIELD DAY**, Watton. Further details contact Dave Hipperson Phone 01-207-0179

December 4 **AEROMODELLER COUPE D'HIVER INTERNATIONAL**. Venue: RAF Henlow. Further details contact Aeromodeller, PO Box 35, Wolsley House, Wolsley Road, Hemel Hempstead, Herts HP2 4SS

EVENTS

December **MODEL ENGINEER EXHIBITION**. Venue: Wembley Conference Centre. See full page advertisement in this issue. Contact: Exhibitions Department MAP Ltd., PO Box 35, Wolsley House, Wolsley Road, Hemel Hempstead, Herts HP2 4SS



Right: Max Coote, shown below beside G-ATOV, formerly the ex-Sheila Scott world record holding Piper Comanche.

Max Coote

✝ Aeromodelling lost a good friend on August 25th with the passing of Max Coote at the early age of 56. His were packed years of innovation and adventure, which saw their beginnings in an association with C. A. Rippon to establish the RipMax model shop at Camden Town, North London. The partnership was ideal. 'Rip', the fatherly figure whose advice was revered, and Max the then young lad anxious to make his mark and full of bright ideas. RipMax accessories came out of their back room; marine parts, gears, and many components that are still listed in the present RipMax Handbook. We began to see 'Max' with everything. Maxflash ignition coils, V-Max solid fuels through to Digi Max, the first of the Futaba R/C imports. When the wholesale business grew at Kentish Town it carried many 'firsts' in its inventory. Araldite for the model trade, MacGregor Kits for radio equipment, the Telecommander, Fenner-Pike servos, Deacs, Devcon, Grundig R/C and his own Pathfinder, the first ever sealed receiver were among a host of pioneering launches.

It wasn't only in the model trade that Max became so well-known. As a private pilot he won rallies, was President and Secretary in turn of the Elstree Aero Club, and his pride was first G-ATOV the ex-Sheila Scott world record holding Piper Comanche and then G-MAXY a Cessna Centurion which he ferried back from the USA over the northern route. The planes were closely linked with his business, taking him to the Graupner factory in

Germany; escorting those historic Channel crossing R/C helicopters; livening up proceedings at the Sywell Expos and, less happily, making national headlines in two breathtaking incidents, the first of which destroyed TOY (now preserved at the Scottish Air Museum, East Fortune) without so much as a scratch on lucky Max.

Generous and always the absolute gentleman, Max presented numerous trophies, among them the most prestigious awards for R/C Scale, A/1 Glider and Helicopter in the annual SMAE events. These, like the purpose-built premises at RipMax Corner, Green Street, Enfield will remain a tribute to his great character. We shall remember him for his magnanimity in argument — not that it represented any more than 2% of our time together — but really because having presented a case

forcefully, win or lose, there was always a clear and positive conclusion free of recrimination. Sometimes these rare clashes became humorous in hindsight, such as the time in '56 when R/C was still on the brink of even 50% reliability and Howard Boys dared to say he wouldn't touch the RipMax A30 relay with a barge pole. Max's masterly response, and the independent test he commissioned, filled a page in the next issue. Needless to relate, a lot of A30s sold as a result of the publicity! This was typical of Max's business acumen as well as his gifted foresight which brought him vital agencies and enabled many other manufacturers in the UK to launch themselves successfully with his support. They, like ourselves, will miss him greatly. We are sure that all readers will join in extending sympathy to Joy, and the sons Clive, Timothy and Simon in their sad loss.



Control-line NATIONALS

with
Free-Flight
Scale

RAF BARKSTON HEATH
August 27/28/29th

Racing events by Dave Clarkson

Goodyear, Novice Goodyear and Class 2 Goodyear

Goodyear was intended to be the way into CI racing for beginners and so it was until the arrival of Rossi glows in the mid-70s when nitro, heads and speed brought out the experts. Once experts take hold of a class, they don't let go despite the major rule change a few years ago enforcing 2.5cc diesels only. Indeed it can be argued that 2.5cc diesels only make it more of an expert event because bhp and model drag assume prime importance. Therefore the SMAE has introduced both Novice and Class 2 Goodyear and the finals for these, as well as that for Open Goodyear are reported on here. It is sad that Class 2 Goodyear only attracted three entries for there can be no more suitable event for newcomers — maybe there are no newcomers any more!

Open Goodyear started well with a protest before the racing had commenced. The protest concerned the notes supplied before the contest to all competitors which stated that models must be refuelled at all pitstops. A jury considered the protest and found that the current SMAE rules do not so require and therefore it was ruled that the 'no-refuel pitstop' is legal.

The shock in the heats was airspeed, for lots of it is now about. Only two of the entrants had less than 90mph airspeed whilst no less than nine were doing over 100mph. Top of the heap, comfortably, in the airspeed stakes was Allcock/Myska repeatedly timed in traffic at 115mph and better, however their restarts were in another class and so the 3:40 Goodyear heat time is yet to come. Those with better than 105mph were the contenders and of them only Clarkson/Needham failed to make the semi-finals, being stopped by a line-tangle and then two broken motors when on track each time with both stops down to near or sub four minute times. That is the excitement of Goodyear as Nationals after Nationals has shown — good character building stuff.

Two rounds of semi-finals were run as now permitted by the SMAE rules and the eventual winners needed both attempts plus a re-flight to get into the final. It was in their second semi that Andrews/Horwood became the first people to break the four minute barrier ever in 2.5cc diesel-only Goodyear with a new record of 3:57.8, but the 'Nationals Jinx' continued when Bob Horwood had to replace his wheel during the final. Quite the fastest wheel change ever seen but not really necessary when good, reliable wheels are available at low prices.

Equally jinxed were Green/Malcolm who had recorded the second quickest qualifier in 4:03.6 for their fuselage broke in the classic place in the final. So Catlow/Jephcott won again and to make their day and top out a fine contest, it was in a record-breaking time.

1. Catlow/Jephcott (Loughborough)8:29.0
2. Andrews/Horwood (S. Bristol).....8:49.0
3. Green/Malcolm (Ipswich)..... rtd.
Before this open final was run there came the **Novice Final**. Novice finalists are selected from the open entry on the basis of the three fastest novices, i.e. those with less than ten points in the cumulative lists prepared by John Horton. In historical recording it is always possible that people qualify as novices only because of minimal participation. Two teams who had qualified for the novice final withdrew because they did not consider themselves true novices being in their own view artificial novices. Such sportsmanship is to be applauded and so we were treated to a proper novice final which resulted in the Novice Trophy going north of the border for the first time.

1. Crossier/McAlpine (Hamilton)9:10.0
2. Broadhead/Worgon (Cheltenham).....10:31.4
3. Barker/Tomkins (RAF MAA)10:39.3
Class 2 Goodyear rules differ from open Goodyear, aimed at reducing costs. These mean a PAW 249S and not Nelson 15D FI is 'the' motor. Low technology models are also required viz. external controls and an external bent wire under-curt. Why the low technology theme is not continued to include bottle refuelling and commercially obtainable props remain a mystery for refuelling methodology and FRP prop. carving are the two highest technology aspects of Goodyear models. Of the three entrants, the eventual winner exploited these omissions to the best advantage and finished clearly in front of what seems at the moment a south-western



Right: Peter Jephcott and John Catlow's winning Goodyear racer.
Below: Winners of Novice Goodyear, Kerr Crozier and Ian McAlpine from Hamilton, Scotland with their Rossi RV powered Argander Special.



speciality.
1. Andrews/Horwood (S. Bristol).....11:43.3
2. Taylor/May (S. Bristol).....13:44.0
3. Broadhead/Worgon (Cheltenham).....14:12.8
Class 2 Goodyear shows real promise of being the sort of Goodyear many of our current top racing participants learnt their trade in — in other words late 60s/early 70s Goodyear. For the good of CI racing's future, its rules should be modified in the light of this their first national usage and then participation encouraged to the maximum extent. Anyone who can fly a slow Goodyear model or restart a hot PAW 249 has got to have talent!

RAFMAA Trophy — 1/2A Team Race

As the class title suggests, 1/2A team race is all about smallness: small models, small lines and





Left: Winners of the 1/2 A team race Ev Davies and Dave Banks with the RAF MAA organisers, Sqn. Ldr. Graham Collins, Chf. Tech. George Bennett, Chf. Tech. Tony Buckingham, Cpl. Chris Hinsliffe, Mrs. Fran Hinsliffe and Daniel Collins, who did a great job in a highly competitive event. Right: Winners yet again - of the FAI team racing were Colin Brown and Steve Smith - just the same as last year except for the addition of a few extra processing stamps.



small motors. So it was no surprise that this year many little jewels of models and motors were present, typified by Donald Haworth's heat record breaker and Dave Banks' final record breaker, both beautifully constructed and engineered. Perhaps symptomatic of the devotion that 1/2 A team race attracts was the fact that at this year's Nationals, it was the only CI racing event that was fully staffed in its organisation by non-competitors. The RAFMAA deserves every compliment for this service.

The standards in the heats both in terms of conduct and results was this year perhaps the highest of all of the racing classes and the semi-final qualifying cut-off time of 4:11.0 was the highest yet. Indeed no less than five teams broke the 4 minute barrier headed by Davies Banks with an incredible 3:45. Next fastest semi-final qualifiers were Rudd King with an Oliver Cub Schnuerle powered APS *Broadside* with good air-speed and over 60 laps range — some good work obviously done on that motor to get a 3:56. Strangely the 'masters' of 1/2 A team race could only qualify third quickest. John Horton and Donald Haworth were two-stopping their heats for a change and a 3:56 was their best.

In the semi-finals, the 'masters', John and Donald, improved significantly to record a new heat record of 3:51.2 using Donald's home built jewel of a motor in a 900mm span high aspect ratio wing model with a tiny, anhedral tail. They were very closely followed into the final by Davies Banks and O'Neil Bollen who both used diesel converted Webra 'Speedy' motors. The first in standard FI form whilst Taffy bollen's conversion included change to reed-valve form by inserting a turned-down K&B 15S backplate into a bored-out case.

In the final, Donald's motor got a bit hot resulting in reducing airspeed plus one backwards start, not helped by its reed-valve induction. O'Neil Bollen did not have enough range so had to do an extra stop. Davies Banks had more than enough range for they were able to use a 50-lap schedule to three-stop the final and this gave them the victory and a new finals record. Their range was a surprise even to them for in pre-final practice they found only 42 laps which for them was more than usual no doubt aided by abandoning their Schippers multi-function valve and changing to an 'old-fashioned' tube-crusher shut-off and tank valve refuelling — old fashioned maybe but it doesn't leak!

1. Davies Banks (Tynemouth Feltham).....7:42.0
2. O'Neil Bollen (Elliott).....8:15.4
3. Horton Haworth (Wharfedale).....8:29.8

Davies 'A' Trophy — FAI Class F2C Team Race

In the last year for 7cc tanks and with the daunting prospect of 5cc tanks almost upon us, it was strange that one of the features of FAI team race at this year's Nationals should have been total effect directed at airspeed with little regard for range. Thus the winner's Cipolla wore a 5.0mm dia. venturi resulting in three-stop heats and a seven-stop final. Only the also-rans had oodles of range: there must be a message here. In contrast to recent years, the semi-finals were not a Nelson benefit for one of the nine teams involved used a

Cipolla and two of the Nelson users had 'cottage industry' parts on board. Time for a new motor, Henry?

The first round of heats were on a hot, sunny, calm afternoon, whilst the second round of heats were on a cold, cloudy, windy morning so all of the quick times should have been in the first round. Not so, for past UK team members Smith/Brown and Fry/Thorpe but definitely so for Heaton/Woodside who did the fastest heat time of 3:33 in their first round. If Jim Woodside's groundwork was as spectacularly fast as Colin Brown's or Nigel Thorp's, then this would have been a new heat record. F2C is the 'Blue Riband' event because it has the highest performance standards, so little things like this matter.

FAI team race at the Nationals consists of three competitions. The first is in the heats which serve to separate the 'men' from the 'boys' and this year

Right: Winners of Class B' team racing were Ron Tribe, Gordon Yeldham and Taff Bollen with their OPS29 powered model, using one of Ron's own carbon-fibre props.



Below: Second in the 1/2 A team racing were Peter O'Neill and Taff Bollen in a very close finish. They used a dieselised Webra 1.6 with a Daly sleeve.



a 3:59.6 semi-final qualifying cut off time saw that efficiently done. It all starts again in the semi-finals where the men's 'bottle' is tested and some very hard flying can be seen — a real test for the jury. The jury was well tested this time for in a first round semi-final an incident occurred that resulted in Wilson Gardener's model, lines and handle clouting the jury tower very closely missing packed spectators. A meeting of the SMAE CL committee reviewed the incident but issued no disqualification from the contest — a disqualification many thought should have taken place. Fortunately no-one was hurt and Wilson/Gardener's model survived amazingly undamaged. Heaton/Woodside again headed the survivors with a 3:34 followed by Smith/Brown and Wilson/Gardener both with 3:42.1. It is some contest when a 3:24.4 is not good enough for the final as Langworth/Broadhead found.

So we had three teams of 'men with bottle' for the final. Team Cipolla UK of Neptune and Gnome and the Northern threats of Wilson/Gardener using a Nelson-type Nelson and Heaton/Woodside using an Acme/Haworth Nelson, the first having the least range and the last just the mos airspeed. A little too much compression for Jim and Derek versus very hard flying by Steve Smith coupled with amazing groundwork by Colin Brown saw these last two to victory by the tiniest of margins. To top their disappointment, Jim and Derek's model was reduced to kit form by the tarmac after they had finished. F2C is a hard game!

1. Smith Brown (Feltham).....7:26.0
2. Heaton Woodside (Widnes/cm).....7:28.0
3. Wilson Gardener (Tynemouth).....7:44.8

Davies 'B' Trophy — B Team Race

If 1/2 A Team Race is the nicest of the CI racing classes, then B Team Race is the nastiest. Not nasty in terms of organisation or competition but nasty in terms of what the models do — particularly to their pilots. To survive a race without crashing or having a stroke seems the prime requirement for the pilots and this must give



Left: Peter Miller from Glasgow has given his entry in the Novice Stunt the 'Typhoon' look. It's Enya 45 powered, weighs 48ozs. and, believe it or not, is tissue covered although beautifully finished with rivets and panel lines on the camouflage.
Right: Winner of the Gold Trophy, Bill Draper and his Super Hawk. Plans in Aeromodeller soon!



rise for concern. The present rules do not help for the line length of 17.69 metres is short and the noise limit means tuned pipes for full capacity motors. Three-up racing at rotation times of around 2 sec. using models weighing around 900gm (i.e. line tensions above 20kg) puts immense stress on pilots and consideration must be given to reducing this. As things are, only a few competitors seem prepared to indulge in Class B Team Race and so the entry this year was just nine, which meant no semi-finals for the two rounds of heats were in effect the semi-finals.

The heats quickly showed who would be in the final for enough 'hares' were working well to make the 'tortoises' non-competitive. By 'hares' is meant the tuned pipe OPS 29 RV powered blood stirrers as opposed to 2.6cc diesel powered FAI models. Fastest of all were Tribe Yeldham with a new record of 3:16.4 followed at respectable distances by past Nationals winners Wilson Gardener and Joe Myska. Both these latter two were set-up for range than speed and both hoped to 2-stop the final. No such moderation applied to Tribe Yeldham who had set-up for speed, speed and more speed, thus in their record run their motor ran out on laps 45 and 91. They reproduced their high speed and just adequate range for a 3-stop final and their speed gave them victory for the other two did not quite make their stop schedules.

1. Tribe Yeldham (Elliott).....	6:59.5
2. Wilson Gardener (Tynemouth).....	8:00.4
3. Allcock Myska (Bilston).....	177 laps

Gold Trophy – Aerobatics by Glen Alison

Entry was down on recent years with only 32 flyers. One reason was that, unusually we had no foreign entries this year (where were you Claus?), and another was that a few flyers were heard to grumble about the sharp rise in entry fees. These days it takes money to run a large competition with two circles, four judges, etc. and those facts are present however many entries there are. The low entry definitely reduced the atmosphere of the event.

Flying started on Saturday in glorious sunshine with just the hint of a breeze, beautiful flying weather and some high scores were recorded. The euphoric mood did not last for long however, as it was soon noticed that there was a severe bias by one of the judges against certain flyers, with scores varying by up to 230 points between them on some flights. Such a situation could not be allowed to continue and an official protest was made and upheld. The big question then was to decide how to continue, as this was only Saturday lunchtime. After much discussion and a few heated words the competition was allowed to continue as it was, but with the purpose of only deciding the top 15 for the fly-off. This meant that there would be no "carry over" scores and the fly-off would effectively be a separate one circle contest on its own. In order to eliminate any bias there were to be five judges with the highest and lowest scores scrapped and only the middle three to count, as in international events.

The most beautiful and well finished model was flown by Maurycy Lange, a Pole who has recently come to live in England. His model is based on a

Nationals C/L Speed Handicap Results (22 flew)

1. J. Allcock Myszka	Bilston	.09	Webra	130.82mph	103.27%
2. F. Chambers	Bilston	21N	OPS21	152.7mph	102.11%
3. D. Brewin	Feltham	21N	KB21	151.25mph	101.15%
4. G. Paige Radcliffe	Feltham	F.40	OS40	172.74mph	100.77%
5. P. Eisner	Feltham	FAI	Rossi	155.78mph	98.82%
6. M. Billinton	Elliott	60	OS61	196.06mph	97.72%
7. M. Radcliffe	Elmbridge	60	OS61	195.03mph	97.21%
8. R. Miles	Feltham	F.40	KB42	164.98mph	96.24%
9. P. Eisner	Feltham	.15	Rossi	175.18mph	95.54%
10. R. McGladdery	Feltham	FAI	Rossi	150.04mph	95.17%



Right: Mike Billinton's 60 powered control-line speed model, fastest in the 10cc category. Below: Geoff Paige of Feltham club set new record in formula .40 class control-line speed at 172.7mph.

Nationals C/L Speed Class Results

.049	— K. Morrissey.....	78.08
.09	— J. Allcock Myszka.....	130.32
.15	— P. Eisner.....	175.18
FAI	— P. Eisner.....	155.78
	— D. McGladdery.....	150.04
	— D. Smith.....	149.24
21N	— F. Chambers.....	152.7
	— D. Brewin.....	151.24
	— G. Bryant.....	138.09
.29	— D. McGladdery.....	163.65
	— I. Skinner.....	158.88
	— P. Rose Smith.....	137.92
	— D. Roberts.....	131.36
F40	— G. Paige Radcliffe.....	172.74
	— D. Miles.....	164.98
	— K. Morrissey.....	152.18
	— P. Grange.....	148.74
.40	— D. Miles.....	169.21
	— P. Grange.....	154.6
.60	— M. Billinton.....	196.06
	— M. Radcliffe.....	195.03
	— R. Cox.....	186.73





Left: Winner of Profile Carrier, Norman Ashford of Broadlands, chose the Sea Harrier as his inspiration, using flaps and coupled aileron. Powered by a HP40, it has a speed range of 13 to 18 m.p.h. Right: Winner of Open Carrier, Bryan Youngs with his Grumman Guardian.



Genesis foam wing and decorated in the American style with lots of detail had an HP 40 for power and he was unlucky not to reach the fly-off by having an engine cut in the cloverleaf. An unusual model in the old fashioned style of the 50s was the light-weight clear tissue covered design of Tony Eifflaender powered by one of his own new PAW 29, 5cc diesels, which ran beautifully. There was nothing old-fashioned about the flying however, and he did very well eventually placing ninth. There was the Irish Stunt team of Mitchell Shaw, Maurice Doyle and John Hamilton who reached the fly-off with his *Genette* design placing eighth. Peter Iliffe who has been having engine problems all season got it all together at last and flew his immaculate *Genesis* into seventh position.

In complete contrast to Saturday, Sunday was dull and a howling gale blew all day so hardly anybody managed to improve on their scores. In fact quite a few decided not to bother if they thought they were assured of a place in the fly-off. So the positions from 16 downwards were confirmed and it was decided by a vote of the remaining flyers that Monday's fly-off should be a two rounder, with the best flight to decide the winner. The judges John Harley, Mick Harvey, Jim Lambert, and Paul Concannon were joined by volunteer Reg Lowe for the last day. Our luck with the weather, which changed yet again and although overcast, it was calm, providing perfect stunt conditions and the flying was started by Dave Day with his Merco 35 *Nobler*. Contest nerves got to Arthur Tipper as he forgot his hourglass manoeuvre, very expensive on points. It can happen to all of us when we try too hard and I clipped the ground during a triangle losing a wheel tyre and of course the whole flight score through the 'jettisoning' rule.

The second round was flown in reverse order and the tension was starting to build as one or two flyers were in 'unexpected' places. European team member Peter Coates was lying 2nd at this point to Bill Draper. As the round progressed very few flyers actually improved on their first round scores. Bill remained in the lead, his biggest challengers were at the end of the round being Neville Dickinson and then previous winner Barry Robinson. In the end neither quite managed to equal Bill's first round score and so once again the Gold Trophy was his.

Navy Carrier Report by Norman Ashford

Each contestant was given the opportunity to put in two flights on each of the three days. The highest scoring flights of each day being added together to decide the overall winner in each class.

Seven competitors fought out **Open Carrier**, two flying profile models and thus forfeiting their 100 scale bonus points. From the first day it was clear that Bryan Youngs (Broadlands) was the man to beat. In the fair weather of Saturday he achieved 518 points with 77mph fast, 16mph slow, 100 landing and in Sunday's rough weather could still achieve 512 (77 17 100), the way he held his *Grumman Guardian* at a 60° angle of attack throughout the slow run with the motor at about three quarter power was a joy to behold. With a good flight on the Monday he took first place. Second was Vaughan Miller (Feltham) whose now overweight *Mitsubishi Kate* could not get below

27mph on the slow run and I brought up the rear with a profile model.

Profile Carrier had ten entrants and was flown to a maximum of 75mph for the fast run. At the end of the first day's flying, eight competitors had got back on board ship, your reporter with 412 (75 16 100), while Derek bird (*Three Kings*) had identical flight scores with Bryan Youngs, 405 (74 18 100) and Peter O'Sullivan (Witham) was fourth with 403. In the 'weather' of Sunday, Bryan Youngs mastered the rough conditions for his slow speed and at the end of the morning had climbed to first place whilst Peter O'Sullivan had moved up to third. On Monday the weather was more helpful and Peter O'Sullivan put in two consecutive flights of 392 (75 20 100) to ensure a place among the trophies, while Bryan Youngs had gremlins in his fuel system, dropping into the drink on each attempt and was displaced completely from the leader board. My luck held out and after getting

back on at the second attempt I was able to regain first place. Peter O'Sullivan was second and Vaughan Miller third. Fortunately for rest of us Vaughan has not yet built a model that flies slow enough when he does I think he will be invincible.

Results

Open Carrier

1. B. Youngs (Broadlands).....1549
2. V. Miller (Feltham).....1230
3. N. Ashford (Broadlands).....1168

40 Profile Carrier

1. N. Ashford (Broadlands).....1233
2. P. O'Sullivan (Witham).....1144
3. V. Miller (Feltham).....866

Combat by Hugh Jackson

Saturday mercifully dawned clear and sunny

Below: Winner of Combat, Ian Kennedy from Urmaston, who just outpointed Steve Malone, although Steve left his mark across the tail surfaces and wing with what looks like 1 cm pitch bites. Would be interesting to discover how a propeller can make long scratches, yet not dig into the foam core.



with a light breeze, near ideal conditions for **Combat**, the first class to be flown. Flyers from France and Ireland helped swell the encouraging entry of 36 competitors.

Engines were mainly various marks of PAW, often severely 'tweaked', but whilst this motor dominates the event, no one model approach seems to have any ascendancy. Designs ranged from 200 to over 300 sq. in. both built up or in foam covered with *Solarfilm*, nylon, and the new *Solarflex* iron-on fabric. Several flyers used the Sheffield kit previously advertised in *Aeromodeller*. Although it is a little low on area, a larger version is apparently under development. Two of the best models seen were Cosmo's *Mini Boomerang* style foamies. Tim Bartram's MVVS version being especially quick, and the modified *Tamerlane* style models flown by Stu Holland and a few of the other Eire flyers, E. Saadi and G. Barryre (France) used Cipolla glow motors on 6" x 4 in. props and 5% nitro in their interesting models. Their planes were certainly as quick as the best PAWs but apparently require complex tanks to run consistently on suction and restarts tended to be a little long.



