

Aero Modeller

AUGUST 1967

TWO SHILLINGS & SIXPENCE
U.S.A. & CANADA 60 CENTS

INCORPORATING
MODEL AIRCRAFT



HOBBY MAGAZINE



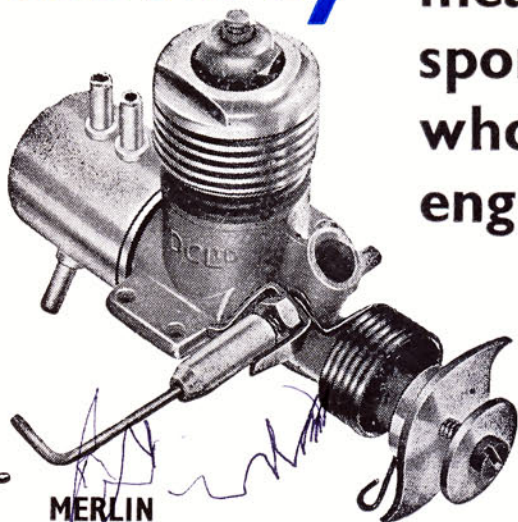
NATIONAL CHAMPS REPORT

Quality

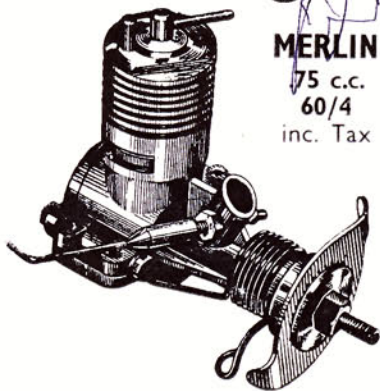
plus

Reliability

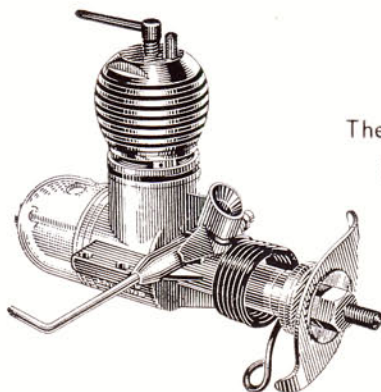
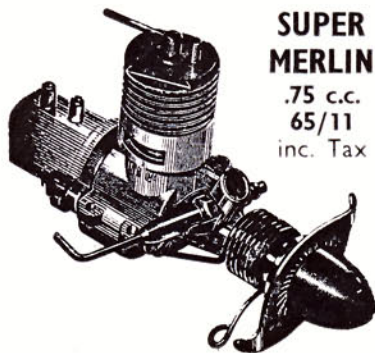
The light,
easy to
operate
BANTAM
.75 c.c.
only 45/8
inc. Tax



MERLIN
75 c.c.
60/4
inc. Tax



**SUPER
MERLIN**
.75 c.c.
65/11
inc. Tax



The incomparable
DART diesel
.5 c.c.
76/2
inc. Tax

means a lot to the
sports flier
who uses .5 to .8 cc.
engines

. . . and you'll get it with

QUICKSTART

**ENGINES and
ACCESSORIES**

Highest quality engineering using the latest precision techniques brings you the greatest range of model diesel engines for sports flying. Renowned for ease of starting, long life and consistent operation the "Quickstart" series are also among the quietest of engines when fitted with the inexpensive special silencer exhaust manifold. Marine versions too! These engines can be supplied with water cooled head, and special flywheel for model boat operation. Other specialities in our range include the famous D-C Control-line handle, Test Stand, Nylon Propellers, Quicklip Connector, Quickstart Glowplugs and a full range of spares so that no Quickstart engine owner need ever be concerned about being "grounded".

DAVIES-CHARLTON LTD
HILLS MEADOW, DOUGLAS, ISLE OF MAN

PLEASE NOTE: ALL PRICES INCLUDE THE RECENT 10 PER CENT INCREASE ON PURCHASE TAX

Aero Modeller

INCORPORATING
MODEL AIRCRAFT

August 1967

VOLUME XXXII No. 379

CONTENTS

HEARD AT THE HANGAR DOORS	407
BRITISH NATIONAL CHAMPIONSHIPS	408
THE ONE THAT GOT AWAY	417
ENGINE TEST—OS 10 R/C	418
AIRCRAFT DESCRIBED—Focke Wulf 56	420
VISIT TO HUMBROL	424
"GRMZPF"—Raf Racer	426
GOLDEN WINGS CLUB	428
TOPICAL TWISTS	429
TEAM RACE TIPS—Stockton and Jehlik	430
READERS' LETTERS	432
MODEL RESCUE	433
LATEST ENGINE NEWS	434
FREE FLIGHT COMMENT	436
CLUB AND CONTEST NEWS	437



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 the Trade except at the full retail price of 2/6d or 60 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., U.S.A. and Canada direct subscription rate \$5 including Index.

Advertisement and Subscription Offices: Model Aeronautical Press Limited, 13-35 Bridge Street, Hemel Hempstead, Hertfordshire. Tel. Hemel Hempstead 2501-2-3.
Direct subscription rate 35/- per annum including December edition and Index.

AEROMODELLER incorporates the MODEL AEROPLANE CONSTRUCTOR and MODEL AIRCRAFT and is published on the third Friday of each month prior to date of publication by:-

MODEL 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**

COMMENT

First of the 1967 World Championships took place at the end of last month in Corsica. Seventeen Nations, including for the first time, Greece and Liechtenstein took part and yet once more the team prize has gone to the proficient representatives of the U.S.A. Individual results (three of the first four) have gone to manufacturers who not only design, but build and sell their own equipment. One must compliment the West Germans for their high "amateur" status. By all accounts, the Nation which excelled itself for teamwork, sportsmanship and effort was South Africa and knowing as we do, their difficulties in getting men and models to Ajaccio, we feel they deserve a very special mention. Our own British participation was partly marred by mishap, but we must face up to the fact that International contest standards have overtaken our domestic level by a wide margin.

Place	Name	Nation	Score
1	P. Kraft	United States of America	16.496
2	P. Marrot	France	15.265
3	K. Bauerhelm	Germany	14.875
4	D. Spreng	United States of America	14.861
5	W. Schmitz	Germany	14.705
6	W. Matt	Liechtenstein	14.411
7	C. Sweatman	South Africa	14.354
8	B. Giezendanner	Switzerland	14.236
9	C. Olsen	Great Britain	13.690
23	P. Waters	Great Britain	11.278
32	D. Hamant	Great Britain	7.953

Team Places

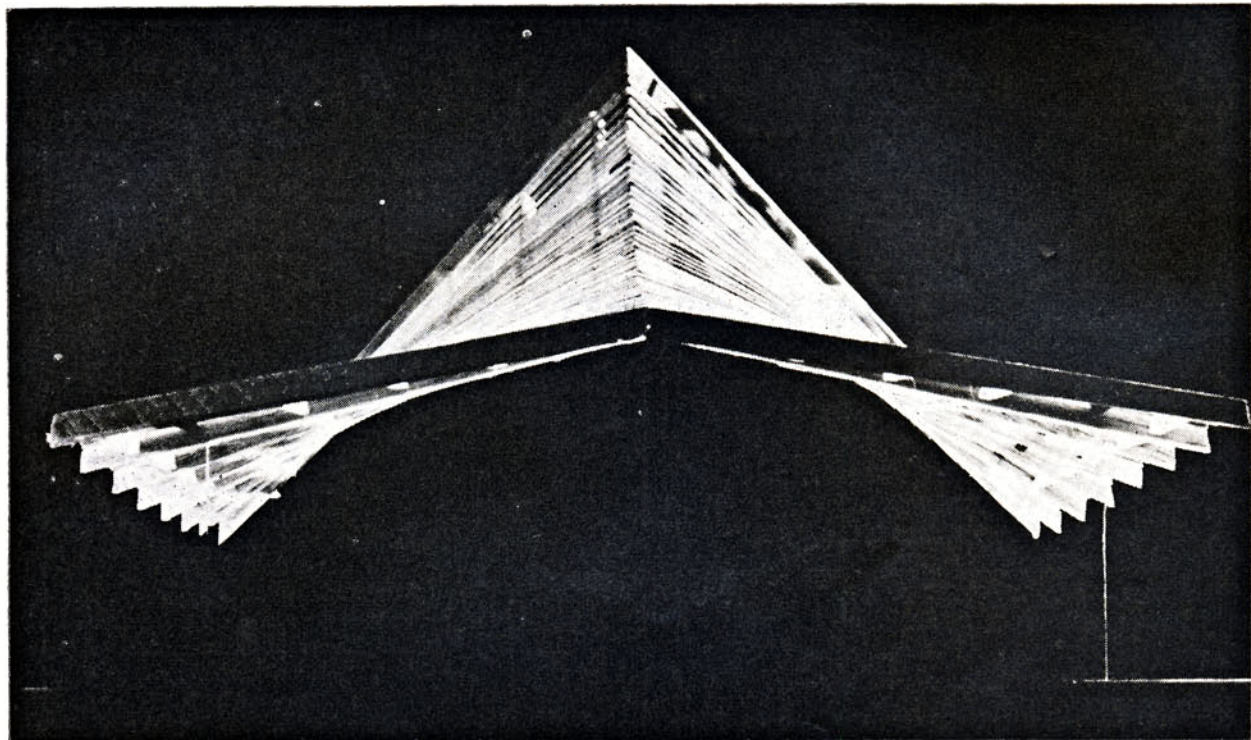
1	U.S.A.	44.941
2	W. Germany	40.723
3	South Africa	39.171
4	France	38.843
5	Switzerland	33.130
6	Great Britain	32.921

COVER

For realism, this view of Dennis Bryant's 1/6th scale Fieseler Storch in N. African Camouflage would be hard to beat. Powered by OS H60 and weighing 11 lb, the model features full controls plus flap operation via F & M 12 reed equipment. The undercarriage has "oleo" action and all of the fuselage structure from the cabin area forward to the engine bearers is of silver soldered steel tubing (rear longerons are spruce). Nose cowl is Glass Fibre and conceals twin fuel bottles plus the inverted engine.

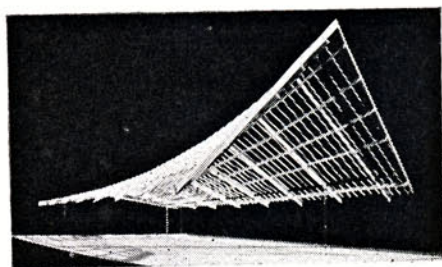
next month

Full size plans for Ray Malmstrom's Hush Buggy—an attractive little control-line trainer, scale plans for the YAK 18 PM for those looking for an aerobatic subject, Control-Line News, Contest Designs, a Beam Balance for weighing, Scale Comment and all the regular features, out on August 18th.



BALSA MODELS FLY BETTER . . .

. . . although with the weird design pictured above you may wonder just how it could fly at all, even when covered. Actually it doesn't. Look at the smaller picture (below) and you will see that it is really an architectural model built from Balsa strip—just another example of the usefulness of Balsa to designers and engineers. And many of these professional experts are aeromodellers as well, so they know a thing or two about Balsa!



We are only too pleased to supply Balsa for making anything. Primarily, though, we supply Balsa for *aeromodelling*, and we have been doing that for more than a quarter of a century. Positively the best—and only the best—Balsa gets 'passed' by us for aeromodelling, whether it be for strip, sheet, block or prefabricated parts for kits. That's why you can rely on every single piece of Solarbo Balsa as being the best obtainable. It's *specially* selected and graded for aeromodelling use, accurately machined and finally inspected before it leaves our factory. The Solarbo brand name is an automatic guarantee of top quality *aeromodelling* Balsa—the best you can buy. And it's very easy to find the best Balsa—just ask for Solarbo by name, or look for the Solarbo stamp on every piece of sheet or block.

Solarbo Balsa THE BEST YOU CAN BUY

SOLARBO LTD.,
COMMERCE WAY, LANCING, SUSSEX

ALWAYS ASK FOR IT BY NAME

KINDLY MENTION "AEROMODELLER" WHEN REPLYING TO ADVERTISEMENTS



LEADERS FOR POWER and EASIER STARTING

COX micro-precision engineering gives you the world's finest engines ... engines that **LOOK** right! ... **SOUND** right! ... and give you **LONG-LASTING TOP PERFORMANCE**. Based on Cox '**ORIGINEERING**' (original design engineering), no other engines are built to the same fantastic limits of accuracy. It's a COX every time ... for Sport or Contest flying. COX are the world's best!

