

Aero Modeller

MARCH 1966

TWO SHILLINGS & SIXPENCE

USA & CANADA 50 CENTS



NOW INCORPORATING

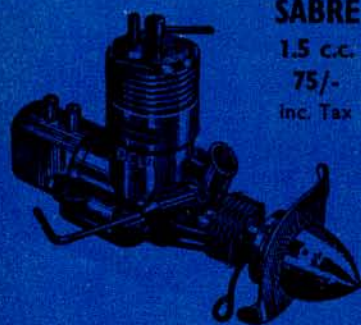
HOBBY MAGAZINE

MODEL AIRCRAFT



**Cessna
Skyhawk
radio
model
feature**





SABRE

1.5 c.c.

75/-

inc. Tax

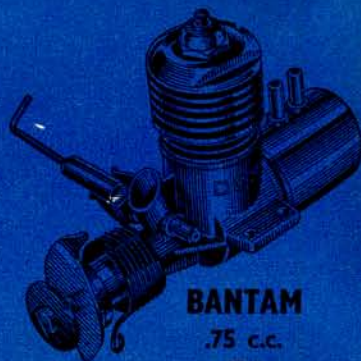


DART

5 c.c.

75/-

inc. Tax



BANTAM

.75 c.c.

45/-

inc. Tax

MODEL DIESEL HANDBOOK



Free with every Quickstart diesel this invaluable handbook covers the handling, care and maintenance of model diesels. Prepared by experts, it is well illustrated and an invaluable aid to trouble free operation. Send 1/3d. (P.O. or stamps) for your copy — today!

QUICKSTART ACCESSORIES

- ★ CONTROL LINE HANDLE
- ★ SILENCERS
- ★ NYLON PROPELLERS
- ★ FULL RANGE OF SPARES
- ★ QUICKCLIP CONNECTOR
- ★ QUICKSTART GLOWPLUGS
- ★ E.G. 98 E.G. 99
- ★ E.G. 200

QUICKSTART

THE GREATEST RANGE OF SPORTS FLYERS' ENGINES

CALL IN AT YOUR MODEL SHOP TODAY

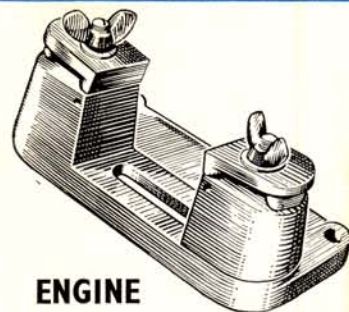
in case of difficulty write direct to:

DAVIES-CHARLTON LTD.

HILLS MEADOW, DOUGLAS, ISLE OF MAN

Marine Engines

DART, MERLIN, SPITFIRE, SABRE,
ALSO AVAILABLE AS A MARINE
ENGINE COMPLETE WITH FLY-
WHEEL AND WATER COOLED
HEAD



ENGINE TEST STAND

14/7

inc. Tax

1 pint 6/-
½ pint 3/6

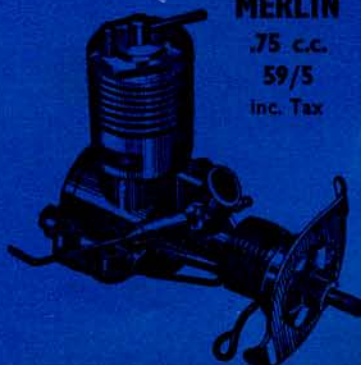


SPITFIRE

1.0 c.c.

70/9

inc. Tax



MERLIN

.75 c.c.

59/5

inc. Tax



SUPER MERLIN

.75 c.c.

64/11

inc. Tax

Aero Modeller

NOW INCORPORATING

MODEL AIRCRAFT

March 1966

VOLUME XXX1 No 362

CONTENTS

HEARD AT THE HANGAR DOORS	132
"CESSNA 172E SKYHAWK"	134
TOPICAL TWISTS	138
FREE FLIGHT COMMENT by J. O'Donnell	139
GOLDEN WINGS CLUB	141
ENGINE TEST—Cox Special 15 Mk. II.	143
"MINI-BUNT"	146
READERS' LETTERS	147
GADGET REVIEW	148
BOOK REVIEWS	150
BASIC AEROMODELLING—Plastics and Wire	152
"GOLDWINGA"	155
CONTROL LINE DESIGNS	156
LATEST ENGINE NEWS	158
FLIGHT OF THE PHOENIX	160
STRICTLY SIMPLE	161
TRADE NOTES	164
AIRCRAFT DESCRIBED—The Moeller Stomo 3	165
CLUB AND CONTEST NEWS	168
COMING EVENTS	169

AN  HOBBY MAGAZINE

also MODEL BOATS . MODEL CARS . RADIO
CONTROL MODELS & ELECTRONICS . MODEL
ENGINEER and MODEL RAILWAY NEWS.

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 Trade except at the full retail price of 2/6d or 50 cents 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 G.P.O. for transmission by Canadian Post, American enquiries regarding subscriptions, news stand sales and advertising should be sent to AEROMODELLER, Eastern News Distributors Inc., 155 West 15th Street, New York, N.Y. 10011, U.S.A.

Direct subscription rate 35/- per annum including enlarged December edition and index. U.S.A. and Canada direct rate \$5. AEROMODELLER incorporates the MODEL AEROPLANE CONSTRUCTOR and MODEL AIRCRAFT and is published monthly on the third Friday of each month prior to date of publication by—

MODEL AERONAUTICAL PRESS LTD.

13-35 Bridge Street, Hemel Hempstead, Herts

Tel.: Hemel Hempstead 2501 (Mon.-Fri.)

Editorial Director **D. J. LAIDLAW-DICKSON**

EDITOR **R. G. MOULTON**

Assistant Editor **J. FRANKLIN**

Advertisement Manager **LIONEL HARRIS**

Where's my son's Model Aircraft?" claimed an irritated mother who expected nothing less than a flying model to fall from our January pages. "Why keep Pylonius?" say many sport fliers who seek more in control-line. "Glad they kept Pylonius" stated a dozen newsletters and notes from readers far and wide. "Too much radio" is the claim of two particularly incensed groups who took the trouble to list the editorial appropriation of pages in Jan. and Feb. issues. "More More radio features of this type" appeal others. "Where was free-flight? or "You're all-scale" or "Let's have more markings info." fall as common thoughts in many of those letters you've been sending as comment on our recent changes.

Apart from proving that you cannot please all the people all of the time they also signify a sincere interest in this journal. Anyone who in this age of pace will take time off to write his considered views to the Editor, commands our respect and will we hope, get a personal reply. The significant factor is that such letters are going to help shape the content of this journal, so keep them coming lads—we want to know your likes and dislikes.

This month we have TWO FREE PLANS for the clubster. The little pusher for rubber power is quite a dandy, full of surprises. Give it a whirl for fun, we're sure you'll be pleased.

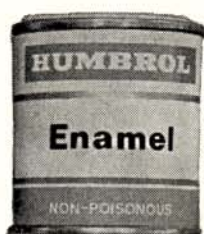
cover

From Cessna in Kansas, a Golden "Skyhawk" poses in 1966 trim with the latest line in wheel spats and spinner. This factory view emphasises the 'natural' lines of the 172 series for flying scale modelling. Inset is Fujio Arigaya with his prototype based on the 1964 version. The colour view aids one to appreciate the clean yet authentic lines of this beautiful model design to be found on pages 134-137.

coming next month

The thrills of slope soaring are so far realised by very few aeromodellers but perhaps this is due to lack of information. Anyway a feature by J. H. Osborne complete with his practical design for the radio controlled "Wizard of Oz" will go a long way to spreading the word. Free full-size plan is Col. Bowers "Buhl Airsedan" a simple .020 scale sportster, suitable for R/C modifications. It's a model that will have a lot of appeal. Doug McHard resumes his 'Model Aircraft' scale column this issue. Free flight designs, especially, Coupe d'Hiver, plus new engine details including a few surprises in development from the U.S.A. all add to our regular features for another big edition, on sale March 18th.

Made and printed in Great Britain by Impress (Worcester) Ltd., Hylton Road, Worcester, for the Proprietors, The Model Aeronautical Press Ltd., 13/35 Bridge Street, Hemel Hempstead, Herts. Published by the Argus Press Ltd., 23/37 Tudor Street, London, E.C.4., to whom all trade enquiries should be addressed. Registered at the G.P.O. for transmission by Canadian Magazine Post



2 oz Tin
Gloss finish.
36 wonder-
ful colours
1/10d each



½ oz Tinlet
36 Gloss
and 12 matt
colours
10d each



4 oz Aerosol
18 shades
4/11d each
Giant 16 oz.
Aerosol
12/6d each



Kit shape & Humbrol fashion!

It's the finish which adds that final touch of perfection to your models. HUMBROL ENAMELS, matt or gloss are used by modellers throughout the world.

Quick drying and in a wide range of inter-mixable colours, HUMBROL ENAMELS will meet your most exacting requirements.

They are available in the useful ½ oz. tinlet and in larger sizes. Additions to this range are the 4 oz. and 16 oz. aerosols. Now fitted with a

NEW 'Soft Spray' head to give greater control in application.

HUMBROL supply a complete range of modelling products including Britfix adhesives, dopes, varnishes and polyurethane gloss and satin finish in 4 oz. and 16 oz. aerosols—Look for them all at your nearest model shop.

*N.B. HUMBROL ENAMELS are non-toxic, absolutely safe for children's toys.



Look for the sign
of the Humbrol
paint locker

HUMBROL

enamel

Humbrol · Hull · England

JUST LIKE THE REAL THING!



The magnificent V.C.10.

This authentic 1/144 scale model, of the powerful jet liner now in use with the leading air lines, is made from a superbly detailed 74 part kit costing 6/-. It's one of many exciting kits by Airfix.

There are over 200 of them, covering 13 different series. And at 2/- to 17/6 you can well afford to make *all* your models *just like the real thing*.

AIRFIX CONSTANT SCALE

CONSTRUCTION KITS

Just like the real thing!

From model and hobby shops, toy shops and F. W. Woolworth

STOP PRESS

MCDONNELL PHANTOM F-4B

Superb 1/72 scale model of one of the aircraft from carrier U.S.S. Forrestal.

The Phantom holds several world records for speed and height.

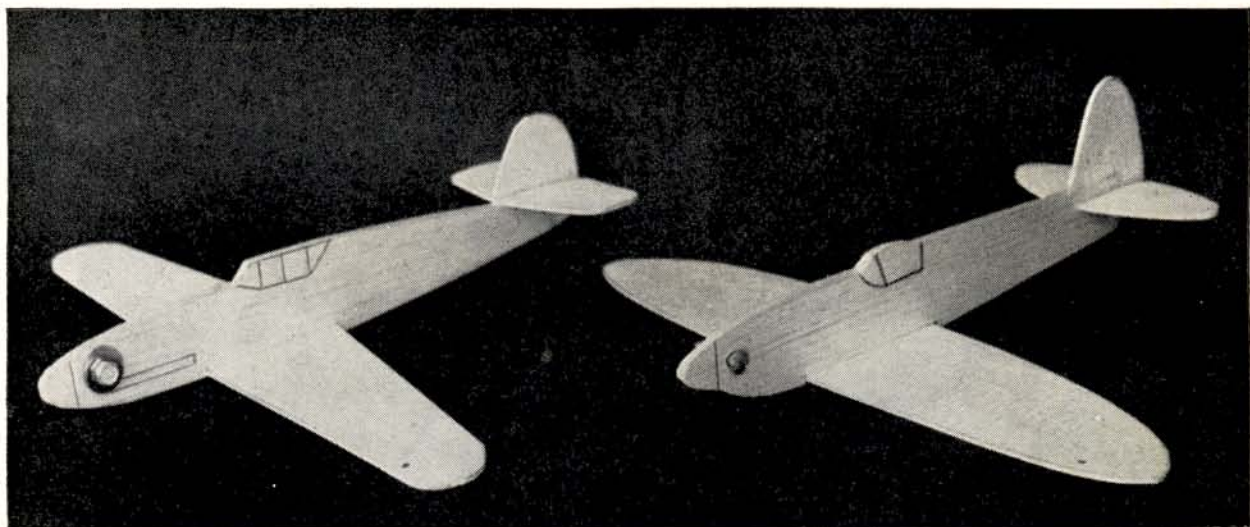
Selected by Government for Royal Naval service, 56 parts—complete with two-man crew and pivoting tail

planes. Add it to your collection. Only 4/6d.

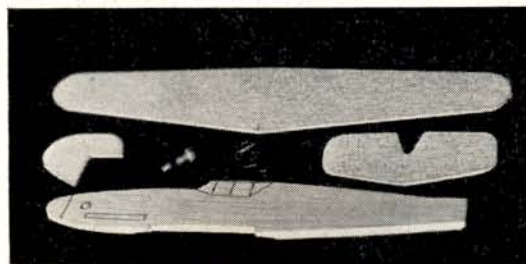
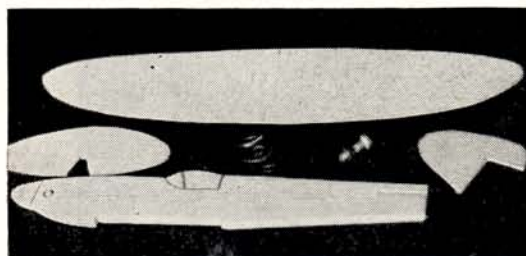


LCM III & SHERMAN TANK

2-in-1 kit. 00 Scale. World War II landing craft with anti-aircraft gun. 100 parts. Only 4/6d.



SIMPLE PROJECTS CAN BE FUN . . .



Indubitably* aeromodelling would not have developed to the state it has reached today without Balsa wood. Apart from the ease of fabrication offered by Balsa with its unique properties as a natural wood, it remains an indubitably* fact that 'Balsa models fly better' . . . right from the time when Balsa first came into general use as an aeromodelling material. This holds good from the simplest flying models through to the most advanced types. In fact it is often with the simplest of flying models that Balsa really comes into its own.

For example, you can knock up a couple of 'whip control' models from about a shilling's worth of sheet balsa in a matter of minutes . . . and the very young would-be control line pilot can have a lot of fun with them. Beef up the wood sizes a bit, add control linkage and fit a 'side-winder' motor, and you have a real 'junior' control-liner! It would not fly as well, or be as quick and easy to make, in any other material but Balsa.

Remember, though, Balsa is a natural wood and so it can be highly variable in quality. For best results you need Balsa specially selected and graded for aeromodelling use. That means SOLARBO Balsa, indubitably* the best there is. Just to be sure of getting the best, look for the Solarbo stamp on every piece of sheet and block.

(*to save you looking it up in the dictionary, the word 'indubitably' means certain or beyond doubt).

Solarbo Balsa

SOLARBO LTD.,
COMMERCE WAY, LANCING, SUSSEX

— THE BEST YOU CAN BUY —

ALWAYS ASK FOR IT BY NAME



HARLEYFORD

MEET THE AUTHOR— GERMANY'S MOST AUTHORITATIVE AIR HISTORIAN—H. J. NOWARRA



Compiler and Author of "Focke-Wulf 190 — a Famous German Fighter (over 4,000 copies already sold in less than three months!) and "Messerschmitt 109—a Famous German Fighter" (over 6,000 copies sold!)



The COMPLETE STORY of the design, development, test flying, production and operation during the 1939-1945 War of Germany's most famous fighter—Fw 190 and Ta 152—together with much of the air fighting from the German point of view.

Told in over 100,000 words of text, more than 350 photographs, 24 1/72 scale 3-view tone paintings (each with three wing and one fuselage sections), several pages line drawings and TWELVE COLOUR PAINTINGS—"AIRCRAFT OF THE ACES"—Showing camouflage schemes and personal insignia of aces who flew Fw 190's in North West Germany, the Eastern Front, Home Defence, and as used by the Turkish Air Force.

Large 4-page illustrated leaflet is available—send your name and address on a postcard for FREE leaflet and FREE 28-page Catalogue of our 12 titles of Aviation Historical Books—Dept. MAP/MAR.

HARLEYFORD PUBLICATIONS LTD
LETCWORTH HERTS ENGLAND

FOR IMMEDIATE DELIVERY MARK
YOUR ORDER MAP/MAR.

60/-
POST FREE

The Model Shop (MANCHESTER)

The Model Mecca of the North

We now have stocks of the new "Maxispray"—for a professional finish on all types of model—comes with mains motor, compressor & pencil spray gun—only **£16/9/6**

Futaba F.T.3A Transmitter **£8/2/6**
Futaba F4-LR Relayless Rx **£7/17/0**

Futaba F3-TR Relay Rx **£8/2/6**
Futaba Escapement ML-2 **£1/19/9**
Futaba FT-5C Tx and Matching Superhet F6-STR Relay Rx **£28/5/0**

New! Ariel Six channel Tx & Superhet Rx **£39/10/0**
"Fantastic" O.S. Pixie Single Channel Tx and Relay Rx **£16/15/0**

O.S. Pixie Relay Receiver only **£6/13/6**

Latest F & M Midas/Matador 10 Superhet **£87/10/0**

Sky-Leader 3+1 Proportional, including 3 Bonner Servos. Price on application.

Oakfield 10 Channel Tx and Superhet Receiver **£87/10/0**

"Oakfield" Single Channel Tx and Filter Receiver **£19/19/6**

The "MacGregor" (Mk. 2) range Radio Control Kits are extremely reliable and easy to construct. Full after sales service operated. Available as follows:

Carrier Wave Receiver Kit **£3/10/0**
Carrier Transmitter Kit **£2/19/6**
Tone Transmitter Kit **£4/5/0**
Terrytone Receiver Kit **£5/19/6**
Case and Ariel for both Transmitters **£2/15/0**

All "Elmic" escapements are precision made and super reliable with any single channel unit.
Elmic Conquest Escapement **35/0**
Elmic Commander **59/2**
Elmic Compact **67/4**
Elmic Corporal **47/2**

"CLIMAX" SERVOS FROM STOCK

"Unimite" Single Channel **£3/10/0**
"Servomite" Multi **£2/18/9**

"Musclemite" Standard **£4/10/0**
"Musclemite" Kit from **£2/10/0**

As above Transistorised **£5/10/0**
"Unipack" for Rudder and engine control with single ch. **£11/11/0**

"Nucleonic" Universal Deac Charger. Charges 2.4 to 12 volts. 150 to 500 DK2 Cells **45/0**

SELECTED KITS

K/K Snipe 40 in. F/F **24/3**
K/K Gaucho 44 in. F/F **26/9**
Veron Skyrod 4A F/F **23/6**
Inchworm A/2 Glider **23/10**
K/K Caprice 50 in. **19/11**
K/K Mini Spr. 48 in. R/C **£4/18/0**
K/K Super 60 in. R/C **£5/9/11**
Top-Flite Taurus Multi **£16/10/0**
Top Flite Schoolgirl R/C **£3/15/0**
Top Flite S'master R/C **£3/12/6**
Veron Robot R/C Trainer **£4/9/6**
Veron Mini-Robot R/C **£2/9/6**
Goldberg Falcon 56 R/C **£5/19/0**
Goldberg Jnr Falcon **£2/7/6**
K/K Spectre Stunt C/L **£2/6/11**
K/K Firebird C'mbat C/L **£1/10/6**
Mercury Crusader C/L **£3/13/1**
Mercury Toreador C/L **£1/7/7**
Top Flite Nobler C/L **£5/19/6**

NEW!
Veron Mini-Concord R/C **79/11**
40" for up to 1 cc. engines

GENERAL ACCESSORIES

Cox Handycree **35/0**
Merco .29 or .35 Silencers **26/7**
Merco .49 or .61 Silencers **26/7**
Gee Dee Pike Silencers **62/6**
Tornado 8 x 6 in or 8 x 8 in ea **5/9**
Tornado 7 x 8 Nylon, each **3/9**
Accurate Vibro-Tachometer **32/6**
Small Universal Multi Meter **49/6**

Cox Pee-Wee .020 **42/6**
Cox Babe-Bee .049 **49/6**
Wen-Mac Hot Shot .049 **59/11**
E.D. 2.49 Racer, complete with fitted Silencer **92/6**
P.A.W. 1.49 Diesel **£4/6/0**
P.A.W. 2.49 Diesel **£4/18/0**
P.A.W. .19 (3.5 cc.) Diesel **£5/4/6**
P.A.W. .19 B.R. **£6/6/0**
D.C. Dart .5 cc. **£3/15/0**
D.C. Merlin .76 cc. **£2/19/6**
E.T.A. 15D (Elite) **£7/8/6**
Cox Tee-Dee .049 **£5/7/6**
M.E. Heron 1 cc. **£3/0/6**
M.E. Snipe 1.5 cc. **64/0**
Frog 150R **59/6**
Frog 80 Mk. 2 **54/0**
Frog 100 Mk. 2 **57/0**
New! O.S. 58 R/C **£13/4/6**
O.S. 19 R/C Glow **£8/9/5**
Merco .29 or .35 R/C **£7/2/6**
Merco .29 or .35 Stunt **£5/19/6**
Merco 61 R/C **£12/16/0**
A.M. .15 Diesel **63/0**
A.M. 25 Diesel **70/10**

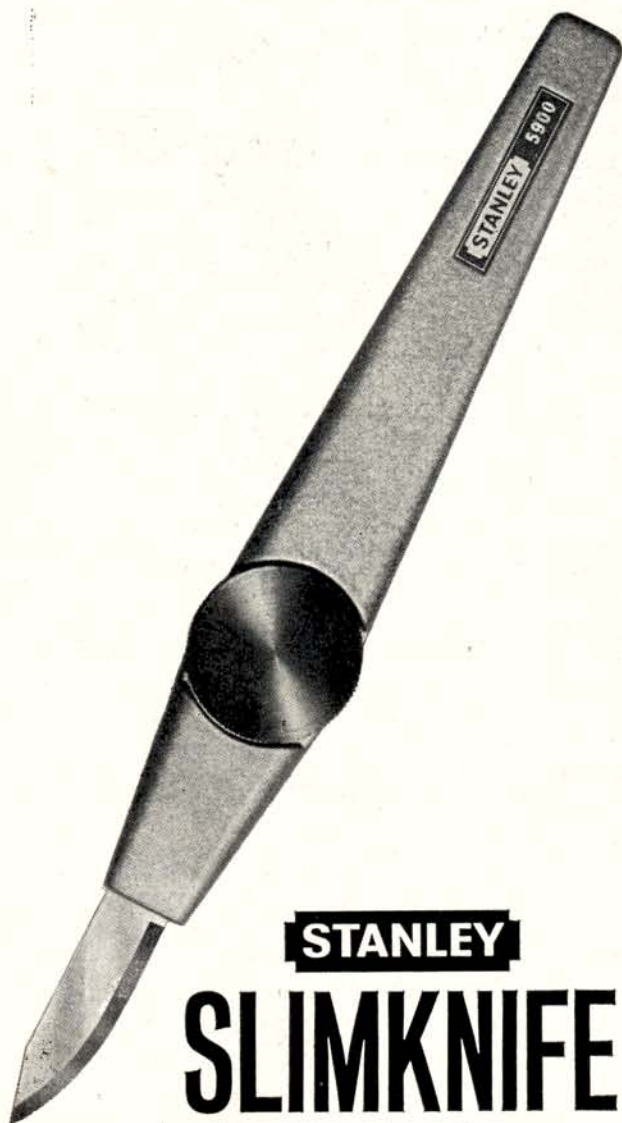
Lt.Wt. only 6/- sq. yd. plus post
OUR EXCLUSIVE NYI ON
Red, Blue, Black, Lemon, White,
Apricot, Powder Blue, Turquoise.

SEND NOW TO OUR ONLY ADDRESS

Mail Orders Post Free over £3 U.K. only

13 BOOTLE STREET, off Deansgate, MANCHESTER 2

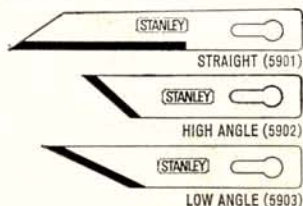
Tel.:
BLACKFRIARS
3972


STANLEY

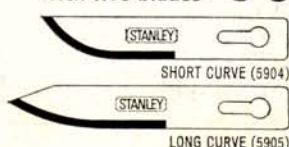
SLIMKNIFE

new knife...new shape...
5 new multi-purpose blades

The Stanley Slimknife—strong enough for the rough work; precise enough for the fine detail work. There's a blade to whittle with, one for heavy pressure work, one for fine cutting, one for cutting strong sheet, and another for razor-sharp trimming. In fact, there's a blade for almost any job you can name. Turn the screw and they're all yours!



Price complete with five blades **8/6**

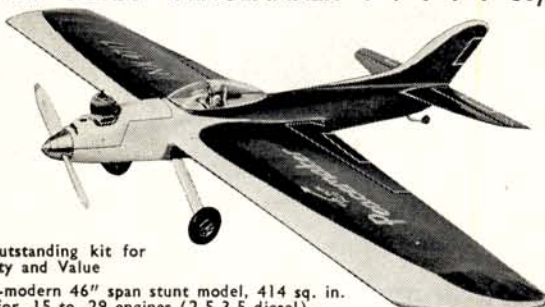

BE RIGHT BUILD...
TOP FLITE
SEE THEM AT YOUR MODEL SHOP TODAY!


NEW!
Super Scale
P-51D
MUSTANG

DE LUXE
C/L MODEL
£7.19.6

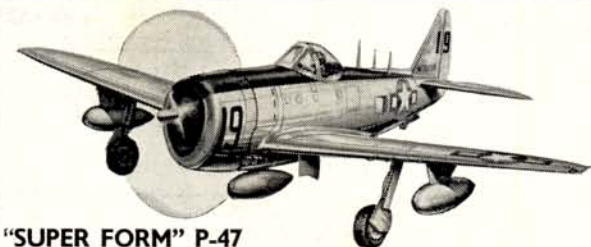
"SUPER-FORM" preformed fuselage shells. Fully operating flaps, throttle control, sliding canopy, etc. Span 37". Engines .29-.35 glow. Authentic 1" scale by a two-time U.S. Nationals champ!

"SUPER FORM" PEACEMAKER 86/-



An outstanding kit for
Quality and Value

Ultra-modern 46" span stunt model, 414 sq. in. area for .15 to .29 engines (2.5-3.5 diesel).



"SUPER FORM" P-47
THUNDERBOLT . . . 86/-

Superb 27" span scale model for .15 to .29 engines. Fully stuntable.

also
"SUPER FORM" P-40F WARHAWK
86/-
 $\frac{1}{2}$ " scale, span 28", .15's—29's.

SUPER FORM MEANS . . .
super prefab. kits with ready-formed fuselage shells for true scale appearance and easy assembly. "Super Form" is a TOP FLITE exclusive!



OTHER CONTROL LINE KITS . . .



50" NOBLER Stunt . . . 119/6
Precision aerobatic model for .19-.35 engines. Prefabbed kit.
40" NOBLER Junior . . . 72/6
Scaled for .15-.19 engines.
42" FLITE STREAK Combat 49/11
U.S. Nats. Combat winner. 390 sq. in. Engines .15-.35.
31" FLITE STREAK JNR. 36/6
230 sq. in. .15-.25 engines.

NOBLER—U.S. Nats & World Stunt Champ!

1/2 A SCALE
FORM FLITES

Preformed fuselage shells, finished wings, plastic cowl . . . only 24/11 each.

HELLCAT
JAP ZERO
THUNDERBOLT

DISTRIBUTED BY RIPMAX MODELS & ACCESSORIES

SEE THEM AT YOUR MODEL SHOP TODAY!



Share the great companionship of men who fly

When you join the R.A.F. and serve as an air-crew officer, you will become part of a whole new world. Not the world of 9-to-5, strap-hanging, and deskbound routine—but of clear blue skies, G-suits and jet engines; of serious and highly skilful work, in the nation's interest; and of friendship too—the camaraderie and good companionship of your brother-officers... the finest company a man could have.

There are various lengths of service: shorter

periods qualify for a tax-free gratuity up to £5,000; longer engagements are pension-earning. Officers are also needed for the vital work of Air Traffic and Fighter Control. Telephone the Officer in charge of your nearest R.A.F. Careers Information Centre or write for full details, giving your date of birth (age limits: for Flying Branch, 17-26th birthday; for aircraft control duties, 17½-28th birthday) and details of education (minimum qualifications: 5 acceptable subjects at 'O'

level or equivalent; one or two at 'A' level would be an advantage) to Group Captain J. W. Allan, D.S.O., D.F.C., A.F.C., R.A.F., Adastral House (AM 1), London WC1.

FLY WITH

The Royal Air Force



HENRY HINODE

HENRY HINODE SAYS —

IT'S HERE!

My new Superhet Multi Tx. Rx. CT-210, CR-210

AFTER MONTHS OF FLIGHT TESTING IN AUSTRALIAN CONDITIONS
WE NOW INTRODUCE THE NEW, MIGHTY, FANTASTIC...

HINODE MULTI SUPERHET TX, RX
MULTI 10 CHANNEL TX CT-210, RX CR-210

PRICE TX CT 210 **£A116.0.0** FOR TX AND RX
PRICE RX CR-210

ALSO MS-100 SERVOS FOR MULTI TRIM + SN BOTH **£A13.17.0** EACH

HINODE DIXIE SETS £A22.19.6 TX AND RX

OUR RADIO SERVICE AND PRICES ARE THE BEST IN AUSTRALIA



FROM

THE MODEL DOCKYARD PTY. LTD.

TRADE
ENQUIRIES
INVITED

216-218 SWANSTON STREET MELBOURNE AUSTRALIA



★ PART EXCHANGE IS ONE OF OUR SPECIALITIES ★

★ SELECTED ENGINES ★

Cox Special 15, a few only	130/0
K & B Stallion 35 Glow	90/0
K & B Torp 15 1965 Model	180/0
ED Racer 2.46 cc. Diesel	85/0
McCoy 19 3.2 cc. Glow	69/6
McCoy 19 R/C Glow	99/6
McCoy 35 6 cc. Glow	79/6
McCoy 35, new R/C Glow	109/6
Fuji 049 8 cc. Glow	49/6
Fuji 061 1 cc. Glow	49/6
Fuji 099 1.6 cc. Glow	57/6
Fuji 15 2.5 cc. Glow	85/0
Fuji 29 5 cc. Glow	115/0
Fuji 35 6 cc. Glow	117/6
R/C and Water Cooled versions available, also Spares	
Super Tigre G 15 Racing	202/0
Super Tigre 15 Glow	147/6
Super Tigre 35 Glow	147/6
All R/C versions available	
Fox 049 FAI Special	79/6
Fox 15x 2.5 cc. Glow	69/6
Fox 36x 6 cc. Glow	107/0
P.A.W. 1.49 cc. Diesel	86/0
P.A.W. 2.49 cc. Diesel	98/0
P.A.W. 19D 3.2 Diesel	104/6
P.A.W. 19BR 3.2 cc. Diesel	126/0
A.M. 15 1.5 cc. Diesel	63/0

MANY MORE IN STOCK

PHONE, WRITE OR CALL
AT ANY OF THESE SHOPS
FOR THAT SPECIAL SERVICE

THE MODEL SHOP

(Wakefield) LTD.

10 MARY GATE
WAKEFIELD, YORKS

Phone: Wakefield 71459

F. A. & F. ALLEN LTD.

2 DICKENS LANE
POYNTON, CHES.

Phone: Poynton 4377

RADIO CONTROL SUPPLIES

581 LONDON ROAD
ISLEWORTH, MIDD.

Phone: Isleworth 0437

ALLEN SCOTT (Models) LTD.

54 SHUDEHILL
MANCHESTER 4

Phone: Blackfriars 6924

ROLAND SCOTT LTD.