Right: Winner of Control-Line Scale was Mick Staples with his Bristol Bulldog. Above: Nicely produced Percival Mew Gull for rubber power, flown by Adam Beals of Greenwich.



A bout worthy of mention in the first round saw nine-year old R. Shaw fly tall G. Flood. Despite his lack of inches, Shaw took a cut to large cheers but lost 2-1. J. Holland, son of you-know-who, also could have used another foot in height against Jeremy Wilson in the eliminators but not for the last time during the weekend, showed his potential as a combat flyer. Stu Holland had a storming bout against Barryre and after a 2-2 re-fly won convincingly 3-1.

In the quarter finals, C. Flood, E. Saadi, Tim Bartram and Stu Holland beat Jeremy Wilson, G. Flood, Simon Groom and R. Stitson respectively. In the semis, C. Flood (Eire) beat Tim Bartram 3-1 and Stu Holland beat E. Saadi 2-1 despite losing an outboard wing in mid-air.

Sunday was overcast and breezy making us all glad that FA had been flown on Saturday! 31 entries lined up for **Class A Diesel Combat**. Various *Titans*, *Vertigos*, *Revolutions* and foamies powered by olivers, MVVS, Rossi and PAWs were used throughout the event. Two unusual engines were seen: Dave Heaton used a dieselised ST x 15 that was rather too temperamental as a combat motor and Trevor Heasman used a very quick PAW 19 that really blew all the Olivers into the weeds. It was pleasant to see some juniors flying well in this event, notably Richard Scully, who whacked 'Whacker' Whillance in the first round, getting his retaliation in first.

The last 16 saw three excellent bouts, T. Heasman, R. Roy and E. Burles beating P. Tribe, M. Jones and T. Bartram respectively. The first all-Peterborough semi saw N. Gill (MVVS 'Panic' foamy) lose to R. Roy (Oliver 'Macerator' foamy) after an unfortunate mid-air collision wrecked Neil's model. Rob flew his inboard wing level to win. Dave Harrison (Cosmo Oliver 'Titan') beat Mark Jarrett (Peterborough Oliver 'Havoc') 2-2 plus ground time.

At 4.00 p.m. the screaming meannies were taken out of their boxes for the start of **FAI Combat** with 32 entries. Trends in FAI? With the vulnerable G20/15 no longer available, a wide variety of engines were used this year in a wider variety of foamies: AO 15s, Rossis, Cox, Nelson, USE, FMV, X15 and G20/15 were all present in models ranging from 360 to nearly 480 sq. in. models.

Props are again receiving scrutiny from combat flyers: to get the best out of an expensive engine like a Nelson or FMV, home-brewed carbon fibre props are desirable, despite their higher cost. Lines may start to cause problems, with Laystrate not available, several prudent people were seen buying line from two of the last reels available. The pacifier pod is on the way out too, replaced with a simple hole covered in nylon patches, to save 10-15 gms on the 'traditional' set-up. One of the Russian FAI models was on show and aroused a lot of comment with its ingenious construction.

The opening round saw impressive flying by E. Saadi and he was going well until he lost to Pete Tribe in the eliminators in a hectic bout.

On Monday the weather improved. The best bout in the last 16 saw R. Forstner (Germany) using his 4oz. home-made glows to beat J. Wilson and I. Kennedy beat Fred Mejer. Disaster struck Stu Holland when his motor gave up flying level after he and Pete Tribe had both taken the streamer all in one. The last Continental, R. Forstner, lost to

Neil Gill in the Quarter-finals in a carnage-strewn bout.

The semi-finals saw Pete Tribe (Cosmo) lose 2-1 to Steve Malone (Outlaws) after uncharacteristically taking all Steve's streamer in one, and Ian Kennedy (Urmston) beat Neil Gill (Peterborough) 2-1.

The first final to be flown was for FA combat, and Stu Holland beat his fellow-countryman C. Flood on ground time despite being 1-2 down in a bout which showed how FA combat should be flown. In the 3rd/4th place fly-off Tim Bartram lost 2-1 to E. Saadi.

The Class A final had to be re-flown after a 1-1 tie but Rob Roy sewed up the re-fly 2-1 with Dave Harrison plagued by a poor motor run. Incidentally this is the 'Macerator's' third win this year and Rob says he is willing to provide plans... hint, hint! The fly-off for 3rd/4th place was marred when M. Jarrett's model cam off the

lines at the end of the bout after he had lost to Neil Gill.

The fly-off for FAI 3rd/4th place featured two of the best pilots about — Pete Tribe and Neil Gill. After a really entertaining bout, Neil was declared the winner, 2-1.

The climax of the week-end's flying was the FAI final. Steve Malone (Outlaws) using a Nelson and Rossi crewed by Mick Tiernan and Steve Bingham, faced Ian Kennedy (Urmston) using an Adis and a Rossi in 'Ignition' crewed by Mike Whillance and Pete Grange. In a really memorable bout Ian beat Steve 1-0 to become the 1983 British FAI combat champion.

In closing, I am sure that all the flyers would like to extend their thanks to contest director, Vernon Hunt and his helpers, especially Eric, Steve Bingham, Simon Groom, Stewart Vickers, Carol Roy, Julie and Ross, for a very smoothly-run competition.



Right: Winner of Free-Flight Scale was Alan Callaghan with his beautifully made Rearwin Speedster finished in pale blue. Below: Beautifully prepared Pitts Special by Jeff Anderson for rubber power was impressive in the air.

Free Flight Scale Report by Bill Dennis

THE standard of flying this year was the highest I can remember and both events were very competitive, being decided by almost the last flight in each case. Flying took place in good weather on Saturday evening and Monday morning.

Superscale

Bill Dennis regained the Superscale trophy this year this year with his *DH31*. This model has not been an easy one to sort out, but on the day it came right with its first really good flights, matched only by Eric Coates' and Terry Manley's old warhorses. Charlie Newmann's new *Fox Moth* looked very nice in the air, but the tired Mills engine was a handicap.

The hard luck story of the meeting was Michael Smith's large, silver *Bristol Fighter*. From a veering take-off the model flew well but the timer operated throttle extended the descent for too long. When Mike opted for a straight





*Above left: Chas Newman entered this delightful Fox Moth, modelled on the ill-fated example at the Shuttleworth Collection which was burned out after a ground collision.
Above right: Magnificently prepared monoplane by Phil Siddal of Grantham Club for Brown Campus CO.*

engine cut, with a tweak on the rudder for a corrected take-off run and the model went in to the right. The damage looked worse than it is and I'm sure when it reappears, fully trimmed, it will have a definite edge on flying performance.

In the static section the *Fox Moth* lost points through a lack of engine detail and incorrect dihedral and sweep back, but when corrected this will be a very competitive model since the workmanship is of the highest order. In the end it was a high static score for the DH34 that clinched it, with Eric and Terry locked in a close tussle for second place with their time-expired machines!

Rubber scale

This event seems to have come of age, with most of the entry qualifying. These models relying on a good flying performance to counteract a poor static score, or vice versa, are no longer competitive and a realistic ROG is essential. The result was very close, being deservedly won by Alan Callaghan's *Rearwin Speedster* on its last attempt. This flight was only bettered by Bill Dennis's *DH60 Moth* — one of only two biplanes in the contest.

There were so many good flights it is difficult to pick out individuals, but the *Waterman Gosling* of Major L. Smith impressed for its stable flight with such unlikely proportions! The low wings of Chris Chapman and Paul Briggs flew very nicely, and Geoff Spencer's red and white *Monocoupe* was beautifully made. In the static section, Barrie Hotham's *Heath Parasol* and the *Speedster* were clearly a cut above the rest and it was gratifying to note that realistic painted, opaque finishes are becoming the norm.

As is usual with free flight scale, this enjoyable contest was made by the good humour in which the contestants accepted victory and defeat. Thanks are due to the judges for their skilled efforts.

*Above right: Lockheed 'Winnie Mae' by B. Pursglove of Nottingham flown in rubber scale.
Right: Winner of Free-Flight Superscale Event, Bill Dennis flew superb DH34. 51 in. span with ED Racer Power.*

*Below: Nicely prepared Nieuport 1/7 by C. M. Bradford of Marlborough MFC flown in control-line scale to 7th place.
Below right: Ron Truelove had highest static score in control-line scale with his Hawker Typhoon, but poor flight score placed him 6th.*



FOR MY MONEY there are few greater pleasures in aeromodelling than building and successfully flying free-flight models — rubber power in particular. Like most long-time aeromodellers, I cut my modelling teeth on free-flight models, working my way steadily through the various ranges. Success didn't come easily, in fact if I were to be really honest, hardly ever! Building a small rubber power model is most definitely an art and trimming the completed machine a skill which can only be successfully employed if the building art is properly mastered.

These delightful models from Bentom are kits such as I dreamt of as a young boy, the cyanoacrylate glues available now to put them together a gleam in a chemist's eye! With the aid of sound design, excellent die-cutting and reasonable wood selection, Bentom have put together a range of four kits. I have built three now and can vouch for the fact that they are all good fliers and employ construction which should not be beyond the reach of the careful and committed aeromodelling beginner.

The kits in the range are:

Pampas 20, 20in. span polyhedral duration
Skypal, 16½in. span Cabin semi-scale sports

Zero, 16½in. span scale

Piper Cub, 16½in. span scale

All kits include die-cut parts, strip balsa, pre-formed wire parts, vacuum-formed parts where necessary, wheels, rubber, colour Jap tissue, self-adhesive decals, full-size plan and photo instructions. Only dope, adhesive and rubber lubricant are needed to complete the models.

Pampas 20

A typical balsa strip construction, polyhedral wing model with wings and tail surfaces retained by dowels and bands. I recommend the exclusive use of cyanoacrylate for construction of these models although I have to say that for inexperienced youngsters, traditional balsa cement is preferable for safety reasons. Weight is kept down and no distortion of the structure results from shrinkage during curing time.

KIT REVIEW

Bentom rubber power kits. Built and flown by Bill Burkinshaw

Die-cutting is excellent. Positions of all parts on the die-cut sheets are shown on a key drawing included on the plan. Using cyanoacrylate, basic construction can be completed in little more than one evening's concentrated effort. Even if cyano is used and weight subsequently saved, it is still important to sand sections of leading and trailing edges properly as a fair amount of wood is removed during this process and every fraction of a gramme saved provides a performance bonus. Use fine grade garnet paper glued to a block for sanding. Do sand the basic fuselage sides and fin before assembly, as it is so much easier when these flat frames are supported on the workbench.

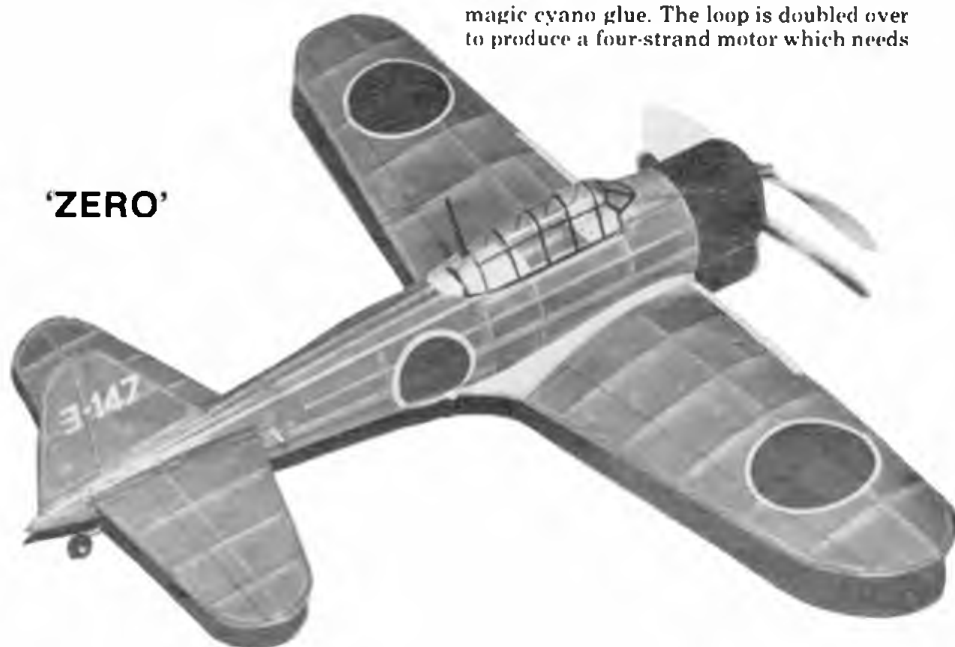
Coloured tissue is supplied, to be attached with tissue paste. Once applied I shrink the tissue with surgical spirit, then apply 1 or 2 coats of 50/50 dope and thinners to the whole model. It was not necessary to pin down these wings, and no sign of warps appeared during covering and shrinking.

Once the model was covered and doped I made up the single loop of rubber to the recommended length, knotted the end and secured the short tails of the knot with that magic cyano glue. The loop is doubled over to produce a four-strand motor which needs



to be pre-tensioned. No instructions for this are included, but it is quite a simple operation. With 100 turns onto the single loop and keeping some tension on it, double it over the propeller hook, hold the loose ends of the loop together and allow the motor to unwind. You will then see the motor neatly arrange itself into a tidy plaited strand. A tiny rubber band over the loose motor peg end completes the job. Apply some rubber lubricant — soft soap and glycerine does fine and feed the motor into the fuselage. I pull it through with a weighted length of cotton.

A small lead weight is supplied which may need supplementing or trimming to achieve the correct balance point. This is critical to success as the model must balance correctly before any trimming can take place.



'ZERO'



Bentom

Aeromodeller



Trimming the 'Pampas 20'

Arm yourself with a suitable geared winder. I used a Micro-X 16:1 type, some 0.8mm scrap ply or $\frac{1}{16}$ in. balsa packing and choose an evening with as near calm conditions as possible. Check for warps!

Test glides of such lightweight models are not often all that good an indication of likely performance, but try one anyway just in case something is badly adrift. Providing the balance point is as it should be, then the model should glide steadily down for around 25ft with the propeller windmilling. Hand

wind 100 or so turns on and launch into the wind. The model should climb steadily to the right. Before winding on extra turns, any tendency to stall under power should be corrected with downthrust packing. Until the model is wound up to around 400 turns it will not gain sufficient altitude under power for the motor to fully unwind, so that glide trim can be checked. Small amounts of packing may be needed under the tailplane to adjust the glide.

So far 'unofficial' flights of over one minute have been achieved regularly, but I have yet to try for the maximum turns on the motor. The review model incidentally needed extra downthrust and $\frac{1}{16}$ in. packing under the trailing edge of the tailplane to achieve the correct trim.

'Skypal'

Construction of this 16 $\frac{1}{2}$ in. span straight dihedral model is slightly unusual, for the $\frac{1}{16}$ in. square box frame fuselage is not built using the conventional two frame sides and formers, but top and bottom frames are built first. Other than this minor departure from the orthodox, the model is entirely conventional. Once again cyanoacrylate was used throughout the construction, the same range of materials and accessories as found in the 'Pampas 20' was included.

Unlike the 'Pampas 20', which has a cambered surface tailplane, the 'Skypal' tailplane is a flat plate unit, built up from square section strip balsa. Care is needed when covering and doping, as it is essential to pin down the flimsy framework whilst the dope (50/50 again) dries and if necessary lift the top and bottom surface tissue apart, so that they do not become permanently bonded together.

Preparation and trimming were exactly as for the 'Pampas 20' and extra downthrust was again necessary. Duration potential of this smaller model is not as great as for its larger stablemate, with the rubber supplied and with conservative motor winding, 40 secs is a reasonable average in calm conditions.

'Zero'

The third of this trio of review models is a scale model of the well known Japanese WWII single-engined fighter. Die-cutting of the formers for the multi-stringered circular section fuselage was particularly good. All the notches for the stringers fitted well and none of the formers split when removed from the sheet. In fact the fit of the formers on the die-cut keel piece was so good that the whole fuselage was easily assembled 'in the hand' and turned out perfectly straight and true. Engine cowling and wing fairings are added using the classic 'good quality note paper'. The wing fairings are improved by carefully rubbing to a convex curve before gluing into place. A vacuum-formed canopy and nose top deck are included.

The model is one piece, but covered in sections before final assembly. Drab green Jap tissue is supplied, plus self-adhesive marking decals and colour information for additional detailing.

Like many such small rubber powered scale models, the 'Zero' requires very careful trimming to achieve successful flight. Once balanced correctly, using the weight supplied, I was forced to resort to twisting the tail surfaces to achieve a glide and enough turn to counteract a nosedive when the power ran out. It is quite possible to achieve a 30-sec. flight with the 'Zero' but I felt that better rubber would probably improve this dramatically and also a larger propeller.

Conclusions

These well engineered kits provided me with hours of pleasure in building and lots of fun flying. Quality of the wood and presentation is first-class, but at a price — these are not the cheapest of rubber model kits, but they do fly well. Prices are as follows:

'Pampas 20'	£4.95
'Skypal'	£3.95
'Zero'	£6.35
'Piper Cub'	£5.95

All are available from Micro-Mold stockists.



'PAMPAS 20'



'SKYPAL'



PHOTO-PRIZE
with Fliar Phil
MODEL NEWS

**WIN A
COSINA
SLR
CAMERA**



All entries should be good quality black and white or colour prints. Your name and address should be on the back of the print. Details if possible should be given about the model and its construction. Send all entries to Aeromodeller, Photo prize Feature, PO Box 35, Wolsey Road, Hemel Hempstead, Herts HP2 4SS. Photos will be returned after publication.



1



2



3



IT IS FLIAR PHIL'S guess that many of us start our aeromodelling careers with a scale model, blissfully ignorant of the difficulties! The fascination of that 'real thing' look is probably the reason. For many aerobods this fascination endures. F.P. receives more photos of 'scale models' than of any other type. So no apologies for this month's 'Scale Model Exhibition'.

Photo 1

Featuring a fuselage that contributed to the lift the Cunliffe Owen aircraft made aeronautical headlines in its day. Peter Shires of the Guildford Model Flying Group





has captured the distinctive lay-out of the original with his two models. The smaller is for R.T.P. and the larger (24" span) for C.I. flying, power being 2 P.A.W. '8's. Peter says the cowlings started life as Coke tins!

Photo 2

Contributors to this feature are realising the value of posing their models against a realistic background. Mr. R. Yeowell of Wiltshire demonstrates this with his photo of the A.P.S. 1/8th scale Tiger Moth (Plan No. FSP555). Built as a C.I. model, power was originally a P.A.W. 19D, but now has an O.S.25 with throttle, and three-line control.

Photo 3

From the land of the windmills comes this fine free-flight Ju 87B Stuka. Built and flown by A. van Wallene of Knockengen, Holland. Power is a diesalized Cox T.D. .049 (likely to be replaced with a D.C. Wasp glow-engine). A glider enthusiast, Mr. Wallene is a member of the Dutch F.F. team for Australia, W.C.

Photo 4 — Winner

Memories of WWII. A low level attack by an Me109E! Fliar Phil must hand it to Ing. Koutny of Brno, Czechoslovakia, for this remarkably dramatic photo of his rubber powered Me109E. Details: Span 500mm.

weight 33g. Flights of 70 secs. plus. This month's worthy winner.

Photo 5

A fine 'in action' shot of a fairly uncommon scale subject a Bellanca 'Skyrocket'. A beautifully built model that does great credit to Michael Shackwell of Essex who is 17. Quite a large model (32" span), from an American Skyline Kit. Power is a Cox .020 Pee Wee. Fliar Phil can quite believe Michael, who says: "It flies well."

Photo 6

This photo of a Fokker F27 Friendship of 47" span, has a 1.5cc diesel engine on each side. A control-line model, it flies on 50ft lines. It comes from David Lawrence of Hamilton, New Zealand. It is in the colours of the RNZAF. It was made for New Zealand Cadet forces air training corps De Havilland Aeromodelling contest. No wonder such a fine model achieved a first, and two seconds, during 1982.

Photo 7

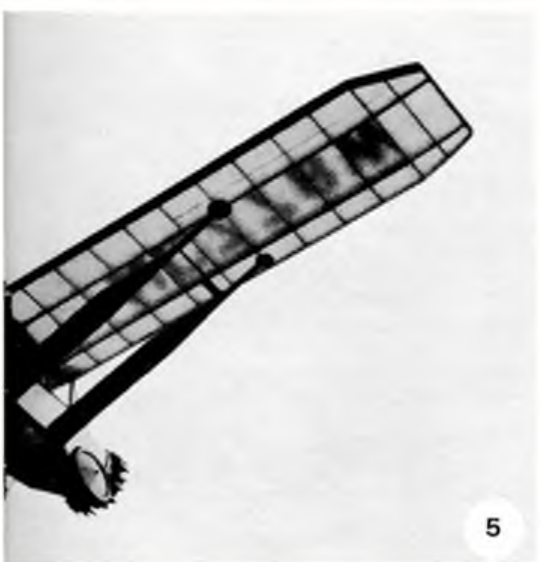
Quite a professional touch about this photo of that old favourite of scale fans — the S.E.5a. It comes from Howard West of Southampton. (Your camerawork is great Howard!). Built by Mark Walker (great piece of building Mark!). Powered by a Mills 1.3, and fitted with 2-channel R.C.

Photo 8

Mr. G. Davies of Nova Scotia, Canada, sent Fliar Phil this imposing Fokker D.VIII. It is fully detailed (even has a wicker seat in the cockpit!). Fliar Phil quotes Mr. Davies: "When I show this photo to fellow modellers they think it is a super scale radio model." However, they are wrong! Actually it is an R.T.P. job, powered with an electric M2 motor. Naturally a contest winner.

Fliar Phil is especially delighted to receive photo's from overseas readers (Photo's this month from Holland, Czechoslovakia, Canada AND New Zealand). So overseas aerobods — if you have a good photo, PLEASE send it along. Thanks! — and so long for now.

Ray Malmstrom



FREE FLIGHT

DAVE HIPPERSON REPORTS

SCENE

Junior Kit and Wigan 70 Contest . . . Sutton Park, 6th Aug. . . .

To avoid this event being swamped at the Nationals, Junior Kit this year was run as an event in its own right. This was also an attempt to attract more than the usual handful of existing aeromodellers' offspring. To this aim the experiment was a failure as despite considerable pre-event interest it was the usual faces that turned up on the day! However the choice of the site — Sutton Park, Birmingham on such a perfectly calm day made the meeting a success. Alongside the Juniors, a dozen or so leading Wigan 70 fliers had been invited to do battle for a £20 cash prize and this part of the contest proved so popular that there were numerous requests for it to be repeated at the Park.

The very light northerly drift rarely took models more than a few hundred yards, but thermals by lunch time often took them very high. Anthony Ball made a good start with three maxes from his *Performer* well before the lift started. Glider entries were thin, but eventually Richard Anderson made sufficient time to win over Chris Cope for whom it was his first flying session let alone contest.

Anderson was not so lucky in Rubber with a rather tight first flight. He flew an interesting twin-finned geodetic American design and his other two flights were comfortable maxes. His Dad had thoughtfully brought along a duplicate kit with him, still boxed just in case there were any questions asked as to the models authenticity! Nevertheless it was another *Performer*, this time flown by Moore that eventually necessitated the fly-off. Moore's flight, despite being on better rubber, after he had discovered that the type he was using for the contest flights was very poor quality, spun in on the glide with a sticking prop blade. This left Anthony Ball a fairly comfortable target to beat. He did so with a flight of 4 mins. plus that could have done 6 had it not been for the dethermaliser.

The Wigan 70 event had a 7-way fly-off as the 1:30 max for these models had really been too easy. The fly-off was also flown to a max. to reduce the chance of wholesale model loss — but it was enough to eliminate three contenders.

Peers flew first into strong lift that had been marked by Godden's model. Davitt and O'Donnell were waiting whilst Ball still wound. Ball flew a very interesting geared model which allowed a great deal more rubber and a smaller prop, but still a controllable climb pattern. When wound for the fly-off, Phil did something that many talk of doing but few have the chance or presence of mind ever to implement successfully. He handed his wound aeroplane to his timekeeper picked up a Chuck Glider, walked upwind a hundred yards and tossed it into a beautiful patch of lift. He walked back under it and launched his Wigan into the same air as did Davitt and O'Donnell.

