

SEPTEMBER 1977 35p

U.S.A & Canada \$1.50



HOBBY  
MAGAZINE

# Aero Modeller



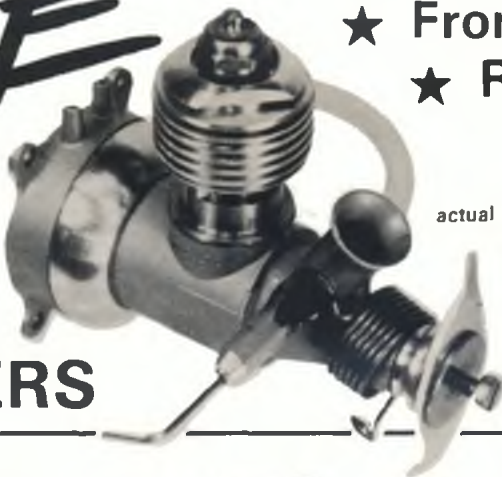
**LVG CVI PLANS  
FEATURE**



**QUICKSTART**

- ★ No Backwards Starts
- ★ Light but really Powerful
- ★ Integral Tank
- ★ D-C Glowplug
- ★ Front Rotary
- ★ Radial Mount

**.049 Glow**



actual size

**ONLY  
£8.24**  
Plus 66p VAT

**SPORT FLYERS**

**ENGINES**



**MERLIN**  
.75 c.c.



**SPITFIRE**  
1.0 c.c.



**SABRE**  
1.5 c.c.

*Quality  
engineered  
for lasting  
performance*

**SEE THEM AT YOUR MODEL SHOP**

**DAVIES-CHARLTON LTD.**

**HILLS MEADOW  
DOUGLAS, Isle of Man**

# SOLARBO

Good orthodox free flight construction on the right. A sheet box fuselage of minimal cross section. Built-up tissue covered wings and tailplane. An all-balsa airframe. The formula which adds up to lightness with adequate strength—and better performance.

Come to think of it, the design formula has not changed a lot, either. The pylon layout with polyhedral wing has been the more or less standard choice for free flight power duration models since Carl Goldberg's 'Zipper' circa 1940. And the 'stick' fuselage concept is the same as that on Comet's 'Interceptor', kitted in 1942! So the 'formula' was right from the start.

Of course, there are a lot of variations you can work on it. Anti-warp wing and tailplane structures with geodetic, Warren-girder or diagonally-braced ribs. An answer to consistently holding the fine trim necessary—not just for peak performance, but to eliminate a spiral-in under power through a slight trim change. Then you can add mechanical aids, like timer-operated trim change working on the tailplane; or on the wing incidence or camber. Aerodynamically, we would rate a variable camber wing the best scheme, especially as a little bit of 'flap effect' really can improve the glide performance of a thin aerofoil.



Speaking of flaps—and Comet kits a little earlier—the photo on the left shows the original Comet 'Whizzer' control line model using flaps instead of elevators for a more docile response. It proved too docile, in fact. A design 'formula' which did not work out too successfully (even if it was an all-balsa model!). But at least it flew all right and started a lot of other people using flaps on control line models as a secondary control, or coupled with elevators.

So some aeromodelling 'formulas' are outstandingly successful, and others lack something. But very few models refuse to fly at all, unless they are too heavy—which is why trying something different is so attractive in aeromodelling.

There is one 'formula' you can *always* get right. The best balsa for airframe construction. Need we mention this is Solarbo?



**SOLARBO**  
LIMITED

COMMERCE WAY • LANCING • SUSSEX • BN15 8TE • ENGLAND

**WHERE GOOD BALSA**

**COMES FROM**

# Buy and Fly the Best...

# VERON

## SOPWITH ONE-AND-A-HALF STRUTTER!

A FASCINATING COLLOQUIAL NAME FOR ONE OF THE MOST FAMOUS AND WELL

**PROVEN 2 SEAT  
FIGHTERS OF  
WORLD WAR II**

**48" SPAN (1220mm)**



**KIT PRICE  
£28.95**

The model, too, has very flight endearing and stability characteristics, all on 2 channels or 3 with engine speed!

For 2.5 to 3.5cc motors (.15 to .19cu.ins). Kit has A.B.S. Vacuum-formed cowl, Vintage Wheels, Vinyl Decals, Pre-formed Wire-Strutting.

## THE FOURNIER R. F. 5. MOTEUR-PLANEUR

FOR ENGINES 1.49 to 2.49  
RACING DIESEL OR GLOW  
(0.09 to 0.15cu.in)

Vary-near-to-scale Auxiliary Powered Soarer and Sport Plane for Intermediate 2-Channel Proportional Radio on Rudder and Elevator only.

Ideal for Hillside Soarers who like to fly power when the wind drops. Flown best on hillsides in moderate to strong winds! (loading 16 oz)



**A TWO-IN-ONE  
SOARER AND  
RADIO SCALE**

**72" SPAN  
(1829mm)**

**KIT PRICE £24.04**

## TAIPAN PROPS

**TRUE HELICAL AND PROGRESSIVE PITCH FROM BOSS TO TIP.**

7in. dia. x 4in. pitch ...	42p
7in. dia. x 6in. pitch ...	42p
8in. dia. x 4in. pitch ...	49p
8in. dia. x 6in. pitch ...	49p
9in. dia. x 4in. pitch ...	58p

**SUPER-EFFICIENT IN GLASS  
FILLED NYLON FOR POWER**

9in. dia. x 6in. pitch ...	58p
10in. dia. x 4in. pitch ...	68p
10in. dia. x 6in. pitch ...	68p
11in. dia. x 5in. pitch ...	75p
11in. dia. x 7in. pitch ...	75p

## WING KITS

### "BIG-IMPALA" WING KIT

Soaring-Section Ribs in A.B.S. 26 Full ribs, 6 level ribs (for centre section). Plus ready slotted L & T/edges, spars, sheet, tips, etc. Ideal for 2nd Wing with Ailerons or other models. **£6.75**

### "BIG-IMPALA" A.B.S. WING RIBS

In packs of 10 (level-ribs or full ribs). Per Packet **84p**

### IMPALA EXTENDED WING KIT

All wood construction for 62" wing for multi-radio or light air! Ready boxed - All balsa parts. **£4.11**

### SUPER-ROBOT FOAM WING KIT

Symmetrical Section for advanced flying. 1st grade foam, obechi veneer, with ply-gussets, balsa T/edges for ailerons etc. Ready boxed. **£11.95**

## The CLASSIC BEGINNER'S SAILPLANE

**KIT PRICE  
£1.28**



**36" SPAN  
(914mm)**

Superbly elegant elementary Sailplane - ideal for Beginner's introduction to building and Sailplaning! Complete kit for parts - die-cut balsa formers and ribs. Full layout plans.

## BOMB-BAT STUNTER

**25" SPAN  
(635mm)**



Bat-wing Control-Liner for 1 to 1.49 motors.  
**Kit Price £4.94**



**BEE-BUG  
Snappy Stunter for  
1cc motors.**

**22" Span (559mm) Kit Price £3.22**

**DISTRIBUTED BY VERON — FROM YOUR DEALER!**

# Aero Modeller

INCORPORATING  
**MODEL AIRCRAFT**

**September 1977**

Volume XLII No. 500

## CONTENTS

HANGAR DOORS	523
"LVG CVI"	524
TOPICAL TWISTS	526
FROM THE HANDLE	527
WORLD F/F CHAMPIONSHIPS	530
SCALE MATTERS	539
"SOPWITH TRIPLANE"	542
"TWO CENTS PLAIN"	543
LATEST ENGINE NEWS	546
INDOOR NATIONALS	549
CLUB NEWS	550
CONTEST CALENDAR	552



**HOBBY MAGAZINE**



ALSO MODEL BOATS . RADIO CONTROL  
MODELS & ELECTRONICS . MODEL ENGINEER  
MODEL RAILWAYS . SCALE MODELS . WOOD-  
WORKER . MILITARY MODELLING . GEMCRAFT  
BATTLE and PUZZLES DIGEST

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.

Second-class postage rates paid at New York, N.Y. Registered at the Post Office for transmission by Canadian Post. American inquiries regarding news stand sales should be sent to Eastern News Distributors, 111 Eighth Avenue, New York, N.Y. 10011 U.S.A. Telephone (212) 255-5620, and Hobby Shop Sales to Bill Dean Books Ltd., 166-41 Powells Cove Boulevard, Whitestone, New York 11357, U.S.A. Telephone (212) 767-6632.

Advertisement Offices: Model & Allied Publications Ltd., P.O. Box 35, Bridge Street, Hemel Hempstead, Hertfordshire HP1 1EE. Tel: Hemel Hempstead 56117.

Subscription Department: Remittances to Model & Allied Publications Ltd., P.O. Box 35, Bridge Street, Hemel Hempstead, Hertfordshire HP1 1EE (subscription queries Tel: 0442-51740). Direct subscription rate £5.75 per annum, including index, \$12.00 (U.S.) for overseas subscribers.

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. News reports should be submitted to arrive not later than the 10th of each month for publication in the next immediate issue. 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 MODEL AIRCRAFT and is published on the third Friday of each month prior to date of publication by

**MODEL & ALLIED PUBLICATIONS LTD.**

P.O. BOX 35, BRIDGE STREET, HEMEL HEMPSTEAD, HERTS HP1 1EE

Tel.: Hemel Hempstead 63841-2-3 (Mon.- Fri.)

Editorial Director

R. G. MOULTON

EDITOR

P. S. RICHARDSON

Managing Director

GOSPATRIC HOME

Advertisement Manager

M. GRAY

Production Manager

A. DOWDESWELL

## Comment

Once again the World Free Flight Championships has proved that not only is this competitive side of aeromodelling alive and well, but that it is the best supported in terms of the number of nations sending teams. In fact this year there were an incredible 33 different countries represented. Many of these countries are 'new' to competing at this level of expertise, and yet look at the success of one of these 'new' teams – North Korea. In 1971 they made their World Champs debut – and now just six years, and three Championships later, they have again produced a World Champion (Wakefield) and secured first team places in Wakefield and A/2 glider, plus a third team prize in Power. Incredible – but fully deserved by these masters of lift detection who work so closely as a team.

And whilst on the subject of competition flying – just a last minute reminder that the C/L and R/C British National Championships take place as this issue hits the bookstalls – August 27th/29th – at RAF Little Rissington, Gloucestershire. See you there?

## on the cover

*W. D. Dennis displays his 1/12th scale version of an LVG CVI, the Gsman two seat reconnaissance/bomber of the First World War, painstakingly finished in its lozenge camouflage colour scheme. This model represents the full size aircraft which resides at the Shuttleworth Collection, Old Warden, Bedfordshire, so scale authenticity is easy to check! This model forms the plans feature for this issue – see page 524.*

## next month

*Full report on the European Control Line Championships, held at Veeriers, Belgium, plus technical details from the World F/F Champs. Plans for a most attractive C/L scale model, plus many other features to interest all types of aeromodellers. The October issue is on sale September 16th – order your copy now!*



# 400 Series

The most famous fighters of World War 2

**KIT 401 MESSERSCHMITT BF 109**



**Retail  
£7.95**

**KIT 403 SUPERMARINE SPITFIRE**



**KIT 402 NORTH AMERICAN P51 MUSTANG**



**KIT 404 MITSUBISHI ZERO**



**KIT 406 FOCKE WULF FW-190**

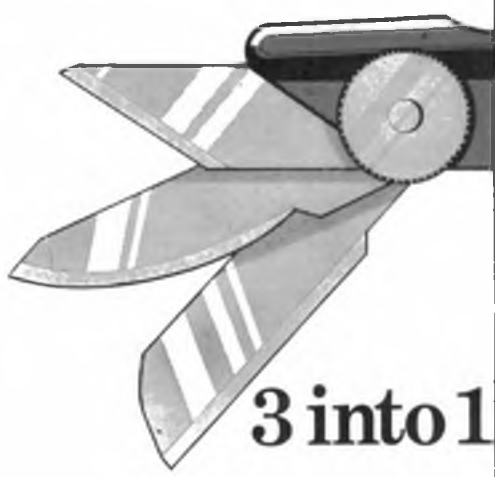


**KIT 405 CURTISS P-40 WARHAWK**

ALL THE ABOVE KITS ARE DESIGNED TO BE FLOWN RUBBER POWERED OR CONTROL-LINE WITH .010 ENGINE

U.K. DISTRIBUTOR:  
**J.N.T. MODEL PRODUCTS LTD**  
Long Street, Easingwold, York, England

EIRE DISTRIBUTOR:  
**G. BORTHWICK**  
Ballyhaw, Killucan, Co. Westmeath, Eire  
AVAILABLE FROM ALL GOOD MODEL SHOPS



**3 into 1**

Three blades ready to swing into action - each one specially designed for those scores of cutting jobs that the handyman, hobbyist, and modeller has to do.

Blades store in handle and can be selected and locked in position - fast spare blades inserted easily and quickly.

Use Unitool and make your next job three times as easy.



**will go...  
with Unitool**



SWANN MORTON LIMITED  
PENN WORKS,  
OWLERTON GREEN,  
SHEFFIELD S6 2BJ, ENGLAND.

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

There's no experience needed to enjoy the thrill of controlled flight with any one of the super Cox beginners range; they give the beginner a chance to take to the sky, confident in the knowledge that soon they will become proficient flyers and ready to take on the more advanced aircraft!

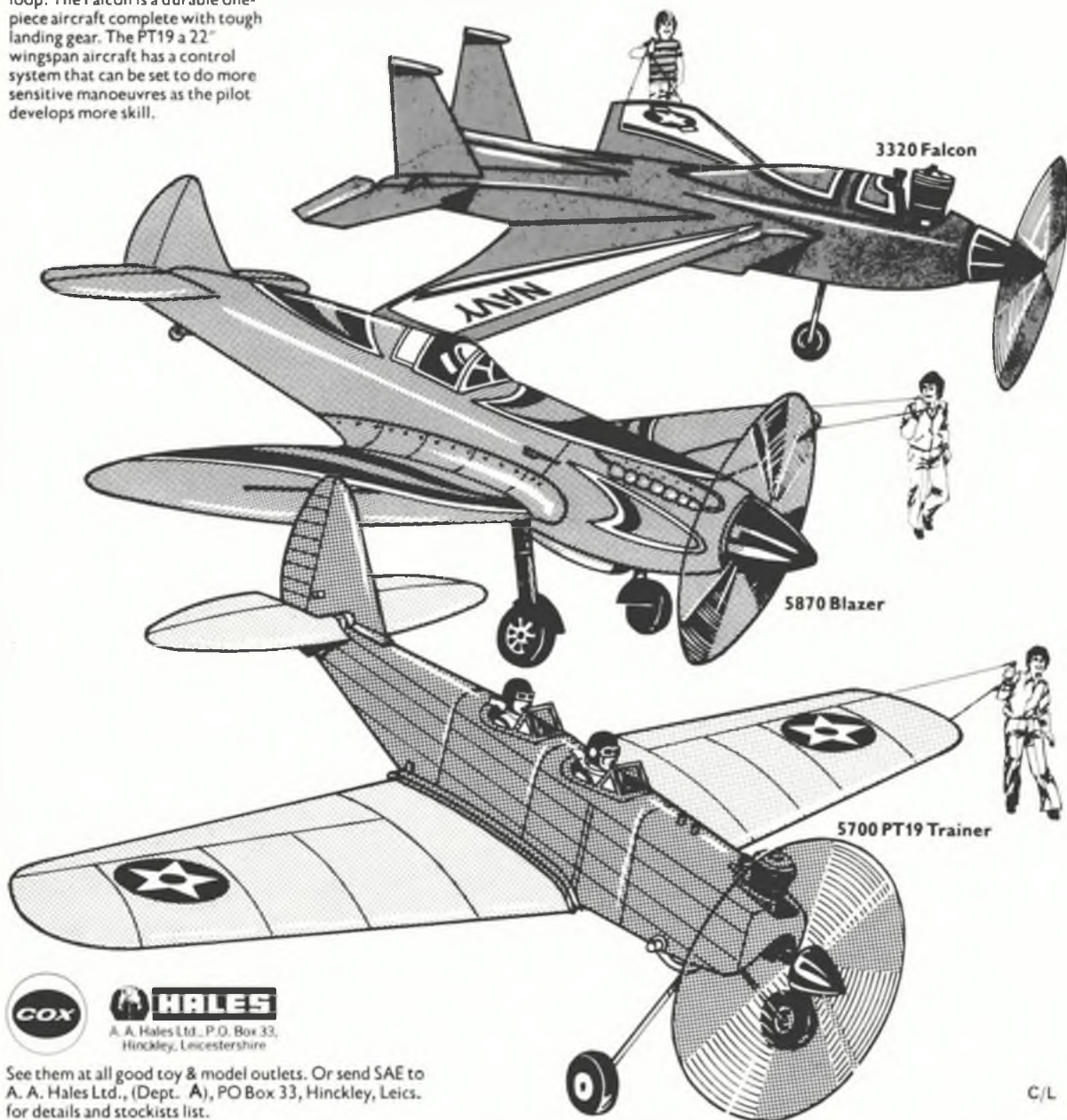
Just take a look at the **PT19 Trainer** and the **Falcon**, both fuel powered, control line, models that swoop, dive and even loop! The Falcon is a durable one-piece aircraft complete with tough landing gear. The PT19 a 22" wingspan aircraft has a control system that can be set to do more sensitive manoeuvres as the pilot develops more skill.

The Cox Electro-charged **Blazer**, a battery-powered, control line plane has a wingspan of 15½". Just charge up your 6 volt battery and you're ready to fly at the flick of a switch!

These are only three of the super range available from Cox, whether you're a novice or you have your "wings" there is a model for you.

**Cox Planes you can bank on them.**

# Take off with Cox!



**HALES**  
A. A. Hales Ltd., P.O. Box 33,  
Hinckley, Leicestershire

See them at all good toy & model outlets. Or send SAE to A. A. Hales Ltd., (Dept. A), PO Box 33, Hinckley, Leics. for details and stockists list.

C/L

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

**S**terling  
MODELS

# 6-WAY KITS

Fly on RUBBER, CO<sub>2</sub> or small GLOW MOTOR POWER—

FREE FLIGHT, CONTROL LINE, or even R/C!  
These are superbly designed kits with die-cut balsa sheets, moulded plastic parts, shaped wire parts, plastic prop(s), wheels, horns and other hardware, tissue, scale decals, and rubber motor(s). Super full size plan with full building instructions and conversion details.

There are 8 other scale models in this range, too!



de Havilland TIGER MOTH 33" span .....£10.80



Ford TRI-MOTOR ('Tin Goose') 34" span.....£10.00



Boeing B17G FLYING FORTRESS 39" span.....£13.30



Parts printed on fine quality specially selected low-density balsa wood, sanded to micrometer tolerance. Strip balsa. Coloured Tissue. Scale Decals. Wheels. Propellers. Fittings. Contest grade rubber motors. Detailed scale plastic parts. Plus well illustrated plans with step-by-step instructions.



DISTRIBUTED BY RIPMAX

## PEANUT SCALE EACH KIT MAKES 2 MODELS!

Rubber-powered flying scale. Balsa and tissue construction, easy to build and fun to fly! Designed by 'Peanut' experts. All materials required are in the kit, except cement and dope. Fly indoors or outdoors. Remarkably realistic in appearance and all great flyers. Every model easily adapts to CO<sub>2</sub> power as well!

- SE5A and FOKKER D-8
- MONOCOUCPE & CITABRIA
- INTERSTATE CADET and WACO S.R.E.

Each kit builds 2 models Price £3.30

**SEE THEM ALL AT YOUR MODEL SHOP**

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS



# NEW FROM AIRFIX

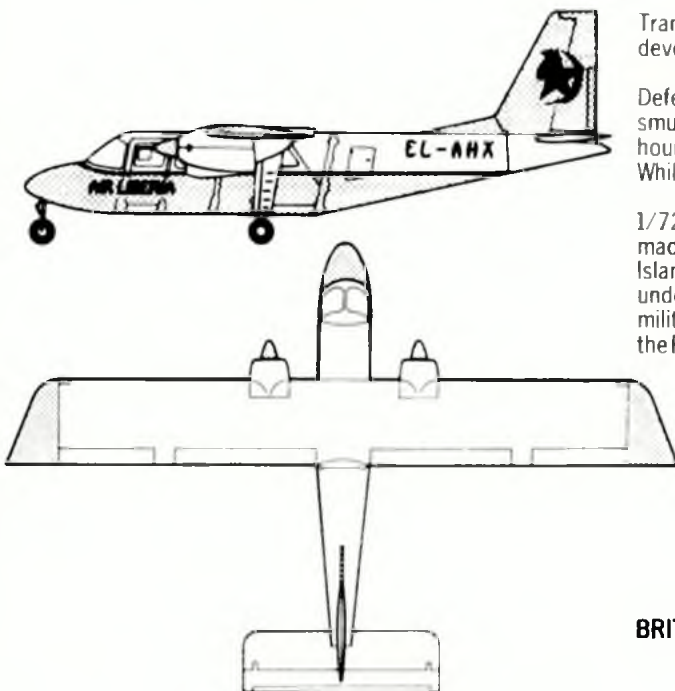


## DEFENDER TO THE ATTACK!

Based on the highly successful Islander Light Transport, the Britten Norman Defender has been developed as much for attack as for defence.

Armed with machine guns and bombs, the Defender is used by the Philippine Navy to hunt down smugglers and insurgents. But an endurance of 15 hours makes it ideal for air-sea rescue operations. While Air Liberia use the Islander to carry passengers.

Now faithfully reproduced in a superb Airfix 1/72 scale kit, the Britten Norman Defender can be made as either the Philippine Navy or Air Liberia Islander version. The kit features moveable propellers, underwing fuel tanks and bombs and both civil and military pilots, as well as markings for Air Liberia and the Philippine Navy.



### Technical details

Fuel Load:	2×56 gal drop tanks
	Endurance of 15 hours
Engines:	Two Lycoming 10-540
Cruising speed:	160mph
Wing Span:	53ft
Length:	35ft 8ins
Height:	13ft 8ins

**BRITTEN-NORMAN DEFENDER**  
1/72nd Scale



INDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENT



The premier hobby and craftsman's show . . .

# 47th Model Engineer Exhibition

& 2nd Woodworker Show — Wembley Conference Centre

5th—14th January, 1978

10.00 a.m. — 8.00 p.m. daily except 14th January 10.00 a.m. — 7.00 p.m.

**LOCOMOTIVES - TRACTION ENGINES - MODEL AIRCRAFT  
MARINE MODELS - WOODWORK - MILITARIA - GEMCRAFT**

London's newest exhibition centre, the Wembley Conference Centre, is again the venue for the 1978 Model Engineer Exhibition. The 1977 Exhibition was the biggest of the series and this, the 47th, has been enlarged in order to cater for the demand for space by the model and hobby trade and also to give the visitor more room to enjoy the exhibition in greater comfort.

An improved stand layout, plus the additional areas which the exhibition will use, have been allied to a logical grouping of hobby interests, which will greatly help visitors.

The Hampton Room will be fully devoted to the model engineer with most of the suppliers of tools, materials, publications and other requisites in attendance. The ever popular workshop and passenger carrying railway of the Society of Model & Experimental Engineers is again sited on the balcony. New this year on the balcony will be a grouping of Model Engineering Society stands that will provide a meeting place for the clubman as well as a source of information for those interested in taking part in society activities.

Associated rooms on this level will provide, in the Avon Suite, our Gem Show (always popular with family members) and model aircraft and car displays together with their associated trade displays. Demonstrations and film shows will be offered for your interest in the Severn Suite which will also be used for prize giving ceremonies. The aircraft flying circle will be located in the Avon Suite.

Following on the pattern already established, the Second Woodworker Show will occupy a larger part of the Greenwich Room on the lower ground floor and in common with the rest of the exhibition there is a considerable increase in the number of stands. A very large number of woodworker exhibitors will be providing live demonstrations that will interest all craftsmen. The more general modelling trade will also be centred here and will be well worth a visit.

Much additional space becomes available by using the magnificent thickly carpeted Concourse of the first floor, easily reached by the stairs in the entrance foyer. Completely circling the building, this part of the centre is a prime architectural feature which will be used to show off models in the military and marine sections of the competitions to great advantage. The military, wargaming and figure modelling trade will be sited here and with the national associations of the marine and military modellers adding to the display this will be an area that must be visited. Along with the additional attractions of models and trade shows in this area, there are seating arrangements and two bars which will not only add to the visitor's comfort but will make this a most popular place to visit.

This is your exhibition as well as ours, and we invite you to enter the competitions, come along as a visitor to generally enjoy the show and the presence of so many with similar interests.

## COMPETITIONS

Entries are invited in the following categories:

- A Locomotives 2½ in. gauge and over.
- A1 L.B.S.C. Bowl Competition.
- B Locomotives in gauge 1 and 0.
- BA Locomotives in gauges smaller than 0.
- C Rolling Stock and Accessories. Gauge 1 and 0 or larger.
- CA Rolling Stock and Accessories. Gauges smaller than 0.
- D Steam and Motor Ships of any period. (Non-working.)
- E Power Driven Boat Models. (Complete with power plant.) Scale or Freelance.
- F Sailing Ships of any period. (Non-working.)
- G Working Yachts and Sailing Ships.
- H Hydroplanes and Speedboats.
- I Miniature. Length of hull not to exceed 9 in. for ¼ in. - 1 ft. scale or larger; 10 in. for ⅜ in. scale; 12 in. for 1/25 in. scale; 15 in. for ⅓ in. scale. No limit for smaller scales.
- J General Engineering Models (including Stationary and Marine Engines).
- K Internal Combustion Engines.
- L Mechanically Propelled Road Vehicles (including tractors) } working models
- N Tools and Workshop Appliances.
- O Engineering Scale Models (Non-working).
- P Scenic and Representational Models (including Architecture).
- Q Horological, Scientific and Optical Apparatus.
- R General Craftmanship—not otherwise classified.
- S For any type of model (other than military) or mechanical work by a junior under the age of 16 by 31 December 1977.
- AA Flying models of all types: (a) free flight; (b) control-line; and (c) radio control.

- AB Scale flying models of all types, rubber, glider, power control-line or radio control.
- AC Scale non-flying models.
- AF A piece of radio control equipment built to a design published in *Radio Control Models and Electronics*, *AeroModeller* or *Model Boats*, from a commercial kit, or of original design.

- MA } Classes covering miniature
- MB } figures, dioramas, artillery,
- MC } etc detailed on official entry
- MD } form.
- MJ1 }
- MJ2 }

Junior Prize additional in each class with three or more entries. (Under 16 on 31 December 1977.)

### Woodworker Section

- WA Cabinet making.
- WB Wood carving.
- WC Wood turning.
- WD Musical instruments.
- WE Marquetry.
- WF Fretwork, pyrography, miscellaneous.
- WG Model wagons.

In addition there are special competitions for Hot Air Engines, Specialist Military Figures and others detailed in the appropriate magazines. Entry forms now available from:

**EXHIBITION MANAGER  
PO BOX 35  
HEMEL HEMPSTEAD, HERTS**

**COMPETITION ENTRY CLOSING DATE IS 17th NOVEMBER, 1977**

For those of you who may be contemplating sending your cash abroad on a one-way ticket;

# HOW'S THIS FOR REAL VALUE!

## New Dual Axis Digimac III

New Digimac III  
dry cell:

**£69.95**

with two servos

New Digimac III 500  
mA/H Ni-Cads:

**£93.00** with two  
servos

This is our latest proportional system incorporating a completely new design concept gained from fifteen years development and production experience featuring:

- ① Completely new transmitter circuit reducing battery consumption.
- ② Latest integrated circuit low standing current receiver.
- ③ Integrated circuit servos.
- ④ Latest plastic film Transmitter and Servo Potentiometers extending operating life and improving smoothness and resolution.
- ⑤ Large clear expanded scale meter giving a precise indication of the transmitter battery condition.
- ⑥ New L.E.D. dual charger allowing independent charging of the transmitter and receiver batteries (rechargeable systems only).
- ⑦ Rugged 500 mA/H vented Ni-Cads used on all rechargeable systems to increase reliability.
- ⑧ Easy and economic conversion to Ni-Cads or to 4-6 channel operation.



### Digimac Models and prices (inc. VAT)

Digimac I, dry cell complete with servo	£38-00
Digimac II, dry cell complete with 2 servos	£58-00
Digimac III, dry cell complete with 2 servos	£69-95
Digimac III, Ni-Cad complete with 2 servos	£93-00
Digimac IV, Ni-Cad complete with 4 servos	£138-00
Digimac VI, Ni-Cad complete with 4 servos	£149-00

**Superb  
value  
for money!**



## MacGregor Radio Control

Canal Estate Langley Slough Berkshire

SEND SAE FOR FURTHER INFO.

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

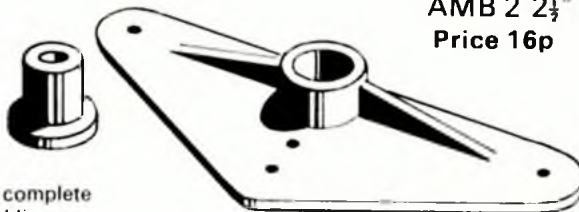
# MICRO-MOLD

LEADING SUPPLIERS OF R/C KITS,  
ACCESSORIES & RADIO EQUIPMENT

## GLASS FILLED NYLON BELLCRANKS



AMB 1 1 1/2"  
Price 13p



AMB 2 2 1/2"  
Price 16p

These tough lightweight glass filled nylon bellcranks complete with bushes were designed specifically for the control line flyer who wants only the best.



## M.M. MOULDED CANOPIES

For those who design their own models and need a canopy to suit. Various styles available from that illustrated through open ended and scale styles.

Illustrated:

V2 - 11" long 58p V29 - 9" long 52p V30 - 12 1/2" long 63p V33 - 8" long 45p

### MICRO-MOLD PRODUCTS

are available from your local dealer

# MICRO-MOLD

Station Road, East Preston, West Sussex BN16 3AG



## MICHAEL'S MODELS

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

Leading Control Line Specialists

Open 6 Days a Week

9.00-6.00

### STUNT KITS

LOVELY LADY 53" span for 35-40	£17.50
CRUSADER Keil Kraft for 35-40	£14.09
DUMAS CHIEF 54" span for 35-40	£14.50
DUMAS SMOOTHIE 52" span for 35-40	£14.50
SHARK 35" to 60 45" span	£18.95
SHOESTRING STUNTER 19-35 42" span	£10.75
COSMIC WIND 19-35 43" span	£10.75

Postage 86p

### JIM McCANN

Carbon Fibre Props, £1.95 each  
Goodyear, Speed 6 x 7, 6 x 7 1/2,  
Cox Type 7 x 4, Bartels 7 x 6,  
7-8 MVVS £2.20 each  
NEW TYPE TORNADO 7 x 4  
or 7 x 6 36p 8 x 6 48p.

Send SAE for Control Line List or  
Engine List.

MAIL ORDER A PLEASURE.  
EXPORT ORDERS WELCOMED.

All inquiries must be accompanied by SAE.

Phone Barclaycard, Access No. for  
same day service.



## Racing, Sport & Vintage Engines

### M.E. ENGINES IN STOCK

HERON STD 1cc	£7.95
TWIN SILENCER	£2.50
SNIPER STD 1.5cc	£9.10
TWIN SILENCER	£2.50

Postage 28p per engine

### DIESELIZE YOUR COX ENGINE

FITS TD 049/051 NO GLOW PLUGS Now 020  
also No tools required. Complete Kit £6.70 post  
paid

### AIR ART PRINTS

A CARD OF FOUR DECALS FOR  
SUPER TIGRE, OPS, ROSSI, TAI-  
PAN, OS, ENYA.