147 DERBY STREET,
BOLTON, LANC.

Phone: Bolton 27097

★ 'POP' ACCESSORIES

Modellers Lightweight Nylon, Red, White, Blue, Black, Yellow	sq. yd. 6/11
Finest Japanese Silk	sq. yd. 7/6
Black Fuelproof Tubing	yd. 2/0
Nylon Control Horns	1/9
Large Bushed Bellcranks	3/11
Flap Control Horns	2/3 & 3/0
100 ft. Light Laystrate	5/3
Mighty Midget Motors	13/9
Schuco Semi-Scale Wheels 1½ in.	5/0
2 in. 7/6 2½ in. 10/9 3½ in. 14/0	(all per pair)
Frog 150 Silencers	5/11
P.A.W. 149 Silencers	12/6
P.A.W. 249 & 19 Silencers	13/9
E.T.A. 15 Twin Silencers	64/3
Merco Silencers, all sizes	26/7
Enya 15/19 Silencers	19/8
Enya 29/35/49 Silencers	23/8
O.S. 15/19 Silencers	25/3
O.S. 29/35/49 Silencers	30/6
K/O Swiss Silencer for Enya Super Tigre, etc.	49/6 & 59/6
D.C. Sabre Manifolds	8/6
M.E. Snipe Silencers	27/6
D.C. Engine Test Stand	12/3

ALL TORNADO PROPS IN STOCK

WE WILL MAKE A COMBO OFFER FOR ANY KIT AND ENGINE OR COMPLETE R/C OUTFIT

Enterprise 'Tony' C/L Stunt Kit with McCoy 35 Engine. Special offer	£9 ONLY
Enterprise 'Navigator' Multi Trainer with McCoy 35, new R/C Engine	£13 ONLY
Enterprise 'Grass Hopper' R/C with 049 Engine and complete R.C.S. Guidance System	£20 ONLY
Enterprise 'Navigator' with McCoy 35 R/C, Raven 6 R/C Unit and Tripack	£84 ONLY

We specialise in H.P., and our terms are 1/5th deposit—balance in 12 months

★ SECOND HAND ITEMS ★

Telecont 9 Tx Rx with all DEACs and Charger	£45
E.D. 8 Relay Unit	£26
E.D. 6 Relay Unit	£24
Tommytone and Terrytone	£8
Metz Baby Complete Unit	£16
R.C.S. Guidance Tx only	£5
Min-X Sportsmaster Rx	£4
Amplified Duramites S/N	£6½
Amplified Duramites Trim	£5½
Climax 'Unipack', complete	£7
Tommytone Tx, in case	£4
Elmic Commanders	£2
Elmic Conquests	25/0
F.R. Clockwork Actuator	30/0
Cox Tee Dee 010 Glow	45/0
Cox Tee Dee 049 Glow	55/0
A.M. 10 1 cc. Diesel	37/6
D.C. Rapier 2.5 cc. Glow	37/6
K. & B. Torp 15, 1961 Series	60/0
Cox Tee Dee 15 Glow	65/0
Frog 500 5 cc. Glow	40/0
Veco 35 6 cc. Glow	70/0
Merco 35 6 cc. Glow	70/0
O.S. Max III. 35 Glow	65/0
Taplin Twin 8 cc. D.	95/0
Dooling 61 Glow	180/0
Merco 29 5 cc. Glow	65/0
ETA 29 Mk. V 5 cc. Glow	60/0

FULL LIST ON REQUEST

★ POPULAR KITS ★

Enterprise New 'Navigator'	175/0
Enterprise 'Tony' Stunt	126/0
Enterprise 'Tony Jr.'	57/6
Enterprise 'Navy Fighter'	57/6
Enterprise 'Star Shooter' ½ A Team Racer	50/0
Enterprise 'Grass Hopper' R/C	57/9
Sterling 'Mustang' Scale	325/0
Sterling 'Spitfire' Scale	325/0
Sterling 'Denight Special'	215/0
Sterling 'Mambo Special'	145/0
Schuco 'Styrofox' Trainer	55/0
Schuco 'Cessna Birdog'	105/0
Schuco 'Berfalke' Glider	160/0
Schuco 'K8B' Sailplane	115/0
Schuco 'SB7' Sailplane	160/0
Schuco 'Pascha' A2 Glider	74/0
Schuco 'Sultan' A1 Glider	35/0
K.K. 'Demon' 2.5 cc. T.R.	36/3
K.K. 'Mini Super' R/C	98/0
Topflite 'Schoolgirl' Bipe	75/0
Graupner 'Bolkow Jr.'	79/6
Veron 'Topsy Nipper' Scale	71/6
Veron 'Veloxy' Pusher	46/0
Veron 'Mini Robot' Trainer	49/5
Veron 'Skylane' Scale	99/6
Veron 'Pinto' ½ A T.R.	38/4
Veron 'Colt' C/L Trainer	29/11
Veron 'Deacon' 52 in. Span	39/6

HUNDREDS MORE IN STOCK

★ R/C EQUIPMENTS ★

'Raven' Single Tx & Rx	£19.0.0
Raven Six Super Regen	£48.15.0
Futaba 12v. Tx with matching Superhet Single Rx	£28.0.0
Metz 'Baby' Complete Unit	£25.0.0
Metz 2-Channel Complete	£38.10.0
Metz 3-Channel Complete	£60.10.0
McGregor Tone Tx Kit	£4.5.0
McGregor Terrytone Rx Kit	£5.19.6
R.C.S. Guidance Tx & Rx	£13.13.0
R.C.S. Inter 6 Tx & Rx	£34.0.0
Harness with Conquest	£2.10.0
Harness with Compact	£4.10.0
Enterprise DEAC and 2v. Accumulator Charger: Standard Model	86/0
De Luxe with Meter	115/0
Krick Universal Charger	88/6
R.C.S. Universal Charger	130/0
Bonner Duramites	£5.12.0
Duramites with Amplifiers	£9.10.0
Enterprise Amplifiers for Duramites	Trim 65/0
Neutralising	75/0
Climax Mk. II Unimite	£3.10.0
Climax Standard Musclemite	£4.10.0
Climax Amplified Servomite	£6.9.10
Elmic Compact Escapement	£3.7.4
Elmic Commander Esc.	£2.19.2
Modellectric 'Slim Jim'	£4.15.0
Modellectric Actuator	£3.18.0

LEAFLETS ON REQUEST

FOUR GREAT M.A.P. BOOKS

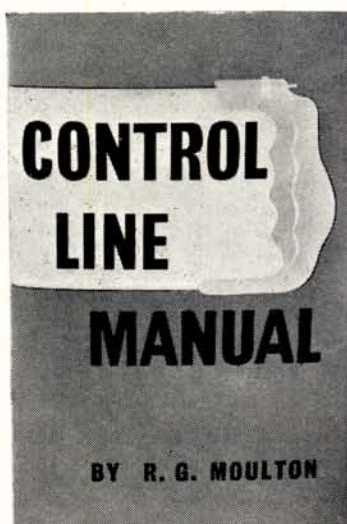


All about Model Aircraft by Peter Chinn, gives every fact needed for the construction and flying of every kind of model, ideal beginners handbook for those new to the hobby, with pictorial stage by stage instructions. **7/6d**

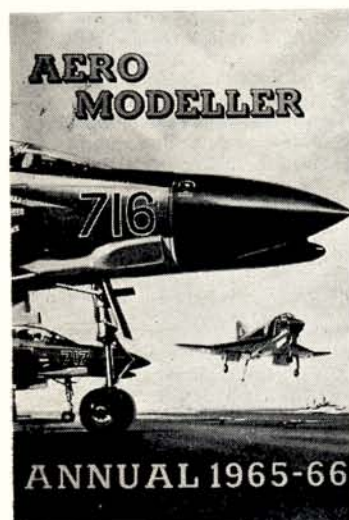
100 Pages 9½ x 7½

Control Line Manual by Ron Moulton in its third impression now incorporates up to the minute facts, diagrams and plans fully illustrating every branch of control line flying, past and present. **15/-**
An invaluable reference.

216 Pages 8½ x 5½



HAVE YOU ORDERED YOURS YET...?



Aero Modeller Annual 1965-66 gen packed with Phantom cover. Includes Engine Collecting, Water Rockets, Single Channel R/C, Airfoil Data, Wakefield Propellers, the World's best model plans for stunt, combat, team race, Wakefields, gliders, R/C, sailplanes, in fact the lot! **10/6d**

160 Pages 8½ x 5½

Radio Control Manual by Henry J. Nicholls, the latest in modern R/C, details of many models. Ken Willard on single channel, Peter Waters on Multi, Geoff Pike on proportional, tabular list of all R/C sets, servos etc., information, illustration, drawings, diagrams **16/-**
galore!

176 Pages 8½ x 5½



Use this handy Order Coupon

I enclose for my copy of:
RADIO CONTROL MANUAL/AEROMODELLER ANNUAL
ALL ABOUT MODEL AIRCRAFT/CONTROL LINE MANUAL

Name.....

Address.....

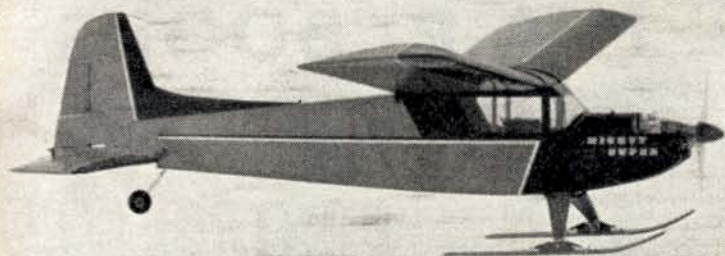
POSTAGE up to and including 12/6 add 1/- Above 12/6 Free

MAP

**MODEL
AERONAUTICAL
PRESS LIMITED**

**13/35 BRIDGE STREET,
HEMEL HEMPSTEAD, HERTS.**

**ORDER BY COUPON
or through your model shop**



Just airborne from recent winter snow is R/C contributor David Boddington's ski-equipped "Mighty-Super". See page 163.

Heard at the Hangar Doors

BACK HOME is our wandering *Mini-Concord* reported lost last month. It was picked out of a tree by a passer-by and having lost its identification label in the process was tucked away safe and dry within an hour of the launch. The finder notified the Police, but at the Station four miles further downwind than our search covered and it was only our check with the other Police Stations which revealed the whereabouts some two weeks after loss. *Moral One:* use a glued label or painted identity address on the model, *Moral Two:* don't rely on Police Stations notifying one another of reported lost property.

COUPE D'HIVER enthusiasts in our "Aeromodeller" party trip to Paris on Feb. 26/27th number at least 25! This is the biggest one-event contingent we have ever heard of, let alone managed. Twenty-three fly by B.E.A. Trident, others travel by car. Also taking part are teams from the Netherlands, Germany, U.S.A. (by proxy) and of course the seemingly invincible Alain Landeau of France. He's just added another trophy to his collection by winning the Cote d'Azur event in Southern France from a field of 129 entries. Full gen next month —if we survive the week-end in the gay city!

AMERICAN RULE CHANGES. Significant rule changes for 1966 have been approved by the Academy of Model Aeronautics including adoption of Goodyear type pylon racing on a provisional basis for a year in the Radio Control Category.

During this trial period,

National Miniature Pylon Racing Association rules are to be observed. These are allowed by Bristol RCMAC for the Bath Festival races and rules can be obtained price 2/6 per copy from D. G. Henley, 47, Pembroke Road, Clifton, Bristol, 8. Meanwhile, AMA pylon racing, in which one plane at a time flies against the clock, remains the official event, in the U.S.A. just as the SMAE rules remain unchanged in Great Britain. The big difference is in the specification for the model and the fact that under NMPRA rules, models fly up to 4 at a time simultaneously (see March R.C.M.&E. for explanations and a feature on this subject).

For the first time, maximum engine displacements have been imposed on models entered in U.S.A. Radio Control aerobatic and scale competitions. The maximum engine displacement permitted is now .61 inches but Multi-engined aircraft in scale events are allowed a total of 1.24 cu. in. (20 cc.).

These limitations were imposed as a safety measure, and are equivalent to the AMA rules limits long in effect for free flight and control line models.

Entrants in U.S.A. R/C aerobatic events now are allowed to fly a second model should the first be damaged beyond repair. The first model may not be re-entered and no substitution of parts is allowed except engines and radios.

The reasoning for this rule change is that modellers in contests are judged on their flying ability, and should not be penalized for accidents which are

generally beyond their control, such as radio interference. This rule is in accordance with FAI rules allowing substitute entries.

Several changes have been made in the AMA aerobatic pattern manoeuvre. On take-off, points will be awarded only for models "taxied realistically downwind at least 50 ft. from point of engine start, stopped, then turned at least 120 degrees into the wind for take-off on this "heading". Points previously granted for unassisted ROG are eliminated. Realistic taxi means that differences in operation of full scale aircraft, as effected by two or three wheeled gear, will be noted in competition model performance.

Similarly, on landing, descent may be started on downwind leg of traffic pattern, instead of on final approach only and realism will be judged in traffic pattern approach, landing perfection, and taxi to hangar manoeuvres. Full scale practice for trike-gear aircraft is to flare-out before landing and contact first on the main gear. Two-wheeled planes must also be flared and a three-point landing should secure maximum points.

Other new rules affecting scale models only are: bonus points for multi-engine scale aircraft reduced from 50 to 20, but such points are now multiplied by flight points in same manner as other scale operation points. Bonus points are provided only for multi-engines of equal displacements, unless those of the full scale aircraft were different; in which case the model's engine displacement must vary proportionally.

Several rules changes are instituted for Free Flight by the Academy. Standard fuel must be used for AMA contests to FAI rules. The fuel handling procedure is not yet specified. Based on new World Championship practice it is suggested that contest Directors supply fuel (both formulae) and charge a fee to cover its cost.

The AMA also adopts the FAI rule changes in Wakefield and Indoor where ceiling heights for record purposes are:

Category	AMA	FAI
I	up to 35 ft.	up to 26 ft.
II	up to 100 ft.	up to 49 ft.
III	over 100 ft.	up to 98 ft.
IV	—	over 98 ft.

NORTHERN MODELS. After a period of uncertainty it is now sure that the Northern Models Exhibition will be held on March 31st, April 1st and 2nd at the Victoria Hall, Saltaire, Shipley, Yorks. This is about 4 miles north of Bradford and eleven miles from Leeds, so though not quite to the grand scale of previous shows at the Corn Exchange, Manchester, it is still within easy access. Nine magnificent trophies are offered—including the AEROMODELLER Trophy for the best model aircraft exhibit and entries should be made promptly to the Hon. Secretary, City of Bradford M.E.S., 13, Daisey Hill Lane, Bradford 9, Yorks. Telephone Bradford 45201.

FLYING SITES (1) are always "news" and it is gratifying to know that there are so many "Aeromodelling-only" areas set aside by local authorities around the world. Typical is that at Perth, Western Australia. Six years back noise complaints caused the loss of so many small sites around the Perth Metropolitan area that the Lands Dept. were approached for a possible 10 acre site for control-line. During a lapse of three years in which radio and free flight modelling became more popular (with an even worse flying field situation which was relieved only

by droughts in Summer offering dry lake beds), little was achieved. So a request was made for 100 acres. The result was allocation of a 108 acre area, 15 miles from the city centre which is now a "Model Aircraft Reserve" with the Metropolitan Regional Trust, leased to Aeromodellers of Western Australia (Inc.) at £45 p.a. The site has been bull-dozed for a take-off area at the Associations' expense, there being four member clubs. Expansion when the field is in full use should be considerable. Incidentally, 108 acres is large enough for a full-scale airfield! ! !

FLYING SITE (2) in South Africa at Klerksdorp where the Western Transvaal A.M.C. have graded a 100 x 70 yard strip across a $\frac{1}{4}$ mile square allocated by the Municipality. A local firm donated two 12 ft. square pre-fab shacks and barriers have been set up; official opening was on December 4th. Sounds like a wide awake club in an enlightened community.

QUOTE OF THE MONTH—

Writing in *Scatter*, the news, letter of the Southern California Aero Team, U.S.A. free flight team manager of 1965, Bill Hartill expresses a little appreciated point

of view on the joys of becoming a National Team Member.

"The trip sounds like a lot of fun doesn't it? Well that is true but the real attraction is not the fringe benefit of a trip through Europe but the chance to take part in a hard fought—fair competition with the top-notch modellers who share our common interest. The 1965 U.S. team members fought hard and fair and feel fortunate to have had the opportunity to participate in this terrific affair.

"Some uninformed people might think of team membership as some sort of prize. It might be a prize but not in the usual sense. Team membership brings with it responsibility and pressure. It is difficult to realise what this means until it is experienced personally. Preparation means long sessions of building, flying, changes and planning. This takes time, money and effort that cuts into personal non-modelling obligations. The job, family, bank roll all suffer."

"Nobody deliberately tries to make F.A.I. free flight competition difficult. But the very definition of competition requires that it be demanding and difficult. If not, then we are not talking about competition but about an exercise in frivolity".



AEROMODELLING LOST another of its stalwart workers with the death of Harry Barker on January 20th. Few of his associates realised that for Harry, Aeromodelling had been a life-long hobby. His early interest had been stimulated by the pioneer flights of his school period and though his other interests were many and diverse—ranging from Dachshund breeding to Civil Defence, aeromodelling had remained a major hobby with him for almost all of his 66 years.

It was more as an organiser rather than a modeller that most of us knew him. Fifteen years as treasurer of the S.M.A.E. and other years besides that as an Insurance Officer made him a key figure in the Society which controls British Aeromodelling. Harry took on the financial responsibility at a tricky period and made the best of a thankless task. Fifteen years is easily dismissed in a few words, but those who bear responsibility will appreciate just what this entails in sheer hard work and devotion for little reward except a Fellowship of the Society.

Situated at Lincoln, where his home was always open to those who forgot to reserve a local hotel, Harry was in a focal centre for those large airfields we needed so badly. In consequence, it fell to Harry's lot to be general negotiator and organiser of some of the most memorable National Championships. Scampton, Hemswell, Barkston Heath were virtually on his doorstep and became his province. It was Harry's tact and diplomacy that saved the day in

1963 when almost all hope was lost for a Nationals site and he secured Barkston Heath for the third time. Few knew of this because Harry was a background man. Catering, tents, communications at practically all of our East Midlands venues were Harry's self appointed responsibilities. But it was not only the National basis for which he worked. The "Battle of Wigsley", a disturbance involving the rights of aeromodellers to fly on that disused airfield would never have been resolved without his trojan efforts with the Lands Commission. Perhaps, after the practice of the American Air Force we should unofficially name the place "Barker Field".

We'll miss that hoarse whisper in displaced Gloucester accent which always greeted us at the meetings. How sad it is that within six months we should lose both he and Sam Messom, the two key workers for our premier events for so many years.

Our sincerest sympathies go to his wife Vivia and his nieces June and Pam for their great loss.



A WINNER FROM JAPAN

Cessna® 172E SKYHAWK

Designed by Fujio Arigaya

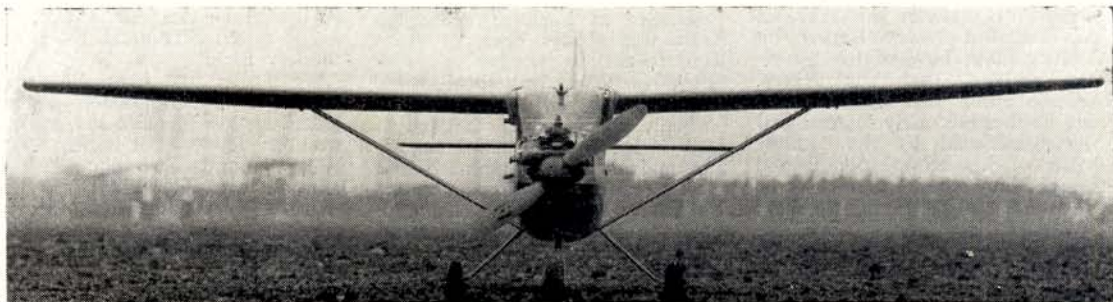
A 46½ inch wingspan single channel radio controlled flying scale model for 1.5-2.5 c.c. engines. Rudder only or with flaps, ailerons, elevator, rudder, throttle, and steerable nosewheel

THIS is the 53rd of Japanese scale model specialist Fujio Arigaya's designs and from what we can interpret from photographs and sketches (the language still defeats us!) it is *at least* his third Cessna 172E!

Regular readers will remember his near-scale *Junkers Ju87 "Stuka"* which has become a popular APS plan for single channel radio control. Now, in this Cessna we have something completely orthodox—suitable even for free flight and yet positively bold if the alternative controls are employed. Fujio's 46th model was a 172E Skyhawk with coupled aileron and flap control and 2.5 cc. power. His next,

the 47th, was another Skyhawk but using a 1.5 cc. engine and just aileron control. The one we show here is basically for rudder control plus engine speed off a second escapement. The extra's come with the use of Japanese dual purpose motorised single channel servos, of the K.O. Intermediate type. These have two output arms, working in sequence according to selection. Thus one can use the primary and secondary arms for Rudder or Aileron, and flaps, steering etc. Drawings on the plan show how various combinations have been used in Fujio's Skyhawks.

The model is to a size of convenience rather than a specific scale. It is near to one-ninth full size. This



Heading at left: Fujio Arigaya's Cessna 172E Skyhawk is a real winner from every angle. Note sprung nose wheel and wing retaining dowels.

Right: Fujio poses with an Aladdin's Cave of radio models, Mustang, Cessna 172, Zeke, and many more non-scale fly-for-fun radio models.

Impressive head-on view illustrates alternative single dowel wing securing as shown on plan. Note change in dihedral angle towards the wing tip.



is to obtain ideal areas and weights without deviation from a scale outline. The wing area of two square feet is just right for the 1.5 to 2.5 cc. throttle-controlled engines and average all up weight, complete with radio and ready to fly, ought to be about 2½ lbs. Without the load of radio it would of course have a sprightly free flight performance on 1 cc.

Cessna Aircraft Co. of Wichita, Kansas have supplied details of the 1966 model 'G' Skyhawk for those who want to be positively up to date and the 1966 machine is featured in colour on the cover. Note the pointed spinner and spats which are external distinctions. The 172 is a very popular 4 seater with luxury car comfort and very smooth flying characteristics. Many are used in Great Britain so that the scale enthusiast can easily search out one at a nearby airfield for those extra details. Colour trim varies according to year of manufacture and the application of National Markings. Another alternative scheme for those who like something 'different' would be that of the U.S. Air Force who use some as trainers.

A great attraction of Fujio Arigaya's designs is his simple approach to structure, coupled with the facility of providing fullsize parts drawn out on the plan. This is a great help and we're sorry we don't seem to be able to offer this service more often.

The fuselage is sheet sided with ⅜ in. sheet balsa planking for the underbelly and rear decking where curves are needed. A section around the detachable hatch for fuel bottle access is also planked and the remainder of the nose area is block balsa. Construction therefore starts with assembly of the cabin area formers between strengthener strips and the sheet sides, followed by other formers, engine mounts, undercarriage, nose blocks, planking and strengthening at the wing and tail seats. Note that the wing should be at plus 3 degrees on the chord line and the tail at 1 degree negative.

Leave the cockpit glazing until last and if you wish to make the tail plane a fixture as is suggested leave the rear decking planks until the tail has been fitted so that they will carry the lines smoothly to the rear.

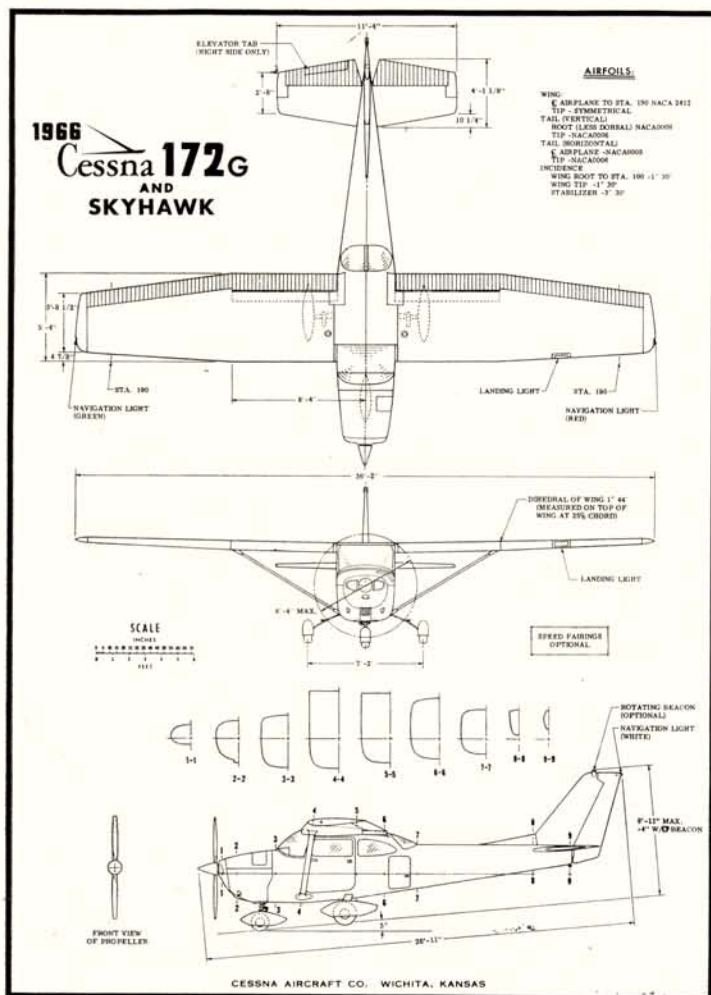
The tail should be next, having decided whether

or not to use elevator action. If it is to be employed then movements should be restricted to 5 degrees 'up' and 3 degrees 'down'. The tail is built up with ⅜ in. ribs between the ⅜ in. sq. spar and the leading edge, then lifted off the board to add the ⅜ flat spars of hard balsa above and below. ⅜ sheet is filled in behind and in front of the spars and when sanded, this produces remarkable strength. The ¼ elevators must be tapered in section and linked with the wire brace whether they are to move or remain fixed. This avoids any change in trim—a tab on the right side elevator can be used for final flight trim if necessary. Fixed elevators can be butted to the spar and moveable elevators sewn with a figure of eight stitch to act as hinges. If the tail is to be fixed to the fuselage, glue it in place after sand papering is complete, then fit the fin and rudder, which are simple sheet surfaces with a hard sternpost keying them upright to the fuselage. If the tail is to be a loose fit prior to fixing, after trimming, leave a gap above it in the fin and if the tail is to be completely detachable fix the fin and rudder to the tail and add dowels to the fuselage for rubber hand retainers.

The wing deserves study prior to building. The drawings show the basic structure, and the combined aileron/flap controls. These call for differences in ribs, false spar, and of course, separate control surfaces, instead of the all through trailing edge of ⅜ sheet balsa. Note, incidentally that the scarf joints on these trailing edge pieces are not overlapped at top and bottom in order to preserve continuity of strength.

An added complication is the use of two stage dihedral, due to taper being 3 degrees on the top surface throughout and an increase of 2 degrees outboard of the stretch fixing on the underside. What could be more simple than to build the wing upside down? Accordingly the ribs have tabs attached so that when inverted, their chord line is horizontal and parallel to the board. Also, the 172 has washout incorporated on the full size and this model duplicates a 3 degree reduction of incidence towards each tip. This is all included in the ribs as drawn.

Fujio holds aloft his steerable nose wheel Cessna 172E Skyhawk with K.O. .15 engine running. Flap and aileron hinge lines are just visible on original print. Scale strut is a 'dummy' for realism. See also colour photograph on Cover.

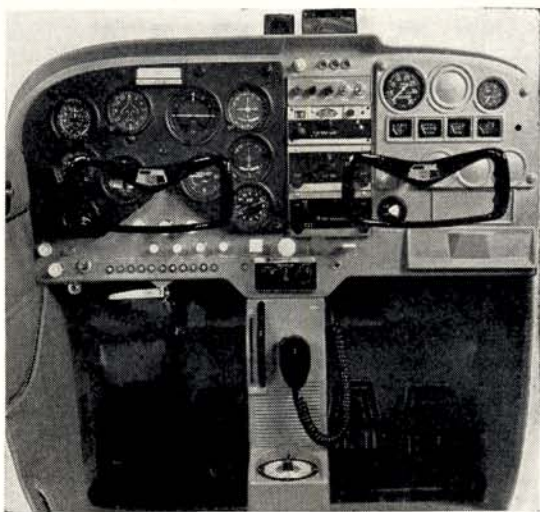


Works general arrangement drawing of latest 1966 172G Skyhawk gives pertinent changes of details and leading dimensions for scale model builders, scale is 1/144 full size. Copies to 1/72nd scale are available from the Cessna Aircraft Co, Wichita, Kansas, U.S.A.

Lay the top spar ($\frac{3}{8}$ in. sq.) over the plan, and fit all ribs. Add the leading edge, the bottom spar and then the bottom surface of the trailing edge (in 3 sections). When set, complete the trailing edge and fit $\frac{1}{8}$ in. sheet webs in front of the main spars out to the third bay from the tip plus all the other details on the plan. Plywood braces at the centre-section and an angled ply or hard balsa rectangle carry the loads of any undesirable "prang" should this strong wing wish to test the strength of the rubber bands straining to hold it in place. Complete the wing with tips, sheet covering and cap strips over the ribs, strut fittings, etc. The 'Flapped' wing is obviously different—and we feel sure that the experienced modellers who will make it will find the plan adequately detailed.

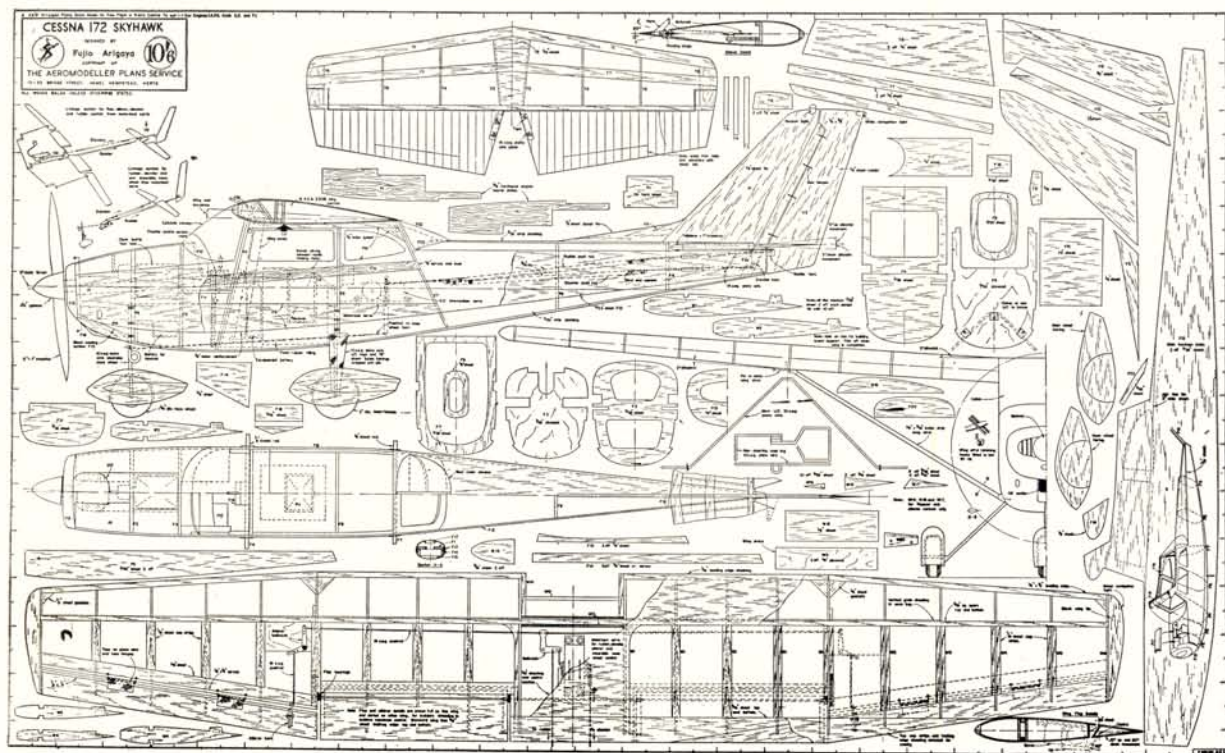
The airframe is virtually complete and now needs hardware and equipment. Wheels, engine, radio and servo or escapement add a lot to the weight and the radio gear should be used to obtain the designed balance. When happy that all will fit, and still be accessible through the hatch at the front, or through the cabin roof, it is time to cover, preferably with silk or nylon. Most modellers have their own preferences for finishing but for those who need guidance, two coats clear shrinking dope, each rubbed down with finest "flour" paper of 0-600 or 0-400 grade, prepare the surface for the colour decorations. Fit the cabin glazing at this stage, and mask off when colouring.

Finally, even though a scale model, be sure to fit a name and address panel for it would be a great shame to lose the Skyhawk if it gets "Skyhooked".



Cessna Aircraft Co., photo of instrument panel gives plenty of scope to those scale fiends who will no doubt be only too eager to get to work making all those switches and push buttons.

Full size copies of this $\frac{1}{16}$ th scale reproduction are available from Aeromodeller Plans Service, 13-15 Bridge Street, Hemel Hempstead, Herts. Plan number R/C 902, price 10/6d. post free.



TOPICAL

WIS TS

by 'Pylonius'

illustrated by 'Sherry'

Rogue Model

I've always imagined, and quite appropriately I think, that the model flyer is on the side of the angels. But this sublime view is not, I fear, shared by the telly people, who are more inclined to associate the model flyer with the bloke who inhabits the deep down dirt regions. Possibly they have been influenced by the observable number of model craft that make spirited attempts to reach his underground habitat. But still I think its going a bit too far to cast the innocent old modeller in the villainous role of one who seeks to dominate the world for his own tyrannous ends, when all he asks is just enough earth space to fly his very unsinister type model plane.

Anyway, in the latest model adventure to be screened the master mind hobbyist is planning something diabolical against the human race, doughtily assisted by his super plastic, bomb-dropping, gun-firing model planes. Fortunately for innocent old us the fiendish modeller is foiled in the nick of time by the nattily dressed hero and his china doll girl friend, who, besides being a weekly saviour of the human race holds the English Ladies' All Comers' Record for Long Distance Villian Slinging (You should see Chuck glide!)

All very cliff-hanging, no doubt, but it would be fairer to the much maligned model plane if it were cast in a more sympathetic role. Thus:

The master mind has taken over the government, and is out to destroy the last traces of civilisation by driving a motorway over Chobham Common.

Says Steed, our hero, (No, not the talking horse) to his girl friend, Emma Peel:



The Phantom modeller strikes again

"He's going to drive a motorway over Chobham Common."

"That's devilish clever of him, considering the road's so narrow," she replies.

Some time later Steed steals into the arch villian's house by the arch and seizes the guard.

"Have you seen Emma Peel?" he demands.

"I make a point of never watching ladies sunbathing," replies the guard stiffly.

Then amidst a crashing of fog lamps a begoggled figure stumbles in.

"Tied to the Wimpey machine," he gasps, as he collapses into a heap.

Steed pulls him out of the driving seat and motors swiftly to the nearest hot dog stand. Steed shows the proprietor her photograph.

"Hot dog," murmurs the proprietor.

Steed then proceeds to cross London by the swiftest means available. His feet are killing him by the time he reaches Chobham Common. But too late. All trace of the modellers had vanished: the only thing to be seen was the new gleaming motorway.

"Ah well," says Steed, "This is the way the world ends, not with a bang but a Wimpey."

Expert Beginner

Time was when all you had to do to become an aeromodeller was to bring two pieces of balsa into adhesive union and wave a club badge on the local common. There were no fearful preliminaries to overcome or financial outlay to meet. It was much on a par with becoming a cyclist or a tiddleywink enthusiast. One moment you were a common or garden deadhead, and the next you had a positive identity to flaunt before the world. People would nudge each other in the street and remark:

"He's an aeromodeller, you know."

To which the other person would reply with a sad shake of the head, "And so young, too."

Now things are quite different. You can't become an aeromodeller overnight; super kid changeling though you may think you are. I base this observation on the increasing magnitude of beginners' articles. Back in the days when I whittled my first prop from a piece of hickory, one article, and not too much of that, was deemed sufficient to raise you up from the groundlings to modeller status, but nowadays the levitation can only be achieved on the long term instalment plan. It takes at least three teach-in size articles to get to the stage of squeezing you first tube of cement, and the budding enthusiast is greying at the temples before he is ready to set foot on the flying field.

Come to think of it, though, the legal complexities which confront anyone venturing upon any open stretch of pasturage are such that it might behove the would be beginner to qualify as a solicitor as part of his training. He would at least be equipped to deal with those Councillors and Conservators who use the big boot first and ask questions afterwards.

Altogether becoming a modeller these days seems to be pretty hard graft. By all accounts you have to be an expert before you can even qualify as a beginner. Even so, such a state of affairs should ensure that the model flyer of the future is something of a permanent institution rather than the character whose only airborne type activity is in flying from hobby to hobby.

Indoor Flying

We who were privileged to witness the advent of the popular "deezil" back in the dim and distant past hardly suspected that the spindly, undernourished little creature

(continued on page 140)

John O'Donnell

offers some
expert hints & tips

on Free Flight

and reports on
Winter events

When I first became interested in contest flying during the late 1940's the winter months were habitually spent in R.T.P. flying and the like in the local clubroom. When such activities lost their popularity the concept of a winter rally appeared, with the idea of keeping up interest in the "close season". The "Bill White" event was amongst the earliest of such contests and both it and the regular N.W. Winter Rally were certainly very popular when first introduced.