All maxed at great altitude, but the HLG, without dethermaliser, outglided the rubber models and was lost. The second round was flown to a 6-minute max. which caused consternation amongst the four already hard-pressed qualifiers, particularly the three with only one model. On reflection, another 4-minute max. would have been fairer, but as it turned out the results were not affected as the strong lift had passed. Peers got away first and fast once again, but the model was down in under 2 1/2 mins. John O'Donnell followed a few minutes later and held better on the glide after a reasonable climb. This left Davitt and Ball waiting to the end again. Davitt launched first and looked to be climbing very well but sank very fast on the glide. Ball fared worst of all in sink all the way, and with a bunched motor that allowed only half the turns to unwind.

Plaques and prizes were distributed to the Juniors care of the SMAE. Solarbo, Keil-Kraft, Andrew Moorhouse and Free-Flight News. Rather poorer trade support than had been anticipated was made up for from the CDs pocket.



Above: Richard Anderson won the Junior Kit Glider contest in perfect conditions at Sutton Park. Below: John Carter with his 'Hour Glass' open glider - placed well in almost every contest this year. See drawing opposite.



RESULTS: Junior Kit Contest . . . Sutton Park, Birmingham 6/8/83

Glider (4 entries)	
1 R Anderson	2 07
2 C Cope	0 41

Rubber (6 entries)	
1 A Ball	6 00 + 4 02
2 N Moore	6 00 + 1 04
3 N Dixon	5 13
4 R Anderson	5 01

Wigan 70 (invitation) (9 flew) 7 in fly-off		
1 J O'Donnell	Whitefield	4 30 + 4 00 + 3 02
2 R Peers	Falcons	4 30 + 4 00 + 2 24
3 I Davitt	Leeds	4 30 + 4 00 + 2 18
4 P Ball	Grantham	4 30 + 4 00 + 1 15
5 J Godden	Leeds	4 30 + 3 17

Amateur Photographer Photo Contest

Those of you interested in photography who attended the Free-Flight Nats could hardly have failed to have been aware that Amateur Photographer were running a competition for the best photos from the event as a follow-up to their excellent photo-feature on Free-Flight of a few months previous. I don't know how many entries they had, but whilst I shot my photos for Aeromodeller's report I noticed quite a number of enthusiasts 'dripping with equipment'. The winner? Well through it all came a man I never saw take a single picture and certainly never saw showing off equipment for the sake of it. A master of making the very best of whatever is to hand without a great song and dance — John O'Donnell. He won it with a colour transparency of a Vintage Wakefield-R.O.G.-ing. The runner-up — no less than June O'Donnell! How many pictures did they take between them? Ten rolls? No — about 12 frames actually! They seem to have the art of winning Photo Contests as well wrapped up as flying. Congratulations to both.

19 hours airborne

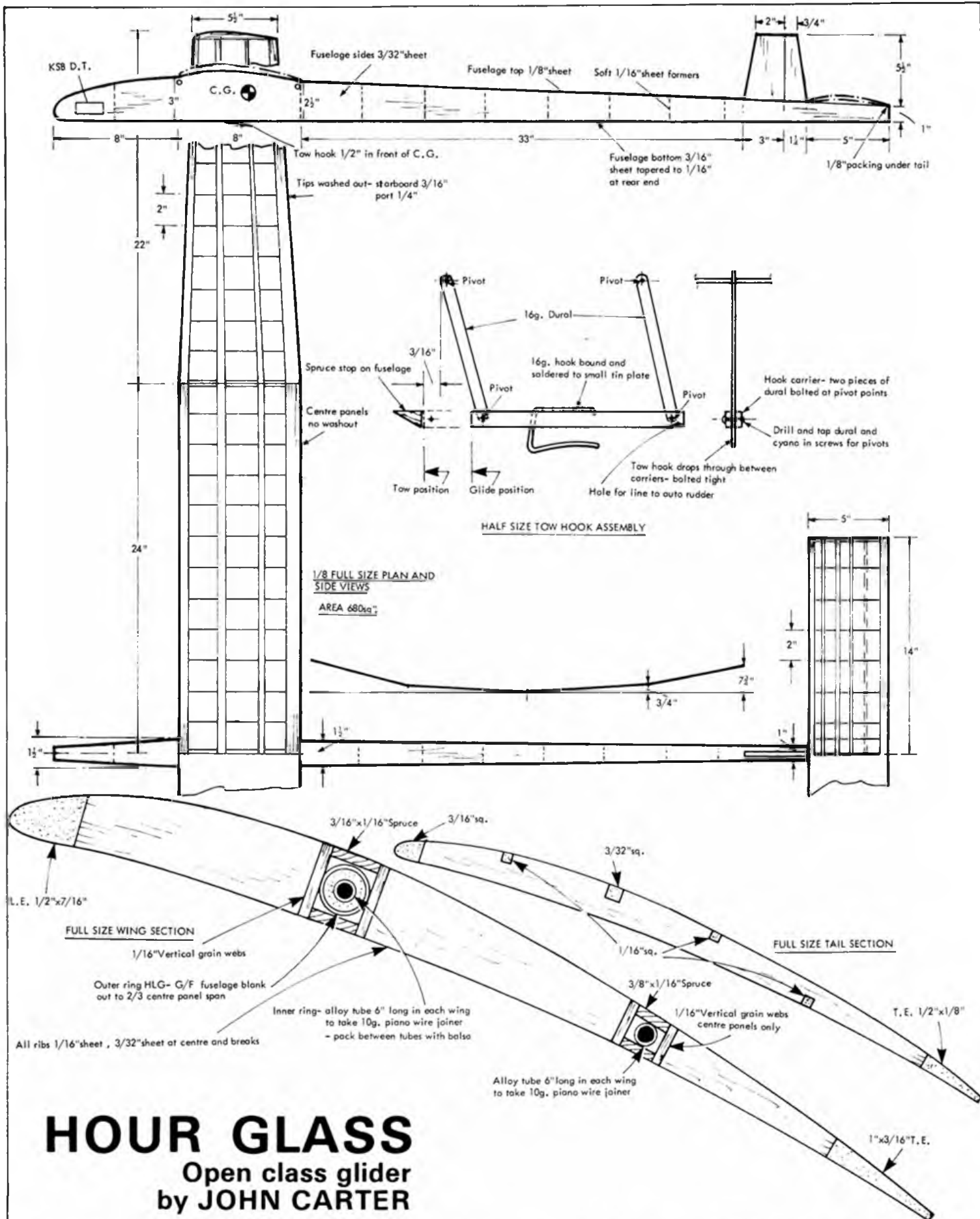
Whist still on the subject of this man, he has recently been involved in setting a rather extraordinary, although unofficial, A/1 glider record. At a Mini meeting held by the Morley Club on one of those super hot July weekends, John flew off in A/1 without dethermaliser. He hooked good air and won the fly-off but had to watch the model disappear at great altitude and towards the nearby town of Wakefield. This was about 6pm. The following day a little after lunch, John had a call from someone some distance the other side of the town. He had found the model. What is more he had seen it glide down past his dining room window whilst he was finishing lunch just at that moment! The model had been up all night probably at colossal altitude in the air funnelling up from the warm fabric of the town. Total duration 19 hours!

Contest planning and publicity

Some controversial points regarding contest organisation and advance publicity came to the surface from practical experience over the Summer months. At the Wigan 70 invitation, the CD imposed a 4-minute max. on the first round of the fly-off to lessen the chance of model loss as it was a small site at 5pm on a hot August afternoon. A reasonable step. However the second round was then run to a 6-minute max. and the CD — more experienced than most in such matters — realised too late what he had done.

(Continued on page 530)

Aeromodeller



HOUR GLASS

Open class glider

by JOHN CARTER

Hour Glass — Open Glider from John Carter

With the A/2 size model almost the universal glider for Open events it comes as a refreshing change to see a really successful big Open design. The big models

are obviously less responsive on tow and more prone to damage, but in gentle lift conditions will invariably outfly an A/2 and in strong lift will stay in sight longer!

John Carter's Hour Glass has already a very impressive record of success — 6 places from 8 events most of these being fly-off

deciders. It is free of frills — only the tow hook being slightly out of the ordinary and certainly nowhere near the complexity of a modern circle unit. This model straight tows and John reckons with the pivoted hook he can catapult it just a bit off the top of the line for some extra height when necessary.

By posting this large max. when the drift was still sufficient to reach a distant wood in that time, he had seriously threatened the chances of all those with only one model. In essence he had given an enormous advantage to, in this case, the one flier, who had two models. Had strong lift been present — luckily it momentarily died — his action would have drastically affected the outcome of the contest and he could quite reasonably have been accused of favouritism.

This situation is worth considering particularly by those so keen on introducing a variable max. format during the day! Playing with the max. is decidedly risky and almost always unfair. In this instance the contest director had not published data on the event, as all contestants had been invited, however things became even more involved when published information is altered on the day. The most recent example being the South Coast Gala at Beaulieu in mid July. This event was generally well run and well thought out, but the organisation had advertised the Open fly-offs as being held at 4pm. A number of people *didn't come* because they thought this was too early and would most certainly mean lost models if they wanted to stand a chance of winning. Imagine therefore these individuals' displeasure when their friends returning from said contest informed them that the fly-offs had been put back to 8.30pm and had resulted in beautifully calm air for flights all of which landed on the site. Moreover at least one person made the converse point. Should we have come and had they altered the times he would have been livid as he believed his technique and models at best in the afternoon and he is not afraid of losing them. He would have come for that purpose — not to fly-off at 8pm!

It rather endorses what I have been saying for some time. Contestants like information and timetables in advance, but if published, they should be adhered to, otherwise don't specify any times. It is too misleading particularly when one considers the 100's of miles of driving that are involved nowadays. These might seem small points but future contest organisers could well learn from them particularly if they want people to attend their meetings in larger numbers.

Poitou FA1 International — Noize, France - 20/21 August

Those still deliberating as to whether a 900 mile round trip drive through France for a single FAI contest is worth it can at least be assured that they can leave the tree retrieval gear at home. The event is flown on an enormous flat agricultural plain 20 miles or so South West of Thouars in the Loire valley district. Corn stubble and melon fields stretch into the distance in all directions. The stubble gives less tissue puncturing trouble than one would have expected — the problems are elsewhere. Dotted around this wide open country are fields of ripening sun flowers up to 7ft tall and similar small meadows of Maize sometimes 9ft tall. Both these were best avoided, but it wasn't always possible. When searching was necessary in these it was an awful job.

On arrival, all contestants were presented with very complete paperwork, momentos and posters. Very reasonable food and all manner of drink were available on the flying site during the contest days.

Timekeepers were, on the whole, efficient and accurate with round timings sharp and announcements tri-lingual. All periods were punctuated by an excellent air-raid siren type hooter which howled long enough to get a model away if waiting right to the end of a round.

Annually entries in this event grow — particularly now there is no event at Marigny. This year the A. 2 class sported no less than 145, all but three of whom flew. The pattern of weather was a flat calm start with the very warm Westerly breeze increasing all day. Glider day started wet and was further aggravated by a number of enormous cloud bursts of which there will be talk for some time particularly by those unfortunate enough to be trapped at the time in Maize or Sun Flowers. English chances of fly-off participation were thwarted only when John Cooper couldn't quite max. on the first early morning round at 7am. He then continued impeccably to come in 4th behind the familiar figure of Arno Hacken. Jomarien and Breeman flew off and both succeeded in making the 4 minute max. The refly gave Jomarien the best air to just break 3 minutes.

Wakefield and Power flew together on the second day and were luckier with the weather — dry and much sunnier conditions.

Buoyant air even at the early hour allowed easy maxes for models on trim and most of the day's bad flights appeared more as a result of mechanical problems than down draughts. Ivan Taylor looked all set up to the last round in Wakefield when the steadily increasing wind, by then about 20mph, upset a tail setting on launch and his model was down in 39 seconds.

Actually a number of leaders fell on this flight, including Petiot of France who also had a perfect score to this point and recorded no time at all. These disasters meant that Hipperson, who had lost a little over 30 secs on round three, moved up to 4th place and miraculously had a model returned from miles downwind when others had lost many models hopelessly distant.

Power had the smallest entry — 24. (Where is FAI Power popular?) It too had been a game of no mistakes and reasonably the increasing wind found fliers' weak spots towards the end. Collins started to have trouble on the 5th round, but Faux and Jack made the fly-off with two others.

The wind strength was deceptive because it was so warm and almost perfectly smooth — no turbulence at all. However the distance models were travelling by the last few rounds was a real problem and when the wind fed the thermals, many models were lost upward when dethermalised, never to be seen again, despite the perfect open retrieval country with convenient objects distant on the horizon on which to take bearings.

Conditions on this second day between the 4th and 7th round were such that model development, certainly towards performance improvements, would have to be so much time wasted. Thermals were enormous in diameter, almost impossible to miss, smooth, strong and continuous. A well thrown sun lounger could have maxed most of the afternoon and it would have stayed in sight longer! Those who flew fancy models because they thought they had to, usually suffered as a consequence.

The Wakefield fly-off saw a clear victory for Zeri who flew a fairly conventional layout with quite a long motor run and still

the eggbox multi-wing rib construction that has been a feature of Italian models for so long. His flight was made quite soon after the hooter and his thermal detection in the cooler, but still very breezy conditions was magnificent. A little smile before he launched betrayed the fact that even he felt confident. The model climbed with a rocking motion like a falling leaf — probably a factor of the wind or the nearest thing we had seen all day to turbulence. The glide continued to gain height and a max. was assured. His adversary Cheneau waited, wound, to the very end and contacted nothing helpful only suffering from a very tired motor.

The power fly-off included four, Faux flying in a very gusty and cool patch disappeared downwind fast, but presumably caught good air as he managed the four minute max. despite a rather poor transition. After some wait, Alan Jack released to a better pattern and greater height followed by a lovely climbing glide only to dethermalise almost a minute too soon and rob himself of a second round. What was worse it allowed Denkin the Belgian to push him down to 3rd with a flight that was timed down to just 5 secs. short of max. The German Buechner could no way match his usual standard and this left Faux the winner.

The open air concluding ceremony was graced by the Lady Mayoress of the town of Moncontour in which the majority of the entry had been camping courtesy of the organisers. All speeches were translated — Wakefield winner Zeri doing a stout job of the English part of this task. The prize-giving and distribution of bouquets of flowers and pots various to all winners, (including the three in HLG and Junior and the top Lady) was followed by a banquet in a spacious if basic hall. There was a good deal more food than many people were expecting and certainly more wine than anyone who wanted to be able to walk the next morning could possibly have drunk. Right to the end the organisation was practically faultless and must have involved many people in a great deal of hard preparatory work. What a shame they have not been able to obtain an aerodrome at least to fly the event from, if not over!

Poitou FA1 International — Noize, France - 20/21 August

Results			
F1A (143 flew)			
1	P. Jomarien	France	1260 + 240 + 189
2	C. Breeman	Netherlands	1260 + 240 + 127
3	A. Hacken	Netherlands	1249
4	J. Cooper	Great Britain	1244
5	H. Peper	Germany	1225

F1B (69 flew)			
1	A. Zeri	Italy/Holland	1260 + 240
2	J. Cheneau	France	1280 + 112
3	J. Hacken	Netherlands	1254
4	D. Hipperson	Great Britain	1228
5	F. Gaensli	Switzerland	1216

F1C (24 flew)			
1	K. Faux	Great Britain	1260 + 240
2	A. Denkin	Belgium	1260 + 235
3	A. Jack	Great Britain	1260 + 216
4	W. Buechner	Germany	1260 + 134
5	M. Irbano	France	1240

Team Awards			
1	France	— Jomarien, Cheneau, Irbano	
2	Britain	— Cooper, Hipperson, Faux	
3	Germany	— Peper, Silz, Buechner	

HLG			
1	J. Buskell	Great Britain	363
2	B. Trachez	France	348
3	W. Simms	Great Britain	325



Air Force. Firstly, although the model is very easy to construct, its fragility and large size make it a little unsuitable as a novice's project. Trimming is, at best, a fraught experience and at worst a series of running repairs. Secondly, don't expect contest winning performances out of this projectile. It's just a good ego trip to fly it and watch all the Bleriot, Blackburns, Fikes and Lacey's being hurriedly packed away!

Construction

My Foxbat doesn't require any titanium, which is good news for pocket money budgets. Its constructional style owes a lot to the far superior foam aircraft produced by Rick Grainger of Nottingham MAC. In essence, a fairly minimal balsa structure is covered in panels of 2mm polystyrene insulation with all the relevant panel lines inked on prior to assembly. The 2mm foam is available in large rolls from hardware stores. 50p

MiG 25 FOXBAT

**A HIGHLY UNUSUAL COMPOSITE
CONSTRUCTION PEANUT SCALE
RUBBER MODEL. HUGH JACKSON
USED POLYSTYRENE AND BALSA TO
CREATE SOMETHING REALLY
DIFFERENT**

will buy a budding Foxbat constructor enough for a few dozen aircraft with enough left over to insulate your modelling shed.

In the interest of speed I made the wing panels from a ceiling tile and the nose, cockpit and tail pipes are from laminated ceiling tiles too. Performance purists are advised to build the wing up from 2mm foam sheets with a light internal balsa structure. P.V.A. can be used throughout the project, a better idea is to build the balsa framework with a conventional glue and to use smears of UHU general purpose glue to weld the polystyrene panels together. You will certainly know all about it if you use too much — your Foxbat will melt! This glue is also handy for field repairs.

Flying

Trimming calls for patience and the proverbial calm English summer evening plus long grass. Kick all the young couples out of your selected spot and feel for any wind. If there is any take your Foxbat home and let true love run its natural course. If not, try a tentative glide from knee height and add weight until the model performs a straight gentle glide. Try winding a few turns on and spend a happy few minutes perfecting a launch technique which allows you to hold former F2 and the prop. Try 50 turns. Add 0.8mm downthrust shims to cure a power stall, upthrust to cure a power dive (painful!). When you feel that the plane is responding well, pile on a few more turns and work up progressively to 150-200.

Two points are worth bearing in mind. Both my prototypes liked flying in a nose-up attitude under power and a little aileron deflection may be heeded to counteract torque from the powerful motor with more than 100 turns on board.

If you build a Foxbat I hope you get as much fun as I did out of it and I look forward to seeing more people using this building technique to create unusual Peanuts.

Useful References:

The Observer Book of Aircraft 3-view
Blandford Book of War Planes — Colour plate.

WELL, I DOUBT if it will heat Butch Hadland's Lacey, but it should cause a stir!" I pondered, some 48 hours before the 1980 Derby Indoor Scale Nationals. I was looking at a three-view of the Mikoyan design bureau's best known product, the MiG25 and wondering how to translate it into a flying model. A few days previously I had made a crude model of the MiG23 'Flogger' out of ceiling tiles which surprised me by flying quite well and had convinced me that an all-polystyrene jet Peanut Scale model was a possibility. Four hours later I had produced the 'Foxbat' that I present to you here. At the Derby meeting, its radical appearance and size more than compensated for semi-scale shortcomings and I was delighted to be able to squeeze 20 second flights out of the monster. It must be one of the few Peanuts to fly at less than scale speed and with anhedral, doubtless aided by the enormous tail surfaces.

The real thing . . .

If the 'Foxbat' is new to you, here is a quick potted history:

The Mikoyan MiG25, NATO code name

'Foxbat' was flown in prototype form in 1963-64. The Soviets obviously developed this potent interceptor as a counter to the North American XB-70 Valkyrie bomber which showed such promise in the early sixties. When the Valkyrie was cancelled, the Soviets went on to develop Foxbat into the plane described by one U.S. Secretary of the Air Force as "probably the best interceptor in production in the world today." It captured a number of time-to-height and circuit records in the late sixties and, more recently, reconnaissance versions have overflown Middle East conflicts. Whilst bearing a superficial resemblance to the later McDonnell Douglas F-15 it is intended primarily as a straight line 'all-out' interceptor capable of Mach 3.2 flight. The plane caused a diplomatic incident in September 1976 when a defector flew his Foxbat to Japan. Western experts discovered that it was mainly made of nickel steel alloy with some titanium to resist the frictional temperatures generated in Mach 3 flight which effectively precludes conventional aluminium construction.

A few words of caution should be added before you all rush off to build your own Red



BAe HAWK

Red Arrows Jet profile control-liner for 1.5cc engines designed by Bill Burkinshaw

IT HAS BEEN some years since I last designed and constructed a control-line model, not quite so many since I last flew one, so the challenge of producing a workable profile scale BAe 'Hawk' quite got my adrenalin going.

After looking at a 3-view drawing of the BAe 'Hawk' it was obvious that some slight modifications would have to be made in true semi-scale tradition. A slight increase to wing and tail areas and a mite off the nose length and the outlines began to look about right. Scaling up to a wingspan of 20in. would provide enough wing area for a 1-1.5cc power model so the die was cast.

I resolved to start building the model straight away and leave details of bellcrank position, line guide and balance point until the model was roughly constructed. Once assembled and with a P.A.W. 1.49 bolted to the front, a trial balance showed the balance point to be well in front of the leading edge. Not unexpected, but just confirmed! Looking under my work bench I found a box of lead weight and a little experiment showed 2oz or so to be sufficient to bring the balance point at least behind the leading edge. With bellcrank fixed, it was time to find the best position for the leadout guide.

Easy enough, just hang the model up by two lengths of line from the bellcrank and slide a temporary line guide backwards and forward until the model was suspended straight up and down from bellcrank to suspension point.

Once finished, flight trials proved totally uneventful. Although the elevator is small and the balance point still a little forward of the desired point the little swept-wing jet flew away smoothly from the launch and ran the tank out without any fuss whatsoever. So, some six or more years since my last control-line flight and the model flew, and I could still fly it!

Build your own Red Arrow

You will need:

- 1 sheet 3/4 x 4 x 36in. Medium Balsa
- 1 sheet 1/2 x 4 x 36in. Medium hard Balsa
- Small piece of 0.8mm birch ply
- 1/2 sheet (for the fin & tailplane)
- 12in. x 1/2 x 1/4in. hardwood engine bearers
- 2 1/2 in. bellcrank plus mounting nuts and bolt
- 16swg piano wire
- Elevator horn & keeper (plywood could be used)
- Small fuel tank (1.5cc)

Mark out the wing outline noting the join lines for 4in. sheet shown on the plan followed by the other parts. Note that the 0.8mm ply fuselage doublers are fixed to the basic fuselage underneath the dummy jet intakes for their full length.

Cut the 3/4in. square hardwood engine bearers to length and glue into position in the balsa fuselage profile followed by the ply doublers.

Taper the rear end of the dummy jet intakes down then sand to section before gluing in place. Carve and sand the wings to section then carve out the recess for bellcrank ply mount, wing tip weight and line guide before gluing into the fuselage slot.

Slot the fuselage for the fin and tailplane, carve out the fuselage for the balance weight and fit all the remaining parts.

Bolt the bellcrank to the ply mount and glue this firmly to the prepared recess in the wing underside followed by the dummy wing fence line guide.

Hinge the elevator to the tailplane using Terylene thread hinges and fit the control horn of your choice. Bend up and fit the pushrod.

Finishing

A coat of clear dope followed by one coat of sanding sealer and two coats of red dope overall, well sanded between coats provides the basis for the colour scheme. Mask the white stripe and paint this on. Draw the roundels with a ruling pen fitted to a pair of compasses, fill in with a small paint brush. The whole model should now be given a coat of clear fuel-proofer.

Bolt on the engine and mount the tank with spring curtain rod and wood screws, check the controls for freedom of movement and you are ready to fly.

Flying your 'Red Arrow'

With a P.A.W. 1.49 for power, 40ft light 'Lay Strate' lines seemed just about right. A smooth level launch and she should be away. Control response is quite adequate, line tension is fine. The model will perform quite reasonable wing-overs and large loops. Once the engine has cut, full-up elevator produces a 1/2-lap glide. This model is tough and easy to fly and looks great in the air. It should make quite a good trainer.

It doesn't cost too much and is quick to build, what else can I say other than why not build one yourself? If you can persuade a couple of mates to build them too you should be able to put on a spectacular three-in-a-circle 'Red Arrows' show!