ALL AT 25p postage 7p

## NEW ENGINES

E.D. Racer 2 4cc	£12.18	ZOM Mk II 2 49 diesel	£18.95
E.D. Super Racer 2 4cc	£13.78	Spanish	£8.96
E.D. Super Fury 1 46cc	£9.97	KINGCAT I 49D	£10.44
OPS 29 glow 'B' T/R	£47.95	KINGCAT I 49D De Luxe	£45.00
S.T. 46 stunt	£29.81	Cox Conquest 15	£51.00
MVVS D7 diesel	£18.25	Remco 29 spark ignition	£23.18
Rossi 15 Normale Glow	£42.30	Fox 36X Combat Special	£14.53
Rossi 15 Normale Glow ABC	£46.20	Webra 2 49D	£13.31
Rossi 15 FI Combat diesel	£44.50	Webra Record I 49D	£4.95
Rossi 15 RV Team Race	£44.50	OTM-8 Diesel	£7.50
Super Tigre X15 ABC	£33.40	Mk17 I 49D	£6.80
Super Tigre G15/19 glow	£24.64	Shakal 2 49D	£8.10
S.T. X21 STD	£36.84	PAW I 49 DS diesel	£11.68
S.T. X29 Speed	£40.38	PAW 2 49 Tuned	£14.50
S.T. X40 Speed	£40.38	COX 049 TD	£14.50
OPS 29 Speed ABC	£54.50	COX 051 TD	£9.65
Super Tigre X15 ABC	£33.40	COX BLACK WIDOW 049	£8.95
PAW 2 49 diesel	£8.64	COX 020 Pee Wee	£19.50
PAW 19 DS diesel	£9.18	COX MED 15	£8.45
Mabuchi aero motor kit	£10.15	CO, Motor Kit	£21.95
ZOM Mk I 2 49 diesel Spanish	£14.95	LLAM 2 5cc diesel Spanish	£22.95
		LLAM 2 5cc Glow Spanish	£22.95

Postage 28p per motor

We buy all types of engines for cash. Send for best quotation by return. Phone for new & secondhand stock position  
Payment by Barclaycard, Bank America Card, Access Mastercharge, Eurocard & Vista Credit Cards

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

# TAKE OFF NOW

with the ideal two  
channel R/C system  
for the newcomer



**SANWA**

## Mini Propo

### SPECIFICATIONS :

#### TRANSMITTER—MODEL SP26T

- 1 Power—12v., from 8 pencils
- 2 Power consumption—130mA
- 3 Effective range—500m on ground, 1,000m in air  
(Subject to atmospheric conditions)
- 4 Stick-position interchangeable
- 5 Rear panel is metal screened
- 6 Interchangeable crystal facility
- 7 Dimensions—4.68 (h) x 2.28 (w) x 1.65 (d) in.
- 8 Nett weight—350g.

#### RECEIVER—MODEL SP26R

- 1 Power—6v., from 4 pencils
- 2 Sensitivity—2uV/m
- 3 Output—pulse + 3.5v.
- 4 Dimensions—0.81 (h) x 2.28 (w) x 1.65 (d) in.
- 5 Nett weight—40g.

#### SERVOS MODELS—SM321 AND SM322

- 1 Rotating direction—SM321 - clockwise  
SM322 - anti-clockwise
- 2 Torque—1Kg/cm.
- 3 Speed—0.5 sec/60°
- 4 Output shaft has 23 splines for easy neutral positioning
- 5 Rubber cushions provided on lugs for vibration absorption
- 6 Hole pitch—1.19 (l) x 0.35 (w) in.
- 7 Dimensions—1.10 (h) x 1.20 (w) x 0.75 (d) in.
- 8 Nett weight—30g.

#### DIRECT SPEED CONTROLLER— MODELS SM331 AND SM332

- 1 Load capacity—SM331 - 5 - 8v. 2A.  
SM332 - 9 - 13v. 2A
- 2 Dimensions—0.81 (h) x 2.28 (w) x 1.65 (d) in.
- 3 Nett weight—40g.

#### THREE VERSIONS AVAILABLE

- 2F 2M complete with two servos
- 2F 2Y complete with one servo  
and one speed controller
- 2F 2MW complete with two speed  
controllers

**£54 95**  
including V.A.T.

For the absolute  
beginner this  
outfit is available  
with one servo  
only at £39.00



*For further details contact your  
IRVINE-SANWA dealer, or send  
SAE for technical brochure*

*Distributed and serviced by*

**irvine engines**

UNIT 8, ALSTON WORKS, ALSTON ROAD,  
HIGH BARNET, HERTS. Tel: 01-440 0923

KINDLY MENTION "AEROMODELLER" WHEN REPLYING TO ADVERTISEMENTS

# WonderWings

The easiest  
to build wings in the world



NEW WEMBLEY AEROSTAR 50in. span .29-.45 glows £14.95. New SUPERSTAR "Competition Special" £5.45. New STARLET II £4.15. All with hollow foam wings and comprehensive accessories.

THE LAURELS, 3 RACK END, STANDLAKE, OXON

# elf

SINGLE CHANNEL  
**KIT**



A simple but high quality kit capable of excellent proportional control of one function of model car, aircraft or boat up to one mile range. Will drive almost any spare digital servo (can be supplied).

S.A.E. FOR LEAFLET      ACCESS      BARCLAY

Kit of Parts and Drawings to assemble Transmitter and Receiver (Less xtals)      **£17.95**

MICRON R/C      HAYWORTH ROAD  
TEL.: 0602 395418      SANDIACRE  
NOTTINGHAM

## LADBROKES/ ELMBRIDGE 'FLY-IN' SPECTACULAR

LINGFIELD PARK  
SEPTEMBER 10/11 1977

Due to unforeseen circumstances it is regretted that the Model Flying planned to take place at Lingfield Park on September 10/11 has had to be cancelled.


This is a disappointment to both Ladbrokes and Elmbridge Model Club and Ladbrokes are particularly keen to continue their interests with Elmbridge and to plan a further event in the future to support this sport.

# Hamleys

## MODEL CENTRE

### The largest in Europe

WELBECK ST. LONDON W.1.



5000 sq. ft. of Models.

- Model Railways
- Sets & Accessories
- Model Car Racing
- Model Aircraft
- Model Boats
- Kits & Accessories
- Radio Control
- Scale Model Plastic Kits
- War Gaming & Militaria
- Scale Die cast Models
- Working Steam Models
- Constructional Kits
- Modelling Tools & Accessories

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

# The Modellers Den



**NEW MAIL ORDER ADDRESS—**  
**84 Winchester Road, Bristol**

## ENGINES—DIESEL

0.8cc Kalibri	£4.80
1.5cc MK17	£7.50
2.5cc Sokol	£6.80
Telco CO <sub>2</sub>	£8.45
Humbrol CO <sub>2</sub>	£8.95

## ZAIC BOOKS

Circular Airflow	£2.00
Model Aeronautics made Painless	£1.70
Model Glider Design	£2.00
Model Aeronautic Yearbook	
1935/6	£1.50
1937	£1.70
1938	£2.00
1951/2	£2.00
1953	£1.70
1955/6	£2.00
1957/8	£2.00
1959/61	£2.60
1964/5	out of print

Inclusive Postage and Packing

## 1/2" FLAT RUBBER FROM USA

20oz	£5.46
Plus 47p p&p (while stocks last)	

## AIRBRUSHES

Humbrol	£4.25
Devilbis Spritz	£33.66
Badger	full range

## COLOURED NYLON

Ultra Light	
White	Black
Red	Mid Brown
Orange	Yellow
French Blue	Light Blue
Olive Drab	Traffic Yellow
Khaki	Flourescent Blaze
All at 52p sq. yd.	

## SILK

Very light, white  
 Heavy weight, off white  
 for R/C scale  
 (doped linen effect)

## Andrew Moorhouse Kits

NEW	
Whitman Tailwind	£1.75
Currie 'Wot'	£1.75
Luton Minor	£1.50
Comper Swift	£1.50

## Also full range Peerless models

## OUTLAWS PRODUCTS—BIGGLES

Alpha, Bravo, Starlet, Super Star

## BASS WOOD STRIP

6 sizes x 22"	each 8p
4 pieces each size	p.p.d. £2.00
1/2" Balsam x 24"	25p

## FLY LINE KITS

The General "Aristocrat"	£8.75
Kinner Sportster	£8.75
Stearman C.3 B.	£9.50
Bellanca Skyrocket	£6.75
Curtiss Robin	£8.75

## TERN ACCESSORIES

A1 6" diameter Propeller	18p
A2 Propeller Shaft—Pack 6	26p
A3 Nose Bearing—Pack 6	26p
A4 Plastic Balloon Wheel—pair	18p
A5-A14 Torn Tissue—per sheet	12p

## BOB PECK PEANUT SCALE KITS

PP1 Pietenpol Air Camper	£2.50
PP2 Miles M1B	£2.50
PP3 Druine Turbulent	£2.50
PP4 Stringless Wonder	£1.90
PP5 Piper J3 Cub	£2.50
PP6 Andreason BA4-B	£2.50
PP7 Nesmith Cougar	£2.50
PP8 P-51D Mustang	£2.15
PP9 Japanese Zero	£2.15
PP10 Peck-R.O.G.	95p
PP11 Gipsy Moth	£2.50
PP12 Ganagobie	£2.50
PP13 One-Nite 16	£2.25
PP14 One-Nite 28	£2.99

## WORLD WAR I PEANUT SCALE

### KITS BY LEE'S HOBBIES

Lee-101 Halberstadt D11	£2.15
Lee-102 Thomas Morse S-4C	£2.15
Lee-103 Lu ac II	£2.15
Lee-104 Hanza-Brandenberg D-1	£2.15
Lee-105 Albatros D11	£2.15
Lee-106 Austin-Ball A.F.B.1	£2.15
Lee-107 Bristol Scout D	£2.15
Lee-108 Avro 504K	£2.15
Lee-109 Fokker Triplane	£2.15
Lee-110 Dornier D-1	£2.15

## ACCESSORIES

PA-1 Nylon Thrust Bearings (Pk 4)	28p
PA-2 Designers Kit—Small	72p
PA-3 Peanut Scale Decals	15p
PA-4a Designers Kit—Large	£1.30
PA-5 Rubber Lube	85p
PA-28 Propeller Shafts—1 1/2" x 1/8" dia.	25p
Propeller Shafts—2 1/2" x 1/8" dia.	25p
Propeller Shafts—2 1/2" x 3/16" dia.	30p
PA-20 Plastic Props—4 1/2"	10p
PA-21 Plastic Props—6"	16p
PA-22 Plastic Props—7"	20p
PA-23 Plastic Props—8"	26p
PA-24 Plastic Props—9"	32p
PA-25 North Pacific—4"	12p
PA-26 North Pacific Prop—5 1/2" with bearing	26p
PA-80 Contest Rubber—1/2" wide (16ft. length)	76p
PA-81 Contest Rubber—3/4" wide (16ft. length)	76p
PA-82 Contest Rubber—1" wide (16ft. length)	76p
PA-87 Plastic Dummy Engine Cylinder 1/2" scale (Pk. 5)	46p
PA-88 Plastic Dummy Engine Cylinder 1/2" scale (Pk. 5)	69p
PA-89 Plastic Dummy Engine Cylinder 1/2" scale (Pk. 5)	77p
PA-90 Ball Bearing Thrust Washers—Small	26p
PA-91 Ball Bearing Thrust Washers—Large	26p
PA-95 1/2" Wooden Wheels	pair 16p
PA-98 Clear Vintage Wheels—per pair 1/2" dia.	50p
PA-99 Clear Vintage Wheels—per pair 1" dia.	58p
PA-100 Clear Vintage Wheels—per pair 1 1/2" dia.	66p
PA-101 Clear Vintage Wheels—per pair 1 1/2" dia.	81p
PA-102 Grey Vintage Wheels—per pair 1 1/2" dia.	46p
PA-103 Grey Vintage Wheels—per pair 1" dia.	54p
PA-104 Grey Vintage Wheels—per pair 1 1/2" dia.	62p
PA-105 Grey Vintage Wheels—per pair 1 1/2" dia.	77p
PA-106 Smooth Contour Wheels—per pair 1" dia.	40p
PA-107 Smooth Contour Wheels—per pair 1" dia.	45p
PA-108 Smooth Contour Wheels—per pair 1 1/2" dia.	55p
PA-109 Smooth Contour Wheels—per pair 1 1/2" dia.	65p

## TERN TISSUE

A5—Red	A10—Orange
A6—Yellow	A11—Black
A7—Dark Blue	A12—White
A8—Medium Blue	A13—Light Green
A9—Light Blue	A14—Medium Green

## PECK TISSUE

PA-33—Blue	PA-38—Yellow
PA-34—Red	PA-39—Gold
PA-35—Orange	PA-40—Black
PA-36—Grey	PA-41—White
PA-37—Green	

## JAPANESE TISSUE

J-1—Orange	J-4—Red
J-2—Green	J-5—Yellow
J-3—Blue	J-6—White

tmd

NOTE NEW MAIL ORDER ADDRESS

## THE MODELLERS DEN LIMITED

2 Lower Borough Walls, Bath, BA1 1QR. Phone 60115  
 65 Fairfax Street, Bristol, BS1 3BG. Phone 23744  
 39 High Street, Cheltenham, GL50 1DY, Phone 34644

Please send your order, together with a cheque/postal order to—  
 84 Winchester Road, Brislington, Bristol  
 Postage and packing 15p per order.

**PLEASE NOTE**  
 PRICES MAY HAVE  
 ALTERED SINCE  
 GOING TO PRESS

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

# FROM RUSSIA WITH LOVE



## TU144 SUPERSONIC AIRLINER

Heralding a new era in supersonic flight. Combines comfort, convenience, economy and speed. Cruising speed : 2500 Km/h.

Scale 1 : 100 Wingspan : 270 mm.

Retail Price inc. VAT £1.99



## TU154 JETLINER

Designed by chief Soviet designer A. N. TUPOLEV. One of the top world products of the Soviet aircraft industry.

Its electronic and navigation systems comply with the most modern aviation standards.

Scale 1 : 100 Wingspan : 375mm.

Retail Price inc. VAT £1.65



## Mi-6 HELICOPTER

Largest and most powerful helicopter in the world. Equipped with jet engines.

Capable of carrying passengers and cargo.

Scale 1 : 100

Fuselage Length : 450 mm

Main Rotor Length : 400 mm

Retail Price inc. VAT £0.99

These are just a few of the many exclusive model kits available from the PLASTICART range. Your PLASTICART Model Dealer can show you more details of the selection which includes:

Model	Retail Price (inc. VAT)	Model	Retail Price (inc. VAT)
YAK 40	£0.65	BOEING 727	£0.99
CARAVELLE	£0.65	DC8	£0.99
YAK 24P	£0.65	AN12	£0.99
AN24	£0.65	IL62	£0.99
TU134	£0.85	TRIDENT	£0.99
IL18	£0.85	TU20	£1.65
COMET	£0.85	TU114	£1.65
Mi 10K	£0.85	WOSTOK 1	£1.99

'PLASTICART' TRADE ENQUIRIES TO:

## Hestair Models

FOREMOST HOUSE, THOMAS ROAD,  
LONDON E14 7BL. Telephone 01-515 0525

A HESTAIR SPORTS AND TOYS COMPANY

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS



# RIPMAX for Glowplugs

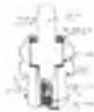
## SAPPHIRE



A low cost British 1.5 to 2 volt glow plug produced only in 'Medium' heat range for general flying requirements. Fully proven - and long lasting - by our own tests. Standard for free flight and control line models. Idlebar version for throttled engines (i.e. radio control).

STANDARD each 45p IDLEBAR each 52p  
Long or Short Reach Long or Short Reach

## HotSpot THERMATIC GLOPLUG



A special design with THERMATIC CORE giving automatic element temperature control. One heat grade suits all engine, fuel and weather combinations. Element is also protected from thermal and mechanical shock, giving longer life. The one 'universal' glow plug!

1.5 to 2 volts: Long Reach 47p; Short Reach 47p



## FLASHPOINT

Use of a new SUPERCATALYTIC element is a significant step forward in glowplug technology. Higher strength, better resistance, greater resistance to oxidation - plus controlled porosity. All this adds up to one of the best plugs we have tested - in all situations. Flashpoint 1.5 to 2 volt plugs are also available in three different versions, each in Long or Short Reach.

Standard, each 47p; R/C (with Idlebar) each 54p  
1.5 to 2 volt Corad Plug ... each 54p

## FOX



Produced to match Fox engines - originally - but so successful in the sport and contest world that modellers now find a 'best' plug in this range for almost any engine! The range is the largest of them all, with eleven different versions.

1 1/2 v STANDARD Long or Short Reach ... 46p  
2v STANDARD Long or Short Reach ... 51p  
Std RACING Long or Short Reach ... 90p  
R/C SHORT REACH ... 1 1/2 v 69p, 2v 69p  
R/C LONG REACH ... 1 1/2 v 69p, 2v 69p  
R/C Long Reach RACING plug ... 99p

There's a 'best' plug for every combination of engine, fuel and weather - and for the type of flying you are doing. 'Hot' plugs for easier starting in cold weather (and parking up an old engine). 'Cool' plugs to eliminate pre-ignition in high compression engines using hot fuels. 'Standard' plugs for most engines and average conditions. All available in Long or Short reach (which also affects engine 'timing').

That's why the Ripmax range of glow plugs is extensive. To give you the widest possible choice to find the best plug for your particular requirements. Study the guideline noted for each plug. And we would also suggest carrying alternatives in your field box to meet changes in conditions.



These German glow plugs have been specially developed to match the needs of contest flyers and cover five heat ranges. Plugs are colour coded for identification.

HOT (Red) ... £1.40 WARM (Yellow) £1.55  
COLD (Blue) ... £1.70 SUPER (Green) £1.80  
SPEED GLOW PLUG (Black) ... £1.95

## MERCO

These plugs were designed to match the requirements of Merco engines, but have proved an equally popular choice for other high performance glow motors. Basically they are 'Standard' plugs developed to give optimum performance over most conditions for sport or contest flying.

1 1/2 volt SHORT REACH ... 35p each  
2 volt SHORT REACH ... 35p each  
2 volt LONG REACH ... 35p each  
2 volt R/C (Idlebar plug) ... 42p each

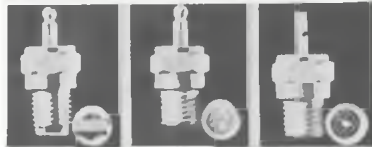


Clips and leads for connecting a glow plug to a starter battery are another essential - and here again there is a wide range of types. Choose the one you find the most convenient for your particular requirements. Photo shows the RIPMAX-MAP range. Grip-Tite Glow Clip with Lead ... £1.50  
Grip-Tite Glow Clip less Lead ... £1.00  
Push-on Glow Clip with Lead ... 99p

Other types available in the Ripmax range:  
IP: Push-on Glow Clip with Spade Clips ... £2.20  
Push-on Glow Clip with Crac Clips ... £2.50  
Clothes Peg Glow Clip with Crac Clips ... £1.50  
UNIVERSAL: Glow Clip ... £1.80  
Glow Clip with Checker ... £3.70  
MK: Push-on Plug Clip ... £2.20  
KAVAN: Push-on Glow Clip ... £1.75  
GRAUPNER: Glo-Clip only ... 95p  
Glo-Clip and Leads ... £1.70



Construction of this plug is unique in that the element is wound in FLAT spiral form, supported by high temperature glass seals. That makes it one of the toughest - and longest lasting - plugs of the lot. The element position also ensures faster ignition, more rpm with nearly all engines. Three different versions of these 1.5 to 2 volt plugs, each in Long or Short Reach.



RACING £1.50 R/C £1.15 SPORTS 75p

## Fireball



The 'Miracle' glow element used in these plugs is a superior platinum alloy giving up to three times longer life than the average plug core. Colour coded insulators give immediate identification of the plug's heat range - so there is no confusion once you have removed them from their blister pack. Manufactured by Swanson Associates of USA.

HOT (Red Insulator) 1.2 to 3 volts. Long or Short Reach ... 72p  
STANDARD (Yellow) 1.2 to 2 volts. Long or Short Reach ... 72p  
COOL (Blue Insulator) 1.2 to 1.5 volts. Long or Short Reach ... 72p  
Heavy duty high-action elements for fast starts.



RIPMAX GLOW PLUG TIDY ... 39p  
Save spare plugs from getting lost - and keep them CLEAN and PROTECTED! This really useful plug holder is double-sided to take up to 12 plugs. Push in place - pull out when required. Moulded in durable black plastic. A real investment. It will pay for itself over and over again!

# NOW AT YOUR LOCAL MODEL SHOP

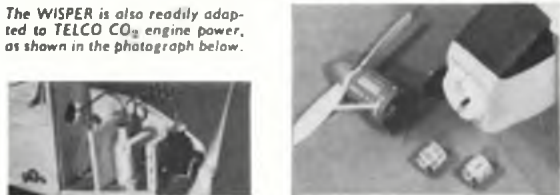
KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

# ← Quest WISPER

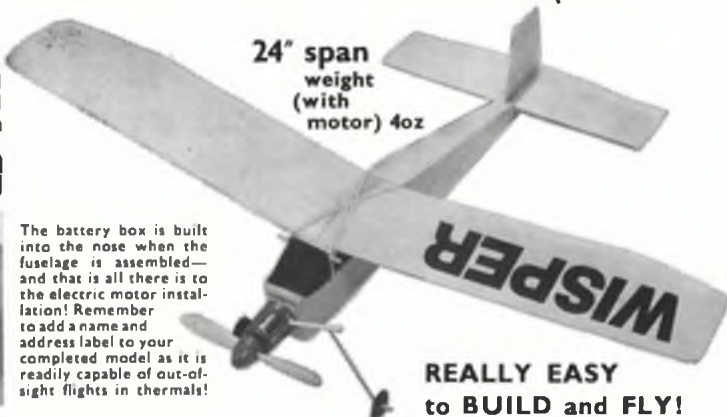
←  YOUR SIGN OF GUARANTEED QUALITY

Fully proven design specially developed to give maximum flight performance powered by the Mabuchi A1 Aeromotor. All-sheet construction with die-cut fuselage, wing and tail parts and wing ribs; pre-shaped formers; wheels, dowel rubber bands and undercarriage wire. Fully detailed plan with exploded drawing and full assembly and flying instructions. Very easy to complete from this superbly prefabricated and complete kit. **ONLY £2.60**

The WISPER is also readily adapted to TELCO CO<sub>2</sub> engine power, as shown in the photograph below.



The battery box is built into the nose when the fuselage is assembled—and that is all there is to the electric motor installation! Remember to add a name and address label to your completed model as it is readily capable of out-of-sight flights in thermals!



24" span  
weight  
(with  
motor) 4oz

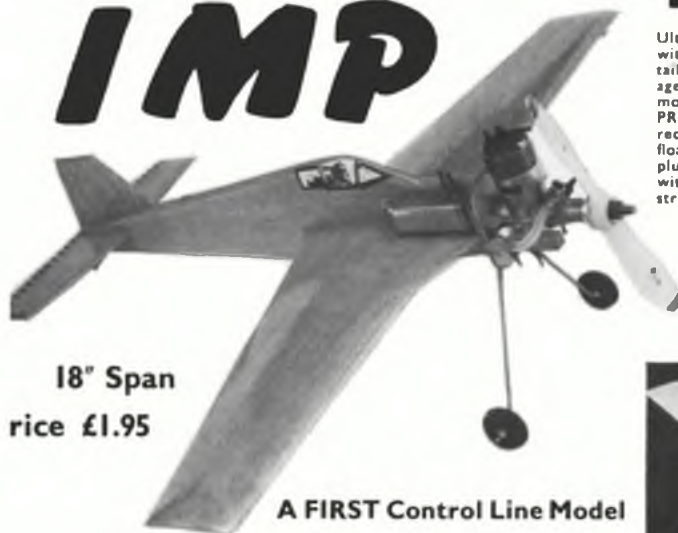
**REALLY EASY  
to BUILD and FLY!**



**MABUCHI A1 AEROMOTOR UNIT . . .**  
Powered by two rechargeable 'Super Cells' inserted in the battery holder. The motor unit (complete with matching prop) is a bayonet-type fit on the front of the battery holder. Switch arm starts (or stops) motor. 4 1/4 in. diameter propeller. Weight, complete with batteries, is only 2 1/2 ounces.

Mabuchi A1 AEROMOTOR (less batteries) £3.30  
A1 Aeromotor 'SUPER-CELL' rechargeable Batteries (pair) £2.05  
A1 Aeromotor CHARGER £4.80  
Operates off its own replaceable dry batteries. Recharges flight batteries in one minute!  
Spares readily available

# ← Quest IMP



18" Span  
price £1.95

**A FIRST Control Line Model**

Really **QUICK** and **EASY** to assemble. All parts are accurately prefabricated from top quality materials and the step-by-step assembly instructions are simple to follow. Kit includes preshaped balsa sheet and ply parts, engine bearers, bellcrank, control horn, wire, u/c clamps, etc.

Specially designed as a **FIRST CONTROL LINE MODEL** for a 049 glow motor or 0.8-1cc diesel. For a more experienced pilot, use a .09 glow.

# BANDIT

Ultra-simple construction with tip dihedral and 'Vee' tail (eliminates ground damage on landing!) This little model will **REALLY SURPRISE YOU** with its launch-recovery capabilities and floating glide! Precut parts plus a fully detailed plan with building and flying instructions.



Span 12"  
price 43p

Span 18"  
price 54p

# LUCIFER



Can be assembled ready-to-fly in a matter of minutes, giving you a model capable of winning your local chuck glider event! Kit includes preshaped wing, tailplane, fin, fin strake and fuselage in selected balsa – plus fully detailed plan and assembly/flying instructions.

←  YOUR SIGN OF GUARANTEED QUALITY

**DISTRIBUTED BY RIPMAX AT YOUR MODEL SHOP**

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

# Heard at the HANGAR DOORS

AN AEROMODELLER electric RTP rally has been arranged for Sunday, 2nd October, at The Paddock public house, Harpole, Northamptonshire – just one mile from the M1 motorway – exit no. 16 – on the A45 road into Northampton. A large hall is available with room for a 12 foot radius flying circle plus plenty of space for modellers and their equipment. In addition, there will be a separate room with power supply for last minute modifications or repairs – so the tinkerers may play with their soldering irons without affecting the flight circle! The hall has a separate entrance, so junior flyers can use the facilities without infringing the licencing laws. Food will be readily available – whether you prefer a full meal in the restaurant or snacks from the bar, whilst Harry Butler (Models) will also be in attendance, providing their full range of kits and accessories for this specialised form of flying.

Note that this meeting is primarily a rally for electric flyers – prizes will be given for particularly meritorious models, but the main accent is simply on flying and talking RTP.

The room is available from 10 a.m. – 6 p.m. (there is an extended licence) and for those who desire it there will be a 'disco' from 7 p.m.

**TWO CONTINENTAL CONTESTS.** If you fancy taking in an International control line event on your annual holidays, then why not consider one of these? Firstly, there is a combat meeting on the lawns of the Aero Club Rixensartois, Sentier du Carpu at Bourgeois-Rixensart, Belgium on 3rd and 4th September. Camping facilities are available, and there is an impressive array of prizes. Secondly, there is the long established Coppa d'Oro FAI team race meeting on 4th September at Lugo, Italy. Further details are available from the Aero Club, 'Francisco Baracca', Lugo, Italy.

**VINTAGE FLYERS** to the fore! The South Midland Area (SMAE) will be holding an 'all vintage' day at RAF Halton near Aylesbury, Bucks on 25th September. There will be informal contests with prizes for free-flight, control-line and R/C assist models, but in addition modellers are welcome to just come along and



Sequel to last month's piece in 'Hangar Doors' concerning Australia's Wakefield flier Peter Smith, who had his Volkswagen Camper stolen in Italy complete with his World Champs models. New models were built in time, thanks to loan of equipment by various British modellers, and Peter did manage to fly for his country in Denmark. Unfortunately, his run of bad luck extended to finding more downdrafts than thermals, and he finished in 75th place to spoil the chance of a fairy-tail ending.

sport-fly. For R/C assist, the models should be kitted published pre January 1953, but for C/L and F/F, the important date is January 1951. In addition there will be a 'proper' contest for open and novice/junior aerobatics – strictly non vintage! Any type vintage model is welcome, but only SMAE members will be admitted to the airfield, so bring your membership cards.

**THE 1977 EUROPEAN C/L Championships** hosted by Belgium have now been held – full details next month – but for the impatient, the following results are provided!

Speed			
1. E. Rumpel	W. Ger.	254.4km/hr	
2. G. Ricci	Italy	251.7km/hr	
3. G. Isles	GB	245.9km/hr	(new British rec.)
14. D. Smith	GB	228km/hr	
23. S. Smith	GB	214km/hr	
(26 entries)			
Team results: 1. W. Germany; 2. Italy; 3. USSR; 4. G. Britain.			

Team Race			
1. Krasnorutsky/Kamerenko	USSR	7:58.2 (final)	
2. Barkov/Suraev	USSR	9:19.7 (final)	
3. Metkemeyer/Metkemeyer	N'lands	Disq. (final)	
11. Fry/Smith	GB	4:11.9 (heat)	
16. Heaton/Ross	GB	4:16.8 (heat)	
29. Broadhead/Davies	GB	4:51.9 (heat)	
(31 entries)			
Team results: 1. USSR; 2. Sweden; 3. Denmark; 7. G. Britain.			

Aerobatics			
1. L. Compostella	Italy	5,860 pts	
2. V. Esjkin	USSR	5,823 pts	
3. S. Rossi	Italy	5,749 pts	
6. P. Tindal	GB	5,509 pts	
10. J. Newnham	GB	5,380 pts	
13. J. Mannall	GB	5,237 pts	
Team results: 1. Italy; 2. USSR; 3. G. Britain.			

Combat			
1. M. Lewis	GB		
2. E. Meyer	N'lands		
3. R. Evans	GB		
5. R. Wilkens	GB		

10. D. Wood GB  
(27 entries)  
Team results: 1. G. Britain; 2. W. Germany; 3. Netherlands.

**CORRECTION.** In the August issue we may have caused a little (!) confusion over the British Nationals timetable. Firstly, we confirm that there is only one Sunday 28th August, the 29th of that month being a Monday... Also, the Junior/Novice stunt event is on Monday 29th August as shown on the timetable, not on the 28th as stated in *Golden Wings*. Sorry! **HANWELL & DISTRICT Model Society** are holding a Model Exhibition on 22nd October (2-8pm) and 23rd October (10am-7pm) at the Hanwell Community Centre, Cuckoo Avenue, Westcott Crescent, London N7. In addition to contests for scale models of all types – aircraft, boats, railways etc there will be a 30 foot diameter circle for electric RTP. Further details from J. Bidgood, 27 Barham Road, Greenford, Middlesex – tel 01-578 5083.

**NATIONAL F/F SOCIETY** has now announced its '1977 Model of the Year' awards, these being allocated as follows:

FAI Classes	Flux	Wakefield
W. Ghio's	<i>Wishbone</i>	AJ2 glider
L. Isaacson's	<i>Lucky Lady</i>	Power design
G. Conover's	<i>Les Trumeaux</i>	Coupe d'Hiver

AMA Classes	Okie Bird	Scramble
J. Clem's		
J. Clem and B. Horford's		

Indoor Rubber	Super Star	Indoor stunt
D. Kawalski's	<i>Grand Cram</i>	Indoor micro-film
B. Romak's		

Special Class	Quail	Rubber speed design
J. Lewis's		A/1 glider
M. Fedor	<i>Lil Hooker</i>	



# LVG CVI

**Build the model on the cover!  
W. D. Dennis' superb free flight scale design for  
0.75-1cc engines**

I DECIDED to build a model of the LVG after having seen the superbly restored machine in the Shuttleworth Collection. This was in spite of some misgivings about possible stability problems associated with the small tail areas and short moment arm, but as it turned out, the model flies very safely with careful trimming – but more of this later. The original was powered by a Mills 1.3cc diesel. This engine is really too large, but was chosen because it fitted well into the dummy engine! Any 1cc motor (or even 0.75cc if built light) should provide ample power.