COX 'MEDALLION'

With front rotary valve induction and beam mounting, this range has been specially developed for sports (free flight or control line) and radio control models where easy-starting, dependability and flexibility of performance really counts. Crankcase valve housing can be tapped for pressure feed if required (useful for positive fuel feed on stunt and fast control-liners). Available in the three most popular engine sizes.

- MEDALLION .049 (.82 cc) . . . 86/6**
- MEDALLION .09 (1.5 cc) . . . 108/9**
- MEDALLION .19 (2.5 cc) . . . 129/3**



COX GLOW FUELS

Cox 'Thimble-drome' glow fuel is made from the finest pure ingredients which leave no slowing-down 'varnish' or clogging sludge in your engine. At the same time, each formula is adjusted for maximum power from your COX (or other glow engines). Try Cox and see the difference for yourself.

- STANDARD**
(approx 8 oz. can) price 5/-
- 'NITRO 30'**
(approx 10 oz. can) price 6/9

★ **SEE THE FULL COX RANGE AT YOUR MODEL SHOP**

In case of difficulty write to:

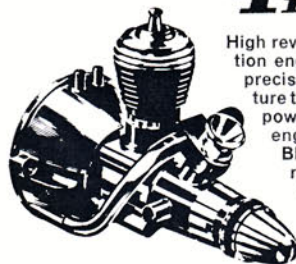
A. A. HALES LTD 26 STATION CLOSE, POTTERS BAR, HERTS.

A Member of the Lines Group.



KINDLY MENTION "AEROMODELLER" WHEN REPLYING TO ADVERTISEMENTS

TEE-DEE



High revving front rotary valve induction engines employing true micro-precision techniques in manufacture to give new standards for high power performance. No other engine can approach them for BHP per c.c., or power/weight ratio! And the .010 is the world's smallest production engine—a true gem which revs happily up to 25,000 r.o.m. olus!

- TEE DEE .010 (.16 cc) 97/6**
- TEE DEE .049 (.82 cc) 108/9**
- TEE DEE .020 (.33 cc) 86/6**
- TEE DEE .051 (.84 cc) 108/9**
- TEE DEE .09 (1.5 cc) 118/-**

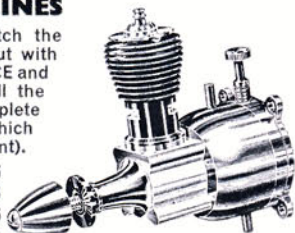
COX SPECIAL

This is the .15 cu. in. (2.5 c.c.) for the serious competition flyer—free flight or control line. The latest Mark II version offers even **MORE POWER . . .** adds **MORE PERFORMANCE** to your model. Price 162/6

REED VALVE ENGINES

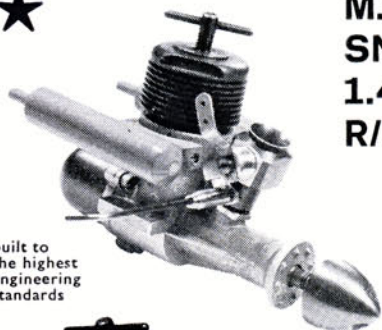
Specially designed to match the smaller sizes of models but with that **EXTRA PERFORMANCE** and light weight that makes all the difference. Each engine complete with integral metal tank (which also serves as a radial mount).

- PEE WEE .020** 53/6
- BABE BEE .049** 53/6
- GOLDEN BEE .049** 63/6
- Q-Z* .049 (with muffler)** 63/6



* Quiet Zone for silent flying

Tops for Sportsmen



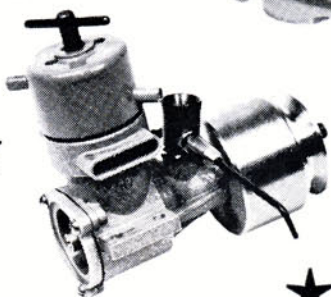
M.E. SNIPE 1.49 cc R/C Version

For smooth
power and
sheer reliability

88/6d.

(Water cooled
version 115/-)

built to
the highest
engineering
standards



Standard SNIPE

Water cooled 102/-

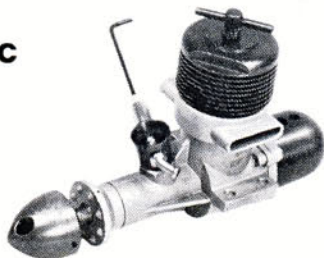
M.E.

HERON 1 cc

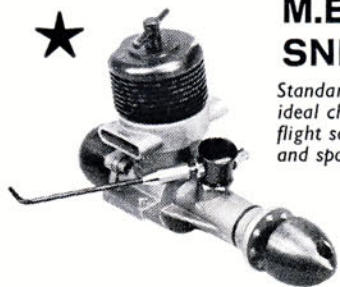
The perfect power
unit for small
sports models

68/-

(Water cooled version
92/8d.)



SILENCERS AVAILABLE FOR ALL UNITS



M.E. SNIPE 1.49 cc

Standard version, the
ideal choice for free
flight scale models
and sport control-line

75/2d.

PRECISION BUILT BY:—

MAROWN ENGINEERING LIMITED

UNION MILLS
ISLE OF MAN

Distribution:
E. KEIL & CO. LTD.

FARNBOROUGH MODELS & HOBBIES

★ THE MODELLING CENTRE OF THE SOUTH ★

At both our Farnborough and Crowthorne Shops we have comprehensive stocks of kits, engines, R/C Equipment and all accessories. We are now pleased to offer the following Kit/Engine combinations which include suitable propeller, and are post free.

ECONOMY OUTFITS

JUNIOR J1 Veron Cardinal free flight kit, D/C Merlin Engine, prop 85/- post free.
J2 Keilcraft Champ C/L Trainer Frog 100, prop. 79/- post free.

INTER M1 Veron Mini-Robot Radio trainer kit. D/C Super Merlin, prop. £6 post free.
M2 Veron Stunter C/L kit P.A.W. 149. prop £6.10. post free.

SENIOR S1 Keilcraft Super 60 kit (Free flight or Radio) A.M.25. Prop. £10 post free.
S2 Mercury Crusader advanced Stunt kit Merco 35. prop. £10.5.6 post free.

SELECTION OF KITS, ENGINES ETC.

C/L KITS		R/C KITS	
Keilcraft	Ranger 21/3	Veron	Mini-Robot 55/1
	Marquis 40/9		Mini-Concord 89/2
	Phantom 30/3		Robot 99/10
	Radian 21/9		Skylane 125/4
	Gazelle 24/9		Viscount 142/8
	Joker 16/-		Concord 259/10
	Talon 31/3	Keilcraft	Super 60 122/-
Veron	Nipper 18/11		Mini-Super 95/9
	Bee-bug 19/11		Gyron 70/10
	Combateer 36/7	Mercury	Galahad 41/-
	Bombat 29/11	Graupner	Consul 119/8
	Stunter 36/7		Piper Tri-pacer 101/6
Mercury	Picador 22/6		Amateur 87/-
	Toreador 34/6	Top-Flite	Schoolmaster 73/-
	Monarch 40/5		Skylane 52/6
	Crusader 81/9		Tauri 244/6
Top Flite	Nobler 121/6	Goldberg	Falcon 56 134/6
	Nobler Junior 74/-		Shoestring 201/6

FREE FLIGHT

Veron	Cardinal 23/11	D.C.	Dart 76/2
	Deacon 43/11		Merlin 60/4
	Skyskooter 41/10		Spitfire 71/10
Keilcraft	Snipe 24/9		Sabre 76/2
	Ladybird 30/2	P.A.W.	149 92/4
	Gaicho 27/3		249 110/10
Mercury	Magna 15/6		3.2 BR. 127/11
	Wizard 30/-	Webra	Piccolo 80/6
	Tiger Moth 39/2		Sport-Glo 93/-
			Glo-Star R/C 163/6

GLIDERS

Graupner	Amigo II 99/6	Merco	29 Stunt 122/-
	K. 10. 135/6		35 R/C 155/6
	Clou 204/-		61 R/C MK II 284/6
	Weihe 50 91/6	Eta	Elite(with twin silencers) 222/-
	Foka 178/-		Also stocked: Frog, A.M. Super Tigre E.D.
Veron	Phoenix 44/6		
	Impala 79/6		
	Verosonic 18/10		
	Cirosonic 13/3		
	Dominette 12/8		

RADIO EQUIPMENT

Keilcraft	Minimoa 12/2	MacGregor	S/C Combo 341/6
	Topper 14/4		Fleet 6 channel Multi with Servomite Pack £56
	Caprice 20/2		Fleet Pulse Proportional with Rand and Deac £45.15
Contest	Inchworm 28/7		Elmic Conquest 35/9
Mercury	Grebe 18/5		Elmic Commander 60/2
	Swan 14/2		Elmic Compact 68/6
	Marauder 20/5		Climax Servomite (Trans) 131/10
	Gnome 9/8		Also Graupner servos and all Micro-mold horns linkages, hinges etc.

Cash with order, and please add 1/- in the £ for postage and packing (Max 5/-) Please enclose stamped envelope with enquiries

216 FARNBOROUGH ROAD, HANTS

Near Royal Aircraft Establishment. Tel. Farnborough 43080

AND AT

196 DUKES RIDE, CROWTHORNE, BERKS.

Tel. Crowthorne 4605.

**JUST LIKE
THE
REAL THING!**

The magnificent VC10 is only one of many exciting, superbly detailed models you can make from Airfix Construction Kits. This true-to-life 1/144 scale model of the powerful jet liner, now in use with leading airlines, is made from a 74-part kit costing only 7/-. There are over 250 Airfix kits, covering 19 different series, from 2/3d. to 19/6d. So you can well afford to make all your models just like the real thing!



AIRFIX CONSTANT
SCALE

CONSTRUCTION KITS

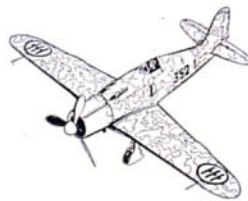
Just like the real thing!

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

STOP PRESS

FIAT G.50 BIS

Introduced at the end of the Spanish Civil War and saw action in World War II. Although under powered it was extremely reliable and manoeuvrable. Thirty-two detailed parts for ONLY 2/3d.



**All that's new in modelling!
AIRFIX MAGAZINE 2/- MONTHLY
ASK FOR THE AIRFIX KIT CATALOGUE**

Graupner

SUPER DE-LUXE KITS ★

AMATEUR

44" span to take .8 to 1.5cc. engines and specially designed for 2- to 6-channel radio. A superb example of kit prefabrication, including formers, full length die-cut fuselage sides, ribs etc. Kit is wonderfully complete, right down to wheels, shaped undercarriage, decals, adhesives etc.



NEW!

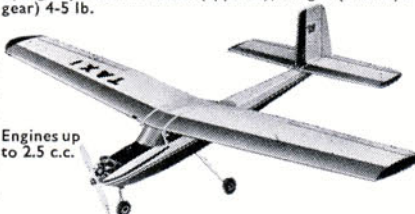
Price £4.5.0

Radio installation is shown on a separate detailed plan sheet.

TAXI

A superb 59" span model for multi training, sport or R/C aerobatics featuring 'Quickie' construction. Die-cut balsa, balsa-ply and ply parts, other parts preshaped or preformed... a kit that really is extensively prefabricated! Price 147/6

Span 59 in.; length 40 in.; wing area 493 sq. in.; total area loading 10.5-16.4 oz./sq. ft.; total weight (less R/C gear) 2 lb. 14 ounces (approx.); weight (with R/C gear) 4-5 lb.

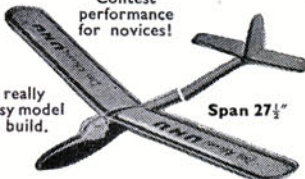


Engines up to 2.5 c.c.

NEW UHU . . . 21/6

Contest performance for novices!

A really easy model to build.