Below left: line guide position is critical, bellcrank not so much of a problem - make sure 'Hawk' balances where shown though!

Right: P.A.W. 1.49 provided ample power for 'Hawk' to fly on 40ft. steel lines. Trim these down a little if lower power motor is used.



AIRCRAFT NO:257 DESCRIBED



"IF YOU CAN SEE a white star marking then it's got to be a Piper L-4 Cub; but if it's got R.A.F. roundels then it's an army Auster!" In Britain by the summer of 1943, few Servicemen would have wished to question such a comfortingly simplistic generalisation. If it was slow, small, and with a braced high-mounted mainplane, then none but the élite of aircraft recognition in the Royal Observer Corps, and the industrial raid spotters, would have tut-tutted otherwise. The name Auster was born in war and survived into the difficult immediate post-war years. 'Auster', the 'south wind', eventually vanished into Beagle which, in turn, ventures no more. Yet there are those who have banded together to ensure that the brave endeavour of Auster Aircraft Ltd. lives on — to 'keep 'em flying!' I.A.P.C., the International Auster Pilot Club.

While the members of I.A.P.C. quite happily know their way around the variety of Austers (from Taylorcrafts to Beagles), the family tree of Austers is more like the Hampton Court maze for the innocent and unwary. So it is as well to try and grasp the nettle with a gloved hand in order to arrive at the launch of the Auster J/5B Autocar on its first flight in August, 1949.

The J/5B bit in Auster nomenclature is sorted out best from right to left. Thus 'B' indicates that this is the second version of the fifth ('5') variant of the basic 'J' design. The Auster model J was the army's Auster A.O.P. Mk.5 (130-hp Lycoming O-290-3) of which some 790 were built between 1944-46. But there are other J/5s, like the J/1's further developed J/5 Autocrat (for the Australian market renamed Adventurer), the J/5F, J/5K and J/5L Aiglet Trainers and the J/5Q and J/5R Alpines. Other routes in the maze could take in the J/1 as the Autocrat, Aiglet, Alpha and Workmaster, as well as the J/2 Arrow, and the aptly-named 1947 one-off J/3 Atom and the J/4 Archer. What all the model Js have in common is the braced, high-wing monoplane look and fixed main and tail-wheel 'alighting gear'. Structurally they differ here and there, but essentially a fabric skin covers a mixed wood and metal (light alloys and steel) skeleton of the type honed to perfection in the 1930s. Whereas others, especially in the U.S.A., began to satisfy the customer-demand for all-metal lightplanes, Auster Aircraft remained loyal to a long-proven formula — and paid the price of standing still.

November 1983

Auster J/5 Autocar

Charles Cain describes a British light aircraft worthwhile as a modelling subject

The J/5 Autocar variants

By the time the prototype J/5B Autocar (registered G-AJYK, construction number 2908, C. of A. issued 4 Jan., 1950) appeared, and just in time for the 1949 S.B.A.C. Display at Farnborough, the company had been in existence for only 11 years. It had started in November 1938 as Taylorcraft Aeroplanes (England) Ltd., with works at Thurmaston and the aerodrome at Rearsby, both in Leicestershire. Initially, the designs were those of the American parent Taylor Airplane Corp., of Alliance, Ohio. The earliest high-wing two-seaters were known as the Taylorcraft Models A-D series. It was the 11th airframe, of June 1939, and with a 90-hp. Blackburn Cirrus Srs.I inline, which became the R.A.F.'s first Auster Mk.I (serial T9120). In civil guise, this British-powered tandem-seater became known as the Taylorcraft Plus Models C.2 and D. And despite the total 'Britishisation' of the company during

WW2, it was not until 7 March, 1946 that the name was changed to Auster Aircraft Ltd., and the Britannia Works at Thurmaston was finally phased-out and production concentrated at Rearsby Aerodrome.

Although Auster Aircraft had dabbled with four-seaters before, the Autocar can rightly claim to have been the first genuine production four-seater. The consensus of opinion is such as to accord the Autocar the compliment of being the best-looking representative of the whole Auster family. Yet curiously, the accolade results from an uncharacteristic deepening of the rear fuselage to accommodate a domed cabin roof. However, what Chief Designer Ronald E. Bird gained on the fuselage, he lost on the motor cowling, or rather the 'gubbins' (exhaust manifold/silencer) under it. A quick survey of contemporary lightplanes suggests that other manufacturers shied from putting such an ugly device on their products.

Right: Autocar G-AOFM, plenty of detail can be made out in this photograph. Note the exhaust system, alternative type is shown on the 3 view drawings.



What makes surviving Autocars so different from one another is not merely the swapping of old, worn, parts for rescued better bits — and spares for airframes and engines are becoming more scarce each year. It is also that one has to remember that initial purchase was ex-works 'pretty basic' — enough for VMC (Visual Met. Conditions) — and everything else was an 'extra' and duly recorded on the planning card for each aircraft and added on the line. Navigation lights, wing-mounted generator and additional instruments were all customer specified. The spats on the currently registered G-AOIV (a J/5G) are Auster-designed but are an 'extra' from a later period. So don't count on any two extant Autocars being 'lookalikes' either externally or internally.

Gathering of the clan Autocar

J/5B. (130-hp D.H. Gipsy Major Srs.1). Total of 82 built, 1949-57, with enlarged, horn-balanced rudder in December 1949 replacing prototype G-AJYK's original mass-balanced control surface. Fuel tanks in the wing roots. British registered survivors include G-AMPW (c/n. 2961, registered 28 March, 1952) and now in process of rebuilding in the Leicester area with wings from G-APAA, a J/5R Alpine. A second J/5B is G-AXMN (c/n.2962, reg'd. in 1952 to become F-BGPN), the British reg'n. being effective from 14 August, 1969. Present owner is A. R. Norman, base is Sandown, I.O.W. Non-standards include J/5Bc n.2915 in New Zealand as ZK-AVN with a Lycoming and thus technically a J/5V (q.v.), and Australian VH-BPA (c/n.2947) re-engineered with Cirrus Major Srs.2 to become VH-KCO and thus only known example built to J/5H standard. Both G-AJYN (c/n.2910) and G-AMNC (c/n.2953) were rebuilt to J/5P standard. Camera ships included F-BGPN G-AXMN already mentioned and G-AMMZ (c/n.2948).

J/5E. (155-hp Cirrus Major Srs.3). One-off racer, G-AJYS (c/n.2917), flown in 'Daily Express' promotion on 16 September, 1950 by Randal Porteous and regarded as precursor of the J/5G. Scrapped in 1951.

J/5G. (155-hp Cirrus Major Srs.3). Total of 94 built, 1952-63, with the prototype, G-AMKG (c/n.2982; later VH-ADX) making its first flight in July, 1951. The extra engine power made the J/5G ideal for the tropics and for use as crop-sprayer with 48 or 78 Imp.gal. (220 or 355) tanks. Auster twin-floats graced the Norwegian LN-BDA

Below: G-AOIV, type J/5G (serial no. 3199) the 15th Cirrus powered Autocar to appear (1952-56) on the British Civil Register.



540



Above: plexi-glass cockpit glazing mouldings are complex on the Autocar (and expensive) the windshield fairings-in to the wing roots and over the wing upper centre section.

(c/n.3082) and the Swedish SE-BYT (c/n.3083) after ferrying with normal land gear. Saunders-Roe adapted G-AMZV (c/n.3065), after C. of A. was issued in July 1953, for their Hydro-Ski experiments at Bembridge, I.O.W. Other non-standard J05Gs include the GRP (glass reinforced plastics)-covered G-ARUT; ZK-CXA (c/n.3070) now powered by a Lycoming and described as J/5G-L; and VH-KCD (c/n.3189) powered by a 180-hp Lycoming 0-360 and sporting spats and the fanciful name of 'Bushmaster'.

Surviving British-registered J/5Gs include: G-AOIV (c/n.3199) currently owned by P. E. Scott of Pontefract; G-ARKG (c/n.3061, ex-Kenya VP-KKN of 1952; Pakistan AP-AHJ, 1955) returned to England in 1961. Last C. of A. 20 June, 1981, but restoration is hopefully awaited. Other J/5Gs are G-ARNB (c/n.3169) also like G-ARKG (q.v.) and ex-VP-KNL and AP-AHL, and to England in May, 1961. Now owned by M. T. Jeffrey and awaiting restoration at the Beneden strip in Kent; also G-ARUG (c/n.3272), owned by N. P. Biggs and based at Hassocks, Sussex; and G-ASFK (c/n.3276) currently owned by Orman (Carrolls Farm) Ltd. and based at Gt. Massingham, Norfolk.

J/5H. Stocks of the 145-hp Cirrus Major Srs.2 were vested in Australia. See J/5B reference to VH-KCO.

J/5P. (145-hp D.H. Gipsy Major Srs.10 Mk. 1 & 2). Total of 24 built between 1955-61. Some, such as G-AOFM and G-AOGM were initially used on surveys with camera (vertical) apertures in the rear floor. Currently G-AOBV (c/n.3171) of 1955 is being restored at Benington, Hertfordshire, by its owner, P. E. Champney.

Subject of our photo coverage, G-AOFM (c/n.3178), also of 1955, is kept in immaculate condition by its owner, Chris Barnes, and is based at Popham, Hampshire. It is said to respond with a wagging tail to the name 'Biffo'. Also to be found on occasions

at Popham is G-AOHZ (c/n.3252), of 1956, jointly owned by M. R. Gibbons and G. W. Brown. Registered in April, 1961, G-ARLY (c/n.3271) is currently on rebuild, possibly to 180-hp Lycoming 0-360 (Beagle-Auster D6/180) standard, and jointly owned by Mr. & Mrs. Alva and Mr. & Mrs. Cooper of Leicester.

Autocar survivors overseas are few and far between — one Australian example, VH-BYV (a J/5G, c/n.3163) was only withdrawn from use in 1982 — a shining example remains in continental Europe in the shape of the Danish OY-AVB (a J/5P, c/n.3275 ex-W. German D-EJUX) based at Beldringe. As one of the members of the KZ & Veteranfly Klubben, OY-AVB is an occasional U.K. visitor for such events as the July 1980 Air-Britain Annual Fly-In.

J/5T. (185-hp, Continental E-185-10). Late 1950's E.T.B. (engine test bed) in connection with the short-lived prospect of a 'nosewheel Autocar' — the Auster C6 Atlantic of 1957-58 — which was flown only with the Class B reg'n. G-25-4.

J/5V. (160-hp Lycoming 0-320). A one-off prototype utilising this particular power unit. Reg'n. G-APUW.

D6/160 & D6/180. (160-hp. & 180-hp. Lycoming 0-320 & 0-360). Four more Lycoming-powered Autocar-type airframes were built under the Beagle-Auster banner in 1960.

J/5B, J/5G & J/5P Autocar: Design data

Manufacturer: Auster Aircraft Ltd., Rearsby Aerodrome, Rearsby, Leicestershire, England

Autocar variants: J/5B, J/5E (racer), J/5G, J/5G-L (Lycoming) & J/5G 'Bushmaster', J/5H (Cirrus Major Srs.2), J/5P, J/5T and J/5V (Lycoming) Plus Beagle-Auster D6/160 and D/180

Chief Designer: Ronald E. Bird, who joined the original company, Taylorcraft Aeroplanes (England) Ltd., in 1943 and became Ch.D. in 1947. Subsequently gained P.P.L. with Auster Flying Club

Category: four-seat, two-door, lightplane suitable for private owners, flying clubs, commercial purposes and military liaison/ambulance roles

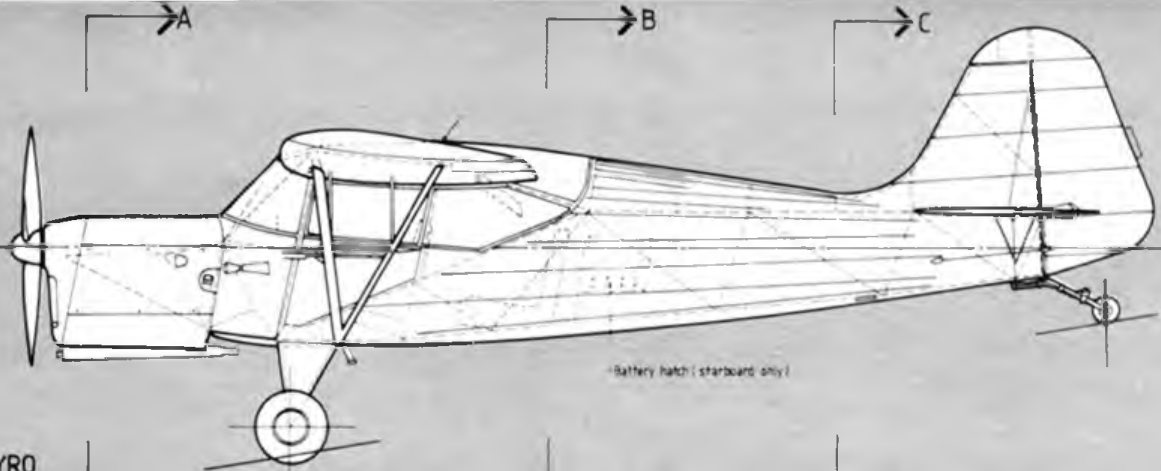
Powerplant (J/5B, J/5G & J/5P): one air-cooled, four-cylinder inverted inline with direct drive for LHT (left hand turning) fixed pitch, two blade Farrey Reed metal propeller (J/5 B) de Havilland Gipsy Major Srs 1 delivering 130-hp at 2350 rev./min.; (J/5G) Blackburn Cirrus Srs 3 del. 155-hp at 2450 rev./min.; (J/5P) D.H. Gipsy Major Srs 10 Mk 2 del. 145-hp at 2550 rev./min.

Dimensions (J/5B, J/5G & J/5P): span 36ft 0in (11.0m); length 23ft 2in (7.1m); height 6ft 6in (2.0m); wing area 185sq ft (17.2sq m); wing chord 5ft 3in (1.6m); dihedral 1°; incidence at wing root 3°, and at wingtip 2°; aspect ratio 7.0

Weights (J/5P): empty 1,370lb (625kg); max loaded 2,450lb (1,110kg)

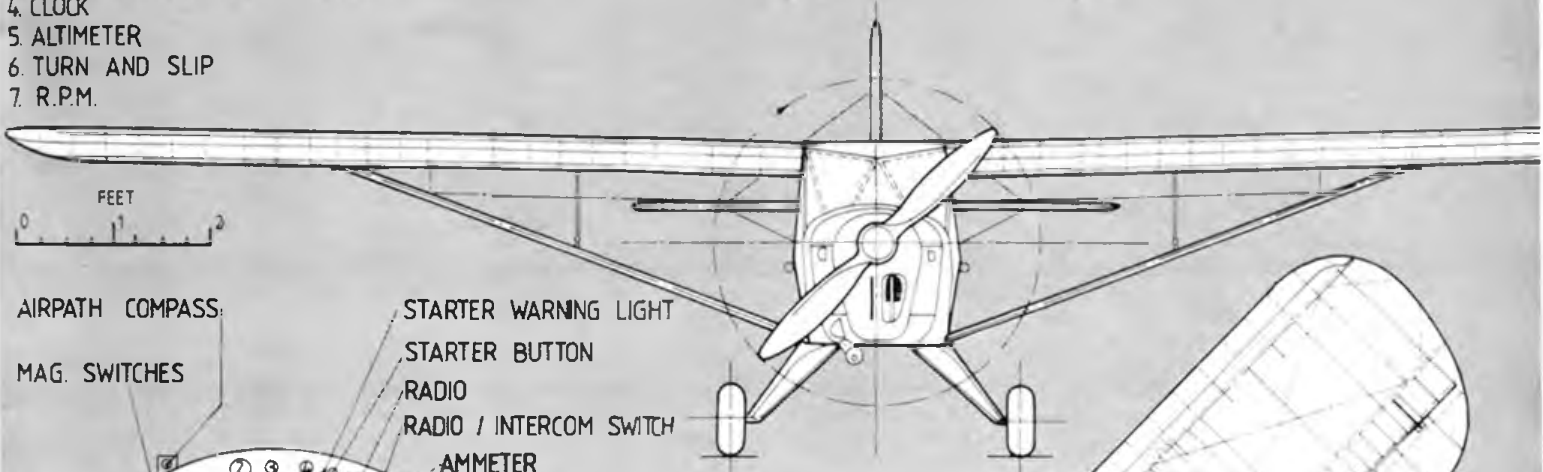
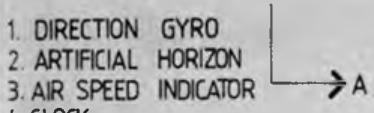
Loadings (J/5P): max power 16.9lb/hp (67.55kg/hp); wing 13.30lb/sq ft (64.95kg/sq m)

Performance (J/5P): max speed 125mph (200km/hr) at sea-level; cruising 110mph (185km/hr); initial climb rate 620ft/min (190m/min); service ceiling 13,500ft (4,110m); range 425 miles (685km) with fuel capacity of 32 Imp gal (145l) and oil 3 Imp gal (13.5l); stalling speed (flaps) 35mph (60km/hr); landing (flaps) 55mph (90km/hr); take-off run 245yds (225m); landing 130yds (120m)



Battery hatch (starboard only)

1. DIRECTION GYRO
2. ARTIFICIAL HORIZON
3. AIR SPEED INDICATOR
4. CLOCK
5. ALTIMETER
6. TURN AND SLIP
7. R.P.M.



- AIRPATH COMPASS
- MAG. SWITCHES
- HANDBRAKE
- CARB. HEAT
- THROTTLE AND MIXTURE LEVERS
- STARTER WARNING LIGHT
- STARTER BUTTON
- RADIO
- RADIO / INTERCOM SWITCH
- AMMETER
- OIL PRESSURE
- KYGASS PRIMER

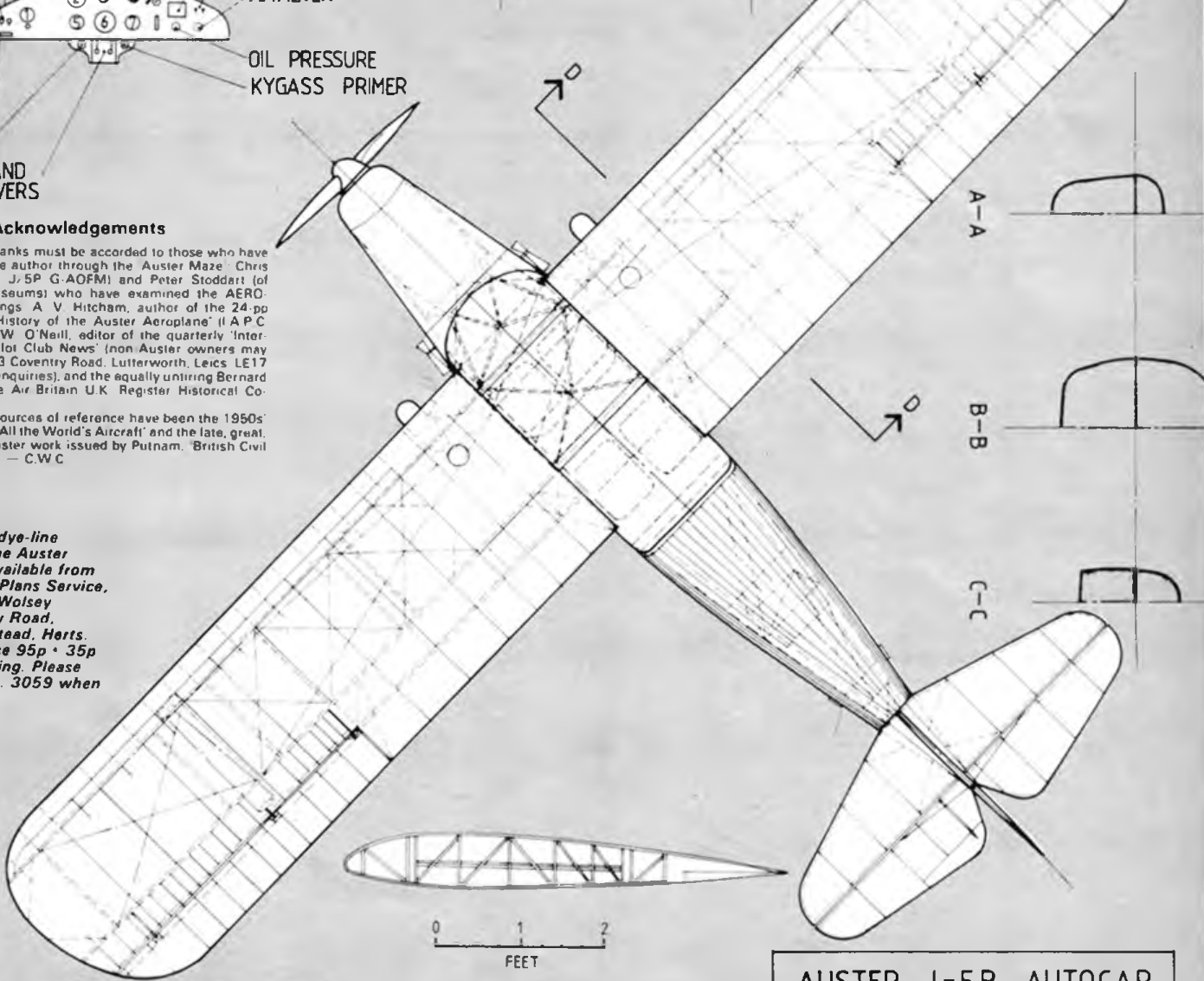


Acknowledgements

Most grateful thanks must be accorded to those who have helped to guide the author through the Auster Maze: Chris Barnes (owner of J.5P G-AOFM) and Peter Stoddart (of Leicestershire Museums) who have examined the AERO-MODELLER drawings; A. V. Hitcham, author of the 24-pp monograph 'The History of the Auster Aeroplane' (IAPC Publications); Ian W. O'Neill, editor of the quarterly 'International Auster Pilot Club News' (non Auster owners may join, Ian O'Neill, 93 Coventry Road, Lutterworth, Leics LE17 4QF, will pass on enquiries); and the equally untiring Bernard Martin who is the Air Britain U.K. Register Historical Co-ordinator.

Other valuable sources of reference have been the 1950s editions of Jane's 'All the World's Aircraft' and the late, great, A. J. Jackson's master work issued by Putnam, 'British Civil Aircraft, Vols 1-3' — C.W.C.

1/24th scale dye-line drawings of the Auster Autocar are available from Aeromodeller Plans Service, P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS. Price 95p + 35p post and packing. Please quote Plan No. 3059 when ordering.

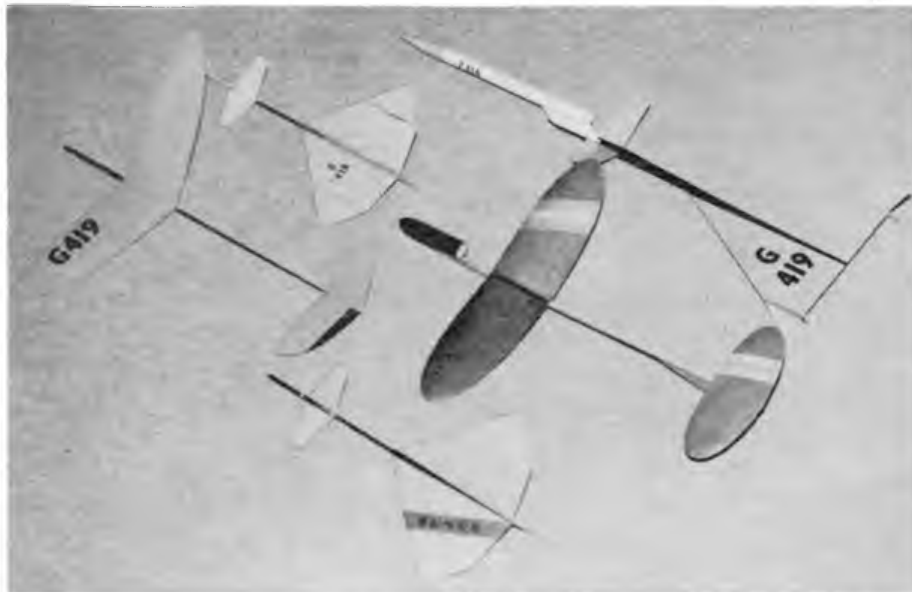


SCALE 1/24 FEET

AUSTER J-5B AUTOCAR

SPACE MODELS & ROCKETS

by
Peter Freebrey



Left, an array of boost and rocket gliders from the Author's collection. G419 has glide trim tab operated on release of boost rocket. Vee tail on this model enables the tab to give turn and elevator effect.