The trend appeared to be towards more, but smaller, winter rallies and there was a stage a few years ago when the contest season seemed continuous! Last winter however was noticeably quiet with several "regular" events having disappeared. This winter has been even slacker, excluding November's end-of-season events. The only winter rally advertised in the "Press" was that of the Woking club, scheduled for Sunday 26th December, and even this was subsequently cancelled. About a fortnight before Christmas some London Area flyers decided to run a replacement event on similar lines, but one day later. There was presumably some reason why they didn't simply take over Woking's date (which would have suited the people who turned up at Chobham on the Sunday).

As I didn't fancy the trip, results are second-hand by courtesy of Martin Dilly, who helped Paul Newell provide the "organisation". Entry was good considering that publicity was solely by word of mouth. The weather was cold but clear with a light wind that increased somewhat towards the late afternoon. Its direction was not ideal, giving recovery difficulties, and hence no third flights for some entrants. Competitors' diet consisted largely of turkey sandwiches, although the Brighton contingent had a container of what they claimed was a local brew of cider! It didn't stop Fred Boxall and Chris Foss recording the day's only full-house scores to win rubber and glider respectively, whilst John West and Dave Welch tied for first in Power with two maxs apiece. Ed Warwick (see last month's Club News), Paul Newell and Ken Smith collected $\frac{1}{2}$ A Power, Coupe d'Hiver and A1 Glider.

North West Winter Event

An equivalent meeting was staged in the N.W. about 3 weeks later by the Timperley club who issued invitations to a few of their neighbours. Support was mainly from Congleton, Wallasey and my own club, Whitefield. The meeting was certainly enjoyable as the weather was kind (overcast and light breeze) and recovery easy from the farmland site and surrounds.

Most novel feature was the presentation of but a single award (trophy and cash) and this for the best two-event aggregate. Whilst it has merits it was not to the liking of the one-class specialists. Honours went to Mike Reeves (Lee Bees and Whitefield, having just moved North) who managed 8:46 in rubber and 8:17 in glider. I had a busy day as visibility troubles in the haze gave a low glider score and hence I had to do some hasty power flying towards the close of the events. Both John Parrott and I could have overhauled Mike but came to grief on our final flights with an overrun and sink respectively. In the individual events Urian Wannop and I maxed out in rubber, whilst John Parrott dropped just a single second in winning glider. Geoff Lowe topped both power and chuck glider.

Moving surfaces

The present day approach to free-flight contest flying (and other categories as well) is sometimes criticised for being too



stereotyped. This is hardly surprising when one considers the amount of development that has gone into, say, the conventional pylon power design.

Most progress these days is in detail and refinement rather than in radically new aerodynamic layouts. One feature becoming more common is the Variable Incidence Tail. Originally considered by most flyers to be worth the trouble only for F.A.I. Power (where George French demonstrated its usefulness) it is now being seen on both open and $\frac{1}{2}$ A power models. Many modellers seem to think it is a clever way of making a model climb faster. Analysis of what it does reveals otherwise. The same climb can be obtained without gadgetry by using the same rigging (little or no incidence difference—decalage, if you want to be technical) with the C. G. far enough back for glide requirements. This is often far from a safe glide trim, and even if not prone to long dives without recovery can be unreliable in wind or poor air. Conversely moving the C. G. forward and adding plenty of negative packing on the tail works wonders with the glide stability—but gives lots of trouble under power. The V.I.T. permits these conflicting requirements to be reconciled as the forward C.G. is no handicap under power.

Actual means of working the tail movement vary widely, most people who can handle the engineering being capable of devising something that will do the job. Frigyes' system has been well publicised, whilst George French's and others have pivoted arms that hold down the tail T.E. under power, and by moving back permit the tail to change angle for glide.

continued on next page

At top: Geoff Lowe prepares his power winner with his son who helps until the 35 barks!



Peter Southams with the same glider he used to win the St. Albans Gala at Chobham in November. Flown here at Timperley. Note the fibre fishing rod fuselage.

(continued from page 138)

was so quickly to turn a cosy little hobby into a commercial rat race. However, it soon became clear that the future role of the model plane was a secondary one. To anyone with a spark of boyish enthusiasm in his strong right finger the model engine wasn't just a useful addition to the hobby—it was the hobby. The fact that it had to be tacked on the front of a model plane now and again for the sake of appearances was a bit of a tiresome ritual, but to buy an engine merely to vibrate the workbench smacked somewhat of futility.

But all that was a long time ago. And a long time ago, too that I made a silly joke about engine collecting. By that time engines were pouring off the assembly lines, each one hardly a whisker different from the other. This coinciding with a marked decrease in the number of model flyers to be seen on the not-so-broad pastures. But even then the engine collectors were secretly at work, hoarding their curious bits of ironmongery in attic and toolshed.

Now, at long last, the engine collector has come into the open as a mod age dilettante, with aesthetically trained eye ever alert for the latest thing in crankcase contour and piston head perfection. If the millenium of the armchair hasn't quite arrived it cannot be far off. After all, most of the radio flying to-day (and there is precious little else) is being carried out by eleven year old prodigies, and the next stage is surely some sort of "Link Trainer" set up where all the joys and thrills of proportional flying can be enjoyed in the boxroom.

Whataway?

One of the most frustrating things about aircraft design, and that goes for models, too, is that you are very much tied to the same old formula of "prop up front, tail behind and wings in between". You can, of course, vary the arrangement, but if you do you come



Blast! The engine has come out the right way up.

up against all sorts of infuriating snags. The thing might need twice the horsepower and six helpers to get airborne, there is nowhere to put the engine, or, most maddening of all, it just won't fly.

However, the old homo sap. is a stickler for punishment, and in the model world at least if things are generally thisaway then be sure that some rebel will go "Thataway", though I am inclined to think that anyone sticking his tail out in front is sticking his neck out. On the other hand it could lead to quite a "boom" in model building.

John O'Donnell on Free Flight (continued)

As this is being written on the weekend of the Monte Carlo Rally controversy, it might be appropriate to point out that the F.A.I. rules defining models include the phrase "surfaces remaining fixed during flight".

I am quite aware as to what is *probably* meant,—but it is not what is said!

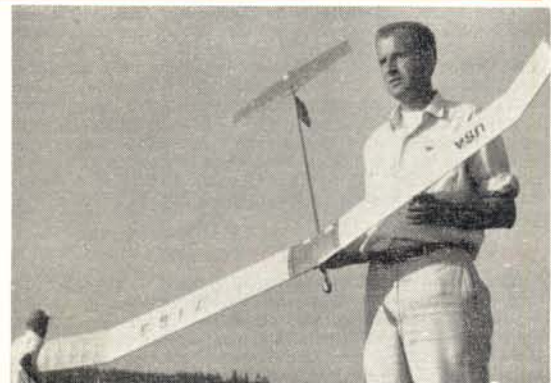
Fishing Rod Fuselages

Another idea that has progressed a long way from being a novelty is the use of glass fibre fishing rods for A2 fuselages. These are now accepted as being a very satisfactory, if expensive, answer to several conflicting requirements.

The obvious advantage of glass-fibre is that it is unbreakable for all practical purposes. Even so there have been some fliers (notably Paul Newell and Al Wisher) who, having tried it, have reverted to conventional balsa fuselages. There is talk of inconsistency blamed on flex of the fishing rod. It could occur but I have never had anything I could blame on this. Perhaps the main requisite in avoiding such troubles is a light (not necessarily small) tail. There are also those who think that about a pound is too much to pay for the advantages!

The first such fuselage that I can recollect seeing was by Len Lortz (U.S.A.) at the 1961 World Champs at Leutkirch, although there was an earlier mention in a "Flying Models" plan of Bob Hunter's power model. In this country Mike Burrows was the first to demonstrate their successful use with a win at the 1963 Nationals. His clubmate Colin Morris found a limited source of supply of the fishing rod blanks,—enough to provide for his club and a few other London Area exponents.

I was working in Stevenage at the right moment and managed to acquire a rod via the St. Albans club. This was used in the model that was flown 12 months later in Finland. I liked the glass fibre rod and wanted some more. This led, through various contacts, to a firm that could, and did, supply a couple of dozen blanks. However they considered it was uneconomical and said that any further orders would have to be for 50 minimum.



Len Lortz (USA) and his glass fibre fuselage design.

The size needed is the middle portion of three-piece fishing rods, and not normally needed for spares. Mine were said to be specially made. If enough people write in I could order some more!

Searching the fishing tackle shops has produced one or two rod blanks for some people, but most of those I have seen have been either too small in diameter for A2 use (though some might do for A1) or with too thick a wall and hence too heavy. As a guide to what is wanted perhaps I could mention that "my" rods are 42" long, $\frac{1}{2}$ " o.d. tapering to $\frac{1}{4}$ " o.d. and weigh $1\frac{1}{2}$ ozs. The variety that weigh a couple of ounces result in a very overweight fuselage!

One very common question is about adhesives. I, and most other people, use epoxy resins (Araldite and the like) for sticking items to the rod. This gives no trouble at all provided that the rod surface is first rough sanded to remove grease and release agent.



SPECIAL ANNOUNCEMENT

are you between 10 and 16
years of age then don't delay,
—join today

Golden Wings Club is a special club for Aeromodellers between the ages of 10 and 16, and each month space will be devoted to you the modellers and contests winners of tomorrow.

Model Aircraft magazine ran a Wings Club and all its members will, now belong to the Golden Wings Club a revival of a junior model club started many years ago in Aeromodeller.

Every established aeromodeller knows full well that the pattern of the first few years for a beginner decides the future of his modelling career for years to come. The simple little things matter a lot to start with, as even tasks like the cutting of parts from sheet balsa can present a problem to the novice without the proper tool. "Basic Aeromodelling" is an ideal series for the novice each month in Aeromodeller, and Golden Wings Club will carry news, photos and handy hints in the same manner.

The aims of the "Golden Wings Club" are to encourage the junior aeromodellers as follows:—

To advertise pen pals each month giving members the chance to exchange, news, engines, magazines and tips with overseas and other British Aeromodellers.

To publish news and ideas as the members submit them for the benefit of other members.

To answer members, modelling problems where possible and to give advice on any modelling matter.

To put them in touch with their nearest local modelling club so they may meet other modellers and learn from their experience.

We want to hear from you. If you join the Golden Wings Club and have a letter printed we will credit you with an Aeromodeller Plans Service voucher. For each letter published a voucher to the value of 10/- will be forwarded, a letter and photograph 15/-, or letter and sketch to illustrate a modelling tip 15/-. These vouchers should be returned to us and they can then be exchanged for books, magazines or plans etc., from our large range

that contains over 900 aircraft designs. A Plans Handbook illustrates all there is, and is available price 2/-, including post, from the address below.

How to join our new club

To join, fill in the handy membership coupon and send with postal order/money order, or cheque to the value of 2/6d made payable to "Aeromodeller". Post to Golden Wings Club, Aeromodeller, 13-35, Bridge Street, Hemel Hempstead, Herts. Each member will receive his own badge depicting "Golden Wings", a membership card, and two transfers to decorate his model box or model. So don't delay, join the "Golden Wings Club" and make it aeromodellings biggest and best ever model club, as well as being a founder member.

John Bridge.

Last month six letters were published under the heading "Questions and Answers" this month two are published with answers on scale problems, let us have yours for next month and don't forget to watch the magazine for an answer if you are one of the lucky ones chosen to have his letter printed.

Mosquito Plans

Dear Sir,

Please could you possibly furnish me with the whereabouts of highly detailed plans for the D.H. Mosquito.

D. T. Rowland.

Christchurch, Hants.

Unfortunately there are no extensively detailed plans of the D.H. Mosquito available. It is a great shame as this is a popular modellers' choice and it was the first ever lightweight twin engined unarmed bomber. During its life time it performed in many roles including that of a fighter bomber, — did you know balsa was largely used in its construction as well as plywood, this being the origin of its nickname the "Wooden Wonder". We have the type under study and hope to add it to our range later in the year.

Mitchell Markings

Dear Sir,

Please could you tell me the colour schemes of the North American B 25-J (with solid nose) Mitchell.

I. Stott.

Cumberland.

Two colour schemes for a B25-J Mitchell fuselage were drawn in full colour in the Airfix eature, inside front cover August issue. One is depicted in olive drab/dark green of the Soviet Air Force and the other in light grey of the Mexican Air Force. The B25-J does not have a solid nose in these illustrations. We showed two B 25-H armed versions with the 'solid' nose.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the "Golden Wings Club". With this application I enclose postal order, (International Money Order) for 2/6d. to cover cost of the badge, transfers and membership card.

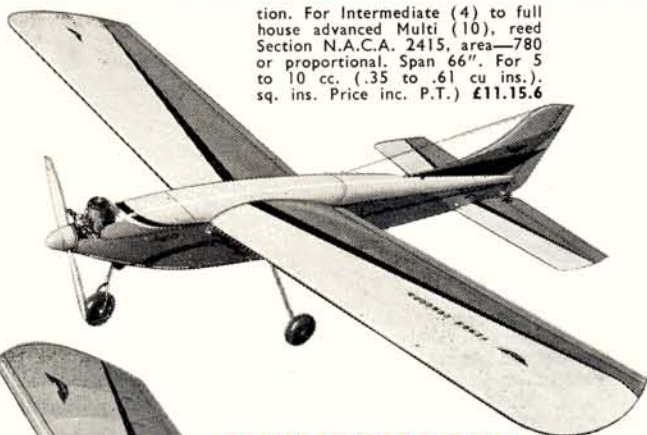
NAME IN FULL

ADDRESS

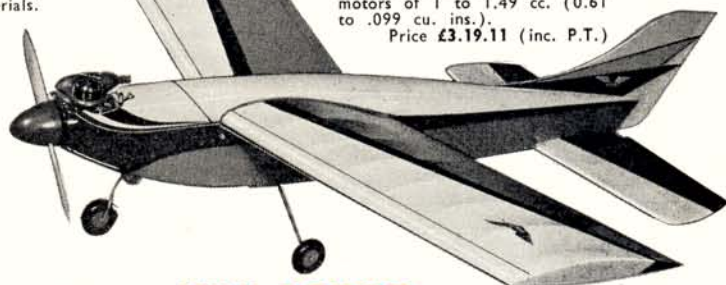
YEAR OF BIRTH..... SCHOOL

NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG
(if any)

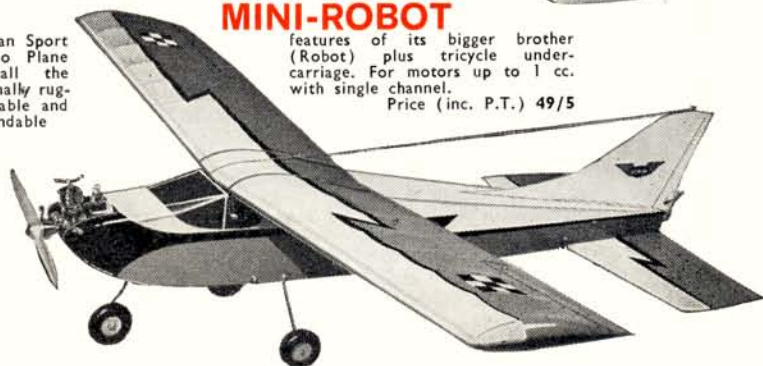
SEND TO:- GOLDEN WINGS CLUB, AEROMODELLER, 13-35,
BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

VERON*featuring***RADIO
CONTROL***-and-***Webra****ENGINES**Glo-Star 3.44 cc.
132/9Glo-Star R/C
3.44 cc. 147/6Complete range of diesels & Glo motors
from .8 to 3.5 c.c.Mach II 2.47 cc.
161/8Mach II R/C
2.47 cc. 175/11**THE FINEST
ENGINES FOR YOUR MODELS****ARIEL****ELECTRONICS****NEW**Bi Simultaneous
6-channel Superhet
Attractive and
serviceable plastic
case easily fitting
the grip. Long or
med-short switches
to choice. Trans-
mitter design in-
corporates com-
pletely new A.F.Ideal for Rudder,
Elevator and
Engine speed control,
also Rudder
Elevator and
Aileron on
Slope-Soarers.
Price £39.10.11**WINNER****CONCORD**The finest and most
versatile fully pre-fabri-
cated British Multi-Kit,
classically engineered
design with stable
shoulder wing configura-Graceful stream-
lining with a
stable shoulder-
wing configuration
gives the "Mini-
Concord" a pur-
poseful appeal for
use with single
channel RADIO
CONTROL for
rudder (and flip-
up elevator with
rubber driven
actuators) VERY
HIGH DEGREE
OF PRE-FABRI-
CATION and
quality materials.**MINI-CONCORD**Design a joy to build and a
robust and enduring performer.
Designed for diesel and glowplug
motors of 1 to 1.49 cc. (0.61
to .099 cu. ins.).

Price £3.19.11 (inc. P.T.)

**MINI-ROBOT**features of its bigger brother
(Robot) plus tricycle under-
carriage. For motors up to 1 cc.
with single channel.

Price (inc. P.T.) 49/5

**SILENCERS!**

ALL ACCESSORIES AVAILABLE

Piccolo (Exhaust & Silencer) 7/9
Record (25/32" Hole) 17/4
Winner (27/32" Hole) 17/4
Bully (29/32" Hole) 17/4Mach II Extension Silencer 17/4
Glo-Star Extension Silencer 17/4
Exhaust Manifold for Mach II 20/8
Exhaust Manifold for Glo-Star 17/4

MODEL AIRCRAFT (B'MOUTH) LTD. NORWOOD PLACE • BOURNEMOUTH

DISTRIBUTORS IN U.S.A.: WESTEE HOBBY IMPORTS, 5808 West Chicago Avenue 51, Ill., U.S.A.
DISTRIBUTORS IN CANADA: ACADEMY PRODUCTS LTD., 106 Tycos Drive, Toronto 19.
DISTRIBUTORS IN AUSTRALIA: GEORGE PIZZEY & SON LTD., 131-141 Johnston Street, Fitzroy N.6. Melbourne.



COX SPECIAL .15

Mk II

Third in a new series of regular monthly

ENGINE TESTS

by Peter Chinn

.....

Performance figures and B.H.P. readings taken on straight fuel to conform with F.A.I. rules

IN view of the new FAI rule extending the obligatory use of standard methanol/castor fuel to the FAI free-flight power class, we shall, in future, be making a point of using standard fuel when testing engines in this category. Accordingly, our report this month on the Mk. II version of the Cox Special .15, includes performance curves obtained from tests using straight 3 to 1 methanol and castor oil fuel.

Development History

The Cox Special Mk. II is, of course, a development of the Special Mk. I which, in turn, was evolved from the original Cox Tee-Dee 15 engine introduced some five years ago. These engines are unique among contemporary 2.5 cc contest motors in both design and construction. Although the introduction of the Tee-Dee series engines marked a change of Cox policy in so far as they reverted to the use of a shaft rotary valve, many typical Cox features were retained. Thus, unlike any other high performance 2.5 cc glow motor, the Tee-Dee 15 used a machined crankcase (no castings in fact were employed anywhere in the engine), a screw-in one-piece cylinder with twin opposed exhaust ports and internal transfer flutes, and a screw-in head with integral glow filament.

When the Tee-Dee 15 appeared early in 1961, the feature that immediately aroused curiosity was its unconventional crankshaft, bearing and rotary-valve set-up. This was designed during the latter part of 1960 by Bill Atwood, following experiments with rear rotary-valve conversions of the reed-valve Cox Olympic engine, the Tee-Dee's predecessor. Free-flight enthusiasts who attended the 1960 World Championships may recall seeing one of these rear-rotary Olympics impressively performing in the hands of former American National Champion Woody Blanchard.

The Tee-Dee 15 crankshaft was (and still is) by far the largest diameter shaft used in any 2.5 cc engine and thus allowed a very much larger bore gas passage

through the shaft, and a correspondingly large valve port. The design of the intake system and front end surrounding the shaft was equally unorthodox. The crankcase, as we have said, is machined—actually it is produced from an aluminium extrusion—and at the front it is formed into an extension sleeve that serves as the crankshaft bearing. A 7/16 in. wide flat is machined across the bearing to a depth sufficient to expose the required intake aperture width. The complete extension is then encased in a black Delrin moulding which includes the threaded boss into which the carburettor venturi is screwed and forms an accumulator chamber between the carburettor and valve port. The moulding is locked in place by an alloy retaining ring screwed onto the front of the bearing.

Largely as a result of this original approach, the Tee-Dee achieved a quite remarkable increase in power compared with the Olympic. Another contributing factor was the revised, high-compression, trumpet-shaped glowhead which replaced the earlier hemispherical type. Tee-Dee 15's were quickly adopted by many leading FAI free-flight contestants and, within a few months of the engine's introduction, it had powered the winners of several important contests, including the 1961 World Championships and the 1961 British Nationals. However, the manufacturer also had some less favourable reports to contend with. Firstly, the Tee-Dee had a quite ravenous appetite for glow filaments, when propped and fueled for maximum performance. Secondly, and especially if rpm were taken up beyond the 20,000 mark (unnecessary, admittedly) failure of the piston-conrod ball-joint, or fracture of the cylinder between the ports, would sometimes occur.

Within less than a year the Tee-Dee 15 was, therefore, withdrawn and replaced by a revised model known as the Cox Special 15. This had a new head, a new cylinder and a new piston-conrod assembly. The head was changed to a conical combustion chamber shape and provided with a heavier gauge filament. The cylinder wall thickness was increased by over 70 per cent, and the former hardened steel piston and ball-joint hardened steel conrod were replaced by a cast-iron piston with solid 5/32 in. dia. gudgeon-pin and a machined light



Close-up illustrates new single exhaust port and three large transfer flutes in place of the usual symmetrical arrangement of dual opposed exhaust ports and dual opposed transfer flutes. These effectively reduce exhaust port area by just over 30 per cent from the Mk. I Special .15.

alloy conrod. At the same time the cylinder bore was increased by .006 in. to take full advantage of the 2.5 cc displacement limit and rotary-valve timing was altered to give earlier opening.

New Cylinder Porting

This Mk. I version of the Cox Special remained in production for three years, finally being superseded by the present Mk. II last summer. This model shows the first major change in Cox cylinder design. In place of the usual symmetrical arrangement of dual opposed exhaust ports and dual opposed transfer flutes, it has a single exhaust port and three transfer flutes. This reflects a current trend in engine design which is towards the further development of transfer systems. The Mk. II transfer system consists of a vertical flute diametrically opposite the exhaust port, flanked by two inclined flutes which converge and almost join the centre one at the top. These flutes extend around approximately 230 degrees of the bore circumference at the bottom of the cylinder, tapering to 180 degrees at the top, and are timed to open and close 65 deg. each side of BDC. Exhaust port timing is unaltered at 70-70 deg., port depth being unchanged, but, since the single port width covers 59 degrees less than the sum of the Mk. I's two ports, the Mk. II exhaust port area is reduced by just over 30 per cent.

Close inspection reveals one or two other small differences. Our test samples disclosed a very slightly wider valve aperture in the main bearing, as a result of which, rotary valve timing was extended by 5 degrees, i.e. valve timing is now 32.5 deg. A.B.D.C. to 47.5 deg. A.T.D.C. A short oil channel has been added to the main bearing to aid lubrication of the rear section of the shaft and a stamped conrod is used in place of the former turned component.

Performance

As is well-known to most engine enthusiasts, Cox motors are built to extremely close tolerances and do not require a running in period, as such. The makers merely recommend that the engine be run rich for the first 60 seconds, after which it may be given its head. A slight improvement in power can be expected after the engine has accumulated about 30 minutes running time. Our test engine was given a total of about 60 minutes before any tests were undertaken. The engine accumulated a further hour, approximately, during checks on different fuels and comparisons with earlier models on various props.

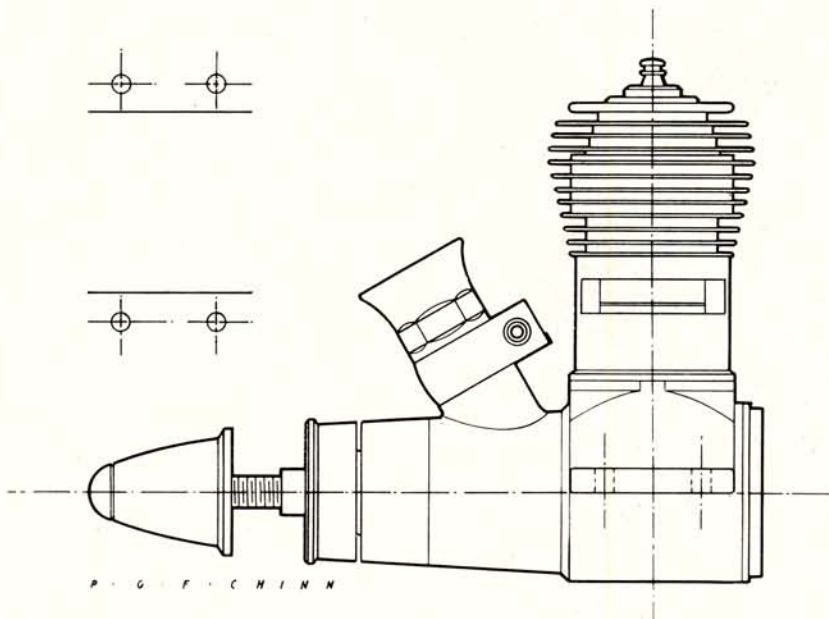
Starting qualities were good and much the same as those of the previous model. Priming into the exhaust port produced a quick start when the engine was cold. A single flick of the prop with the intake choked was usually the only preliminary necessary for a hot restart. The Mk. II was not the most vibration-free 2.5 glow we have encountered, nor were rpm and torque readings held exactly rock steady on straight fuel. These engines are, however, intended primarily for operation on fuels containing at least 30 per cent nitromethane, and, on such fuels, the improvement in steadiness was most marked. In addition, of course, substantially more power is liberated on a 30 per cent nitro fuel—by our test some 26 per cent more in the case of the Mk. II.

Nevertheless, the output of the Mk. II on straight fuel was very good, reaching approximately 0.38 bhp at just on 19,000 rpm. Incidentally, it occurred to us that a slight improvement might be achieved—for the purposes of ultimate contest performance—by reverting to the old Tee-Dee trumpet type head. Unfortunately, our own small stock of these was exhausted in earlier Tee-Dee tests and, in response to our enquiry, the Cox Company informed us that they themselves no longer



Parts of the Cox Special displayed at left give a good indication of the high finish and good design thought in all Cox engines, note that large shaft transfer port and squish band, machine head with integral glow element.

FULL SIZE
DRAWING FOR
CONSTRUCTIONAL
INFORMATION
EXHAUST PORT
ONE SIDE ONLY.



possessed any stocks of them. It is conceivable, however, that since the choice of plug filament and compression ratio are, to some extent, dependent on fuel used, the development of a special head for FAI use might be worthwhile. Compared with the best of our Tee-Dees on straight fuel, maximum torque of the Mk. II was quite a bit lower, but ultimate power output was equally as good by virtue of the Mk. II's better breathing at high rpm and its higher peaking speed.

To achieve this output in flight, the Mk. II must not,

of course, be overproped. A fast 8×4 (around 16,200 rpm static) is certainly the biggest practical prop size and prop dimensions are likely to be quite critical: one might, for example, suggest starting with 8×4 , $8 \times 3\frac{1}{2}$, $8 \times 3\frac{1}{4}$ and 8×3 props, and, by flight tests, finding the best climb by cropping blades $1/8$ in. at a time.

Although Cox make simple exhaust mufflers for their small engines used in ready-made models, manufacture of units suitable for this larger engine has not yet been undertaken. However, to conform to SMAE requirements, a suitable expansion chamber type silencer is available from Henry J. Nicholls & Son Ltd., at about 25s.

Power/Weight Ratio (as tested): 1.36 bhp/lb.

Specific Output (as tested): 152 bhp/litre.

SPECIFICATION

Type: Single-cylinder air-cooled two-port two-stroke cycle with single exhaust port and triple transfer flutes. Shaft rotary-valve induction. Glowplug ignition. Plain bearing

Bore: 0.591 in. **Stroke:** 0.556 in.

Swept Volume: 0.1525 cu. in. = 2.499 c.c.

Stroke/Bore Ratio: 0.941:1

Weight: 4.45 oz.

General Structural Data

Crankcase and main bearing machined from extruded aluminium bar, anodised gold. Hardened and ground steel crankshaft with full disc web and crescent counterbalance, 0.437 in. dia. divided main journal, 0.300 in. bore gas passage and 0.156 in. dia. crankpin. Shaft end knurled for pressed-on gold-anodised prop driver and tapped for prop retaining screw. Unhardened steel cylinder with integral fins and blued finish. Cast-iron, flat crown piston with solid 0.156 in. dia. gudgeon-pin located in piston by pressed-on distance pieces between connecting-rod and piston skirt. Stamped aluminium alloy connecting-rod with unbushed eyes. Screw-in aluminium alloy glow-head seating on soft copper gasket. Moulded Delrin main bearing housing and carburettor boss with moulded-in nipple for optional high-pressure crankcase pressurized fuel system. Screw-in machined aluminium carburettor venturi having three surface jets fed via separate needle-valve body with steel thread insert for blued steel needle-valve. Needle-valve body reversible for left or right hand installation. Beam mounting lugs.

TEST CONDITIONS

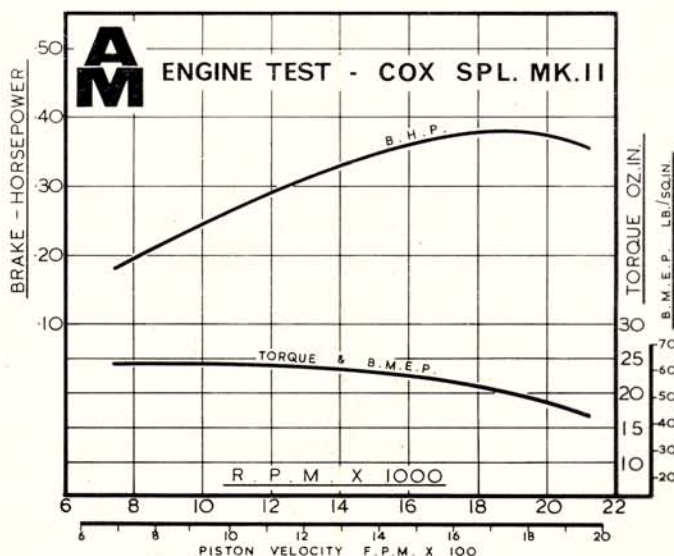
Running time prior to test: 2 hours

Fuel used: 75 per cent I.C.I. Methanol, 25 per cent Duckhams Racing Castor Oil.

Air Temperature: 68 deg. F.

Barometer: 30.30 in. Hg.

Silencer Type: Nil. (Maker does not offer silencer for this model).



YOUR FULL SIZE FREE PLAN

MINI-BUNT

a 24 inch wingspan $\frac{1}{2}$ A

combat model for 1-1.5 c.c. engines.

Designed by S. Spencer

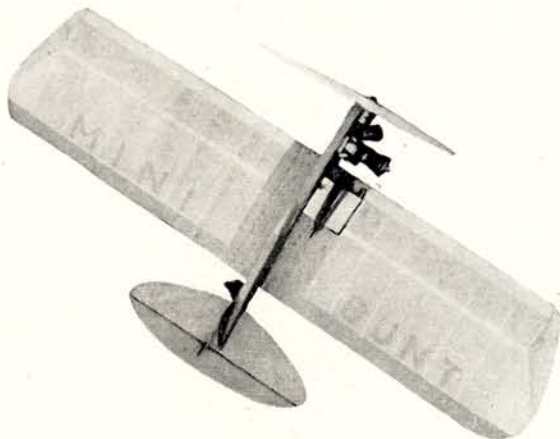


S. Spencer poses with his "Mini-Bunt" prototype, an ideal model for the club contest or younger modeller.

THE "Mini-Bunt" is not an original as some may assume. It is in fact a miniature version of the "Flingel Bunt". (January 1965 *Aero Modeller*.) Though this model has never been entered for competitions (few $\frac{1}{2}$ A Combat events are included in the contest calendar) it is felt it would do well if put to the test.

Its main attribute lies in a combination of manoeuvrability, speed and strength. The original model has never, during its long life, been damaged except for a slight tear in the tissue covering. This was rendered less likely to happen on the second model by introducing an alternative covering of nylon.

The basic construction is simple but it helps if a strict schedule is followed.



Use of the slower setting P.V.A. white glue throughout the construction is strongly recommended.

Cut the $\frac{1}{4}$ in. sheet fuselage and glue the $\frac{1}{4}$ in. \times $\frac{1}{2}$ in. bearers in position along with the $\frac{1}{4}$ in. sq. hardwood spacer.

Then cut the $\frac{1}{4}$ in. \times $\frac{1}{8}$ in. spars, $\frac{1}{2}$ in. \times $\frac{1}{2}$ in. sq. leading edge and 1 in. \times $\frac{1}{4}$ in. trailing edge to length over the plan.

The ribs are cut from 1/16 in. sheet and glued to the lower wing spar which is pinned over the plan, taking care to observe that the rib spacing is not the same for both wing panels. Glue the second wing spar in position and also the leading edges and trailing edges. Cut and glue the 1/16 in. ply doublers to the main fuselage of the model.

Now make up the bellcrank assembly and fit in place, this should be well glued.

Solder 16 s.w.g. push rod and 20 s.w.g. leadouts to the bellcrank. Provision should now be made for fitting the tank but it should be remembered that the fuselage is passed along the wing and over it before being fixed in position.

Cover centre section with 1/16 in. sheet and sand smooth before passing wing through hole in fuselage, gluing well into position. Cut tips from 1/8 in. sheet, and glue onto wings, pass tubes over the leadouts sewing and cementing well into position on wing tips. These tubes can be made from old fuel can spouts or copper tube.

Cut tail plane from 1/8 in. sheet and sew together. Glue tail plane to fuselage and bend push rod to fit horn which is now glued to the elevator.

Cut tip and tail plane gussets from 1/8 in. sheet and cement into position. Add 1/16 in. plywood fin and drill engine bearer holes, the motor backplate fitting snugly against hardwood bearer spacer.

The joints between the wing and fuselage should be covered with cloth or gauze and well cemented. Sand the model smooth and give airframe one or two coats of sanding sealer, sand lightly again when dry.

The model is best covered with nylon but heavy weight tissue can be used if so desired. Wings are best covered with coloured nylon or tissue rather than coloured dope as this adds unnecessary weight. The fuselage can be colour doped if so desired. Give wings four coats of clear dope and fuel proof to complete model. When dry, install motor and connect to tank.

A P.A.W. 1.49 was used in the original to give a very high air speed and ample manoeuvrability.

Speed & Silencers

Dear Sir,

As you know the World Championships for Control Line are to be held in this country in August.