The construction closely follows the techniques described by Eric Coates in his excellent *Flying Scale Models* series of articles in *AeroModeller*. The model is not difficult to build, but great care must be taken during material selection in order to keep the weight, and hence flying speed, as low as possible – one should aim for around 21oz all up. Additional scale detail is best interpreted from the photographs and scale drawings in Plan Pack 2941 – available from *AeroModeller Plans Service* as order no. 2941, price 80p including post.

## Wings

Trailing edges are prepared from stiff quarter grain sheet – it is worth spending some time getting the correct contours between the 'ribs'. Make all the ribs by the 'sandwich' method with spar holes, and then cut down the required number to form the false ribs, which show on the top surface of the wing only. The main ribs are slid onto the spars to their correct positions and the spars then pinned down to the plan with appropriate packing *before* gluing.

The ailerons have pronounced washout and should be jiggled up during assembly with wedge-shaped pieces of sheet at the position indicated, in order to obtain the correct twist.

## Tail surfaces

The outline shape is cut out of stiff 1mm sheet and the positions of spars and ribs marked on both sides. The structure is then built up on either side of the sheet and sanded to section.



From any angle, this aircraft looks most realistic – and it flies as well as it looks, having been a regular performer at Aero Modeller All Scale rallies, held at Old Warden. That camouflage colour scheme may be laborious to apply but the result is well worth it – but if you prefer, choose a simpler livery.

FULL SIZE COPIES OF THE 1/8th SCALE REPRODUCTION SHOWN OPPOSITE ARE AVAILABLE AS PLAN No. PSP 1321, PRICE £1.65p (INCLUDING OF POSTAGE AND VAT) FROM AEROMODELLER PLANS SERVICE, P.O. BOX 35, BRIDGE STREET, HEMEL HEMPSTEAD, HERTS HP1 1EE.

### Fuselage

Two sides are cut from light 1.5mm sheet and are assembled with the formers 10-13 which should already have the undercarriage, cabane wires and tubes attached as necessary. The remaining formers are then added, taking care that the fuselage remains 'square'.

The fin and tailplane should now be added, together with cockpit details, before completing the top and bottom sheeting. Note that the top rear decking consists of separate panels.

The nose must be beaten from sheet aluminium. Carve and sand a hardwood block to shape – minus the thickness of the metal and drill through for the engine shaft. The sheet of annealed aluminium is held against the front of the former with a large nut and bolt, clamped in a vice. The side panels are then easily bent to shape with the fingers over balsa formers, and are held in place by single screws locating in blocks in the fuselage.

Whether you are building the prototype (cowled engine) or production version (uncowled), the dummy engine or cowl is attached to one of the side panels and is detachable with it.

The entire fuselage is now panelled with plywood, as on the full-size. The position of the panels is shown on the plan, and these should be accurately cut out of 1mm ply. Each piece is boiled in water for 10 minutes to soften the wood, and as much of the inside surface shaved off as you dare – this is essential to avoid excess weight. When dry, the pieces are attached with an impact adhesive.

Finally, the plywood is doped and sanded to a smooth finish and fuel-proofed – if the latter is not done, oil gets into the joints and seeps along the grain, looking most unsightly.

### Covering

The wings and tail are covered with lightweight tissue and given one coat of dope. Silk is then laid over the tissue, dry, and dope applied through it. If you are applying the lozenge camouflage, the pattern must be traced onto the tissue beforehand. The method I used was to mask out four of the five colours with Humbrol *Maskol* rubber solution and then dope over it – repeating the process. The mauve/green finish of the prototype is much easier!

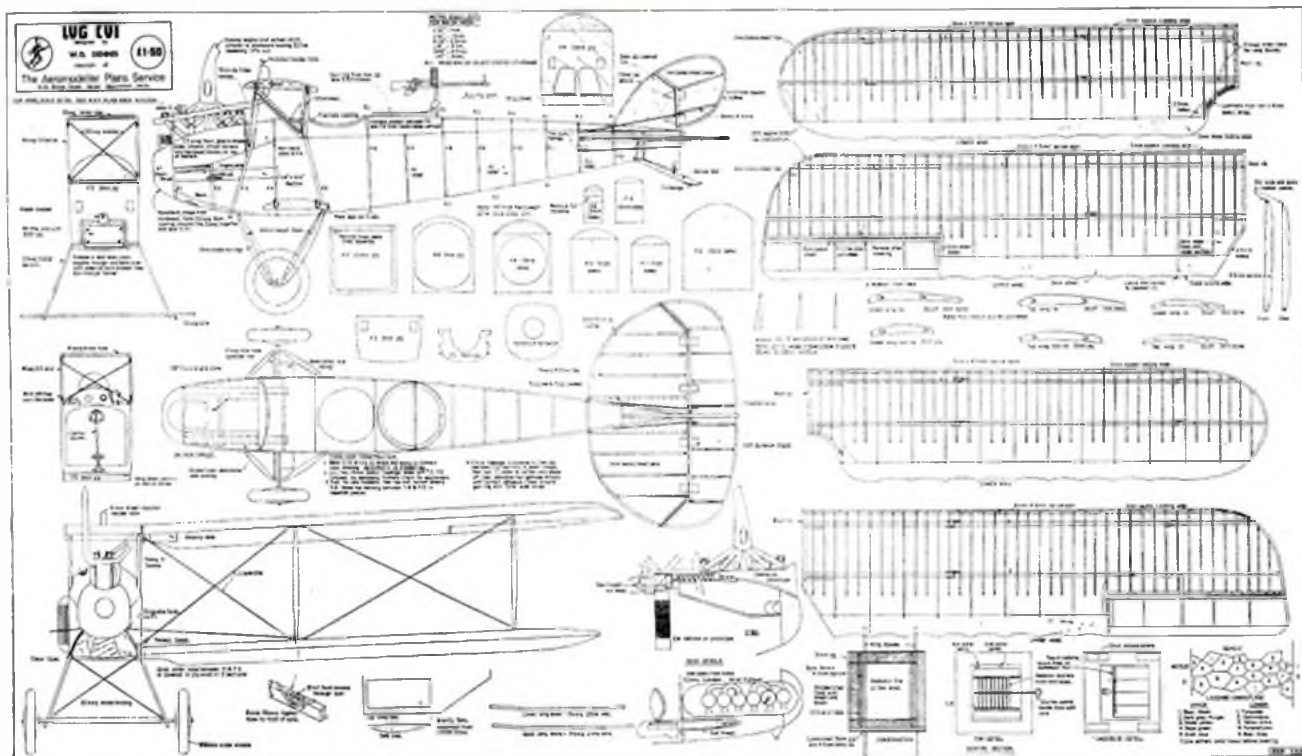


### Trimming

The model is relatively insensitive to rudder and elevator settings and seems to fly naturally in large diameter circles, with no tendency to spin in – I believe the aileron washout to be a factor in this. Trimming is more a matter of finding the optimum CG position: if it is too far back, the model has a tendency to stall on power, while the glide is steep if balanced too far forward.

With the original model, take offs are something of a lottery! The axle is rather far back and hence nose-overs are always a risk. This was because I made the mistake of bending the undercarriage main legs to the exact scale sweep-back. As anyone who has used the torsion bar type U/C will know, the legs do take a 'set' about half an inch back after the first heavy landing, so I would advise taking this into account, and bend the legs slightly forward of their intended position.

When properly trimmed and flying on low power, the model is very stable and most realistic in the air.



# topical twists

by 'Pylonius'  
illustrated by Sherry



"He's worried about his C.G."

## No Foil like an Old Foil

Seeing that someone had brought out a book of aerofoils for use on model planes jolted me into the realisation that there are people to whom this quaint term, straight out of Lilienthal's notebook, still had significance. It shows how the pre-Toy Fair age of aeromodelling lives on when people had an almost religious belief in high flown, but not always high flying, theorems and formulae. Enthusiasts would plot out their cherished aerofoils for hours, working to the barest thousandth of an inch of accuracy, then cover the meticulously designed wing in sagging tissue. So blinded were they by faith that they could not see that a nice freehand shape would have done just as well. There were even fanatics who truly believed that one aerofoil was superior to another that was but a mere squiggle different – and they had flight tests to prove it. Then someone crudely blew the gaff on all aerofoil theories by using a flow disruptor along the front of the wing. The device, known as a turbulator, just churned up the air over the carefully plotted curves, and got better results into the bargain.

The aerofoil credo is perhaps the longest lasting of all the old faiths, but we can only look back in wonder at some of the passionately held beliefs of the past; each peculiar to its particular age. Going back into the mid 1930's you could take it as more or less holy writ that a model could not possibly fly without a huge dropical belly, and I well remember the American model mags being full of articles, long and learnedly proclaiming the inherent truth of inherent stability. Hopes were high as long as the Centre of Gravity was low, but it was with the coming of a messianic Wakefield, embodying the mystic message in the form of a huge paunch that would make a weight watcher wince, that this particular religious order fizzled out – the proof of the pudding shape was not, alas, in the flying.

Coming to the fifties the belief was widely held that a successful model could only be such if its heart was in the right place, by which is meant the correct location of the Centre of Lateral Area in relation to the Centre of Gravity. An established ritual was to produce a cardboard silhouette of the model and to balance it on a pin. Though possibly a good way to win the pools, the procedure did not appear to stop the models crashing, as they were just overpowered, anyway.

Another fifties belief held with deep conviction concerned the supposed helical path of the prop wash swishing round the fuselage and striking either the tailplane or the fin with a left handed, or was it a right handed, swipe? Those who held to this bizarre tenet of faith were faced with a nice dilemma: whether to mount the tailplane out of the whirling wash by sitting it on top of the fin, or get the fin out of the way by fixing that under the fuselage – they couldn't have it both ways unless they went tailless.

Wonderful days, though, when model flyers had their heads in the heavens if not always their models, not like these unbelieving times when multi radio, fully aerobatic

models are produced in the toy factories by people who, if told what an aerofoil was, would possibly reply to the effect that they had often wondered why wings had that funny hump in them, and when the Wakefield is won by fiendishly clever orientals who think that low fin is just another team member.

## A lot of flannel

Looking at a sports meeting on telly the other day I noticed that the field was not only awash with the usual sports day cloudburst, it was also awash with officials. Whenever anyone threw a discus or putted a shot whole swarms of white flannelled officials would hare off in pursuit of the object at great risk to their lives. Again, there were whole shoals of them alongside the running track, all eager to get some bit of the action. Much the same applies to a Swimming Gala, where there is perhaps a little more water, and even more officials – about six to every swimmer. Often the swimmers have difficulty in getting out of the water for the sheer block of officials on the edge of the pool.

Then it occurred to me that if model flying was ever to get recognition as a sport we would have to do a lot better in the way of officials at our meetings than just one bloke sorting out the flight cards. The trouble is that whereas people can identify themselves competitively with homo sap against homo sap they cannot do the same for one model plane against another. Of course, if they were to see one tactical flyer in action against another they would see the model plane as just an incidental piece of equipment like a shot or a discus.

Oddly enough, the position some years ago was not so bad. Like most other activities we got our officials from people who had retired from the active list but still retained an interest, but now when middle aged inertia comes upon them they become full time telly viewers, or what is worse, radio flyers. In those far off days you could even get your model timed by someone who was not a member of your own club, but that was when model flying was considered a serious occupation – a hobby, in fact, rather than an unrecognised sport.

Of one thing I am sure, though: if we had a few, imposing, elderly officials knocking around it would raise our stock no end. We might not be so bullied and harried as we now are. Only the other week we were all innocently parked on the airfield when along comes a person with a large bullying voice, ordering us off the tarmac. We all presumed he was someone of rank, like an adjutant, but it turned out he was just one of the land yacht people clearing off what was, in his estimation, a bunch of troublesome kids. We had to obey, of course, as anything that moves on the flying field, even a rabbit, has priority over the lowly model flyer. Had we had but one prepossessing official in crested blazer and jacket, with an equally booming voice, we might possibly have been able to assert ourselves.

# RACING

by Dave Clarkson

## WOODFORD RALLY - 10th July 1977

The sunniest Woodford for years meant reasonable entries and an early finish. Two racing events were run - Goodyear and FAI Team Race - the Norwest club doing the organising for both. Heading up the FAI organisation were Derek Heaton and Malcolm Ross assisted by Alan Cooper, Jim Woodside and Roy Everitt - all experienced personnel and therefore realistic and effective jurying was a feature of this event. Likewise in Goodyear, Ian Hutchinson, Charles Rosser and myself combined to provide effective and relatively strict rule enforcement, making for a disciplined event.

## GOODYEAR

Twenty-one separate teams actually flew. We made full records for all races and this has led to the following most interesting analysis:

Number of flights made	50
Flights finished	62%
Flights not finished due to retirement	20%
Flights not finished due to disqualification	18%
Re-flights	2%
<b>Warnings analysis</b>	<b>47 warnings given</b>
Pitting inside pitting circle	15%
Handle off ground at pitstop	36%
Whipping in level flight	15%
Whipping/backing-up/pivoting at overtake	30%
Others	4%

Of the nine models making the semi-finals we made a 'popularity analysis' for model designs and motors used which may also be interesting.

<b>Motors</b>		<b>Models</b>	
Rossi 15FI glow	4	Ol' Blue	3
ST X-21 glow	3	Lil' Quickie	} 2 each
OPS 19 glow	} 1 each	Argander Special	
ST G-19FI (dieselised)			Stinger
		Miss San Bernardino	

Without doubt the one OPS 19 present, using a John Gray 7 x 6 GF prop and 15% nitro fuel, was the fastest there, giving an airspeed of 107 mph in traffic. However the fastest heat of 4.19 went to a Rossi 15 FI glow in the hands of '76 Nats winners Bryant/Chilton.

## Results

- Daly/Howard Norwest 9.09 Ol' Blue Rossi 15 FI glow
- Cotterell/Perry Wolves 9.25 Argander Rossi 15 FI glow
- Jarvis/Needham Norwest disq. Lil' Quickie OPS 19

The winners had perhaps the slowest model in the air but their pressure-fuelling tank contributed to a stream of good pit-stops and that made the difference.

It is a sad commentary on the state of Goodyear at the moment that over half of all the warnings given throughout this event were for pit-stop infringements and only 15% for whipping in level flight. Smarten up is the message. I get mighty unhappy with myself if I waste warnings in this way.

Below is Dave Fry in action, pitting for Steve Smith - a very competitive team and on top form at present. At right is a front-exhaust diesel used by Krasnorutsky, Onufrienko - but not flown at the European Champs. Superbly made, it weighs just 145 grammes despite the bulky appearance. Note use of single blade prop and consequently huge spinner to encompass the counter-balance.



## THIRD SMAE CENTRALISED MEETING - RAF Barkston Heath - 19th June

Cloudy, cool and blustery weather this time - last year at this time we were expiring from the heat - and another change in that with Bob Horwood absent in Paris, Bernie Langworth carried the organisational load with the assistance of quite a few, including fellow Wharfedale club members John Broadhead and Ev Davies. Despite the efforts of your reporter, this time we all got to go home quite early even though FAI-TR, B-TR and Goodyear were run (this last event under the CLARA banner with Ian Hutchinson and John Daly of Norwest doing the honours).

## FAI-TR

The weather seemed unhelpful for many were reporting lost range, nevertheless the heats were quick resulting in a 4.30 cut-off time for the semi-finals. The fun started in the semi-finals with extremely quick times by Heaton/Ross in 4.04 and visiting Australian Hutton Oddy teaming up with Jim Woodside in 4.08. Clarkson/Bingham slowed things up somewhat (to the displeasure of many) by making an official protest - an almost unprecedented action in TR - and winning a re-run in their 2nd semi-final (did them no good though). The final saw all three involved smartly off and with equal airspeed but at their first stop, the model of Allcock/Chambers ran in leaving the Bugl operators to contest the finish. Super stops by Heaton/Ross made the difference and they won with a new UK final record. A really impressive result: equally impressive was the 455gm weight model of Hutton Oddy - the best in the Southern Hemisphere? A real beauty.

		best heat	best semi	final	
1. Heaton/Ross	Norwest	4:06	4:04	8:15	Bugl
2. Oddy/Woodside	Australia	4:25	4:08	8:27	Bugl
3. Allcock/Chambers	Wolves	4:21	4:28	rtd	Rossi FI
4. Bryant/Chilton	Feltham	4:15	disq		Rossi FI
5. Clarkson/Bingham	Norwest	4:17	4:42		Rossi FI

## GOODYEAR

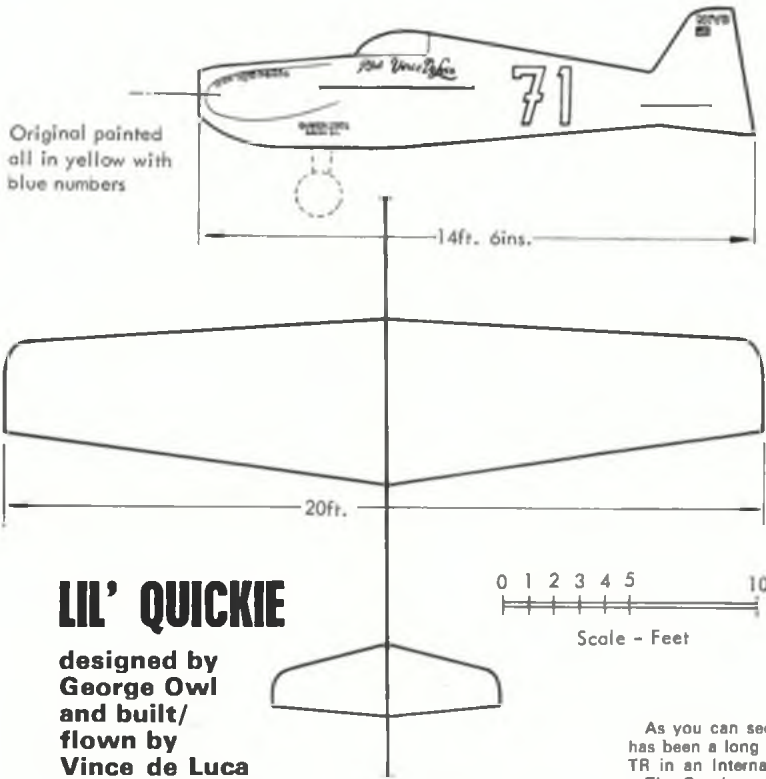
Both because of member request and because of the somewhat unsatisfactory nature of the previous SMAE Goodyear event, CLARA, with the agreement of the SMAE Contest Director, organised and ran an unscheduled Goodyear contest. In an attempt to reverse the rather undisciplined flying that has marred this year's Goodyear events, the organisers made it clear to the participants that the rules would be applied. However, many competitors ignored this in the first round resulting in three disqualifications and only four times recorded. The second round had six times recorded and one disqualification so maybe the message got home.

No semi's were run because of the paucity of recorded times - only seven teams having recorded times. The final again saw a break-out of undisciplined flying involving previous Nats winners Bryant/Chilton ('76 winners) and Daly/Howard ('75 winners) both with Rossi glow powered machines, for both were disqualified for whipping, leaving the sole diesel to drone on to a slow but winning time.

	best heat	final	
1. Sykes/Crabtree	5:02	9:12	Argander Spl
2. Daly/Howard	4:55	(8:49) disq	Ol' Blue
3. Bryant/Chilton	4:25	(9:12) disq	San Bernardino

We have to hope that this show of resolve by the event organisers will result in more disciplined flying in the future with both pilots and pitmen realising that rules do exist and will be applied.





### RACING NEWS

Smith/Fry of Feltham now hold both SMAE records for FAI Team Race: 4:02 (heat): 8:11 (final).

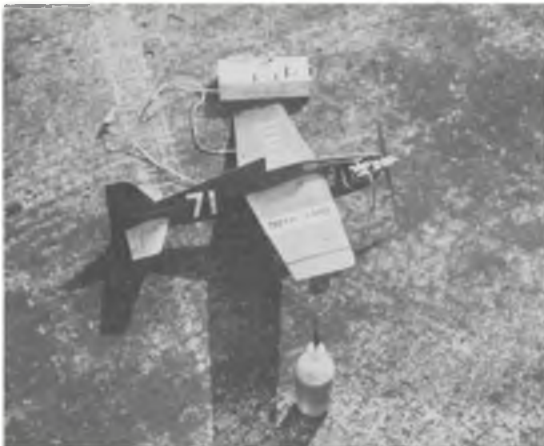
The heat record was established in Paris using a Bugli and the final record at Elliott using a Rossi. In setting the final record, the 100 lap mark was passed in 3:47. FAST!!!!

At Breitenbach (Switzerland) Smith/Fry went super-well and super-consistent to place second in FAI Team Race.

The British cleaned-up in Paris with a 1-2-3-4 in FAI Team Race:

- |                   |     |               |
|-------------------|-----|---------------|
| 1. Smith/Fry      | ... | Feltham       |
| 2. Rudd/King      | ... | Feltham       |
| 3. Tribe/Tribe    | ... | Cosmo         |
| 4. Tribe/Harknett | ... | Cosmo/Feltham |

Below is a 'Lil' Quickie' Goodyear racer (see drawing above) built by Stewart Willoughby - late of the Feltham club, and now residing in the USA. Knowing his very high standard of construction and finish, the photo hardly does it justice. At right is perennial US Team Manager, 'Doc' Laird Jackson - see 'Meet the People'. He is flanked by two noted American FAI team race pitmen Bill Wright (left) and Jed Kusik.



Profile of a team manager at work! Actually, Dave Rudd really worked hard looking after his charges at the 1977 European Championships in Verriers (reported next month) and many of our fliers were grateful for his lengthy 'discussions' with the FAI jury on their behalf. Far from an expenses-paid holiday, the role of team manager is a most demanding one and can be most decisive when marginal rulings are made.

As you can see, it was really London doing the cleaning-up. It has been a long time (if ever) since we saw an all-British final in TR in an International.

The Goodyear Marathon saw a new record of 1321 laps for the 1-hour race. The record was set by the Norwest team of Jarvis/Needham using an OPS-19 powered Lil' Quickie that gobbled so much 5% nitro fuel that no less than 37 pit stops were needed - way in excess of the 20 required as a minimum.

At Burtonwood (near Warrington) on the evening of Friday, 1st July, between the hours of 7 and 10 o'clock, 11 teams from as far away as Birmingham and Leeds got through four rounds of heats and a final in FAI Team Race under rather strict jurying by Ian Hutchinson and myself. Considering the unusual date, this event was a total success (leaving sufficient time for the pub) and saw Heaton/Ross win with an 8:25 final following a 4:04 heat - the fourth time they have done 4:04 this year. Are Friday evening one-event contests a new fashion? Thanks to Jim Woodside for organising this one.





# HANDLE + FROM THE HANDLE + FROM THE HANDLE

## MEET THE PEOPLE

Back again after an enormous break, this time we meet one of the most important (if not *the* most important) people involved in Control Line affairs today. Caught showing a very typical smile to all concerned at the last World Championships is Laird Jackson better known as 'Doc'. Long time US team manager, Doc is now the FAI-CIAM CL Committee Chairman (spelt G.O.D.) and will therefore be influencing our lives quite a bit. Doc is also at the hub of the American CLARA sort-of-equivalent known as the 'FAI-CL Society' and edits their eminently readable (if you have X-ray eyes) — and packed tight with good information, *Gazette* (even rumour and scandal at times), compulsory reading for CL Speed and Racing nuts.

For those interested, the two people featuring in the photo besides the Doc and actually looking at the action are (left) Bill Wright and (right) Jed Kuak, both stalwart American TR pitmen.

## GOODYEAR 3-VIEWS

Whilst the scale fidelity rules for Goodyear remain largely un-enforced in the UK, some may say that there is little point in attempting to build models accurately within these rules. However, I suspect that most of us take pride in building good looking, accurate Goodyear models for racing and the problem with this has always been in obtaining the necessary good 3 views. As reported by Bill Lee in his racing column in the February '77 *Model Aviation*, no one need lack accurate Goodyear 3-views for two excellent sources now exist if only by mail-order from the USA. The most comprehensive source for Goodyear 3-views is R. S. Hirsch, 8439 Dale Street, Buena Park California 90620, USA. An International Reply coupon should get you his catalogue which lists no less than 90 different Goodyear 3 views all to 1/48th scale and available at prices varying from 75 cents to \$1.75-\$2.00 for multiple sheet drawings plus 15% for postage.

The second source reported by Bill Lee is a new book published by Pylon Publications, PO Box 2728, Rochester, New York 14626, USA, and entitled *The Modern Air Racers in Three Views 1949-1975* and priced in America at \$4.95. A soft cover book size 8 1/2 in. x 11 in. this contains no less than 41 Goodyear 3 views plus quite a bit of

historical etc data on Goodyear aircraft. Let us hope that, as with the companion 'Pylon Publications' book *The Early Air Racers in Three Views*, Beaumont Aviation Literature (frequent advertisers in this magazine) have this one available.

Finishing off Bill's own summary of Goodyear 3 view sources is a table which we reproduce from *Model Aviation* which lists to the required scale the key dimensions for 33 of the most popular Goodyear subjects and it must therefore be the best ever model processor's check list ever published. With this listing, plus the sources identified no one should ever be able to plead lack of accurate data again.

(There are, of course, Formula 1 Goodyear Spec. racers in the AeroModeller Plans Service, notably the best Cassutt drawings available (85p incl post) and the elegant Owl Racer and Mace Shark — see Plans Handbooks for details. Also the range of *Aero Books* now distributed by Argus Books in the UK at £3.50 each, Volumes 1-12, *Racing Planes*, by Read Kinert. This is where *Lil' Quicke* can be found in Vol X for example — Ed.)

Now for one that seems to have got away. Drawn opposite is one of the most 'likely' Goodyear 3 views I have ever seen and as the photo shows, builds up into a really nice looking model. At a true scale fuselage length of just 21 1/2 in. and a true scale span of 30 in., the 'Lil' Quicke would seem to be the conventional tall *Jinny* we have all been looking for. All cheer Stewart Willoughby, ex-Feltham, and now resident in the USA, for digging up this one!

In passing, I might mention for those of you who like to read an American magazine as well (of course) as the *AeroModeller*, that in my humble opinion *Model Aviation* published by the AMA has by far the most comprehensive and expert coverage of Control Line matters in the USA. With regular coverage separately of control line speed combat, racing, stunt, carrier and scale by well-known competitors like Sam Snyder, Charlie Johnson, Bill Lee, Wyn Paul, and Mike Stott even the most particular reader should be well satisfied. Subscription is currently at \$14.00 per year for we foreigners from Model Aviation, 815 Fifteenth Street, NW, Washington, DC 20005, USA.

Model	Length	Nose	Gear	Wing Position	Span	Plan Source	Notes
Buster	23	5 1/2	4 1/2	M	24	H	
Stardust	21 1/2	5 1/2	5 1/2	M	24	H	
Wingwax	22 1/2	5 1/2	5	M	25 1/2	H	
Miss San Bernadino	22	6 1/2	5	M	28 1/2	H	
Lower R-1 (Ildgit's Midget Moonshiner)	22 1/2	5 1/2	5 1/2	M	23 1/2	H.P.	Version of Cassutt
Grey Ghost	21 1/2	4 1/2	5	M	19 1/2	H	
Miss Los Angeles County	21 1/2	4	4	H	27 1/2	H	
Shoestring	22 1/2	5 1/2	5 1/2	M	28 1/2	H.P.A.K.	
Ricky Rat	23	6 1/2	6 1/2	M	28	H.P.	
Pogo	22	5 1/2	5 1/2	M	24	H.P.K.	
Denight DDT	21 1/2	5 1/2	5	L	28 1/2	H	
Denight Model 100C	21 1/2	5 1/2	5 1/2	L	29	H	
Ol Blue	19 1/2	4 1/2	5 1/2	M	27	H.P.	Wing Mount Gear
Cassutt Model 2	21	4 1/2	4 1/2	M	20 1/2	H.P.A.	
Cassutt 'Lil Rascal'	21	4 1/2	5	M	22 1/2	H	
Cassutt 'Boo Ray'	21	4 1/2	5	M	22 1/2	H.P.K.	
Cassutt 'Plum Crazy'	21	4 1/2	5	M	27 1/2	H	Tapered Wing
Lil Misty	20 1/2	4 1/2	5 1/2	M	29	H	
Mother Holiday	21 1/2	4 1/2	5 1/2	M	29 1/2	H	
Brown B-1	21 1/2	4 1/2	4 1/2	L	24 1/2	H	
Pack Model 'D'	21 1/2	5 1/2	5 1/2	M	22 1/2	H	
Pack Model 'C'	20 1/2	4 1/2	5	M	22 1/2	H	
Pack Model 'A'	21	5 1/2	4 1/2	M	26	H	
Pack Model 'B'	20 1/2	5 1/2	5 1/2	M	26	H	
Miller 'Little Gem'	22	4 1/2	4 1/2	M	22 1/2	H.P.K.	
Downey 'Ole Tiger'	21 1/2	3 1/2	4 1/2	M	21	H.P.K.	
Cosmic Wind 'Minnow'	24 1/2	7 1/2	6 1/2	M	29 1/2	H.A.	
'Miss Cosmic Wind'	24 1/2	7 1/2	6 1/2	M	24 1/2	H.K.	
Long 'P-Shooter'	20 1/2	4 1/2	4 1/2	L	27 1/2	H	
Long 'Midget Mustang'	21	4 1/2	6	L	29	H.A.	Wing Mount Gear
Cosmic Wind 'Little Toni'	20	5 1/2	5 1/2	L	29 1/2	H.P.	
Sweet Pea	20 1/2	4 1/2	4 1/2	M	28	H	V-Tail
Bonzo	22 1/2	5 1/2	4 1/2	M	23	H.P.K.	

H—Hirsch 3-view. A—*AeroModeller*. K—Kinert. P—Pylon Publication 3-view.  
 All dimensions are in inches at 1 1/2" to the foot.  
 Length is measured from base of spinner to hinge line of elevator.  
 Nose is measured from base of spinner to leading edge of wing at wing/fuselage intersection.  
 Gear is measured from base of spinner to approximate centre of gear.



The British team resplendent in their track suits generously provided by Gola, consisted of (left to right standing) team manager Bryan Spooner, John Cooper, Pete Williams, Stafford Screen, Andy Crisp and Martyn Cowley, whilst in front are Mike Woodhouse, Ron Pollard, John Bailey and Dick Johnson. The team were very fortunate to receive a substantial donation from Mr Gerry Pick, Managing Director of the SIA Computer Bureau Ltd. At left, the cartoon displayed by Martyn Cowley summed up many peoples' views!

## WORLD F/F CHAMPIONSHIPS

Roskilde, Denmark—July 6/12th. Reported by Mike Fantham

IF YOU FLEW in the World Free Flight Power Championships against 64 of the world's best flyers and scored 20:02 you would have placed 34th. All right, so you missed the fly-off, but you dropped *less than a minute* over the seven flights, better than the best score from some countries! Quite a good performance? . . . Not if you come from North Korea . . . it was easily their worst performance! These track-suited oriental gentlemen who amused us in '71, surprised us in '73 and worried us in '75 have *really* impressed us in '77. They took five of the 18 medals, including three golds. They had a large following every time they took the field and people looked in vain for some new design feature, something special about the models that would make their scores better. They saw only neatly built models of fairly conventional design that looked faded, repaired and thoroughly 'flown'. Their rubber was inspected and tested . . . the verdict 'good but nothing special'. The 'secret'? Teamwork, much practice flying their models for lift and a gentleman on the thermister pole who seemed to know *exactly* what he was doing!

The North Koreans were supreme among the modellers from 31 nations who assembled for the 1977 Championships held at the Roskilde airport, about 20 miles west of Copenhagen. Teams, supporters and organisers were all housed in the classrooms of the Peder Syv School at Viby some eight miles from the airfield. The accommodation was adequate and included a bar which was open until 2 am dispensing refreshment in attractive plastic souvenir mugs. The fact that all 6,000 of these disappeared during the meeting would explain some of the fragile looking people I observed on the airfield most mornings!