IN THE SEPTEMBER ISSUE we looked at the simplest of space models from the eyes of a first-time flyer. With a bit of luck, most of you will have got the idea of how a space model is prepared (prepped) and flown for the first time. At the present time nearly all of you readers of *Aeromodeller* are fliers, or would-be fliers, of model aeroplanes. With this in mind we come to one aspect of space modelling that particularly appeals to me — a dyed in the wool aeromodeller.

There are two classes of space models that also involve aeroplanes — boost gliders and rocket gliders. These two classes require that the model be launched under rocket power and then return to earth as a glider. The rules stipulate that models must 'ascend into the air without use of lifting surfaces which sustain the entry against gravity during that portion of its flight when it is being subjected to or accelerated by thrust from its model rocket engine' and 'return . . . to the ground in stable gliding flight supported by aerodynamic lifting surfaces which sustain the model against gravity'. Sounds complex, but we now have the perfect example in the Space Shuttle . . . up as a rocket, down as a glider.

The difference between the two classes . . . boost glider and rocket glider is that the former (boost glider) may eject the rocket motor and its mounting before performing like a glider whereas the latter (rocket glider) must return to earth as it left it (less the rocket motor propellant!) including the motor casing and mounting.

At first sight this may seem simple, we already know that hand-launched gliders are chucked into the air at reasonably high speed, just attach the rocket motor to a chuck glider and away we go . . . not so! A good chuck glider is trimmed to 'climb' on the chuck and 'roll off the top' before it assumes its glide phase, most chuck gliders are not launched vertically but use the lift of the wings and the attitude (banked) of launch to perform a rapid climbing turn

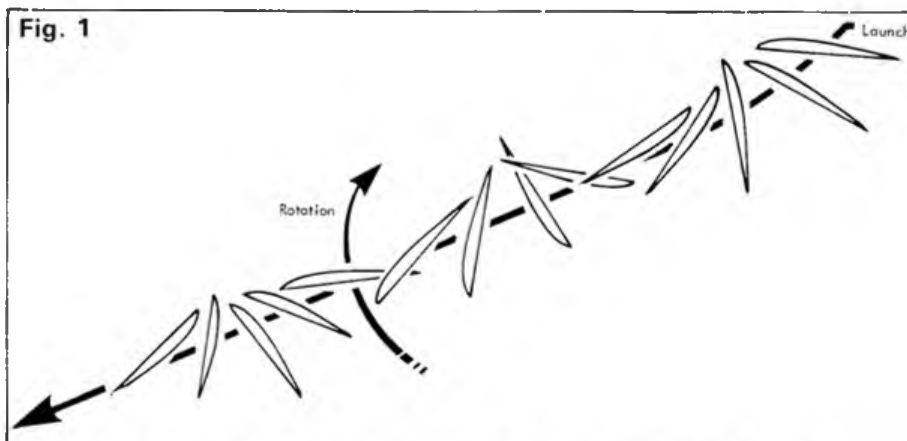
before they enter the glide attitude. If you take any chuck glider and accelerate it rapidly in an unbanked attitude one of two things will happen. Either it will perform a loop ending with a dive into the ground or it will stall and then dive into the ground! As a variant of both of the above, the glider may recover after either the loop or the stall, but in both cases the extra power (thrust) has been wasted and the model ends up lower than if a correctly banked chuck had been given. In other words the chuck glider relies upon the lift of its wings and its rolling ability to deal with the extra thrust at launch.

To realise what is happening and to learn how to deal with these problems we have to look at what makes an aircraft stable in flight. Take a wing . . . any wing, and try to make it glide by itself . . . all that will happen is that it will rotate along the length of the wing as in Fig. 1.

a fairly crude look at the aerodynamics of these experiments we can explain the basis for the glider and also get some ideas for the design of our rocket powered variants.

A simple flat plate wing section (or even the most complex Russian A/2 wing) produces lift at a certain point along the chord of the wing . . . for simplicity let us say this occurs at 25% chord (¼ of the way back from the front of the wing) this point is known as the Centre of Pressure (CP). In most wings of conventional construction the balance or Centre of Gravity is about 33% chord (⅓ of the way back from the front of the wing). You can check this by balancing a wing with a finger under each wing tip.

Now, lift acting through the Centre of pressure acts upwards and weight due to gravity acting through the Centre of Gravity acts downwards (Fig. 2). You can now see why our unsupported wing rotated



To use this wing in a stable gliding mode you have to add a tailplane (or stabiliser), to inhibit the rotational motion of the wing. With the addition of a bit of plasticine here or there you have created the conventional glider. What is happening? If we take

in our little experiment above.

If we now add a tailplane (Fig. 3) you can

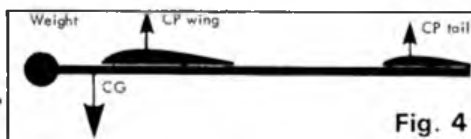
Below left, complete boost glider in power-on configuration. Below right, attachment of boost rocket is very simple. Note the fuse actuated drag strip de-thermaliser.



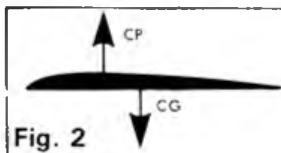
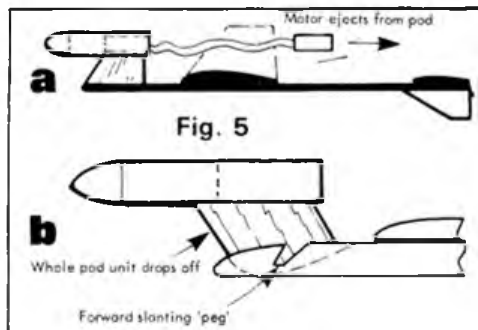


assume a nose up attitude and with further increase in velocity will perform a loop (or loops!). The wing tailplane 'balance' is correct for only a fairly small range of velocities.

A rocket motor burns for a very short time (1/2-2 secs), produces a great deal of thrust and the velocity obtained is much, much greater than that for which the stabilising action of a conventional glider is designed. This really does pose problems for the would-be rocket powered glider enthusiast! Having said that, we already have a clue to a solution... what happens if we add half an ounce (15 grams) of lead to the nose of our chuck glider? Well... rather than you going out and trying this, I will tell you. Think back to our CP CG diagram above Fig. 3. If we add nose weight it will now look like Fig. 4.



wing to bring the CG forward of the CP and we may be in business. BUT what happens when the motor stops burning (giving thrust)? Well, if we did nothing else it would behave just as our chuckie with 1 oz. of extra nose weight... find the shortest route to terra firma and we all know what that means... sspplaaatt! But if you remember back to our last article (back numbers are still available). A rocket motor has three separate parts: (1) propellant; (2) delay tracking charge and (3) an ejection (retro) charge. This is where the ingenuity of the space modeller comes in, the delay we must have to allow the model to coast up to its maximum altitude... but we can use the ejection charge to initiate all sorts of interesting events.



see how the lift from the wings and tail are 'balanced' about the Centre of Gravity. By adding or removing weight from the nose of our glider we are altering the relative position of our CG to the lift of the wing and tail. When you obtain the right 'balance' you get a stable gliding flight with the lift of the wings 'balanced' against the lift of the tailplane. Although this explanation is rather crude, I think it is fairly easy to see what is happening.

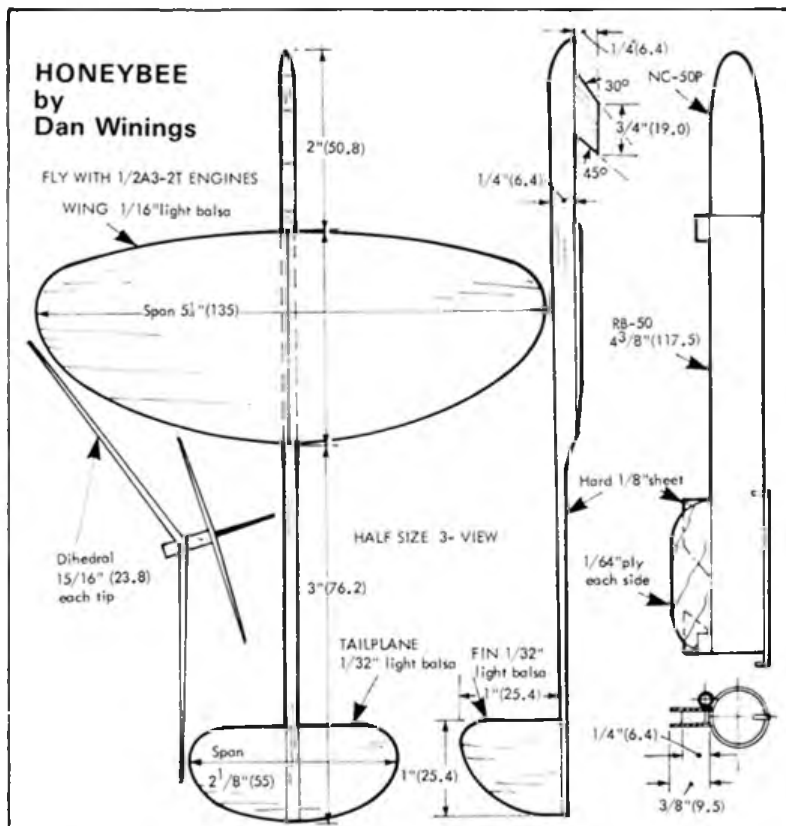
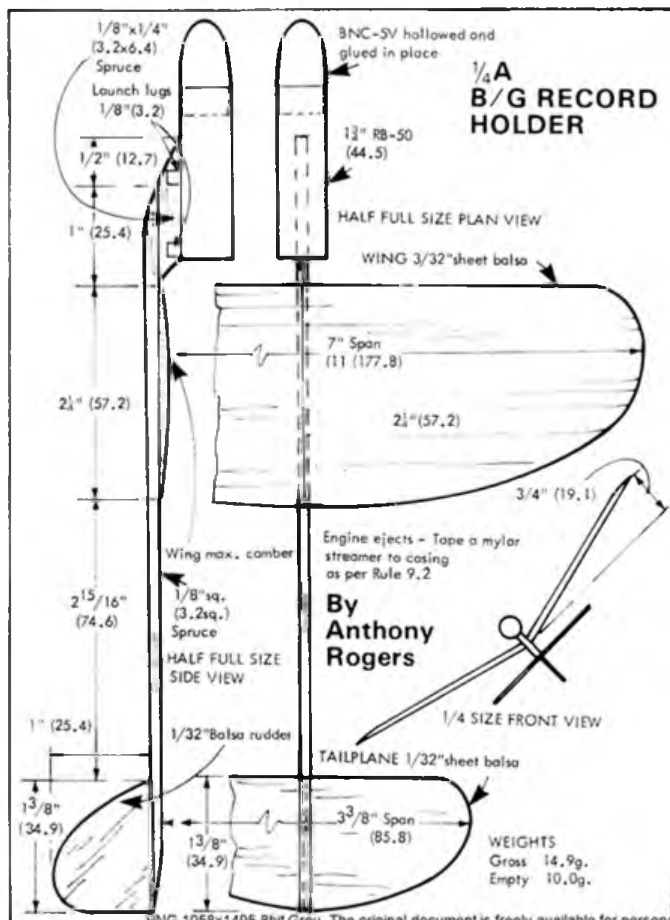
Now all the lift (Wing and tail CP's) are behind the C.G., there can be no 'balance' as in Fig. 3. The chuckie will simply go in the direction in which it is thrown with a tendency (!) to dive. The further forward the C.G. the less control the wings and tailplane have on the flight pattern. You no longer have a glider, more of a missile. It can be thrown in any direction and it will continue in that direction tracing the form of a parabola until it hits the ground!

If we now increase the speed (velocity) of the model, the wing will develop more lift and as the wing has a much greater area than the tailplane, this lift will alter our precious 'balance' and the model will

Here then is one of the most popular ways of controlling the power on phase of a rocket-powered glider (and probably the most simple).

Put the rocket motor well forward of the

First we can use the ejection charge to 'eject'... but not the nose cone or parachute... the engine itself. The nose cone in model A is firmly cemented into the body tube and the motor is a firm sliding fit in the tube. On ejection, the motor is blown out backwards dragging a small streamer or parachute with it.

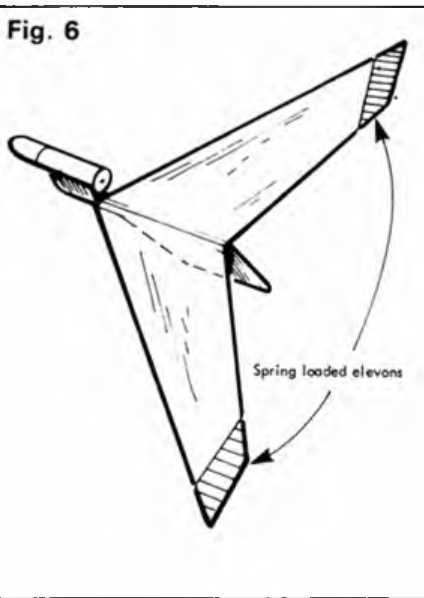


Model B uses the ejection charge to blow off the nose cone and a small parachute. The drag of the parachute (or streamer) pulls the whole motor mounting assembly away from the glider. The rocket 'pod' is held to the glider body by a forward slanting 'peg' which is held firmly in place when under thrust, but easily detaches backwards upon ejection.

In either case we have suddenly reduced the weight at the front of the model so that (if the design was right!) the C.G. is now back where it should be . . . behind the centre of pressure and what is left up there is a conventional glider and hopefully . . . away she flies.

The ejection charge burns briefly, but generates a fair bit of heat immediately in front of the motor. This can be used to melt a fine nylon thread . . . this could be used to release spring-loaded elevons as in model in Fig. 6 . . . in addition to ejecting the spent motor of course!

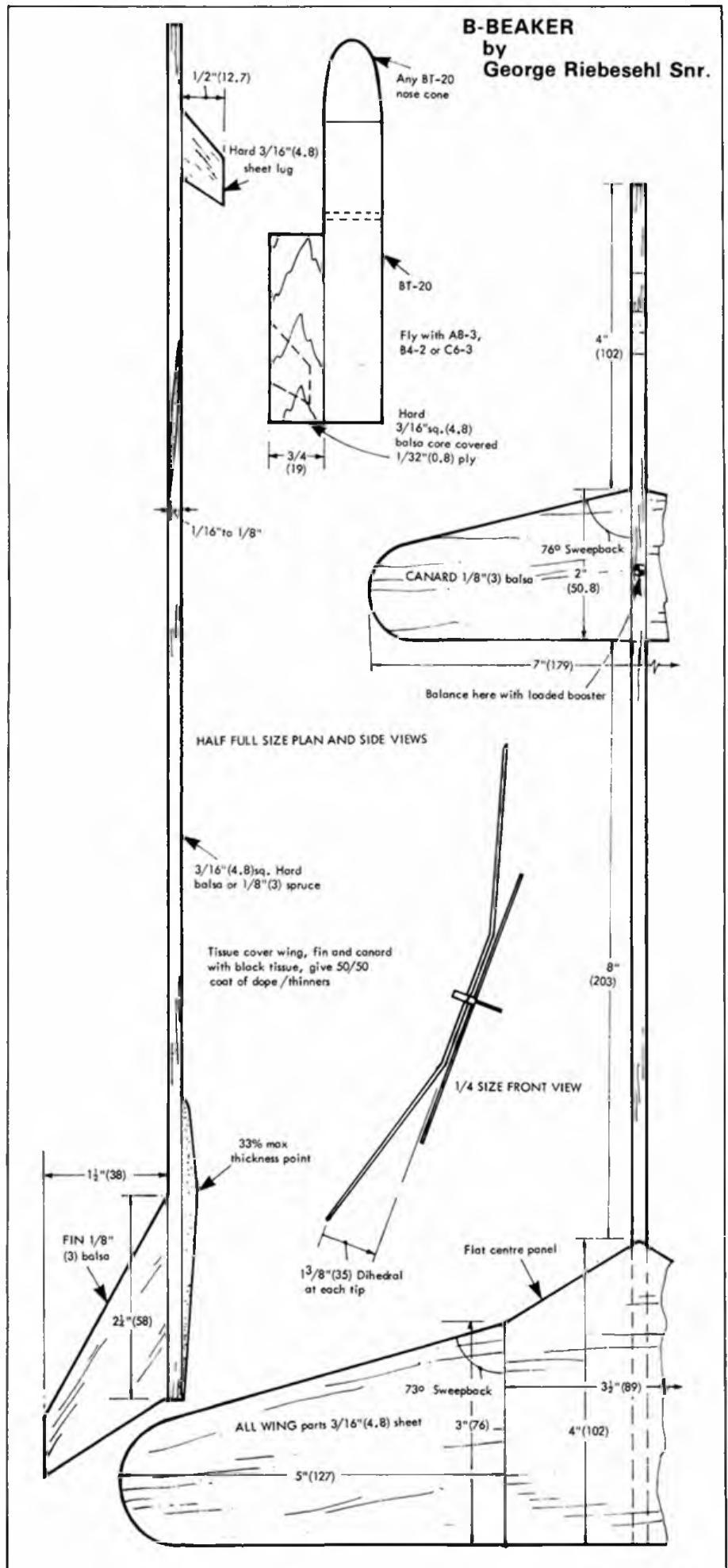
Fig. 6



These are just the first beginnings of obtaining an ascent like a ballistic missile and a gliding descent. In our next article we will look at other ways to obtain a similar flight path . . . would you believe swing wings and rogallos?!

Green light for Space Modelling

One piece of information that I'm sure all you would-be rocketeers have been waiting for is that it looks as though after many, many years Space Modelling is about to become possible in this country. Due mainly to the efforts of the British Space Modelling Association, the powers that be have at long last conceded that putting a model rocket motor in the framework of a space model is not illegal!! All (!) that remains illegal is the importation of the motors. Some of the most popular American motors are now going to be officially tested for safety and when they have passed that hurdle (which hopefully will not be difficult, although it will take time) then official space model clubs may import and sanction the use of these motors. . . I wonder whether 1984 or 1985 will see the 1st British Space Models Nationals. Needless to say there are a number of rules that we will have to abide by, but most of these are pure common-sense and most were given in our last article. Why not join the B.S.M.A. NOW and be one of the founder members of your local space modelling club?



Shinden

DURING THE Second World War there were several attempts to produce war-planes using the 'canard' or tail first layout. Despite the potential advantages of such a configuration none of these designs entered production. Perhaps the one which came closest to success was the Japanese Kyushu J7W1 Shinden (Shinden meaning 'Magnificent Lightning'). This aircraft flew in prototype form, but plans for mass production were halted by the surrender of Japan in 1945.

The history of this model is almost as bizarre as its appearance. Some twenty years ago as a thirteen-year-old schoolboy I first saw drawings of the Shinden in a reference book. With the enthusiasm of youth, which usually implies a total disregard for practicability, a simple rubber powered model was built and proved a surprisingly good flier. This model was rather rough, being built from odd scraps of balsa and an improved Mark II version was built. My interest moved onto I/C powered models, control-line free-flight and finally radio control and the Shinden design was 'forgotten' over the years.

Some months ago I discovered that a colleague built small CO₂ powered models during his lunch hour. Andy claimed that this is the best form of dieting yet discovered and as a bonus you ended up burning off calories running after the model. Seeing his CO₂ models set me itching to try a free-flight model again. At that moment the 'Shinden' resurfaced from the depths of my memory, fortunately I had kept the original plans and after a few moments I felt the design could be modified to take a CO₂ motor. No more time was wasted and a Telco Turbo-tank 3000 unit was purchased and balsa cut.

Shinden Mark III looked fine, but no matter how I adjusted the motor the best that could be achieved was a prolonged glide. No doubt the weight of the motor and nose ballast was too much for the simple flat plate section wing. Refusing to be defeated Mark IV was built returning to rubber power and success returned after some twenty years. Before anything else could go wrong I put pen to paper to describe what may not be the most aesthetically pleasing model, but you must admit to its eye-catching nature.

An unusual all-sheet balsa canard for rubber or CO₂ power designed by Glyn Guest

Construction

This model is so simple that no detailed construction notes are needed, a few tips are in order though. Firstly, the grade of balsa to use is medium weight, preferably quarter grain for extra stiffness. Light soft balsa should be avoided, vulnerability to damage will be greater without any improvement in performance. Balsa cement is ideal for this model, reinforcing important joints with three or four smoothed-out layers.

It is best to construct the wing (omitting the fins until later) and fuselage separately and take great care over accuracy when joining them together. Accuracy is also required with the two fins, small they may be, but their effect is quite powerful.

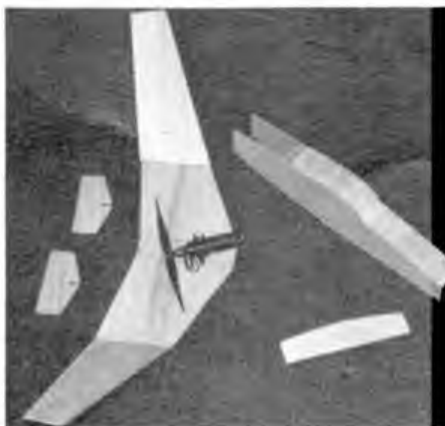
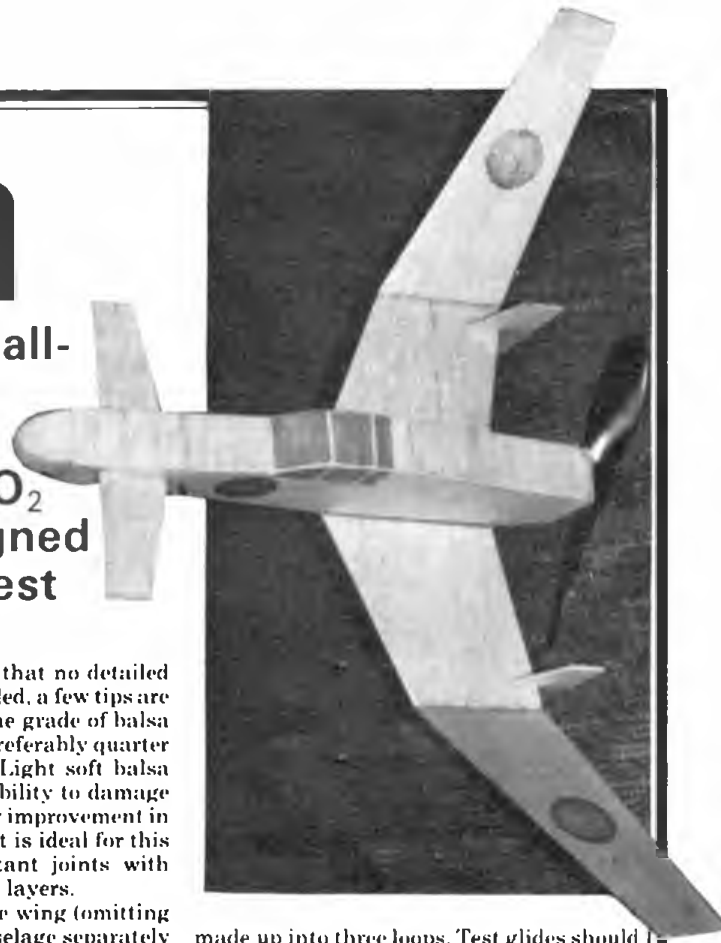
The only concession to aerodynamics is to sand all the corners of the model round, but this isn't essential since Marks I and II managed with blunt wings. None of the four Shindens were doped or painted, insignia and cockpit trim being added with felt-tip pens, don't worry it won't warp unless you insist in flying in the rain. A conventional propeller assembly is used although it does have to work backwards, and a 7-inch diameter plastic prop is ideal. Power comes from a 60-inch length of 1/16-inch rubber

made up into three loops. Test glides should be conducted over the longest grass you can find. The hand-launcher stuck to the underside of the wing centre section should be gripped between thumb and forefinger and the model launched in a level attitude. Ballast as required to produce a straight glide of some 30 feet. No significant turn should be evident in these test glides.