Span 27½"

BEGINNER . . . 33/6

38" span 'trainer'



Wonderful towline performance

HOBBY
53" span for sport or contest.

39/6

WEIHE 50
72" span scale with foam plastic fuselage

89/6

JOLLY AI
45" span International contest model

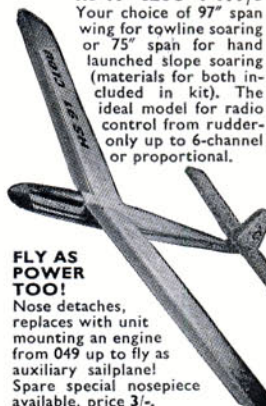
42/6

FLY AS POWER TOO!

Nose detaches, replaces with unit mounting an engine from 049 up to fly as auxiliary sailplane! Spare special nosepiece available, price 3/-.

HS-19 'CLOU' . 199/6

Your choice of 97" span wing for towline soaring or 75" span for hand launched slope soaring (materials for both included in kit). The ideal model for radio control from rudder-only up to 6-channel or proportional.



SCHLEICHER 'K 10'

DE LUXE KIT 132/6
79" scale SAILPLANE FULLY FINISHED foam plastic fuselage.

This wonderfully complete kit has to be seen to be believed!



A SUPER MODEL in DE LUXE kit form specially designed for R/C (2 channel up) adaptable as an AUXILIARY SAILPLANE with pylon mounted engine. (Pylon kit 18/6.)

KADETT . . . 64/0

Engines 1.2 cc. Rugged all weather sports or R/C model a pleasure to build and fly.

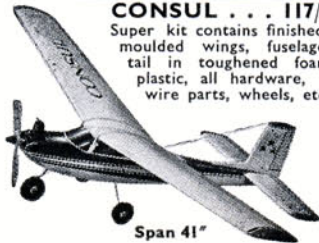


Span 46"

for SINGLE CHANNEL R/C

CONSUL . . . 117/6

Super kit contains finished, moulded wings, fuselage, tail in toughened foam plastic, all hardware, wire parts, wheels, etc.

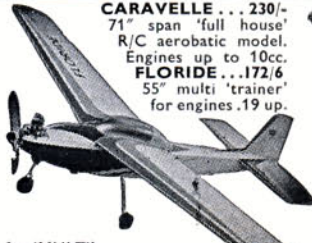


Span 41"

SINGLE or 2-CHANNEL

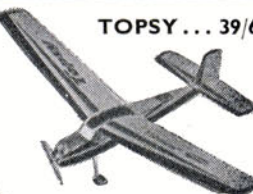
CARAVELLE . . . 230/-

71" span 'full house' R/C aerobatic model. Engines up to 10cc. FLORIDE . . . 172/6 55" multi 'trainer' for engines .19 up.



for 'MULTI' or PROPORTIONAL

TOPSY . . . 39/6

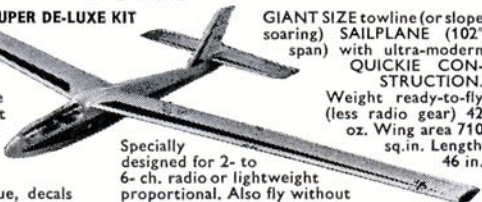


32" span model for engines up to 1 cc. Super sports F/F model, also ideal for single-channel R/C.

THE NEW FOKA SAILPLANE . . . £8.15.0

SUPER DE-LUXE KIT

Look What you get in this wonderful new kit—a FINISHED one-piece fuselage in hi-impact plastic; other parts in balsa and ply mostly diecut; shaped wire parts, cement, tissue, decals canopy, miscellaneous parts.



Specially designed for 2- to 6- ch. radio or lightweight proportional. Also fly without radio, if you prefer.

GIANT SIZE towline (or slope soaring) SAILPLANE (102" span) with ultra-modern QUICKIE CONSTRUCTION.

Weight ready-to-fly (less radio gear) 42 oz. Wing area 710 sq.in. Length 46 in.



F/F or R/C SCALE . . .

44" PIPER TRIPACER . . . £4.19.6 For 1-1.5 cc. engines. This superbly detailed model is an excellent flyer. Optional extras which can be fitted include working navigation lights! Equally suitable for free flight or lightweight radio control.

U.K. DISTRIBUTORS

other Graupner Agents include—

RipMax
MODELS & ACCESSORIES

U.S.A.: POLKS MODEL HOBBIES, 314 Fifth Avenue, New York, 1, N.Y.
CANADA: G. BOOK & CO., 45 Wingham Avenue, Toronto 19, Ont.
N. ZEALAND: BURTON BRAILS福德, 261 Willis Street, Wellington, C.Z.
AUSTRALIA: PAUL GROSSMANN, 164 Tinsley Road, Ashfield N.S.W.
S. AFRICA: PHIL & BRUYN, 85 Pritchard Street, Johannesburg.
HONG KONG: SADAH CO. LTD., 2 Observatory Road, Kowloon H.K.

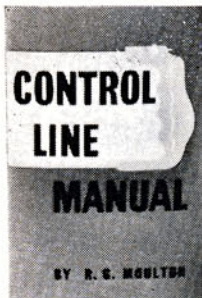
★ AT YOUR MODEL SHOP

WHOLESALE DISTRIBUTORS

80 HIGHGATE RD, LONDON, N.W.5

KINDLY MENTION "AEROMODELLER" WHEN REPLYING TO ADVERTISEMENTS!

The finest Model FLYING Books by M.A.P



7. CONTROL LINE MANUAL

Here are some of the chapter headings: Why Control Line?: Basic U-Control: Basic Monoline: Basic Flight Control: Learning to Fly: Aerobatics: Speed: Team Racing: Combat: Carrier: Cargo and Endurance: Scale Models: Jet: The Engine in Control Line: Towards the Indestructible: Looking after the Lines; Variations on the Theme. Plus appendix.

8½ x 5½ in. Hard bound. Chapter headings by cartoonist Roland, over 300 diagrams, sketches, photo-illustrations. 74,000 words. (\$3.00) 15/-



8. FLYING SCALE MODELS

All types of scale flying models are described in turn—glider, free-flight and control line; Jetex, Diesel, rubber or ducted-fan types. Much useful information is given on achieving highly realistic finishes and detailed parts, and there is a useful set of tables listing camouflage and insignia from 1914 up to date. Perhaps the most attractive feature is the very large number of illustrations including photographs, diagrams and scale plans.

This is certainly a book to inspire the scale aeromodeller, whatever type he may choose; free-flight, control line, or radio.

8½ x 5½ in. Hard bound. Chapter headings by cartoonist Roland, over 300 diagrams, sketches, photo-illustrations, 74,000 words. (\$2.00) 10/-



59. SINGLE CHANNEL RADIO CONTROL

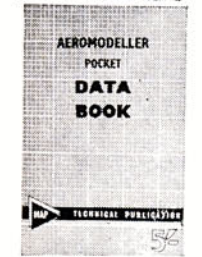
The Beginners "must" . . . Nine chapters deal with What R/C is; Receivers; Transmitters; Actuators, Escapements and Servos; Aircraft types and engines; Aircraft Systems; Boat Systems and Vehicles; Installation and Operation; Faults and Trouble Shooting. Plus invaluable tables on available equipment.

7½ x 4½ in., 92 pages. Drawn on two-colour card cover 50 figures, sundry tables, 41 photo illustrations. (\$1.25c) 6/-

3. AEROMODELLER POCKET DATA BOOK

Simply packed with clear sketches and useful table to help modellers in every branch of aero modelling.

7½ x 4½ in., 64 pages. With 61 pages of detailed explanatory sketches and text based on Flying Models Reference Handbook. (\$1.00) 5/-



4. MODEL AERO ENGINE ENCYCLOPAEDIA

All the known World's Engines are detailed in tabular summary with principal dimensions and advised propellers. Three extensive chapters deal with initial operation of a first engine whether it be coil ignition, diesel or glowplug. Advanced data on fuels, horsepower, speed controls, silencers and tuning of racing engines. Fully updated and revised in new 1966 edition.

8½ x 5½ in., 208 pages. Full bound in plastic cloth with three-colour dust jacket, over 300 sketches, photos, data tables. (\$2.50c) 12/6

60. RADIO CONTROL MANUAL

Angled to appeal to all practical exponents of modern R/C flying, both single channel, multi, scale, pylon racer or any of the other now numerous divisions of the hobby. For first time an attempt has been made to tabulate equipment and model kit data in a form that quickly shows what will go with which, covering every piece of equipment.

8½ x 5½ in. Bright, full-colour photo dust cover, cloth covered boards, gold-blocked title on spine. (\$3.25c) 16/-

58. MULTI CHANNEL RADIO CONTROL

Multi channel control is probably what most radio control enthusiasts seek, eventually, to achieve. But all too often, introduction to this more advanced stage of the radio control hobby is fraught with problems brought about by sheer lack of knowledge of the subject.

8½ x 5½ in., 112 pages. Bright, full-colour photo dust cover, hard bound with gold blocked title on spine. Numerous line and photo illustrations on high quality gloss paper. (\$2.50c) 12/6

1. ALL ABOUT MODEL AIRCRAFT

A detailed book for the beginner . . . the author is world famous for his clear descriptions and in 21 comprehensive chapters with a wealth of photo illustrations, covers this wide subject.

Several chapters cover this type of modelling from the very beginning to trimming and flying. With this book you can learn all about rubber or power driven models free flight, control line; including building instructions for a trainer, model aero engines and fuels.

9½ x 7½ in. Two-colour card cover. 349 photos and illustrations. (\$1.50c) 7/6



PLANS HANDBOOK

The famous M.A.P. range of plans. Well illustrated. Many helpful articles. Thousands of items.

1 Hundreds of aeromodelling plans, covering every type of model are described and illustrated. In addition to flying models our famous three-views drawings are also listed. Useful articles of special interest to the beginner, 7½ x 4½ in., contains 128 pages. 2/-

2 Again hundreds of working model boats are illustrated and described, our wonderful range of yacht drawings have hull elevations. A number of useful and informative articles will be of help to the newcomer. 7½ x 4½ in., contains 96 pages. 2/-

3 Covers Working Model Drawings of Locomotives, Traction Engines, Workshop Equipment, Miscellaneous Models from Model Engineer, Model Railway News and Model Maker. 7½ x 4½ in. Contains 48 pages. 1/6

ORDER NOW on this handy coupon...and post



to: Model Aeronautical Press Limited, 13/35 Bridge Street, Hemel Hempstead, Herts.

or hand to your Model Shop

Name	
Address	
Please add 1/- packing & postage for orders of 12/6 and below. I enclose (state amount)	
Above this orders are POST FREE	

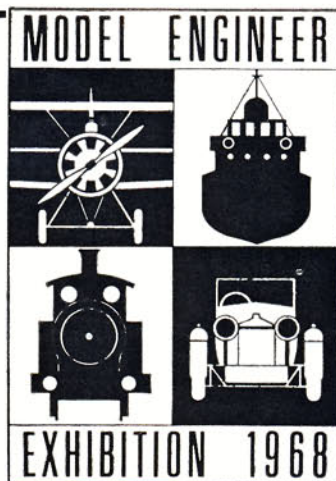
Model Aeroplanes Galore . . .

Or so we fondly hope . . . Large ones, small ones and most of the sizes in between . . . We shall have to limit the numbers accepted for exhibition . . . but we can hang them on the ceiling, plaster them on the walls butterfly fashion . . . even put tiny ones in glass cabinets. It is entirely up to you how good a show we are able to put on . . . But even if you are not personally able to enter you can still have a grand day's outing seeing what the other man has been doing not only in aeromodelling but in every other aspect of modelling. Ever seen Slot Boats for example? Or ridden behind a model steam locomotive? You see what we mean?

COMPETITORS are advised that entry forms are now available as this issue appears. Closing date for entries will not be coming up for some time, but early entry would naturally assist the organisers, and ensure the widest possible variety.