The British travelled separately in cars by various routes to reach Denmark. This arrangement worked well, and was as economic as travelling in a group with the advantage of being easier to organise. The British will take a lot of convincing that group travel is a good idea after seeing the enormous amount of work that Paul Masterman had to put into organising what turned out to be a nightmare adventure on the Orient Express to Bulgaria for the 1975 Championships! I found myself on a boat out of Harwich bound for Esbjerg with one American, two Australians, a New Zealander and half a dozen Englishmen. During the trip some took the opportunity of getting acclimatised to the Danish Lager and one well

known proxy flyer for New Zealand narrowly failed to gain a further bar to his *Conspicuous Gannetry Medal* in the fixed price, eat-what-you-will buffet!

Our first sight of the field did not give a very good impression. It looked reasonably large with two runways of just under a mile in length but the shape was awkward and the surroundings were heavily cropped, with the corn looking tall enough to swallow models. This later proved to be true but was not too much of a problem. Two fields were available for trimming before the official practice days but were small and 20 miles distant. First official access to the field was for trimming on Wednesday at 16:00. The weather was bright but the presence of a 12-15 mph wind made conditions for flying less than pleasant. Martin Cowley who qualified for the team with only one model had brought two more to Denmark, but due to involvement in the Cup Final flying display and a trip to America, Martyn had not got them fully trimmed. A struggle with a Rossi that would not run consistently delayed matters even further; this was later traced to a blown seal in the glow-head. Some of our team members decided not to risk models in the wind. Of those who did fly, Dick Johnson temporarily lost a power model in the crops and Pete Williams, flying his number five Wakefield to 'break the Danish ice' broke the wing as well, but he had four better models safe in the box.

As the evening went on conditions improved and activity increased. Thomas Koster of the host country was putting up power flights for a film crew, and whilst neither the launch nor the pattern were very consistent the models always got very high. Koster had a noticeable 'gallery' and several helpers downwind to try and catch his model as it descended on D/T. Dave Rounsaville of the USA was helping Koster throughout the test flying and the contest, and could be seen checking Tom's model and timer settings before flights. The North Koreans were test flying, with their Wakefields and Power models looking particularly impressive. The rubber models had a very high rate of climb and smooth pattern and were often flown into thermals.

The Russian Wakefields were also looking good with a similar pattern to the North Korean models, they had their hardwood props running quite fast. We were sorry to hear that the Russian flyer Eugeny Verbitsky had been bitten by a snake and was unable

to travel to Denmark. His excellent models were present however and were being tested by Sharin and Mozyrsky the other Power team members, while the Wakefield flyer Zilberg was to proxy fly them in the contest. All the Russian power flyers had models with the centre wing panels covered in 0.03mm Dural over sheet balsa, and at least one Wakefield and one glider were similarly finished. The Russian glider flyers were practising their circle tow technique and Andres Lepp had a line cross with Australian Dave Simons. I am sure Lepp could have released his model but he continued to tow, pulling about a third of his line, untangling the Australian line then continuing unhindered. This was an example of a flyer knowing what he could get away with and able to deal calmly with a problem, which proved useful to the team later when Isaenko had similar trouble during the contest.

Thursday morning saw the second practice period which started at 02.00 . . . yes that's 2.00 am! We drove to the field in the semi-darkness and found quite a few people flying in conditions which were hardly inspiring with an overcast sky and cold 10-15 mph wind. More like a wet weekend in Norfolk than the World Championships! Many of the power models being flown continued to look way off trim and there was more than one 'heavy landing'. The British flyers continued to fly, thinking by now that these weather conditions might well continue into the contest period and the models should be checked out. Soap bubbles were blown and thermistors watched to try and correlate observations with air conditions and see if any lift could be detected at 4.00 am. We were off the field by 09.00 and went to the canteen at the local Skulptur Air Force depot, about 1 1/2 miles drive although only about a quarter of a mile away in a straight line - just off the edge of the field. All the hot food was served here but the waiting time was a problem, in fact as we became more weary later in the event some of us had chairs to sit on in the queue! After breakfast it was back to the school for repairs, sleep, processing of models or whatever else needed doing. Most of us were pretty disorientated by now! I went to the processing and had a close look at some of the models. All very interesting . . . pictures and details next month. One of the most ingenious models was Giora Hertzberg's glider which features full circle tow facility plus differential wing incidence, timer actuated on launch and a slotted airfoil tailplane. The Israeli flyer claimed that this allowed a smaller tail and hence more wing area . . . and look at the wood you save!

At lunchtime it was back to the canteen and then on to the airfield for the opening ceremony. This included a boy's band in 'Hans Christian Andersen' soldier outfits, and commendably short speeches by local dignitaries. The flag of each country was raised and the ceremony closed with the release of doves (pigeons?). After a short wait it was back to the flying for the last practice session before the contest proper. The late afternoon was bright and breezy with occasional heavy rain showers during which the teams without their own cars, who relied on the organisers' buses, sat under plastic sheets and umbrellas. Some flying was fitted in and it was noticeable that there were by now quite a lot of 'the public' in attendance, due no doubt to the considerable press publicity that had gone out. I took a break for sleep during the rain, had an early dinner and returned to the field to find that the wind had dropped almost to zero and it had become a perfect evening.

At last I really felt that this was the World Championship. Groups of flyers had spread all over the field and models filled the sky. People were towing gliders in all directions, power models screamed skyward and Wakefields clawed their way to dizzy heights. At last it was clear that here was one of the largest concentrations of Free-Flight talent ever seen. It made me itch to fly something, but I had to make do with just watching and walking from group to group soaking up the atmosphere. I returned to the school with high hopes for the continuation of the good weather in the morning.

#### Friday 8th July - Wakefield F1B

*"It is wet and windy."* Those were the first words I remember from about 02.30 that Friday morning. I would imagine that few could raise much enthusiasm for the contest as we drove through the pre-dawn rain to the field. The contest started at 03.50 in very poor light with a steady light drizzle driven by the 10-15 mph wind. This could have been the British trials in the Autumn at Sculthorpe, but the multi-lingual cacophony of the walkie-talkies and the forest of thermistor and mylar poles reminded me that it was the World Championships. The GB team were flying to thermistor and bubbles, but could not find a max for any of the three flyers; all had flights of around two minutes. Ron Pollard, Pete Williams and Mike Woodhouse were by no means alone in their disappointment; Dieter Siebermann of Switzerland had a tight turning power pattern and hit the ground soon after the prop folded for a 36 second flight. Canada's Mike Thomas had his nylon auto rudder line lengthen in

# WAKEFIELD

## Class F1B



Well known French flier Bernard Bouillier (he placed second in the 80 gram class in the '76 Aeromodeller Coupe d'Hiver International at Halton) with his distinctive triple finned Wakefield featuring a glass fibre rear boom.

									Total																																																																																																																																																																																																								
1.	K. Dong Sik	N. Korea	180	173	180	180	180	180	1253																																																																																																																																																																																																								
2.	S. Samokish	USSR	180	180	180	180	165	180	1245																																																																																																																																																																																																								
3.	B. Chang Son	N. Korea	171	180	174	180	180	175	1240																																																																																																																																																																																																								
4.	S. Masabumi	Japan	180	180	155	180	172	180	1227																																																																																																																																																																																																								
5.	J. Neglais	France	169	180	133	180	180	180	1202																																																																																																																																																																																																								
6.	F. Rado	Czech	127	180	180	170	180	180	1197																																																																																																																																																																																																								
7.	G. Cassi	Italy	140	180	145	180	180	180	1185																																																																																																																																																																																																								
8.	W. Nimpstsch	W. Germany	180	180	180	132	180	145	1177																																																																																																																																																																																																								
9.	A. Oschatz	E. Germany	166	180	172	180	109	180	1167																																																																																																																																																																																																								
10.	E. Mauri	Italy	86	180	153	180	180	180	1139																																																																																																																																																																																																								
11.	E. Reitterer (Austria)	1137;	12.	K. Liwenberg (Sweden)	1112;	13.	J. Klima (Czech)	1101;	14.	M. Isao (Japan)	1097;	15.	K. In Sol (N. Korea)	1082;	16.	H. Zachhaimel (Austria)	1080;	17.	R. Pollard (GB)	1078;	18.	M. Kapetanovic (Yugoslavia)	1074;	19.	W. Smitz (USA)	1072;	20.	I. Zilberg (USSR)	1060;	21.	P. Wlodarczyk (Poland)	1060;	22.	L. Petrov (Bulgaria)	1044;	23.	A. Poczbout (Poland)	1041;	24.	K. Koskinen (Finland)	1029;	25.	A. Sanavio (Italy)	1025;	26.	R. Piserchio (USA)	1018;	27.	E. Mielitz (E. Germany)	1018;	28.	D. Siebenmann (Switzerland)	1012;	29.	P. Skjultstad (Norway)	1007;	30.	K. Iapinski (Poland)	1005;	31.	I. Hideo (Japan)	991;	32.	A. Armesto (Argentina)	987;	33.	R. Magill (New Zealand)	972;	34.	P. van Leuven (Australia)	968;	35.	A. Herbon (Argentina)	967;	36.	W. Ghio (USA)	966;	37.	P. Alto (Finland)	961;	38.	J. Loffler (E. Germany)	955;	39.	S. P. L. S. Matud (Brazil)	951;	40.	A. Edwards (Australia)	941;	41.	K. Anderson (Sweden)	937;	42.	O. Torgersen (Norway)	931;	43.	V. Roshonok (USSR)	920;	44.	R. Schiesinger (W. Germany)	919;	45.	J. Zetterdal (Sweden)	919;	46.	J. McGillivray (Canada)	915;	47.	J. Reid (Canada)	912;	48.	J. Libra (Czech)	898;	49.	I. Sinanagic (Yugoslavia)	898;	50.	T. Ten Velde (Netherlands)	894;	51.	P. Williams (GB)	887;	52.	O. Kilpelainen (Finland)	887;	53.	E. Jacobsen (Denmark)	877;	54.	M. Woodhouse (GB)	875;	55.	J. Franc (Yugoslavia)	869;	56.	B. Bouillier (France)	868;	57.	P. Rasmussen (Denmark)	861;	58.	B. Kroon (Netherlands)	847;	59.	M. Thomas (Canada)	840;	60.	J. Korsgaard (Denmark)	832;	61.	I. Ben-Itzhak (Israel)	826;	62.	K. Leissner (W. Germany)	821;	63.	H. Hoorn (Netherlands)	798;	64.	A. Graux (Belgium)	792;	65.	H. Chmelik (Austria)	784;	66.	M. Blitzman (Argentina)	772;	67.	P. Solon Ribeiro (Brazil)	770;	68.	R. Brand (Israel)	758;	69.	R. A. De La Cadena (Mexico)	747;	70.	H. Reifler (Switzerland)	736;	71.	E. Jimenez Diaz (Mexico)	724;	72.	G. W. Albrecht (Brazil)	680;	73.	E. Rohrer (Switzerland)	669;	74.	P. H. Rautenbach (S. Africa)	662;	75.	P. Smith (Australia)	576;	76.	R. Allais (France)	523;	77.	A. Donde (Israel)	460;	78.	K. El Shazly (Egypt)	252;	79.	H. Mehres (Egypt)	69;	80.	S. Hesthagen (Norway)	60.

#### CLASS F1C - POWER

#### Team Results (F1B)

1. North Korea 3575; 2. Italy 3349; 3. Japan 3315; 4. USSR 3225; 5. Czechoslovakia 3196; 6. East Germany 3140; 7. Poland 3106; 8. USA 3056; 9. Austria 3001; 10. Sweden 2968; 14. G. Britain 2840



The new Wakefield World Champion - Kim Dong Sik is carried aloft by his jubilant team-mates. A well deserved victory for both himself and his fellow North Koreans - they won the team prize too.

the damp which caused a power run with an over-tight rudder setting (set for the glide). Mike had noticed this before launch but the field mod did not hold. It was a time of long faces, umbrellas and people talking of the amazing North Koreans. They had set the tone of their efforts for the whole meeting, with two of the 12 maxes of the round and the third flyer dropping nine seconds! Yes, 80 of the world's top Wakefield flyers could make only 12 maxes.

The rain stopped for round two, but the wind had increased slightly and the overcast conditions allowed only 17 maxes, four people had two maxes each. I watched the North Koreans in this round. The three models were very similar with timer operated auto rudder, metal tube front fuselages and much hard-wood in the lowish aspect ratio wings. Only one maxed this time, but the others were close with only 32 seconds dropped between them. All wound in the same rig with the narrow blade hard-wood props attached to the motor throughout. They used more strands of thinner rubber than the normal 14 or 16 strands of 6mm x 1mm. Kim Dong Sik had 22 strands of 4mm x 1mm, which took a claimed 400 turns. The team used a pole mounted thermistor about 10-12 feet high and took very close note of the gentleman 'calling' the air. All the launches I saw were on his signal.

In round three the previous winner Baik Chang Son broke a strand whilst winding, he bit off the piece that was hanging free in great oriental style and finished applying the turns. After a few minutes' wait he put the wound model aside and started winding a second because the first motor would have been losing its power. He was only part way through however when the thermistor man gave the signal to fly, so he discarded the second model and quickly flew the first. A 'tired' motor and a thermal are better than a fresh motor! I also noticed that whilst he was waiting with a wound model he would slowly apply a few more turns by hand.

The flying field was causing problems with downwind crops giving retrieving troubles. Rules for retrievers were announced over the public address allowing each team to use one car and to walk into the corn if the exact location of the model was known. I was amused by the repeated and seemingly superfluous statement that "motor bikes must not be ridden in the cornfields". Many teams had walkie-talkies on the 27 MHz band which are legal in Denmark, but not in the UK. There was much mutual interference and a radio-control bubble machine put an overall buzz on the airwaves. Other teams made do with flag waving or whistle blowing to announce the departure of models to the people waiting downwind. Timing was a problem with a hump in the field curtailing flights and later timekeepers were told to stand on the chairs that the organisers had provided to lower the near horizon. A further problem was caused by the control hut which was about 30 yards upwind of the launch pole line. Flyers drawn on poles downwind of the obstruction were allowed to move to one side to avoid the turbulence on launch. The hut was placed clear of the line for further contest periods. The mylar streamers which indicate wind strength and direction and tend to 'float' in lift were causing congestion on the line. Pete Williams had his model fly through another team's streamer on one flight, and the piece that his model detached wound itself round the prop shaft causing a partial seizure and poor flight. A re-fly was allowed but Pete said that the first flight would have maxed as it was in good air. The second attempt was not a max.

Spirits were sinking even lower in the British camp as our flyers tried everything they knew to get a max. On some flights the thermistor said 'yes', the bubbles said 'yes' and the whole team said 'yes' but the model still said NO. There were times when they felt

it would be nice 'just to break two minutes'. Relief came in the fifth round when Ron and Pete maxed at last and Mike was close with only nine seconds short. The end of the fifth round at 08.10 meant we could break for lunch... yes lunch and get some sack time in before the evening rounds.

The British took stock. Two maxes in 15 flights: they could hardly believe it was possible and said that they could not have done worse by just throwing the models up at random.

We returned to the field in the evening after eating a packed dinner out of a cardboard box for the start of round six at 17.05. The North Korean Kim Dong Sik was in the lead with seven seconds short of five maxes. Samokish of Russia and Baik Chang Son of North Korea were equal second with 15 seconds dropped and several other flyers had scores only slightly below these. The weather was still overcast but the 10-15 mph wind was warmer now and conditions seemed better. Ron Pollard maxed again but Pete Williams could not follow suit in spite of launching into a nice patch of bubbles, he stalled on the glide and was down for less than two minutes. Mike Woodhouse's model looked fed up with flying and could only manage 2:24. The weather was cooling again as we went into the seventh round. The leader made the max he needed to be certain of victory to the great delight of his team-mates. The other North Korean and now the ex-champion, dropped five seconds, but held onto third place leaving Samokish to max and take second spot.

Jubilant in the North Korean camp with first, third and tenth plus the team win. Stunned silence in the British camp with Ron Pollard, our best at 17th with three minutes two seconds, dropped and the team was in 14th place. Spirits were raised slightly when Mike Thomas of Canada wandered over and joked "there were snails jumping higher than my model... It's the worst score I've ever made". No easy reasons for the poor showing can be given. "If we knew what we were doing wrong we would have stopped doing it."

Photographers crowded round the North Koreans and the winner was carried shoulder high with flowers and his model. After an Olympic style presentation of the winners' medals on a podium, a press-conference was supposed to take place with full results available from the on-site computer. The computer broke down, but we did get to interview the winner through the interpreter. Kim Dong Sik has been building models since 1964 and has represented North Korea four times at World Championships, gaining second place in 1973 at Weiner Neustadt. When asked how he decided when to launch, the new Champion replied that he took account of the condition of his model, rubber motor and the weather and that the team worked as a harmonised group. After a pause he added that he must also obey the orders of his team manager. When questioned about team selection, the winner described a procedure which culminated with five flyers in each class flying together every day for one month, with the final selection just before the Championship. Through the interpreter, Kim Dong Sik told us that he works in a measuring instrument factory and that the sport of model flying is very popular among the students, workers and farmers in North Korea. On the subject of weather, we were told that the North Koreans were not used to flying in such wind, normally they have calmer conditions. The interpreter finished the interview by making sure that we understood that the team members were entirely state-funded, and had everything provided - from materials and rubber (obtained through a trade mission from Filati in Italy) to the travelling expenses for their journey to Denmark.



**WAKEFIELDS ALL!**  
 1. Antonio Sanavio of Italy placed 25th - helped towards their second team place. 2. Hans Reiffler (Switzerland) only found one max - others would have been glad of that many! 3. Fourth team place went to the Russians namely (l. to r.) Ziljberg, Samokish and Roshonok. 4. Japan's Shibachi Masabumi placed fourth - pushed his team into third position. 5. Dieter Siebenmann of Switzerland flew one of his 'old' models. 6. Second placed Sergey Samokish (Russia) has neatly faired timer. 7. North Korean Kim In Sol only made 3 maxes, but his total was sufficient for 15th place and ensured a team win. 8. Egon Mielitz with typical East German model. Scored a zero in Rd. 2 - a max would have put him 6th. 9. Top Italian Giovanni Cassi waits with team manager Carlo Varetto. 10. British team member Mike Woodhouse launches for third round flight. 11. Victorious North Korean team of (l. to r.) Baik Chang Son - 3rd this time, first in '75 - the new Champion Kim Dong Sik and Kim in Sol (15th). 12. Izzhak Ben-tzhak of Israel has all sheeted model. Pylon mounted timer.



**Power Pictorial** - 1. Pearl design was proxy flown by R. C. Vance of Brazil for De Almeida. 2. Canada's Dave Sugden made exactly 5 minutes off 7 second engine runs in Round 7. Perfect! 3. Igor Ziljberg (Russia) proxy flew for Verbitski - took third place with model featuring metal covered inner panels. 4. Oops! What's a Wakafeld doing on this page? Klaus Leisner (W. Germany) flew model with foam core wing, carbon fibre spars and woven fibre reinforced plastic covering. 5. Long nose and glass fibre cowl on West German Siegfried Reda's model. 6. Urs Schaller placed fourth this time (6th in '75) for Switzerland. 7. Andras Meczner (Hungary) relaxes before taking second spot with 5:01 last flight. 8. Al Vela (Mexico) with nicely decorated all-sheet model - very fashionable. 9. Kim Jong Hui makes his 9th round flight for North Korea - was 5 secs. short. 10. Yugoslavia's Oton Velunsek warms up his motor for the final fly-off round. Came 8th. 11. Stafford Screen was top scoring Briton. 12. Silvan Lustrati (Italy) prepares for last fly-off. 13. Janos Szecsenyi flew very 'big' model.





**Gliders Galore**  
1. Russia's Victor Chop, winner in '75, placed 8th this time - while a max on the last flight could have put him second. 2. Hans-Jurgen Wolf (E.Germany) had ply reinforcement over root structure. 3. Consistent Czech, Ivan Horajsi made 4th - 4th last time. 4. Georgije Zojcaski (Yugoslavia) is just 17 years old - someone to watch in the future. 5. Yoshikawa Hiroshi of Japan. 6. Anton Bucher won the trophy for Switzerland in 1965. 7. Top three in Glider (l to r) Lepp, Abadjiev and Kraus. 8. Ri Choi was lowest placed North Korean at 10th! They took team prize. 9. Victor Iszenko was only Russian using an alleron. 10. East Germany's Dietmar Henke placed 3rd in '75, 30th this time.





**Kostadin Abadjiev of Bulgaria is now the A/2 glider World Champion, obtaining his victory with a model that features a home-brewed wing section and circle-tow capability.**

**Saturday 9th July - Glider F1A**

The glider contest got under way at 03.50 under a solid dark overcast sky, but with only 5-10 mph of wind it did not seem too cold. People had been test flying before the contest, unlike the previous day, and I felt that there would be some weak lift detectable on the line, especially by those circle towing. Bjorn Soderstrom of Sweden made the first official flight after circle towing downwind on his own: the score 2:05. Lepp of Russia circled off 100 metres downwind but towed his model in during a line cross with a Swede. 1971 Champion Pavel Dvorak marked a very weak thermal which gave

him a max, but of those who followed some dropped out and John Bailey of Britain had a mid-air collision, but maxed on the re-fly. Lepp was away again and made about 30ft in his catapult launch under a model in weak lift for an easy max. Our own Andy Crisp launched his high aspect ratio still air model under a promising pair, only to get 2:19 for his trouble. John Cooper's flight looked a lot like John Bailey's, coming down to 100ft or so quite quickly but did not hang on so well at the end scoring 2:42. The Russian Isaenko, had a tangle form in his line while he was towing without a winch (as do all the Russians) and it was good to see the rest of his team sort him out while he just towed on as if it happened every day! The 82 flyers produced 24 maxes in the first round and 29 in the second.

Conditions improved slowly through rounds three and four, and John Cooper had two good flights, one four seconds short and the second a max, but our other two flyers could not find anything to keep their models flying that long. In round four the Australian Dave Simons tripped whilst towing and accidentally released his winch when he fell. This would mean a cancelled flight if the letter of the rule was followed, but the officials allowed the score to stand as the release was considered to have been unintentional.

Almost everybody was circle towing, I only saw three with straight tow models: Zach and Kraus of Austria and Canada's Gord Mackenzie. I noticed that the Russians, who always seemed to have a flyer towing downwind, kept well clear of others to stay out of trouble.

The last round of the morning period, round five, saw conditions cooling again with the wind increasing to 10-12 mph. Cooper and Bailey maxed and Andy Crisp made 2:30. The number of full scores dropped from four to three when the 1975 Champion, Chop of Russia, dropped ten seconds. Lepp, Abadjiev of Bulgaria and Thormann of East Germany still had perfect scores when we left the field to get our lunch.

We jump nine hours now to the start of round six. Conditions were still overcast with a warm 10 mph breeze. Some towed up as soon as the green flare signalled the start of the round and Lepp was soon away for a 15 minute tow followed by a huge catapult launch which put the model 30 feet above the line height and on the way to a sixth max. The Bulgarian dropped three seconds and it looked as if that was the end of his chance of gaining the title. The East German Thormann flew first of his team but waited and

		Total									
1.	K. Abadjiev	Bulgaria	180	180	180	180	180	177	180	1257	
2.	A. Lepp	USSR	180	180	180	180	180	180	164	1244	
3.	W. Kraus	Austria	180	180	154	180	180	180	180	1234	
4.	R. Chan	N. Korea	165	167	180	180	180	180	180	1232	
5.	L. Braud	France	167	180	180	180	180	160	180	1227	
6.	I. Horejsi	Czech.	180	180	180	165	180	180	151	1216	
7.	K. Sik	N. Korea	180	165	164	180	180	180	164	1213	
8.	V. Chop	USSR	180	180	180	180	170	180	137	1207	
9.	H. Schmidt	W. Germany	180	180	157	180	180	180	142	1199	
10.	R. Chol	N. Korea	180	126	180	180	180	180	154	1180	
11.	K. Thormann (E. Germany) 1180; 12. V. Isaenko (USSR) 1169; 13. J. Cooper (GB) 1158; 14. J. Drapeau (France) 1155; 15. J. Walters (USA) 1151; 16. P. Dvorak (Czech) 1150; 17. G. Zojceski (Yugoslavia) 1140; 18. R. Spann (Austria) 1136; 19. L. Reynders (Belgium) 1133; 20. C. Markos (USA) 1126; 21. J. Titoff (Finland) 1125; 22. B. Jansson (Sweden) 1121; 23. A. Vidensek (Yugoslavia) 1119; 24. A. Bucher (Switzerland) 1111; 25. H. Wolf (E. Germany) 1109; 26. R. Sillett (USA) 1103; 27. M. Pokorny (Czech) 1100; 28. G. Hertzberg (Israel) 1100; 29. G. Zach (Austria) 1095; 30. D. Henke (E. Germany) 1093; 31. S. Larsen (Norway) 1081; 32. S. Olstad (Norway) 1063; 33. L. Valdemaro (Italy) 1062; 34. M. Bernisson (France) 1058; 35. P. Grunnet (Denmark) 1058; 36. I. Wiess (Israel) 1054; 37. G. Fiks (N'lans) 1054; 38. H. Broberg (Sweden) 1052; 39. R. Katajamaki (Finland) 1052; 40. J. Muller (W. Germany) 1050; 41. R. Douglas (proxy M. Dilly) (N Zealand) 1045; 42. B. Leskosek (Yugoslavia) 1045; 43. P. Otte (Denmark) 1034; 44. D. Simons (Australia) 1033; 45. L. Gamez (Mexico) 1020; 46. A. Crisp (GB) 1016; 47. A. Dolder (Switzerland) 1010; 48. G. Tschuor (Switzerland) 1005; 49. G. Brinks (Netherlands) 998; 50. W. Palmieri (Argentina) 993; 51. J. Bailey (GB) 985; 52. V. Molino (Argentina) 980; 53. F. Bjerre (Denmark) 961; 54. H. Althoff (W. Germany) 960; 55. M. Gregorie (N. Zealand) 945; 56. G. Mackenzie (Canada) 931; 57. M. McMahon (Canada) 925; 58. J. Foulon (Belgium) 919; 59. N. Murray (S. Africa) 918; 60. M. Bocardo (Australia) 913; 61. I. Yosipovitch (Israel) 909; 62. J. Qdemark (Norway) 880; 63. J. Barbosa (Mexico) 876; 64. A. Escosura (Mexico) 875; 65. K. Takashi (Japan) 861; 66. Y. Hiroshi (Japan) 858; 67. V. Sabbadini (Italy) 845; 68. H. Myra (Egypt) 838; 69. M. Ledocq (Belgium) 826; 70. F. Kamal (Egypt) 822; 71. P. Lendering (N'lans) 821; 72. A. Demello (Canada) 816; 73. B. Soderstrom (Sweden) 811; 74. G. Stranieri (Italy) 808; 75. F. Hernandez (Argentina) 804; 76. F. Nutini (proxy W. Nutini) (Brazil) 748; 77. Queiroz (proxy Liliane) 742; 78. L. Charlier (Brazil) 729; 79. J. Sillgren (Finland) 717; 80. A. Fathy (Egypt) 693; 81. R. Magill (N Zealand) 689; 82. J. Garay (Australia) 103.										

**Team Results (F1A)**

1. North Korea 3625;
2. USSR 3620;
3. Czechoslovakia 3466;
4. Austria 3465;
5. France 3440;
6. East Germany 3382;
7. USA 3380;
8. Yugoslavia 3304;
9. West Germany 3209;
10. G. Britain 3158.

**GLIDER CLASS F1A**



**Highest placed American team member was Jim Walters at 15th who recorded just 2 maxes, which shows how tricky it was finding good air. Jim was the only US glider flier who was also in the '75 team for Bulgaria.**



towed for a very long time eventually releasing for a score of only 1:40. He had tried very hard but could not seem to find any help from the air at all. His team mates were getting very worried as his marathon tow left them with only 15 minutes of the round for their two flights. Andy Crisp had his fourth line cross of the contest in this round and ended up minus one wingtip of the *Flashback* glider. He flew another model for a max and repaired the broken tip on the top of his model box. Chop's flight in the sixth round was the only example of a 'normal' strength thermal seen all that day, when he DT'd from about three times line height. Most of the day the lift was much weaker than this, with models barely holding height or even coming slowly down. When the lift is weak like that, I am sure that circle towing is the answer because you can try out patches of air without releasing the model by simply circling on the line and observing the rate of descent of the model. Knowledge of its rate of descent in neutral air will tell you whether or not the air is good and if it is, a good catapult launch will give you even more chance of maxing.

In the seventh round Abadajiev was away for a 30 minute tow downwind when the news spread that Lepp had dropped with a 2:44 flight. This meant that a max from Abadajiev would make him a certain winner. Andres Lepp was obviously heartbroken and could only wander about in a daze on the runway downwind until his team-mate Chop went to bring him back. He had fought so hard and has always been well placed, it really looked as though it was his turn to win. Meanwhile all was not going smoothly for the Bulgarian who must have been getting tired circle towing because he managed to hook the towline round his feet and give us a few anxious moments while he freed himself. He finally got a good launch making about 20ft height gain – enough to max and win the Championship. Lepp was one of the first to congratulate the winner as he returned from his launch spot some 200 yards downwind of the starting poles. Lepp was second and Kraus who had been tenth after five rounds, having dropped 26 seconds on the third flight, continued with all maxes to take third place. This Austrian flyer used a straight tow model similar to the one that won him third place in last year's European Championship. It later emerged that the winner had come to Denmark mainly to fly power and only had one glider. He had stepped into the glider team only at the last moment. He had flown the model in both 1973 and 1975 Championships and claimed after the latter that he was too old to fly glider any more! Konstantin Abadajiev has represented Bulgaria at seven World Championships in all three classes. North Korea had taken their second team prize with flyers in fourth, seventh and tenth places.

#### Sunday 10th July - Power F1C

The hour of 03.50 on the morning of the power contest saw the familiar 10-15 mph wind that had plagued us for much of the previous five days, but this time a clear blue sky went with it to give a much brighter feeling to the proceedings. Thomas Koster of the host nation flew early on in a quiet patch, and the simultaneous clicking of at least a dozen watches at the end of his engine run showed that there was a lot of interest in his flying. It was soon clear that few people were having trouble maxing in the generally helpful air and a large fly-off was on the cards. Dick Johnson of the British team seemed nervous and had an over-run, but made no mistake on his second attempt. Stafford Screen and Martyn Cowley both maxed, but Martyn's model was lost in the corn and he went down to look for it. Only 11 of the 65 flyers failed to max in round one, and that set the standard for the whole contest. Time was running very short in round 2 when Martyn Cowley returned to the British pole without his model, but he got a second model in the air for a max with only 30 seconds to spare. Things went smoothly for the British team through the rest of the morning rounds with Pete Williams on the thermistor pole keeping the flights in reasonable air. These models do not really need a thermal to max, they just need to avoid downdraughts. After five rounds there were three teams with perfect scores: Canada, Italy and . . . Great Britain. The team was very happy as it went to breakfast, with only Martyn Cowley's still missing model to cast a shadow over the day so far. During the midday break an aerial search was made and the Cowley model was returned as we prepared to leave for the field and the evening session. Mike Burns of Canada had mixed fortune on his last flight of the morning when his model went flat after launch and had an over-run and very short flight into the corn. The model stayed lost, but his second attempt maxed to keep the full Canadian team score.

When we returned to the field in the evening for the start of round six, we found a large number of spectators in attendance. The 1975 Champion Lars-Goran Olofsson of Sweden was first to fly, but had an over-run and had to fly again later.