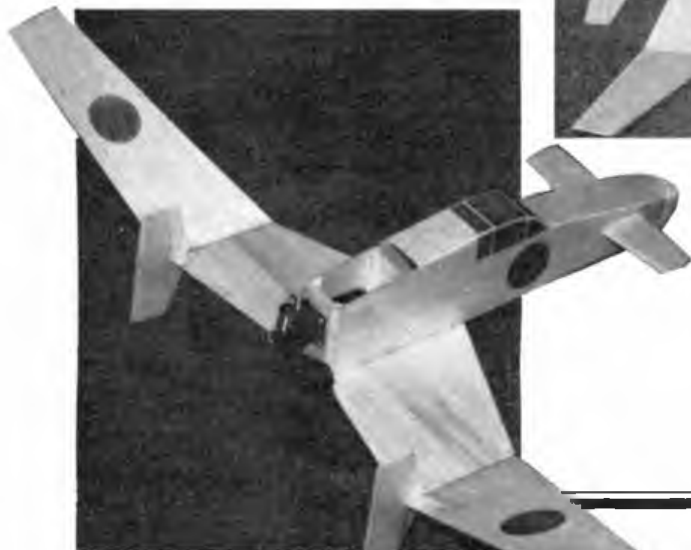
Now to the flying, first forget about a model describing lazy circles in the sky, the Shinden flies in a fast and spectacular manner. With the glide trimmed out wind about 100 turns on the propeller, remember to wind the correct way! then figure out how to launch it. With the launcher gripped firmly in the right hand and propeller in the left hand (assuming you are right-handed) you can only hold it above the right shoulder. This limits the amount of arm effort you can put into the launch, fortunately this is no problem since the model accelerates away quickly enough. With a zero-zero thrust line, a launch into the wind at about 20-30 degrees up angle should produce a rapid climb, in fact the model will attempt to loop. However at the top of the loop two forces come into play, namely torque and the generous dihedral, both combining to roll the model upright. With only 100 turns the model will wallow on the last dregs of power before gliding down to earth. The glide should be a gentle turn and rather steep due to the models low lift-drag ratio.

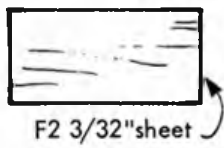
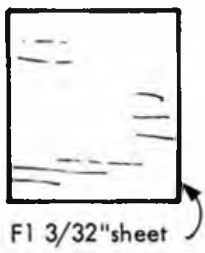
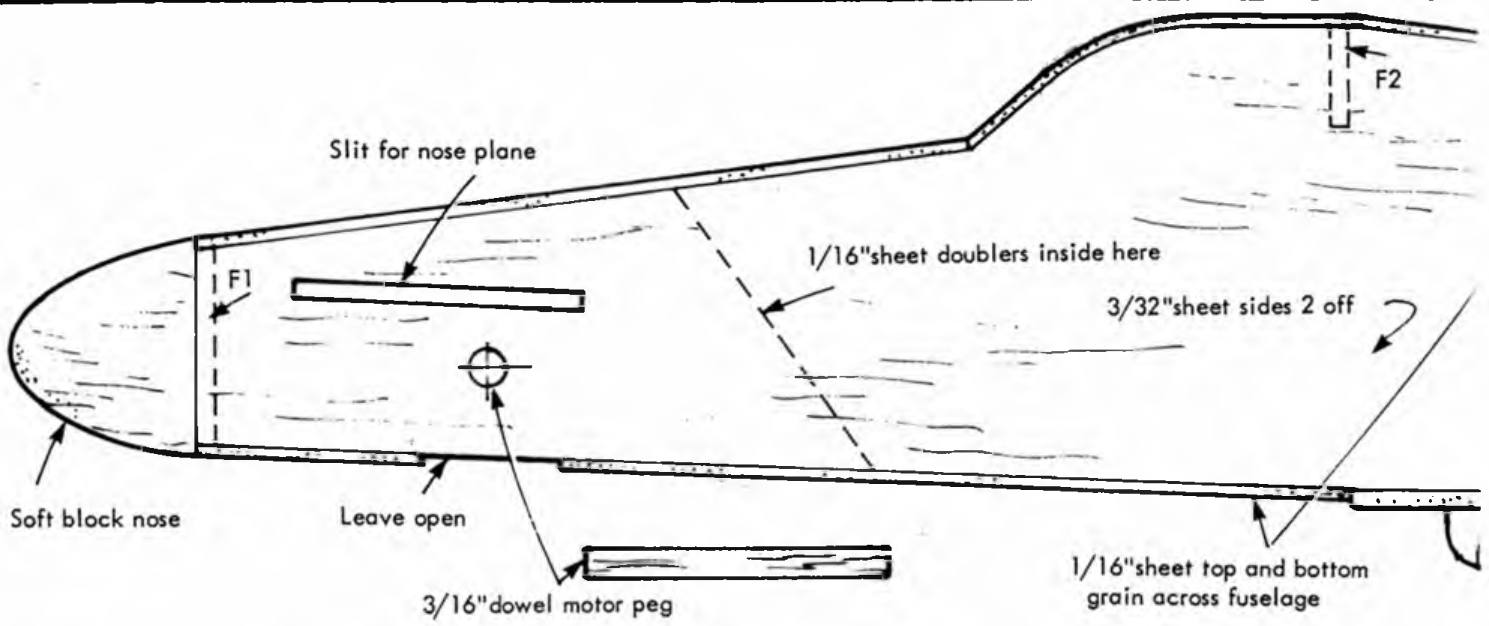
Increasing the power will result in the model attempting a second loop after rolling out at the top of the first one. How many half loops it performs depends upon the trim and number of turns you are brave enough to apply. I usually settle for 200-250 turns which gives a lively flight, without it going too far, and a long motor life.

There you have it, an unusual, both in appearance and flight characteristics, model which is bound to raise a few eyebrows on your flying field. Now where did I put the plans for the Miles M35 and Curtis XP-55 *Ascender* some twenty years ago?

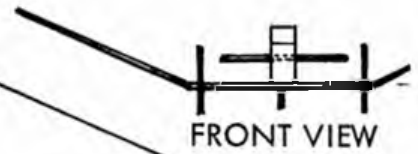


Heading photo shows Shinden with rubber motor fitted. Above and left, parts for a complete CO₂ Shinden. Simple "Flet pen" decoration is used.





Leading edge

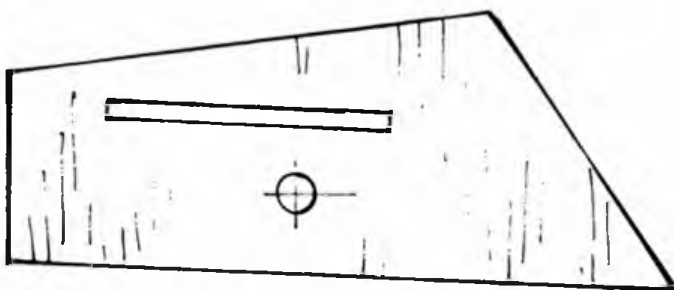


Position of hand launcher on underside

WING CENTRE SECTION
3/32" sheet
Joint line for 3" sheet

Position of fin

Positi



WING OUT
1/16" sheet

← DIRECTION OF FLIGHT

3/32"x1/2" strips inside

Plug from 1/4" and 1/8" sheet

Plug laminations note grain

1/4" sheet

Balance here

Wing centre section

Hand launcher
1/8" sheet

Plastic or brass bush

Use 7" dia plastic prop with front next to bush. Wind counter-clockwise.

1/8" sheet

4" dihedral

NOSE PLANE

3/32" sheet

POWER

60" of 3/16" flat rubber in 3 loops

FINS

3/32" sheet 2 off

PANELS

2 off

Shinden



Aeromodeller Vintage Day

Another red and white rosette to hang in the den, more photographs and movie film for the collection, and admiration for the boundless enthusiasm for old model aeroplanes that the present-day modellers bring to Old Warden mark the passing of yet another Vintage Day organised by *Aeromodeller*. Blessed with reasonable weather and a good turnout this was a fine meeting. The steady breeze that existed for most of the day meant that there was considerable drift, so the free-flyers once again had to suffer bouts of tree climbing or had considerable downwind distances to cover to retrieve their models. SAM 35 was able to hold some of its main events at this meeting and these gave the relaxed competition atmosphere that is now becoming part of the Old Warden vintage scene.

With so much activity going on, it was impossible to see all the happenings and once again I was unable to see any control-line action except from a distance. Visitors, I am sure, rarely see anything other than the radio area, since this is where it all appears to be taking place. Might they not wonder what the distant groups out on the aerodrome are doing? Many modellers to whom I spoke found that they had missed certain events because of overlap and some free-flight enthusiasts still feel that they are the poor relations. More than once, the thorny question of making vintage a two day event was mentioned. There is even just cause for holding a non-radio vintage meeting, the radio men need not feel slighted, they can cope very well, but don't let them always steal the limelight! The amount of interest in vintage flying scale, vintage rubber, vintage Wakefield and vintage glider is increasing and warrants attention, a non-radio day might even boost the flagging vintage free-flight power model. Radio played such a small part in the aeromodelling scene up to the end of our vintage period, why should it always be allowed to be the major activity on all our Vintage Days? A recent American advertisement included the statement: "... original Miss America and Alert for sale ... both planes set up for R/C and ignition or glow, can also be flown free-flight if you have the nerve!" The italics are mine, but the extract shows how the vintage power trend is going.

At Old Warden this year the popularity of R/C Assist was more apparent than ever. This is due to a number of reasons, the

foremost one obviously being the availability of flying space. However, it is a fact that most present-day vintage power modellers would not tackle some of the designs that they do, unless they had that little box with the sticks to play with. One great point in favour of R/C Assist is, of course, that models can be flown in windy conditions that would ground free-flight. Noel Barker, one of our most active free-flight vintage power fliers (at it since his Aircraft Apprentice days at Halton before the war) now has R/C in his *Vulcan* powered with an OS60 four-stroke, and he says that this model has done more flying in the last few months than it ever did in the previous 15 years as a free-flight model.

Flying scale rubber models in the Earl Stahl competition and Cruiser Pups in the C. A. Rippon event were mostly operated in the lee of the trees. Even here, tricky turbulence caused some variance in flight performances, but a great deal of excellent flying was carried out. The radio models, less affected by the wind flow all day and many were either taken to high altitude assisted by the strong thermal activity until they were mere specks against the cumulus

clouds, or were flown in orderly circuits of the landing area. The standard of flying was high and only occasionally did machines behave in non-vintage manner by aerobating about the aerodrome at high speed.

One of the most spectacular sights was the mass Wakefield fly-off when some twenty models erupted into the sky. Most of these either had low turns or short D/T settings and the bulk of them stayed in the aerodrome, however, about four modellers threw caution to the winds and their models were across the boundary hedge before they glided down into the adjoining fields and copse, the winner, Brian Yearley, has still not recovered his 'Vanstead'.

Danny (Burd) Sheelds

The trade stands were well patronised and during the whole day each caravan or tent had its knot of prospective buyers for materials, plans, engines and second-hand oddments including magazines. Throughout the car park there were groups of enthusiasts and investigation of these usually revealed an open cardboard box on the car bonnet with vintage engines

Ian Badis burned the midnight oil to good effect, being rewarded by fine flights from his Bay Ridge Mike.



Arthur Fox about to fly his 'AT Ease' Beautifully covered and decorated, this model was shown in skeletal form in Sept. Vintage Corner.



This Denis Fairlie design for rubber power was described in December 1935 Aeromodeller. Tom Markham of Bristol made this power driven R/C version that exhibited good handling qualities, being held firmly on its wheels during many fine 'touch-and-go' landings at A. M Vintage Day.



Above: Derek Ridley uses a Mills 1.3 diesel in his 50in. span Bill Winter design that was described in Model Airplanes News July 1947. Derek has made a left hand pusher prop, but could have used an ordinary right hand tractor prop. on backwards and operated the Mills clockwise.

changing ownership. The largest group eventually sprouted a long bamboo pole flying a pillow case flag marked 'SAM 35' where Dave Baker was distributing plans and SAM 35 Newsletters, but Dave's wares were not the sole attraction to this focal point. The grapevine is highly effective, especially at Old Warden, and the magic words 'Danny is here' were enough to produce unfinished conversations and dealings and cause a general drift towards Dave's car. The target was large and could be seen from afar clad in a bright red shirt. Described at times as a court jester, this jovial enthusiast from USA simply lives, breathes, sleeps and eats 'Antique and Old Timer Model Airplanes'. Danny Sheelds has been building gas models for over 45 years, except for short lapses caused by family, business, and Air Force service as a B-29 Superfortress navigator. He has a particular interest in the King Burd produced by the Burd Model Airplane Company from his native Baltimore, has made King Burds in various sizes and a few years ago produced a number of replica kits for this model. Danny, who was one of several visitors from the North American continent

Danny Sheelds came all the way from Baltimore, U.S.A. to compete in his own twin-pusher event. Here he is presenting the trophy that he donated, to Bob Walden, this year's winner.



present at Old Warden, was most complimentary about the Vintage Day organization and enjoyed himself greatly, even flying his own twin-pusher in the SAM 35 event for which he donated the trophy some years ago.

Rara Avis

Models seen for the first time included Cliff Billington's CD Fleetster powered by

an ED Bee, this 42in. span Cleveland design features a most unusual wing plan shape that is not apparent in the illustration used to advertise the model, the wing holding rubber bands being internal give this machine a very clean appearance. Les Hoy can always be relied upon to dig out something rare, and his Co-Axial, a low-wing rubber model designed by C. F. Hedges and R. V. Bentley was described in the May, 1942 Aeromodeller. With waisted wing roots, automatic rudder and geared co-axial propellers this model was prone to propeller breakage in other than smooth landings.

Tony Turner brought his Viper II, a beautifully built example which had kept Tony up into the early hours to complete, and the red dope on the spinner was still tacky! He had been forced to use smaller diameter gears than the original, and using the amount of rubber specified, found that it was physically impossible to hand-wind the propeller with more than 120 turns. By reducing the amount of rubber of each of the four skeins he managed to double the number of turns and obtained many flights, albeit of short duration and low altitude. Knowing Tony's tenacity, we wonder how long it will be before he equals or betters the best known Viper duration of 72.5 seconds obtained by Leonard Taylor before the war! A lot of interest was shown in the Viper and a number of modellers mentioned that they had intended to build this model when the plans were re-issued in December, 1979 (Viper was the highest selling MAP plan that month) but became disenchanted when they examined the fuselage construction in



S.M.A.E. Honorary Historian Alwyn Greenhalgh with his restored 'Rock' (see text) which has its black silk covering finely stitched to its original structure.



Left: Tony Turner and Viper II, the pre-war C Rupert Moore design that won the Northern Heights Coronation Cup in 1937 (see text). Below: Brian Downham with his Keil Kraft Falcon, winner of the Keil Trophy, awarded for the most representative power model. Just look at those lovely 6in. airwheels!



VINTAGE CORNER

detail, and found that suitable gearwheels were not readily available. Tony has used balsa bulkheads and hardwood stringers on a split keel system, and this is possibly the easiest way to make the fuselage.

Readers might like to refer to Vintage Corner in the December 1981 issue where I comment on this model and the simple jig that I used to ensure accurate fuselage construction. Other modellers had also burned the midnight oil. Ian Badis said that his tiredness evaporated like magic when he made the first flight of his 48in. span Mills .75 powered *Bay Ridge Mike* fitted with R/C rudder and elevator when his model was caught in a strong thermal and almost disappeared overhead despite his application of full down! Dick Cooper had also laboured late and long on his silver and blue *Dennyplane Junior*, but had just failed to complete the model in time. This 4lb. 10oz. machine has a large diameter spun aluminium cowling and is fitted with a Dennyrite Airstream petrol engine with remote choke and long exhaust pipe, all carefully reproduced by Dick to make the model as authentic as possible. Fitted with R/C operated rudder and elevators, the engine is not controlled by radio, but the choke and adjustable ignition timing will enable him to fly the model with the desired amount of power.

It was interesting to note that some modellers are going further and further back in time to build real oldies. Phil Siddall had a 1929 *Heron* low-wing rubber-driven model with him, made exactly like Pelly-Fry's original and it flew well, in a similar manner to the prototype, spending most of its time at fairly low altitude. Josh Marshall went even further back and was flying a single pusher canard replica of W. E. Evans' 1913 ROG record holder, but application of full turns tended to bow the motor spars and this resulted in reduced elevation on the forward elevator and the model went 'grass-cutting'.

Alwyn Greenhalgh brought two interesting models, but did not fly because of the wind. One was a replica C. A. Rippon, 1920 pusher mostly made from split bamboo, while the other, called *The Rook* was a 1914 fuselage model covered in black silk with feather shaped wing tips said to be 'anti-stall' attachments. This was an original machine designed and built by W. A. Smallcombe, restored by Alwyn to flying condition, the model featured adjustable rudder and elevator operated by a rack and lever arrangement on the top of the rear fuselage. Other ancient machinery to be seen included a high wing petrol engine model of 8ft. 6ins. span resembling the

Willis petrol monoplane (which itself was based on the well-known *Sky-Rover* rubber model) built in 1934 by William Marshall of Allerstree (Derby) and powered with a 15cc Atom Minor. This model had been hung up in R. J. T. Granger's garage for 45 years directly over a Stanley Steamer.

Understandably the passage of time and the steam and heat from the vehicle below had caused the fabric to rot in places, but the hardwood structure seemed in remarkably good condition and the model simply cries out for restoration to flying condition. R.J. T. Granger and his brother were responsible for the full-size tailless Granger *Archaeopteryx* that can now be seen in the Shuttleworth Collection. Howard Boys, who is a regular attender at model meetings, brought his 1948 tailless record-holder, and accidentally knocked the carburettor off its .32cc Kalper diesel engine when removing the model from his car. This would have effectively grounded the model, but help came from an unexpected quarter. In 1946 Phil Smith had received some Brocks rockets for model use from Howard, and knowing that there was a good chance of meeting him at Old Warden, thought to return an unused box of 12 units. Howard fitted one to his engineless flying wing and got it airborne, and so re-enacted a branch of the hobby at which he had done much experiment in the immediate post-war years.

John Haggart Memorial Trophy

Despite announcing details of this competition in good time in both Vintage Corner and SAM 35 Speaks, only three entries had been received before 21st August. To say that this was disappointing is understating the case, but it confirms that the interest in true vintage free-flight power is not



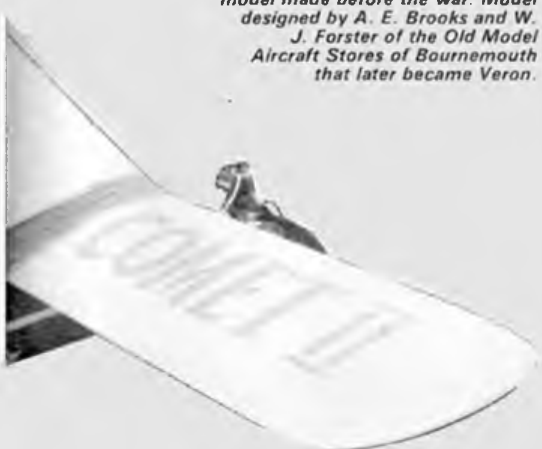
increasing as one would expect. Eventually more competitors were obtained until the field stood at 10 entries and towards evening the breeze abated sufficiently for this event to be flown off.

A 40 seconds target was set, but there was little precision about the competition! Engines that had been reliable starters became haulky when on the flight line, almost all the models had difficulty in

*Right: Ian Badis burned the midnight oil to good effect, being rewarded by fine flights from his Bay Ridge Mike (see text). Below: Denis Fallie met P. T. Capon - here with his original *Krusader* for the first time in countless years. Old Warden '83 became crossroads for many renewed friendships. Below right: flying wing corner - *Manx Monarch*, *Manx Queen* and a *Tex Rickard* wing from Zaic's '38 Yearbook along with *King Burd* and *Junior Sixty* in the model pound.*



Comet II by Phil Smith of Bournemouth was built from carefully researched drawings that were verified from an original model made before the war. Model designed by A. E. Brooks and W. J. Forster of the Old Model Aircraft Stores of Bournemouth that later became Veron.



getting off the close cropped grass ROG and flight times varied from 17 seconds to 1 minute 43 seconds! As Mike Beach was heard to remark at the time "... things don't change..." it was just like an early post-war competition and recalled the need for better engine handling and timer techniques, as well as more attention to undercarriage wheel alignment.

A most unusual incident occurred as Brian Ferrett was about to release his *Covert 1938 Berryloid Winner* in the second round. A beautiful blue and silver *Cruiser Pup* glided into, and was demolished by, the rapidly rotating Mechanair propeller. It is hard to say who was the most surprised, Brian, at the sudden stoppage of his engine, or Mr. Brownson who came to collect his Pup and found it in very small pieces!

Tony Penhall made the most accurate time of 41 seconds, his worn Mills 1.3 diesel flying his relatively heavy *Kanga Kub* in slow easy circles and whose take-offs were a joy to behold. Aerodrome grass did not cause him any trouble with that wide track forward placed undercarriage designed by Colonel C. E. Bowden. Tony had won this trophy before, and I forecast that he will win it again, he was a fitting winner for 1983.

This competition is for genuine vintage models and there is no point in disregarding

AEROMODELLER VINTAGE DAY 1983 — RESULTS

Fireball Trophy — (Vintage C/L)

- | | |
|------------------|--------------|
| 1. J. & D. Leddy | Guildford |
| 2. P. Russell | Workop |
| 3. M. Taylor | RAFMAA |
| 4. J. Kergan | Widnes |
| 5. S. Bekney | Hull Pegasus |
| 6. A. Braugh | Whitefield |

Veron 'Goshawk'
Super Profile
'Demon King'
'Foxstunter'
'Topsy Junior'
'Juggler'

J. Haggart Trophy — (40 secs. Precision).

- | | |
|---------------------|---------------|
| 1. T. Penhall (41) | Little Paxton |
| 2. K. Harris (42.9) | Workop |
| 3. J. Law(33) | Newark |
| 3. Len Fisher (33) | Leicester |

Kanga 'Kub'
KK 'Bandit'
Porlock 'Puffin'
'Schiffermuller'

SAM 35 CONTESTS

Junior Achilles — (KK Achilles Kits)

- | | |
|-------------|------------------|
| 1. R. Kemp | Rowledge Farnham |
| 2. W. Beals | |
| 3. G. Welch | Caddington |

Earl Stahl — (Scale Rubber low wing)

- | | |
|----------------|-----------------|
| 1. D. Knight | Wendover |
| 2. R. Oldridge | Virginia Waters |
| 3. D. Hunt | Oakwood |

'Magister'
MiG 3
MiG 3

Chobham Trophy — (Vintage Wakefields)

- | | |
|--------------|-------------|
| 1. B. Yearly | Potters Bar |
|--------------|-------------|

'Vanstead'

C. Rupert Moore Trophy — (Jackdaw)

- | | |
|---------------|----------|
| 1. D. Knight | Wendover |
| 2. P. Siddall | Harmston |
| 3. K. Fordham | Fulbourn |

D. Sheelds Trophy — ('A' Frames)

- | | |
|--------------|-------------------|
| 1. R. Walden | Sunbury on Thames |
| 2. M. Hinton | |

C. A. Rippon Trophy — (Cruiser Pup)

- | | |
|---------------------|------------------|
| 1. C. Strachan 2:11 | Waterbeach |
| 2. L. Woodgate 1:02 | |
| 3. V. Dubery 0:53 | Walton on Thames |

E. H. Keil Trophy

B. Downham NCMFC

Dunham Engineering Award

T. Wilmburst Addlestone

the basic rules drawn up by the late John Haggart. These require adherence to the original designs, and while some relaxation can be introduced, there is no intention of allowing the John Haggart Memorial Trophy to become a purely sport flying event. It will continue to be a serious competition worthy of the thinking that prompted its introduction. Power modellers who enthuse over the vintage movement should be able to construct a suitable model and trim it in order that it can successfully ROG and make a number of flights of accurate duration. Look upon this as a challenge if necessary, and don't be bashful about entering, we need your support so can we count on a bigger entry for this event next year?