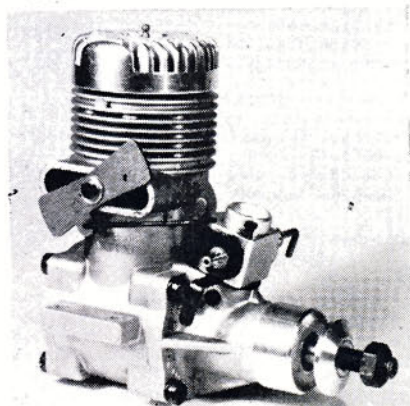
EXHIBITORS from the trade are informed that brochures and detailed stand application forms are ready. Potential exhibitors are warmly invited to write for details of what will be the first major exhibition for several years.

Entry forms and trade exhibitors' brochures are available from the Exhibition Organiser, M.A.P. LTD., 13-35 Bridge Street, Hemel Hempstead, Herts.



Model Engineer Exhibition January 3-13 1968 at the Seymour Hall, Marylebone, London

Super
THE NAME THAT STANDS
FOR SPEED AND POWER



Super Tigre G.60 F.1. R/C
£20 incl. P.T.

Tigre

We are proud to announce that the first consignment of quality engines from Super Tigre in Italy are now in stock.

Orders dealt with in strict rotation.

A full spares service will be available by September. Needle valve assemblies are already in stock.

Trade enquiries invited.

DESCRIPTION		RETAIL
		£ s. d.
G20/15 Diesel	... (2.5 c.c.)	6 0 0
G20/15 D-R/C	... (2.5 c.c.)	7 0 0
G20/15 Glow	... (2.5 c.c.)	6 0 0
G15	... (2.5 c.c.)	6 16 0
G20/19 STD	... (3.2 c.c.)	5 9 6
G20/19 R/C	... (3.2 c.c.)	6 10 0
G15/19	... (3.2 c.c.)	6 16 0
G20/23 STD	... (3.8 c.c.)	5 9 6
G20/23 R/C	... (3.8 c.c.)	6 10 0
G21/29 RV	... (5.0 c.c.)	10 0 0
G21/35 STD	... (5.6 c.c.)	6 18 6
G21/35 RV	... (5.6 c.c.)	10 0 0
G21/40 R/C	... (6.6 c.c.)	8 0 0
G21/40 STD	... (6.6 c.c.)	6 18 6
G40 RR	... (6.6 c.c.)	10 0 0
G40 RV R/C	... (6.6 c.c.)	12 0 0
G21/46 R/C	... (7.3 c.c.)	8 16 0
ST51/STD	... (8.3 c.c.)	8 16 0
ST51/R/C	... (8.3 c.c.)	10 0 0
G51 R/C	... (8.3 c.c.)	12 0 0
ST56 BB STD	... (9.2 c.c.)	10 12 0
ST60 BB R/C	... (10.0 c.c.)	11 18 0
ST60 BB	... (10.0 c.c.)	10 12 0
G60 Racing	... (10.0 c.c.)	18 4 0
G71 R/C	... (11.6 c.c.)	20 0 0
G60 FI R/C	... (10.0 c.c.)	20 0 0

S. T. ACCESSORIES

Glow Plug Standard	...	5 3
Glow Plug R/C	...	6 0
S15 Silencer	... (2.5 c.c.)	1 16 3
S29 Silencer	... (5.0 c.c.)	2 4 6
S35 Silencer	... (5.6 c.c.)	2 4 6
S40 Silencer	... (6.6 c.c.)	2 4 6
S56 Silencer	... (9.2 c.c.)	2 4 6
S71 Silencer	... (11.6 c.c.)	2 10 0



WORLD ENGINES

97 TUDOR AVENUE, WATFORD, HERTS

PHONE WATFORD 42859

KINDLY MENTION "AEROMODELLER" WHEN REPLYING TO ADVERTISEMENTS

Heard at the HANGAR DOORS



Above: Cdr. K. H. Dedman RN, Fleet Air Arm Public Relations Officer receives July Aero-modeller Cover painting of the "Torrey Canyon" Buccaneer from artist Laurie Bagley. The painting will now hang in the wardroom of the Royal Naval Air Station, Lossiemouth.

Concern for safety in the Rotherham and District M.F.C. caused member E. Newton to prepare posters to warn children from straying into their control-line area. Photo (left) shows the ideas.



VISITOR from the U.S.A. was soon put to work as photo below reveals. Dale Willoughby, editor of "Zephyr" and R/C columnist for "Flying Models", was en route to Corsica when we caught up with him testing a Dragon-Kraft "Zefir" semi-scale soarer at Ivinghoe. Dale says the slope was fine but not enough wind! Your dog never does his tricks when guests arrive! Dale's glider speed record has just been increased to 58 m.p.h. by the team of Strong/Hahn with a Kraft equipped 84 inch soarer.



AIRSHIP models are rare birds. Jan Fialkowski of Cumberland is making a 36 in. dia., 162 in. long balsa dirigible and is seeking Melinex or similar material for the Hydrogen bags. Anyone help? See photo of structure at right.

CROSS-CHANNEL trip by Canterbury Pilgrims with air party from Lympne to Beauvais is scheduled for August 6th. Cost, including buffet meal, is £5. 12. 0d. French modellers meet the party for a flying spree on the airfield. Contact J. Ward, 19 St. Pauls Way, Sandgate, Kent, for details.

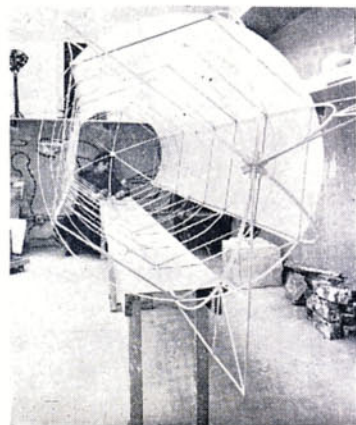
CALCULATION by Bill and Annie Geisking reveals that the 69 U.S.A. free flight trials entrants travelled a total of 83,220 miles to get to Bong Airfield. 18 travelled more than 2,000 miles each! If the venue were changed to Denver, the total reduces to 81,397 miles, with only one travelling over 2,000 miles. Bill and Annie come from Denver.

S.E.5 REPRODUCTIONS being made at the Kirbymoorside factory of Slingsby Sailplanes Ltd. for the forthcoming film "Darling Lily (or

where were you the night I shot down Baron Von Richthofen)" are actually scale models! Made to 0.83 scale, they are in fact Lycoming powered derivations of the Currie Wot. Drawings of the full size S.E.5 proved to be so numerous and complex that Slingsby's have taken our *Aeromodeller* scale drawings of both aircraft and translated the scale and lines of the S.E.5 to fit Wot proportions. The mini-S.E.'s are to be fully aerobatic and six of them are expected to be flying in Eire by Summer. Derek Piggott reported first flights were very successful in late June.

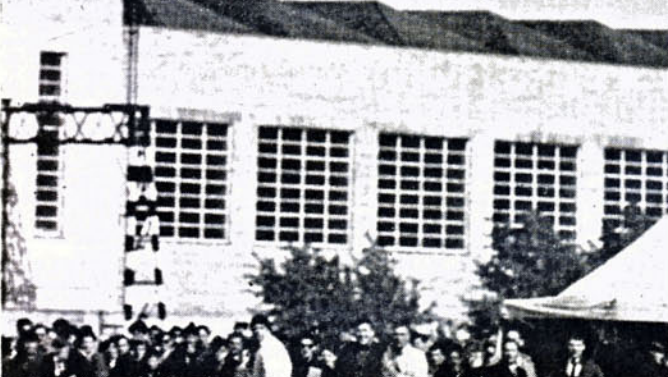
U.S. NATIONALS rotate about the nation and this year take place in California at Los Alomitos. For 1968 there is to be a change and for any who might now be planning a trip we suggest they think of Olathe in Kansas instead of Dallas as otherwise expected.

WELCOME for all Expo 67 visitors to Montreal is extended by the Model Aeronautical Radio Specialists of Montreal (M.A.R.S.). They suggest a telephone call to 731 2541 or 725 7524 will soon find a fellow modeller ready to talk shop. What a great idea!





NATIONAL CHAMPIONSHIPS



Dave Platt's SBD-5 pulls up from an Immelman attempt over the runway at Hullavington.

FOR the second successive year, the 'Nats' went west—to the air field at R.A.F. Hullavington near Chippenham by permission of Wing Cdr. A. J. Douch, M.A., A.F.R.Ae.S. This time the wind, which had mercifully dropped from the tempest of the previous days, was from the prevailing quarter and free fliers had a clear wood-free run for a 'max' in comparison with the 1966 problems of afforestation.

Weatherwise it was reminiscent of a Waterbeach affair about thirteen years earlier. Damp start, dead calm setting evening, gusty contest periods, sunshine and hailstorms, thermals and downdraughts—in fact, *the LOT!*

Contestwise it represented a triumph in adversity for the S.M.A.E. Officers and the Sub-committee specialists who ran the events and refreshing encouragement for the 'supplementary' contests run by appeal from Norwich and N. Sheffield Clubs for Wakefield and Rat Racing.

Financially it will provide the vitally needed surplus funds for the S.M.A.E. thanks to excellent public support and the long labouring efforts of the Treasurer, Syd Lawton, and his crew.

Socially it improved enormously over previous years. More than 600 wanted to get into the Camp Cinema for a special showing of 'Flight of the Phoenix' and the overflow swamped the NAAFI with a get-together that such a meeting needs so much. The Camp site was even more colourful than ever thanks to the multitude of frame tents and many caravans.

All of which sounds very rosy; but as ever, there is always the other side of the coin. It was not a 'Nats' devoid of problems; but these were very much the private affair of the Society and not the concern of the reader, except perhaps the hopeless inadequacy of the toilets which become an annual embarrassment, and the incredible thoughtlessness of the campers who deposited their litter in such an appalling state.

If any single factor is to be selected from this 'Nats' it should be our disappointment in quantity of the results. One is used to a percentage of 'fall-out' in the entry. The inexplicable loss of 25% of those who paid their fee to fly has always been with us. This year a soft gloved hand of gentle authority in most events reduced the field by justifiable disqualifications to less than half in most cases! One not only has to make the model, but also *read* the book! All of this was in spite of forewarning. If we are to elevate standards, the gloves must come right off and the Rule book enforced without exception.

Many attend the 'Nats' just to fly for fun and watch the experts.

This time the expert was in some cases hard to find and the sport flying groups tended to take attention—and why not when one can watch C. A. 'Rip' Rippon flying his 45-year-old design reproduced by Alwyn Greenhalgh who went to the U.S.A. in our Wakefield team of '36. Or to find a whole circus of converted chuck-gliders as control-liners, or youngsters with their first control-liner happily oblivious of the silencer rule but equally respectful when advised as to what they *should* do.

There was far more action to be seen in the outfield than in the enclosure where cars massed and traders coined their take in Eastern Bazaar fashion as a whole day was taken to make 18 radio controlled scale model flights. This department will certainly need a shake up next time if only for the reason it is a public spectacle deserving of better efforts. There are far too many new scale models entered each year. Had the proposition made by a modeller a year ago been accepted, demanding a pre-'nats' trial of scale models one month before the event then the number of those flying could have been reduced considerably. Models which were placed 2nd, 3rd, 5th and 6th had only made singular test flights before the 'Nats', two of them the evening before. Admittedly this is the very stuff of which aeromodelling is made and we like to see it—but not at the cost of valuable time and spectator patience in the actual contest.