Dick Johnson was the first of the GB team to fly but had a sick engine run and a stalling glide with no kind thermal to lift him to a max. This ended the dream of getting all three in the fly-off and poor Dick must have felt really bad about it; to make matters worse his last flight failed to max as well. Perhaps the model had changed trim between the early morning and the evening. There were signs of trim changes in other teams as well, with several crashes. Perhaps the prize for the best crash should go to Al Vela of Mexico whose model went into the tarmac under power and almost exploded, spreading confetti over a large area.

Tom Koster's climb drew a round of applause from the spectators who were being kept fully informed of the goings-on by the public address system. Of the teams with full scores, all the Italians maxed in smooth style but the Canadians looked less secure. Mike Burns went a bit flat on power again but the air was good and he maxed. Frank Schlachta had bad wing flutter during his climb but survived to max while Dave Sugden did likewise to keep the full score safe. Lars Olofsson had a system failure on his second attempt; it seemed that the auto rudder or perhaps the variable-incidence tail was at the glide setting under power, and the model flew a tight looping turn to the right for a five second disaster flight, ending any hope of a second win for the Swede.

Round seven brought the end of the line for Canada in the team stakes when Frank Schlachta dropped with 2:28. He climbed well in spite of more flutter problems but must have had very poor air. The other two Canadians went through to join the 22 man fly-off, as did all three Italians taking the team prize on the way. Koster's seventh round flight went slightly left and recovered left, but the applauding crowd knew he was high enough to max and so he did. Stafford Screen and Martyn Cowley both maxed and went through to look after British interests in the eighth round. Dick Johnson had further stalling problems. Tom McLaughlan of the USA nearly missed the fly-off when his model hit a 'twister' just after launch. This threw the model inverted and made a complete mess of the power pattern, the engine stopping with the model going vertically downward and only just enough height to pull out and glide down for a short flight. Luckily the strange power pattern caused an over-run and the second attempt was a max, rewarded by a place in the fly-off.

When the red flare went up to mark the end of the seventh round 22 flyers were still in the hunt. The first fly-off got away on time at

**The new Power World Champion, Thomas Koster of Denmark gets 'Speed Cream' away for another great climb in the five-minute fly-off round. The 'home win' was very popular with the cheering crowd.**



## MEDAL TABLE

	Gold	Silver	Bronze
North Korea	3		2
USSR		3	1
Italy	1	1	
Bulgaria	1		
Denmark	1		
Canada		1	
Hungary		1	
Austria			1
Czechoslovakia			1
Japan			1

19.30 with a 15 minute period allowed and a four minute flight required. Thirteen people made the required max, some more easily than others. Stafford Screen D T'd from a good height in the best air he had seen all day, while Dave Sugden was down at 4:01. Martyn Cowley made 3.41 which was not quite enough but he was very pleased to have got as far as that in view of the short time he had to prepare models. The Russians had only one starter available and after Igor Ziljberg got Verbitski's model away for a max it was moved quickly to the aid of Sharin's motor, but he rolled left and missed out by three seconds. Koster seemed very upset and I thought he had failed to max, but it turned out that he had - at the expense of putting the model into some trees. Tom started up a reserve model and crashed it into the runway on a check flight making the return of the first model even more vital. It came back in time undamaged. Reda had a similar misfortune wrecking a model whilst checking between fly-offs.

The ninth round called for a five minute flight and eight people obliged. Dave Sugden did exactly five minutes off exactly seven seconds of engine run! Stafford Screen went out at this stage with a 3:17 flight that D T'd. The model would not have made five minutes however as it was quite low when the tail went up. The classic error of putting the arm in the wrong slot of the Sealig timer scroll was suspected, but Ken Faux had double checked for this. Could it have jumped across or did the timer race for some reason?

Verbitski's model was first away in the 10th round with the motor sounding slightly sick. Velunsek was next and looked higher, then Meczner followed with his more old fashioned rolling pattern getting him up with the Yugoslavian. The Italian model was less impressive this time but Reda's high aspect ratio model looked really good both for pattern and height. Schaller was next with a great climb spoiled by a loop in the transition. Koster went a bit flat at the top but got very high to more enthusiastic applause from the crowd. He looked to be dropping quite fast in the glide at first. Dave Sugden was last up with a good pattern, but another loop off the top. It was impossible to tell who would win by trying to watch the models disappearing into the gathering gloom, so we had to wait for the time-keepers' verdicts. The word spread of Meczner's 5:01 which sounded unbeatable until Koster's score was given as 5:40, a win by 39 seconds. Tom was a happy man and he seemed to shake hands with almost everyone on the field. A most popular and deserved win after all the effort that this man has given to developing his models, and a just reward for the work he had put into organising the World Championships and running them. Meczner of Hungary was second and Igor Ziljberg had flown Verbitski's model into third place: surely one of the best ever proxy performances.

The party in the Danish room at the Peder Syv school went on into the following day. Those who were able went on a sightseeing bus tour of the local places of interest on the Monday before the banquet that evening. The banquet was held in a horse-race track grandstand but the shape of the building meant that few had a good view of the prizewinning which should have been held out on the terraces instead of inside the restaurant. The food was good, however, and the lively four piece group that provided the music for dancing into the small hours was joined for a rendition of the *Roskilde Blues* by our own Andy Crisp. His topical song about the misfortunes of some of the flyers went down very well.

This was a very good meeting in spite of the weather and I shall remember the all night model examining sessions, eating out of cardboard boxes at 02.00 hours and all the other things that go to make up a World Champs, especially some really great flying.

**Next month:** Technical details.

					Total			
1.	T. Koster	Denmark	1260	+ 240	+ 300	+ 340	2140	
2.	A. Meczner	Hungary	1260	+ 240	+ 300	+ 301	2101	
3.	E. Verbitski	USSR	1260	+ 240	+ 300	+ 276	2076	
4.	U. Schaller	Switzerland	1260	+ 240	+ 300	+ 275	2075	
5.	D. Sugden	Canada	1260	+ 240	+ 300	+ 259	2059	
6.	S. Reda	W. Germany	1260	+ 240	+ 300	+ 253	2053	
7.	O. Velunsek	Yugoslavia	1260	+ 240	+ 300	+ 247	2047	
8.	S. Lustrati	Italy	1260	+ 240	+ 300	+ 235	2035	
9.	K. Jong Hui	N. Korea	1260	+ 240	+ 295		1795	
10.	B. Fiegl	Italy	1260	+ 240	+ 266		1766	
11.	M. Burns	Canada	1260	+ 240	+ 253		1753	
12.	<b>S. Screen</b>	<b>GB</b>	<b>1260</b>	<b>240</b>	<b>197</b>		<b>1697</b>	
13.	S. Agner	Denmark	1260	+ 240	+ 186		1686	
14.	S. Sharin	USSR	1260	+ 237			1497	
15.	G. Barbabella	Italy	1260	+ 235			1495	
16.	F. Hartwagner	Austria	1260	+ 231			1491	
17.	<b>M. Cowley</b>	<b>GB</b>	<b>1260</b>	<b>221</b>			<b>1481</b>	
18.	C. Patek	Czech	1260	+ 206			1466	
19.	S. Gol	N. Korea	1260	+ 179			1439	
20.	T. McLaughlan	USA	1260	+ 155			1415	
21.	O. Cuzzi	Argentina	1260	+ 94			1354	
22.	R. Friedrich	W. Germany	1260	+ 32			1292	
23.	V. Patek (Czech.)	1246;	24.	A. Roux (France)	1241;	25.	L. Kovacic (Yugoslavia)	1234;
26.	M. Jean (France)	1232;	27.	F. Schlachta (Canada)	1228;	28.	T. Bortne (Norway)	1226;
29.	O. Maczko (Hungary)	1224;	30.	C. Martin (USA)	1221;	31.	J. Szecsenyi (Hungary)	1216;
32.	R. Trupper (Austria)	1211;	33.	A. Denkin (Bulgaria)	1203;	34.	K. Hak (N. Korea)	1202;
35.	A. Bissonnette (USA)	1201;	36.	V. Mozyrsky (USSR)	1196;	37.	W. Nutini (Brazil)	1196;
38.	E. Carlini (Brazil)	1192;	39.	M. Zito (Argentina)	1191;	40.	M. Krieg (E. Germany)	1190;
41.	O. Ebner (Austria)	1180;	42.	G. Fischer (E. Germany)	1175;	43.	P. Maurer (Switzerland)	1164;
44.	B. Krycer (Czech.)	1156;	45.	M. Bjelajac (Yugoslavia)	1152;	46.	<b>R. Johnson (GB)</b>	<b>1141;</b>
47.	N. Christensen (Denmark)	1140;	48.	K. Engelhardt (E. Germany)	1138;	49.	K. Abadjiev (Bulgaria)	1121;
50.	R. Saukkonen (Finland)	1109;	51.	De Almeida (proxy R. C. Vance) (Brazil)	1063;	52.	J. Solano (Mexico)	1057;
53.	R. Luostarinen (Finland)	1046;	54.	H. Gostelow (Australia)	1040;	55.	K. Isamu (Japan)	1038;
56.	K. Johansson (Sweden)	1023;	57.	M. Pettigrew (Australia)	1017;	58.	F. Baumann (W. Germany)	1010;
59.	R. Schenker (Switzerland)	1004;	60.	L. Olofson (Sweden)	960;	61.	H. Lindholm (Sweden)	953;
62.	A. Vela (Mexico)	787;	63.	M. Iribarne (France)	770;	64.	W. East (Australia)	672;
65.	V. Lappalainen (Finland)	416.						

## Team Results (F1C)

1. Italy 3780; 2. Canada 3748; 3. North Korea 3722; 4. USSR 3716; 5. Hungary 3700; 6. USA 3682; 7. Czechoslovakia 3662; 8. G. Britain 3661; 9. Denmark 3660; 10. Austria 3651.

## POWER

### Class F1C



Switzerland's Ruedi Scheaker (of timer fame) with his power design with somewhat out-dated appearance.

# Scale Matters

by Alan Callaghan

**Dave Banks launches his 1:20 scale Sopwith Camel with Telco CO<sub>2</sub> power - a truly superb model which won a Silver Medal at the 1976 Model Engineer Exhibition. Spans 17in. and weighs just 1.5oz.**

THE old Warden Scale Rally this year turned out to be something of a contrast to those held in previous years. Bright sunshine with a fairly steady breeze has been the order of the day since about 1974, but 1977 saw the arrival of the FF scale modeller's dream weather that lasted from early morning until well into the late afternoon when a gentle but firm breeze began to make its presence felt. With an overcast and slightly threatening sky it was like the calm before the storm, but the storm never came and the period of grace lasted the best part of five hours much to everyone's appreciation.

It was one of the few days when the FF scale modellers could actually make good use of an aerodrome not particularly suited to their needs. The prime site in the centre of the field is always taken up by R/C modellers, C/L fliers are tucked away in their own section towards the

hangars and entrance gate, and what little wind there was determined that FF fliers had the benefit of the shelter provided in the lee of the trees at the eastern end of the field.

As is usual the really top-class FF models do not materialize at Old Warden due mainly to this being a relatively small venue, but also I think because of reasons that I will go into further on.

The most apparent trend was the arrival of CO<sub>2</sub> power in a very big way. At a guess I would say that perhaps one third of the active fliers present had a model or two with this form of power, and more than one was heard to say he'd built the model as a change from flying R/C. *Very interesting!*

It is not possible to mention every single noteworthy model present. Even on a thin day, which I think this was, there are usually too many of them. Instead I was mainly con-

cerned with those that were doing the most flying. Undoubtedly one of the top CO<sub>2</sub> models present was Dave Banks 1:20 scale *Sopwith Camel*, which together with his similarly powered *BE 2E* and *Fokker Triplane* has in the past stood up extremely well under the close scrutiny of the judges at the Model Engineer Exhibitions. Any one of these three models is an object lesson in capturing the character of the real thing.

Some of the best and consistent flights that I saw were being made by Alan Palfrey's *Hanriot* which together with his *Bristol Scout* appeared on the cover of the May issue. The electric powered *Hanriot* quietly and slowly climbs to about thirty feet altitude and then very sedately cruises in slightly banked circuits as it drifts downwind with Alan casually strolling behind to retrieve it. The whole feeling of the flight ideally matches the character of the rea-



At left, Alan Moorhouse releases his beautiful 1/8th scale 36in. span rubber powered, Comper Swift. Flies extremely well, and is most realistic in the air - the design is a scaled up version of his most successful Peanut model. Below John Blagg readies his unusual choice of prototype - a Farman Racer, also for rubber power. Plenty of room for rubber in that fuselage!





Above: You will not find many more original aircraft than the Stepa Caproni as a modelling subject – this C/L version was built by J. Gudge to 1/12th scale for an Enya 19. Yes, it does fly – even looped! At right is nice engine detail on Mike Ennis' Pfalz D3 control liner, built to 1/4th scale.



aircraft – very steady with no fuss, no high speed drama, and whereas the lack of engine noise could be said to make it appear a little unreal. This is the last thing to complain about under the present climate of opinion concerning the aeromodellers' problems. If only all our models could be so criticized.

The steady flop of a rubber motor was all that could be heard from Andrew Moorhouse's 36in span *Comper Swift* on its several flights of the day. With this type of model the loss of scale effect due to the coloured tissue finish and increased dihedral becomes secondary to the attractiveness of the aircraft as it performs in the air. Obviously in complete contrast to the superscale, heavily detailed flying scale model, I always believe that with this approach the amount of flying enjoyment obtained, in relation to the amount of time and effort put into building, is way above that of the superscale machine that spends most of its time sitting around now, waiting for the right contest to turn up.

Proving its paces once more over more forgiving territory this time was Chris Chapman's Peanut Scale *Aira-*

*bonita* seen at Cardington previously this year. Following the dark shadowy indoor background of 'The Sheds' it was good to see this model putting in a good turn of speed against a more natural if cloudy background. Chris was also trimming out a very neat little Peanut Scale *Comper Streak*, and the grassy floor made this much less of a risky business than caused by the hard floor of an indoor site. Two other rubber models that caught my eye were a *Mr. Mulligan* built from the SIG kit by Alan Banks, and flying very nicely it was, too, and an extremely unusual *Farman Racer* that has been nearing completion on John Blagg's building board for some time. The Farman has a unique monowheel undercarriage faired in with a radiator housing slung below the fuselage, and very prominent wingtip skids. The drag caused by the latter appeared to have a usefully stabilising, weathercocking effect during flight, and after a little more experiment with the prop and rubber combination John should have a really good performer on his hands. My own flying for the day was restricted to a 17in wingspan rubber-

powered *Keith Rider R1 'Suzy'* racer hurriedly built in a few days before the meeting and of no particular merit except that it proved to me that small low-wing models with the undercarriage built-in retracted can be made to fly quite well, despite all the old tales claiming otherwise.

Turning to larger things, Jack Jansen was once again on hand with his enormous *Bristol Monoplane*, *Dornier 18* flying boat, and 63in span *Blackburn Monoplane*. Handlaunching models like these is no easy task requiring a fair run and a hefty heave and I am sure that as a result of this Jack must be one of the fittest FF scale modellers around! At one point the large *Blackburn* suffered a most realistic rending, splintering crash that we all heard but did not see behind the trees. Amazingly, the model was retrieved practically unscathed after a short search. For many people Jack's *Dornier* continues to be a star turn of the Old Warden meetings as it is practically impossible to ignore a model of this nature in the air. Another flying boat to be seen performing well was the *APS Loening OL-9* built by David Passfield. Looking most attractive in

Jack Jansen, purveyor of huge free flight scale models gives a hefty launch to his 63in. span *Blackburn Monoplane* – another really realistic model, both static and flying.

Electric power (a Mabuchi 36D) is used by Alan Palfrey for his 1910 *Henriot Monoplane*, and it provides a nice, slow and steady flight pattern. Batteries recharge via dry cells.





Vic Willson flies his Mick Reeves kitted Hurricane with both radio control as well as control line, making it a very useful dual purpose model. Using his familiar closed-loop R/C type control line handle, he had perfect control over the throttle in this huge (80in. span) model – but centrifugal force prevented one of the undercarriage legs from retracting properly. No problems though when it flies purely R/C. At right is Three Kings member Ken Gardner with his C/L Tomtit which won the Jack Carter Memorial Trophy for best C/L bipe. Built from the Veron R/C kit and powered by an OS58, it weighs 7lbs. 2oz. and uses Solarfilm covering.



its grey, yellow, and blue markings this DC Sabre powered model obligingly almost stood still in the air only just off the stall as I photographed it.

The big model was again in abundance in the control-line circles. Vic Willson was flying an 80in wing-span *Hawker Hurricane* which is a conversion of the new R/C kit by Mick Reeves. Powered by an HP61FS this model, weighing 10½lb, features retract gear and also has a rudder that is trimmable in flight to help control line tension. Whilst there is no denying that big models usually do fly better than small ones, it is also much more apparent from the point of view of the spectator that such large control-line models, unless being flown on lines well over the SMAE 20 metre limit, only do more to emphasize the fact that they are flying in small and relatively tight circles. No other class of scale model, however, can quite give you the feel of flying as does the large C/L model as all its responses feed back directly to you through the handle with no missing link. It is the pilot more than the spectator who gets the most from this type of model and it must be quite something to fly such a large piece of machinery.

As my visit to the C/L circles took place during lunch time the majority of the models including several multis remained on the ground. One that did not, and a very interesting one too was a *Stipa Caproni* built by John Gudge. This 47in span model of the unique Italian prototype of 1932 was only powered by an Enya 19, but certainly did not lack 'go' as was demonstrated by a couple of impromptu loops performed when being flown by Peter Miller on 60ft lines. The ducted thrust system is obviously a very efficient way of utilising what is only a fairly moderate power output.

Control-line winner of the day was Ken Gardner of the Three Kings

Club who took home the Jack Carter Memorial trophy with his *Hawker Tomtit* recently repainted in the colours of G-AFTA and complete with Spitfire windscreen fitted to the rear cockpit. Ken's flight performance with this model is always worth watching, being smooth, slow, and very realistic.

I do not enjoy finishing on a sour note but after this meeting I think the following point of view should be aired. It is not entirely my own but was strengthened by more than one FF scale enthusiast to whom I spoke during the day.

It is very annoying that at a gathering arranged specifically for scale models there seemed to be more than a few people flying non-scale sports and 'novelty' models fairly indiscriminately and largely at the risk of other people and their *scale* models. Aside from the personal danger from these 'things' as they come usually badly trimmed from all directions, it is very unfair if one of these invariably quickly-built contraptions lands on another's scale model that invariably has *not* been

quickly built. The chances of this happening on a typically crowded Old Warden day are high, and I've seen too many near misses for comfort as well as the odd direct hit. In one incident Paul Leigh's 120 mile round trip was rewarded with someone's nice little doggie jumping on his *Bristol Monoplane's* tail unit and breaking it. It is this kind of thing that will keep people and their models away, but it is all quite avoidable when it is remembered that Ron Moulton meant the meeting neither for 'fun' chuckabouts nor as a pet's outing, but for SCALE models when he started it ten years ago. Can we not in future keep it so and have a little more respect shown for true scale. There are many other meetings at Old Warden scheduled for sports and general flying but emphatically none for dogs as far as I know. Trying to please by allowing all enthusiasts to view FF at close quarters, Ron can't hope to control the uncontrolled and that includes the McCutcheon helicopter the flying saucers and the vintage intruders who take selfish advantage.

Winner of the prize for best C/L model was Ron Truelove once again with bomb dropping Handley Page Hampden. Undercarriage retracts and flaps operate on this huge, most impressive model. Outer wing tip panels detach to ease transport problems. Uses a pair of throttle equipped OS40 engines for power.



# Sopwith Triplane

a fly-for-fun semi-scale sports model for 0.3-0.5cc engines, designed by  
**G. E. WHITEHEAD**



**FEELING NOSTALGIC?** How about a spot of relaxation shaping a few sheets of balsa into this elegant little machine, then taking her out to the flying field for some rewarding flying? Anyone can have fun with this *Sopwith Tripe* - the youngster who is wanting to try his hand at something out-of-the-rut for the first time, or the older who has done everything, but wants to get back to basics to help him remember just what basics are all about!

The flying properties which endeared this design to the RNAS pilots who flew the full size originals, make

employed the built-up tail structure, as the Cox Pee Wee is so light;  $\frac{1}{2}$ oz lighter than a .5cc diesel. However, I found that even the Pee Wee has sufficient power to carry the extra 1oz noseweight which would be needed to balance an all-sheet tail.

Constructionally, the hardest part to design was a simple yet strong cabane and middle wing root fixing; the arrangement eventually used is crash proof, provided you do not strap the wings in place immovably. One 1-inch rubber band in each position is sufficient. I rubber-banded on the tail because of its fragile nature; an

F3, and finish the fuselage as for a normal box. If you use a balsa mount, you may have to move F1 back about  $\frac{1}{4}$  or  $\frac{1}{2}$ in. I soldered the cabane runners together one joint at a time, checking alignment after each joint, before bending the ends. The wing camber is induced by dampening the top surface, before glueing and pinning the wing and ribs to the building board and leaving to dry. Pre-assemble the top and bottom outer 'slotted' ribs before fixing them to the wing panels. When all is dry, chock up each tip  $\frac{1}{2}$ in. and sand in the root angle using the edge of your

## YOUR TWO FREE

it an ideal model subject. Sopwiths had to reduce the prototype's tail area to enhance manoeuvrability, but I have increased the tail area from scale (though the unscale structure makes this point of academic interest) in order to enhance stability. I

all sheet tail could be glued in place.

The overall assembly is fairly self-explanatory. Glue the cabane struts to the fuselage sides over the plan to ensure correct and identical alignment, before adding the doublers. Then join the sides with F1, F2 and

building board as a guide. When aligning the middle wing, rubber-band the top and bottom wings in place, check that the interplane struts clip into place, then epoxy the

*Continued on page 545*



Pictures on this page reveal the simple but appealing lines of this craft - perfect for sports flying. Photo at left reveals the cabane structure for top wing mounting - make sure the incidence is as per plan.



# Two Cents Plain

an indoor design to the Pennyplane rules  
by DAVE LINSTRUM

WITH TONGUE-in-cheek apologies to Harry Golden, who authored the book about his Jewish boyhood in New York wherein the 'two cents plain' phosphate soda beverage became famous, we would like to present our two cents worth. This little Pennyplane will provide twice as much enjoyment as any other type of indoor endurance rubber model. The class was originally developed by Captain Pennyplane (Shazam!) himself, Erv Rodemsky of American Airlines. Back in 1969, when Erv was flying jets out of O'Hare and flying models with the famous Chicago Aeronuts club, he began to study the problems encountered by beginners in indoor modelling. The result was a concise set of rules focused on a model that would be easy to build, sturdy, and fly well enough to encourage the neophyte to progress to more complicated, fragile craft like microfilm models. Design limits included a maximum 18 inch wing-

span, max. 18 inch length, max. 10 inch motor stick but no other stringent limits (except weight) which might encourage 'look-alike' designs. Most models evolving from these rules had solid motor sticks, fairly wide wing chords, no bracing, and solid balsa propellers. With the weight rule (model must weigh one US pennyweight without motor) the processing is simple: just weigh the ship on a beam balance with a hook on one end for the prop shaft and a copper penny or 3 gram weight on the other. Such a simple, universal parameter as the penny can also be carried to other countries, even those using the metric system. Pennyplane is popular in Britain, where weight is calculated in grams; it is also the rage in Scandinavia, where it is '25 Ore Plane' to the Danish and Swedish.

If this model is going to be your introduction to indoor flying, you should have some other modelling experience, such as building other simple rubber power free flighters. Surprisingly, the skills involved in indoor modelling are not hard to acquire; actual structures are very

## Flying surfaces

simple. Pennyplanes are the sturdiest of craft and will survive rough handling, hangups and even crashes. Begin construction here so that structures can be drying as you work on the body and propeller. Ordinary glues such as slightly thinned aliphatic resin or thinned Britfix can be used for assembly. The best applicator is a small hypodermic syringe (10cc) with a blunt needle which will accept a straight pin as a stopper. You can also apply the tiny drop of cement to each joint with a toothpick, but this is more difficult to control. Even though the model must weigh a pennysworth, do not overdo on glue - it is heavy. How to keep that glue from sticking your model to the plans, which you have taped down to a flat, smooth building board? Simply cover them with polythene, taped down taut. You can also fashion a couple of cardboard discs



scalpel, slice off long, thin strips. Make a light cut first and then cut all the way through in a smooth stroke. Move the straightedge down the correct amount ( $\frac{1}{8}$  or  $\frac{1}{16}$  in) and slice off another strip. If any strips have

## FULL SIZE PLANS

(artists' mat board is good) to use in forming the fin, stab (tailplane) tips and wing tips.

The first technique to learn is how to slice the spar stock (indoor model LE and TE are called 'spars') and the cambered ribs. Tape your balsa sheet to a piece of cardboard (again, mat board works well); then, using a steel straightedge and a broken off double edge razor blade (not stainless) or

wood defects (try flexing them to see if they break easily) discard them and cut more. The ribs are similarly sliced, using a curved metal (or ply) template instead of the straightedge. Cut the balsa sheet to width of template and cut off a top crescent (discard) before moving template down the correct rib thickness and slicing off the ribs like salami. Make a few extra in case of breakage. Note that

Shiny appearance for the covering used by our intrepid designer is due to the use of MicroLite, but for less experienced modellers, condenser tissue is recommended. At right wing ribs are being cut with the template drawn on the plan. Syringe is useful for applying small drops of adhesive. Indoor materials can be obtained from Micro X Supplies, 4 Hastings Close, Bray, Berks.





When winding, your assistant should hold the dual bearing, prop hub between finger and thumb, whilst you apply the turns from the rear using a geared winder.

ribs are slightly oversize. It is easier to glue them to the LE, let glue dry, then trim off the excess projecting over TE before gluing that joint. This prevents them from tipping and assures a good fit. Note that LE and TE should be pinned in place with straight pins holding them in an 'X'; never pin the spars down through the wood. Small weights (one inch strips of solder) can be used to hold down the thin members in lieu of pins. Add each pair of tips after ribs are in place. These semi-circular pieces are made as full circles on the disc forms. Wet the wood in hot water under the tap, then affix to the edge of disc with a bit of masking tape. Keeping strip in tension, wrap it to form a circle plus overlap, then tape again. When dry, cut loose at 0 degree and 180 degree points. Note that the fin is made as a split ring (to allow gluing to boom) and that it penetrates stab covering after it has been covered. The wing and stab tips are simply extensions of the spars. If you want to avoid these curvy parts, you can simply square off the tips at tangent point of wingtip curve (thus keeping span the same but slightly increasing area) for an even simpler plane. A square fin of similar area could then be used, glued to the boom under the stab as a subfin. Many of the best Pennyplanes use square tips; we used round tips here for variety and unique looks. In that they are used on many microfilm models, learning to make them increases skills.

#### Motor stick and boom

The solid motor stick is simply cut to length from light but strong straight grained balsa. The boom is tapered from sheet stock sanded thin on the rear before slicing. Note that it is glued to the stick at a slight upward angle, to give incidence, and with a left turn bevel built in. Add the aluminium thrust bearing (buying one outweighs trying to make one - get this unusual item as well as piano

wire, covering material etc. from Micro-X of 4 Hastings Close, Bray, Berks.) and give a couple of wraps of silk thread to prevent pullout later. Install the rear hook bent from piano wire, noting that it pierces the end of motor stick and has a small triangular balsa gusset. Make some wing post tubes from model tissue by cutting  $\frac{1}{4}$ in. by 2in. strips and wrapping them on  $\frac{1}{8}$ in. piano wire, gluing as you wrap. Immediately slip them off end of wire (must be filed smooth) and let dry. These should be added only after the motor stick/prop tail is balanced as a unit - glue them on left side of motor stick equidistant from the balance point. Insert scrap wing post stock in them to insure that they are aligned properly. They should be one wing chord apart. You can cut wing posts now - round off the lower ends for a tight slip fit in the tube socket.

#### Covering

The best covering to use is condenser tissue - do not use ordinary model aircraft tissue covering as it is not air-proof without dope - and we cannot afford the weight or shrinking properties of dope. Experts can use Micro Lite, a polycarbonate plastic film, but this is very tricky to use.

Condenser paper is easy to apply. Firstly, lightly iron the tissue with a warm iron, then with a fine paint brush apply a coat of Shellac or Mixro X condenser tissue adhesive to the tops of all ribs and spars. Lay the tissue, cut oversize and still warm on a flat surface and 'roll' the wing onto it. Turn over and gently run a finger over all the areas where the adhesive was applied to make sure that it has properly stuck down. Pin wing down overnight to prevent warps creeping in. The covering will have a slack, wrinkled appearance - but do not worry, this is fine - it prevents warps should the tissue shrink. Do not water shrink or dope! When dry, trim off excess tissue with a sharp

razor blade. Note that fin is covered while it is on the boom and then boom is added to motor stick. The stab covering is then slit carefully for the fin between the two centre stab ribs, then stab is glued to boom with slight tilt (left side high) to help induce turn. Dihedral is added to wing by cracking (after cutting half-way through) LE and TE and shimming up tips. Now add wing posts to centre, making sure that longer wing is on the left - note that the rear post is skewed. When this is inserted in the squared up wing socket, it twists the whole wing, by skewing the TE. This gives the required washin warp in the wing to keep the left wing up in the tight turns under power. Be sure wing post joint is quite dry before trying to fit the post to socket.

#### Propellor and rubber motor

Cut the prop blades from  $\frac{1}{8}$ in. sheet, and sand thin at tips only. Soak for minute in scalding water, then wrap on a former (wine or soft drink bottles are good) with tissue or a bandage. The 14 degree skew gives near helical pitch. Make the hub pieces from toothpicks. Hub is rolled tissue tube; insert shaft wire after bending hook. Make a 90 degree bend, glue to hub. After blades dry overnight (or for a few minutes in a 250 degree oven if tissue wrapped) glue to hubs. Set pitch in the jig shown on plans. You may want to make more than one prop, varying diameter and pitch. Simply lengthen blade blank and slide pitch triangle out to increase. A fairly small diameter, low pitch prop is best for starters, especially if your Pennyplane is a bit overweight. Add a teflon washer to the shaft, insert hook backwards in bearing to install prop. Now you can add wing sockets. Then make up some motors from .080 to .090in. ( $\frac{1}{32}$  to  $\frac{1}{16}$ in.) Pirelli strip, tying square knots in ends. Start out with shorter motor loops, say a foot long loop, then progress to longer motors as you learn to adjust the model. If a model won't climb, a shorter or thicker motor usually helps. Lube your motor with Micro-X rubber lube, but take care not to get lube near the knot. Some form of rubber winder is essential as you cannot properly hand wind such a fragile model.

#### Adjusting and flying

There is no point in hand gliding this sort of model, since most if not all of the flying is done under power. Be sure the balance point of the completed model (less motor) is right at 50% of the wing chord (balance it upside down on your finger, supporting the motor stick). Check to see that



wing posts give proper washin to left wing – the LE should be about  $\frac{1}{4}$  to  $\frac{1}{2}$  in. higher than TE at the left dihedral break. The right wing will have the opposite warp, which is OK. Be sure the left wing is the long one; it is very easy to mount the wing backwards without noticing. Check to see that the tail boom gives the incidence and left turn (left rudder, stab tilt) adjustments. Further fine trimming can be done by spitting on the boom and twisting-in turn or tilt. The model should be trimmed to climb in a circle of approximately 20 foot diameter for most sites.

Have a helper hold the model by the prop hub/shaft after motor has been hooked on shaft. Then attach rear (knotted) end of motor to winder, stretching the motor three to four times slack length before commencing winding. Helper should hold motor stick away from rubber at about 30 degrees. Move in as you wind – put on only a few hundred turns to begin, so a double row of knots is in motor when you have moved in to rear hook. Grasp motor just in front of winder, let winder unwind a bit, then attach resulting loop to rear hook. Hold model by hub with prop vertical and by motor stick at balance point before launching gently from shoulder height. Never, never throw a Pennyplane! If model dives, add incidence by lowering rear wing post in socket (trim off

excess) or if dive seems associated with a spin, reducing turn adjustment for wider circles. If model stalls, decrease incidence or possibly lower prop pitch or reduce prop diameter by clipping off prop blade tips! A very slow moving prop will not pull a heavy Penny-Plane and it will simply flounder. In fact, we have seen this class of model powered by a plastic Sleek Streek prop! It sure had a super climb, but short cruise.