During this competition which overran the time for the cessation of organised model flying, we had to clear the grass runway to let a Puss Moth land, this was especially nostalgic for me since the registration G-AEAO showed it to be the aircraft that I used to own. Things certainly have changed in that area, since most of the power models flying at Old Warden were worth many times more than the princely sum of £45 that I paid for 'OA some thirty years ago!

The prizegiving summarised above marked the end of organised flying, but as is usual at Old Warden meetings some models were still airborne as dusk fell. Howard Boys made the presentation of the Rupert Moore Memorial Trophy while Mrs. Haggart officiated with the trophy named after her late husband, and Danny Sheelds presented the other SAM 35 awards including his own twin-pusher trophy.



Above: fine *Kanga Kub* by Tony Penhall, aired at the Aeromodeller Vintage Day, Old Warden. Right: beautifully made *Pelly-Fry Heron* and a *C. Rupert Moore Jackdaw* by Phil Siddall.



Pacer cyanoacrylates from Irvine

Whenever we talk to modellers about the use of cyanoacrylates for model building you can bet that there will be those who swear by them and those who have found these glues next to impossible to use. Early cyanoacrylates were all of the low viscosity type and to be fair, did not work too well on balsa wood. Developments in the chemistry of these glues have led to formulations suitable for bonding almost anything to anything. They still seem expensive though, but for most aero-

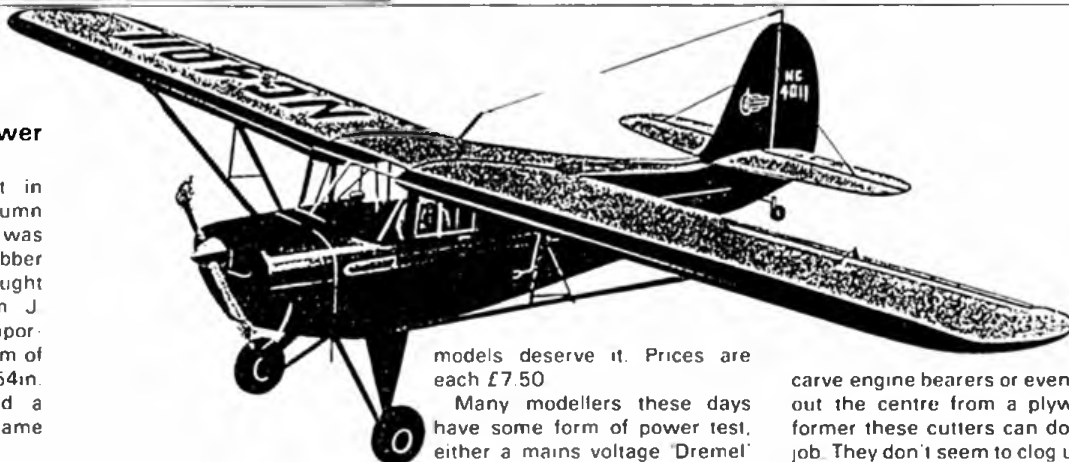
modelling uses the amount used for a single small model costs only a few pence

This new Zap range — Zap is a registered trade mark of Pacer Technology, includes glues to suit virtually every aeromodelling application. Gap filling, slow setting, two-part, de-bonder, accelerator and thread locking compound. Packaging is in 1/2 and 1oz containers, with 2oz pack for the 'Zip Kicker' accelerator. Prices are around £2.50 for 1/2oz. and £4.50 for 1oz. sizes. The 'Zap' range should be widely available through Irvine Engines Ltd stockists

Big Comet rubber power kits

An unguarded comment in previous 'Shop Talk' column suggested that 21 1/2 in. span was the largest of the Comet rubber power scale series. This brought an instant response from J. Perkins (Wholesales) the importers of Comet kits in the form of two 'Large' Comet kits — a 54 in. span Aeronca 'Chief' and a Taylorcraft (Auster) of the same size.

Both kits are entirely orthodox in constructional methods and include strip wood, printed sheet formers, ribs, etc., block balsa, tissue, wheels, propeller, wire parts and rubber motor. A full-size plan plus illustrated in-



struction sheet provide clear directions as to building sequence and finishing and flying technique. Encouraging note on the covering instructions says: "we think you can do a beautiful job" let's hope so, these

models deserve it. Prices are each £7.50

Many modellers these days have some form of power test, either a mains voltage 'Dremel' or low voltage equivalent. Such tools can certainly speed up and improve the accuracy of your building. We recently tried out the new Robart carbide cutting drums and do they work fast! If you need to hollow out blocks,

carve engine bearers or even fret out the centre from a plywood former these cutters can do the job. They don't seem to clog up or show any signs of wear so far either. Our samples came direct from Robart and at the time of writing were not yet in stock at Irvine Engines Ltd., Robart's U.K. distributor. Do look out for them they really work well



Abrasive 'Superbrush'

In the last Shop Talk we extolled the virtues of good quality active flux (One-O-One) for soldering piano wire parts. Of course, it is also necessary to clean up the parts well before attempting soldering. This 'propelling-pencil' style abrasive brush is just the job for all types of abrasive cleaning, its action being variable from soft (long bristles) to very fierce (short bristles) at the twirl of its twist top. This useful cleaning tool should be widely available through D.I.Y. and model shops, price £2.99



Minicraft low voltage disc sander

Second in line to the Dremel fretsaw in our workshop in order of importance comes a disc sander. Accurate shaping and finishing of plug and balsa parts becomes a matter of course (coarse and fine). We wouldn't be without either. If you don't own a disc sander, look at the new

Minicraft 9-26 volt unit which incorporate a really clever quick change system for sanding discs. Both faceplate and sanding discs are covered with 'Velcro' enabling super fast changes from one grade of abrasive to another. A really neat idea. Price of the Minicraft sander is £19.95, sanding discs cost £1.15 for pack of 5 (3 grades available)

Aeromodeller

TALK

BY PRODUCTS
ED



Mainlink bleeper for finding models

This neat little electronic gadget will help to take the hard work out of finding a flyaway free-flight model with its piercing high frequency bleeping tone. Weighing a mere 10gms (battery extra) the bleeper sounds continuously for up to 30 hours on a 9 volt PP3 battery or for less time and lower volume using other power sources down to 3 volts. For a moderate sized free-flight power model, the increased

payload shouldn't present any problem, glider flyers can of course substitute the battery for part if not all of the noseweight. Mainlink systems are experienced at producing quality electronic devices for the MOD and Atomic Energy Commission so the reliability of this gadget should be without doubt.

An R C version if available which plugs between receiver and servo and only operates

when the transmitter signal no longer reaches the servo. This latter type is powered from the normal receiver battery pack and only consumes a tiny amount of current unless activated.

The free-flight version costs £5.50 (including PP3 battery connector less battery) the R C version £9.50. Both are available direct from the Main Link Systems, Home Farm House, Horne Lane, Potton, Beds.

Powermax glow battery and clip

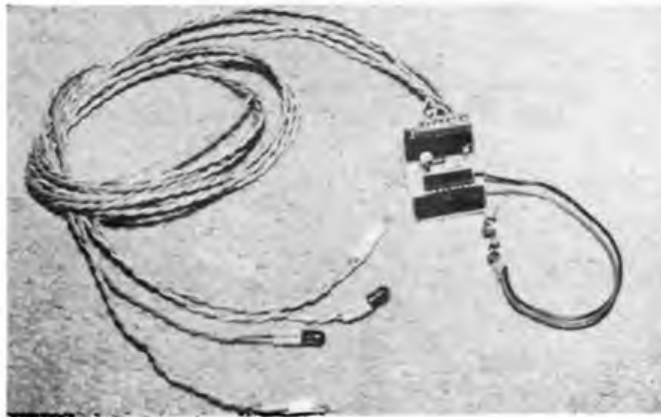
If you want to buy British -- and many modellers do, when it comes to re-chargeable batteries the choice is often 'Hobsons',

foreign or not at all! This 2-volt, sealed re-chargeable lead acid battery sold under the 'Powermax' brand name is guaranteed British, originally made by a well known northern manufacturer. Spring coiled leads have found their way onto telephones, electric guitars and household irons and now onto glow clips. 'Powermax' matching glow chip for the two volt battery is supplied with a coiled lead which extends to 1.6 metres. actual clip is the well known 'Powermax Headlock' type. Cost of this set-up is two-volt battery £5.00 'Super Headlock' glow clip £2.99.



Nav-lite Anti-collision Strobe Lighting

This neat solid state electronic device can be used to good effect on virtually any power scale model to add a final touch of realism. Nav-lite manufacturer, DSK, MicroSystems Ltd., of 5 Oak Tree Place, Chestnut Lane, Amersham, Bucks. This tiny unit operates from a small battery such as a PP3 and drives two strobe light bulbs plus red and green wing tip bulbs to represent anti-collision and navigation lights. The electronics are designed to prevent the various light flashing in phase in true full size manner. For further details contact DSK Microsystems at the above address.



MFA acetate sheet

Producing a cockpit canopy made to measure for a new design is not a difficult task, a carved wooden former, a frame for the acetate sheet, heat up the acetate and push the former into the acetate. Simple, but it's not always easy to get the acetate! MFA (Model Flight Accessories) are now distributing suitable material, not acetate but blue tinted PVC which should fill a need. Price of the sheet 318 x 450mm is £1.04 and will provide plenty of material for a lot of canopies.



Good News Travels FAST

Speed Subs

To: M.A.P. P.O. Box 35, Hemel Hempstead, Herts, U.K.

RUSH MY COPIES OF

Beginning with issue

NAME

ADDRESS

Payment

get your copies within days of U.K. publication!

Dramatic time savings are now a feature of the all-new M.A.P. Subscription service. Copies are rushed by air to overseas bases, frequently *before* the official U.K. on-sale date for the magazine. It only takes as long as your own local postal service to complete the mission. Typical times — U.S.A. 14 days, Australia 9 days, S. Africa 12 days. Join the club! Subscribe today using the clip-out coupon, sending your cheque money order, bankers draft to

Note: Check Title page for current overseas rates.

Model & Allied Publications Ltd

P.O. Box 35, Walsey House, Walsey Road, Hemel Hempstead, Herts. HP2 4SS. Tel: 0442 41221. (Mon.-Fri.)



*To be opened by
Rear Admiral Sir John "Sandy" Woodward, R.C.B.*



**The biggest brightest and best
model engineering exhibition
in the world. Meeting place
for model enthusiasts of all
ages. Working and static
models ~ something for everyone's
interest. It's excitingly
different ~ not to be
missed by anyone. Make
a note of the date ~ see
you at Wembley!**



ENGINEER EXHIBITION

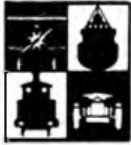
**Wembley Conference Centre
December 31st. ~ January 8th.**

**Open 10 am - 7 pm. Late night Thursday 5th until 9 pm.
Adults £2.50, Children & OAP's £1.75.**

Enquiries to: M.A.P. Ltd., P.O. Box 35, Hemel Hempstead, HP2 4SS. Tel. 0442-41221

No prams or pushchairs due to G.L.C. restrictions

CALLING ALL MODELLERS
the date of the



53rd Model Engineer Exhibition

will be:-

DECEMBER 31st — JANUARY 8th
(inclusive)

at the
WEMBLEY CONFERENCE CENTRE
PLAN YOUR VISIT NOW!

For 75 years, the Model Engineer Exhibition has been the premier showcase for all that is best in the modelling world, and our 53rd Show will be no exception. The Exhibition provides an exciting day out for modelling enthusiasts and their families, an opportunity to admire other modellers' work, compare the goods on offer by the many standholders, visit the club and society stands or to attend a film or lecture. Perhaps most important of all, it is an exhibition where friends are made and friendships renewed in an atmosphere of wonderment and enthusiasm which is created at this great Exhibition.

Wembley Conference Centre offers one of the most pleasant exhibition venues at present in the British Isles. Although just out of Central London, it has excellent access by both rail and road. It is only a few minutes walk from Wembley Complex Station and provides car parking for many thousands of cars. The current charges for parking daily are £1.00 for cars and £3.00 for coaches.

Advance and party tickets are designed to help visitors avoid waiting in long queues on well-attended days. While it is not possible to guarantee that holders of such tickets will not have to wait at the special ticket position for a short while, these tickets take precedence over non-ticket holders. Only one group ticket will be issued to parties. **ALL APPLICATIONS MUST BE ACCOMPANIED BY A STAMPED ADDRESSED ENVELOPE FOR RETURN OF TICKETS. FINAL DATE FOR RECEIPT OF APPLICATIONS IS FRIDAY 9TH DECEMBER TO GUARANTEE ARRIVAL OF TICKETS.**

BOOKING FORM

Please send the following tickets
(All admission charges include VAT)

ADVANCE RATES

ADULTS AT £2.50 No required

CHILD/OAP AT £1.75 No required

FAMILY TICKET

2 Adults plus 2 Children at £7.50 No required

PARTY RATES (These rates only apply to groups of 10 or more)

ADULTS AT £2.25 No required

CHILD/OAP AT £1.50 No required

SCHOOL PARTIES (These rates apply to groups of 10 or more. Teachers are entitled to one free ticket in the ratio of one to 10 pupils)

TEACHERS AT £2.25 No required

PUPILS AT £1.50 No required

TEACHERS FREE OF CHARGE No required

TOTAL ENCLOSED £

I enclose cheque/PO for the total amount stated above, payable to Model & Allied Publications Ltd., Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

Please forward tickets to

Name

(BLOCK CAPITALS PLEASE)

Address

AM

JOY



Joy-Plane the name that sticks

There's no better balsa cement than Joy-plane. It sets hard in no time at all, penetrating deeply and resisting heat and fuel.

Quality products for sticking, staining, polishing, painting

JOY is a registered trademark of Turnbridges Ltd., London SW17

Fly with confidence & Double Cover!



NOW WITH £500,000*
COVER!

MAP Modellers Accident Protection Plan offers third-party insurance cover up to £500,000. The scheme now provides "member to member" indemnity. It is recognised by S M A E and by Local or Public Authorities.

How can you take advantage of this offer, which embraces all forms of modelling activity, whether it be concerned with aircraft, boats, cars, locomotives? Simple! Just complete the form below and send it, together with a remittance for £3.00 which will provide cover for 1 year.

*Excludes first £10 of any claim — was £25 — now reduced.

P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

To: Sales Office, Model & Allied Publications Ltd., P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

Name (in full)

Address

Current MAP Insurance No. Date

I enclose herewith postal order value £3.00 for membership of MAP insurance scheme.

AM

Model Shop DIRECTORY

READERS PLEASE NOTE: Due to soaring postal charges many retailers are unable to answer postal enquiries unless accompanied by a stamped addressed envelope. * Mail Order Welcome.

AUSTRALIA

MELBOURNE 3000 Tel (347) 8029
RIVERSIDE HOBBY CENTRE
16 LITTLE LATROBE STREET
9 am-5 30 pm Mon-Fri
9 am-12 noon Sat

ESSEX

CHELMSFORD Tel (0245) 352553
CHELMSFORD
MODEL CO LTD
204 MOULSHAM STREET
Mon, Tues, Wed, Thurs & Sat
9-5 30 Fri, late night 9-7 30

AVON

BRISTOL Tel (0272) 694541
THE MODEL AIR PORT
134 GLOUCESTER ROAD NORTH,
FILTON
Open 9 00 am 5 30 pm Tues-Sat
Thurs to 6 30 pm, Closed Monday

COLCHESTER Tel (0206) 572094
JIM'S MODEL CENTRE
159 NORTH STATION ROAD
Open 10-5 30 Mon-Sat
Closed Thursdays

BERKSHIRE

WINDSOR Tel (07535) 56321
WINDSOR MODEL SHOP
45 ALBANY ROAD
Open Mon-Sat 9 am-6 pm
Late night Fri 7 pm
Half day Wed 1 pm

HORNCHURCH Tel (040 24) 40016
RADIO ACTIVE
94 ARDLEIGH GREEN ROAD
Open Mon, Tues, Thurs & Sat
9 am-6 pm, Fri 9 am-7 pm
Half day Wednesday

CAMBRIDGESHIRE

CAMBRIDGE Tel (0223) 359620
MODEL MANIA
17 KING STREET
Open 9 30 am 5 30 pm
Mon-Sat Inc Lunchtime

HAMPSHIRE

FAREHAM Tel (0329) 234136
G M H BUNCE & CO LTD
206 WEST STREET
Open 9 am-5 30 pm Closed Wed

CHESHIRE

MACCLESFIELD Tel (0625) 29467
HOBBYCRAFTS
(MACCLESFIELD) LTD
PARK MILL
HOBSON STREET
Open 9 30-5 30 Mon-Sat

SOUTHAMPTON Tel (0703) 617849
EASTLEIGH MODEL CENTRE
2e HIGH STREET, EASTLEIGH
Open 9 am-6 pm Half day Wed

CHESHIRE

SALE Tel (061 962) 4561
HOBBYWORLD
200A MARSLAND ROAD
Mon-Sat 9 30-6 00
Wed early closing

HERTFORDSHIRE

ROYSTON Tel (0763) 45375
MODEL WORKSHOP
31 KNEESWORTH STREET
SG8 5AB
Open Tues-Sat 9 30 am-6 00 pm
Late night Friday 9 30 am-8 00 pm

DERBYSHIRE

DERBY Tel (0332) 46579
THE BALSA TREE
16 18 HOWE STREET
DE3 3ER
Open Mon-Sat 9 am-8 pm
Tues 4 pm-8 pm

HONG KONG

HONG KONG Tel 3-680507
RADAR CO LTD
3 OBSERVATORY ROAD
TSIMSHATSUI, KOWLOON
Open 10 am-7 pm Closed Sundays

DEVON

PLYMOUTH Tel (0752) 263133
RUNWAY SOUTHWEST
22 FRANKFORT GATE
CITY CENTRE
Mon-Sat 9 am-6 pm

HONG KONG Tel 3-684184
WINNING MODEL & HOBBY SUPPLIES
2a AUSTIN AVENUE
KOWLOON, HONG KONG
Open 10 am-7 pm Closed Sundays

DORSET

TORBAY Tel (0803) 521767
MANSEL'S MODELS
PALACE AVENUE, PAIGNTON
Open 9 15 am 5 30 pm Mon-Sat
inclusive Closed all day Wed
Late night Fri 7 pm

KENT

BEXLEY Tel (0322) 522308
BEXLEY MODEL CENTRE
18 BOURNE ROAD
Mon-Sat 9 00-5 30
Thursday closed all day

DORSET

BOURNEMOUTH Tel (0202) 424038
R F AUSTIN MODEL SHOP
156 SFABOURNE ROAD
SOUTHBOURNE BH5 2JA
Open 9 am 5 30 pm Mon-Sat
Closed 6 pm Thurs-Fri Half day Wed

TUNBRIDGE WELLS Tel (0892) 31803
BALLARDS
54 GROSVENOR ROAD
Open Mon-Sat 9 00-5 30
Wednesday 9 30-12 30

TUNBRIDGE WELLS Tel (0892) 36689
E M MODELS
42 CAMDEN ROAD
Mon-Sat 9 am-5 30 pm
Closed Wed

LANCASHIRE

FARNWORTH Tel (0204) 74688
JOYCRAFT
3 BOLTON ROAD, MOSES GATE
Open Mon-Sat 9 am-6 30 pm
Closed all day Wednesday

LIVERPOOL Tel (051 709) 8039
STAN CATCHPOLES
MODEL WORLD
85 BOLD STREET
9.30 am-5 30 pm, Six days

MANCHESTER Tel (061-834) 3972
THE MODEL SHOP
(MANCHESTER)
209 DEANS GATE
Mon-Fri 9 30 am-6 pm
Sat 9 am-5 pm

PRESTON Tel (0772) 51243
PRESTON MODEL CENTRE LTD
(Opposite Polytech.)
2 FYLDE ROAD
Open 9 30 am-6 pm Mon-Sat

WIGAN Tel (0942) 45683
G FORSHAW & SON
58 MARKET STREET
Open 9 15 am-5 45 pm
Early Closing Wednesday

LEICESTERSHIRE

HINCKLEY Tel (0455) 30952
PUNCTILIO MODEL SPOT
6 WATERLOO ROAD
Mon 9 15 am-7 pm Tues, Wed
Thurs 2 pm-7 pm Fri 9 15 am-7 pm
Sat 9 15 am-5 pm

LONDON

CAMDEN TOWN Tel 01 485 1818
AERONAUTICAL MODELS
39 PARKWAY NW1
9 15 am-5 30 pm Tues-Fri
9 15 am-5 pm Sat
Closed all day Monday

ELTHAM Tel 01 850 4324
ELTHAM MODELS
54 WELL HALL ROAD SE9
Mon-Sat 10 am-5 30 pm
Closed Thursday

LONDON Tel (01-228) 6319
E F RUSS
BATTERSEA RISE SW11
Open 9 am-6 pm
Early closing Wednesday 1 pm

LONDON Tel 01 703 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

LONDON Tel 01-607 4272
HENRY J NICHOLLS & SON LTD
308 HOLLOWAY ROAD, N7
Open Mon-Sat 9 am-5 30 pm

MIDDLESEX

HARLINGTON Tel 01-897 2326
RADIO CONTROL MODEL CENTRE
214 HIGH STREET
Mon, Tues, Thurs & Sat 9 15 am-5 30 pm, Fri 9 15 am-6 30 pm
Closed Wednesday

HARROW Tel 01-863 9788
THE MODEL SHOP
190-194 STATION ROAD
Mon-Sat 9 30-6 00
Wednesday 9 30-5 00

NORFOLK

KINGS LYNN Tel (0553) 63164
BARNEY'S MODEL SHOP
SOUTH EVERARD STREET
Open 9 am-6 pm

NORWICH Tel (0603) 42515
GALAXY MODELS
88 CATTON GROVE ROAD
Open 6 days a week

NORTHANTS

NORTHAMPTON Tel (0604) 35718
STAGG MODELS
22 BRIDGE STREET
Open 9 am-5 30 pm
Early closing 2 pm Thursday
Late night opening Friday until 7 pm

NOTTINGHAMSHIRE

NOTTINGHAM Tel (0602) 412211
GEE DEE MODELS LTD
19-21 HEATHCOTE STREET
OFF GOOSEGATE
Open 9 30 am-5 30 pm
Early closing Thursday

NOTTINGHAM Tel (0602) 412407
NOTTINGHAM MODEL CENTRE
85 MANSFIELD ROAD
Open Mon-Sat 9 00-5 30 pm
including lunchtime

OXFORDSHIRE

OXFORD Tel (0865) 42407
HOWES OF OXFORD
9-10 BROAD STREET OX1 3AJ
Open 9 00 am-5 15 pm
6 day week

SCOTLAND

GLASGOW Tel (041 221) 0484
DUNNS MODELS
3 WEST NILE STREET
Open Mon-Sat 9 00 am-5 30 pm

PERTH Tel (0738) 24540
DUNNS MODELS
29 SCOTT STREET
Mon-Sat 9 00-5 30
Wednesday Closed

STAFFORDSHIRE

STAFFORD Tel (0782) 3420
JOHN W BAGNALL LTD
18 SALTER STREET
9 am-5 30 pm
Closed all day Wednesday

WOLVERHAMPTON Tel (0902) 26709
WOLVERHAMPTON MODELS & HOBBIES
BELL ST, MANDERS CENTRE
9 am-5 30 pm Mon-Sat
Early closing Thursday

SUFFOLK

IPSWICH Tel (0473) 79279
 GALAXY MODELS *
 160 FELIXSTOWE ROAD
 Open 6 days a week

WORTHING Tel (0903) 207525
 SUSSEX MODEL CENTRE *
 10 TEVILLE GATE
 9 am-5.30 pm. Open six days a week
 Monday to Saturday

SOLIHULL Tel (021 744) 3374
 SHIRLEY MODEL SUPPLIES *
 62 STRATFORD ROAD
 Open Tues-Sat 9 am-3 pm &
 4-6 pm Late night Thurs 8 pm

LEEDS Tel (0532) 646117
 FLYING MODELS *
 88 CROSSGATES ROAD
 CROSSGATES
 Mon-Sat 6 am-6 pm
 Sun. 8 am-1 pm

SURREY

ADDLESTONE Tel (0932) 45440
 ADDLESTONE MODELS LTD *
 63 STATION ROAD
 Open 9 am-6 pm
 Closed all day Wednesday
 Late night Friday 6.30 pm