For the few speed enthusiasts in this country who might aspire to represent Great Britain, the knowledge that world standards are rising annually despite constant rule changes, is a daunting prospect bearing in mind the present silencer rule. There are no commercial silencers available yet, that do not reduce power in an event which demands peak outputs, and the fabrication of tuned length extractor systems is beyond the capabilities of the average modeller.

With this in mind, and in order that the host nation might compete on an equal basis with its competitors is there no case for a series of trials on remote airfields (the usual venue for speed flying) in order that we may endeavour to keep abreast of contemporary development abroad.

I would welcome your comments and the views of interested readers.

Derek Bird

Southfields, S.W.18

Tough Model

Dear Sir,

I have just started Radio Control, my first model is a 'Sharkface' and to go into that, the Guidance System Receiver. Up till now the model has plunged into the ground mostly at right angles, 'N' number of times, I have broken a nylon propeller. The escapement came adrift once but I have yet to do one single repair to the little plane. After reducing the rudder movement I achieved my first successful flight. Thanks to Aeromodeller and Eric Clutton for a truly remarkable plan.

Brighton.

A. LO.

Silencing

Dear Sir,

I really must answer the opinions expressed in "Team Selection", Heard at the Hangar Doors Feb. '66 AERO-MODELLER. The gist of the "Team Selection" editorial is that modellers, forced into flying with silencers at the Trials, will then have to go to the World Championships with untuned, unsilenced models. So the implication is that silencers do reduce performance and always will reduce performance. Why then is 1964 World Speed Champion Bill Wisniewski spending considerable time and money developing tuned exhaust pipes which, by the way, reduce noise a lot? The answer is that properly designed silencer units can markedly enhance performance. These British modellers competing at the Trials are not trying to qualify to fly in some insignificant event but the **WORLD CHAMPIONSHIPS** where they will be up against the finest aeromodellers in the world, so they should be eager to use any new feature which could enhance their performance. Many G.B. modellers are technically capable of making such devices and in my own flying group, Feltham/Hayes, three of us got together to develop these performance-enhancing silencers. (Re-

READERS' LETTERS

sults are due to be published in a future edition.—Ed).

Getting off technical matters and back to the principles involved on the decision to go all-silencer in '66, as the AERO-MODELLER states the general silencer rule in G.B. is a necessity if flying fields are not to be lost. The Society of Model Aeronautical Engineers, as the governing body in G.B., has to set an example to the many unattached fliers in the British Isles, and it would hardly be setting a good example if we had our own exceptions to our general rule.

Kevin Lindsey

S.M.A.E. Public Relations Officer

London.

Film replicas

Dear Sir,

Having read the captions to the photographs in your *BLUE MAX* feature, I feel that any wrong impression as to the abilities of the Fokker D.VII-65 should be corrected.

The Fokker D.VII came out heavy but not heavier than anticipated. The heavy weight was fully appreciated by the constructor and was caused by a variety of reasons none of which could justify the slightest criticism of him. You will appreciate that in the sort of time scale required by film companies it is very difficult to obtain deliveries of steel tube exactly to specification, thus in some cases it was necessary to accept thicker tube. Equally, in keeping strictly to the outline of the engine cowlings, the Gipsy engine could not be placed in the most advantageous position from the point of view of C.G. hence some ballast was added to compensate for this and also to allow for the radiators and water of the original aircraft. Add to all this the inclusion of such modern luxuries as starter motors, batteries, and generators, not to mention V.H.F. radio, bigger fuel capacity, a separate oil tank etc., you will appreciate that weight increase is inevitable over and above the commonly published figures for this type of aircraft, many of such figures incidentally being hopelessly incorrect. It is apparent from historical records and test reports that Fokker D.VII aircraft were often very much heavier than recorded.

Regarding the propeller used this was an X.5. which is such a good propeller when used on the Rapide that it allows the total weight of the aircraft to be increased on the C. of A. Using this propeller in a D.VII replica, however, has some disadvantage in that the diameter is comparatively small and the r.p.m. are much higher than the original type of engine used. As a modeller you will appreciate just what this means in terms of climbing efficiency. Add to this the cooling drag, which is probably quite high and it is understandable then that the climb would be a little lower than the original aircraft. An actual Fokker D.VII as tested by the French just after the War had a rate of climb of 650 feet per minute, the Rousseau version tested by the French C.E.V., actually in my

presence, achieved 600 feet per minute. This, bearing in mind my foregoing remarks, shows in fact that the performance attained was a pretty good effort in the circumstances.

Unfortunately over the years the performance of many of these old aircraft has become surrounded by legend and all sorts of odd figures obtain credence. I think that the film people expect too much, then when they get the real thing are disappointed. As an example of what I mean it is not a generally accepted fact that the DH9 could run away from the Fokker Triplane!

H. Best-Devereux

Welwyn Garden City.

THAT team racer

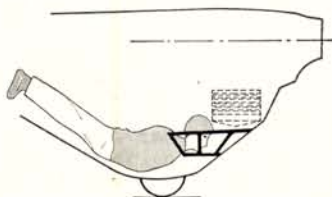
Dear Sir,

I enclose a sketch concerning Chkourski's controversial Team-Racer. I must admit that the position of the pilot is everything else than comfortable, but you must agree that even many full-size racers were designed for speed only, and at the very last moment the designers seemed to realize that they needed a pilot, too. I remind you of the American Gruenberg Racer (sponsored by Gruenberg watchmakers), where the pilot jammed between two tanks and could only control the take-off by lifting his seat. As soon as the plane was airborne his seat was lowered again and he had to use a periscope to see where he was flying. I would not like to promote T/R models of this kind, but I think this is more or less included in the semi-scale paragraph of the F.A.I. Sporting Code. I checked the German rule-book and found that it does not say semi-scale racer but *the models must be semi-scale*. It should be possible to enter a semi-scale transport plane, too, because the rules do not ask for a semi-scale model of a racer.

From my point of view the TR rules should be carefully revised saying *expressis verbis* what is right and what is wrong. I think that quite a lot of modern TR models would be illegal if they are judged from what the rules were intended to mean, but they must be allowed if you stick to the words of the rule-book. I would not accept any racer having its cockpit on top of the pan, or having no fin, if there are new rules one day. But for the time being I do not see a possibility for banning Chkourski's racer. As long as other pilots have to sit on a hot engine or let the push-rod run through their body, Chkourski's pilot will not mind lying in such an uncomfortable position and having trouble with the nose-wheel. On the other hand the funny position of the pilot in Chkourski's racer shows that the Russians took some advantage of our modern dances like "twist" and "shake", to make their pilots fit to creep into such a cockpit.

E. Heimann.

Düsseldorf,
Germany.



THIS selection of reader's suggestions opens with an item that has a universal application, for who can build a model without cutting balsa? Typical of most cheap and practical gadgets which can be constructed from workshop odds and ends with very little effort, it is an ideal example of those useful tricks learned over the years by other modellers.

GADGET REVIEW

Andrew L. Reid of Bolton, Lancashire provides two gadgets illustrated in **A** and **B**. **A** is simple and effective for cutting sheet into strips of predetermined width. Made from balsa, a backing piece of $\frac{1}{4}$ in. sheet is cut to 9 in. x $1\frac{1}{2}$ in. A blade retaining piece of $\frac{1}{8}$ in. sheet is cut 2 in. long by 'X' deep, 'X' being arrived at by subtracting the thickness of the sheet to be cut from the $1\frac{1}{2}$ in. depth of the backing sheet. Two large head drawing pins are pushed through the blade retainer and holes in the razor blade. Between the backing piece and blade retainer is a spacing sheet equal to the required width of the strip to be cut. For example when cutting a strip $\frac{1}{8}$ in. x $\frac{1}{8}$ in. sheet the spacing sheet will be $\frac{1}{8}$ in. and the depth of 'X' $1\frac{1}{8}$ in. Hold the completed stripper at the end of the balsa sheet with the backing piece held firmly against the edge of the sheet. Then slide the stripper backwards down the plank to cut off a strip to the required dimensions, cutting with the grain.

A simple free flight fuel tank can be constructed from an empty "Jetex" fuse tin as shown in **B**. It is best to solder all the pipes in with the lid off, then solder the lid on. Used on a Frog 150 diesel it provides enough fuel for starting, adjusting and a ten second motor run, but has the advantage of being small enough not to allow a very lengthy over-run should the timer happen to stop working. Approximate capacity is 6.4 cc.

Silencers come in all shapes and sizes these days and increasing use is being made of those tough Sparklet soda syphon cylinders as a silencing chamber. D. R. Peters, of Bury, Lancashire, suggests the application in 'C', the only other materials required are 4 in. of 8 B.A. studding and extra bolts and washers. Fitting is easy and only takes a matter of minutes when a sidestack engine such as the O.S. Max. series is used. File a flat on one side of the Sparklet cylinder (which should be expended!) to butt against engine exhaust port and drill two holes, spaced equal to the length of the exhaust port and two others spaced equal to the outside faces of the exhaust stack for the 8 B.A. studding retainer after it has been formed into a hoop and passed around the cylinder head. Cut out a matching exhaust port area and drill a small priming hole opposite. When used on the O.S. Max, locating bolts inside the exhaust stack were not essential. Finally the Sparklet cylinder is attached to the engine by passing the 8 B.A. studding through the clearance holes and the unit clamped with 8 B.A. bolts and spring washers.

Illustrated in **D**, from P. J. Champion of Portslade, Sussex is a fascinating "MAYDAY" recovery device which is yet to be tested in practice but works on the static model. This is a three shilling buzzer connected to a 4.5 volt battery via a pendulum. The pendulum is thrown forward by the landing impact

regardless of the final attitude of the model, and makes contact with a magnet holding the pendulum in place and simultaneously making contact with the other lead from the battery which is soldered to the pendulum axle. The circuit is made and the buzzer screeches out a high pitched signal so that the searcher can walk towards the noise and find the model without relying on any visual observation

The system *could* be linked to a spare channel and "switched" on in the event of loss of the radio model.

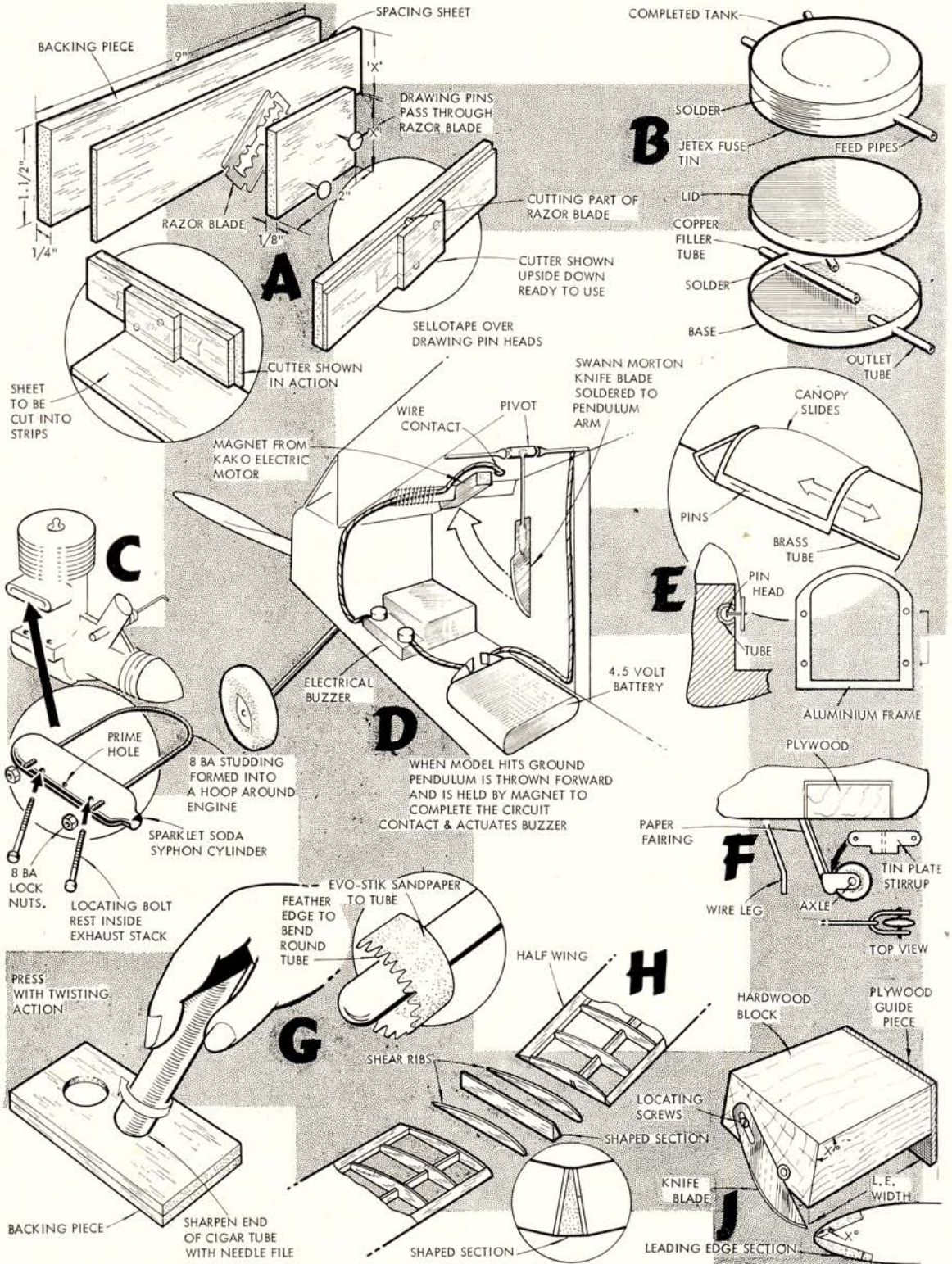
When constructing his Mercury Spitfire C. M. Jones of South Shore, Blackpool decided to make a sliding cockpit. As shown in **E** the materials needed are four soft pins, aluminium frame and a short length of brass tubing. Cut a groove in each side of the fuselage below the hood and bury the brass tubing after one side of the tube has been filed away. Araldite the canopy to aluminium frame and bend to contour of cockpit. Now bend pins so the heads run inside the brass tubes and the other ends are Araldited to aluminium. This gives a free moving and much more scale-like cockpit cover.

The tailwheels and legs supplied in most kits are usually semi-scale for the sake of simplicity so why not improve them? says the same C. M. Jones in **F**. Bind the leg with paper and build up into a fairing. Cut a tin plate stirrup and after bending round the leg, solder in place. Then solder an axle through the stirrup after the wheel is placed inside and the job's complete.

Gadget **G** illustrates a method of using a cigar tube salvaged from Christmas celebrations to cut lightening holes in wing ribs, formers etc. It comes from John E. Beer of Waltham Cross, Herts. Sharpen the open end of an aluminium alloy cigar tube on the inside and outside faces. Now press firmly into the sheet giving a slight twist as it cuts. To clean the hole after cutting, Evo-Stik a layer of sandpaper to the domed end, and work this up and down with a screwing action to obtain a good fit.

Section trailing edge stock can have many other applications besides their intended use. **H** shows it used as a dihedral former and was first published in the German Magazine "Mechanikus" of May 1965. A short length of strip is sandwiched between the two centre wing ribs so that it acts as a dihedral former. If trailing edge stock is not used, a suitable piece can be carved to shape giving any dihedral angle. These butt fittings are often more practical in saving crash damage than use of plywood dihedral keepers.

For cutting "Peacemaker" type leading edges C. M. Jones (that man again!) uses a cutter similar to a balsa stripper illustrated in **J** to ensure the butt joint angle in constant along the whole length. Cutting with a conventional knife and blade can be rather tricky as an angle block is made from hardwood as illustrated. Make sure angle 'X' the same as that marked 'X' on the leading edge and that the width is correct. A plywood guide piece is screwed onto the back and this is run along the edge of the sheet to be cut. Two screws attach the Swann-Morton type blade in place at an angle as shown.



To the devoted contest modeller, any product of Frank Zaic's talented pen is essential reading yet when the 64-65 **MODEL AERONAUTICAL YEAR-BOOK** is sifted, it reveals equally as much for the casual sports flier. Frank has that happy knack of presenting the unorthodox in such a way that it demands attention instead of a disinterested shrug. Sample plans on this page prove the point. For once he has used other draughtsman and who better qualified than Cizek and Baguley could maintain the Year Book "International" style to offer no less than 214 fascinating designs—mainly free-flight—to support 44 features in this 21s. compilation. Get it—you'll be re-reading it annually for the rest of your modelling days.

Printed to a standard that one must admire for composition, quality, use of colour and style of illustration, Julio Toledo del Valle's **INICACION AL AEROMODELISMO** is only available in the Spanish language. It deserves wider territories. South American nations should make it recommended reading in schools, for the convincing style of this leading Spanish author on modelling matters will spread the gospel in the best possible manner.

The serious student will appreciate **THEORY OF WING SECTIONS** by Ira H. Abbott and Albert E. Van Doenhoff which is a 5½ x 8½ in. 700 page paper back published by Dover Publications, Inc., 180, Varick St., NEW YORK 14 N.Y. selling in the U.S.A. at \$3.25 and at Beaumont's for 24s. We "discovered" it when the N.A.C.A. summary of airfoil data ran out of print and the kindly John Worth of A.M.A. sent us a copy to fill our library gap. This compact work ammasses tabular data, ordinates, profiles and reports sufficient to inspire or confuse, dependant on your understanding of the complex subject.

Lighter reading required? Try **THE BLUE MAX** by Jack D. Hunter published by Muller at 21s. and read the plot used for 20th Century Fox's forthcoming epic. If they follow the story faithfully Miss Andress will indeed be an attraction in the part of an amorous Countess! But to return to our hobby, it is refreshing to find that Jack Hunter is a capable artist, having produced a fine dust jacket painting and his story of the German Air Force in W.W.I is adequately splattered with reference to the Aces, aircraft trials and fighting tactics to carry a stamp of authenticity. It is a story of a pilot with callous

ambition to gain the "Pour le Merite" (otherwise called Blue Max) medal and thus departs from the traditional W.W.I airwar plots by a wide margin. We picked our copy up at Jack Beaumont's emporium of Aviation Literature in Bath Street close to the City of London and were pleasantly surprised to find close to it on the shelves **9 SQUADRON** by T. Mason published by Beaumont at 22s. 6d. Covering the complete history of this famous Bomber Sqdn. of the R.A.F. in 113 pages is a considerable achievement made all the more useful by selection of unusual photographs (Wellingtons and Lancasters with small individual letters, Virginia VIII with the upper wing gun positions occupied, a novel S.E.5A, etc.) and tables listing types with serials from Avro 504 to Vulcan B2 plus all the code letters for Wellingtons, Lances and Lincs. Altogether an admirable reference source and one which makes good reading despite some of the details of heavy losses. Fact makes fiction look pale when one reads of the heroism which earned awards of the D.F.C., D.F.M. and the Victoria Cross.

Scale enthusiasts have already waxed in admiration of the series by Karl Ries, published in Germany by Dieter Hoffman. Now the second Volume of **MARKINGS and CAMOUFLAGE SYSTEMS of LUFTWAFFE AIRCRAFT in W.W.2** has appeared through the British Agents, Graham K. Scott of 2, The Broadway, London, N.11 and it certainly does not disappoint! 140 colour illustrations are alone good value at 57s. 6d., and the collection of as many personal album photos of aircraft in service make it an invaluable reference. There's no excuse for getting



Books for



1964-65 MODEL AERONAUTIC YEAR BOOK by Frank Zaic



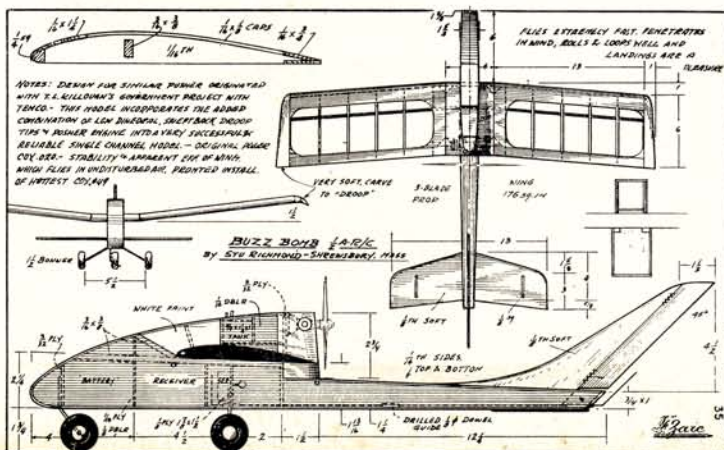


AUTICS

Max

A handsome batch of American publications in what has become their 'standard' aeronautical format of a large magazine page size with stiff covers comes from a variety of sources. Volume 1 Number 2 in the Smithsonian **ANNALS OF FLIGHT** is to the same high standard of the Fokker book we reviewed in December and retails here at a modest 6s. 6d. It details the first Diesel engine for aircraft, the Packard DR-980, which may not sound very exciting but does, in fact, make absorbing reading for all with an interest in engines. Aero Publishers have a series of monographs, first two of which deal with the **MESSERSCHMITT Me 109** and the **NAKAJIMA KI-84**. Price is 23s. from Beaumonts and for this we get close up photos, colour details, cockpits, special markings and even a $\frac{1}{8}$ scale drawing of a Japanese

Also through Hersants at 23s. 6d. each are the latest in the Morgan series from Arco Publishing in New York, the **AT-6 HARVARD** and the **F-86 SABRE**. Carrying a mixture very much in the style of others in the 'Famous Aircraft' Morgan series, these two make excellent reference sources, spoiled only by dense printing which fills in some of the finer views. The Sabre is strictly the Canadian variety by the way, with some U.S.A.F. Sabre data in a 4 view scale drawing. Aircraft operating Instructions are carried in condensed form so that the ex-Harvard or Sabre pilot can reminisce happily by browsing through the pages of sketches and warnings which seem to occupy so much of Pilots' Notes.



Basic Aeromodelling

PART THREE OF OUR NOVICE SERIES USE OF PLASTICS AND WIRE

PLASTICS have a rather limited use for straightforward aeromodelling, except when purchased as finished mouldings. There are, however, notable exceptions. For "glazing" cabins, and for making simple cockpit mouldings, clear acetate plastic sheet is the normal material used in thicknesses of .005 to .015", depending on the size of model. Alternative materials are celluloid (not readily available in thin sheet form now) and C.A.B. (cellulose acetate butyrate). The same materials are also suitable for making cockpit canopies, etc. They are not ideal for "strong" applications, e.g. as an alternative to thin ply for facings, etc., as they have little strength.

Other moulded shapes, such as cowlings, etc., are best made of thicker styrene, of acetate sheet, or C.A.B., all of which materials can be softened at moderate "oven" temperatures (i.e. slightly above the temperature of boiling water). These and other thermoplastic sheet materials can also be used for moulding complete fuselage or wing shells, although this first demands mastery of the moulding technique required and a pattern of the final shape required. It is thus usually a longer process than conventional construction, and not widely applied. There is also the fact that all thermoplastic sheet material is about *eight times* as heavy as balsa and so although thinner material can be used, a moulded plastic component invariably works out heavier than a balsa one, possessing comparable or better strength and rigidity. The use of mouldings is therefore usually restricted to component parts, such as cowlings, rather than complete structural members.

The only really strong moulding material in the plastic category is resin-glass fibre laminate, which is even heavier still. The strength/weight of such a moulding, however, is comparable with that of steel. Again, reducing the moulding thickness to practical levels, weight will invariably be higher than balsa structures but the strength considerably greater—almost indestructible by comparison, in fact. It is only possible to get over the weight problem, however, with very large models (e.g. radio control models), or control line models where total weight is not too important. To produce satisfactory glass fibre mouldings, though, demands a fair amount of skill and experience in handling the material, which is only acquired through practice.

In direct contrast to glass fibre, expanded polystyrene is a low-strength, low-weight material which can be produced in solid form with a density ranging from as low as 2 lb./cu. ft. up to about 10 lb./cu. ft. It is thus a lighter more solid material than balsa, although it does not have anything like the same strength. It can also be moulded to solid shapes in a suitable mould—and fully formed fuselages, wing panels, tailplanes, etc., are produced commercially in this fashion. Similar solid forms can be produced by "carving" from solid "stock" material (available in the form of thick sheets or slabs, panels, etc.) with a heated wire. The material is too soft and crumbly at the edges to be cut neatly or accurately with a saw or knife.

These solid forms are suitable as made for small models, but to have the necessary strength for large models need reinforcement. This is most simply added in the form of a covering in tissue (e.g. for fuselage mouldings and medium size wing or tail panels); or sheet balsa or hardwood veneer (for larger wing panels) Fig. 11. The latter method virtually produces a true stressed skin structure where all the main loads are distributed through and carried by the skin material, with the foam plastic acting as a core to support the skin and prevent it buckling or collapsing.

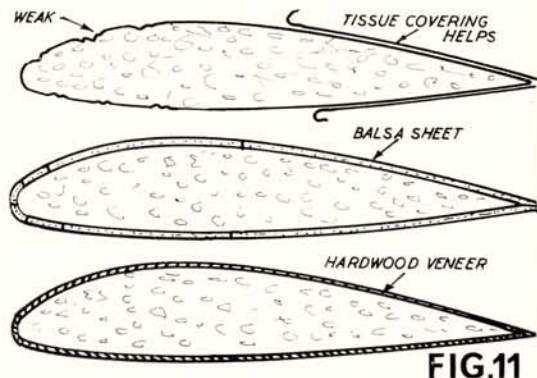


FIG.11

Brief mention only need be made of laminated thermoset plastics which are bought in sheet form, such as Paxolin. These are very hard, strong materials which can be used as a mounting plate for engines, bellcranks and control horns—see Fig. 12. They are much more durable than, say, aluminium for such purposes, although moulded nylon components have largely replaced laminated plastic for bellcranks and similar fittings.

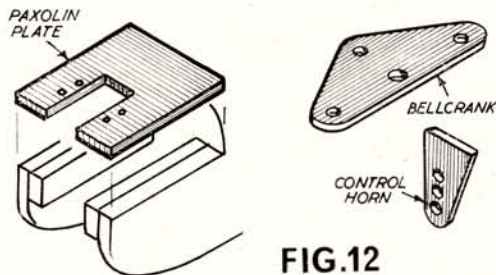
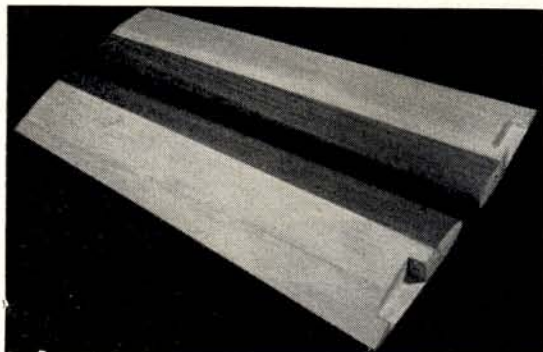


FIG.12

As regards moulded fittings which are subject to wear or heavy loads, nylon is one of the few plastics with true "engineering" properties and thus can be considered as the equivalent of a metal in such applications. In many cases it is better than metal at the job, and certainly



Henry J. Nicholls "308" expanded polystyrene wings with centre section cut out for servo. Note bonded mahogany L.E. sheet and rear balsa section.

lighter. Acetate and polystyrene mouldings, which are cheaper to produce, are not suitable for stressed applications. Thus moulded styrene propellers may be suitable for rubber models but are potentially dangerous as power model propellers since they are liable to fracture and shed a blade under the stress of rotating at high speeds.

Metals themselves, other than steel wire, have limited application in aeromodelling. Other materials generally do the same "high strength" job better, as well as being much easier to bond to the rest of the framework. However, metal straps (usually tinplate) are still amongst the best and simplest methods of securing a wire undercarriage to a ply former on a power model. Also the scale-type cantilever undercarriage in light alloy sheet is a perfectly practical unit and lighter than wire, provided it is made from *high tensile* alloy, not plain dural or soft aluminium. There is also the fact that one of the original troubles with metal fittings—fastening them to the rest of the frame via screws or bolts—no longer applies with the introduction of epoxy resin adhesives. These can readily glue metal to any other material with a joint strength stronger than that of the materials concerned. As a general rule, though, there is no point in using metal for anything in the airframe or fittings if a

TABLE XI COMPARISON OF WIRE GAUGES
(WIRE DIA IN INCHES)

GAUGE No.	BRITISH S.W.G.	AMERICAN W & M GAUGE	AMERICAN MUSIC WIRE GAUGE
8	.160	.1620	.020
10	.128	.1350	.024
12	.104	.1055	.029
14	.080	.080	.033
16	.064	.0625	.037
18	.048	.0475	.041
20	.036	.0348	.045
22	.028	.0286	.049
24	.022	.0230	.055
26	.018	.0181	.063
28	.0148	.0162	.071
30	.0124	.0140	.080

TABLE XII
USES OF STEEL WIRE

S.W.G. SIZE	APPLICATION(S)
8	Undercarriage legs for power models weighing over 5-6 lbs.
10	Undercarriage legs for power models up to 6 lb weight.
12	Undercarriage for medium size power models.
14	Undercarriage for small and lightweight power models.
16	Undercarriages for small free flight power models and rubber models. Propeller shafts for medium to large rubber models. Tow hooks for medium to large gliders. Push-rods for R/C aileron linkage.
18	Undercarriages for light rubber models. Tow hooks for small gliders. Propeller shafts for small rubber models.
20	Propeller shafts for smallest size of rubber models Tow hooks for small gliders. Lead-out wires for control line models.
22	Small hooks and fittings.
24	Very small lightly loaded hooks, etc.
30 and thinner	Control Line flying wires.

wood or plastic part can provide the *necessary* strength and durability. The metal alternative will be harder to make and substantially heavier.

Wire is another matter since this is the standard material for certain parts, such as propeller shafts on rubber models and undercarriages on all but lightweight models (and even here a wire undercarriage may be preferred for its simplicity and "unbreakable" characteristics).

There is only one type of wire used in aeromodelling—so-called "piano wire" or, more correctly, spring steel wire, produced in diameter sizes conforming to the Imperial Standard Wire Gauge (s.w.g.) in this country and the Washburn and Moen gauge in America (except true piano wire which is produced to the Music Wire Gauge). Since these gauge sizes differ appreciably a comparison table is given in *Table XI*. This will enable "American" sizes appearing on model plans to be translated in terms of s.w.g. equivalent.

Enterprise Models expanded polystyrene wing for "Tauran" kit held by Frank Allen shows cut out boxes for servo and undercarriage installation. Note T.E. and centre section braces exposed prior to covering with balsa sheet.

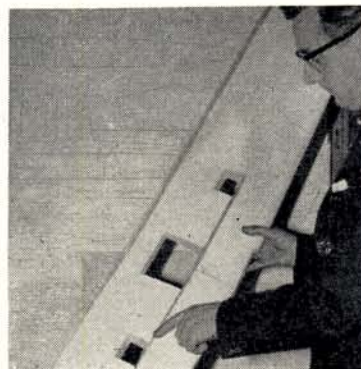


TABLE XIII
WEIGHT OF STEEL WIRE

S.W.G. SIZE	WEIGHT OUNCES PER INCH
8	.04544
10	.03635
12	.02954
14	.02272
16	.01818
18	.01362
20	.0103
22	.00795

Note: particularly how the weight of a wire part (e.g. an undercarriage) increases substantially by going to a larger size (smaller gauge number).

All so-called "piano wire" or spring steel wire is not the same. Some is quite soft, and not really spring steel wire at all. The only virtue of such wire is that it can readily be bent to loops, etc., for making hooks. Other

wire may be so highly tempered that it can hardly be bent at all without cracking and breaking. This is ideal for undercarriages where the bends are not severe and can be made with a reasonably generous radius as its "spring strength" will provide maximum stiffness. Where wire is required for bending more abruptly a slightly softer grade should be used, although if too soft it will lack rigidity. Wire should *never* be heated to assist in bending as it will lose all of its desirable characteristics. These can be replaced by retempering, but the average modeller is likely to make matters worse rather than better, attempting such heat treatment. The general rule, therefore, is to choose wire which is as stiff as possible but not so hard that it cannot be bent to the shape required. All bending is then done with the wire cold. The very act of cold bending will tend to stiffen the wire at the bend points. If the wire bends too easily, however, throw it away. It will be useless, even if you can make a very neat job of an undercarriage or prop. shaft from it.

The correct wire size for any job is a compromise between strength and weight. Logically one should use the smallest size of wire which is strong enough for the job—and this will make the finished job easier to bend to shape as well. Try to get additional rigidity by wire selection rather than going to a larger size, if weight is critical. The weight of an undercarriage increases enormously with increasing wire size, for example. *Table XII* shows typical applications of the various wire sizes commonly employed. *Table XIII* shows typical weights of spring steel wire. NEXT MONTH:

LATEST ENGINE NEWS... *Continued from page 158*

is unorthodox in that it is completely flat on the combustion side. The cast-iron piston does not have the usual fence type baffle; instead, a solid pent-roof crown forms a deflector step on the transfer side. Thus, there is a wedge-shaped combustion space on the exhaust side but without the squish area on the transfer side that is usually incorporated nowadays on engines using wedge combustion chambers. Another unusual touch is the use of five head screws instead of four or six.

The carburettor is an integral part of the engine and has a barrel-type throttle valve rotating around a stationary spraybar with adjustable airbleed in front. However, instead of having a screw engaging a slot in the barrel to set the idling speed, the adjustment is external via a screw on the throttle arm which bears against a small lug cast on the carburettor body. At the front, the crankshaft is drilled and tapped for a 5 mm. stud to which a spinner-nut is fitted. A screw-in crankcase backplate is used—again rather uncommon in an engine of this size and type.

Bore and stroke of the Big-Ben 2 are 19 × 17 mm., giving a displacement of 4.82 cc. The engine weighs 8.1 oz. complete and accepts the same exhaust adaptor as the Glo-Star, together with Webra "Burgess type" silencer. It is available through Veron stockists.

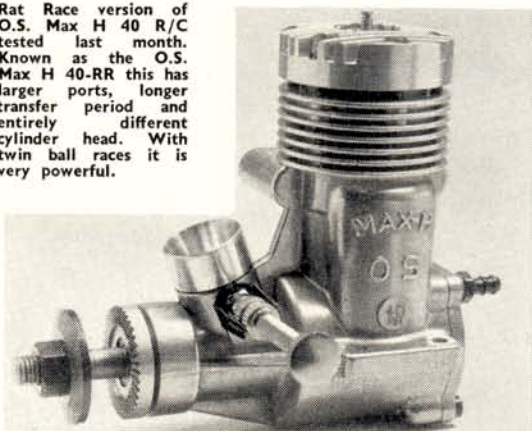
O.S. Max H40 R/R

As we remarked in last month's Engine Test report on the O.S. Max-H 40 R/C, this engine, meeting the N.M.P.R.A. rules for "Goodyear" radio-controlled pylon racing and possessing the high power output obviously advantageous for this class, has been attracting a certain amount of attention in the U.S.A. It comes as no surprise, therefore, to hear that, at the recent King Orange International Meeting in Florida, Max-40 R/C powered racers took 1st, 2nd, 3rd and 5th places. Winner Jim Kirkland, also set a new record in the

process. He flew a model of the well-known and attractive "Shoestring" Goodyear racer.