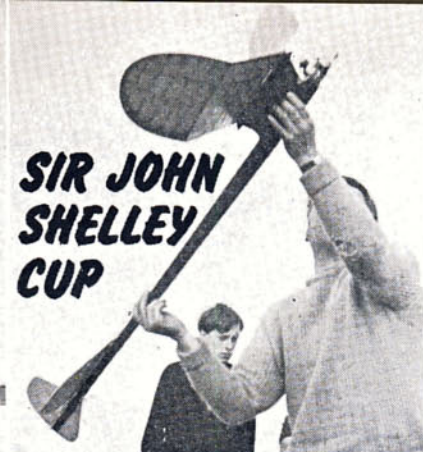
Scale

There's no doubting that this is the 'oohs and aahs' event. Quality leaps ahead annually and with 31 types ranging from a *Comper Swift* to a *Lockheed P.38* entered, there was good reason for excitement. But only 16 came forward to fly—a fall-out of 50% before the start. Some of the withdrawn entries were to be seen the evening before, a *Fokker Triplane*, *Grumman F3F*, *Spitfire*, etc.; we wonder what became of them? Anyway, Den Thumpston had to be freed for his C/L scale duties so he was ice-breaker No. 1. The *Bristol Monoplane* started well, got only part way through the schedule and the motor petered out for a premature landing. Dave Platt's photo-finish (*i.e.* decorated for realistic photography) *Douglas SBD-5 Dauntless* came forward amid much expectation. Winner last year, Dave had rebuilt the SBD after a near write-off a week earlier and as a full-house entry with flaps, bomb and retract gear it had been created for maximum score. A stall after take-off was disastrous. The model hit a van and severed the fuselage. Dave immediately set to work on reconstruction for a later flight. Relief was needed and it came with a fine flight by R. Westley with what looked like a quarter scale *Meyer 'Little Toot'*. Unfortunately the builder did not declare the scale to the judges as essentially required so it did not qualify! Norman Butcher produced his bright *Fokker D VII* with all OS gear to show exactly how to enter a contest of this nature. Each scale entrant has the chance of five out of 17 optional gimmicks and manoeuvres. Norm, having worn the treadmill of contests for more years than we will reveal, chose the manoeuvres rather than the mechanical contrivances to rack up a score that was to lead the field and a high proportion of which came from his at the feet spot landing. All this with a relatively simple subject was to be the eventual crux of the contest. Next came what was the showpiece model of the whole 'Nats', Mick Charles' reproduction of Sheila Scott's *Comanche 260* had *everything*. Space prohibits a full description here (see September R.C.M. & E.) but not only was it to scale in all directions including inwards, but everything worked, too. All the rough and ready signatures on the real machine were reproduced precisely and the stop watch and tape recorder in the cockpit looked as though they would work! Take-off with retraction in the climb out was a thrill as the 260 passed over the crowd, and Charles was all set for an all-time record in scale scores. But it was not to be. After the figure 8, a cowl hatch unlocked and as the large nose cover lifted on the diminutive scale piano hinge, the all moving stabilator had to be swung to fully negative to correct the pitch down. An emergency landing cut short a good chance and the impact damaged both wing and the O/D retract gear.

Dr. Henley's *Bulldog* (a new one) was resplendent in shiny metal and multiple cylinders. How we wished him well at take-off. But this is an all-time ground looping record breaker and Doc ran out of props trying to get the beast airborne. Terry Mellaney's *Piper Cherokee* was another to boost its chances with good flying followed by spot landing and the *Gipsy Moths* by Wally Nield and G. Goldsmith also flew well but failed to qualify through lack of information for the judges. A *Chipmunk* by Brian Lees, *Tiger Moth* by A. Devonshire, added to the De Havilland fleet, the latter with a magnificent take off. Racing planes by Dave Day (*Shoestring*) and Jeremy Collins (*Heath*



MODEL AIRCRAFT TROPHY



SIR JOHN SHELLEY CUP



WAKEFIELD



SMAE TROPHY

NATIONAL CHAMPS WINNERS



WOMENS CUP



RAT RACE

Ray Monks won "Model Aircraft Trophy" with 250 sq. in. wing open job, 16 strands of $\frac{1}{4}$ and 24 x 30 double folder. $\frac{1}{4}$ lb. of rubber in there! He also won "Sir John Shelley" with Cox .15 job. Mike Dixon won "Wakefield" with "Epsilon 50" design using rolled balsa tube fuselage. The "S.M.A.E. Trophy" went to Chris Olsen, who used Kraft K.P.6 and Merco 61 in "Upset". "Womens Cup" winner Shirley Horton used larger than normal open job, 46 in. long, 46 in. span, $1\frac{1}{2}$ in. sq. fuselage and 26 in. x 26 in. prop on 12 strands of $\frac{1}{4}$ in. Tom Jolley won first ever Nats. "Rat Race" with K&B 40 "Potent Rodent". Tom also won the "Gold Trophy" with new "Midget Mustang" based stunter. Jack Aldred of Parker/Aldred speed combo with Cox .049 powered wing won "Speed". "Combat" winner John Chamberlain with Oliver Tiger powered winning model. "Thurston Cup" winner Tony Young, sheet top A/2, two timers and short nose, always near the top and avenging his sad luck at the Trials. "Novelty", Golden Winger (see transfer) 10 year old Tony Stothers of Leicester with yellow biplane he flew in hangar.



SPEED



COMBAT



GOLD TROPHY



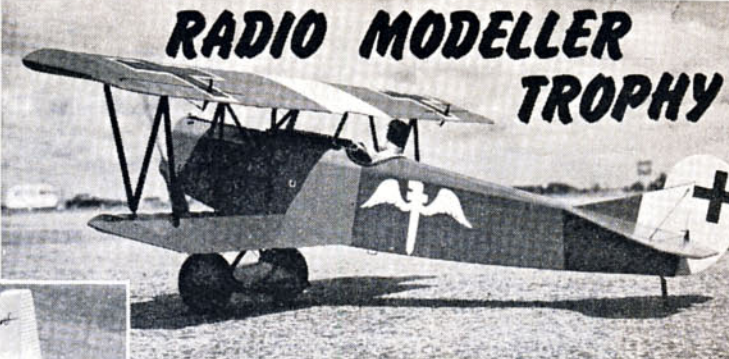
THURSTON CUP



NOVELTY



KNOKKE NO 2 TROPHY



RADIO MODELLER TROPHY



RAFMAA TROPHY



DAVIES 'A'

Tony Day (Handsworth) topped C/L scale with his Shinn 2150A trainer, metal paper finish, flew well. Top right, Norman Butcher won scale with his O.S. Max H-60 powered Fokker D.7. With an O.S. S-1002 multi servo 'unit', Tx and Rx, this was an O.S. benefit, also a great flyer, and Norman's first Nationals scale attempt. Both classes of team race were won by the Wharfedale lads Brian Turner and Mick Hughes, left, their Don Haworth modified Eta F.A.I. team racer winner (A.P.S. plan for September issue) and right, the pair with the Oliver Tiger Cub powered JA model.

Bullet) made another interesting contrast, their speed differential was not only to scale but also indicative of progress in air racing over the years. There remains two exceptional types to describe. Roy Yates produced a *Percival Provost* modelled on a Shawbury machine that carried all the atmosphere of a well used (and abused) trainer and proceeded to score high points though his Immelman turned into a nasty spin. Use of flaps and a fine 'Split S' helped his score. Dennis Bryant's choice was the *Fieseler Storch*, a challenge for anyone with its large cabin, so he made it out of steel tubing like the real thing! In flight, the Storch was fully characteristic, the best of the entry,

and only an abrupt landing with nose pitched down by flaps spoiled the record. Came the Judging, and recrimination. Results should never be taken as official until checked and the complexities of scale are such that errors easily arise. First announcement gave Den Thumpston the new Radio Modeller 'pot'; but dispute rightfully showed that while flight points had been averaged, the static points were aggregated between judges. This had given advantage to the more detailed models, and the next announcement produced Roy Yates' *Provost* as winner for its good flight points. *But alas!*

RESULTS

NORWICH (WAKEFIELD) TROPHY

1. Dixon	B'ham	15.00+3.36
2. Barr	Hates	15.00+2.26
3. Godden	Cambridge	14.26
4. MacGarvey	Croydon	14.21
5. O'Donnell	Whitefield	14.12
6. Burrows	Blackheath	14.08
7. Woodhouse	Norwich	14.00
8. Monks	B'ham	13.57
9. Hipperson	Croydon	13.27
10. Halford	Norwich	13.20
11. Lennox	B'ham	13.20
12. Sharpe	Blackheath	13.10

HANDICAP SPEED

		Class Result		
1. Parker-Aldred	N. Sheffield	106.3	1.5	110.7
2. Bessant	Southampton	89.0	1.5	92.8
3. Horwood	S. Bristol	85.3	1.5	88.8
4. Farnsworth	N. Sheffield	79.7	2.5	110.2
5. Firbank	Worksop	78.0	5.0	119.7
6. Cooper	Northampton	77.9	1.5	81.0

COMBAT

1. Chamberlain	Maidenhead	+3
2. Dowling	Liverpool	-4
3. Duncker	Mad Mac	
3. Dixon	Feltham/Hayes	

S.M.A.E. RADIO CONTROL TROPHY

Name	1st Rd.	2nd Rd.	Total
1. C. Olsen	2639	3052	5691
2. P. Waters	2514	2915	5429
3. E. Johnson	2586	2710	5296
4. B. Purslow	2653	2313	4966
5. K. R. Jones	2625	2119	4644
6. M. Birch	2389	2007	4396

WOMEN'S CUP

1. Mrs. S. Horton	Crawley	9.00+3.03
2. Mrs. P. Vincent	E. Grinstead	9.00+2.21
3. Mrs. K. Allen	Brighton	9.00+2.17
4. Mrs. M. Day	C.M.	8.56
5. R. Reece	C.M.	3.00
6. M. Henley	S. Bristol	0.37

RAT RACE

1. T. Jolley	Whitefield	7:15.4
2. D. Balch	Feltham	7:42.5
3. D. Rodd	Feltham	8:8.2
4. Hampson/Yates	Leigh	8:15.7

Junior Final

1. Stevens	Feltham
2. King	Hayes
3. Smith	Feltham

GOLD TROPHY (C/L Stunt)

1. T. Jolley	Whitefield	1055
2. Dowbekin	Harwich	1041
3. M. Reeves	Wanstead	889
4. M. Mannall	Lincoln	864
5. Mayne	Lee Bees	861
6. A. Day	C.M.	862

KNOKKE NO. 2 (C/L SCALE)

1. A. Day	C.M.	519	Shinn 2150A
2. J. Simmance	C.M.	490.5	B-26 Marauder
3. D. Nelson	RR	385	Black Widow

R.A.F. M.A.A. TROPHY (JA Team Racing)

1. Turner/Hughes	Wharfedale	3:48.8	8:15.4
2. Place/Haworth	Wharfedale	3:51	8:35
3. Heaton/Ross	Leigh	4:06.4	—

MODEL AIRCRAFT TROPHY (Open Rubber)

1. R. Monks	Birmingham	9.00+6.07
2. J. O'Donnell	Whitefield	9.00+5.03
3. J. Allen	Brighton	9.00+4.27
4. D. White	York	9.00+3.52
5. R. Pawley	Hornchurch	9.00+3.46
6. D. Hipperson	Croydon	8.00+3.45
7. A. Wells	Hornchurch	9.00+3.40
8. R. Bailey	Croydon	9.00+3.40
9. J. Clements	York	9.00+2.05
10. J. Lorimer	Woking	9.00+2.32
11. F. Sharpe	Blackheath	9.00+2.22
12. M. ...dale	Wallasey	9.00+2.14

THURSTON TROPHY (Open Glider)

1. A. Young	Croydon	9.00+1.57
2. K. Smith	Croydon	9.00+1.31
3. P. Trenchard	F.A.C.C.T.	8.49
4. J. Wright	Hornchurch	8.00
5. G. Ferer	Swindon	7.55
6. D. Bailey	Swindon	7.40
7. A. Wisler	Croydon	7.25
8. M. Woodhouse	Norwich	7.08
9. G. Abbott	York	7.00
10. J. Bailey	Bristol & West	6.58
11. J. Burke	Norwich	6.56
12. J. Baggott	Birmingham	6.41

SIR JOHN SHELLEY CUP (Open Power)

1. R. Monks	B'ham	9.00+5.50
2. M. Green	Sheffield	9.00+4.50
3. D. Miller	Cambridge	9.00+3.38
4. Baggott	B'ham	9.00+3.19
5. C. Pittard	Hornchurch	9.00+2.92
6. R. Boxall	Croydon	9.00+2.20

Roy's scores were not properly calculated (e.g. $8 \times 10 = 100!$) so now it was Roy's turn for disappointment and Norman Butcher came into line to win back the very trophy he had donated! Argument on the scoring system waxed hot among the zealots who treated the event as a deadly serious matter; but in our view the rules have now proved themselves. One does not have to carry a gimmick or chose any particular kind of subject to win. One has to produce a model that is *to scale* and *well made*, well documented and *flies well*. No one has as yet hit this combination to score over 800 points and the field remains wide open.