TYNE AND WEAR

NEWCASTLE UPON TYNE
 Tel (0632) 322016 *
 THE MODEL SHOP
 18 BLENHEIM STREET
 Mon-Sat 9 am-5.30 pm
 Closed all day Wednesday

WILTSHIRE

MELKSHAM Tel (0225) 703311
 MELKSHAM MODELS
 19 BATH ROAD
 Mon, Tues and Thurs 9 am-
 5.30 pm Wed closed all day Fri
 9 am-6.30 pm Sat 9 am-5 pm

YORK Tel (0904) 34281
 DAVE SMITH MODELS *
 17 DAVYGATE CENTRE
 DAVYGATE
 Open Mon-Sat 9 am-6 pm
 No half day

NEW MALDEN Tel 01-942
 MICK CHARLES MODELS 0012
 33 COOKE ROAD
 Mon-Tues-Thurs-Sat 9.30-5.30
 Fri 9.30-8.00
 Closed all day Wednesday

WALES

CARDIFF Tel (0222) 31367
 THE CARDIFF MODEL CENTRE *
 34 LLANDAFF ROAD
 CANTON, CARDIFF
 Open 9.30-5.30 six days a week
 Late closing Friday 7.00 pm

YORKSHIRE

BARNSELY Tel (0226) 43561
 DON VALLEY SPORTS *
 28 NEW STREET
 Open 9 am-5.30 pm Mon-Sat.
 Closed Thursday

SUSSEX

BRIGHTON Tel (0273) 418225
 HARRY BROOKS *
 15 VICTORIA ROAD
 PORTSLADE
 Open every day except Sun
 8.30 am-5.45 pm (no half day)

CARDIFF Tel (0222) 29065
 BUD MORGAN *
 22 CASTLE ARCADE
 SOUTH GLAMORGAN CF1 2BW
 9 am-5.30 pm
 Early closing Wed 9 am-1 pm

BRADFORD 8 Tel (0274) 726186
 MODELDROME *
 182 MANNINGHAM LANE
 9.30 am-5.45 pm
 Closed Wednesday

CRAWLEY Tel (0293) 21921
 HEATHER CRAFT *
 60 HIGH STREET
 Open 9 am-5.30 pm Mon-Sat.
 Closed all day Wednesday

NEWPORT Tel (0633) 65061
 MAKE A MODEL *
 123 COMMERCIAL STREET
 Mon to Sat 9 am-5.30 pm
 Thursday closed all day

DONCASTER Tel (0302)
 EVANS MODEL CENTRE 27255 *
 D C EVANS & CO (HOLDINGS) *
 LTD 65 SILVER STREET
 Open Mon-Sat 9 am-5.30 pm
 Closed all day Thursday

EAST GRINSTEAD Tel (0342)
 SOUTH EASTERN MODELS 21750
 5 THE PARADE
 LONDON ROAD, FELBRIDGE
 Open Mon-Sat 9.30 am-5.30 pm
 Closed Wednesdays

WEST MIDLANDS

BIRMINGHAM 10 Tel 021-772
 BOB'S MODELS 4917 *
 520-522 COVENTRY ROAD
 SMALL HEATH
 Open 9.30 am-6 pm
 Early closing Wed. 1.30 pm

KEIGHLEY Tel (0535) 65662
 AIREDALE MODELS *
 156 STATION BRIDGE
 BRADFORD ROAD
 Mon-Sat 9.30-6 Tues closed
 Thur 9.30 am-7 pm

**YOU CAN
 BUY WITH
 CONFIDENCE
 FROM THE
 SHOPS IN THIS
 SHOP GUIDE**



CLASSIFIED

Private and trade rate 18p per word: minimum £3.00. Box Number £1 extra. Display box rate £4 per single column centimetre (minimum size 2.5cm, maximum 5cm). All advertisements are inserted in the first available issue, unless specified otherwise. Box replies to be sent care of Advertisement Department, Model & Allied Publications Ltd. Write your advert in **BLOCK CAPITALS** in the grid below, ticking the section you wish it to appear under, **INCLUDING YOUR NAME AND ADDRESS IN THE WORD COUNT** and send it to: **AEROMODELLER, ADVERTISEMENT DEPARTMENT, P.O. BOX 35, WOLSEY HOUSE, WOLSEY ROAD, HEMEL HEMPSTEAD, HERTS. HP2 4SS.**

FOR SALE WANTED GENERAL SERVICES BOOKS & PUBLICATIONS

advertisements

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 Model & Allied Publications Ltd. (*Delete as necessary)

Name
 Address

 Post Code
 Signature.....Date.....



IF YOU DO NOT WISH TO CUT YOUR MAGAZINE PHOTOCOPY THIS FORM

CLASSIFIED advertisements

See page 557 of this issue for Classified rates

For Sale

About 100 Glow Plug engines, for sale, from private collection 1948-1970. Many scarce and desirable, including multi-cylinder types. Also available, an excellent Brown Junior Model D '1938' ignition engine, as featured in Peter Chinn's Engine News, September Aero Modeller. Please send large S.A.E. for fully detailed lists to: 21 Vesta Road, Brockley, London S.E.4, England. Z

Cox Tee Dee 15; AM25, Cobra 049, Enya 19; Winchester nitromethane; Aero Modeller Annuals 1957, 1960 to 1972 Reasonable offers. Swain, 34 St Annes Rd., Widnes, Cheshire. WA8 6RB. Z

Vintage aircraft with or without engines. Various old motors for sale plus some parts S.A.E. for list. L. T. Duffy, 5 Hoyles Road, Wellington, Somerset, TA21 9AH. Z

Eros Vintage model £30. New motors OS60FS £75, Fox 36CS £14, Fox 25 £9; also good condition OS20 £8 PAW 249 £9; PAW 149 £9. Tel: Hornchurch 75640 (040 24) Z

Crowborough Models, 2 St John's Road, Crowborough, Sussex. Tel: (089 26) 4951. All your aircraft modelling needs — kits, motors, accessories, radio, etc. ZABC

Vintage aero motors for sale: DIESELS — Bonnier 5cc fixed head (French 1945) £60; Delmo 2.65cc Mk.II (French 1947) £70; Amco .87cc Mk.I repro tank £45; Mills P75 in box £35. IGNITION — Frog 1.75cc Mk.I in box with instructions and prop. £85; Frog 180 converted ignition £45; Reeves 5cc £75; Atlas 3.5cc £65; Mechanair 6cc in box £70; Delong 30cu.in. £80; Vivell 35cu.in. Mk.III £65; Cameron 23 cu.in. new-in-box £85; Letna 6cc (Czech) £65; R.E.A. 10cc (French 1947) £85. P. Ross. Tel: 01-346 4989 evenings. Z

Engines ancient and modern — 4-strokes, multi-cylinder, diesels under 1cc. All in good condition. Write for price list to P. Scott, 23 Avenue Prince d'Orange, 1410 Waterloo, Belgium. Z

General

INDOOR/FREE FLIGHT SUPPLIES

NEW 40 page Catalogue now available FREE with long S.A.E.

SAMS, 2 THE DRIVE, BLACKMORE END, WHEATHAMPSTEAD, HERTS.

MODEL WORKSHOP Aircraft, boats and cars

Good supplies of balsa wood, ply wood, spruce, mahogany tissue, banana oil rubber etc. Futaba radios and OS Engines always at 10% off list price

Help and advice

31 Kneesworth Street, Royston, Herts
Tel (0763) 45375

Letchworth. At last an expanding Model Shop. Call in and discuss your needs. Model Images Retail, 56 Station Road. Tel: 046-26-4859. T/C

We are the officially approved service agents for Austro-Webra, Cox, Davies-Charlton, Enya, Fox, Fuji, HB, HGK, HP, Kavan, ME, Merco, PAW, Thunder Tiger. Retail dealers for OS Irvine, ED, G-Mark. May we estimate for spares, accessories, repairs, overhauls, new motors, part exchanges? For express delivery quote your Access or Barclaycard number. John D Haytree, The Haven, Rixey Park, Chudleigh, Devon, TQ13 0AN Tel (0626) 852330. Callers by appointment please. T/C

HARDWOOD WAKE PROPS

Obechi veneer for laminated F1B propellers. Makes superb thin blades. Saves hours of carving. Ready-sawn to outline 4 stock shapes, or send your template £1.45 per pack. S.A.E. for info and sample

J. H. MAXWELL

14 Upper Craigs, Stirling FK8 2DG, Scotland

Plans for Rubber-driven models

Wide variety, including Fokker D.VIII Hawker "Fury I", Martingale "Semi Quaver", Curtiss "Falcon", etc. also "Sunbird" duration models 20 from which to choose, including low-wing and cabin designs

Send 50p for Lists to

John Sizer, 69 The Avenue, Lowestoft, E. Suffolk, NR33 7LH.

MAIL ORDER

THE COMPLETE MINI WORKSHOP OF LOW VOLTAGE POWER TOOLS

Fully guaranteed products of the leading W. German factory. For prices and full particulars, send medium SAE to

W. H. H. SEELIG (Dept. AM),
8 FELBRIDGE CLOSE, SUTTON,
SURREY SM2 5QH

I PAY TOP PRICES FOR YOUR OLD ENGINES. PART EXCHANGE YOUR OLD, UNUSED OR UNWANTED OLDIES FOR THE LATEST 4 STROKES FROM THE HP21 TO THE V TWIN MAGNUM

VINTAGE MODEL ENGINE CENTRE
48 CAMBORNE ROAD, SUTTON,
SURREY Tel: 01-642 9861

MAIL ORDER ADVERTISING

British Code of Advertising Practice

Advertisements in this publication are required to conform to the British code of Advertising Practice. In respect of mail order advertisements where money is paid in advance, the code requires advertisers to fulfil orders within 28 days, unless a longer delivery period is stated. Where goods are returned undamaged within seven days, the purchaser's money must be refunded. Please retain proof of postage, despatch, as this may be needed

Mail Order Protection Scheme

If you order goods from Mail Order advertisements in this magazine and pay by post in advance of delivery, *Aeromodeller* will consider you for compensation if the Advertiser should become insolvent or bankrupt, provided:

- (1) You have not received the goods or had your money returned, and
- (2) You write to the Publisher of this publication, summarising the situation not earlier than 28 days from the day you sent your order and not later than two months from that day

Please do not wait until the last moment to inform us. When you write, we will tell you how to make your claim and what evidence of payment is required

We guarantee to meet claims from readers made in accordance with the above procedure as soon as possible after the Advertiser has been declared bankrupt or insolvent (up to a limit of £2,000 per annum for any one Advertiser so affected and up to £6,000 per annum in respect of all insolvent Advertisers. Claims may be paid for higher amounts, or when the above procedure has not been complied with, at the discretion of this publication, but we do not guarantee to do so in view of the need to set some limit to this commitment and to learn quickly of readers' difficulties

This guarantee covers only advance payment sent in direct response to an advertisement in this magazine (not, for example, payment made in response to catalogues etc., received as a result of answering such advertisements). Classified advertisements are excluded

Books & Publications

Aeromodeller back issues Missing a valued issue of *Aeromodeller*? We can probably fill the gap for only £1.25 per copy including postage and packing. Write, stating title and issue required to Back Numbers Department, Model & Allied Publications Ltd., PO Box 35, Hemel Hempstead HP2 4SS. T/C

'Sailplane and Gliding' — the only authoritative British magazine devoted solely to the sport of gliding and soaring, 48 pages of fascinating material and pictures. Published every other month. Send £8.15 (\$17.00) for a year's subscription to British Gliding Association, Kimberley House, Vaughan Way, Leicester, England. T/C

AMERICAN AERO-MODELLING MAGS

R.C. Modeller	prices inc postage	£2 50
M.A.N.		£2 20
Flying Models		£1 65
Scale R.C. Modeller		£2 20
Model Builder		£2 35

Current and some back issues available

THE AVIATION BOOKSHOP

656 Holloway Road, London N19 3PD

Wanted

Wanted: Jetex products and books by C. E. Bowden. Send price and condition to P. Chatterton, 7 Common Lane, Wilmington, Dartford, Kent. Z

Wanted. Jetex motors complete with fuel and wick. Write to Francesca Bettio, 34A Carlyle Road, Cambridge, stating price or ring Cambridge 68036. Z

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

Gliding

Now you've built a model

Why not build a full size aeroplane? Join the Popular Amateur Aircraft Industry with the Popular Flying Association and learn how to build your own flying machine. Send 75p for information pack

POPULAR FLYING ASSOCIATION
Terminal Building, Shoreham Airport,
Shoreham by Sea, Sussex, England.
Tel: Shoreham by Sea 61616

The Cornish Gliding and Flying Club, Trevellas Airfield, Perranporth, Cornwall Tel: Perranporth 2124

Gliding course from May Oct. — B.G.A. fully rated instructors — fine soaring, lovely coastal airfield. Ideal for a different family holiday

The Course Secretary, Tremearne, Breage, Helston, Cornwall
Tel: Helston 62294

TRY IT FOR REAL

Take your first day gliding course with the YORKSHIRE GLIDING CLUB. Fully residential. Clubhouse with covered bar. Full time professional instructors. Three top Vauxhall Glaxite K21 two seaters. Falko motor glider. Mt. Ingham and more soaring. Courses April to October. For details contact:

The Secretary, Yorkshire Gliding Club,
Sutton Bank, Thirsk, Yorks.
Tel: Thirsk (0845) 597237

Be
Quiet!
Use an EFFECTIVE
silencer





MICHAEL'S MODELS

Incorporating Racing Sport and Vintage Engines

OPEN 6 DAYS A WEEK Mon.-Sat. 9.00 a.m. to 6.00 p.m.

ESTABLISHED 1969

646-648 HIGH ROAD, N. FINCHLEY, LONDON, N12 0NL. Phone: 01-445 6531

Leading Control Line & Vintage Specialists

VINTAGE KITS

All the following kits are for

Ben Buckle Junior 60	£32.50
Ben Buckle Quaker Flash	£31.50
Ben Buckle Buccaneer Std	£32.50
Ben Buckle Playboy Snr.	£32.50
Ben Buckle Red Zephyr	£32.50
Ben Buckle Super 60	£32.95
Ben Buckle Fokker D8	£32.95
NEW Ben Buckle Junior 90 1 5 times	
Junior 60 Ideal for 60 four-strokes	£49.95
S H G Simplex 60	£29.50
S H G Powerhouse	£41.95
S H G Scram 24	£38.95

FREE-FLIGHT ITEMS

Bentom Mustang 20"	£4.60
Zero 20"	£4.60
Spitfire 20"	£4.60
Me109E 20"	£4.60
Piper Cub Wood	£4.99
Pampas 20" Wood	£4.95
Zero 20" Wood	£4.99
MM Piper Cub for Telco 3000	£6.50
Telco Standard	£10.75
Telco 3000	£12.95
Telco 6000	£14.45

JUST RECEIVED — OLD JETEX FREE-FLIGHT KITS

Space Jet 18"	£3.95
Starjet 28"	£4.95
Squib	£2.50
Sabre	£2.95
Venom	£2.95
Skyjet	£2.95

Quantities on the above kits are strictly limited, so its first come, first served. Please note: we do not have any Jetex Motors, Fuel or Wick.

NEW ITEMS

MODELHOB — FREEFLIGHT/RUBBER POWERED KITS

Master 28"	£7.85
Stinson 31"	£7.50
Nieuport 24"	£7.45
SE5A 24"	£7.85
FW190 25"	£8.35
Spitfire 26"	£8.65

(FW and Spitfire adaptable to 049 C/L)

MODELHOB CONTROL LINE KITS

Yeyito 35"	£9.75
Mustang 37"	£11.95
Fenix 37"	£12.50
Smousen 37"	£11.25
Aeronca 38"	£14.25
MiG 3 34"	£17.75
Baron 40"	£19.75
Northrop F5 54"	£35.75
La Gata (2 kits) 39"	£18.50

POSTAGE ENGINES 50p. OTHER ITEMS 10%. 50p MINIMUM £2 00 MAXIMUM.

Send 40p in stamps for new comprehensive list. Refundable with first order.

MAIL ORDER A PLEASURE EXPORT ORDERS WELCOMED.

All enquiries must be accompanied by an S.A.E.

Phone Barclaycard, Access No. for same day service.



DIESEL ENGINES

Under 1cc	
DC Dart 5cc	£13.30
DC Merlin 75cc	£12.20
Indian Mills 75cc	£12.35
PAW 80 8cc	£13.25
PAW 80 R/C 8cc	£19.55
Pheffer 6cc	£32.00

Under 2cc

DC Spitfire 1cc	£13.60
DC Sable 1 5cc	£13.99
PAW 1.49cc DS2	£14.95
PAW 1.49cc Contest 2	£17.25
PAW 149 R/C	£21.85
Indian K 1.5cc	£8.95
DC Spitfire R/C	£18.20
DC Sable R/C	£18.75

2cc to 2.5cc

Indian K2cc	£9.50
PAW 249 DS	£14.95
PAW 2 49 Contest	£17.25
PAW 249 R/C	£22.95
MVVS 2 5cc RV	£39.95
MVVS 2 5cc F1	£39.95
ED Racer 2 5 Std.	£17.25
ED Racer 2 5 R/C	£18.75
ED Super Racer Std	£19.75
ED Super Racer R/C	£21.25
20M MkII 2 5 BB	£20.18
Pares 2 5 F1	£43.00
Indian K2 5cc	£10.95
D/C Rapier 1957 Replica	£29.95
D/C Rapier 1957 Replica R/C	£34.55
Replica Mills 1.3 Mkl	£42.95

3.2cc and Above

PAW 19 DS	£16.70
PAW 19 R/C inc. Sil.	£24.15
Indian K3 5	£11.95
Replica Taplin Tempest 3.5	£34.95
PAW 29 DS inc. Sil.	£33.35
PAW 29 DS R/C inc. Sil.	£35.95
ED Viking 4.9cc R/C A/C	£31.25
ED Super Hunter 3.46 R/C A/C	£32.25

DIESEL and GLOPLUG AERO ENGINES

G Mark 5	£87 00
DC Sable	£10 28
Hummerbird	£11 08
OS40 FS	£68 00
Irvine 20 R C	£30 50
OS60 FS	£105 00
Fox 15	£13 37
PAW 1 49 DS	£11 00
PAW 1 49 DS	£13 00
PAW 2 49	£12 00
HB 61 R C PDP	£77 34
OS15 R C	£20 30
Fox 25 R C	£22 45
Fox 30 C Special	£32 13
A Weber 61F R C	£54 61

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



THE MODEL SHOP (Guernsey)
No 1 Commercial Arcade, Guernsey, C1

SCOTLAND

EAST & WEST FOR YOUR ESSENTIAL AEROMODELLING SUPPLIES YOUR FIRST REQUIREMENT VISIT

DUNN'S MODELS

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

29 SCOTT STREET
PERTH PH1 5EH
Tel: 0738 24540

THE SILENT REVOLUTION

**NO NOISE
NO MESS
NO STARTING
TROUBLES**

**JUST
SWITCH ON
AND FLY!**

★ Finished parts
— ready for assembly

★ Both kits include
electric motor
★ Reduction
gearbox and
propeller



SIROCCO
Span 61in. Length 33in.

CESSNA
Span 43in. Length 30in.

Both for two channel operation



ELECTRIC FLIGHT PACK
Convert your own model to electric flight. All necessary parts including propeller. Except for Nicad battery.
ON/OFF RELAY
Gives motor control, requires one extra channel but no extra servo. Plugs into receiver.



AGOMS 235/335 AM
New 2 & 2 + 1 sets
with lightweight mini
receiver — 24 gms.

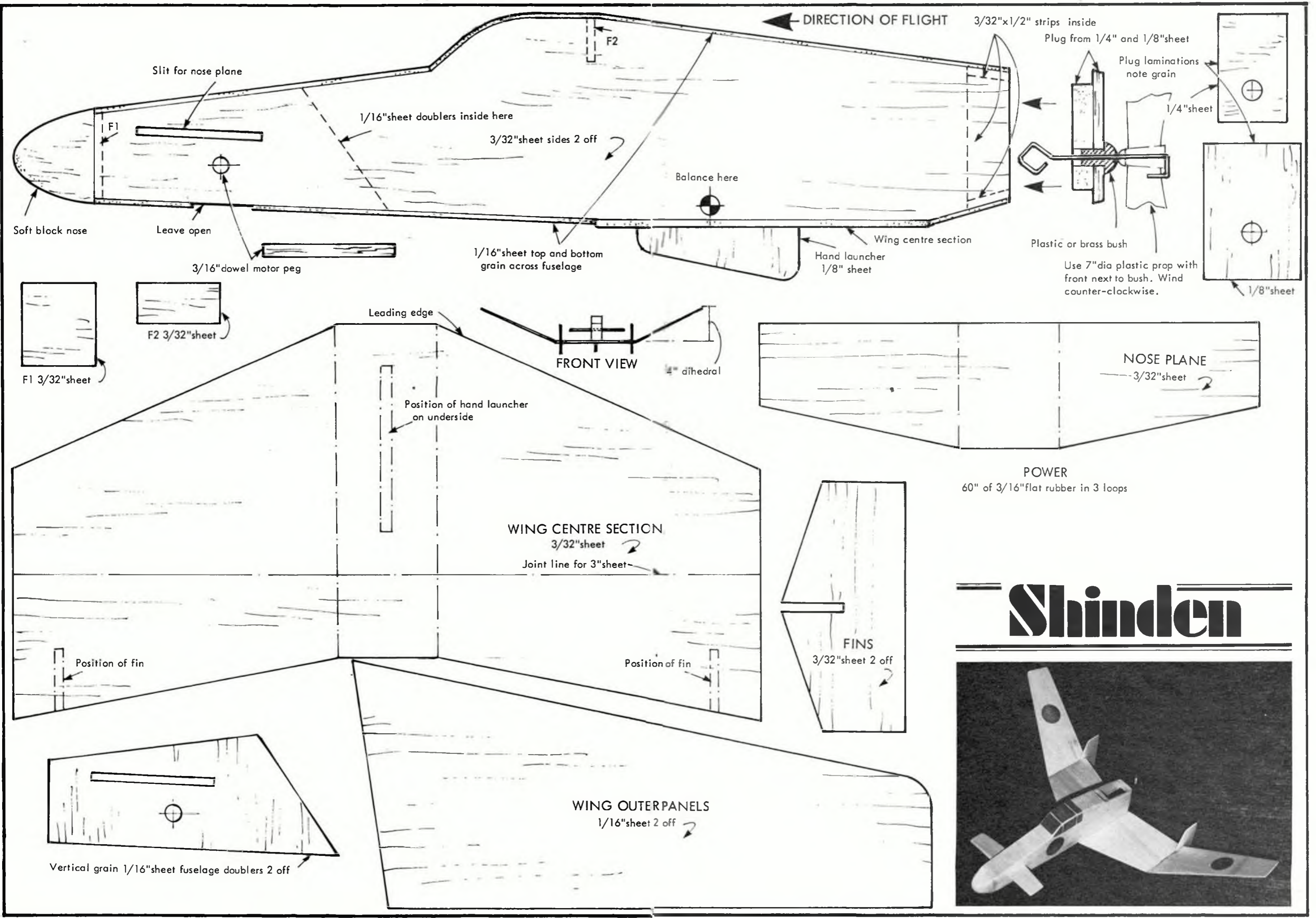
SEE THEM AT
YOUR LOCAL
MODEL SHOP

RIKO

RICHARD KOHNSTAM LIMITED

13-15a High Street, Hemel Hempstead, Herts.

agoms
RADIO CONTROL SYSTEM



Shinden

NOVEMBER 1983

APPENDIX - Links to the plans

The magazine contains two free plans printed front/back on a pull out banner of three pages. The banner is not included in this document.

Mig25 FoxBat by Hugh Jackson

Peanut scale rubber model

FF Pull Out

https://outerzone.co.uk/plan_details.asp?ID=9722

BAe Hawk (Profile) by Bill Burkinshaw

Red Arrows Jet profile control line for 1.5cc engines

CL Pull Out

https://outerzone.co.uk/plan_details.asp?ID=14917

Auster J 5 Autocar by Charles Cain

Aircraft Described No:257

3View

[Please see page in the document](#)

SHINDEN by Glyn Guest

All sheet canard for Rubber or CO2

FF Centre

[Please see union page added](#)