The Max-H 40 is also put out in a control-line "racing" version and one of these recently reached us from the manufacturer. Known as the Max-H 40-RR, this is not merely a 40 R/C with the throttle removed. It has a different cylinder with bigger ports, a substantially longer transfer period which reduces exhaust port lead from 11 to 8 degrees and an entirely different cylinder head providing a wedge-shaped combustion chamber instead of a hemispherical type. The engine is set up for pressure feed via a rear crankcase tapping and the machined carburettor venturi has a throat diameter of some 11.5 mm. The ball-bearing 40-RR weighs 8.5 oz. and accepts the standard O.S. silencer with or without extension adaptor.

Rat Race version of O.S. Max H 40 R/C tested last month. Known as the O.S. Max H 40-RR this has larger ports, longer transfer period and entirely different cylinder head. With twin ball races it is very powerful.



YOUR
FULL
SIZE
FREE
PLAN



Goldwinga

a 22½ inch wingspan sports
rubber pusher model



PUSHER-TYPE model aircraft are few and far between, so if you want to step into the spotlight at your next club flying session why not build the little pusher "Goldwinga"? Construction is simple and with accurate building and careful balancing you'll have a real little "out-of-the-rut" flyer on your hands!

Details of construction are on the plan, but one or two extra tips may speed that moment of your first test flight. Choose medium (not hard) grade balsa. On completion lightly sand the fuselage, wing, fin and tail frames, this helps to give a good covering and saves weight. When joining the two wing halves check that there is an equal amount of dihedral beneath each tip. If you really want to perk-up performance (and you feel up to it!) carve a 6 in. diameter balsa propeller, and fit a free-wheel device. The plastic propeller shown on the plan is a 7½ diam. Keil Kraft, cut down to 6 in. diam. You'll need some folded leaded or old cement tube firmly

Below: "Goldwinga" displays its unusual and pleasing lines that combine to give a very functional and pleasing model for those who want something simple and unusual.

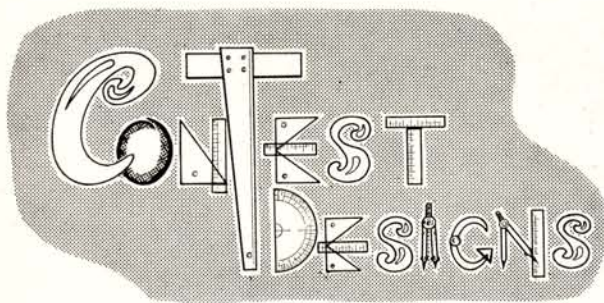


Designed by
Ray Malmstrom

wedged in the nose block weight rear to achieve correct balance. Balancing your completed model (with motor installed) is most important. Decorate your little pusher to suit with coloured tissue, never coloured dope, coloured dope weighs a ton!

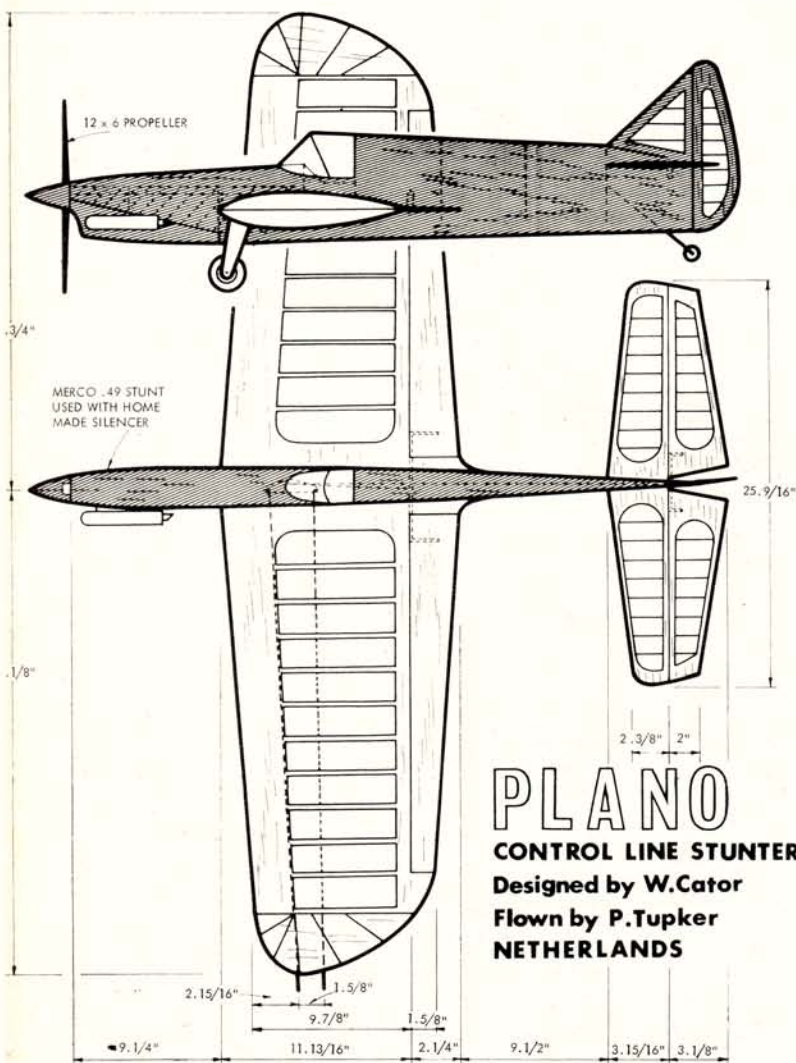
Having balanced your model choose a calm day and some long grass for your first gliding tests; and "power-on" flights. If, on your first launching the model dives, remove some of the nose weight. If it stalls (climbs too steeply and falls back on its tail) add a little noseweight. Obtain a straight glide. From approximately a shoulder height launch your model should touch down about 20-25 feet in front of you. For power flights make sure your rubber motor is well lubricated. Use a hook in the chuck of a geared drill and stretch wind the rubber motor. For the first flight give about 200-250 turns (about 60 on a 3½:1 geared winder). To avoid a sharp turn resulting from propeller torque, cement a 1/16 sq. strip of balsa down the left hand side of the propeller block (model viewed from the rear). If your model stalls under power *increase* the down thrust angle (this is unlikely as generous downthrust is already built-in). If it fails to climb *reduce* the downthrust angle by a 1/16 sq. strip cemented along the *bottom* edge of the prop. block. Take time with your trimming and you will be rewarded with steady and consistent flights. Good luck.





THREE TOP NOTCH CONTROL LINE FLIERS FROM THE U.S.S.R. AND NETHERLANDS

By W. Cator, B. Metkemeier and V. Natalenko

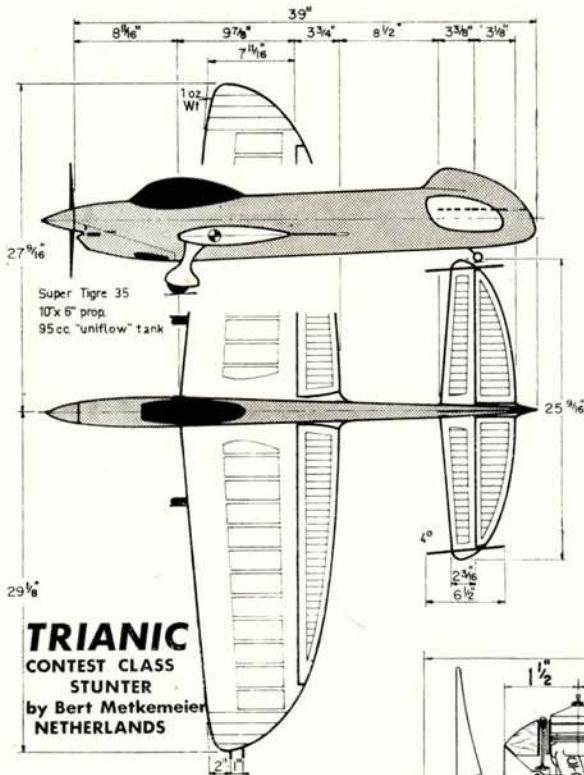


PLANO
CONTROL LINE STUNTER
 Designed by W.Cator
 Flown by P.Tupker
 NETHERLANDS

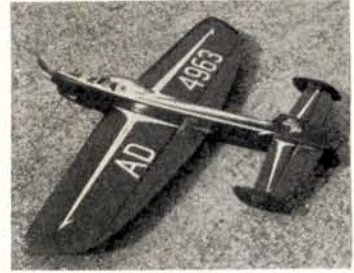
"Triatic" by Bert Metkemeier illustrates the new curvaceous outline stunter as used in his own country the Netherlands. Superbly finished, this triple fin beauty placed 11th at last year's Criterium of Aces. Using a Super Tigre 35 stunt engine, 10 x 6 propeller and needle nose spinner this is a most up-to-date model for those who like a nice looking stunter of involved construction.

Since the F.A.I. extended the line length for aerobatic control line models from 65½ to 70½ ft. several of the top fliers have opted to use this to an advantage with a larger model and engine. Paul Tupker (Netherlands) used a Merco .49 powered "Plano" spanning 60½ in. after crashing his twin-boom semi-scale Fokker D.23 at a German/Dutch event (see April 1963 issue). W. Cator designed "Plano" and it is flown with a 12 x 6 propeller and a rich two stroke engine run to give a smooth and constant speed flight. Very stable in the air and slow flying "Plano" owes much of its appearance to George Aldrich's "Nobler", perhaps the all-time favourite among stung designs. Louis van der Hout took advantage of the larger engine and models allowed by the new line length and gave a very impressive display at the Criterium of Aces to take second place with his Orange painted "Olympus."

Large engines showed their influence in Open (over 21 years of age) Aerobatics at the 1965 U.S.A. National Championships. Robert Gialdini flew into first place with his own design "Eclipse". 62 in. wingspan, 850 sq. in. wing area, 20 per cent thick section, 75 sq. in. tailplane with 75 sq. in. elevators. The Veco .45 turned a Grish nylon 3-blade propeller and wore a D.A.C. silencer. All up weight was 75

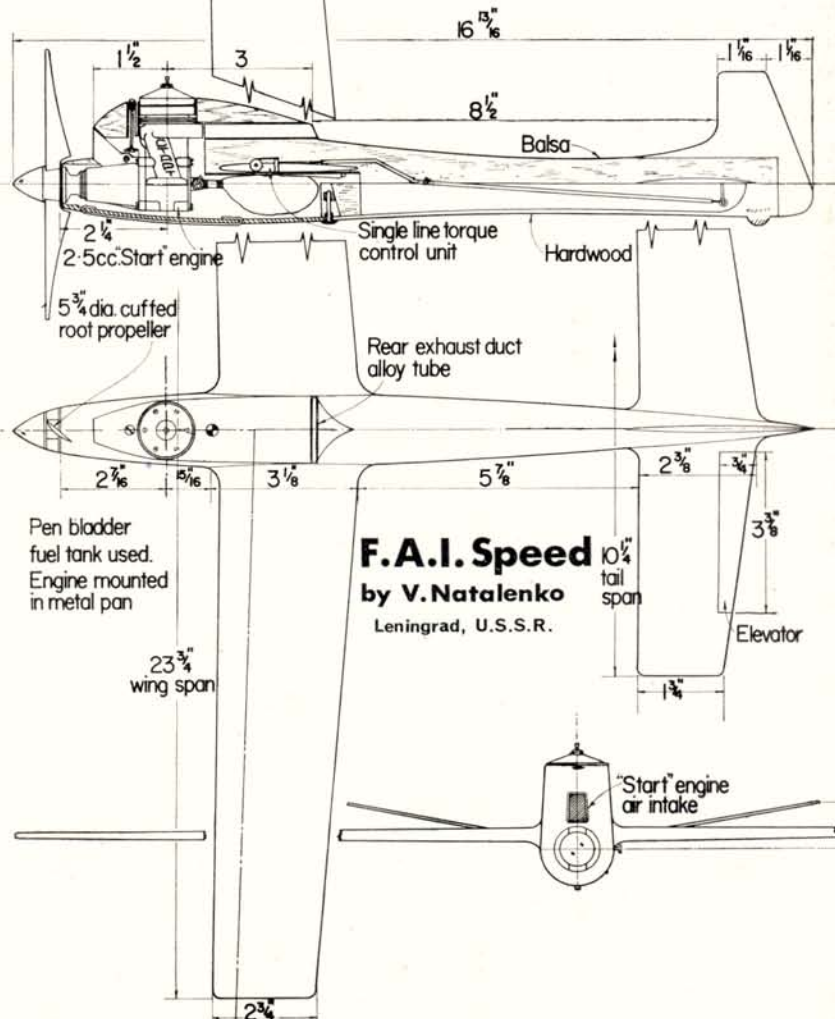


Bert Metkemeier's elegant "Trianic" stunter as drawn at left. Note large control surfaces on both wing and tail.



Our other "Contest Design" this month is V. Natalenko's latest F.A.I. speed model. Very little information is available on this model except that noted on the drawing. Most unusual is the vertical entry to the front rotary valve air intake. The "Start" engine follows M.V.V.S.-RL practice with a rear facing exhaust port and should be a very interesting engine to watch in International contests during 1966.

ounces! Lew McFarland in second place also used a Veco .45 in his Shark .45 enlarged 3 per cent all over from the Jetco kit. With enlargements, dimensions work out to 62 in. wing span, 720 sq. in. area, 19 per cent thick. Instead of a 3-blade 10 x 6, Lew now uses a 12 x 5 two-blade as the Shark *only* weighs 65 ounces. British stunt fliers will be able to see Lew in action at the World Championship this year. A British Merco.49 took third place on the Nationals for Harold Price flying an own design model with a 11 x 6 Rev-Up propeller. Senior Stunt for 18-21 years of age had Fox 35's in both first and second places with a Fox .40 in third position flown in an own design "Patriot" 56 in. wingspan, 650 sq. in. foam core wing 17 1/2 per cent thick and 125 sq. in. tailplane. The Fox .40 was cleaned out, lapped, and the compression lowered, then run on a 10 x 6 Top Flite propeller. Dickie Bishop also using a Jetco Shark .45 made second in Junior with a Veco .45, Rev-Up 12 x 5 and Veco baffle tank. Dickie replaced the shaft, connecting rod and back plate in his Veco.



Latest Engine News

from Peter Chinn

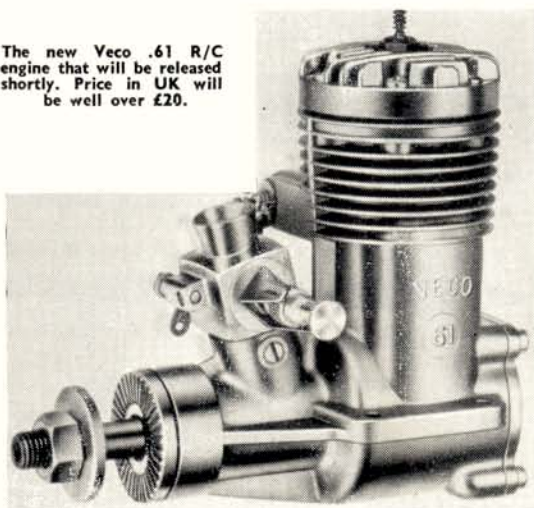
FIRST deliveries are expected in March (in U.S.A. at least) of the Veco, 61 R/C engine. The engine will retail at \$55.95 (£20, give or take a penny or two) and is, of course, the production version of the engine used by Cliff Weirick to top the 1965 U.S. Nationals. We have some hitherto unreleased details of the final production engine, from its designer, Clarence Lee, which we will now pass on.

The throttle system is a little different from that used on any previous production engine. Firstly, as on the Johnson Automix throttle, the barrel moves sideways as it rotates, reducing fuel flow as air intake is reduced. Unlike the Johnson, however, the lateral movement is not used to reduce mixture strength right down to that required for the idling speed: rather, it is used to eliminate the flat spot that so often occurs just above idling speed. An adjustable airbleed is employed to obtain the required mixture for idling. As the throttle is opened, the airbleed closes and, through the short critical phase during which fuel lift is low, due to inadequate air velocity past the fuel jet, extra suction is thereby generated at the fuel jet. As the throttle is fully opened and the effect of crankcase suction lessens while venturi effect is increased, the fuel jet is automatically opened to compensate.

Incidentally, this new engine will have a 15 mm main journal, not 17 mm as stated in our January column. The original intention had been to use a non-standard 17 mm i.d. bearing which happened to be available in a small enough o.d. to fit the crankcase. However, Clarence Lee felt that such a size was larger than was needed and a special Fafnir 15 mm bearing is now being used instead.

Fuel consumption on the Veco, 61 is around 12-13 minutes from a 12-ounce tank, at full bore on an appropriate prop. Compression ratio is moderate at approx. 7.3:1 and this, combined with some sensible port timing, should make for a pleasant handling, smooth running engine, although some nitro in the fuel is, apparently, desirable for best performance. Bore and stroke are 0.940 in. \times 0.880 in., giving a swept volume of .6107 cu in. or 10.01 cc. Weight is quoted as 14 oz.

The new Veco .61 R/C engine that will be released shortly. Price in UK will be well over £20.

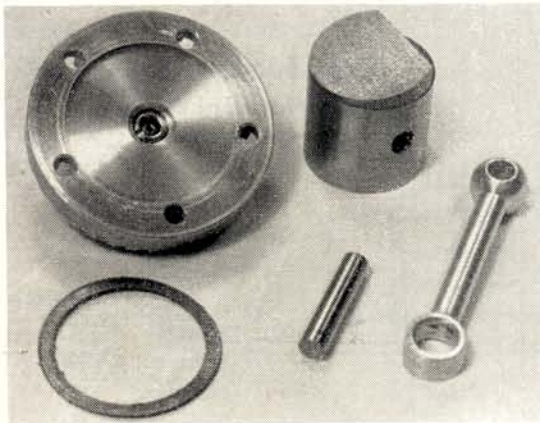


Webra "Big Ben"

An engine that has not received much attention in the U.K. to date is the West German Webra "Big-Ben" 5 cc glow motor. The original Big-Ben first appeared five years ago and was made in both standard and R/C versions. The current model, the Big-Ben 2, is offered in an R/C version only. As can be seen from our photo, designer Guenther Bodemann has managed to give it a slightly out-of-the-rut appearance and the engine does, in fact, have some uncommon features.

Unlike the better-known Glo-Star, the Big-Ben is a plain bearing engine using a one-piece crankcase/main-bearing/cylinder-block unit of pressure diecast aluminium with drop-in cylinder liner. This liner has very thick walls (2 mm.) and makes the joint with the cylinder head via graphited-asbestos gasket. The cylinder head

continued on page 154



Right: 5 cc. Webra 'Big Ben 2', largest engine from this West German firm. Left: parts of Big Ben show unorthodox piston and cylinder head design, only available in R/C version.



308 WHAT'S NEW?

V.K. CHALLENGER



Multi-model. 60" span 665 sq ins area. Steerable nose gear. For .35 - .49 engines. A first class kit that goes together like a charm. £9.10.0. (postage 3/6)

V.K. CHEROKEE



A fine scale model that really flies well and is so easy to build it isn't true. Every customer who has bought one of these has been full of praise for its ease of construction as well as simplicity of trimming and flying. Span 65" wing area 754 sq ins. for motors 49-61. *Please note this kit is in short supply at the time this advert is being written but we expect fresh deliveries in mid-March. £11.18.6 (post 4/-)*

STAFFORD COMANCHE



Here is a really NEW kit. 2" scale model of a fine aircraft and fully prefabricated to the highest standard. Fibre glass motor cowl, jig built fuselage. All balsa and ply parts custom cut and sanded. Makes into a splendid model for full multi or proportional. 72" span. 815 sq ins area, for 49-61's. £25.5.0. (post 6s.)

DENIGHT SPECIAL



This kit of the latest in R/C pylon racers has already earned a fine reputation in the States. Span 50" wing area 500 sq ins. For Engines 19-60 (40 limit for pylon racing). £9.8.6. (post 5s.)

MADE-UP MODELS

We generally have a number of complete airframes for sale. At the time of writing we have a Taurus, well built and finished in Black and orange, complete with airwheels unflown £26.10.0. Senior Falcon with airwheels and Merco 49 unflown £37.10.0. Falcon 56, has flown, airframe only £6.10.0.

WHAT'S NEW!!

Some exciting new kits have come in since our last ad and these are illustrated below. We also have available once more, some of the more popular models that have been out of stock for weeks. We regret that we shall not have any VK Cherokees until mid-March. Note that the American prices of kits by Goldberg, Midwest, Sterling, DeBolt and Topflite have all been increased, but in keeping with our usual practice existing stocks of these kits will be sold at the old lower prices while they last.

POLYSTYRENE WINGS . . .



Polystyrene wings all ready to join. Super lightweight core material covered with mahogany veneer over the leading edge and selected 1/2" balsa sheet over the rest for lightness and strength. Special adhesive used throughout.

NOW READY: Taurus and Senior Falcon wings at only £6 10s. 0d. per pair. Others to follow. Weight per pair: Taurus 180zs, Falcon 220zs. Can be sent by rail for 7/6 carriage packing.

OTHER KITS . . .

The following popular models are all highly recommended and are available for immediate delivery at the time of writing this advert.

RADIO CONTROL

Jetco CITATION 62" span for 49-61's 260/-
DeBolt JENNY 57" span for 19-45's 142/6
DeBolt P-SHOOTER 57" for 29-49's 210/-
Midwest LIL TRI SQUIRE 40", 049-099's 59/6
Midwest LIL ESQUIRE 40" for 049-074's 57/6
Sterling Cessna 180 45" for 09-0.15's 87/6
Sterling Piper Cub J3 54" for 15-19's 96/3
Amco H-Ray 50" 435 sq ins for 09-0.15's 130/-
Amco S-Ray 50" 435 sq ins for 07-0.10's 112/6

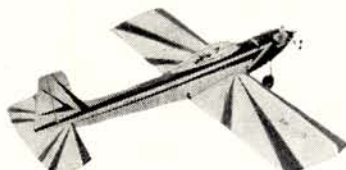
CONTROL LINE

Jetco SHARK 15, 36 1/2" 270 sq ins 15-25's 52/6
Jetco SHARK 45, 58" 650 sq ins 35-61's 176/-
Veco Smoothie 52" 501 sq ins 29-35's 85/6
Veco MUSTANG 48" 408 sq ins 29-35's 90/-
Veco Hurricane 56" 590 sq ins 35's 109/6
Topflite NOBLER 50" 550 sq ins 29-35's 96/3
Sterling SKYLARK 52 1/2" 35's 105/-
Ambroid ARES 50" 29-35's 114/6
Ambroid STUKA STUNT 47 1/2" 25-29's 114/6
AND MANY MANY OTHERS.

RECOMMENDED ENGINES . . .

Merco 61 R/C.	£12.15.9
Merco 49 R/C	11.19.8
Merco 35 & 29 R/C	7.12.6
Merco 35 & 29 stunt	5.19.6
McCoy 35 R/C	6. 1.6
McCoy 19 R/C	5. 3.0
McCoy 35 stunt	3.15.6
McCoy 19 stunt	2.17.6
Cox TD Special 15 (NEW)	8.17.6

JENSEN KWIKFLI MK II



This Phil Kraft design has been kitted by this new firm to make one of the easiest-to-build models of all time. 60" span and 620 sq ins area, for 35-49's. A superb production. £22.16.0. (post 5s.)

SENIOR FALCON GOLDBERG



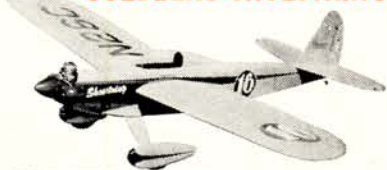
This kit which has been in short supply is again available and this will be the last shipment at the old price of £9.15.0. (post 3/6). Deservedly one of the most popular multi-models.

JETCO DOLPHIN



NEW control-line stunt design by Lew McFarland. 49" span, 516 sq ins area for 29-35's. An up-to-the-minute stunt model of a convenient size. Fully prefabricated kit. £5.14.0.

GOLDBERG SHOESTRING



NEW! NEW! NEW! This magnificent new pylon racer by veteran designer Carl Goldberg is on the way and should be here by mid-March. BOOK YOUR ORDER NOW!

NEW! NEW! WILLIAMS S/C WHEELS

These new smooth contour hub wheels, in which the wheel collet on the axle, is hidden under the hub covers, are fitted with non-bounce tyres. 2 1/2" 14/6 pr; 2 1/2" 22/6 pr; 3 1/2" 29/6 pr; 3 1/2" 39/6. Equally suitable for R/C and Control-Line models!



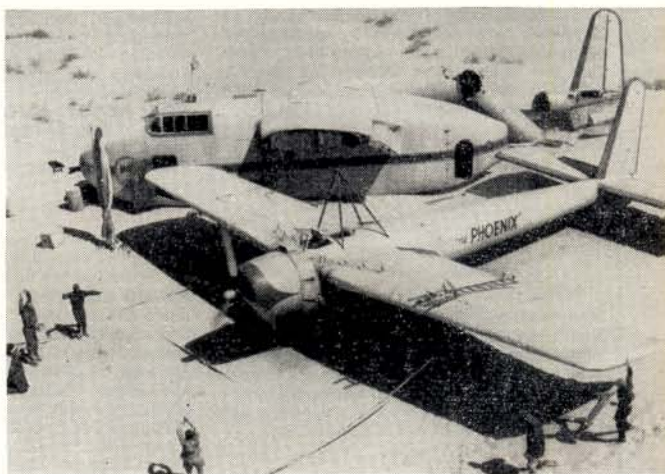
IF THERE'S ANYTHING NEW GOING YOU'LL FIND IT AT 308

HENRY J. NICHOLLS & SON LTD. THE MODERN MODEL SHOP
308 HOLLOWAY RD. LONDON N7.
TELEPHONE: NORTH 4272

The latest film with an Aeronautical taste from 20th century Fox "The Flight of the Phoenix" from the novel by Elleston Trevor has very direct aeromodelling connections. A "Skytruck" twin boom cargo aircraft takes off from a desert oil camp, the radio goes dead and they crash during a sand storm. After attempts to "walk out" they elected to build a single engined "Skytruck" upon the advice of an "Aircraft Designer" Heinrich Dorfmann. Work proceeds and the "Phoenix" emerges using "Skytruck" parts. Then it is discovered that Heinrich has close ties with "Schuco Hegi"!



Left: Pilot Paul Mantz in the actual aircraft that made the flying shots. Note the differences from the "Phoenix" constructed by the survivors. Tragically the aircraft broke its back on landing and killed Paul Mantz, proprietor of a famous air museum and veteran film stunt pilot.

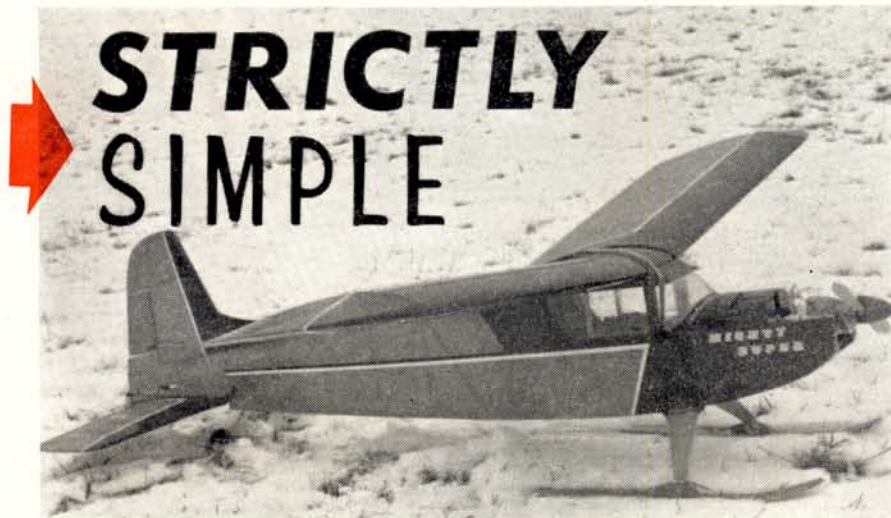


Right: The hacked-about hulk of the "Skytruck" and completed "Phoenix" just as its engine is started and prior to taxi-ing to take-off strip. The "Skytruck" is in fact a Fairchild C-119 Packet, twin engined cargo aircraft. Note the tow ropes used by the crew, to assist it to take-off strip. Compare with upper photograph where crew survivors wave in vain to a high flying jet.



Left : Captain Frank Towns (James Stewart) has one of his frequent disagreements with the "Phoenix" designer Heinrich Dorfmann (Hardy Kruger) with the nearly completed escape aircraft in the background. Used to "flying by the seat of his pants" Towns dislikes the jet era and to him Heinrich Dorfmann embraces all the worst points of this computer age. Lew Moran (Richard Attenborough) the alcoholic navigator watches with a passenger.

**David
Boddington's
monthly
feature
tips for the
radio control
sportsman**



IN my article last month I was bold enough to suggest that good modern radio equipment was virtually foolproof, the proviso made was that all reasonable checks were diligently made. This remark was made, not with tongue in cheek, but based on the fact that during the past two years or more my brother and I had been flying without a serious prang. Allowing for the fact that we had flown a dozen or more different models with varying equipment, but the best of its respective kind, we were perhaps becoming a little careless in our pre-flight preparation and as though it were retribution for going into print the crashes started happening. I won't bore you with a description of them—you've no doubt heard it all before—but the important point that emerged from the inquests was that, with possibly one exception, all of the crashes could have been avoided by more careful checking.

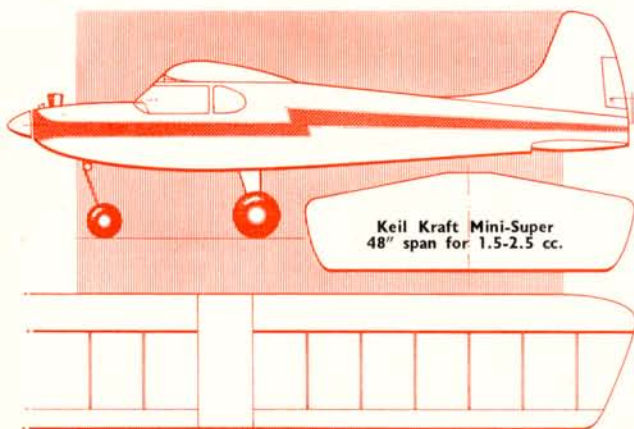
Practical installations as trouble free and simple as possible has always been one of our main aims and this has led naturally to a number of interesting experiments. One of the first transistorised receivers my brother made was bench and field tested and proved to be functioning excellently and it was therefore decided to make this as indestructible a unit as possible. A colleague, who

fortunately worked at a plastic resins factory, took the Rx and totally encased it excepting the tuning slug in a cold setting transparent resin. The result was really most handsome, all the components were clearly visible and the weight penalty was not too great for the average size model. Its strength was never in doubt nor was our frustration when it was checked with absolutely negative results. There are still chunks of it lying around where it has been chipped and hacked to recover some component or other, somehow we've never had enough courage to try another but I'm sure the idea is sound!! Still working on similar lines we are at present experimenting with "unitised" Receiver/Escape/Battery/Switch packs suitable for quick transfer from one model to another but this must wait for a later article.

Designing Single Channel Models

For some strange reason it's generally considered unusual to have designed one's own R/C model and is thought to be possible only for people with a special ability and facilities. Now this is not at all true and if one tackles a design in a sensible manner the results can be most rewarding and although naturally, as in all work, it is easier and quicker to have all the drawing equipment,

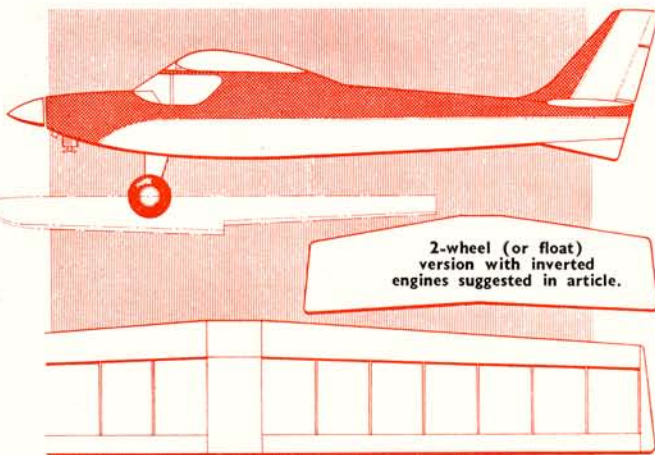
At left: the standard "Mini-Super" details. Note proportions, distances between surfaces, wing and tail angles which are used as a basis to "design" models on next page. Below: the Midwest Kit for the Bebe Jodel D-9 scale model makes a fine debut at 67s. 6d. for radio scale single channel. Review Kit via H. J. Nicholls is of high standard. Span is 40½", suitable for 1 cc.



it is not essential. Our first decision must be on the type of model to build so let us assume that we are going to design a single channel high wing sports model for rudder only. The first information we need to know is the approximate size it's going to be, this may vary according to a number of factors such as:

- The available engine size and power output.
- The size and type of your existing radio equipment.
- The size for convenience of transporting to the flying field.
- Building space available.
- An initial cost limit for building the model and/or replacement of the model should it crash.

It may of course involve any of these and other factors and the outcome will inevitably be a compromise of these requirements. The hardest possible way of approaching the problem of design is to sit down with a blank sheet of paper and a pencil with a view to immediately sketching out the design of the projected model. Most of us have a vague mental picture of our own particular "dream ship" but to put that into reality in the form of lines on paper is another matter completely. One of the difficulties is in getting the proportions of the surfaces correct, it's no good finishing with a beautifully designed fuselage and wings equally good on their own but about two sizes too small in relation to the rest of the aeroplane. A much better proposition is start by choosing a known and proven design that fulfills the above requirements, has the basic proportions that you are looking for, and can be modified to suit. It need not be exactly the right

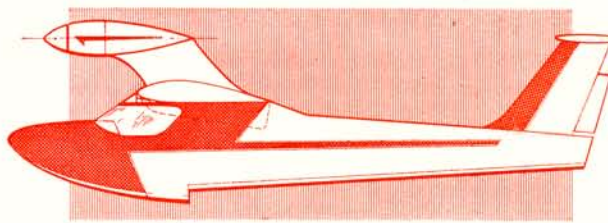
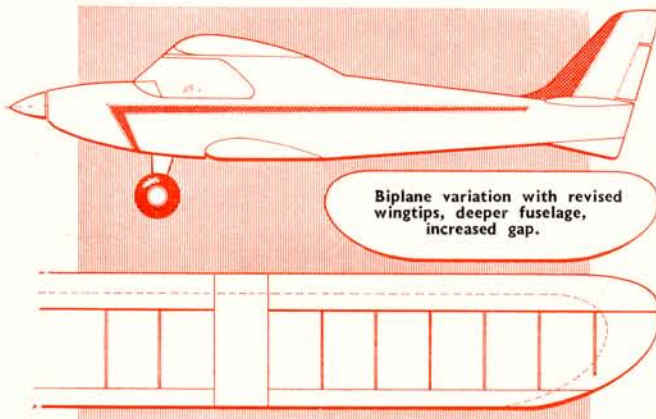


Note that wing areas and all general proportions are retained on variations.