If R/C lost its entries what happened to **control line**? Only four qualified in flights and two of these were old hands from our team at Swinderby. Each flew impressively and finished in an acceptable order of results.

While John Simmance's *Marauder* had 'the lot' including flaps and retract gear, Tony Day had also refurbished his *Shinn* and this simple little model came as near to perfection as one could wish. It was a close result. Third was David Nelson's *Black Widow*, a big model, rock steady and impressive, but not quite up to the detail of the others.

Unorthodox

Maybe it was dampness under the tents, or perhaps plain enthusiasm but anyway, hangar 5 was full of 'bods' to watch a smaller entry than '66 for the off-the-cuff unorthodox contest. Last year's winner, A. Goff, produced a *flying bedstead* with eiderdown and couple! Goodenough and Wright had a *flying matchbox*, Chinnery and Bragg *Autogyros*, and Wood and Stocks attempted to fly a *frying pan!* But it was ten-year-old 'Golden Winger' Tony Stothers who drew loudest applause as his little form in blazer, shorts and wellington boots rotated when he flew his own design biplane control liner. Not exactly unorthodox but very deserving!

Multi Channel Aerobatics

Sixty-two prospective Multi Aerobatic competitors entered, but only 47 turned out to contest for the **S.M.A.E. Trophy**. 'Only' is a comparative expression, for this was the largest number of competitors ever in a Nationals multi event, and considering 87 flights were made in eight hours, it was a triumph for the organisers of the three ring 'circus'. Simultaneous activity of this sort can be confusing to the observer. It is a strange anomaly that fewer spectators remained to view the intense activity of the event than were kept waiting interminably for sporadic scale flights on the previous day. At circle No. 1, Merco maker Dennis Allen was an early unfortunate when the motor in his interesting twin finned low wing design stopped during the stall turn soon after take off. Repeated exactly the same way in the second round, this was one of the few examples of engine failure and it must be particularly choking for Dennis to have his own motor go bad on him when so many in the same competition were extracting unflinching reliability from their Merco 61's. Are we about to see a spate of big 'uns like Dennis Hamant's 7 ft. span *King Spectre*. Who knows? Certainly the 9 lb. Rossi 60 powered beast performed beautifully in practice, with one of the slowest, most graceful spins we have ever seen. Dennis confided that it was a considerable improvement over his previous *Spectre* design, but it did not have time to prove itself in the first round after aileron trouble necessitated a speedy return to earth, directly after take-off.

Top performer in round one was Barry Purslow, for the past twelve months very much a 'big league' contender (fourth in the team trials). Second placer so far was Keith Jones from Sutton Coldfield, both these lads outpointing Chris Olsen, Ed. Johnson and Peter Waters. In sixth place was Mike Birch.

RADIO/MODELLER TROPHY R/C SCALE

Name	Model	Flight	Scale	Craft	Total
1. N. J. Butcher	Fokker DVII	438	155	153	746
2. R. Yates	Percival Provost	413	199	125	737
3. D. Bryant	F.156 Storch	283	203	219	705
4. D. Thumpston	Bristol Mono	232	243	223	698
5. M. Charles	Piper Comanche	255	231	207	693
6. D. Platt	Douglas SBD-5	264	174	156	594
7. T. Mellaney	Piper Cherokee	417	87	107	511
8. A. Devonshire	D.H 82 Tiger Moth	283	112	49	444
9. D. Day	Shoestring	295	32	66	395
10. J. Collins	Heath Baby Bullet	107	173	104	384

'DAVIES' CLASS (A) TEAM RACING

		Rd 1	Rd 2	Final
1. Turner/Hughes	Wharfedale	4.49	—	9:50.2
2. Balch/King	Feltham/Hayes	—	5:04	Rtd
3. Place/Hayworth	Wharfedale	—	4.57	Disq.
4. Green/Manser	Wanstead	5:10	—	
5. Bedford/Allen	Wanstead	6:03	5:29	
6. A. Harknett	Wanstead	—	5:34	

Control line scale beauties below drew crowds, top to bottom they are, Tony Day's *Shinn* entirely reworked since W/Champs. Looks real with metal finish. A. J. Brigg's Boeing B17F "Lady Luck", four Oliver Tiger Majors 3.5 c.c., 1/16th scale, 78 in. span, weigh 15 lb., has retractable u/c, flaps and lights and is ALL PLYWOOD COVERED. Vickers Gunbus by Maurice Hessey of Woking is 65 in. for Merco .29 pusher, weight 3 1/2 lb. *Black Widow* by David Nelson was big and impressive for 3rd position.





Reading clockwise, top left, Laurie and Betty Barr take strain in Wakefield winding up, a close second, Ken Smith uses straight dihedral, untapered wings and short nose on A/2, was 2nd. Mike Green was also a 2nd, in Power with Eta 29. Below him is Peter Allnutt over from Canada with British teamsters, Halford

and Woodhouse admiring his fuselage. Built up prop blades and criss-cross wing is Alistair Frazer and "Sumura" from Scotland. Rosemary Jones of the Bald Eagles with mighty canard and miniskirt. Corner shot is Pete Trenchard, 3rd in Glider—my those ribs. Centre is Mary Day in a struggle with a broken bobbin.

of Esher M.F.C. flying in his first multi competition and really chasing the leaders. He managed to hang on to sixth place right the way through and proved that he is a pilot to watch for the future.

In round two, the three sets of judges changed circles. Chris Olsen turned in the highest point score of the competition, with *Upset*, 3052 points for a polished performance that showed how well he had been practising for the World Championships. Waters also improved, flying the *Thunderstorm*. Ed. Johnson piled on the pressure using a model now in its third season of competitions and Stuart Foster came back on the contest trail, this time flying a Digimite equipped *Thunderstorm* instead of the *Nimbus*. Towards the end of the marathon, things were beginning to drag, but when final scores were in, Chris Olsen had the lead, followed by Peter Waters. Third placer was Ed. Johnson, these three edging first round leaders Barry Purslow and Keith Jones in fourth and fifth places.

Equipment-wise, it was not only a win for Kraft but also a numerical victory. Nineteen entries used this imported gear, nearest rivals being Orbit (6 propo, 2 reeds) and Johnson Propo (6). The remainder employed 15 other makes in two's and three's. There were 52 proportional sets and most popular frequencies remain Red and Orange, with Blue represented by only two fliers.

Control Line

One of the brightest events in control line was *Rat Racing*, held at the Nats for the first time this year. Organised by the *North Sheffield* club safety was given prime attention. Each model was checked out with a 20 G pull test and all line thicknesses

measured before each heat. Of the 67 entered, 24 recorded times, 8 were disqualified and 35 scratched or did not start/appear. Of the 8 disqualified, 2 did not make the compulsory pit stop and the other teams transgressed into the flying circle. A large variety of engines were in use including homebuilds and specials. One of the most popular was the Eta 29, indeed they took 2nd and 4th places. Most models were decidedly rough and thrown together, an improvement in the building standard would not go amiss! There were exceptions and these were the better flying models. The junior final, where the N. Sheffield club gave special medallion prizes was one of the most hectic of all. A model ran in and there was a large line tangle, P. King with an Aeromodeller *King Rat*, modified to mono wheel placed second and the race was won by Stevens (Feltham) with an upright mounted Johnson Combat Special powered model. Several spectators had to run into the centre and wire cutters came in very handy. Dave Rudd (Feltham) flew a sidewinder mounted K & B 40 RV powered model with a Lindsey tuned length pipe, but the model slowed in the semi-finals as it has to be whipped up to speed for two laps before the pipe "comes in". The other contestants made sure he was boxed in and could not help his model along a great deal! Several other models in the Feltham Club had Lindsey pipes and they were noticeably quieter than the other silencers, which were mostly Merco and O.S. in modified forms. Several "B" Team Racers were entered and the ex-champ of "B" racing Chas Taylor was lucky when the elevator came off his Carter McCoy model and it made a fast pancake landing without too much damage. The fastest engines were the K & B 40's and Super Tigre G21/40's. Fuel shut offs were widely used and are now regarded as essential gear, as will be "hot" gloves and Quick-Fill valves in the future.

With one 70 lap heat and the fastest 8 getting a second go in two semi-finals, all flying four-up, the fastest semi went to Tom Jolley (Whitefield) at 3:32, followed by Hampson Yates (Leigh) at 4:03.5, then Balch/King 4:07.9 and D. Rudd 4:11.6. The fastest heat time went to Gillhespy/Goddard (Wanstead) at 3:46.2 with a *Pink Fink* model from Model Airplane News Plans (M.A.N. 53A) powered by a Super Tigre G21/40 RV with an 8 x 9 Rev up propeller on 10% Nitro fuel.

The final drew a large crowd and the competitors were getting a little edgy as Gordon Farnsworth, the event director, would not start the race until all spectators were off the runway and behind the safety fence. The start whistle went and the pit crews all made their "Le Mans" sprint from the centre flying circle to their respective models and all models were away together for a fine start. D. Rudd's pipe came in and he was the fastest but the engine went lean and started to cook up after about 8 laps at 120 m.p.h. Each crew had to make two stops and these went without incident, Tom Jolley's being exceptionally good. All of the models were flying at 105-108 m.p.h. and the rest of the race went off without incident with Tom Jolley he winner at 7:15.4. D. Balch in second place used a "B" racer and an Eta 29 as did Hampson/Yates in 4th position. D. Rudd placed 3rd.

Summing up, Rat was the largest crowd draw next to Combat and the contestants all enjoyed themselves. Rat is still an open event but we can see it becoming a "B" type team race with powerful 6.5 c.c. engines. Let's hope it stays simple, but improves with a little better standard of building. The Canadian design by D. Kelly published in *Aeromodeller* was the basis of several models. This month's APS introduction should also help.

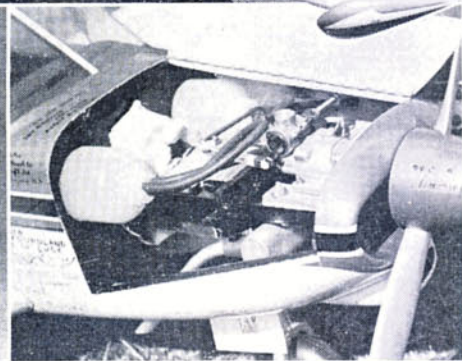
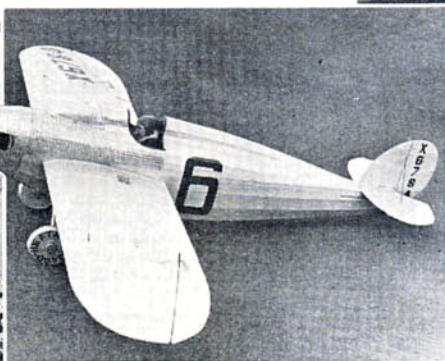
Speed was pretty dismal this year. Out of 28 entries only 15 made attempts and only 10 recorded times, and Gordon Farnsworth, the event Director, himself recorded the *only* mono line time of 110.2 m.p.h. in the 2.5 Open class. Only bright spot was the winning flight by Parker/Aldred (N. Sheffield) on two .006" lines for 110.7 m.p.h. in the 1.5 c.c. class with a Cox TD .09 powered flying wing. They used 50% Nitromethane, 20% Castrol M and 30% Methanol and exceeded handicap with 106.3%. A 6 x 8 Super Record propeller cut down to a 5 x 8 toothpick and pen bladder fuel tank were employed with their second rate engine (because of the wind). The best engine recorded 114 m.p.h. on .008" lines for a British record some

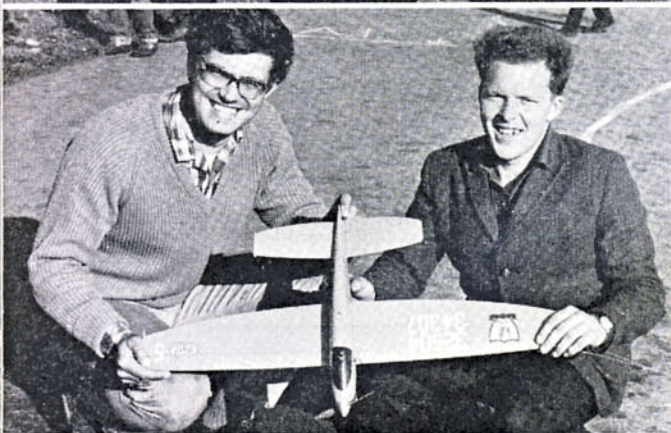
months ago. A newcomer to speed, G. Isles (Sharston) had dolly take off troubles with his G15 "Stuppi". Since he had not flown mono line before he refrained from trying his "T.W.A. 15" powered version. Both models were very well built with a deep Burgundy finish and polished aluminium wings. Bill Bessant who topped the handicap results in 1965 took second place as in '66 with another Cox TD 09 powered wing recording 92.8 m.p.h. for 89%.