#### Storage and contest flying

You will find that it is impossible to transport your PennyPlane to the flying site without some sort of storage box – a cardboard box is fine. Add a thick wood strip with wing sockets glued on to the bottom of the box – then you can simply ‘plug in’ your wings for storage. Motor stick can be rubber banded atop a keel which supports the subfin above the box bottom. Props can be mounted in odd corners with loose rubber bands. Box lid should be dustproof, and motors etc. should be kept separately with the winder in a toolbox. Small envelopes are good for storing motors. It is important to keep light and air away from Pirelli to prevent deterioration.

Part of the fun of flying Penny-Plane is trying to beat other flyers. Contests are usually held in a large flying site, such as Leisure Centres, college gyms or of course, best of all,

the Cardington Airship sheds. For further information, write to Bud Tenny, Box 545, Richardson, Texas 75081, USA for the monthly newsletter *Indoor News and Views*. You may also wish to join the *National Free Flight Society* (write to Doug Galbreath, 707 Second St., David, Calif., USA) to get another monthly newsletter *Free Flight* which often has photos and drawings of other designs that you might like to try. NFFS supports both indoor and outdoor free flight.

Would you enjoy this first indoor model, whether you fly it just for fun, trying to beat the old stopwatch (it should fly from two to eight minutes, depending on rubber combination/prop and weight) or in competition, where the best single flight wins. If you can learn to fly this model well, you can progress onto one gram microfilm models (about 26 inch span) with hollow tube motor stick and boom, built up props, almost invisible wire bracing and flight time potential of over thirty minutes! Every two years, a three man team is selected by SMAE to represent the UK in International Competition with such delicate indoor models. Your Pennyplane experience may be just the stepping stone you need to get into this game (it is not as hard as it looks, but it does take patience and determination) and maybe someday be an Indoor World Champion!

## SOPWITH TRIPLANE

*Continued from page 542*

middle wing to the centre of its interplane strut. Any big holes you make in the middle wing will be covered over by the ply cuff! Check that all is parallel from top and front views – that is important.

The tail, undercarriage and cowl are dead easy. Finishing is detailed on the plan; for colours use *Profile Publication No. 73*, the Revell  $\frac{1}{32}$ nd. plastic scale kit or your own imagination. If using a Cox Pee Wee engine, make a Junior hacksaw cut in the needle head for a screwdriver, which you can poke through a hole in the cowl. A standard Cox glowclip just fits through the air outlet below the cowl. Epoxy enough lead in the cowl to get the centre of gravity as shown; you will not get many ‘wheeler’ landings with this CG undercarriage set up, but it is the flight path that we are trying to guarantee.

Aim for a flat glide, and note any turn. With the engine on half revs, launch horizontally, and try for a

steady left turn. If she goes nicely under power, but spirals on the glide, move the engine thrustline in *small increments* towards the offending glide turn, and re-trim the powered flight with rudder, repeating until satisfied.

**Ready for the take-off! Model is very sturdy, thanks to its all sheet construction – and this also makes it quick to build. Great fun to fly in even quite small fields.**



My Triplane will take off from tarmac. From a standing start, pointing about 10° to right of wind, she raises her tail, banks a little to the left on one wheel, and after about 20 feet rises in a climbing left turn. She putters skywards, wings oscillating slightly as if in response to pilot corrections. The fuel exhausted, she then glides elegantly down, to a rough and tumble landing in the grass. Happy rough and tumbles!

# Latest Engine News

by Peter Chinn

The Etha 8.25cc and, for comparison, an example of the Dyno Model I which first appeared in Switzerland in 1940 and which has generally been supposed to be the very first model compression-ignition engine to be manufactured.

'LATEST OLD ENGINE NEWS' might be a more appropriate title for this month's article since most of it is taken up by material more usually restricted to the 'Collector's Corner' paragraphs. However, as we have quite a number of vintage engine items and as 'Collector's Corner' is, seemingly, quite a popular feature, we decided to devote most of our space on this occasion to dealing with matters of interest to collectors.

## Etha - the original diesel?

It is generally supposed that the Swiss Dyno 2cc was the first model diesel to be produced commercially. The Dyno appeared in 1940 and subsequently led to the development and marketing during 1941-44 of other model compression ignition engines in many European countries, including France, Italy, Germany and the Scandinavian countries. However, as the Second World War severely restricted the movement of information at that time and as the Occupation virtually isolated the Continent from the modelling world in general, practically nothing was known of these important developments in the two major areas of pre-war power model activity, the USA and UK, until 1945. The information that then filtered through was that the firm of Klemenz-Schenk had been the first in the field with the Dyno I and, in the absence of any reliable evidence to the contrary, it has been generally supposed that this was true.

According to Dickie Dickson's book, 'Model Diesels', published in 1947, the Dyno was distributed by G. Feucht, 48 Bahnhofstrasse, Zurich. It is not known whether the Dyno had other distributors before this, but an interesting sequel to the

Dyno story has lately arisen, for Herr Feucht, now retired, says that he was selling another Swiss made diesel, the 'Etha', long before the Dyno came on the scene.

News of this claim first reached us about a year ago when we received from Peter N. Scott, secretary of the International Model Aero Engine Collectors' Society based in Switzerland, a letter and a picture of an Etha 8.25cc diesel. The existence of smaller Swiss Etha diesels was already known, but we had not heard of this particular model and the really interesting bit came in the actual wording of Peter Scott's letter which ran: '... you may be interested to see a picture of an early Swiss diesel, the

Etha 8.25cc. I obtained this example late in 1974 from a certain Herr Feucht who had a model shop on Zurich's Bahnhofstrasse up to the mid-50s. He distributed the Etha range and also Dyno motors. He was adamant that the 8.25 was commercially available up to **THREE YEARS BEFORE the Dyno**. So the Dyno is really a Great Pretender to the title of 'The First Diesel'. Myth exploded! (Incidentally, the 8.25cc and other Ethas which I have all run well... but are guaranteed to shake the heaviest of test mounts to bits.)

'Up to three years' before the Dyno would have put the Etha on the market any time from 1937 onwards. Remembering that, at that time (ten

Is this the true "Original" Model Diesel? The Swiss Etha 8.25cc unit which, it is claimed, preceded the Dyno by up to three years... This example is owned by Peter N. Scott. Whether the spur gear has any significance is not known. Note throttle device on exhaust collector.



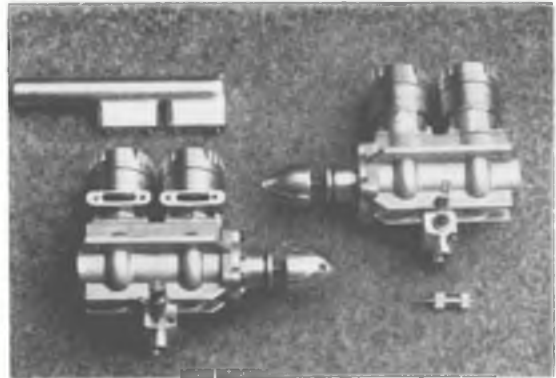
years before the advent of the first model glowplug), all known model aircraft engines were spark-ignition petrol motors and that the coil ignition systems used were relatively heavy and somewhat troublesome, it seems difficult to believe that any model engine that worked on a compression-ignition system could have attracted so little attention as to remain in almost total obscurity.

However, there is, perhaps, an explanation. Three or four months ago, Peter Scott visited the Aero Modeller offices and brought the Etha (and an example of the Dyno for comparison) with him. Some photos were taken and two of them are reproduced here. The Etha, it will be noted, looks like a pretty hefty lump of machinery. And so it is. It weighs (wait for it) 2lbs 5oz. A 41oz model aero engine is heavy by any standards, but back in pre-war days it would have been considered so appallingly overweight as to be totally unacceptable. These were of course, the days of lightly loaded free-flight models. U-control had not yet arrived and radio control was scarcely more than a dream. A typical model petrol engine of a capacity similar to that of the Etha 8.25cc, even with its coil and battery ignition system, would have sealed only about one-third of the Etha's weight. Add in Peter Scott's comment about the Etha's level of vibration and you probably have the reason why the Etha failed to make its mark.

#### 'Kamikaze' Twin

Engine enthusiasts who collect rare motors of more recent production, may be interested in this 0.40 cu. in. inline twin that is being produced in small numbers in Japan. Akira Fujimuro, modelling writer and

**The Kamikaze 40, a "custom-built" twin designed by former "Strong" engine manufacturer Haruo Shimizu and produced by Rev-Up models of Tokyo.**



former speed flyer who was, at one time, with the Enya brothers and who now owns a specialist model business in Tokyo called Rev-Up Models, is producing the Kamikaze Twin in partnership with N. Morita.

The engine, which was first shown as a prototype at the 1974 Tokyo Model Show, first came on the market in 1975 and is, of course, of the alternate firing type. Mixture to the two crank chambers is drawn from a single Enya 19HBT carburettor and is admitted to each chamber in turn through separate disc type rotary valves. The engine has a barrel type crankcase with flange fitting detachable cylinder jackets and separate front and rear ends and the crankshaft is supported in two 8 x 16mm ball journal bearings.

The cylinders, which use orthodox crossflow porting in conjunction with baffled pistons, are of 16.6mm bore and the stroke is 15mm, giving a swept volume of 3.2464cc per cylinder and a total displacement of 6.4927cc or 0.3962 cu. in. The engine weighs 380 grammes (13.4 oz) or 420g (14.8oz) with exhaust manifold.

The introductory price of the Kamikaze Twin from Rev-Up Models was 75,000 Yen, now about £160 Sterling. If anyone is interested, we will pass on enquiries.

#### 'Strong' Twin

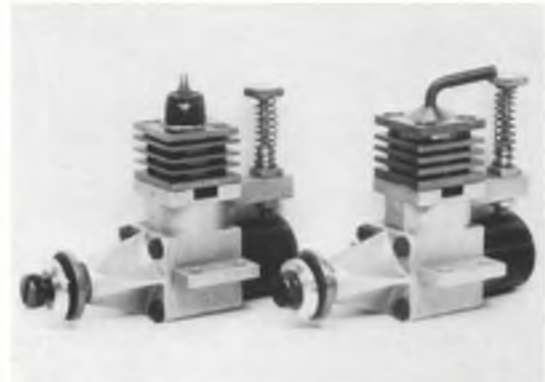
The design of the Kamikaze Twin was actually a team effort headed by Haruo Shimizu, assisted by Fujimuro and Morita. Mr Shimizu had already had some previous experience of twins, having designed and produced the 'Strong' engines back in the Sixties which had included an inline alternate-firing 7cc unit called the 'Strong 45', although this latter was never actually put into quantity production.

As the photo shows, the basic layout of the Strong 45 was not unlike that of the Kamikaze Twin. It, too, had a single carburettor below the centre of the crankcase feeding the crank chambers through disc rotary valves. However, unlike the Kamikaze, each cylinder had three transfer ports in a Schnuerle type arrangement and was of cast iron with integral fins. Screw-in alu-

**The Strong 45 inline twin glowplug engine, a small number of which were made in Japan about twelve years ago - note the similarity with the Kamikaze 40 pictured above. This engine features schnuerle type porting and disc valve induction.**



**Czechoslovakian FIT Mk.I baby engine in glow and diesel versions. Crankcase and front housing are machined from aluminium bar stock. Bore and stroke: 8.0 x 9.3mm. Displacement: 0.4775cc. These examples in Fujimuro collection.**



minium heads were used and the pistons had domed deflectorless crowns.

The Strong 45 had a bore and stroke of 17 x 16mm, giving a total swept volume of 7.263cc or 0.4432 cu. in. The engine is now very much a collector's item. It appears that not more than ten of them were actually built.

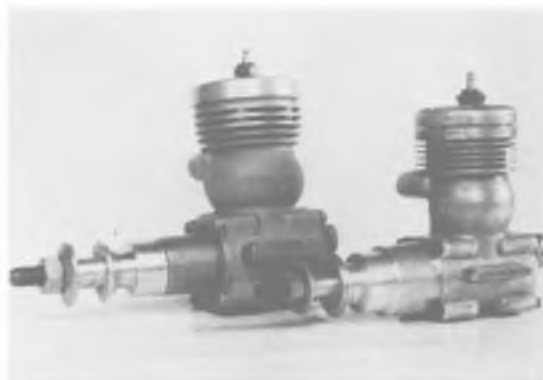
#### Dooling-like 19

In his most recent letter, Akira Fujimuro sent a photo of a 'Dooling-ish-looking' 19 that he had just added to his collection and asked whether we could help to identify it. The engine came from Australia but it was suggested that it may have been made in New Zealand by Harvey Westland. Can any of our readers in the Antipodes throw any light on this?

As the photo shows, this motor bears more than a passing resemblance to the American Dooling 29 racing engine. The Dooling 29 first appeared in 1950 and certainly 'inspired' some other engine designers of the time. There was, for example, the Australian Marden & Stevenson MS-29 in 1951 and a Dooling influence was later evident also in the successful MVVS 2.5 and 5cc racing engines and in their not-so-successful Vltavan factory-built counterparts.

The engine illustrated carries the number 5084 and although it seems highly improbable that anything like so many engines as this were built (perhaps numbering started at 5000), it also seems equally unlikely that it is a one-off since we are told that the main casting and cylinder-head are both diecastings (presumably gravity rather than pressure). The aluminium piston has two rings and the cross-flow scavenging system is, of course, similar to that of the Dooling, with the entire charge transfer via skirt ports in the piston and liner. The crankshaft has a 1/4 in. journal sup-

**Puzzle Corner.** The Dooling 29 is easy enough but can anyone identify the Dooling-ish 19 on the right? Both engines in Akira Fujimuro's collection.



ported in two ball bearings. An unusual feature that should be helpful in confirming any identification is the number of head screws used – five, instead of the more usual four or six with motors of this size.

The engine has a bore and stroke of 17.4mm (0.6850in.) by 13.4mm (0.5315in.) giving a low stroke/bore ratio of 0.770 (not quite as low as the Dooling 29 or 61 – which had S/B ratios of 0.7425 and 0.739 respectively) and a swept volume of 3.210cc or 0.1959 cu. in. Checked weight is 170g (6.0oz).

#### G. L. Sirocco diesel

In the 'Collector's Corner' column in the September 1976 issue we published photos of a couple of unidentified engines belonging to Jim Gerard of San Francisco. These we did not recognise and invited suggestions from readers. Peter N. Scott and Peter Ross both suggested that one of the two was a French *Comete* and we had to admit (December 1976 LEN) that this engine did bear some resemblance to the bigger *Comete* 5cc motor. However, Sten Persson later wrote from Sweden to say that he was quite certain that the engine in question was not a *Comete* at all, but another French early post-war diesel, a *G. L. Sirocco*. An advertisement for

this engine apparently first appeared in a French magazine in July 1946. A photograph of the engine was shown and it was stated to be of 2cc capacity and to weigh 130 grammes. It was sold, we are told, by Pierre Meunier, 4 Boulevard Gouvin-Saint-Cyr, Paris.

Can anyone confirm this?

#### 'ICA' diesel

Jim Gerard's other old engine, the flywheel-equipped aircooled diesel with sideport induction, has been identified as a Spanish 'ICA' which was made by *Constructora de Motores Pazo* of Pontevedra.

Senor J. Carlos Pazo Olmedo tells us that his company is now engaged in the production of somewhat larger ic engines, to wit, marine units ranging from six to five hundred horsepower.

We hope to obtain some further information on the 'ICA' in due course.

#### Vintage 'Decals'

Those who would like to decorate their vintage-engined vintage models with the appropriate *Powered by* 'decals' ('transfers' to you, old boy), can now do so. Larry L. Vance of 5066 Cindy Way, Las Vegas, Nevada 89102, USA, is having the authentic manufacturers' decals reproduced and is making them available to all 'old timer' enthusiasts. The first sheet to be produced includes transfers for Super-Cyclone, Forster, Ohlsson & Rice, Atwood Champion and Dennyrite engines.

Larry Vance tells us that he commissioned the best decal company on the US West Coast to produce these copies. Having seen them, we can vouch for their excellent quality. Currently they sell at five US dollars (approx. £3) for three sheets but, if the response to the first run is good the cost of further reproductions will be lower. Other designs are also in the works.



Now available from Larry L. Vance are these splendid full colour reproductions of vintage engine manufacturers' "decals". Transfer sheets for other makes of engines are in the course of preparation.



## INDOOR NATIONALS

RAE Cardington, June 5-7th

Reported by Bob Bailey

AS FAR AS weather conditions have been concerned, this year has not been a good one for flying at Cardington. The Nationals, regrettably, proved to be no exception. We were unlucky in that two weeks of good weather failed just at the crucial time. Result - cold and wet as usual.

Activity on the first day (Sunday 5th) was sporadic, to say the least. Two factors were I think responsible for this; firstly, any event could be flown on any day and secondly the conditions were poor. It was known that the forecast for the rest of the weekend was just as bad, if not worse, but then one always hopes that it's wrong! Such optimism proved to be without foundation and the general pattern was the same on all three days.

Better conditions did prevail during the late afternoon and most of the better flights took place during that time. With so many events to fly and trimming during the day meaning less due to the conditions, many flyers took chances and 'went for broke' during this period. Those with untried models or poor steering ability paid the price and too many watched unconcerned as their models drifted all too apparently towards the sides of the Shed, followed by the inevitable hang up and breakage.

It was not until the morning of the third day we realised most of the draught causing severe low level turbulence was coming in under the hangar doors and we organised a working party, with the assistance of the Shed duty rigger, to stop up the gap. This was done using large 'sausages' of old canvas etc held down with 56lb weights (yes we needed those to stop the 'sausages' from blowing away) and probably saved the whole meeting from total disaster.

Of the two new events this year (Manhattan and open tissue) only the former provided enough models to make it a worthwhile event as most people used EZBs.

The Manhattan event is, we feel, a good subject capable of higher times and will, we hope, attract more interest in the future. Much higher times will come sooner or later for most flyers had trouble with soggy tissue and wood (this applied particularly to EZB). Many models which would normally get away using full launch torque without problems developed wing warps in all the wrong places. The result was inevitably a deep stall and tail slide which generally required the flyer to catch the model before it hit the hard floor.

There were as on most occasions, some heartbreaks. One of my film models was 'wiped out' by a Manhattan which hit the balloon line above my model (which was hung on the line and was being winched down) and slid on top of it. Only the prop remained!

Laurie Barr suffered worse when he was steering his old faithful 35cm model (which has won almost every comp in the last three years and holds the class record at 24.00); the balloon burst and the remnants plus line went straight through it - a complete write off. Ron Green had the wing fold on his enlarged FAI model which weighed 0.8 gram and many 'special' open models did not fly well or were damaged due to the turbulence.

My Manhattan hung up at 5 min when still 70ft up, went into the side where it was stuck in a place the rigger could not reach (not many of those). The model was retrieved without half of the propeller which is still there - end of my Manhattan hopes with only two flights on the board.

In the last hour or so, Ron Green sensed his chance of winning the Championship and had his 35cm, EZB and HLG going simultaneously. Steve Bennett (St Albans) had three watches going at once and nearly got caught for a fourth when Ron launched his open film model! Fantastic activity; one could hardly see him for



Winners both! Above left is Dave Pymm with his Easy B design - as drawn in the August issue, and with which he has previously established an unofficial World Record of 20 minutes 7 seconds. Above is Ron Green still smiling despite the folded port wing tip on his Open Microfilm winner.

dust and the hard work paid off with clear wins in open tissue, open film and the championship.

Unhappily, there are hardly any novices left in EZB and Steve Bennett was the only entrant and was 6th overall - good flying.

The meeting was rather formless with any flight on any day. I think it would be better to specify events and days. Also the points scheme requires reconstructing; it is heavily biased towards events with large entries, eg HLG if no outdoor contests are on. I anticipate the Indoor Tech Committee will review the situation for next year.

### RESULTS

Best two flights out of six, except HLG has ten flights

#### HLG

1. P. J. Bayram	Richmond	67.50-60.60	= 128.1	Total
2. K. Brown	Richmond	58.10-58.00	= 116.1	..
3. M. Fantham	Richmond	54.80-54.00	= 108.8	..

#### 35cm Microfilm

1. R. Monks	Birmingham	18:20-14:02	= 32:22	..
2. R. Green	St Albans	17:06	= 17:06	.
3. B. Aslett	Swindon	8:40	= 8:40	..

#### Manhattan (minimum weight 6 grams)

1. R. Parham	C/M	5:46-5:38	= 11:24	..
2. R. Green	St Albans	6:02-4:41	= 10:43	..
3. L. Barr	St Albans	4:58-4:39	= 9:37	..

#### Open Tissue (65cm maximum span)

1. R. Green	St Albans	18:16-16:34	= 34:30	..
2. D. Pymm	Walsall	16:38-18:04	= 34:42	..
3. B. Aslett	Swindon	14:11-14:32	= 28:43	..

#### Open Microfilm

1. R. Green	St Albans	22:26-23:15	= 45:41	..
2. G. Lefevre	Norwich	18:08-24:12	= 43:20	..
3. L. Barr	St Albans	6:20	= 6:20	..

#### Easy-B

1. D. Pymm	Walsall	15:30-16:26	= 31:56	..
2. R. Melville	St Albans	15:19-15:39	= 31:18	..
3. R. Green	St Albans	14:02-15:56	= 29:58	..

#### FAI Microfilm (FID)

1. L. Barr	St Albans	29:49-34:25	= 64:14	..
2. J. Blount	Croydon	24:00-31:05	= 55:05	..
3. D. Morley	Grantham	28:58-24:53	= 53:11	..

#### National Champion

1. R. Green	St Albans	32 points
2. L. Barr	St Albans	23 points
3. B. Aslett	Swindon	14 points

Note - Champion decided by points awarded according to entry, e.g. if 10 people fly in an event, the winner gets 10 points, the 2nd gets 9 points, etc.

# CLUB NEWS

WE HAVE been hearing much of late of rubber power, and the comparative qualities of the strip involved. This has caused me to reflect on the phenomenon of this early, primitive form of model aircraft power surviving so robustly into this highly mechanised age. On paper rubber strip has all the negative qualities: low power, a poor form of energy storage, an oomph to umph torque output, and a long, anxiety making wind up. Yet, for all that, the rubber powered model is, in its way, all your own machine, powered not by some commercial engine, i/c, electric, CO<sub>2</sub>, or what have you, but by a motor made up to your own requirement from rubber strip.

It is also a challenge, and a democratic one at that, for the capricious, knife edge trim, contest model – including the Wakefield – is financially within the reach of all. It is still possible to produce a highly efficient flying machine for as little as two pounds, which, in these inflationary days is quite something.

At least rubber power gets an honourable mention in our first report. It is from a club that a long and illustrious history of free flight contest flying – 30 years plus in the field. Over the years the **Halifax MAC**, has harboured a number of top contest flyers, and older readers, at least, will have heard of Len Stott, a notable Wakefield flyer in his day, and John Pool, another well known Rubber and Tailless man. Currently, on the books are Ken Attiwell, another Tailless expert, and Alan Nobbs. Club interests, not confined to free flight, cover Radio Glider, C/L Team Race, Novice Stunt and Goodyear Racing. D. B. Lambert, who sends us the report, is anxious to contact any unattached model flyers, and would be model flyers, in the Halifax district. He is aware that there is no model shop in the immediate area and no easily accessible field for free flight, and would like to extend the club's facilities to any lone hands in the district who may not know of the club's existence. Club meetings (non-flying) are held on the first Wednesday of each month at 8pm, at Spring Hall, Huddersfield Road, Halifax. Flying (Free Flight and Radio Control) takes place on any fine Sunday morning (10.30am) on moorland beyond the Withens Hotel, Halifax.

John Morris, PRO, of the **Stoke-on-Trent Aeromodellers Society** sends us along a press cutting which publicises the noteworthy fact of the club raising £500 for the Douglas Macmillan Home from a flying and static display in the grounds of the home at Burton. In spite of unfavourable weather, more than 300 people came to watch the aerial manoeuvres of the models and to take in something of the craftsmanship involved. To add flavour to the event Eric Clutton brought along FRED, his full sized aircraft. Thanks, too, to the **Spitfires MAC**, for their participation.

In weight and substance, not to mention motive power, there is not much affinity between the lumbering vintage steam engine and the light and nifty model plane, but there is an affinity of interests for John Stacey, Chairman of the **Penrith and DMC**, and his wife Jenny, when the two 'hobbies' come together, for model flying is tolerable

to Jenny when there is one or two of her beloved traction engines doing their stuff. This information comes from the June issue of the *Fellside Falcon*, in which Jenny writes knowingly of 'glitches', of which gremlinic syndrome Johnny's Sopwith 1½ Strutter suffered, somewhat ignominiously, in front of the belching monsters. It is hoped that fate will be kinder at the next family outing, a combined model and vintage traction event at Woodvale. John, on his part, writes wittily on the way the householder's Sunday morning routine delays departure to the flying field until the usual late morning clouds begin to gather and the freshening wind deposits the first rain drops on the windscreen as he starts away. I have often thought that the best time to get to the flying field would be about 7am, but just how this can be arranged I have never worked out. The traditional hour of assembly is, of course, 11 o'clock, and this was when the 'Blue Streak' van brought 5 club combateers to Morland to do battle in the club Combat event. A good 'do' by all accounts, with an all glow final between Alan Tyson and Paul Landels getting into the national trend. Winner of the Chris Bowman Trophy was Alan Tyson. The event is celebrated with a spread of action shots in the magazine.

Incursions onto the Croydon patch by the gypsy hordes has put a measure of uncertainty into the club calendar; the **Three Kings Aeromodellers** not knowing what rubbishy impedimenta they might find on the flying circles. For the first race of the season, the club Goodyear event, they had to push a derelict lorry off the bottom circle, before getting the meeting under way. It is hoped to run a Goodyear event every month. Apart from keeping up a high competitive level it gives the club a presence on the field during the season, when members are attracted away by outside events. The doubts about the Croydon availability has upset plans for the September Open Day, but approaches have been made to the Merton Council for an extended time period on the site at Mitcham. The meeting is to be called the 'Three Kings Jubilee Day', and prizes will have an accent on the Jubilee theme. And so far a good Jubilee year for the club with successes at various events. As reported Alan Callaghan won the Fireball Trophy at Old Warden Vintage Day with his immaculate De Bolt Bipe. He flew clockwise to earn the nickname of 'Wrong Way' Callaghan. At the All Scale Day, again at Old Warden, five days later, Mick Staples won the Shuttleworth Trophy with his Avro 504K and Ken Gardner and Jack Carter Memorial Trophy flying his refurbished Hawker Tomtit. Weather was just the job for scale: not much wind and mild. With such high grade craft doing their stuff it is little wonder that two outside demonstrations have swelled the club 'kitty' by £35, one at Woodcote High School and the other at the Sandown (Elmbridge) Symposium. An increase, too, in club membership, which is around 56 at the moment. Not a bad tally, since this is almost wholly a C/L club with a bit of indoor activity on the side. And the upsurge is in the face of increasing flying field problems. Carrier flying is good sport both for participant and spectator, and the club intends to open up experience of this type of flying by dropping Mini Goodyear, for which there is minimal support, and putting Carrier on the club calendar instead. It is hoped to include a Profile Carrier event at the second Open Day, as this would not involve the greater expense and complexity of the Scale class. As far as the gypsy invasion is concerned let us hope the future story is of 'less hawkers but more circulars'.

Encouraging free flight news from the **South Eastern Area's Seadog**. There is a noticeable upturn in f/f interest after years of complaints of it being on the decline. New names are to be seen on the result sheets – and not at the bottom either. Swift re-action from the Area has been to put more f/f comps on the calendar, and it is

to be hoped they will be supported by enthusiastic turnouts. And on the subject of turnouts I notice that, at the 2nd Area meeting at Ashdown Forest in May, entries in the RAFA, events were larger than those in the SMAE events. I wonder what the significance of this is? Personally, I would like to see the Area meetings get sufficient support to allow for prizes at Area as well as national level. Also on the up and up in the Area is Thermal Soaring. The two May meetings reported in the newsletter were both well supported. So well supported at the second meeting that a downpour of rain upset the tightly packed schedule, and the fourth round had to be omitted, but then there were 36 fliers to be slotted in during one short day. A new feature on the Area calendar is an Area Scale Day to be held on a new site 'somewhere in Kent'. Not suitable for f/f and c/l, alas.

*Nitro*, the newsletter of the Belfast MFC, opens with a thoughtful article on the nature of contest flying today, and of the winning thereof. Seems the modern, philosophical approach to winning is not losing. By this is meant meticulous attention to every minute detail in practice, preparation and technique. If then you do lose out in a situation where competition is close and fierce it is not through lack of trying, and if there is any luck going you'll get your share during the season. Gone are the days, in all branches of contest flying, when anyone is likely to gain advantage by new equipment or technique; every possible ploy is known and it is the faultless rather than the superlative performance that carries the day. I must say, though, those free and easy days when Lady Luck was the pin up were plenty of fun. A useful article included, too, on C/L Stunt engines.

It was like a Gala day at Wymeswold in May when the Leicester MAC, held the flying section of the Winter Building Competition. More than thirty cars were parked at the R/C take off point, and there was a nice tang of expectancy in the air as the contestants prepared their variegated batch of models. Only one competing model not present - Joe Gray had opted to record his score on a slope. First away was R. Child with his R/C Mustang after a spot of fuel line trouble. Then came M. Scott towing up his Little Hinney A/I Glider. It did its best to drop into the arms of a patiently waiting tree but landed on a hedge instead - a nice flight, though. Next came Norman Quilter with the R/C Hurricane of J. Hilgers into what was now a gale force wind. A rain shower settled the wind a little as the rest of the assorted models took their bow. All in all ten models flew in the 3rd round out of 21 overall entries. Winner was R. Pullen, with his Addyman R/C Scale Glider, and second the R/C Hurricane of J. Hilgers. Certainly a most worthy club effort. On the C/L side concern is all about sites and the noise problems thereon. Negotiations for a permanent site are still proceeding, meantime use is being made of another site only available when not used by a Japanese driving school ('keep illustrious toy away from honourable Toyota') where engines have to be muffled even more positively than at Wymeswold, where engine running terminates at 6pm on Sundays - just when things are getting warmed up. All this engine muffling may be gratifying to the public in one sense, but when it comes to displays, such as one given at Stonehill School, Birstall, that exciting, heraldic noise of an engine in full blurrp was perhaps a trifle too subdued to draw the public away from the delights of hoopla and alfresco bingo. Perhaps a good thing as crowd control was practically non-existent. It was a good show in depth, though, with aerobatics, Rat Racing, Autogyring and multi flying. A final note in the newsletter to the effect that with the yearly engine run reduction on F/F Power models it is calculated that by 1990 FAI Power will be a Chuck Glider Event. I disagree - Chuck Glider will, by then, be much too noisy.

We read in the *Scottish AA*, newsletter of a club actually hiring a field for a competition: the Strathclyde Championship, so tight has the flying field situation become across the border. Nor are the future prospects any brighter. Quite a number of sites in and around built up areas may well come under the axe because of noise restrictions. This may not affect sports flying so drastically as the specialist and contest C/L model which require tarred car parks or the best grass land. You just cannot fly a retract undercart model in any old field. For free flight the main venue is Newbigging according to the contest calendar; only variations are Hartfield and Hawick Race Course for Mini events. Just one point that has occurred to me as far as tarmac sites are concerned: they are generally useless unless in everyday use by traffic, human or wheeled - without constant compression they just crumble away.