Now we can do the same with the wings, tailplane, fin and rudder trying all the while to think in terms of three dimensions. This will mean designing wing, tailplane and fin tip shapes of a similar style, i.e. all of a rounded shape or alternatively sharp and angular. Make notes on the drawing where the construction is affected by alterations, such as sheeting in top leading edge of wing only. When all parts have been designed satisfactorily the sketches can be redrawn more accurately and amendments made to formers, ribs, etc. ready for the building stage.

It is surprising how quite small changes to the design can result in a vastly different final appearance and character of a model, as also does the method and style of decoration of it. Once you have built and flown your first "own design" the bug will have bitten and thoughts for the next one and the one after that will be there ready for putting into practice. An initial design can go through a series of changes not great in themselves, but resulting in the final model bearing little, if any, resemblance to the original. The combinations and types of designs are absolutely limitless and from our one basic design can develop any of the following configurations: Swept wing, Biplane, Seaplane, Floatplane, etc. The next step is yours!

Raised cabin and lower wing at zero incidence are only major alterations on Biplane below.



Seaplane variation with a high mounted tailplane and engine, to same proportions.

size as it can be scaled up or down within reasonable limitations, although one should not automatically expect a 30 in. span version of an 80 in. monster to have the same flying characteristics, and in general it is safer to increase in size rather than reducing.

We will take as our basis for design the K.K. Mini Super which incorporates good stability in its practical design. What changes do we want to make? well before we start to make too many sweeping changes we must remember to keep to the general wing/tailplane areas, dihedral and incidence angles, centre of gravity, engine thrust lines, moment arms etc. similar to the original. Here's an assumed list of "mods." that will bring our design to the appearance we may require:

- Change to two wheel undercarriage.
- Inverted engine position.
- Revise fuselage to a more shapely proportion.
- Modify wing tip, fin and rudder and tailplane outlines.

Assuming the design is for a 1.5 c.c. engine we will keep to the general sizes of the Mini Super but aim to build reasonably light and use lightweight R/C gear. With the side elevation of the fuselage pinned down, and some tracing paper laid over, start by drawing on the wing, tailplane and engine positions. How we fill in between these points will affect the appearance considerably but is unlikely to change the flying ability to any great extent.

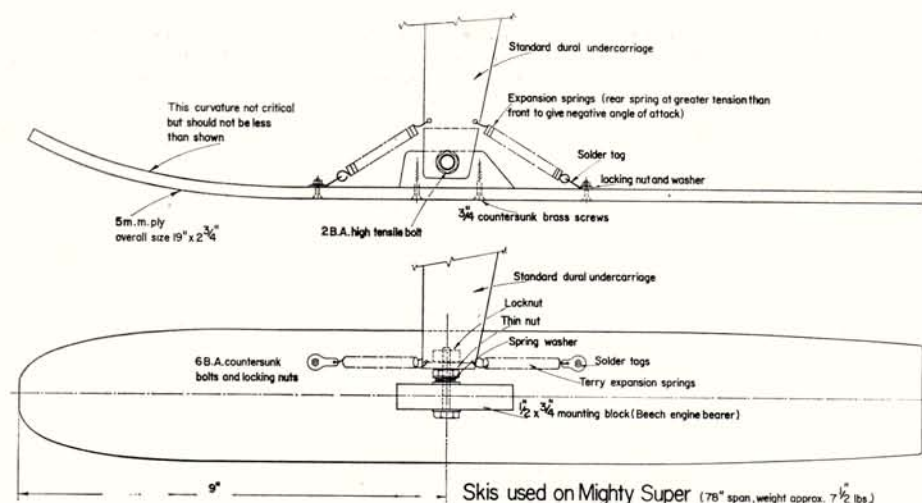
Snow Boots

FOR a long time I have wanted to fit ski's to a model and try it out, so as soon as the snow started out came the modelling box to produce, with the help of an article in an old *M.A.N.*, a pair of snow boots. These were designed to fit on the conventional dural undercarriage of the "Mighty Super" (78 in. version of the Super 60) by simply removing the wheels and bolting on the ski's thus allowing a quick change over should a rapid thaw develop.

The Merco 49 was started and "Mighty Super" was raring to go and sure enough she was soon speeding across the snow and lifted off, in as short a distance as with wheels. The tracking showed no tendency to veer providing she was heading into wind in which case rudder correction was positive. Once in the air a number of trim changes were noticed particularly in the pitching plane but most of these were due to insufficiently strong springs holding the ski's in position. For sheer pleasure watching a landing on ski's takes a lot of beating, once the technique has been learnt the model just "hisses" down onto the snow in a way that is impossible with a conventional



one of fuel proofer. Screw and glue to the hardwood mounting block (Cut from engine bearer stock) and fix the spring mounting bolts, nuts, washers and solder tags. Drill two small holes in the dural U/C to take the other end of the springs. The ski's should be mounted on to the dural U/C with suitable size bolts, high tensile if possible, with locking nuts and friction washer between the mounting block and dural. The springs are arranged to give the ski's a negative angle of attack of about 20° , i.e. with the tips down, these will rise in normal flight to a level position but drop to take up the initial touch down on landing. Make sure the springs are strong enough to



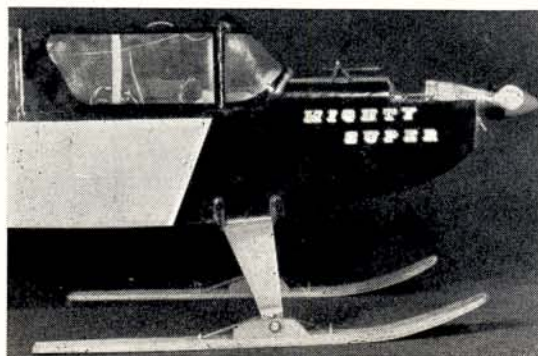
Details of the ply ski used for a large model. Other dimensions are quoted in the article. Photographs above and below show the actual installation. See also pages 161 and 132. Sketch is to one-quarter scale.

landing gear. Simply great! and, as there's still time for more snow yet, why not get building now and get some snow time in.

Construction commences with cutting the plywood ski's to shape and drilling and counter-sinking for screw and bolt fixings. Overall size for the "Mighty Super" was 19 in. \times 2 $\frac{1}{4}$ in. \times $\frac{1}{4}$ in. ply but 15 in. \times 2 $\frac{1}{8}$ in. \times $\frac{3}{16}$ in. ply should be o.k. for 50 in.-60 in. span and 12 in. \times 2 in. \times $\frac{1}{8}$ in. for 40 in.-50 in. span models. The mounting block is positioned so that the bolt axis is just forward of the centre of ski ($\frac{1}{4}$ in.- $\frac{1}{2}$ in.).

To obtain the forward curvature of the ski it is necessary to boil the tips of the ski's for an hour or two until the plywood is supple. You may find that, unless a waterproof ply is used, the boiling will cause the plywood to laminate and in this case P.V.A. or similar glue should be squeezed between the laminations before forming the curvature. Bend the tips by fixing the lower halves into the vice and attaching strong thread to the ends of the tips and pulling on the thread until the required curvature is obtained. Secure the thread and leave to dry overnight, it may also be helpful to clamp any laminated plywood or bind it with Sellotape until dry. Clean up and sandpaper the ski's and give three or four good coats of dope and

prevent the ski's from "floating about" during flight, otherwise the changes of trim previously mentioned can make flying hazardous particularly with single channel models. The prototype ski's had a noticeable "toe in" as for the wheeled version but this had no adverse affects, it may even have improved tracking.

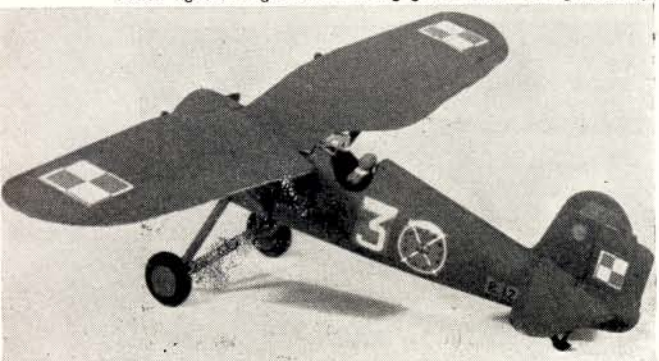


TRADE NOTES

Keil Kraft can claim yet another first, this time with fuel containers, *Nitrex 15* (containing 15 per cent Nitromethane) is now distributed in very handy moulded polythene squeeze bottles. Containing 10 oz. of fuel, the bottle is 2 in. diameter, 8½ in. tall with an injection moulded high density polythene filling spout 1½ in. long. The body is very supple and moulded from low density polythene with name, fuel type etc. printed in red and green over yellow. The filling spout arrives with a sealed top so you have to snip the end off first with a balsa knife. A spare sealing cap is provided to make it good value at no increase in price of 4/3d. Fuel quantity can be detected through the translucent body to tell you how much is left in reserve.

Frog's latest 1/72nd scale plastic kit is a rather unfortunate choice of a particular aircraft. The *Northrop Black Widow* has been a neglected aircraft by most modellers, but Frog have put this right only to fall down on many details as we can easily find out with a careful check against the many photos of the same aircraft. "Double Trouble" is perhaps the best known of all "Black Widows". With 47 parts moulded in black no problems were encountered during construction except with the nose leg where the stub axle was not long enough to spread over with a hot knife or even pass right through the wheel. Scale accuracy tends to be below normal expectation and the following are just a few of the more glaring points: Radar antenna has been omitted from fuselage sides below cockpit, leading edge landing lights are not indented. Panel lines are prolific, many of them should just be rivet lines and yet several important panels, including a circular turret blank, missing from the fuselage top and the wings. The cowl rings are tapered at far too steep an angle and the spinners are too pointed. The undercarriage legs all lack detail as do the tyres. Rear cabin extreme end is far too pointed, but as it has a solid blob that seems to have been deliberately moulded, there is room for file work to radius the end. Letter spacing of the transfer name in red is unlike the original. Was this a rushed kit? First released at the Schoolboys' exhibition, it gives the impression it was pushed to meet the deadline. Available for 6/-, the Widow presents a challenge to the modification specialists and would convert easily to a "Reporter"!

Revell PZL P11c builds up into a nice replica of the vintage Polish fighter. Engine and cowl gave trouble during assembly.

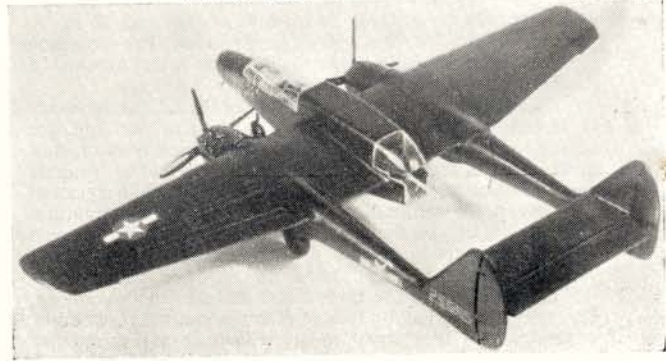


Keil Kraft's new polythene squeeze bottle fuel container for *Nitrex 15* glow plug fuel that contains 15 per cent Nitromethane. Soft and supple and with no price increase at 4s. 3d. for half a pint as per the old metal can this represents excellent value.



Latest Revell plastic in 1/72nd scale is the *Polish P.Z.L. P11c* comprising 22 parts and builds up into an accurate, 5½ in. wing span replica. Despite its obsolescence (basic P-11 design dates back to 1929). This sturdy, all metal Mercury powered fighter gave a good account of itself in the few brief days before the Polish Air Force were overwhelmed in 1939. Revell's kit, however, doesn't really deserve such praise. The motor gave considerable trouble during assembly. The front section should slot between the radial cylinder heads but this was found impossible to locate. The parts (kit nos. 1 and 2) simply were not the right size. We broke a number of cylinder heads off part 2 and had to re-cement them before this tricky assembly was "wangled" into place! It is also interesting to note that the manufacturers' instruction sheet is incorrect for Stage 1 and that a separate amendment note is supplied with the kit—this deals with fitting the propeller after the front cowling ring has been cemented in place and not before (as in the original instructions) since this would make this cowl impossible to fit over the prop. The undercarriage too was a little on the flimsy side and care must be taken when cementing the legs to the fuselage to avoid a "splayed" effect. Aside from this, the effort to reproduce the finely scribed wing surfacing, and the detailed squadron insignia give an impression of remarkable quality for the modest price of 2/11d.

Frog Northrop Black Widow depicts well-known "Double Trouble" with all black moulded finish, yes we know the boom stars are upside down!



**Aircraft
Described
No. 148**

Moeller Stomo 3

Drawing and
description
by **G. R. Duval**

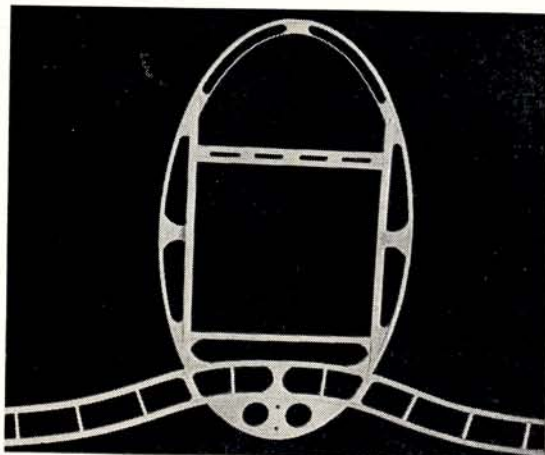


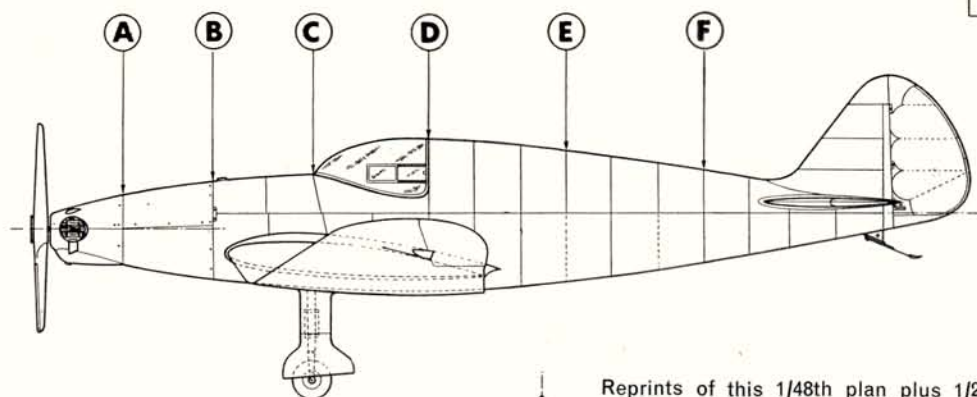
Hans Guenther Moeller's first "Stomo 3" with canopy removed. Note very clean surface and gull wing. We wonder who will be first to construct a radio controlled version.

HANS GUENTHER MOELLER was born near Hamburg in 1912, and like many others, his interest in aviation began with the construction of models. He later studied at Oldenburg Polytechnikum, and while still in his early twenties progressed to building full-size gliders, and eventually secured a post at the Focke Wulf works as a detail designer. In late 1936, Moeller commenced the design and construction of an ultra-light single-seater sports aircraft, to be powered by the small ILO engine, but as this power unit did not become available in time, the slightly lighter Kroeber M.4 was installed, necessitating an increase in the length of the fuselage nose. The finished machine was beautifully streamlined, having the lines of a fighter aircraft with inverted "gull" wings, and several years in advance of its time. Registered as D-YDOL, the machine was known as the Stomo 3, (presumably other designs before it were either gliders or abandoned on the drawing board) and its debut came at a lightplane flying meeting held at Rangsdorf/Berlin on October 13-17th, 1937, where it attained a speed of 91.8 m.p.h., and this with an 18 h.p. engine! Unfortunately, at this meeting, D-YDOL was crashed by what was described as "pilot's error", when flown by Herr Kurchenmeister. Moeller immediately set about the construction of a second Stomo 3, urged on by an upsurge of interest in his machine, which had obvious potentialities for the owner-pilot, enhanced by the fact that with the wings folded, the Stomo could easily be towed behind a small car. The second machine, registered D-YDAL, had several minor modifications, the most obvious of which was the redesigned cockpit cover, now hinged at the side instead of the lift-off cover of D-YDOL. 'DAL was flown by many pilots, among them Prof. Kurt Tank of FW 190 fame, who just managed to insert his somewhat large frame into the tiny cockpit, and attained a speed of 94.3 m.p.h. at sea level. By now, Moeller's obvious talents were recognised by his elevation to the post of project engineer with Focke Wulf, and design improvement of the Stomo continued in a stage of major modification consisting of the installation of a 42 h.p. Zündapp engine in a shortened nose section, reduction of the wing span, introduction of flaps and a stronger undercarriage. Registered D-YNER and designated Stomo 3VII Stürmer, this version, flown by

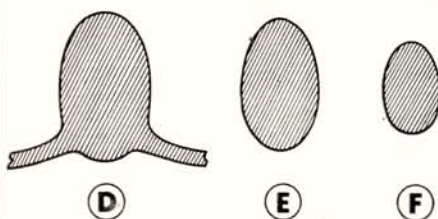
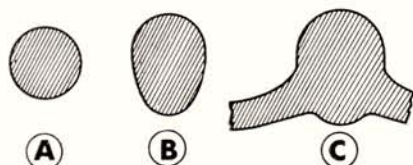
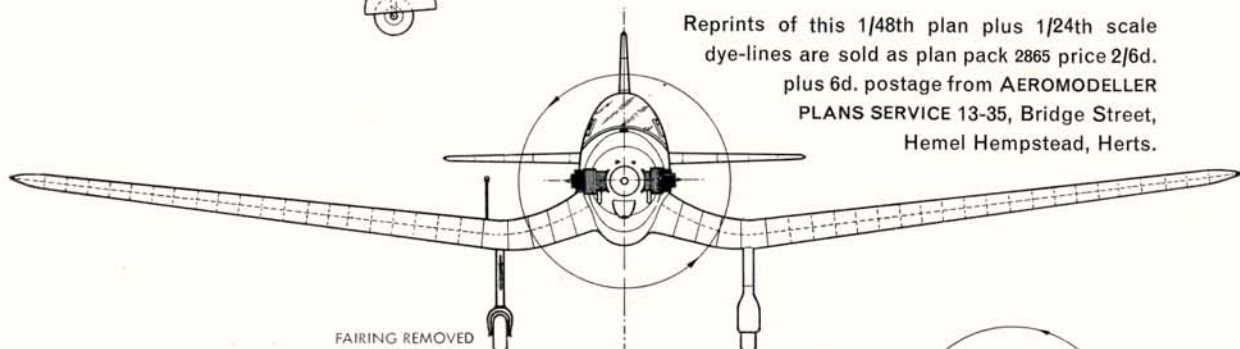
Max Brandenburg, took two World records in its class at Bremen during 1939 over courses of 100 km. and 1,000 km., attaining speeds of just over 115 and 123 m.p.h. respectively. One further machine was completed, the two-seater Zündapp-powered D-EFIB Stomer. The outbreak of war in 1939 put a stop to further development, and it would seem unfortunate for Moeller that the Luftwaffe did not adopt the type for training purposes and also that an agreement with Ernst Heinkel for a production licence was dropped due to urgent wartime pressures. D-YDAL survived the war years at Moeller's factory in Upper Silesia, but in January, 1945, Russian troops overran the area, and its eventual fate is not known.

Cabin former illustrates elliptical fuselage section with light structure and gull wing shape.

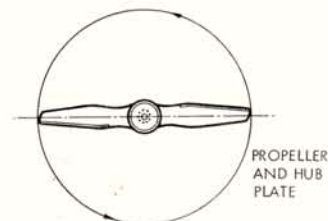




Reprints of this 1/48th plan plus 1/24th scale dye-lines are sold as plan pack 2865 price 2/6d. plus 6d. postage from AEROMODELLER PLANS SERVICE 13-35, Bridge Street, Hemel Hempstead, Herts.



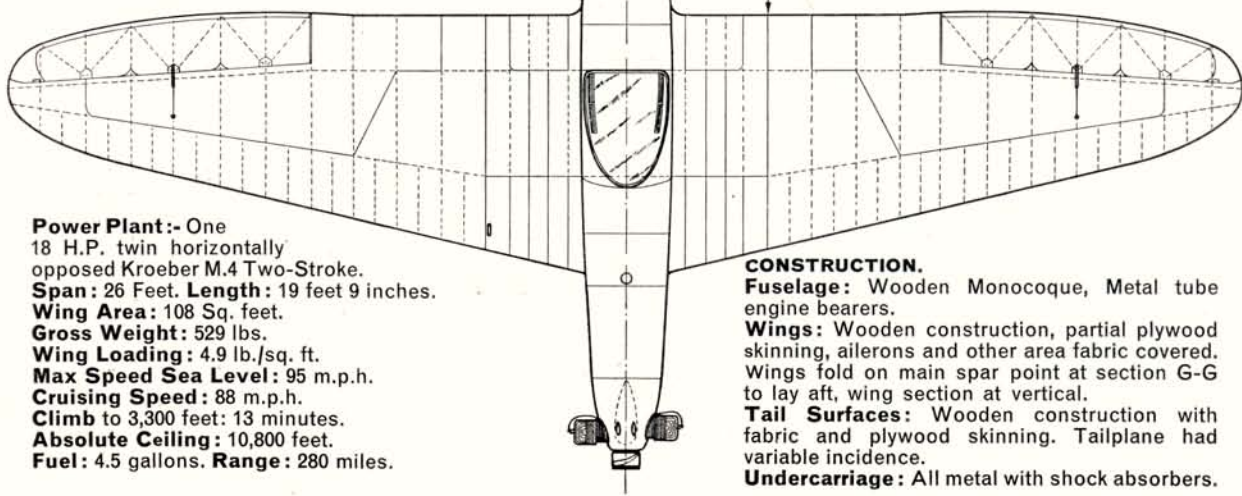
FUSELAGE SECTIONS



PROPELLER AND HUB PLATE



WING SECTION WITH PITOT HEAD (STARBOARD WING ONLY)



Power Plant:- One 18 H.P. twin horizontally opposed Kroeber M.4 Two-Stroke.
Span: 26 Feet. **Length:** 19 feet 9 inches.
Wing Area: 108 Sq. feet.
Gross Weight: 529 lbs.
Wing Loading: 4.9 lb./sq. ft.
Max Speed Sea Level: 95 m.p.h.
Cruising Speed: 88 m.p.h.
Climb to 3,300 feet: 13 minutes.
Absolute Ceiling: 10,800 feet.
Fuel: 4.5 gallons. **Range:** 280 miles.

CONSTRUCTION.

Fuselage: Wooden Monocoque, Metal tube engine bearers.

Wings: Wooden construction, partial plywood skinning, ailerons and other area fabric covered. Wings fold on main spar point at section G-G to lay aft, wing section at vertical.

Tail Surfaces: Wooden construction with fabric and plywood skinning. Tailplane had variable incidence.

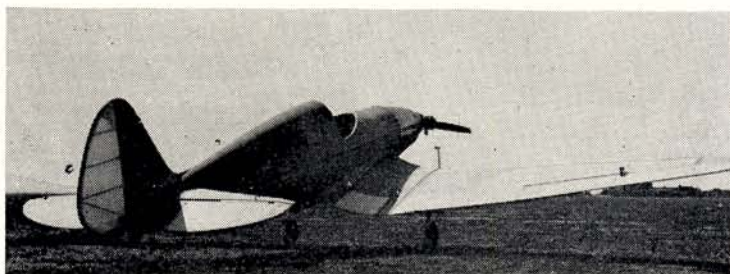
Undercarriage: All metal with shock absorbers.

The first "Stomo 3" D-YDOL with lift off canopy in a half finished state without undercarriage leg fairings and wheel spats, light structure very evident.



Close up of second "Stomo 3" D-YDAL shows Kroeber M.4. engine and diminutive propeller. Also "Temperolus" cowling name. Note canopy hinged with fixed forward section.

Rear three quarters view of D-YDOL indicates gull wing and very clean lines, canopy removed. This aircraft was crashed at Rangsdorf/Berlin.



Superbly clean lines and advanced thought are evident in the smooth lines of D-YDAL, Moeller's second "Stomo 3". Tapered paint line also runs from canopy along fuselage top to the leading edge of the fin.

Close ups of D-YDAL below with canopy open indicate paint lines at the wing and tail plane roots. Note the close fitting control surfaces.



BATTLE OF THE FLATS

As the winter draws out Friday night club meetings are the main meeting point for members of Wanstead Warhawks M.A.C. John Palmer is flying a Grumman Wildcat powered by a Cox Pee Wee round-the-pole, with dummy radial engine and all. Flying field wise, the battle is still raging over Wanstead Flats. It is due to the intervention of the S.M.A.E. that all model flying is not now to be banned under a proposed bye-law. Unfortunately the amended bye-law still applies a ban to radio control and free flight power. The club is petitioning local residents to show the Forestry Commission that those in the neighbourhood have no objection to aeromodelling and to date over 3,000 signatures have been collected. A Ministry of Works appeal is to be held and it is hoped that all the help given by the local M.P., model shop owners and residents will save the day. Roger Jarvis and John Palmer have completed "Sopwith Schnieder's"—John flying his off the local boating pond adjacent to Wanstead Flats. Basil Murley noted for his A.P.S. "BAZZ BOMB" has now completed a glass fibre fuselage "TAURUS". Special feature is the fail safe incorporated in an Orbit 10 reed set. Wanstead membership automatically implies full membership of the S.M.A.E. New members are welcome and should 'phone Wanstead 2168, or write to the Secretary, 82, Grove Hill, South Woodford, London, E.18.

LIVERPUDLIAN ECHOS

Without a doubt one of the best monthly news letters we received is "THE BLUEPRINT" from Liverpool and D.M.A.S. This is written with a fair dash of wit and some very nice take-offs on local modelling situations. On the flying side radio control carries most of the news with Stan Catchpole stunting all over the place with his Veco .45 TAURI controlled by Orbit radio gear. Alan Brereton, after disaster with a SENIOR FALCON, has now elected to try the more classical route with a Merco .35 powered FROG JACKDAW using six channels off a Metz 10. First flights disclosed a bad warp but in experienced hands the day was saved. Next evening Alan was seen at the controls flying successfully, so it just goes to prove the old saying of starting at the bottom and working upwards. Dave Thomas has now taken up Galloping Ghost flying with R.C.S. equipment and Stan Clayton free flight as when the DEAC's went dead in his radio model it went F/F . . . for all of 3 seconds. A control line contest on September 12th was a smash hit affair, the centre attraction being a balloon bursting competition. Most models were broken during diversionary manoeuvres . . . such as landings. Peter Baker finally emerged the victor with the only model unscathed by the ordeal. Tim Walls, Bernie Sinclair and Malcolm Hayes were more or less runners up, as at least they each had a reasonable sized piece of model left. The winner was then presented with a handsome piece of Revell all plastic combat kit—a French flintlock duelling pistol! He did not even say thank-you when he opened it!

GIANT PROPELLER

Just what can you do with a 10 foot diameter propeller? that is the question Worthing Bald Eagles are asking themselves. According to the gen stamped on it, it was made by Vickers of Crayford in 1917 and was fitted to a Beardmore engine, and it's a two-blader. Suggestions from the club for the use of this, their latest super sized, real life, trophy include giving it to their least active member or as the chuck glider trophy, also it may be transported to rallies via a car roof just for luck. The club have been asked to make a two minute film about aeromodelling for inclusion in a larger film showing youth activities concerned with the Duke of Edinburgh's Award Scheme.

SOUTH WALES ACTIVITIES

Rhondda A.M.C. who have permission to fly on Ely Race Course held a three-way combat boat between Pontypridd, Cardiff and themselves. In the three man final, A. Evans (Pontypridd) was knocked out by K. Jenkins (Rhondda Secretary) who was in turn beaten by K. Selby. The 1/2 A combat gave A. Evans a revenge win over K. Jenkins, both flying "MINI DONGUS" powered by P.A.W. 1.5 cc. engines. Their clubroom is regularly cleaned by a "Mini-Hovercraft" that sucks in all the dust blown around by its air cushion and then remains embedded inside the engine compartment in the waste oil!

Floats at Ditchling

On Sunday, January 9th, Brighton D.M.A.C. flew a contest for the Chairman's Cup, at Ditchling, in cold and breezy weather which limited visibility to under two minutes. This contest is for either rubber or power seaplanes the latter being allowed 15 secs. engine run. Four members turned up with floatplanes and several more turned up to watch the fun and in the hopes of seeing a few models dunk in the dew pond. However, the four contestants made clean take-offs in every case. Fred Boxall with the only rubber entry, despite having to make repairs to his lightweight, due to wind damage, managed to hold off the power boys as his model seemed to drift less in the wind, came first closely followed by John West's Dixie-lander, while Ian Lucas' veteran Clot V just managed to pip Dave Welch's Cox 049 O.D. for third place.

FLYING FOR FUN

Taking a chance on the weather Larkhill R/C M.A.C. booked a local playing field on November 28th and invited all radio fliers to come and have some fun. 12 models were present and the weather ideal, approximately 350 spectators getting a free afternoons entertainment for 34 hours. After test flying (spin and spot landing) a small contest was organised having six minutes duration, five of which were spent in free style flying, and then a 60 second spot landing. Ed. Johnson (Larkhill) came out tops with John Singleton (Salisbury) runner up. The local press were out in force and plenty of photographs were taken even some ground to air shots of Jack Morton's *Tiger Moth*. Free style three-in-the-air-at-once flying, strictly controlled of course was quite hair raising and must have been enjoyed immensely by those spectators. Silencers were compulsory and no complaints were received from local residents—just shows how effective they are.

CLUB and CONTEST NEWS

JINTY RECORD

John Lorrimer of Woking M.A.C. managed to cram 47 flights of over 45 seconds duration during a scramble by using the full size free Aeromodeller plan "Jinty" powered by a Mills .75 diesel, to create a new club record. Other club records set during last year were 58 minutes duration for control line and 93 laps inverted also an unofficial 104 m.p.h. in control line speed. Two models new to the club are the September Warrior and Junior Satan. The September Warriors flew well but the outboard wing proved weak. Junior Satans were, to say the least, satisfactory, making 6 foot diameter loops, 86-96 m.p.h. powered by a P.A.W. 19D and tuned Veco .19 run on pressure feed, respectively.

Richmond News

Sponsored by a brewery, well almost, but not quite, Richmond inform us that their club premises at the rear of the "Sun Inn", Parkshot, Richmond, have been redecorated by courtesy of the brewers—new fittings include Wild West type swing doors and a private BAR! A four-man contingent are competing in the Coupe d'Hiver contest in Paris and models are being trimmed out for this and the rest of next season's contests. A secret weapon, combat model makes the E type "Early Bird" look like a Phantom Mite—almost, well there's no straight fuel regulation for combat. The free flight faction are also active power being the usual G-15's plus one O.S. Max—H 29R racing motor.

FLYING AT MEIR AIRFIELD

Clayton M.A.C. from Newcastle-under-Lyme, Staffs., now have week end use of Meir Airfield and plenty of activity takes place, so busy weekends are enjoyed by all. They pay for their flying to the local council so certain rules have to be observed, especially so as full size light aircraft (including Eric Clutten's "Fred") and gliders use the field. Radio interest is steadily on the increase with single, multi, kit and O.D. models to be seen. With over 50 members any interested locals should contact Paul Taylor, 36 Northwood Lane, Clayton, Newcastle-under-Lyme, Staffs.

Worthing's Chimney Scraper

Now re-formed as a new club Worthing Bald Eagles have 60 members all keen and active. This compares very well with the old club membership of 80. Many of these are "new" faces, so it will be seen that there is a fair turnover of enthusiasts down south. C. A. Foss, designer of the A.P.S. *Skyscraper* published in November *Aeromodeller* tells an interesting story in *Eagles Beak* the Worthing newsletter. "Skyscraper flew off and was reduced to a small speck after a long engine run and was last seen hitting a house roof. After a long search up and down Old Shoreham Road I eventually located the block of houses which had got in the way of 'Skyscraper', and went down an alley-way leading to the back of the houses. I approached a fat lady, who was working in one of the gardens and enquired about my model. I received a negative reply, and, on turning round, I happened to glance through the doorway of her garden shed, and what did I see?—a white tailplane looming up against the dark. Further investigation revealed the fuselage carefully hidden behind a bundle of sacks. She quickly denied all knowledge of hiding it and became rather nasty when I insisted that she should hand over the wing which was still missing. After an argument, during which we both threatened to bring the police in, I suddenly spotted the wing wedged behind the chimney, some 25 feet up. It was recovered a few days later with the help of a kind neighbour who lent me his ladder. The only damage was a bent crankshaft to the A.S.55 engine which was a result of the fuselage falling off the roof to the concrete below."

DARTS & NIPPERS

East Grinstead M.F.C. held a paper dart contest at a recent club meeting with a 3 second max., and five flights, highest total was 14.4 seconds. R. Vincent introduced the youngest ever youngster at the meeting only 13 days old and weighing 7 lb. 4 ozs., is this the youngest ever at a model club meeting?

MODELS ON TELEVISION

Glasgow Hornets member Stuart Anderson who was placed 4th at the '65 Nationals with a control line scale A.P.S. Curtiss Hawk P.6.E. recently loaned this and his latest model, a free flight B.E. 2E, to Scottish Television to be used as props (stage props, not propellers), when Cleo Laine was doing a few songs. Bill Tennant who compares the programme "Here and Now" concluded by flicking the B.E. 2E's propeller and Stuart nearly had heart failure as it was on the top of a tall narrow pedestal, if it had fallen a year's work would have ended in pieces!