A B.B.C. reporter went along with a tape recorder wanting some typical speed noises and Ivor Roffey obliged with 4 wingovers and a shaft run from a Carter Dooling 61! The B.B.C. chap must have thought the competitors were mad! All the results were based on the records standing at Jan. 1st, '67.

Class A Team Racing was also a dismal display of what G.B. can't do in the International Class. With 71 entries the organisers, Gerry Green and John Franklin of *Wanstead* thought they were in for a great day of racing, this was not the case as 53 of the 71 entries were disqualified either for rule breaking (this took every form, from flying to model and handle specs) or did not attempt to fly at all. In fact only 19 teams recorded a time, only 9 were under 6 minutes and two under 5! In Round 1 Turner/Hughes made 4:49 flying at 93 m.p.h. Their fuel tank was insulated by covering it in sheet balsa. Second fastest time went to Green/Manser (Wanstead) with Copeman-tuned Oliver Tiger powered *Trident* at 5:10. Next were Heaton/Ross (Leigh) with an M.V.V.S. powered model using an automatic pressure refuelling system who recorded 5:48. Round 2 saw some improvement with Place/Hawthorn flying a new model to record 4:57 and King/Balch (Feltham/Hayes) recorded 5:04, they used a 7 x 7 1/2 propeller, and their usual *Trident* design. The processing produced a tense atmosphere when Dick Place's model was found to be exactly on the weight and the tank limits. Some 7 checks made the tank "in" by 4 tries to 3. It was far too close and unfortunate as one of the organisers would have gone into the final if Dick was disqualified. After a practice flight each, the final was started and Don Howarth had to crawl into the circle to get the model back after a run in, therefore disqualifying himself. Balch and Turner flew on with one warning each, then with the end in sight and Turner having made one stop more than Balch, they were running neck and neck and both finished level with a time of 9:59! A re-run was organised straight away, two up as Place was disqualified. Both Turner/

Right; Mick Charles' replica of Shiela Scott's round-the-world Piper Comanche. Placed 6th with O.S. engine and R.C.S. Digifive operating flaps and retracting U/C. Below, left to right; Dave Platts' Douglas SBD-5 Dauntless. Excellently detailed with airbrush applied realistic finish. O.S. 60 powered, Logictrol 7 radio. Flaps, retracting U/C and bomb release. J. Collins' unusual Heath Baby Bullet, spans 63 1/2 in., Merco 61 powered, Grundig 8 radio, 11 per cent tail area. The engine bay of Mick Charles' Comanche. Note twin fuel tanks. Below left to right; close-up of Dennis Bryant's 93 in. span Fiesler Storch, F&M 12 radio, O.S. 60 powered, 10 1/2 lb. Operating flaps. Roy Yates and 2nd placing Percival Provost. 60 in. span used O.S. 60 power and R.C.S. Digifive radio. Flaps worked. Graham Gates, Piper aircraft designer, admires R. Wesley's 52 1/2 in. span Lil' Toot. Merco 61 powered, Digitrio-4 radio.





Hardworking combat crew L to R are C. R. Owen, Frank Dowling and Len Smith, Frank from Liverpool placed second. Above the fated 2nd place team in F.A.I. team race of Dave Balch, left, and Richard King with their Oliver Tiger powered Trident.



Above, part of the fine display of Vintage models in the collection of Lt. Cdr. A. Greenhalgh RN, for which there was a constant queue. Below left, Flying Bedstead by A. Goff (Feltham) and Flying Guitar by Ken Johnson from Portsmouth in the unorthodox event.



Brian Turner in action, a fast catch with the left hand then quick jump to clear the model on take off.

Hughes and Balch/King started together and were again equal on laps and speed, Turner then worked up some advantage on laps and with Turner at 105 laps Dave Balch chipped his prop on take off and in an effort to land Dave bounced his Trident and sheared nearly all of his propeller. The Oliver Tiger shaft ran for several laps on the prop stub with blue smoke pouring out of it, then he landed and it stopped, at 88 laps. As Turner/Hughes were past the halfway mark they carried on to finish at 9:50:5 for yet another win at a fast pace.

1/2 A Team Racing attracted 34 entries and an encouraging total of 30 times were recorded in both rounds. The standard of flying was good and Place/Haworth (Wharfedale) recorded the fastest heat of 3:48.8 followed by Turner/Hughes with 3:51. Heaton/Ross (Leigh) had a very neat little model, Oliver Tiger Cub powered with a cast alloy engine mounting plate and made the third fastest time of 4:06.4. Taylor/Booth (Rolls Royce) were close behind with 4:09 and this team should be watched in the future as they are on the upward swing. Most capably organised by the R.A.F.M.A.A. under F/Lt. Cottrell and Penny Farthing, all of the heats went off without a hitch. The final between Turner/Hughes, Place/Haworth and Heaton/Ross was marred by Heaton/Ross's lines binding on take off the model doing a wingover and expensively demolishing both itself and the Oliver Cub. Turner/Hughes won at 8:15.4 followed by Place/Haworth at 8:35 both models flying at 85 m.p.h. with Place having a slight advantage on range in the earlier stages. This is quite an achievement for Brian Turner and Mick Hughes as they have now won the R.A.F.M.A.A. Cup three times in a row. Also they recorded the fastest final time ever, beating their own 8:17.1 record.

Combat was organised by R. Hepple and crew of *Sunderland*, and the N.W. Area, with Wharfedales' help kept things moving. The standard of flying was better than ever and only 6 re-flies were called in two days of non stop jousting. This was mainly due to the new rules that allow a second model to be bought into action during the heat as soon as another is downed. One person was disqualified for letting go of the handle as he thought the engine had stopped after touching the ground (the model then going F/F.). Of 128 entries only 2 entries had *silencers proper*, the majority using Oliver manifolds in standard forms or cut-away versions, to lessen power loss (and also silencing efficiency). J. Dunker (Mad Mac) defeated Richard Wilkens (Sidcup) in two good combat heats as the first one was a tie with no crashes, etc. then Dunker won with an extra cut. J. Dixon (Feltham/Hayes) beat Mick Davies (Outlaws) after a re-flight as they drew with three cuts each. In the re-flight J. Dixon won with three cuts to Davie's one. A great improvement was noticed in the standard of flying by newcomers. Some people who turned up late in the first round were disqualified and thereafter the event ran to time for the entire period. Copeman tuned Oliver Tigers powered most of the fastest entries, in fact the top four *all* flew with C.S. Tigers. The final between J. Chamberlain (Maidenhead) and F. Dowling (Liverpool) was pretty hectic and Chamberlain was first to crash. He was soon up again, then they collided in mid-air and Chamberlain called in a new model that had been kept on the circle edge by his pit crew with the engine running for just such an emergency. Dowling's lines were off and he quickly put them on again and got away to a one flick start. Chamberlain took a cut then Dowling crashed again and was trying to get up into the air again as the final whistle went. Chamberlain + 3 and Dowling - 4 was the final result and though a very good pilot Dowling lost on the basis of minus points incurred on the ground, in fact a total of 55 seconds.

For the first time **Stunt** was run to a pre-published schedule, organiser *Geoff Higgs* was pushing this idea and with good reason as for a long time stunt fliers have just wanted to "roll up" and fly when they felt like it. This year however entries flew at 10 minute intervals, with 2 minutes grace allowed. This system worked well and of the 21 original entrants 8 dropped out and 4 reserves were let in. Tom Jolley flew his new *Midget Mustang* based model for top spot with a best flight of 1,055 pts. Although flying well Tom was not on top form and his second flight was not too hot. Harold Dowberkin in 2nd place nearly made the top spot with his second flight but suffered premature

motor cut on the fourth loop of the four leaf clover and he could not pull out smoothly, then he fluffed the landing — quite unusual for Harold. Though a new model is under way Harold used last year's model, albeit repainted. Mick Reeves with a new *Dictator* design placed third with his first flight, and this was the first flight of the meeting, using his usual Fox 35. Jim Mannall in 4th position had really bad luck, during his second flight the motor went abnormally rich so Jim ran down the runway to land the model inverted and then it leaned in, just as he ran back to the flying area it richened up again. In the process of moving about the N.A.A.F.I. van parked beside the runway was almost demolished. In his first flight his engine was far too *lean* and the manoeuvres were too fast and, hence, also large. The Mercury *Crusader* he was flying is now three years old, but the fuel proofer has been renewed! Mayne in 5th position has improved and did quite well with a second round score of 861. Dave Day seemed to be right off form with 822 points, also using an old model. The rest of the entries were all pretty much bunched up with less than 100 points between them. One point that is clear in all this, is that all the stunt fliers need more competitive practice to improve themselves. Entries are so low and stunt fliers spread so thinly over the country that it's hard to see how this can be bought about, the odd competitive contest with a couple of good fliers not being the answer to increase the entries and hence the standard.

Free flight, by J. O'Donnell

The first day (Sunday) started overcast and breezy. Conditions changed until by mid-afternoon it was sunny and quite windy. The time to fly was early and it is significant that the *only* two Glider fliers to max out wasted little time in so doing. The low scores amply illustrate the difficulty in consistently locating low-level lift — especially as the day progressed. It became windy enough to hamper tactical flying, and gusty enough to confuse those relying on feeling lift on tow.

Rubber was a different story as most models have enough performance for easy "threes". Early scores recorded were almost all maxs with the first trebles recorded going to Hornchurch members Ray Pavaley and Bob Wells. The pace slowed somewhat when the wind freshened and several entrants "dropped" their third flights. Retrieving was generally straightforward as the countryside was fairly "open" with only scattered trees and no dense woods. Crops, whilst obviously healthy, were not sufficiently advanced to "swallow" models. Trouble was experienced by some rubber fliers with strong lift (and slow D.T. descents) taking their models considerable distances — and a number did not survive to the flyoff.

Other and rather more distasteful trouble was downwind vandalism. There were small groups of local youngsters over-anxious to retrieve models, plus instances of models discovered hidden behind hedges. The worst case was of Chris Hayward's glider fuselage being snapped in two in order to steal the D.T. timer. I saw the model and the damage must have required considerable force. Complaints were not all one sided as the local farmer understandably complained of crop-wading.

Tailless exponents John Pool and Ken Attiwell flew their specialties in open rubber — and John missed the flyoff by a narrow margin. I'm not sure whether they were just short of conventional models or trying to draw attention to the lack of tailless events. If the latter, then *successful* participation in open events is surely the last thing they should want.

One new snag with launching into someone else's lift was demonstrated by Al Wisher and Jim Wright. They flew in the same thermal and ended up in the same tree! Peter Trenchard's model (third — top of those who didn't max out) went one worse. It landed on the railway line and was run over.

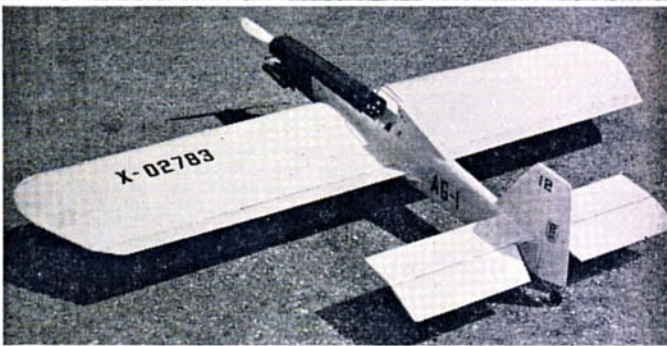
At least one very well-known glider flier had failed to realise that winch-throwing is *now* (since the new rulebook came out) prohibited in S.M.A.E. as well as in F.A.I. events — and had his second max disallowed. In all fairness I feel that such rule changes should be highlighted so that competitors learn about them in advance. Few people bother to "read the line print" and tend to assume the mixture is as before. (*Why bother with those who won't bother — couldn't they read John's column in May issue? — Ed.*)

The contests closed at 6 o'clock but for once the flyoffs were

not held shortly afterwards. Last year's Nationals Glider flyoff had demonstrated the true value of an "all-together" launch into the same thermal. It had consequently been decided to hold this year's Rubber and Glider flyoffs much later in the evening when wind and thermals should have decreased and the results less dependent on timekeeping.