We, in this country, must be thankful for that splendid piece of encapsulated space known as Cardington, for from *Free Flight Down Under* we learn of top Australian flyer, Boyd Felstead, searching vainly in Sydney for a hall capacious enough to repeat his 25 min. Cardington performance. He is now trying his luck in Adelaide.

There's a useful piece on rubber testing in *WMC Patter*, the well known newsletter from the *Willamette Modellers Club* of Oregon, USA. Best performance came from a stuff called Vintage Aero, available from Vintage Aero, 1, The Glen, Tenafly, NJ 07670. Also recommended, Black FAI Rubber, now very popular on European contest sites. Does not take lube too well, but I find Castor Oil most suitable. A tip here, too, for rubber enthusiasts: a stranding board with nails set at 1in intervals.

Reports and newsletters always welcome. Why not give your PRO a dig?

Clubman

## YOUR CLUB?

If your club is not listed - or if the secretary has changed recently - then please let us know and enable an accurate listing to be achieved. Amendments will be printed at the soonest opportunity.

### NORTHAMPTON

#### Avon

M. Taylor, 4 St Crispin Cottages, Walgrave, Northants.

#### Biggles MAC

M. B. Cowley, 67 Abington Park Crescent, Northampton.

#### Five Walls MAC

J. R. Corbyn, 13 Campbell Road, Wellingborough, Northants.

#### Nene Valley Aeromodellers

J. I. Lattaway, 50 Hatton Park Road, Wellingborough, Northants.

#### Northampton

B. J. Baker, 29 Woodhill Road, New Duston, Northampton.

### NORTHERN IRELAND

#### Ulster Model Aircraft Club

S. McCollum, 3 Mount Pleasant Road, Jordanstown, Co. Antrim, N. Ireland, BT37 0NQ.

### NORTHUMBERLAND

H. McGlen, 12 North Row, Eltringham, Prudhoe on Tyne, Northumberland.

### NOTTINGHAMSHIRE

#### Nottingham MAC

M. A. Kidby, 31 Wroxham Drive, Wellaton, Notts.

#### Nottingham Radio Control Society

D. E. Bolton, 406 Loughborough Road, West Bridgford, Notts. NG2 7FD.

#### Rolls Royce (Hucknall) MAC

Secretary, 74 Farleys Lane, Hucknall, Notts.

#### Workshop Aeromodellers

Model Centre, Ryton Street, Worksop, Notts.

# Scale Plans

*Aircraft  
Cars  
Ships*

The World Famous range of authentic drawings catalogued for your selection:

**PLANS BOOK 1 AEROMODELLING**  
Flying Scale Free Flight & Control Line and Jetex plus thousands of "true" scale drawings from Aeronca to Zeppelin

**PLANS BOOK 2 BOATS & CARS**  
Scale ships, Steamers, Lifeboats, Trawlers, Tugs, Subs, Sailing Ships, Cars plus thousands of true scale drawings in the famous Marine Miniatures and Prototype Car Series

*Send now for your copy or ask at your model shop 30p each (add 10p postage)*

**MODEL & ALLIED PUBLICATIONS LIMITED**  
P.O. Box 35, Bridge St., Hemel Hempstead, Herts HP1 1EE

## Contest Calendar . . .

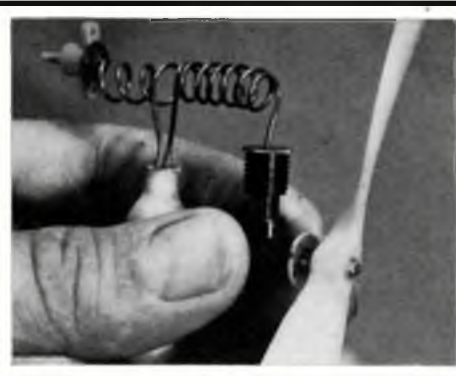
- August 20th, 21st **BRITISH NATIONAL CHAMPIONSHIPS - FREE FLIGHT & R/C SOARING**, RAF Little Risington, Glos.
- August 20th, 21st **INT. COMBAT CONTEST**. Organised by Allreton & District MAC. Venue: Donington Park, Castle Donington. Camping facilities. Competitors £8. Supporters £2.50. Details: D. Degg, 31 Stretta Lane, Higham, Derby.
- August 27th **BRITISH NATIONAL CHAMPIONSHIPS - CONTROL LINE & RADIO CONTROL**. Venue: RAF Little Risington, Glos.
- September 11th **SMAE INDOOR MEET**. Manhattan and Open Tissue. Venue: RAF Cardington, Beds. SMAE members only.
- September 11th **WIDNES C/L NOVICE STUNT** at St Josephs School Playing Fields, Widnes from 12.00. Details: G. Pile, 16 Ganston Close, Widnes, Cheshire 051-424 3901.
- September 18th **SMAE INDOOR MEET**. F1D, Peanut, Co<sub>2</sub> duration. Venue: RAE Cardington, Beds. SMAE members only.
- September 18th **WREXHAM C/L AEROBATICS**. FA1 stunt at Queensway Sports Centre, Queensway, Wrexham, 9am-5.30pm. Prizes: £30, £20, £10 plus £10 for best model in event. 50p entry fee to D. Roberts, 21 Newtown Gresford, Wrexham, Clywd 2L12 8NG. Tel: Gresford 3895. Closing date for entries Sept 9th. Refreshments on site. Accommodation/camping facilities available.
- September 18th **SOUTH COAST R/C RALLY**. Venue: Golden Cross, East Sussex. Pre-entry details from N. Cowling, 7 The Green Walk, Willingdon, Eastbourne, E. Sussex. SAE please.
- September 18th **SITTINGBOURNE & DMAC VINTAGE FLY-IN**  
Fly for fun - models judged on performance and finish. Normal vintage qual. apply: Barbeque! Venue: Straymarsh, Isle of Sheppey. Details: K. Luckhurst, 7 All Saints Road, Sittingbourne, Kent Sittingbourne 70996.
- September 25th **THREE KINGS OPEN DAY**. C/L Stunt, Carrier, Scale Class II. From 11am. Silencers essential. Venue: (New date) Croydon Airport estate, off Purley Way - but not confirmed. Check venue via D. Woods: 01-947 0752
- September 25th **ELLIOT GOODYEAR MARATHON**. Venue: Elliot-Marconi, Rochester Airport A229 off M2 motorway. Organiser: R. James, 21 Rochester Crescent, Hoo, Rochester, Kent.
- September 25th **S. MIDLAND AREA (SMAE) VINTAGE RALLY**. F/F, C/L and R/C Assist. Also C/L Novice/Junior stunt contest. See "Hanger Doors" for details, or phone Editor. Venue: RAF Halton, near Aylesbury, Bucks. SMAE members only.
- October 2nd **ELLIOTT SPEED MEETING**. Venue as per Sept. 25th rally. Organiser: M. Billinton, 99 Canobie Road, London SE 23. Tel. 01-699-5354. All classes H'cap speed. Best newcomer award.
- October 2nd **LONDON AREA (SMAE) COMBAT RALLY**. At Charville Lane, Hayes, Middlesex. Details Ray Sibbald. Tel: 01-304-0389.
- October 9th **SMAE INDOOR MEET**. Fly in for all types at RAE Cardington, Beds. SMAE members only.

## NEW! FOAM COMBAT MODELS

- £4.65 37in. tapered wing for 2.5cc diesel motors; includes pre soldered tank
- £4.00 39in. tapered wing for 2.5cc glow motors, designed for pacifier system
- £5.25 44in. tapered wing for .35 glow motors and pacifier kits
- Syringes 100ML. from £1.15
- Pacifiers 12p p&p 12p
- £3.95 38in straight wing for 2.5cc diesel includes pre-soldered tank
- All kits feature shaped wood parts and accessories. Tapered wing models feature ready made foam wing tips.
- Super Tigres in stock:
- |               |        |
|---------------|--------|
| G.20/15 Glow  | £19.80 |
| G20/15 Diesel | £19.80 |
| X.15 F.I.     | £33.40 |

### BOLTON MODEL SUPPLIES

TELEPHONE 41808  
503 CHORLEY ROAD, BOLTON, LANCs.



## HERE'S TELCO!

Displacement 0.06cc. Weight only 1/4 ounce complete. Speeds 3,500 to 7,500 rpm (speed is adjustable to suit model type and weight). Flies models up to 24" span. SEVEN or more flights from a Sparklet bulb. price £3.45

## BRITISH-MADE CO<sub>2</sub> MOTOR

DISTRIBUTED BY

### RIPMAX

Your TELCO CO<sub>2</sub> motor comes complete with gas tank and filler nozzle ready connected; 3/8" dia plastic prop; charging gun; tank and filler nozzle; throttle spanner; mounting bolts; 1 Sparklet bulb; decals and fully detailed instructions. All spares readily available.



**AT YOUR LOCAL MODEL SHOP NOW!**

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS





**S. H. GRAINGER**  
**(CALDMORE MODELS) LTD**  
**108 CALDMORE ROAD,**  
**WALSALL WS1 3RB**  
**ENGLAND**  
 Tel: 21552  
**WORLD WIDE**  
**MAIL ORDER CENTRE**

**RADIO CONTROL**  
 Futaba ● MacGrager ●  
 Skyleader ● Waltron ●  
 Horizon ● O.S. Cauger ●  
 Remcon ● Graupner ● Sanwa

**KITS**  
 Ripmax ● Keil Kraft ●  
 Graupner ● Topflite ●  
 Starling ● Goldberg ● St.  
 Leonards ● Pegasus ● Jolly  
 Roger

**MATERIALS**  
 Balsa Wood ● Plywood ●  
 Fibreglass ● Solarfilm ●  
 Nylon ● Paints ● Adhesives ●  
 Dopes ● Tissue

**ACCESSORIES**  
 Micro Mold ● Kavan ●  
 X-Acbs ● Swan Horton ●  
 Tanks ● Wheels ● Rubber ●  
 C/L Handles ● Aircrews

**ENGINES**  
 Rossi, Telco CO<sub>2</sub> ● Super  
 Tigre ● O.S. P.A.W. ● HP.  
 Enya ● O.P.S. K & B ● Marco.  
 Vaco ● E.D. DC. H.B. ●  
 Webra, Fox

**CATALOGUES**  
 MAIL ORDER 35p. Post Free  
 U.K. Overseas Airmail £1.50  
 RIPMAX 95p Postage 55p U.K.  
 Overseas 75p. Seamail, K. K.  
 HANDBOOK 50p Postage 15p  
 U.K. Overseas 25p Seamail.



**THE SHOP WITH MORE FOR MODELLERS WORLDWIDE**

# LONGER LIFE

## BRIGHTER GLOW

# JOY LUMINOUS PAINT

See in the dark with JOY Luminous Paint. Ideal for use on skeletons, toys, models, novelties, light switches, door numbers, paper, cardboard, and materials etc. Light active but not radio active. Outfits contain Base Reflecting Coat and Top Luminous Coat. Green shade only.

**JOY** is a registered trade mark of TURNBULLS LTD., LONDON, S.W.17.

Balsa, Marine Ply and Veneer		20% Disc.	20% Disc.
<b>BALSA SHEET</b>			
1/2" x 3" x 36" x 10	£1.90	1/2" x 3" x 36" x 10	£0.39
1/2" x 4" x 36" x 10	£2.88	1/2" x 4" x 36" x 10	£0.64
1/2" x 2" x 36" x 10	£1.28	1/2" x 2" x 36" x 10	£0.80
1/2" x 3" x 36" x 10	£2.07	1/2" x 3" x 36" x 10	£0.80
1/2" x 4" x 36" x 10	£3.28	1/2" x 4" x 36" x 10	£1.12
1/2" x 2" x 36" x 10	£1.44	1/2" x 2" x 36" x 10	£1.52
1/2" x 3" x 36" x 10	£2.51		
1/2" x 4" x 36" x 10	£3.89		
1/2" x 2" x 36" x 10	£1.64		
1/2" x 3" x 36" x 10	£2.77		
1/2" x 4" x 36" x 10	£4.32		
1/2" x 2" x 36" x 10	£1.99		
1/2" x 3" x 36" x 10	£3.28		
1/2" x 4" x 36" x 10	£4.67		
1/2" x 2" x 36" x 5	£1.17		
1/2" x 4" x 36" x 5	£1.90		
1/2" x 2" x 36" x 5	£2.72		
1/2" x 3" x 36" x 5	£1.51		
1/2" x 4" x 36" x 5	£2.51		
1/2" x 2" x 36" x 5	£3.43		
1/2" x 4" x 36" x 5	£1.68		
1/2" x 3" x 36" x 5	£3.07		
1/2" x 4" x 36" x 5	£4.49		
<b>VENEER 4" x 1'</b>			
Per 10 Sheets	£6.00		
Per 20 Sheets	£11.00		
Per 50 Sheets	£25.00		
Carriage at cost £1.50 minimum			
<b>MARINE PLY 4" x 1'</b>			
0.8mm	each £1.30		
1.5mm	each £1.40		
4.0mm	each £2.00		
6.0mm	each £3.00		
9.0mm	each £4.00		
<b>Mahogany - Beech - Obachi - SAE</b>			
for quote. Please state sizes required.			
1/2" and 1/4" silicone Tubins 60ft. Orders			
up to £15 please add 75p post. Orders			
up to £29 please add £1 post. Orders			
over £30 carr. free.			
<b>Above rates apply UK only.</b>			
<b>WOLSTENHOLME MODELS</b>			
45-47 WHALLEY RD, ACCRINGTON, LANCS. Tel: 0254 37771			

## AVICRAFT LTD.

4 Chatterton Road, Bromley, Kent Telephone: 01-460 0818

HUMBROL KIT with MOTOR £11.95 post 65p. Telco CO2 £8.45 post 55p. P.A.W. needle valve assembly 65p post 10p. ST G20 15 £19.80 post 60p. Rossi 15 Normale £36.50. RV 15 Normale £39.50. X 15 R £29.92. ST X15 ABC £33.40 post 60p. Cox Conquest £45.29. ST Glowplugs - Standard 65p. Speed 96p. X15 96p post 10p any 8 to 1.5c. Pod/mount £4.43 by Aviomodell; post 27p. **SAVE POUNDS ON STRIP WOOD** - Our own hand held model £1.50 post 20p or Tabletop full length frame £2.99 post 70p - buy some sheet with it. Current 3in. prices - 1/8th 26p. 1/4th 31p. 1/2th 34p. 3/4th 41p. 1" 48p. New Book - Basic Aeromodelling - Ron Warring £2.95 post 25p. Data Book £1 post 20p. Control Line Manual £2 post 25p. 1976/77 Aeromodeller Annual £2.25 post 20p. Revised *Airbrushing for Modellers* £1.75 post 25p. BADGER 350 brush £24.75 post 60p or the De Vilbiss Sprite at £29.70 post 60p. Laystrate LW 70ft 54p LW100ft 67p post 15p. Build your peanut in superquick time with AVDEL instant glue £1.80 post 15p or if you need some 6in. sheet you can make it from 2 x 3 with help from Avdel! Cox 049 051 Heads £1.00. Cox T.D. 049 051 Heads £1.45. "CONTROL-LINE EXTRA" 95p post 20p. Badger 250.4 has 4oz. JAR & PROPEL REGULATOR plus PROPEL for £8.99 post 65p.

# Graber models

Engines and spares by H. B. Fox K & B D.C. Telco, Super Tigre, Taipan, Marco, OPS.

Kits by Veron, Cambria, MFA, Humbrol, Kamco, Dumas, St Leonards, Tern.

Accessories by Irvine, Kavan, MFA, Goldberg, Slec. We have Plentiful stocks of balsa and hardwoods, covering materials and adhesives.

**ACCESS & BARCLAY CARD - Mail Order a pleasure**

**15 ABBEY ROAD, TORQUAY, DEVON**

**Tel: 0803-211656 Hours: 9.15am-6pm Mon to Sat**

KINDLY MENTION "AEROMODELLER" WHEN REPLYING TO ADVERTISEMENTS

# CLASSIFIED advertisements

All classified Advertisements must be pre-paid. Private and trade rate 10p per word (min. £1.00). Box Numbers 35p extra. Display classified £5.00 per column inch (max. 2in.) All advertisements are inserted in the first available issue. Box replies to be sent care of Advertisement Department, PO Box 35, Hemel Hempstead, Herts. HP 1 1EE. There are no reimbursements for cancellations.

The Advertising Manager reserved the right to refuse or suspend advertisements without giving any reason. Every care is taken to avoid mistakes, but the publishers cannot be held 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.

If you are an engine collector, join the **INTERNATIONAL MODEL AERO-ENGINE COLLECTORS' SOCIETY**

Full details from:

The Secretary, IAECs  
Sihlwaldstrasse 8  
8135 Langnau-am-Albis  
SWITZERLAND

## BOOKS

'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 £3 (or \$8) for a year's subscription to: British Gliding Association, Kimberley House, Vaughan Way, Leicester, England. T/C

'Flying Aces' wanted. Alan Wyatt, 62 Footshill Road, Hanham, Bristol. Tel: Bristol 671836. ABCD

## A & S MODELS

Superior Clear Dope in 5ltr tins. Fewer coats required, rapid drying, high shrink. Price only £7.35 plus 70p carriage. Trade enquiries welcome.

A & S Models  
High Works, Vulcan Road  
Dewsbury, W. Yorks.  
Tel. Dewsbury 469586

## FOR SALE

Petrol and Steam Engines—Castings, Gears, Sparking Plugs, Coils, etc.—large SAE to Whelan Models, Department A.R., 8 Broadley Park, North Bradley, Trowbridge, Wilts. D

Two S/Hand Rossi 15 Diesels, £29 and £26. Tel. 062186 430. D

2 x 2.5D7 MYVS Diesels, 1 x S.T.G15 RVD, 1 x S.T.G15 Glow—all unused. Oliver Tiger unused since recon. by Olivers, Oliver Cub used. Tel. 01-690 1038 (work), 01-855 5007 (home) D

Spruce, beech, mahogany strip. Large range of sizes in stock. 36in., 48in., 60in. lengths. S.A.E. for list. Punctilio Model Spot, Waterloo Road, Hinckley, Leicestershire. TC

Superb ballpens, pencils, combs, diaries, brushes, goldstamped with club or personal name. Raise funds quickly and easily. Sample/details from: Northern Novelties, Bradford BD1 3HE. C-F

## NOW YOU'VE BUILT A MODEL

Why not build a full-size aeroplane? Join the Popular Amateur Aircraft Industry the **POPULAR FLYING ASSOCIATION**, and learn how to build your own flying machine. Read **POPULAR FLYING** bi-monthly. Specimen copy 50p. **POPULAR FLYING ASSOCIATION** Terminal Building, Shoreham Airport Shoreham-by-Sea, Sussex, England Shoreham-by-Sea 4161d

## PEANUT SCALE KITS

Wittman Tailwind, Currie Wat, £1.75 each  
Comper Swift, Luton Minor, £1.50 each  
Available from Model Shops, or direct (post free in U.K.) from:

**ANDREW MOORHOUSE,**  
2 Cavendish Place,  
BATH BA1 2UB

Enormous wing span hang glider kites (1ft 4in. x 5ft 8in. rip stop nylon sails, dowel frame). Send £18 (inclusive of postage and packing) also six other revolutionary designs available all from rip stop nylon. Designed, manufactured and supplied by:

**ALBATROSS KITES,**  
Hill End Farm  
Tyttenhanger Green, St. Albans.  
Tel: St. Albans 56193.

Send S.A.E. for free illustrated catalogue.

# BUY! SELL! SWOP!

WITH A  
**CLASSIFIED  
AD.**

## GENERAL

Varied flying displays will be held at the Shuttleworth Collection, Old Warden Aerodrome, off the A1 near Biggleswade, Beds, on Sunday 28th August and Bank Holiday Monday, 29th August. Entry on each day: adult £1; child 50p; parking £1. Gates open 11am. Flying 2pm. Come early. D

Plans enlarged or reduced and additional copies made. Send for details from Causser & Co., 216 Goldhawk Rd., London W12. Tel: 01-749 3441 T/C

New Twin Peanut Kits from America  
SES A/Fokker DB 2 FOR  
Monocoupe Citabria ONLY  
Waco SRE/Kadat £3.25

Rubber Motor winder only £2.25. S.A.E. for lists !!! Add 20p p & p

Peanut Scale Kits and Plans Service Plans by Butch Hadland of Blackburn Monoplane and his latest !!! Clip Wing Monocoupe "Little Burch", all 60p each post paid. Kits by Tern-Pack at £2.15p plus P.P. Moorhouse at £1.25 plus P.P. Many accessories.

S.A.E. for lists:  
**SWINDON MODEL CENTRE**  
2 Theatre Square, Swindon, Wiltshire  
Tel: 26878

## WANTED

Wanted - Gerald Smith Engines - 'Magpie' - 'Lapwing' - 'Redwing' - 'Wizard'. Any condition, Aero or Flywheel. Tel. Nuneaton 382558. D

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

Cash paid or part exchange for vintage and new engines worldwide! 646 High Road, North Finchley N12 0NL. Tel: 01-445 6531. T/C

## EWAN B. JONES

UK Agent for Rossi Engines

All Models available, full range of spares, special prices for overseas customers. Also full range of matched Rossi Carbon Fibre props

98 Westermoor  
Blackfell, Washington  
Tyne & Wear  
Tel: Washington 466549

## AMERICAN AERO-MODELLING MAGS

R/C Modeller .....	£1.20p
M.A.N. ....	£1.20p
Flying Models .....	£0.80p
Scale Modeller .....	£1.65p

Current - and some back issues available  
**THE AVIATION BOOKSHOP**  
656 Holloway Rd, London N19 3PD

## FLYING SCALE PLANS

A.B.C. Robin, 25.3in Span 75p. Sopwith Pup 17.6in Span 75p. For CO<sub>2</sub> power. Adaptable to rubber power. Detailed plan with building and flying instructions. U.K. customers please add 15p p&p. AVAILABLE NOW - FINE WHITE TISSUE. 5p/sheet, min. order 5 sheets - add 20p for rolled tissue. Cash with order please.  
**MODEL DESIGN AND DRAUGHTING**  
Dept A.M., 4 Martian Avenue, Hemel Hempstead, Herts HP2 5PL.

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

# The CONTROL LINE *Aeromodeller*

on sale  
August 26th  
price 95p



## A fact packed SPECIAL on C/L model technique!

As flying sites become harder to find and costs of materials soar, the advantages of control line modelling become ever clearer. Beginners appreciate the attraction of operating a model engine and they can choose ultra simple, quick-to-build models.

Naturally, *AeroModeller* caters for the C/L enthusiast, but each issue must also meet the interests of other modellers. In contrast, this publication is just for the C/L enthusiast. Topics covered include operating plastic aircraft; cutting expanded polystyrene wings; designing combat and scale models; hinging control surfaces; trimming out stunters; mixing fuel; interviews with experts and many more interesting features.

Packed full of really useful information, for beginner and expert, it is bound to become a handy reference work and there is a full size plan for a very simple multi-purpose model, perfect as a basic trainer or advanced sport flying.

**AVAILABLE FROM MODEL SHOPS AND NEWSAGENTS**

Published by:

**MODEL & ALLIED PUBLICATIONS LTD.**

P.O. BOX 35, BRIDGE STREET, HEMEL HEMPSTEAD, HERTS HP1 1EE

Tel.: Hemel Hempstead 63841-2-3 (Mon.- Fri.)

TIME FOR A LATE HOLIDAY!

### GLIDING IN KENT

From Sept 27th - Oct 22nd  
For £77.0 p.w. all inclusive

**KENT GLIDING CLUB**  
Challock, Ashford, Kent  
Write or ring Challock (023 374) 274

**The Cornish Gliding and Flying Club**  
Travillas Airfield, Perranporth, Cornwall  
Tel. Perranporth 2124

Gliding courses in modern fleet from May —  
B.G.A. fully-rated instructors — fine soaring —  
lovely coastal airfield — ideal for a different  
holiday. Details with pleasure from:  
The Course Secretary, Tremearne,  
Braage, Helston, Cornwall  
Tel. Helston 62294

### QUICKSTART SERVICE

All Davies-Charlton engine repairs &  
overhauls are conducted by the ap-  
pointed service agents.

**JOHN D. HAYTREE  
FOX MANUFACTURING  
CO. (U.K.)**

Shutterton Industrial Estate  
Dawlish, Devon EX7 0NH  
Tel. (0624) 864564

Send engines direct for quotation or  
with order for specific repair.

## GLIDING

IT'S THE ONLY PLACE TO GO!

Weekly Residential Courses from £78

**WHERE'S THIS—  
LASHAM!**

Derek Piggott, our CFI leads a team of  
professional instructors second to none  
We shall be pleased to send you details,  
apply:  
Manager,

**LASHAM AIRFIELD,  
Nr. ALTON, HANTS**  
Telephone Harriard 270

Old-established and world renowned  
model shop in London area has vacan-  
cies for sales staff due to expansion  
programme.

Applicants should apply in writing  
giving details of any modelling ex-  
perience to:

**Box Number 990  
c/o AeroModeller  
13-35 Bridge Street  
Hemel Hempstead, Herts**

Why not try a Gliding Holiday this year?

Accommodation in a village inn and instruction  
by professionals at our lovely site in the Coo-  
wolds. Bring your camera and record the  
holiday of a lifetime.

Write to: **The Holiday Manager**  
Bristol & Glos Gliding Club  
Nympsfield, Stonehouse, Glos  
GL10 3TX. Uley 342

Take a holiday gliding course with the  
**YORKSHIRE GLIDING CLUB**

Fully residential clubhouse with licensed bar  
— full-time professional instructors — wave and  
hill soaring — modern fleet of gliders and tug  
aircraft — winch and aerotow launches —  
Falke motor glider

For brochure write to: **The Secretary,**  
Yorkshire Gliding Club, Sutton Bank,  
Thirsk, Yorks. Tel. Sutton (Thirsk) 237

### IRELAND

#### Skyleader R/C System

Large selection of kits by MK, Veron,  
M.F.A., Kamco, Ripmax, True-Line,  
Keil Kraft, etc.

#### O.S. ENGINES

Accessories by Kavan, M.F.A., Micro-  
Mold, SLEC, Ripmax, PB, Goldberg,  
Taylor, MK, TopFlite

**SOLARFILM - EPOXY - DOPES**

See the selection at:

**W. J. OWENS**  
41 Main Street, Bray  
(Phone: Dublin 863664)

**PRICES QUOTED ARE THOSE PREVAILING AT PRESS DATE AND ARE  
SUBJECT TO ALTERATION DUE TO ECONOMIC CONDITIONS**

# SHOP GUIDE

## READERS PLEASE NOTE:

Due to soaring postals charges many retailers are unable to answer postal enquiries unless accompanied by a stamped addressed envelope.

★Mail Order  
Welcome

## DEALERS —

get your shop on the MAP guide for only £42 a year — telephone Hemel Hempstead 55499 NOW

## MODELLERS —

buy with confidence from these well-stocked shops

### AUSTRALIA

**MELBOURNE 3000** Tel. 347 8029  
RIVERSIDE HOBBY CENTRE ★  
16 LITTLE LATROBE STREET  
9am-5.30pm Mon-Fri. 9am-12 noon Sat

### AVON

**BRISTOL 5** Tel. 557764  
AVONAIRE MODELS ★  
351 CHURCH ROAD, ST GEORGE  
9am-6pm Mon-Thurs. Late night Fri 7pm.  
Half day Wed

**BRISTOL** Tel. 662544  
BEV'S MODELS  
35 WEST STREET, BEDMINSTER  
10am-6pm. Late night Fri 7pm

**BRISTOL 1** Tel. 23714  
MODELLERS DEN  
65 FAIRFAX STREET  
Open 9am-5.30pm Mon-Sat

### BEDFORDSHIRE

**LUTON** Tel. 23182  
AEROMODELS (LUTON) LTD.  
20 GORDON STREET  
Open 9am-5.30pm. Closed Wed

**LUTON** Tel. 36218  
TAYLOR & MCKENNA  
73 ARNDALE  
Open: 9am-5.30pm Mon to Thurs. 9am-6pm  
Fri and Sat

**LUTON** Tel. 28435  
MAPLE MODELS ★  
16 MAPLE ROAD  
9.00am-5.30pm. Lunch 1.30pm-2.30pm  
Closed Monday

### BERKSHIRE

**NEWBURY** Tel. (0635) 46004  
TRENTS MODELS ★  
25-26 CHEAP STREET  
9am-5.30pm Mon-Sat

**READING** Tel. 51558  
READING MODELS ★  
5 CHATHAM STREET  
9am-5.30pm each weekday

**READING** Tel. (0734) 586899  
TRENTS MODELS ★  
51 BUTTS CENTRE  
9am-5.30pm Mon-Sat

**SLOUGH** Tel. Slough 39419  
SLOUGH RADIO CONTROL MODELS ★  
273 HIGH STREET  
Mon, Tue, Thurs & Sat 9.30am-6pm  
Wed 9.30am-1pm  
Fri 9.30am-8pm

### BUCKINGHAMSHIRE

**AYLESBURY** Tel. 85752  
TAYLOR & MCKENNA LTD  
46 FRIARS SQUARE  
Mon-Thurs 9am-5.30pm. Fri-Sat 9am-6pm

**BLITCHLEY** Tel. MILTON KEYNES 70478  
TAYLOR & MCKENNA LTD  
14 THE CONCOURSE, BRUNEL CENTRE  
Mon-Thurs 9am-5.30pm. Fri-Sat 9am-6pm

**MILTON KEYNES** Tel. M.K. 312553  
WOLVERTON MODELS & HOBBIES ★  
26 CHURCH STREET, WOLVERTON,  
MILTON KEYNES  
Open: Mon-Sat 9.00am-6.00pm. Half day Wed

### CAMBRIDGESHIRE

**CAMBRIDGE** Tel. 59620  
MODEL MANIA ★  
17 KING STREET  
9am-5.30pm Tues-Sat. Closed Mondays

### CHANNEL ISLANDS

**JERSEY** Tel. Central 21993  
THE HOBBY CENTRE ★  
8 COLOMBIERIE PARADE, ST HELIER  
Open 9am-6pm  
Closed half-day Thursday

### CHESHIRE

**STOCKPORT** Tel. 061-480 5478  
THE MODEL SHOP  
280 WELLINGTON ROAD SOUTH  
Open Mon-Sat 9am-5.30pm. Closed Tuesdays

### CLEVELAND

**MIDDLESBROUGH** Tel. 211212  
MODELDROME ★  
265 LINTHORPE ROAD  
9.30am-6pm. Closed Wed

### CO DURHAM

**DARLINGTON** Tel. 69870  
BANK TOP CYCLE & MODEL SHOP  
BRIDGE TERRACE, YARM ROAD  
Open 9.00am-5.30pm. Closed Monday

### DEVON

**EXETER** Tel. 0392 58417  
EXETER MODEL CENTRE ★  
98 SOUTH STREET  
Open Monday-Saturday 9-5.30

**PLYMOUTH** Tel. 0752 21851  
PLYMOUTH MODEL CENTRE  
11 OLD TOWN STREET  
9am-5.30pm Mon-Sat

**PLYMOUTH** Tel. (0752) 53330  
RUNWAY SOUTHWEST  
16 DEVENPORT ROAD  
STOKE, PLYMOUTH  
Mon-Sat 9am-6pm. (Late night Friday 8pm)

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

**TORBAY** Tel. 0803 521767  
MANSEL'S MODELS ★  
PALACE AVENUE, PAIGNTON  
Open 9.15am-5.30pm Mon-Sat inclusive  
Half day Wed

**SOUTHAMPTON** Tel. 25919  
HOBBY LOBBY LTD ★  
52 COMMERCIAL ROAD  
Open 9.30am-5.30pm Mon-Fri  
Sat 9.30am-5pm

**KOWLOON** Tel. 3-800155  
SCIENTIFIC HOBBIES LTD ★  
185-D PRINCE EDWARD ROAD  
Open 10am-8pm  
Sunday Closed

**TORQUAY** Tel. 27764  
TORBAY MODEL SUPPLIES LTD ★  
59 VICTORIA ROAD, ELLACOMBE  
Open 9.15am-12.45pm and 2.15pm-5.45pm  
Half day Wed