Brentwood Indoor Contest

Brentwood M.A.C. ran an indoor contest for Free Flight and Round the Pole flying on December 4th in a Church Hall. With 20 entries all contestants voted the meeting a success and another will be organised on the strength of this. The only event without entries was R.T.P. duration and the highest entry was for tissue covered free flight with 9. Results. Free Flight Tissue, 1, A. Longhurst (Feltham/Hayes) 5:08. R.T.P. Speed, 1, R. Godden (Cambridge) 10.1 secs. (10 laps). R.T.P. Team Race, 1, R. Godden (Cambridge) 1:53.5 (for 50 laps).

Combat

Tops in North East

The North Eastern Area Committee report Tynemouth top area club followed by Sunderland, then Novocastria. Tynemouth's win is due to the points they gained by flying rubber jobs at area contests in all weather conditions. Combat is the most widely flown event in the area, with Prudhoe winning the last two contests. Flying on a Town Moor has disadvantages with the close proximity of houses, but Officialdom was placated when Vice-Chairman team race flier Alan Laurie explained that silencers were being used especially for the benefit of the nearby old folks home—(and the Cat and Dog pound, also nearby?).

PEN PALS WANTED

Ben Hall, 34B Balkin Street, Ellerslie, S.E.6, Auckland, North Island, New Zealand. Age 13, interested in control line, would like a pen-pal in the U.S.A. Stephen Hilton, age 14, of 30 Dunster Street, Burnside, Christchurch 6, New Zealand, is interested in all classes, would like a pen-pal of his own age.

WINTER RESULTS

Results of Timperley Inter-Club Meeting, January 16th. Open glider—24 entries—23 flew. 1, J. Parrott (Whitefield) 2:59, 3:00, 3:00, 8:59; 2, M. Reeves (Whitefield) 3:00, 3:00, 2:17, 8:17; 3, P. Lowe (Congleton) 2:38, 3:00, 2:02, 7:40. Open Rubber 12 entries—11 flew. 1, J. O'Donnell (Whitefield) 3:00, 3:00, 3:00, 9:00; and U. Wannop (Wallasey) 3:00, 3:00, 3:00, 9:00; 3, M. Reeves (Whitefield) 2:46, 3:00, 8:46. Open Power—10 entries—7 flew. 1, G. W. Lowe (Wallasey) 1:53, 3:00, 3:00, 7:53; 2, J. O'Donnell (Whitefield) 3:00, 3:00, 1:40, 7:40; 3, N. J. Martindale (Wallasey) 2:15, 2:26, 2:55, 7:36. Chuck Glider—11 entries—All flew. 1, G. W. Lowe (Wallasey) 0:23, 0:45, 0:43, 1:07, 0:25, 0:30, 2:35; 2, R. Roberts (Whitefield) 0:46, 0:31, 0:27, 0:35, 0:43, 0:20, 2:04; 3, K. Robertson (Whitefield) 0:40, 0:26, 0:33, 0:21, 0:45, 0:34, 1:59. London Area Impromptu, December 27th. Open Rubber—7 entries. 1, F. Boxall (Brighton) 9:00; 2, J. Mabey (Lee Bees) 8:20; 3, Allen (Brighton) 8:02. Open Power—3 entries. 1, J. West (Brighton) 6:00, D. Welch (Brighton) 6:00; 3, G. Head (Lee Bees) 5:18. Open Glider—16 entries. 1, C. Foss (Brighton) 9:00; 2, P. Newell (Surbiton) 8:56; 3, P. Jellis (Croydon) 8:54. A Power—3 entries. 1, E. Warwick (Lee Bees) 6:30; 2, Jacques (Croydon) 6:06; 3, M. Dilly (Croydon) 5:02. Coupe D'Hiver—3 entries. 1, P. Newell (Surbiton) 4:18; 2, C. Grieg (E. Grinstead) 3:11. A/I Glider—6 entries. 1, K. Smith (Croydon) 6:01; 2, M. Dilly (Croydon) 5:51; 3, P. Williams 5:50.

COMING EVENTS

- March 6** St. Albans M.A.C. *Vintage Gala*. Chobham Common. A/I glider All-in F.A.I. Coupe d'Hiver. Vintage event—enquiries V. Taylor 96a Victoria Street, St. Albans, Herts.
- March 13** East Grinstead *Gala*, Chobham Common, Open R/G/P, Coupe d'Hiver.
- April 3** Rolls Royce M.A.C. *Pylon Race*. Thulston (B. 5010. 5 miles south of Derby). Single channel single button, galloping ghost or proportional on one surface. Max. No. of loops in 5 minutes. Pylon Race, open up to 2.5 c.c. and Goodyear models to N.M.P.R.A. rules, racing in pairs, both events flown together, prize for highest Goodyear. Novelty race for multi stunts, Control Line Combat. Pre-entry 1/6d. to:—P. Clarke, 70 Brisbane Road, Mickleover, Derby.
- April 3** Esher M.A.C. *F.A.I. Team Race*, Fairmile Circuit. Pre-entry limited to 25.
- April 10 & 11** South of England *Free Flight Gala*, Chobham Common. Events, *Sunday*:—Open Glider, Combined F.A.I. Coupe d'Hiver, A Power. *Monday*:—Open Power, A-1, Open Rubber, Chuck Glider, F.A.I. event run in rounds. Start 11 a.m.
- April 11** Bristol M.A.C., *Goodyear Race Meeting*, R.A.F. Hullavington, Pylon, Racing to N.M.P.A. rules. Starting money £30. Details from:—Dr. G. Henley, 47 Pembroke Road, Clifton, Bristol 8.
- April 24** Southern Area *F/F Gala*. Beaulieu Heath (ex air-

- field) Nr. Southampton, Open R/G/P and A/I glider.
- May 1** *Airtech Free Flight Rally*, Haddenham, Bucks. Open R/G/P and Chuck Glider.
- May 1** *Finchley & D.M.A.C. Control Line Rally*, Glebe Lands, Summers Lane, Finchley, London, N.12. Snr. & Jnr. Stunt, A & B Combat, Pre-entry to K. D. Lesser, 20 Squire Lane, Finchley, N.3.
- May 15** *Hall/Roffey Open C/L Speed Meeting*, Charville Lane, Hayes, Middlesex. All classes of speed plus 8 lap team race sprint (A, A & B.). Pre-entry 4/- and enquiries to I. Roffey, 4 Glynde Street, Brockley, London. All entry fees as prizes.
- June 19** *Bath Festival Radio Contest*, Nr. Bath, Scale and Concours S.M.A.E. rules, F.A.I. Multi Aerobatics, Pylon Racing, N.M.P.A. rules. Prizes total £195. Details from Dr. G. Henley, 47 Pembroke Road, Clifton, Bristol 8.
- July 3** *Finchley & D.M.A.C. Control Line Rally*, Glebe Lands, Summers Lane, Finchley, London, N.12. A, A & B Combat, also Rat-race. Pre-entry to K. D. Lesser, 20 Squire Lane, Finchley, London, N.3.
- July 17** *East Midland Control Line Speed Rally*, South Midland *Gala*, Cranfield.
- Sept. 18** *R.A.F.M.A.A. Championships*, R.A.F. Debden, Wakefield Open to S.M.A.E. members.
- Sept. 25** *Crawley Free Flight Rally*, Great Buckwood Farm.

INDOOR SHOOTING

made easy for everybody!



With the famous Webley air pistols and air rifles, there is no need to 'wait on the weather' for shooting fun. You can enjoy shooting right in your home today, safely—simply. The whole family can have hours of sport, whilst learning to handle guns with responsibility and confidence—shooting like the experts.

The perfect complement to all Webley air weapons—Webley target holders, strongly made with wide splash aprons—will catch and hold your pellets, prevent damage to walls and retain your targets securely. They are available in three sizes—10" x 10" x 1", 6½" x 6½" x 1", or 4½" x 4" x 1".

Improve your skill and accuracy with Britain's finest range of air weapons—THE JUNIOR or PREMIER AIR PISTOL, THE JAGUAR, RANGER, FALCON or MARK III AIR RIFLE—there's a weapon for all, each ideal for indoor or outdoor shooting.

Illustrated Webley catalogue of air rifles, air pistols and accessories sent on request. Please enclose 4d. stamp for postage to:—

Webley & Scott Ltd

91/E/F PARK LANE, BIRMINGHAM, 21

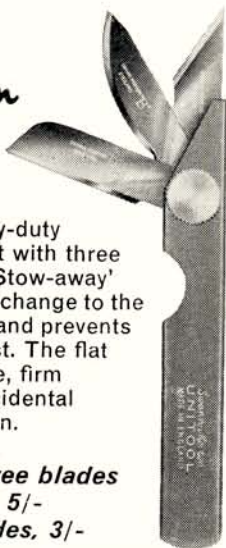
You'll do a good job better with
Swann-Morton tools

Precision-ground, superbly handy and versatile, *Swann-Morton* tools are made from the finest materials

The new *Swann-Morton* UNITOOL

An all-purpose, heavy-duty pocket and bench set with three razor-sharp blades. 'Stow-away' handle allows instant change to the blade of your choice and prevents blades from being lost. The flat design ensures a safe, firm grip and prevents accidental rolling when laid down.

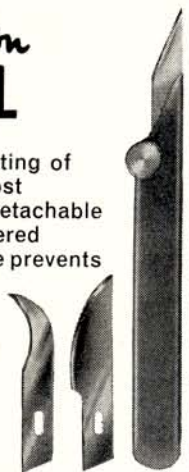
Complete with three blades and plastic wallet, 5/-
Set of 6 spare blades, 3/-



The *Swann-Morton* CRAFT TOOL

For light and medium cutting of all kinds. Ideal for the most intricate work. The three detachable blades are of finely tempered sharpness. The flat handle prevents the tool from rolling when put down and makes sure your grip is a firm one.

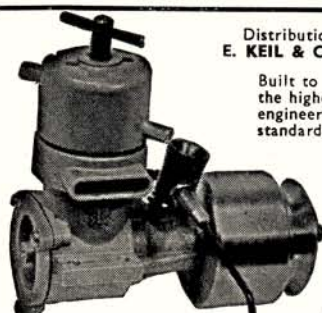
Complete with two blades, 2/6. Set of 6 spare blades, 2/6



TRADE ENQUIRIES ONLY TO:

Swann-Morton

(SALES) LTD · PENN WORKS · SHEFFIELD 6 · ENGLAND



Distribution:
E. KEIL & CO. LTD.

Built to
the highest
engineering
standards



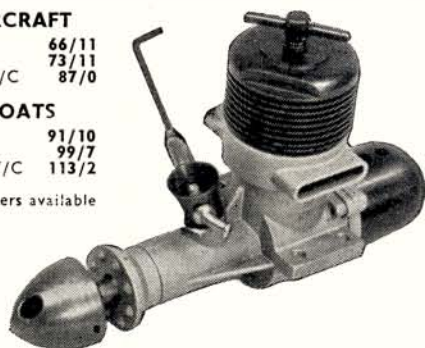
FOR AIRCRAFT

Heron A/C 66/11
Snipe A/C 73/11
R/C Snipe A/C 87/0

FOR BOATS

Heron W/C 91/10
Snipe W/C 99/7
Snipe R/C W/C 113/2

Effective silencers available



Top quality trio



Great for Value

PRECISION BUILT BY:— MAROWN ENGINEERING LIMITED UNION MILLS, ISLE OF MAN



'Joy-Plane' BALSA CEMENT

New and improved quality. Very quick and hard setting. Penetrates deeply, and is heat resisting and fuel proof. In tubes. 8d.; 1/2d.; 1/10d.

(Recommended retail selling prices)

Made by Modellers for Modellers



is the registered trade mark of TURNBRIDGES LTD., LONDON, S.W.17
manufacturers of quality products for STICKING, STAINING, POLISHING, PAINTING



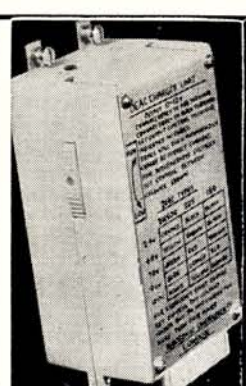
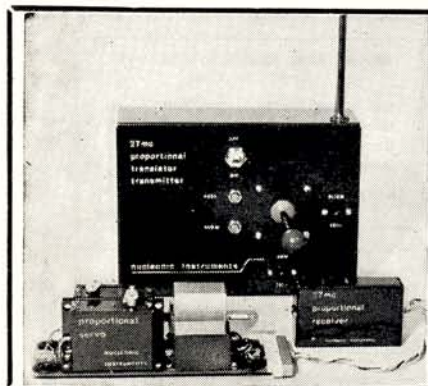
nucleonic instruments

UNIVERSAL DEAC CHARGER. Designed to charge all types of Deac cells. The output is completely isolated from mains supply and is fully variable between 2.4 v. and 12 v. Charging current is accurately set by calibrated edge control to ensure that Deacs are charged at the correct rate. Deacs fully charged in 10 hours or in emergency can be boost charged in 4 hours. £2.5.0 each

NUCLEONIC PROPORTIONAL EQUIPMENT. Completely transistorised throughout. Transmitter is crystal controlled, triple simultaneous, and gives proportional control of rudder (or ailerons) and elevator with trim on both, and progressive control of engine. Servos wired and mounted on glass epoxy installation board connecting to receiver through a multi contact edge connector. Complete airborne installation operates from one 7.2 v. Deac (not supplied). Range in excess of 1,000 yds. £85.0.0. complete

263 UPPER RICHMOND ROAD, EAST SHEEN,
LONDON, S.W.14 PHONE: PRO. 4353

Trade Enquiries Invited



MODELS

BY

MAIL

Sterling Denight Special		RMK Royal Servos	
R/C Pylon Racer	185/0	Multi S/N	179/6
Midwest Li'l Tri Square	59/6	Multi Trim	169/6
Goldberg Skylane 1/4A	59/6	S/C Rudder	89/6
Topflite Schoolgirl	75/0	OS Steerable Nosewheel	29/6
Sub. Min. Toggle Switches		Dubro Duracollars	
Single Pole	6/6	1/16", 3/32", 1/8"	
Double Pole	8/6	5/32", 3/16" (4)	5/9
Treble Pole	17/9	Dubro Blind Nuts (4)	2/3
		Dubro Bolts 4/40 (8)	1/3

S.A.E. FOR LISTS

Modern Models Ltd. 49-51 Lowfield Street, Dartford, Kent
Phone Dartford 24155

AVIETTE KITS

The popular "President" kit is now available with finished "Styro-Tru" wing and stabiliser at only £15.10s.0d. Great value for money!

"Styro-Tru" wing and stabilisers for all models. Cores, covered cores or finished wings.

"Styro-Tru" wings for all Nelson Racers.

Dural U/c soon ready.

Built up models of all types with "Styro-Tru" wings and stabilisers—Taurus, Stormer, Cherokee, President, Orion, etc.

Write for details to:—

Aviette Kits, Water Lane, Sherington, Bucks.
or Geoff. Franklin, Franklin Products, 101 Jarrom
Street, Leicester.
or Ed. Johnson, (Radio Control), Larkhill, Wilts.

CLASSIFIED ADVERTISEMENTS

PRESS DATE for April issue, 1966, February 22, 1966.

Private Minimum 18 words 6/- and 4d. per extra word.

Trade Minimum 18 words 12/- and 8d. per extra word. Display box rate £2.10.0 per single column inch.

Box Numbers to count as six words when costing.

Box replies to be sent care of Advertising Department, 13-35 Bridge Street, Hemel Hempstead, Herts, England. Copy received after first post on February 22, 1966, will be held over until the next issue, unless cancelled in writing before 22nd of following month.

MODEL RADIO CO.

Opp. 'Crystal', Newcastle-under-Lyme-on-the-M6, Staffs.

Telephone: 63765

for Equipment, Mags., Books & All Your

Model Requirements.

Terms up to 30 months on Min-X, Kraft, F & M, Citizenship. Tens from £75. 2/6 stamps, please, for full Specification on same. S.A.E. Lists.

FOR SALE

Selling up, Enya .09 30/-, Terrytone £3 Valve transmitter £3, Elmic commander 30/- models, plans, accessories, send for list, Charles, Bristol Hotel, Weston-Super-Mare.

Unwanted Christmas gift. Frog 2.498B. Excellent condition and barely run. Bargain around 55/- or offers. Tony, 9, Newells Road, Birmingham, 26.

M. E. Heron 1 c.c. Diesel Engine 2 months old 35/- Branton, 15, The Alders, Llanrhyon, Mon.

Complete flying outfit. Goldberg Skylane, ready to fly. All transistor gear, including transmitter. £20. Buyer collects. 11, Cobham Road, Walthamstow, London.

HOW ABOUT GETTING AIRBORNE YOURSELF?

Then why not try a
GLIDING HOLIDAY
at Britain's Finest Soaring Site.
Send for illustrated brochure to: Miss Janet Hilton,
MIDLAND GLIDING CLUB LTD
2, South Grove, Erdington, Birmingham 23.

All new unused Merco Stunt 29 £5.10.0d. Mercury Crusader Kit £3.10.0d. K K Spectre Kit £1.10.0d. Keith Davis, 26 Walling Street, Llanrwst, Denbighshire, North Wales.

Cox Olympic, 2 spare glow heads 50/-; Cox Pee-Wee unused 30/-; Cub 15, 20/-; P.A.W. 1.49 with no needle valve 25/-; AM, 30/-; Caisby, 128A, Milton Road, Milton Southsea, Hants.

For Sale 3.5 c.c. O.S. Max glowplug. Accessories as new £3. o.n.o. S.A.E. details. Mr. Wild, 165, Trafford Road, Salford, Lancs.

GIG EIFLAENDER REBORING SERVICE

Chester Road, Macclesfield
REBORES, DIESEL ENGINES, 21/- c.w.o.
GLOWPLUG ENGINES from 30/- c.w.o. C.O.D.
SERVICE (pay the postman, UK only) 4/6 extra.
All engines tested and returned (post free in UK) within three days from receipt; customers abroad please add postage to cost. All our work guaranteed for one month from the time you receive the engine. ENQUIRIES, SPARES, etc., please send stamped envelope or reply coupon.

Colour slides 35 mm. Aircraft in-flight. Gladiator, Swordfish, Spitfire, Hurricane, etc. Unique set of seven 15/- post free or send 2/6 for sample. Hill, 65, Arthur Street, Penrith, Cumberland.

Unused radio controlled five foot wing span model aeroplane. What Offers? Twickenham Film Studios, St. Margarets, Twickenham, Middlesex. Pops-grove 4477.

Selling up—Mostly all brand new and boxed Metz 10ch. Superhet complete and including 5 extra servos and servo spares. Used only 3 hours since new. (July 65) £90. No offers.

Gliding holidays at Cambridge for beginners and others. Training in best aircraft by qualified instructors. Instruction given in thermal soaring, aerobatics, instrument and cloud flying. Inexpensive. Details: Course Secretary, 30 Cadenza Caravan Site, Teversham, Cambridge.

New boxed unrun Merco 61 RC. and silencer £9.10.0d. New boxed unrun Merco 49 RC. £9. New boxed unrun Enya 35 RC and silencer £5.10.0d. Just run in OS. 35 RC. and silencer (3 hours) £4.10.0d. Fox 59 RC. and Spinalfo silencer (Not run in) £9.10.0d. Carter Super Tigre G.20 (Fantastic!) with extras £3. New boxed E.D. Cadet 1cc Diesel CFW Silencer £1.10.0d. Goldberg Skylane S/c kit new £2. 1 pair new Veco airwheels 4 in. £2. Cox .010 not run in £2. Well built Frog 'Tutor' with new 1cc Frog diesel £2. No offers please for any of the above. J. S. Wood, 5, Heyside Avenue, Royton Lancs. Tel. Shaw, 7662.

Super 60 partly built, 4 in. airwheels Frog 3.5 R/C engine. Elmic Commander escapement Terry-tone receiver, 500 DKZ 4.8v. Battery 500 Charger all unused. Williamson, 59, Wilkes Wood, Creswell, Stafford, Staffs. Tel.: Stafford 4045.

SPINAFLO SILENCERS

42/6d. to 62/6d.

over 65 types

These bright anodised units are a rewarding investment for all discerning modellers. Fuel economy and model cleanliness are but two of many side benefits. Made to fit any sidestack engine. Mini for .09 to .15. Standard for .19 to .35. Super for .49 to .61.

All complete with mounting strap, adaptor block machined to close limits and colour anodised rotary flow diffuser.

D.A.C. COMPONENTS,

Albion Rd., Horsham, Sx., Eng.

R.E.P. Twin Triple ED racer, Hawk engines, with optional models equipment as new. £30. Possibly sell separately, offers—R. Marshall, 91, Davies Road, West Bridgford, Notts.

Cobra .049 15/- Bantam no needle valve, new piston/cylinder 12/6. K.S.B. engine timer 12/6. 1938 Zaic Year Book—offers? S.A.E. for lists of other aviation books and magazines. Good Oliver Major wanted, preferably tuned. Bone, 7, Wharmlands Road, Newcastle-on-Tyne, 5.

AIR PICTORIAL

There's always something new in AIR PICTORIAL Britain's finest authoritative monthly magazine on air affairs. Keeps you in the picture of developments every month. Nearly 80 brilliant photographs.

At newsagents and bookstalls 1st each month 2/-. Ann. sub. inc. post £1.10. Send remittance to:

AM, AIR PICTORIAL, Rolls House, Breams Bldgs., London, E.C.4

E. D. Black Prince single channel tone transmitter in perfect condition with new batteries £5.10. A. Baillie, 5, Lawson Street, Kilmarnock, Ayrshire.

Cox Babe Bee .049 with tank hardly run. v.g.c. 30/- R. Shields, 58, Surrenden Crescent, Brighton 6. Sussex.

CIGARETTE CARDS

Coloured 24 "Jet Aircraft of World" (1956) 3/2 50 "Aircraft of R.A.F." (1938) 5/-. Cigarette card catalogue listing nearly 2,000 sets 2/6d. Britannia Card Co., 125, Oxford Street, London W.1.

R. C. S. Tetraplex Superhet Quadruplex proportional outfit; complete with 4 servos Deacs, charger. Reliable, v.g.c. £90. Also R.C.S. Galloping Ghost equipped modified 'Robot' with O.S.15, excellent flight performance. Complete ready to fly £25. Flight demonstration given for either if required. A. Holmes, 79, Twickenham Road, Teddington, Middlesex. TEDDINGTON Lock 6632.

LEARN TO FLY

Either for pleasure or as a profession at the only fully-equipped and approved training establishments in South-East England. Details from the Registrar

THE LONDON SCHOOL OF FLYING

Elstree Aerodrome, Herts.

Telephone Elstree 3148

MODEL ENGINE MANUFACTURER

Needs staff for expanding production. Must be mechanically minded, conversant with model engines. Testing and assembly as well as machining work. Must be local to Edmonton, London.

D. J. Allen Engineering 30, Angel Factory Colony, Edmonton N.18.
Tel.: EDM 6466

Read "Popular Flying", the alt.-months magazine of the Popular Flying Association, the representative body of ultra light and group aviation. Full membership £2 per annum. Magazine subscription only: 12 issues 24s. post free. Specimen copy 2s.0d. from the

POPULAR FLYING ASSOCIATION

Elstree Aerodrome, Boreham Wood, Herts.
Tel.: Elstree 4870

For Sale. Super Tigre 46 R/C Unrun with twin races Chromed and ringed with 12 x 6 nylon prop. Highest offer over £9. secures. F. S. Kenny, 1 Selsey Drive, East Didsbury, Manchester 20.

7ft. Slope Soarer Rudder elevator control with Unitone Rx flights over 1 hour £12 Windy Kreulen Tx £3. Many flying models. Send for list. Faulkner, 3, Burns Avenue, Cheadle, Cheshire.

Learning Full-size flying—New works tuned Oliver Tiger III, 1 hour bench run, £6.10; Ditto O.S. Max II 35; £3; Good O.S. Max II with stunter £3.10; Good McCoy 35 £2; Load of Solarbo sheet, half price. S.A.E. please. Tiley, 7, Trelawney Park, Bristol 4.

TELL THE ADVERTISER you read his announcement in AEROMODELLER—he will appreciate the knowledge of how you came to learn about his bargain

Engines mostly Olivers (one unused works tuned) props, timers, etc. Aeromodeller and Model Aircraft 1955-63. No reasonable offer refused. Selected balsa to personal calls. Mathews, 22, Newmorton Road, Moorndon, Bournemouth.

49 Aeromodellers, 1959-63. Good condition £3 o.n.o. Lyons, 14, Pine Grove, Thornaby, Stockton, Co. Durham.

FRANK ZAIC MODEL AERONAUTIC PUBLICATIONS

1955-56 Year Book	8/-
1959-61 Year Book	15/-
Circular Airflow and Model Aircraft	21/-
1964-65 Year Book	21/-

Post free from **U. A. Wannop, 13 Dene Court, Stockport**

GLIDING

Holiday courses with the Lake Club one week £17.17.0d. fully inclusive.

For brochure apply:-

D. H. Millett, 27, Scotford Road, Lancaster, Lancs.

Three E.D. Bees 1 W/C £5 A.M. 35 W/C £5. Also Macgregor Tone Tx and Tingleone Rx Need Tuning £6.10.0d. Rowbotham, 4, Croydon Road, Birmingham 29.

Enya 35 stunt Good condition £3.10; o.n.o. J. Hirst, 33, The Balk, Walton, Wakefield, Yorks.

Selling two Spitfire diesels, Cox Babe Bee, I am wanting .020, .19, .35- all front rotary induction, Swaps appreciated. Peter Hunt, Peria Road, RD2 Matamata, New Zealand.

GLIDING HOLIDAYS

From April to September with the Kent Gliding Club at Challocke, Nr. Ashford, Kent. Resident Instructor, Dual Control Gliders, Reduced Rates from April to first week in June. For further details enclose a S.A.E. to Course Sec.

A. L. Cosen, Prebbles Hill Cottage, Pluckley Ashford, Kent.

BRITISH AIRPORTS AND AIR TRAVELLER

Full details of 94 British airports, large and small 6s. 6d. post included, from **Manor Publishing Company**, 85a, Bridge Street, Bradford 1.

WANTED

Glow-plug Engines by Bowden Miniature Aero Engines by Warring and similar books. Dowson, 39, Victoria Street, Scarborough.

Wanted: Veron 1/72nd solid kits of the Hawker P.1081, Boulton Paul P.111, Supermarine 508 Supermarine Swift, Vickers 510. C.M.S. Solid kit of the Fairey Sea Fox. Box No. 774.

Wanted: Petrol engine up to 7 c.c. Must be in running order. D. J. Chappell, 32, Station Road, Ditton, Maidstone, Kent.

Wanted: Cheap, radio-controlled model aircraft, and equipment; anything considered. E. Luton, Perrin Road, Frampton Cotterell, Bristol, Tel.: Winterbourne 2144.

Someone has got unwanted K & B 45 spares. Search those boxes Fellas! Write to Elliott, Netherstate, Westwoodside, Doncaster, Yorks.

Simple transistorised R/C equipment. Repairable non-working bits considered. Immaculate small diesels also. Wanted. Noble, Billingham, Duns, Berwickshire.

NOT going proportional. Require Anco relay or relayless servos. State condition and price. Down-ton, 8, College Avenue, Leicester.

Model Aeronautical Constructor, April-May, 1937. Both complete 14/- . Please write first. Ed. Sharratt, Box. 2661, London Canada.

Wood or plastic recognition models. Early bi-planes, to jets. Dinky or wood models of Sikorsky and other flying boats. Cash or China Clipper plastic kits to trade. Chester J. Klish 7624 S: Laramie, Oak Lawn, Illinois 60459 U.S.A.

Interested in Contest Flying?

Read

NORTHERN AREA NEWS.

9/- per year from Ron Firth, 30, Struan Road, Sheffield, 7.

BOOKS

Model-Avia, the model magazine that covers the world of model flying. Edited in French. Send for free specimen and subscription details. Model-Avia, 31, rue du Printemps, Bruxelles 5, Belgium.

American Magazines Year's subscription 'Model Airplane News' 46/6d., 'American Modeler' 35/6d., 'Air Progress' 39/6d., full catalogue free. Willen Ltd., (Dept. 1), 61a, Broadway, London E. 15.

Aeromodelleur back issue. Mart vast stocks of back issues held in stock. Beaumont, 11 Bath Street, London, E.C.1.

MODEL NEWS (Australia)—published Bi-monthly 12s. per year, sterling posted direct, covers all Australasian Aeromodelling in pictures, features and plans. 11, West King Street, Southport, Queensland, Australia.

SAILPLANE & GLIDING—The magazine for all gliding enthusiasts. Published alternate months. Send 4/- for current copy or £1.4s. for a year's sub. to British Gliding Association, Artillery Mansions, 75 Victoria Street, London, W.1.

ANTIQUE AIRCRAFT ENTHUSIASTS

Superbly produced colour lithographs of pre 1918 aircraft. These are offered, beautifully framed in black and gold or contemporary box at 26/- carriage paid, or sample print at 8/6 which can be returned for framing. These prints are undoubtedly the finest of their kind obtainable anywhere in the world, and include: Blériot XI 1909—Antoinette 1903—Wright Flyer 1907. Gordon Bennett Deperdussin 1913—Sopwith Camel 1917—Avro 504K 1917—S.E.5 1917—Light Henri Farman 1910—Spad S13 1917—HP 0/400 1918 Albatross DV 1917—Fokker D.VIII 1918 also veteran cars—ships—pistols—etc., send 4d stamp for list.

Green 144, Sutton Common Road, Sutton, Surrey (A.M.)

EARLY AIRCRAFT?

Are you a skilled solid-scale model maker in this field? Then good opportunities exist to create the most interesting examples of early aircraft . . . and earn good money at the same time. Write to:

MASTERMODELS LTD.
Spur Road, Feltham Trading Estate
Feltham, Middlesex

* TO WORK IN OUR FELTHAM STUDIOS

AMERICAN BOOKS/GERMAN BOOKS. Flying Enterprise Pilot's Handbook: P-40D/P-40E (25/3d.) and YEM-1 (29/3d.) Airacuda (25/3d.) and, coming, F-15D (41/6d.) Modern Aircraft Series: Classic Military Biplanes, Classic Monoplane Guide (shortly), and Parachuting, Aerobatics etc. (13/6d. each) Karl Riese Luftwaffe books: Markings and Camouflage, Vol. III (59s.); Dora Kurfurst, I and II (45s. each). All post free from: Graham K. Scott, 2, The Broadway Friern Barnet Road, London, N.11.

Aircraft of Fighting Powers. Volumes 1 to 7. Very good condition. Offers—Kingswood, 19, Bodiam Close, Seaford, Sussex.

Aerial Warfare, Aviation Airship Books Wanted. Sales Booklist—4d. (New, Used) Bookshop, 116, Bohemia Road, St. Leonards, Sussex.

TRADE

Ex-Government Stop Watches 45/- Illustrated leaflet on request. Charles Frank, 67-73, Saltmarket, Glasgow, C.1.

ROSSI 60, 10 c.c., chromed, £17; Rossi 60 (Chromed) R/C £19.10.0d; Rossi 60 STD £13.10.0d; Speed pan for 2.5 c.c. with spinner, £1; 5 c.c. pan, £1.5.0d; 2.5 c.c. team race pan, 13/-; 4 grades glow plugs, 4/- each; Vulcan jet, £12; 6 x 8, 6 x 9, 6 x 10, speed props., 3/-; 7 x 8, 7 x 9, 7 x 10 3/2d., 9 x 11, 9 x 12; 9 x 13, 4/- . Rossi Via Race 13, Brescia, Italy.

BINOCULARS. Amazing new 8 x 30 prismatics at £9.19.6d. offered on 14 days free trial from Charles Frank Ltd., Saltmarket, Glasgow.

Tatone Timers—Standard or 1A fuel shut-offs, flood-offs and dethermalisers 35/6d. each, Accessories S.A.E. for list Acada Timers—fuel shut-offs and dethermalisers 27/- each Post Free from Michael Smith, 1, Station Road, Kimberley, Wymondham, Norfolk.

BUILD AND FLY

THE VERON MINI ROBOT

SINGLE CHANNEL

AT OUR EXPENSE

Everything reaches you in one parcel. You get:

★ O.S. Pixie receiver and transmitter complete with batteries and ready for use **£17 1 0**

★ Elmic P.R. Commander Escapement, with rubber **£3 1 2**

Merlin Engine with Propeller, 10 c.c. Tank, and bolts **£3 0 0**

Robot Kit complete with nylon covering for wings, extra 1/16 in. sheet in case you want to reinforce the leading edge. Cement, Paste, Pins, Terryene Thread, Clear Dope and a sheet of Polythene for covering Plan

valued at **£2 18 9**

FREE

Enthusiast? Then call in and talk to "Trev"

Total Value **£26 0 5**

Our price **£24 18 5**

Cash with order

CRAFTOYS LTD

19 King Street, WREXHAM, Denbighshire
All orders acknowledged by return

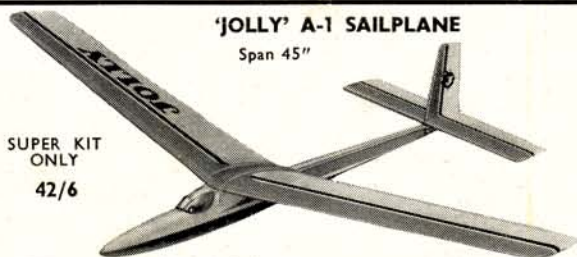
Plans from the U.S.A.

MODEL AIRPLANE NEWS PLANS SERVICE

Each sheet contains 2-5 full size plans, price 7/6d.
+ 6d. postage, full lists available from A.P.S.

- M.A.N. 1A** **ARROWHEAD**:- C/L stunt and combat .049 (1 cc) 16 in.
SCHOOLBOY:- R/C single channel, kick up elevator .010 (.2cc) 36 in.
PEE WEE B:- F/F high thrust line duration .010 (.2cc) 24 in.
N. A. HARVARD:- C/L profile scale .020 (.32cc) 16 1/2 in.
- M.A.N. 2A** **FOURNIER AVION PLANEUR RF-01**:- F/F Electric or .010 (.3cc) scale 36 in.
STEARMAN PT-17 KAYDET:- C/L scale .35 (6cc) 47 1/2 in.
- M.A.N. 3A** **PRONTO**:- R/C pylon racer .15 (2.5cc) 56 in.
HOWARD 'IKE':- C/L scale racer .29-.35 (5-6cc) 35 in.
- M.A.N. 4A** **GEE BEE-R-1**:- C/L scale famous racer .25-.35 (5-6cc) 28 in.
LADY LUCK:- C/L Stunter semi scale .25-.35 (5-6cc) 54 in.
- M.A.N. 6A** **FJ-3 FURY**:- C/L Dynajet powered scale navy fighter 37 in.
HONEY 'B':- C/L speed model .29 (5cc) 17 in.
FARMAN MOSQUITO:- F/F rubber powered scale 22 in.
- M.A.N. 7A** **ANGEL**:- F/F high thrustline F.A.I. Power .15 (2.5cc) 76 in.
CHAPARRAL:- R/C low wing pylon racer .19 (3.5cc) 62 in.
- M.A.N. 8A** **PIPER COMANCHE**:- C/L scale model .35 (6cc) 54 in.
ROARING TWENTY:- R/C single channel .020 (.32cc) 21 in.
- M.A.N. 9A** **SEPTAL III**:- R/C Single channel two sizes .15 (2.5cc) 50 in. .049 (.8cc) for 30 in.
STARBUSTER:- F/F 1/4 A contest power model .049 (.8cc) 48 in.
PROFILE A-26 INVADER:- C/L profile twin scale .049 (.8cc) 45 in.
- M.A.N. 10A** **DIZZY BUG**:- C/L F.A.I. speed model .15 (2.5cc) 21 1/2 in.
WAKEFIELD TRAINER:- F/F three quarter size trainer 20 in.
THE BIG D:- F/F open indoor microfilm 31 in.
LONG GONE:- C/L class 'B' team racer .29 (.5cc) 29 1/2 in.
THE HOT CANARY:- F/F pylon model .010-.020 (.2-.32cc) 33 in.
- M.A.N. 11A** **WHITTMAN SUPER TAILWIND**:- F/F scale homebuilt .049 (.8cc) 32 in.
TOPKICK:- F/F high performance A/1 towline glider 47 1/2 in.
TWIN'S SPECIAL:- C/L proto speed winner .29 (.5cc) 36 in.
- M.A.N. 12A** **B-25**:- C/L scale Mitchell twin .29 (.5cc) 53 in.
ALL ABOUT POLLY:- F/F simple A/1 glider 52 in.
LITTLE RED TWIN:- F/F all sheet biplane .020 (.32cc) 25 in.
- M.A.N. 13A** **THE ROOKIE**:- R/C mini stunt trainer .45 (8cc) 72 1/2 in.
P40 WARHAWK:- C/L profile stunt combat .15-.19 (2.5-3.5cc) 33 in.
- M.A.N. 14A** **U-NAME-IT**:- C/L stunt 'newlook' model .35 (.6cc) 55 in.
FLUFF:- F/F ultra simple 1/4 A model .049 (.8cc) 48 in.
- M.A.N. 16A** **MISS AMERICA**:- R/C single channel trainer .19 (3.5cc) 42 in.
SLI-FAI:- F/F microfilm indoor 36 in.
M-2:- F/F microfilm indoor F.A.I. specs. 34 1/2 in.
SPARKLER:- F/F Cox engine sportster 30 in.
X-A-8:- C/L stunt/comb. .049 (.8cc) 10 in.
- M.A.N. 17A** **SKYCRAPER**:- C/L stunter, jet lines .35 (.6cc) 60 in.
LADY BUG:- F/F all sheet biplane .020 (.32cc) 24 in.
ROCKET DELTA:- F/F jetex powered contest delta 18 in.
- M.A.N. 18A** **X-80**:- F/F high thrustline .049-.09 (.8cc-1.5cc) 47 1/2 in.
CONVAIR XP 81:- C/L scale .15-.19 (2.5-3.5cc) 29 in.
- M.A.N. 19A** **TOP C.A.T.**:- C/L speed, monoline .60 (10cc) 20 1/2 in.
BEACHCOMBER:- R/C low wing multi .60 (10cc) 64 in.
- M.A.N. 20A** **F.A.I. VIKING**:- F/F high thrustline F.A.I. power .15 (2.5cc) 65 in.
TARGET:- C/L Flying saucer 8 in dia .010 (.2cc)
BULLS-EYE:- C/L flying saucer 19 in. dia .15 (2.5cc)
- M.A.N. 22A** **WEEKEND WONDER**:- C/L easy construction stunter .29 (.5cc) 38 in.
RED COAT:- F/F Wakefield Rubber 50 in.
HI-LO-DUO:- F/F pair of rubber models, indoor or out 20 & 19 in.
MOONBEAM:- F/F tractor pusher rubber flier 20 in.
- M.A.N. 23A** **TWIN VISCONT**:- R/C multi twin engine .19-.35 (3.5-6cc) 59 1/2 in.
BUCKER JUNGMEISTER:- F/F 1/24th scale rubber .049-.06 (8-1cc) 33 in.
- M.A.N. 24A** **TWO-BER**:- F/F Wakefield or open rubber model 44 1/2 & 56 1/2 in.
CHAMELEON:- R/C single channel semi scale .06-.09 (1cc-1.5cc) 38 in.
PAPA TAGA:- C/L F.A.I. team racer .15 (2.5cc) 37 in.
- M.A.N. 25A** **HUGHES H1 RACER**:- C/L scale model, throttle control .60 (10cc) 44 in.
CORBY:- F/F semi scale sports flier .020 (.32cc) 26 1/2 in.
AERONCA DEFENDER:- F/F scale rubber 27 in.

Graupner SUPER KITS AT YOUR LOCAL MODEL SHOP



'JOLLY' A-1 SAILPLANE
Span 45"

SUPER KIT ONLY
42/6

A NEW up-to-the-minute design!
Here's a model which really earns its reputation by its FLYING PERFORMANCE. Exceptional towline stability to delight the less experienced—and a soaring performance better than many bigger models!

NEW UHU

Designed for easy construction and flyability



21/6

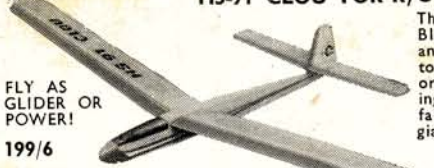
Contest performance for novices

BEGINNER 33/6



Span 38"
Easy to assemble, very good performance. A perfect trainer.

HS-91 'CLOU' FOR R/C or FREE FLIGHT!



FLY AS GLIDER OR POWER!

199/6

Super de luxe kit includes precision die-cut parts, etc.

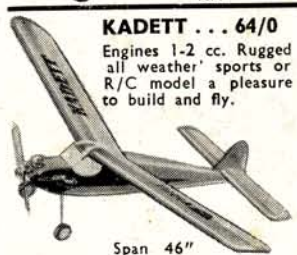
The BIG model with the BIG PERFORMANCE—and specially designed to accommodate single or multi R/C (including proportional!). Prefabbed materials for giant 97" span wing for towline soaring; and 75" span for slope soaring or Power Conversion.

41" SPAN 'CONSUL' FOR RUDDER-ONLY R/C!



DE LUXE KIT 117/6

Fuselage, wings and tail are READY FINISHED in skin-toughened lightweight foam plastic to cut assembly time to a minimum! Takes engines up to 1.5 cc. and single- or 2-channel radio. A superbly styled MODERN design—kitted in the grand manner by Graupner!



Span 46"

KADETT . . . 64/0

Engines 1-2 cc. Rugged all weather sports or R/C model a pleasure to build and fly.



Span 42"

KAPITAN . . . 67/6

Sturdy biplane, easy to build and suitable for rudder only, light 'multi'—or free flight.

YOU CAN SEE THESE & OTHER GRAUPNER KITS AT YOUR MODEL SHOP

U.K. DISTRIBUTORS		other Graupner Agents include—	
RipMax		U.S.A.: POLKS MODEL HOBBIES, 314 Fifth Avenue, New York, N.Y.	AUSTRALIA: PAUL GROSCHMANN 16a Tintern Road, Ashfield N.S.W.
MODELS & ACCESSORIES		CANADA: G. BOOK & CO., 45 Wingate Avenue, Toronto 19, Ont.	S. AFRICA: PHIL DE BRUYN 85 Frith Street, Johannesburg.
WHOLESALE DISTRIBUTORS		N. ZEALAND: BURTON BRADFORD 261 Willis Street, Wellington, C.Z.	HONG KONG: RADAR CO. LTD., 2 Observatory Road, Kowloon H.K.

HOW TO ORDER:—

Send order clearly marked "M.A.N. Plan", plan number and postal order to:— Aeromodeller Plan Service, 13-35, Bridge St., Hemel Hempstead, Herts.

**BIRMINGHAM** VICtoria 4917

BOB'S MODELS
520 COVENTRY ROAD,
SMALL HEATH, BIRMINGHAM 10
Model Aircraft Centre of the Midlands.
All the best in British and American
Products.
We offer you help and advice backed
by 20 years' experience.

BIRMINGHAM Tel.: NOR 5569

THE MODEL MECCA
204 WITTON ROAD,
BIRMINGHAM 6
Aircraft, Boats, Trains, etc., B'ham's
Telecont Radio agents. "Gena" Fibre
Glass Hulls.

BIRMINGHAM Tel.: EAS 0872

THE PERRY'S LTD.
769 Alum Rock Road, Ward End,
Birmingham 8
British and Imported Engines, Kits and
Radio Control units, etc. Model Racing
Car and Railway sets and accessories.
All Leading Agencies. Postal Service.

BLACKPOOL Tel.: 24695

MODEL CRAFT
24a DEANS GATE,
BLACKPOOL
Agents: Skol-Kits, Keilcraft, Revell,
Monogram, Taplin, Jena, E.D.,
Thimble-drome, McCoy.

BOLTON Tel.: 27097

ROLAND SCOTT LTD.
Mail Order Specialists
The obvious shop for all your modelling
requirements. The showroom of the North.
Phone your order ANYTIME
147 DERBY STREET

BONESS Tel.: 2482

THE WOOD SHOP
43 NORTH STREET, BONESS,
WEST LOTHIAN
Kits and Accessories — KEIL, FROG,
REVELL, RADIO CONTROL.

BOURNEMOUTH Parkstone 3981

**WESTBOURNE
MODEL SUPPLIES**
2 Grand Cinema Buildings,
Poole Road, Bournemouth West
The shop that meets a modeller's needs
— so why not visit us when in
Bournemouth.

BRADFORD Tel.: 26186

THE MODEL SHOP
182 MANNINGHAM LANE
(Opp. Bellevue School)
Kits, Engines, Radio, Accessories.
Yorkshire's Telecont stockists.
Solarbo balsa, silk, dope, plywood, etc.
Mail Order. S.A.E. for lists.

CARDIFF Tel.: 29065

BUD MORGAN
The Model Aircraft Specialist
For Keilcraft, Mercury, Veron, Ripmax,
MacGregor R/C, R.E.P. Radio Control.
Revell, Airfix, Frog, Monogram
K.K. Handbook 3/-. A.P.S. Handbook
2/-. inc. postage. Send S.A.E., stamped
please for assorted lists.
22 & 22A CASTLE ARCADE, CARDIFF

CHICHESTER Tel.: 3592

**PLANET MODELS
& HANDICRAFTS**
108 THE HORNET,
CHICHESTER, SUSSEX
Aircraft and Boat Kits. All Accessories
"Tri-ang", "Trix", "Scalextric"
Personal Service Mail Orders.

CHORLEY Chorley 4707

THE HOBBIES SHOP
(J.D.R. CAMERAS LTD.)
1 ST. THOMAS'S ROAD,
CHORLEY, LANC.
Model Aircraft, Boats, Radio Control
Model Cars, Railways & All Accessories

DONCASTER Tel.: 2524

B. CUTTRISS & SONS
MODELS AND HANDICRAFTS
40 DUKE STREET
Call and see our Shop

EXETER Tel.: 76935

EXETER RADIO CONTROL
35 SOUTH STREET, EXETER
Kits and Accessories:
Keil, Veron, Skol, Goldberg, Sterling,
Graupner, Dubro
Radio by MacGregor, Citizenship, F. & M.,
Bonner, R.E.P., O.S., Minitrax, etc.
PHONE OR CALL
(Mail Order by ret. C.O.D. with pleasure)

FAREHAM Tel.: 4136

G. M. H. BUNCE & CO. LTD.
206 WEST STREET, FAREHAM
Aircraft, boats, engines, radio control.
Engineers/woodworkers tools & machinery.

FARNBOROUGH Phone: 43080

MODELS & HOBBIES
216 FARNBOROUGH ROAD, HANTS
Aircraft, Boats, Engines, Radio
Control, servos and all accessories.
AGENTS FOR ALL LEADING MAKES
Prompt Mail Order Service

GUILDFORD Tel.: Guildford 2274

PASCALLS MODEL SHOP
E. PASCALL (GUILDFORD) LTD.
Opposite Astor Cinema
105 WOODBRIDGE ROAD, GUILDFORD
Stockists of all leading makes of model
kits and accessories.
Mail Order Service. M.E.T.A. Dealer

HEMEL HEMPSTEAD Tel.: Hemel Hempstead 53691

TAYLOR & McKENNA
(Hemel) LTD.
203 MARLOWES
HEMEL HEMPSTEAD, HERTS
For Model Boats, Aircraft, Railways,
Racing Cars and Accessories.

KENT Tel.: RAV 0818

AVICRAFT LTD.
OF BROMLEY
6 CHATTERTON ROAD
Radio Control Specialists
Everything stocked for Modellers—plus
Service and Expert Advice on all
modelling problems
Service our speciality—Mail Order

KIDDERMINSTER

MODEL MART
2 Comberton Road (opp. Railway Station)
We are Aeromodelling enthusiasts, and
wish to help you with your requirements.
MAIL ORDER SERVICE
Headquarters: Kidderminster District F.C.

LANCASTER Tel.: 3031

THE MODEL SHOP
8 CHINA STREET
Large stocks of all Plastic and Flying
Kits, Engines and Accessories, Scalex-
tric Roadways, Tri-ang and Lone Star
Electric Railways.

LEEDS

Tel.: 27891

THE MODEL SHOP58 MERRION STREET
(Nr. Tower Cinema)Model Aircraft—boats—cars—railways,
all makes engines. Every accessory, R/C
equipment. Same day postal service.**LINCOLN**

Tel.: 27088

**THE MODEL MAKERS
MECCA**13 CLASKETGATE
(Next door to Theatre Royal)Large stocks of all Plastic and Flying Kits,
Engines & Accessories. Scalextric Roadways.
Tri-ang and Lone Star electric railways.**LINCOLN**

Tel.: 25907

MODEL CENTRE

NEWLAND

Vast stocks of Balsa, Engines, R/C Gear,
Dzus Fasteners, etc. Mail Order**LONDON**

Tel.: STE 1972

ANGEL166 MILE END ROAD,
LONDON, E.1YOUR Modelling needs are here. The
enthusiasts' shop run by enthusiasts!
Full range of Kits and Accessories.
Open all day Saturday.**LONDON**

Tel.: Woolwich 2820

SIDNEY ROSS & CO. LTD.9-13 POWIS STREET,
WOOLWICH, S.E.18.For all OS Engines, spares, and R/C
Mail Order**LONDON**

Tel.: North 4272

HENRY J. NICHOLLS

& SON LTD.

308 HOLLOWAY ROAD, N.7

We stock only the best
for AEROMODELLERS
Specialists in Radio Control.**LONDON****ALLEN SCOTT**581 LONDON ROAD,
ISLEWORTH, MIDDX.
Mail Order SpecialistsThe obvious shop for all your modelling
requirements. London's newest model
showroom.**LONDON**

Tel.: HOP 3482

**MODEL AIRCRAFT
SUPPLIES LTD.**

29 OLD KENT ROAD, S.E.1

Business Hours:
Monday-Saturday, 9 a.m.—6 p.m.
Thursday, 1 p.m. Friday, 7.30 p.m.
Postal Service**LONDON**

Tel.: Brixton 5422

L. H. W. WYATT BROS.

LTD.

260 BRIXTON ROAD,
LONDON, S.W.9Stockists all leading makes of Plastic and
Balsa Kits. Also "Tri-ang" and Scalextric**LONDON**

Tel.: WELbeck 8835

W. & H. (MODELS) LTD.14 NEW CAVENDISH STREET, W.1.
(Five minutes from Oxford Circus)LEADING WEST-END STOCKIST OF ALL
QUALITY MODEL AIRCRAFT KITS,
BOATS, RAILWAYS. MAIL ORDER.**LONDON**

Tel.: MIL 2877

**H. A. BLUNT
& SONS LTD.**

MILL HILL CIRCUS, LONDON, N.W.7

Complete range of model aircraft, engines
and accessories, boats, cars and railways.**LONDON**

Tel.: TID 6292

D. BRYANT

MODEL SUPPLIES,

328 BROCKLEY ROAD, S.E.4

For Futaba R/C equipment and all
other leading makes, Keil, Veron,
Frog, Airfix, etc. Expert advice on
scale problems, easy parking.**LONDON**

Tel.: CHE 4887

BLACKBURN MODELS LTD.

154 MERTON ROAD,

WIMBLEDON, S.W.19

Complete range—Veron, Keilcraft, Frog,
14 brands in plastic kits. Radio
equipment and boat accessories.**LONDON**

Tel.: Lee Green 2637

**LEWISHAM MODEL
CENTRE**

45 LEE HIGH ROAD, LEWISHAM, S.E.13

Everything for the Modeller, Aircraft,
Boats, Radio Control, Railways, Cars.
Spares and Repairs our speciality.
Mail Order a pleasure.**LONDON**

Gra 2471

A. G. HERMITE

(MODEL SUPPLIES)

633 BARKING ROAD, WEST HAM E.13

Aircraft—Boat—Car—Plastic Kits & R/C
Saturdays 9 a.m. to 6 p.m.
Postal Service**LONDON**

Tel.: ACOrn 3886

**R. T. BROWN OF ACTON
TOWN**

312 UXBRIDGE ROAD, ACTON, W.3

Specialists in:
F/F — C/L — Gliders — Engines.
Call, phone or Mail Order.
Quick, Efficient Service.**LUTON**

Tel.: 7859

AEROMODELS (LUTON)59 WELLINGTON STREET,
LUTON, BEDSModel Aircraft. Cars, Railways and
Boats for the beginner and expert.**MAIDSTONE**

Tel.: 51719

J.F. CARTER & SONS LTD.
(THE MODEL SHOP)19-23 UPPER STONE STREET,
MAIDSTONE, KENTComplete range of modelling equipment
and accessories, including R/C.
MAIL ORDER**MANCHESTER****ALLEN SCOTT**54 SHUDEHILL,
MANCHESTER 4

Mail Order Specialists

The obvious shop for all your modelling
requirements. Manchester's newest model
shop.**MANCHESTER**Tel.:
BLA 3972**THE MODEL SHOP**13 BOOTLE STREET,
MANCHESTER 2THE UP-TO-DATE SHOP WITH THE
COMPREHENSIVE STOCK
Mail Orders by Return**MARLOW****PRACTICAL
HOBBIES**

Wide Selection : Helpful Service

STATION ROAD,
MARLOW, BUCKS**NEWCASTLE**

Established 1924

THE MODEL SHOP
(NEWCASTLE UPON TYNE) LTD.18 BLENHEIM STREET Tel.: 22016
NEWCASTLE UPON TYNE, ENGLANDPioneers of modelling
with 34 years' experience . . .
Our Expert Staff are at your Service.**NORTH CHEAM**

Tel.: Derwent 6495

THE LITTLE ARTIST505 LONDON ROAD,
NORTH CHEAM, SURREYComplete range of Leading Kits, Engines
and accessories.
The new Futaba radio, and MacGregor,
of course.
Comprehensive stock of Plastics.**NOTTINGHAM**

Tel.: 50273

GEE DEE LIMITED40 GOOSE GATE,
NOTTINGHAMEverything for the aeromodeller at
Nottingham's leading model shop.

OLDHAM

Tel.: MAIN 8812

ALAN NICHOLLS(RADIO ENGINEERS)
151-156 LEES ROAD

All R/C components available for valve or transistor Tx/Rx. Deacs—Graupner—Metz—Schuco—Sterling—and all the others. Mail Order. S.A.E. for lists.

OXFORD

Tel.: 42407

HOWES MODEL SHOP9-10 BROAD STREET,
Largest stock in the Midlands.
Model Aircraft—Railways—Cars
Boats—Radio Control
Run by Modellers for Modellers
MAIL ORDERS BY RETURN**POYNTON**MODEL CENTRE
POYNTON 4377**F. A. & F. ALLEN LTD.**2 DICKENS LANE,
POYNTON, CHESHIRE★ Radio Control Specialists ★
Guaranteed repairs—all aspects of the hobby catered for—H.P. terms.**READING****MODEL SUPPLIES**1 Hosier Street, St. Mary's Butts,
READING, BERKSFOR CHEERFUL SERVICE WITH
MODEL AIRCRAFT AND BOATS
KITS AND ACCESSORIES**ROMFORD**

Tel.: ROM 44508

HOME & HOBBY STORES

144 NORTH ST., ROMFORD, ESSEX

Extensive Modeler's Department, Keil—Veron — Frog — Top Flite — Macgregor — A.P.S.

Late Closing Fridays 7 p.m.

SHEFFIELD

Tel.: 26149

SHEFFIELD ELECTRICAL & MODEL ENGINEERS

248 SHALESFORD, SHEFFIELD 3

THE REAL MODELLER'S SHOP for
RADIO CONTROL — AIRCRAFT —
BOATS — RAILWAYS — CANOES —
DINGHYS & SAILING GEAR**STAFFORD**

Tel.: 3420

JOHN W. BAGNALLMODEL CRAFTSMEN'S SUPPLIES
18 SLATER STREET, STAFFORD

The 100 per cent Model Shop since 1936 is well worth a visit. Sales and Service with Satisfaction.

ST. ALBANS

Tel.: 50717

BOLD & BURROWS LTD.12-22 VERULAM ROAD,
ST. ALBANS, HERTS**STOCKPORT**

Tel.: STO 5478

THE MODEL SHOP280 WELLINGTON ROAD SOUTH
(BRAMHALL LANE CORNER)Aircraft, Boats, R/C Equipment, Engines,
Railways, Car/Racing, Plastic Kits.
Postal Service**SUTTON**

Tel.: Vigilant 8292

E. L. S. MODEL SUPPLIES272 HIGH STREET, SUTTON, SURREY
SURREY'S HOBBY CENTRE
BY RETURN POSTAL SERVICE

Complete stock of all M.A. requirements

TENTERDEN

Tel.: Ten 3326

TELEGEN SERVICES

4 EAST CROSS, TENTERDEN, KENT

All leading makes of kits, engines and accessories.

Call, write or phone

TUNBRIDGE WELLS

Tel.: 22078

MAYKIT LTD.

56 GROSVENOR ROAD

AIRCRAFT—BOAT—CAR—R/C, KITS
Radio Control and Actuators—Engines
CALL, PHONE OR MAIL ORDER**WAKEFIELD**

Tel.: 71459

THE MODEL SHOP (WAKEFIELD) LTD.

10 Marygate, Wakefield.

The all round model shop run by all round modellers.

Mail order a pleasure.

WALSALL

Tel.: 23382

S. H. GRAINGER

CALDMORE MODELS

108 CALDMORE ROAD

Everything for the Modeller

Aircraft - Railways - Boats - Electric Cars - Repairs - Rebores - Overhauls
Spares - Radio Control - Part Exchanges**WELWYN****H. A. BLUNT & SONS LTD.**

38 FRETHERNE ROAD,

WELWYN GARDEN CITY, HERTS

Complete range of model aircraft, engines and accessories, boats, cars and railways.

WOLVERHAMPTON

Tel.: 24709

MODELS & HOBBIESBELL STREET, MANDERS CENTRE
WOLVERHAMPTONEXPERTS COME TO US. VISIT US
AS WELL, WE HAVE ALL THE BEST
IN MODELLING**WORKSOP**

Tel.: 2855

MODEL CENTRE

RYTON STREET

Main agencies for all Kits, Engines and
Radio Control equipment.
Mail Order Service.**AUSTRALIA**

Tel.: MF 3918

CENTRAL AIRCRAFT CO. PTY.

5 PRINCES WALK, MELBOURNE, C.1

Australia's Main Distributor for:
AEROMODELLER — MODEL MAKER
and their Plans Service.**AUSTRALIA**Tel.: MA 3603
MF 1975**HEARNS HOBBIES**303 Flinders Street and 5 Collins Street,
MELBOURNEOur 1965 world buying tour brings the
tops in all aeromodelling equipment to
our shelves. We fly what we sell. All
O.S. gear in stock. Your business is our
pleasure. Mail Order service a speciality.**CANADA****NORTH YORK HOBBIES**1910 AVENUE ROAD,
TORONTO 12, ONTARIO

Planes, Trains, Boats, Racing Cars, etc.

HONG KONG

Tel.: 636507

RADAR CO. LTD.2 OBSERVATORY ROAD,
TSIMSHATSUI, KOWLOONThe most complete stock of aeromodelling
and hobby supplies in the Far East. Agents
for Veron, Frog, Solarbo, and Sole Agents
for Graupner, O.S., and Min-X engines and
radio control equipment.
Prompt mail order service.**HONG KONG****P.H.L. MODEL CO.**

(Model Builders & Engineers)

40 ELECTRIC ROAD, CAUSEWAY BAY

The largest stockists of Hobby Supplies in
Hong Kong. Sole Agents for Keil-Kraft,
Aerokits, AM, Merco, DeBoit and
Ambroid. Agents for Ohisson-Rice, Cox
Thimble-Drome, and other brands.**HEMEL HEMPSTEAD**

Tel.: 2501-2

AEROMODELLER PLANS SERVICE

13-35 BRIDGE STREET,

Open Monday to Friday

Send 2/- for our illustrated PLANS
HANDBOOK of thousands of models.**SINGAPORE****BALBIR & CO.**111 NORTH BRIDGE ROAD,
SINGAPORE 3Leading stockists of Model Aircraft
requirements in Singapore and Malaya.

S. H. GRAINGER

CALDMORE MODELS

THE MIDLANDS' LEADING MODEL SHOP

★ MAIN AGENTS

FOR ALL LEADING MAKES

★ FULLY EQUIPPED SERVICE DEPARTMENT ON THE PREMISES TO HANDLE ALL REPAIRS AND SERVICING

RADIO CONTROL
CONTROL LINE FREE FLIGHT KITS
ENGINES SERVOS
SPARES & ACCESSORIES

108 CALDMORE ROAD

WALSALL

Tel. 23382

STAFFS.

WE STOCK EVERYTHING FOR THE AEROMODELLER!

AND NOW IT'S SALE TIME MULTI R/C KIT BARGAINS:

Robbe Thor 155/0 Robbe Topsy Nipper 160/0
Enterprise Navigator Mk. 1 99/6
B.M.P. Lancer 75/0 Graupner Satellit 90/0
Hegi Styrofix 95/0

FOR RADIO BARGAINS, SEE JAN. AND FEB. ISSUES

Plenty of reduced price kits for personal shoppers

All regular kits, motors and accessories in stock

JONES BROS. OF CHISWICK

56-62 TURNHAM GREEN TERRACE, CHISWICK, W.4
(Phone CHI 0858)

(1 min. from Turnham Green Station)

Established 1911

"WORLD'S LEADING HOBBY HOUSE"



IMPORT-EXPORT

IMPORT: Manufacturers please send catalogues and samples with quotations for best U.S. representation.

EXPORT: Over 350 U.S. ranges from one source. One invoice! One Shipment. Best export discounts.

POLK'S MODEL CRAFT HOBBIES INC.

314 Fifth Avenue, New York N.Y. 1001
Cables: POLKSMOD Telex: 22-4865

£50,000 INSURANCE!

We are able to offer a £50,000 third party insurance to our readers! This magnificent insurance scheme which covers modelling activities within Great Britain, Northern Ireland, Channel Islands and the Isle of Man, has been negotiated with a leading insurance Company to provide exactly the cover which the Air Ministry requires when its airfields are used for model flying. It is also sufficiently embracing to cover all other forms of model activity, and so should be completely acceptable to Local Authorities.

All that is necessary for you to do to obtain the benefits of this magnificent cover is to complete the forms at the right of this announcement, sending the first part to us together with your remittance of 2/6d. which covers you for one year, and handing the second part to your usual magazine supplier. Whether or not you already have an order in hand for the regular supply of your magazine, this form should still be handed in and your dealer will adjust his requirements according to whether you are a new customer or merely continuing your old arrangement.

This insurance is the prudent thing for every modeller to take out. By joining M.A.P. 'Modellers' Accident Protection' you come into the world's BIGGEST MODEL CLUB. For your initial subscription you obtain a lapel badge for identification and transfers to put on your model.

Complete your form and send off at once. We will send you back your membership card, lapel badge and waterslide transfers immediately. Insurance period commences immediately. Renewals will normally be made from nearest quarter day, and renewal reminder notices duly sent.

Model Aeronautical Press Limited

13/35 Bridge Street,
Hemel Hempstead, Herts.

M.A.P. INSURANCE MEMBERSHIP FORM

PART I. TO BE HANDED TO NEWSAGENT

To

Please *reserve/deliver one copy of *AEROMODELLER/MODEL BOATS/MODEL CARS/RADIO CONTROL MODELS & ELECTRONICS/MODEL ENGINEER/MODEL RAILWAY NEWS commencing

with the issue. (*Delete as applicable.)

Name

Address

PART II of the Form should be completed and sent to us at the address below together with your remittance of 2/6d. PART I should be handed to your usual supplier, either newsagent, model shop, bookseller or wherever you normally expect to get your magazine.

PART II. TO BE SENT TO M.A.P. LTD.

Name (in full)

Address

..... Date

I enclose herewith postal order value 2/6d. for membership of M.A.P. £50,000 insurance scheme. This sum, I understand, includes two transfers and a lapel badge, and is conditional upon my ordering.

* AEROMODELLER * MODEL BOATS * MODEL CARS *
RADIO CONTROL MODELS & ELECTRONICS * MODEL
ENGINEER * MODEL RAILWAY NEWS (*Delete those not
applicable.)

I have today instructed my newsagent

to deliver me the magazine until further notice.



Developed as a private venture tandem seat trainer, the 'Talon' and its F-5 practical lightweight fighter derivative are soon to equip the air forces of Canada, Nationalist China, Greece, Iran, South Korea, Norway, the Philippines, Spain, Turkey as well as the U.S.A.F. The twin jet (General Electric J85) aircraft offers many colour schemes for the scale modeller.

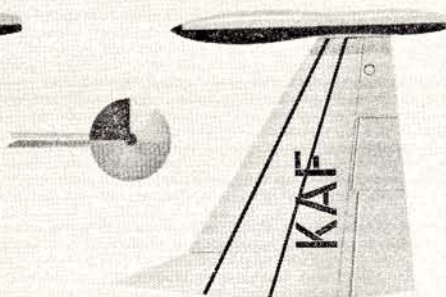


NORTHROP F-5A & T-38A MARKINGS

Three Variants for the Latest AIRFIX Kit of the Month



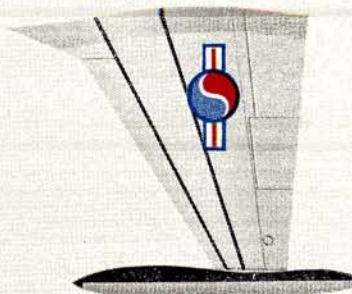
R.C.A.F. CF-5 in Acrylic Aluminium finish with National insignia introduced in 1965. Note "quartered" Anti-glare black on waisted tip tanks. Lettering and numerals are black.



South Korean F-5A in Acrylic Aluminium finish with Republic of Korea insignia and numerals in black. U.S.A.F. serial number is retained across fin.



U.S.A.F. T-38A two seat trainer is all white with red-orange conspicuity paint panels at extremities. All letters and numerals are insignia blue, walkway lines and upper nose, anti-glare black.



Start off right!

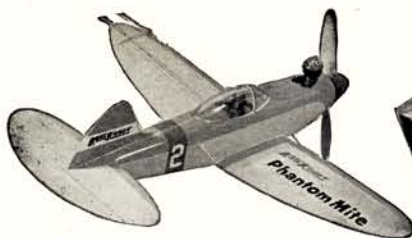
WITH KEILKRAFT



FIREFLY

Stunt model with "profile" type fuselage, specially designed for engines under 1 c.c. Kit contains die-cut parts. Wingspan 20".

19/9



PHANTOM MITE

Just about the toughest model available to the new-comer to control line flying. Features all sheet construction with wings, tailplane, fin and fuselage sides ready to cut to shape. Suitable for .5 to .8 c.c. motors. Wingspan 16".

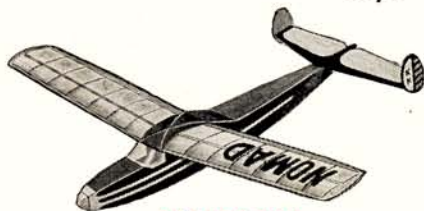
17/9



DEMON

Class A team racer to the new S.M.A.E. specification. Kit contains die-cut parts. For engines up to 2.5 c.c. Wingspan 30".

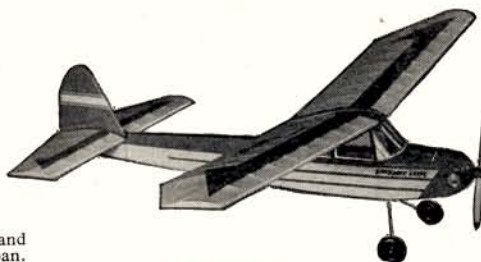
36/3



NOMAD

Beginners model with fuselage parts, tailplane and fins in pre-cut, decorated sheet balsa. 20" span.

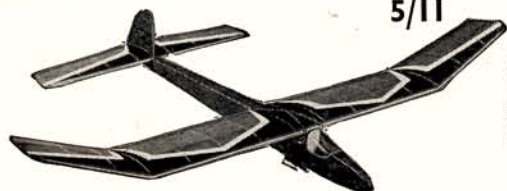
5/11



SNIPE

This nice looking model is especially suitable for beginners as it is so straight-forward to build and easy to fly. Kit contains die-cut parts and has been specially designed for .5 diesel and .8 glow motors. Wingspan 40".

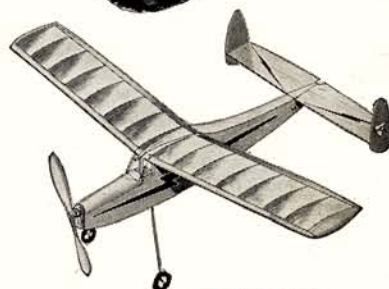
24/3



CONQUEST

Towline glider for beginners, with a very good performance. Kit contains die-cut parts. Wingspan 30".

9/4



GEMINI

Duration model with all fuselage parts, tailplane, and fins in pre-cut pre-decorated sheet balsa. Wingspan 22".

10/-



ROBIN

Duration model with good flying performance. Kit features die-cut parts, plastic propeller and wheels. An ideal "first" model. Wingspan 22".

10/7

All these KeilKraft kits contain die-cut parts for speedy, accurate assembly, and full size plans plus building and flying instructions.

KEILKRAFT

Right from the Start