**SOUTHAMPTON** Tel. 29223  
SOLENT MODELS LTD ★  
60 OXFORD STREET SO1 1DL  
Open Mon-Sat 9.30am-6pm  
Fri 9.30am-7.30pm

**HONG KONG** Tel. 3-484184  
WINNING MODEL & HOBBY SUPPLIES  
2a AUSTIN AVENUE  
KOWLOON, HONG KONG  
Open 10am-7pm. Closed Sun

## DORSET

**BOURNEMOUTH** Tel. 763480  
WESTBOURNE MODEL CENTRE  
59 SEAMOOR ROAD, WESTBOURNE  
9am-5.30pm Mon, Tues, Thurs, Sat.  
9am-7.30pm Fri. Closed Wed

## HEREFORDSHIRE

**HEREFORD** Tel. (0432) 4152  
FRED PERKINS LTD ★  
48c COMMERCIAL ROAD  
Open 9am-5.30pm. Half day Thurs

## KENT

**BROMLEY** Tel. 01-460 0818  
AVICRAFT LTD ★  
6 CHATTERTON ROAD  
10am-6pm (not closed for lunch) except  
Wed 10am-1pm

**BOURNEMOUTH** Tel. Northbourne 4170  
J. & H. MODELS ★  
1288 WIMBORNE ROAD, NORTHBOURNE  
Mon-Thurs 9am-5.30pm. Fri 9am-6.30pm  
Sat 9am-6pm. Half day Weds

## HERTFORDSHIRE

**HATFIELD** Tel. 63404  
DESIGN AND HOBBIES ★  
5 MANOR PARADE  
Open 9.30am-6.30pm (Thurs 7.30pm)  
Half day Wed

**CANTERBURY** Tel. 69888  
THE MODEL SHOP ★  
83 NORTHGATE CT1 1BA  
Open 9am-5.30pm inc. Sat  
Closed all day Thursday

## ESSEX

**WICKFORD** Tel. (037 44) 2621  
WICKFORD MODEL EXCHANGE ★  
ST PETERS TERRACE, LONDON ROAD  
Open 9am-7pm Mon, Thurs, Fri, Sat.  
10am-1pm Sun

**HEMEL HEMPSTEAD** Tel. 53691  
TAYLOR & McKENNA LTD  
203 MARLOWES  
Mon-Thurs 9am-5.30pm, Fri-Sat 9am-6pm

**MAIDSTONE** Tel. 51719  
THE MODEL SHOP ★  
19-23 UPPER STONE STREET  
Open 9.30am-1pm, 2.30pm-5.30pm  
Closed all day Wed

**WOODFORD BRIDGE** Tel. 01-504 3602  
ARNOLD'S GIFT SHOP ★  
656 CHIGWELL ROAD  
Open 9am-6pm Mon-Sat. Closed Wed

**HERTFORD** Tel. 50101  
MODELLERS WORLD  
17 RAILWAY STREET  
Open 9.30am-6.00pm  
Closed Friday 7.30pm  
Closed Monday

**NEW ASH GREEN** Tel. 0474 872136  
THE HOBBY HOUSE  
10 UPPER STREET NORTH  
Open 9am-5.30pm. Closed Mon

## HAMPSHIRE

**ANDOVER** Tel. 61307  
RADIO CONTROL SUPPLIES ★  
1a UNION STREET  
Open 9am-6pm. Fri 9am-8pm

**LETCHWORTH** Tel. Letchworth 73263  
REDHILL MODEL SUPPLIES  
62 LEYS AVENUE  
10am-6pm. Thurs open till 7.30pm. Closed all  
day Wed

**SWANLEY** Tel. 67457  
SWANLEY MODEL CENTRE ★  
(Formerly H & J Electronics)  
39 HIGH STREET  
Open 9.30am-6pm. Half day Wed

**FAREHAM** Tel. 4136  
G. M. H. BUNCE & CO LTD ★  
206 WEST STREET  
Open 9am-5.30pm. Closed Wed

**POTTERS BAR** Tel. 59355  
HENRY J. NICHOLLS & SON LTD  
8 SOUTHGATE ROAD  
9.30am-6pm. Closed all day Thurs.  
Fri 9.30am-8pm

**TUNBRIDGE WELLS** Tel. 36689  
E. M. MODELS ★  
42 CAMDEN ROAD  
Mon-Sat 9am-5.30pm. Closed Wed

**PORTSMOUTH** Tel. 25049  
RAY BROWN MODELS ★  
10 KINGSTON ROAD  
Mon 9am-6pm, Tues 10am-5.30pm,  
Thurs 10am-6pm, Fri 9am-6pm  
Sat 9am-5.30pm. Lunch 1.30pm-2.30pm

**ST ALBANS** Tel. 53954  
SAMS  
12 HATFIELD ROAD  
Mon-Fri 9am-6pm Sat 9am-5.30pm

## LANCASHIRE

**BURNLEY** Tel. 23983  
A.D. MODEL SUPPLIES ★  
22 PLUMBE STREET  
10am-6pm Mon-Fri. Sat 9am-5.30pm

**SOUTHAMPTON** Tel. Eastleigh 617849  
EASTLEIGH MODEL CENTRE  
2a HIGH STREET, EASTLEIGH  
Open 9am-6pm. Half day Wed

## HONG KONG

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

**BURY** Tel. 061-764 5787  
M & T ELECTRONICS ★  
(NORMAN McPARLAND)  
52/54 BOND STREET  
10am-6pm. Thursdays till 8pm. Closed Tues

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

**FARNWORTH** Tel. 0204 74688  
JOYCRAFT  
3 BOLTON ROAD, MOSES GATE  
Open Mon-Sat 9am-6.30pm  
Closed all day Wednesday

**LEIGH** Tel. Leigh 677152  
LEIGH MODEL CENTRE ★  
4 QUEEN STREET  
Mon-Sat 9am-6pm. Wednesday 9am-1pm

**LIVERPOOL** Tel. 051-709 8039  
STAN CATCHPOLES MODEL WORLD ★  
85 BOLD STREET  
9.30am-5.30pm. Six days

**MANCHESTER** Tel. 061-834 3972  
THE MODEL SHOP (MANCHESTER)  
209 DEANS GATE  
Mon-Fri 9.30am-6pm. Sat 9.00am-5pm

**MANCHESTER** Tel. 061-794 4084  
LISTERS MODEL SUPPLIES  
285 EAST LANCASHIRE ROAD, SWINTON  
Closed all day Wed. Open Sun 10.30am-1pm

**WIGAN** Tel. 45683  
G. FORSHAW & SON  
58 MARKET STREET  
Open 9.15am-5.45pm. Early Closing Wed

### LEICESTERSHIRE

**HINCKLEY** Tel. 30952  
PUNTILO MODEL SPOT ★  
& WATERLOO ROAD  
Open: Mon 9.15am-7pm. Tues 2pm-7pm.  
Wed & Thurs 5.30pm-7pm. Fri 9.15am-7pm.  
Sat 9.15am-5pm

**LEICESTER** Tel. 544529  
RADIO CONTROL SUPPLIES ★  
52a LONDON ROAD  
Open 9am-6pm. Fri 9am-8pm

### LINCOLNSHIRE

**LINCOLN** Tel. 25907  
MODEL CENTRE ★  
24 NEWLAND  
10am-5.30pm. Closed all day Wed

**STAMFORD** Tel. 4524  
SPORTS & HOBBIES ★  
4 ALL SAINTS STREET  
Open 9am-5.30pm. Half day Thurs

### LONDON NORTH

**CAMDEN TOWN** Tel. 01-485 1818  
AERONAUTICAL MODELS ★  
39 PARKWAY, NW1  
9.15am-5.30pm Tues-Fri. 9.15am-5pm Sat.  
Closed all day Mon

**LONDON** Tel. 01-607 4272  
HENRY J. NICHOLLS & SON LTD ★  
308 HOLLOWAY ROAD, N7  
Monday to Friday 9am-6pm  
Saturday 9am-5.30pm

**NORTH FINCHLEY** Tel. 01-445 6531  
MICHAEL'S MODELS ★  
646-648 HIGH ROAD, N12  
Open Mon-Sat 9.00am-6.00pm

### LONDON NORTH WEST

**MILL HILL** Tel. 01-959 2877  
H. A. BLUNT & SONS LTD. ★  
133 THE BROADWAY  
NW7 4RN  
Open: 9am-6.30pm Mon-Fri  
9am-6pm Sat

### LONDON SOUTH

**ELTHAM** Tel. 01-850 4324  
ELTHAM MODELS ★  
54 WELL HALL ROAD SE9  
Mon-Sat 10am-5.30pm. Closed Thurs

**FULHAM** Tel. 01-385 9864  
PATRICK MODELS ★  
107-111 LILLIE ROAD, SW6  
Mon, Sat 9am-5.30pm. Thurs 9am-1pm

**LEWISHAM** Tel. 01-852 2637  
LEWISHAM MODEL CENTRE ★  
45 LEE HIGH ROAD, SE13  
Mon-Sat Closed 6pm. Thurs Closed 1pm

**LONDON** Tel. 01-228 6319  
E. F. RUSS ★  
101 BATTERSEA RISE, SW11  
Open Fri till 7pm. Other days 9am-6pm. Early  
closing Wed 1pm

### LONDON EAST

**LONDON** Tel. 01-520 7397  
ARNOLD'S GIFT SHOP  
132-134 HOE STREET, E17  
Open 9am-6pm Mon-Sat. Closed Wed

**PLAISTOW** Tel. 01-472 2471  
A. G. HERMITE ★  
633 BARKING ROAD, E13  
Open 9am-6pm. Closed all day Thurs

### MIDDLESEX

**EASTCOTE** Tel. 01-866 7631  
LANCASTER MODEL CRAFT ★  
217 FIELD END ROAD  
Mon-Thurs 9am-6pm. Fri 9am-7pm  
Early Closing Wed

**HARLINGTON** Tel. 01-897 2326  
RADIO CONTROL MODEL CENTRE ★  
214 HIGH STREET  
Mon, Tues, Thurs, Sat, 9am-6.30pm  
Fri 9am-8.30pm. Wed closed all day

**HARROW** Tel. 01-863 9788  
THE MODEL SHOP ★  
190-194 STATION ROAD  
9.30am-6pm Mon-Sat. Half day Wed 1pm

**ISLEWORTH** Tel. 01-560 0473  
RADIO CONTROL SUPPLIES ★  
581 LONDON ROAD  
Open 9am-6pm. Fri 9am-8pm

**KENTON** Tel. 01-204 9867  
HOBBIES AND MODELS  
217/219 STREATFIELD ROAD  
QUEENSBURY CIRCLE  
Open 9am-6pm. Thurs 9am-8pm  
Closed all day Wed

### NORFOLK

**AYLSHAM** Tel. 3145  
THE MODEL SHOP  
PENFOLD STREET  
9.00am-5.00pm Mon-Sat  
Half day Wed 12.30pm

**KINGS LYNN** Tel. 63164  
BARNEY'S MODEL SHOP  
SOUTH EVERARD STREET  
Open 9am-6pm

**NORWICH** Tel. 618023  
GALAXY MODELS ★  
107 WADDINGTON STREET  
Open 6 days a week

### NORTHANTS

**NORTHAMPTON** Tel. 31223  
THE MODEL SHOP ★  
230 WELLINGBOROUGH ROAD  
Open 9am-6pm. Half day Thurs

**NORTHAMPTON** Tel. 27726  
TAYLOR & MCKENNA LTD  
41-43 PRINCES WALK  
GROSVENOR CENTRE  
Mon-Thurs 9am-5.30pm. Fri-Sat 9am-6pm

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

**STAFFORDSHIRE**

**WELLINGBOROUGH** Tel. Wellingborough 226263  
**D. B. MODELS** ★  
 17 SILVER STREET  
 Open 10am-6pm Mon-Sat

**BURTON-ON-TRENT** Tel. 64240  
**J. & N. MODELS** ★  
 22 DERBY STREET  
 Open 9am-5.30pm. Closed Wed

**KINGSTON on THAMES** Tel. 01-546 4488  
**MICK CHARLES MODELS** ★  
 180 LONDON ROAD  
 Mon, Tues, Thurs, 9.30am-6.30pm  
 Wed 9.30am-1pm. Fri, Sat 9.30am-9pm

**NORTHUMBERLAND**

**NEWCASTLE UPON TYNE** Tel. 22016  
**THE MODEL SHOP** ★  
 18 BLENHEIM STREET  
 Mon-Fri 9am-5.30pm. Sat 9am-6pm  
 Closed Wed all day

**STAFFORD** Tel. 3420  
**JOHN W. BAGNALL LTD.** ★  
 18 SALTER STREET  
 9am-5.30pm. Closed all day Wed

**WOKING** Tel. 66493  
**WOKING MODELS** ★  
 9 GOLEDSWORTH ROAD  
 Open 9am-6pm Mon-Sat. Closed Wed after-noon

**NOTTINGHAMSHIRE**

**NOTTINGHAM** Tel. 50273  
**GEE DEE MODELS LTD** ★  
 19-21 HEATHCOTE ST. OFF GOOSEGATE  
 Open 9.30am-5.30pm. Early closing Thurs

**STOKE-ON-TRENT** Tel. 263574  
**JOHN W. BAGNALL LTD.** ★  
 30 PICCADILLY, HANLEY  
 9am-5.30pm. Closed all day Thurs

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

**SUTTON-IN-ASHFIELD** Tel.  
**MODELLERS CORNER** Mansfield 58157 ★  
 146 OUTRAM STREET  
 Open: Mon-Fri 9am-8pm  
 Sat 9am-6pm  
 Half day Wed (1pm)

**WOLVERHAMPTON** Tel. 26709  
**WOLVERHAMPTON MODELS & HOBBIES** ★  
 BELL ST. MANDERS CENTRE  
 9am-5.30pm Mon-Sat. Early Closing Thursday

**CHICHESTER** Tel. 83592  
**PLANET MODELS & HANDICRAFTS** ★  
 108 THE HORNET  
 Open 9am-1pm and 2pm-6pm. Closed Thurs

**WORKSOP** Tel. 2855  
**RUSSELL MODELS** ★  
 MODEL CENTRE, RYTON STREET  
 Closed all day Thursday

**SUFFOLK**  
**IPSWICH** Tel. 51195  
**BOWMANS OF IPSWICH** ★  
 37/39 UPPER ORWELL STREET  
 Open 9am-5.30pm Mon-Sat  
 Early closing Wed

**CRAWLEY** Tel. 21921  
**HEATHER CRAFT** ★  
 60 HIGH STREET  
 9am-5.30pm Mon-Sat. Half day Wednesday

**OXFORDSHIRE**

**ABINGDON** Tel. 21927  
**F. KNIGHT & SON** ★  
 44 BATH STREET  
 Open 8.30am-1pm/2pm-5.30pm. Late night  
 Fri 6pm. Closed all day Thurs

**IPSWICH** Tel. 79279  
**GALAXY MODELS** ★  
 160 FELIXSTOWE ROAD  
 Open 6 days a week

**HORSHAM** Tel. 61533  
**MODEL CORNER** ★  
 30 NORTH STREET  
 Open 9am-5.30pm Mon-Sat. Closed Thursday  
 afternoons

**OXFORD** Tel. 42407  
**HOWES MODEL SHOP** ★  
 9-10 BROAD STREET  
 Open 8.45am-5.30pm. 6 day week

**SURREY**  
**ADDLESTONE** Tel. Weybridge 45440  
**ADDLESTONE MODELS LTD** ★  
 63 STATION ROAD  
 Open 9am-6pm. Closed all day Wednesday.  
 Late night Friday 6.30pm

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

**SCOTLAND**

**GLASGOW** Tel. 041-632 8326  
**RIDDELL BROS** ★  
 61 MOUNT ANNAN DRIVE  
 Open 9am-6pm. Half day Tues

**FARNHAM** Tel. 26128  
**FARNHAM MODELS** ★  
 57A DOWNING STREET  
 Tues, Thurs, Fri, Sat 10am-5pm. Sun 9.30am-11.30am

**WALES**  
**CARDIFF** Tel. 29065  
**BUD MORGAN** ★  
 22 CASTLE ARCADE  
 SOUTH GLAMORGAN CFI 28W  
 9am-5.30pm. Early closing Wed 9am-1pm

**SOMERSET**

**BRIDGWATER** Tel. 3632  
**R.M. TOYS AND MODELS** ★  
 36 ST. JOHN STREET  
 Open 9am-5.30pm. Half day Thurs

**GRAYSHOTT** Tel. Hindhead 6135  
**GRAYSHOTT MODELS** ★  
 5 HEADLEY ROAD, HINDHEAD  
 Mon-Sat 9.00am-5.30pm  
 Early Closing Wed

**CARDIFF** Tel. 31367  
**RYALL & WALTERS RADIO MODELS** ★  
 34 LLANDAFF ROAD  
 Open 9am-12.30pm/1.30pm-5.30pm Monday  
 8pm. Closed Wed

**MINEHEAD** Tel. 2516  
**OASIS MODELS** ★  
 44A THE AVENUE  
 9am to 6pm, 10pm Fridays. Will open Sun by  
 request

**HORLEY** Tel. 2412  
**HORLEY MODELS** ★  
 91 VICTORIA ROAD  
 9.15am-5.30pm  
 Closed Wed

**CWMBRAN** Tel. 66727  
**THE HOBBIES SHOP** ★  
 32 THE PARADE (on the balcony), GWENT  
 9.30am-5.30pm. Half day Wed  
 Open late Fri, 7pm

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

**FLINT** Tel. 3123  
FLINT MODELS ★  
5-9 CHURCH STREET  
Open five days 9am-5.30pm. Closed all day  
Wednesday

**SWINDON** Tel. 32829  
THAMESDOWN HOBBIES ★  
21 HIGH STREET, OLD TOWN  
9.30am-5.30pm Mon-Sat  
Early Closing Wed 1pm

**HUDDERSFIELD** Tel. 45570  
WEST YORKS MODELS ★  
61 WAKEFIELD ROAD  
Mon-Sat 9.30am-5.30pm  
Closed all day Wednesday

**NEWPORT** Tel. 65061  
MAKE A MODEL  
123 COMMERCIAL STREET  
Mon to Sat 9am-5.30pm  
Late Friday - 8pm

**WORCESTERSHIRE**  
**EVEHAM** Tel. 45828  
P. & R. MODELS ★  
8 VINE MEWS  
Mon, Tues, Thurs, Fri, Sat, 9.15am-6pm  
Closed all day Wed

**LEEDS** Tel. 646117  
FLYING MODELS ★  
88 CROSSGATES ROAD, CROSSGATES  
Mon-Sat 6am-6pm, Sun 8am-1pm

**SWANSEA** Tel. (0792) 52877  
SWANSEA MODELS & HOBBIES ★  
11 SHOPPERS WALK, OXFORD STREET  
GLAMORGAN  
Mon, Tues, Wed, 9.30am-5.30pm, Thurs,  
9.30am-1pm, Fri and Sat 9.30am-6pm

**QUINTON** Tel. 021-422 1000  
HOBBY SPOT ★  
280 HAGLEY ROAD WEST  
Weekdays 9.30am-6.30pm, Sat 9.30am-5.30pm  
Wed closed

**LEEDS** Tel. Leeds 787073  
LEEDS MODEL RAILWAY CENTRE ★  
(AERO-R/C EQUIP DEPT.)  
10 ST. ANNE'S ROAD, HEADINGLEY  
Open six full days

### WARWICKSHIRE

**BIRMINGHAM 10** Tel. 021-772 4917  
BOB'S MODELS ★  
520-522 COVENTRY ROAD, SMALL HEATH  
Open 9.45am-6.30pm. Early closing Wed  
1.30pm

### YORKSHIRE

**BARNSELY** Tel. 6222  
DON VALLEY SPORTS  
28 DONCASTER ROAD  
Open 9am-5.30pm Mon-Sat  
Closed Thursday

**LEEDS** Tel. 457891  
THE MODEL SHOP (LEEDS) LTD ★  
38 MERRION STREET  
Open 9am-5.45pm Half day Wed

**BIRMINGHAM** Tel. 021-444 2369  
PEARLE'S NEWSAGENTS & MODEL  
SUPPLIES  
8 YORK ROAD, KINGS HEATH  
Open Mon-Fri 8am-6.30pm, Sat 8am-7pm  
Sun 8am-1.30pm

**BATLEY** Tel. 479300  
BOB'S MODELS (BATLEY) ★  
4 OXFORD STREET, MOUNT PLEASANT  
Open: Mon-Thurs 9am-6pm, Fri 9am-7pm,  
Sat 9am-5.30pm. Closed all day Tuesday

**OTLEY** Tel. 56334  
H. & S. CLIFF  
FLYING MODELS  
57 GAY LANE  
Mon-Sat 6am-6pm

**BIRMINGHAM** Tel. 021-554 5569  
MODEL MECCA  
(G. I. & N. ROWAND)  
204 WHITTON ROAD  
Open 9am-6.30pm, Wed 9am-1.30pm  
Sat 9am-6pm

**BRADFORD 8** Tel. 26186  
MODEL DROME ★  
182 MANNINGHAM LANE  
9.30am-5.45pm. Closed Wed

**YORK** Tel. 0904-34281  
YORK MODEL CENTRE ★  
17 DAVYGATE CENTRE, DAVYGATE  
Open Mon-Sat 9.00am-6.00pm  
No half day

**SOLIHULL** Tel. 021-744 3374  
SHIRLEY MODEL SUPPLIES  
62 STRATFORD ROAD, SHIRLEY  
9am-6pm Mon-Sat

**DONCASTER** Tel. 62524  
B. CUTTRISS & SONS  
40 DUKE STREET  
Open 9am-5.30pm. Closed all day Thurs

**YORK** Tel. 23704  
YORK MODELS LTD ★  
69 EAST PARADE, HEWORTH  
Open 9am-5.30pm Closed all day Wednesday

### WILTSHIRE

**SWINDON** Tel. 26878  
SWINDON MODEL CENTRE ★  
2 CIVIC CENTRE, THEATRE SQUARE  
(Next to Wyvern Theatre)  
Open daily 9am-5.30pm  
Open all day Wednesday

**DONCASTER** Tel. 20767  
SOUTH YORKSHIRE MODEL SUPPLIES ★  
313 BENTLEY RD, BENTLEY  
Mon, Tue, Wed, Sat 10am-6pm  
10am-8pm Friday, Closed Thurs

**MODEL SHOPS!**  
This space could be yours—phone  
Hemel Hempstead 55499  
for details NOW!



## IMPORTANT: CHANGES OF ADDRESS

FOR OFFICERS OF THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

Hon. Secretary: Mrs. J. Halman,  
18 Walcot Avenue,  
Luton,  
Beds.  
Tel: Luton 414678

Membership Secretary: Mrs. M. Horwood,  
145 Downend Road,  
Horfield,  
Bristol, BS7 9PY  
Tel: Bristol 48869

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS



# THE RANGE OF P.A.W.

HIGH PERFORMANCE DIESEL ENGINES



BACKED BY 'BY RETURN' SPARES SERVICE

P.A.W. 1.49DS	— Squish Head	— £7.50	Plus VAT
P.A.W. 2.49DS	— Squish Head	— £8.00	
P.A.W. 19DS	— Squish Head	— £8.50	

All engines are now specially ported to produce a good performance when used with silencers or mufflers. All now also feature Squish Head type combustion chambers.

**PROGRESS AERO WORKS**  
CHESTER ROAD,  
MACCLESFIELD, CHESHIRE, ENGLAND  
SK11 8PU

# FLY IT



**IN YOUR BACK GARDEN WITH AN ELECTRIC R.T.P. SYSTEM**

25p in stamps brings an illustrated catalogue of specialised equipment and the name of your nearest stockist.



**HARRY BUTLER (Models)**

Unit 13, Brunel Road, Gorse Lane Ind. Estate, Clacton, Essex  
Telephone: Clacton (0255) 29190

## Modelling in precision with MINIATURE POWER EQUIPMENT



DRILLS



POLISHING FELTS



SANDERS



SAWS

Precision and versatility are two of the most essential qualities of good modelling.

The P1 Precision Petite outfit has just these attributes. In the hand for jobs in 'situ' - on the stand for utmost precision, the palm sized drill operates from 2 x 4 5v batteries or a transformer giving 12-14v D/C output. Drilling, cutting, shaping, polishing etc. etc. all come easily to this remarkable outfit.

Find out all about it today.

**NEW!** The P2 DRILL - more powerful, now available at £16.50, p & p 86p., and S2 DRILL STAND (holds both drills) at £18.50, p & p 106p.

Please send SAE 9 x 4 for illustrated details

**SUPER 30 KIT** - 30 tools incl drill without stand £19.39 pp £1  
**S1 DRILL STAND** £5.13 pp 38p  
**P1 DRILL** £9.67 pp 38p  
**FLEXIBLE DRIVE SHAFT** £5.94 pp 34p

**TRANSFORMER** £9.50 pp 81p  
continuous ac 12v dc

**VARIABLE SPEED TRANSFORMER** £9.50 pp 81p

**REPLACEMENT ACCESSORIES** drills, burrs, sanders, etc. 40p

**CIRCULAR SAWS** Set of four with arbor £3.50

VAT included in all prices. p&p for spares any quantity 25p



Sole UK Distributors

## PRECISION PETITE LTD

119a HIGH STREET

TEDDINGTON MIDDLESEX TW11 8HG

TEL: 01-977 0878 - 24 Hour recorded service



KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

# MAPLE MODELS

(Steve Blake)

"ENGINE CLINIC". Try us first for all your spares, repairs and special work requirements.

**GLASS FIBRE PROPS.** We are receiving limited supplies of a leading British make, please enquire for details.

**S/H ENGINE OF THE MONTH.** Super Tigre X 29, almost as new, in box, std. plug head, £30.

**O.S.25 FSR-S** new high power, inc. silencer, £30.19.

**NEW KITS.** Humbrol "Mistral" 39in. glider £4.95. Humbrol "Sirocco" 58in. glider £8.45. P&P 50p per kit.

"Pilot" C/L & F/F range, write for details, from £2.45.

**MAPLE LEAF** newsletter, includes S/H lists. SAE brings copy.

Mail order a pleasure - SAE with Enquiries please  
Access - Barclay Card - Hire Purchase - Welcome

16 Maple Road, Luton LU4 8AE Tel: 0582-28435



# SCOTLAND

## EAST AND WEST

Now making personal shopping more practical for the majority of Scottish modellers—but still only as far away as the telephone if it has to be mail-order

**Authorized Skyleader Service Agents**

## DUNNS MODELS

26 GLASGOW ROAD  
PAISLEY TEL 041 840 1381

29 SCOTT STREET  
PERTH TEL 0738 24540

## NJM FOR RADIO CONTROL AIRCRAFT KITS & ACCESSORIES

PRICES INC. VAT E. & O.E

RipMax Spitfire 63in.	£28.95	R/C BY MACGREGOR (12½% VAT)	
Moonshiner Biplane	£23.95	all incl. Servos (5), dry batt. (D).	
Keil Kraft SE5A	£21.74	Nicada (N)	
Gangster 63	£18.95	MR1020D/15	£38.00
Super Fly	£24.95	MR1222D/25	£58.00
Magnum 20	£14.95	MR1223D/25	£49.95
Ivinghoe '2'	£14.90	MR1424N/45	£138.00
Instructor 58in.	£22.95	MR1624N/45	£149.00
Pioneer	£17.30	EXTRA MR12 Servos	£15.00
Fokker D8 46in.	£14.95	<b>BOOKS:</b>	
Kamco Cadet	£17.95	R. CONTROL GUIDE	£2.95 p&p 49p
Webra 40F RCA	£46.00	Basic Aeromodelling	£2.95 p&p 35p
ENYA 29 RCA	£18.75	R/C Helicopter Mods.	£3.50 p&p 25p
MERCO 49 RCA	£27.95	R/C PRIMER	£2.00 p&p 30p

PAYBONDS, BARCLAYCARD, ACCESS, HOBBY CARD ACCEPTED

Second hand equipment bought and part exchanged

Stamped Addressed Envelope With All Inquiries Please

NORWOOD JUNCTION MODELS LTD. Hours: 9.30-6.00  
Early closing Wed. 1 p.m.  
3 Orton Buildings, Portland Rd., London, S.E.25 Tel. 01 463 4943

look!

**DIESEL and GLOPLUG AERO ENGINES**

DC Wasp 0-8cc	£4.12
DC Merlin 0-76cc	£5.78
DC Spitfire 1cc	£6.29
DC Sabre 1-5cc	£6.44
Enya 19 R/C	£15.10
Mills -75	£7.36
Fox 15	£11.05
P.A.W. 1 49 DS	£7.00
P.A.W. 19 DS	£8.00
P.A.W. 2 49	£7.50
Veco 61	£48.42
ED Fury R/C	£10.56
Fox 25 R/C	£17.49
Fox 36	£14.37
Webra 61 R/C 10cc	£50.47

Many more Aero and Marine. New Zealand orders welcome Send 10p P.O. for Lists. Duty free — Export only. Duty & VAT UK liable customers.

**THE MODEL SHOP (Guernsey)**  
No. 1 Commercial Arcade, Guernsey, C.I.

# MORE PROTECTION!

**MAP Insurance Scheme Now provides for £250,000 cover**

To comply with constantly increasing requirements for Public Liability Insurance (as demanded by Local Authority and Government Departments), the MAP third party insurance scheme is now extended to provide £250,000 cover. This also corresponds with anticipated requirements for Society membership conditions.

This offer embraces all forms of modelling activity, whether it be concerned with aircraft, boats, cars, etc. Just complete the form below and send it together with a remittance of £1.75, which will provide membership of the scheme for one year. Your certificate, badge, decals and card with insurance details will be sent within a few days.

Remember that the scheme applies to *regular* readers only (those who either have a standing order placed with their newsagent/model shop, or who have a direct subscription for any MAP modelling magazine).

Name (in full) .....

Address .....

Date .....

Registered No. (if renewing) .....

I enclose herewith postal order/cheque value £1.75 made to MAP Ltd for membership of £250,000 insurance scheme. I understand that membership is conditional in my placing a regular order for ..... (state magazine)



**Create your own AERO MODELLING LIBRARY**

**Bind your magazines in the EASIBINDER**  
Attractively bound in maroon Balacron with the title blocked in gold on the spine, the Easibinder is designed to hold 12 copies of AEROMODELLER.

The Easibinder opens flat for easy reference and copies can be removed and replaced with ease.

Price: U.K.: £2.75 inclusive. Overseas: £3.25 or \$6.00  
(Please allow 3-4 weeks for fulfilment of order)

To EASIBIND LTD., 4 UXBRIDGE STREET, LONDON W8 7SZ.

I enclose P.O./cheque value ..... for ..... binders at ..... each for AEROMODELLER (BLOCK letters please)

NAME .....

ADDRESS .....

DATE .....

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

**for** flying model aircraft – model boats

# EPOXYCOTE

## all the proof you need

At last — the “all-in-one” finish you’ve been waiting for! With EPOXYCOTE you can now achieve a fuel-proof finish for your flying model aircraft, a water and chip resistant finish for your boat. The EPOXYCOTE system has been formulated by the HUMBROL laboratories following years of careful research. An epoxy-based enamel, it enables you to colour — and cover — your model with a strong, flexible paint film that resists all known fuels and is waterproof and chip resistant. Available in bright red, white, black, yellow, lime green, French blue and orange — it can be applied by brush or spray. *A detailed instruction leaflet included in each pack.*



**HUMBROL**

**EPOXYCOTE** now available at your local model shop.

# Four new additions to the gloy range



Model products from the gloy range. Top quality adhesives for craft and hobby work.



# gloy

Eighth Avenue, Manor Park  
London E12 5JW

gloy is the trade name of Associated Adhesives Ltd.