Fly-off

The flyoff qualifiers reassembled around 8 o'clock to the tune of the usual organisational appeals for timekeepers. It was decided to hold the Glider flyoff first. Lines were checked again before the start of the 15 minute period was announced. Both Ken Smith and Tony Young moved downwind — but Tony went furthest. The wind had dropped somewhat but conditions looked rather cold and uninspiring and a long wait seemed likely. However, Ken towed with little delay — and released almost at once. There was nothing in the way of lift however — as the waiting Tony was obviously able to judge. After Ken's model was done in about 1½ mins., Tony continued to wait for several minutes (to run down his D.T. timers?). Eventually he towed up, kited for a short while and then released. Air was obviously better than that experienced by his clubmate as evidence by his score of almost 2 minutes. Tony's win will perhaps compensate for his disastrous weekend at the trials.



Top, new F.A.I. team racer by Davy/Hudson (Wharfedale) with Eta 15 and plate engine mount, note rearward wheel. Centre is A.G.I. Duster stunter from M.A.N. plans by M. Harvey (Mitchem). Right, the 3rd place JA team racer was very smart by Heaton/Ross (Leigh), written off when the lines bound in final.

The model was his usual sheet-top-wing design. Its most unusual feature was the provision of two D.T. timers. The D.T. will work off either, this being Tony's insurance against the susceptibility of timers to dust, dirt and the like. Ken's model had a fishing rod fuselage but still managed to look very angular. Straight dihedral on the Davis sectioned wing looks strange to eyes accustomed to the current standardised A/2 layout!

Fourteen qualified for the rubber flyoff — but two didn't make the decisive fourth flight. Alan Armes found that the late flyoff coincided with dinner — whilst Brian Day had lost both his models in strong lift. I did hear an ugly rumour that one person flew a third model despite all recent publicity on this topic. It was apparent that models were going to go a long way and that visibility was going to be critical. In fact Dave White commented afterwards that he and other Northern Area fliers had reckoned that Ray Monks and I were going to win as we had large and easy-to-see models.

This proved to be a remarkably accurate assessment! The first few to flyoff had worse conditions than those found a few minutes later by Ray and myself. We launched within about a minute of each other. Ray's model held its height after the prop folded and was clocked for over 6 minutes. Mine came down on glide and went O.O.S. near the skyline. It was still in sight through big binoculars and proved to have gone about three fields further than Ray's model. He had the right length of D.T. fuse!

Jack Allen placed third after extensive repairs through breaking a motor without a winding tube. No-one else cleared four minutes. Bob Bailey had to use a semi-trimmed reserve. Jon Clements stalled down on glide — and discovered on retrieving that the prop assembly had jettisoned itself in mid-air! As far as I know only Ray Pavaley failed to recover his model. This aspect certainly justified the late flyoff, as lift was certainly sparse even if visibility was still critical. The moral is obvious — don't build underfed (thin) and pale pastel-coloured models!

Monday was very different! It was generally bright and sunny all day except for odd (if heavy) showers. A fair breeze at first soon dropped and became variable in direction. The improvement was such that only my first flight (Wakefield) went outside the airfield. Lift was plentiful and quite easy to detect. The Wakefield event, in fact, brought back memories of Kauhava as it produced the same style of flying and large numbers of maxs.

Wakefield is a new event at the Nationals. Its appearance this year was due to the Norwich Club linking an offer to run Glider with the request to hold a Wakefield event for which they would present a trophy.

The Wakefield event was undoubtedly successful. It was well supported and had more entries than the Trials. This was helped by Open Rubber and Wakefield being on different days of a two day contest. Good weather let most people fly and made for high scores. Two fliers managed perfect scores — Laurie Barr and Mike Dixon, whilst most of the following 8 or 10 did four maxs out of five. The British Wakefield Team did not fare too well — John Mabey losing a model upwards on D.T. for 8 or 9 minutes. Three overseas entries were present in person — Peter Allnutt (Croydon) of Canada (who also flew glider), Bill McCarvey of New Zealand, and A. Tyrer of South Africa.

The contest certainly had an exciting finish. Ray Monks ran short of time and appeared 10-15 mins. before the close with two models to take his 4th and 5th flights. The first model away maxed, but the reserve spiralled in — without damage! There was barely time for another wind up and a quick launch with some opposite side-thrust and less rudder. The trim looked surprisingly good — but it didn't make the 3 minutes.

The flyoff was just as dramatic. Mike Dixon, having lost his first model (with autorudder worked by the propeller stop to give left glide) on the fifth max, used his reserve to record a useful score of 3½ minutes. Laurie Barr broke three motors in succession before managing to get one to stay together. His launch was literally seconds before the organisers signalled "time". The flight was about 2½ minutes for second place.

The **Power** contest was nothing like as impressive — in either numbers or standard. Many of the large entry didn't fly and of those who did only six managed three-threes. The correlation of the downhill trend in interest with the silencer requirement has been drawn by many people — even though other powered classes (e.g. in C/L) do not seem to have suffered equally.

Mention must be made of the event director's insistence on the use of two watches to record the engine run. His simultaneous allowing of a single watch to record the flight was hardly consistent. The new rulebook would appear to require

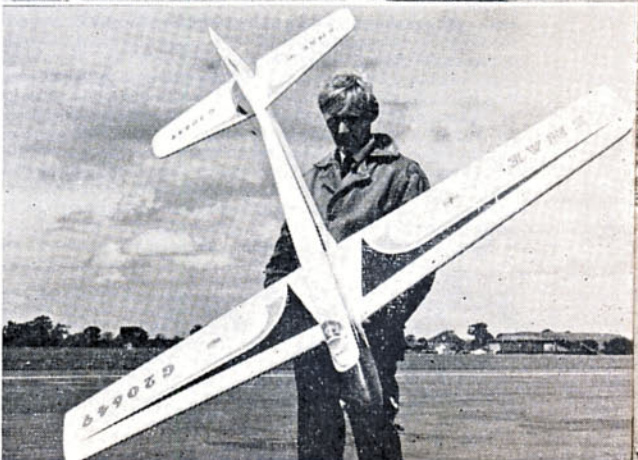
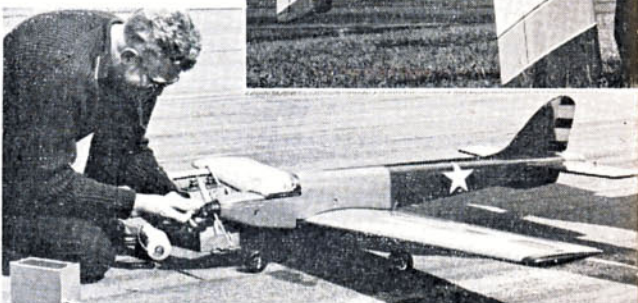
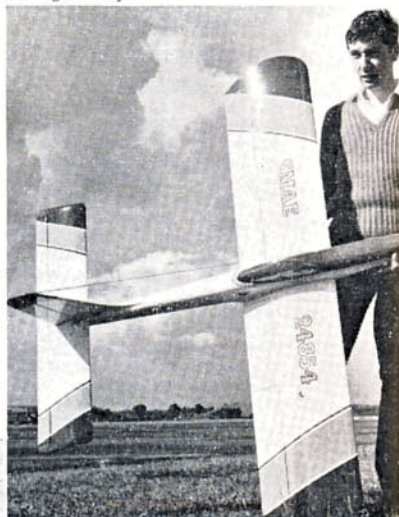
the use of either two split hand watches (hardly ever possessed privately) or else four watches to time a power flight. I need hardly comment how impractical this is.

The flyoff models all had glow motors: — an ETA. 29, a TD.049, and four .15's. Mike Green got his large model away early for a good flight. The Birmingham pair meanwhile walked well upwind before launching. Ray Monk's model failed to get its usual height and the initial glide looked far from promising. However, it worked its way into weak lift to edge Mike Green down to second place, and give Ray a double first to complete what must have been a very satisfying weekend.

Description of the **Ladies' Event** flyoff is rather out of sequence as it actually preceded the other two. It was, in fact, held in advance of the announced time by agreement.

Shirley Horton and Kathy Allen are well known for previous efforts in this contest. The third member of the flyoff trio was a relative newcomer, Mrs. Penny Vincent, flying a KeilKraft "Caprice". Her flyoff chances against the other's open rubber models were not rated very highly by their supporters. Crawley's newsletter even details the "odds" being "offered". What happened wasn't quite on form as by dint of waiting until last and launching into good air (clearly a lot more than just tow and hope) Penny managed to exceed Kath's score and was within striking distance of catching Shirley.

Top, Stewart Foster with Bonner Digimite equipped Thunderstorm. Stewart is now back after a lay off. Very nicely finished model. Centre, Sid Sutherland with prototype KielKraft Intruder foam wing kit design, jet like lines. Bottom, Dennis Hammant with King Spectre, no less than 84 in. wingspan with Kraft K.P.6 and Rossie .60, weight 9½ lb.





... the one that got away

Above, the author in . . . the one that got away, a full size Campbell Benson Gyro-copter.

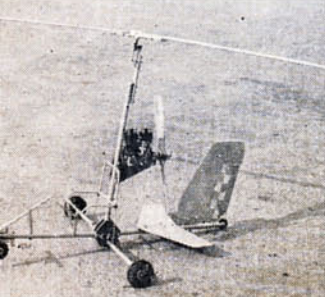
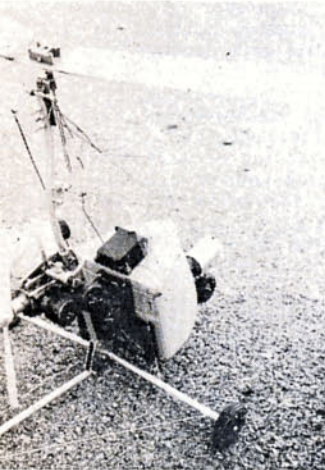
YOU are no doubt wondering what the odd title of this article is supposed to mean. Well, it is intended to signify that I am a modeller who has ostensibly gone "full-size", but somehow is unable to push modelling out of sight altogether.

For many years I have been a keen—no, not keen, obsessed—acromodeller, with a primary interest in radio control for some while now. This is probably the inevitable specialisation for any serious modeller to find himself in, eventually, for the simple reason that with modern radio equipment the controllability and reliability are so satisfactory that there is almost no limit to the subjects which may be tackled, be they scale, functional or, "Good grief! What's Eustace built now?"

In the course of my balsaelectronic wanderings I once took a fit in my head and decided to make a helicopter with radio control. It took all of 10 minutes solid cogitation to resolve that I was not going to

MODEL EXPERIMENTS

The radio control versions proved frustrating to say the least. Top photographs show the second system tried with the 5th set of blades 60 in. diameter with a Taplin Twin, then a Merco .49, both marginal on thrust. Lower left, the first attempt did not fly stably, Taplin Twin and 60 in. rotors suffered a lack of thrust. Lower right, the third version and most successful but still lacking in thrust, no wonder the full size machine needs 72 h.p.! R.C.S. radio used in all versions.



succeed! There were all sorts of references dotted through back issues of British and American modelling magazines concerning R.C. helicopter designs which their creators thought were going to shatter the world! Somehow, the results of the flying tests never did seem to get in the Press. I wondered why, until I saw one much-publicised helicopter model being tested at the Nats. It was a pretty model, a scale model, but not really a "working" model. It moved alright, but work it certainly did not! The builder obviously knew a lot more about gluing and doping than he did about rotary-wing aerodynamics.

by Peter Lovegrove, B.Sc.

Therefore, with cold, clear logic I decided to avoid all such pitfalls, and stick to the autogyro category. Now here was a subject pretty well covered, though admittedly not as radio control projects. But the introduction of control surfaces and a payload could obviously be catered for, without going into the realms of optimistic guess-work.

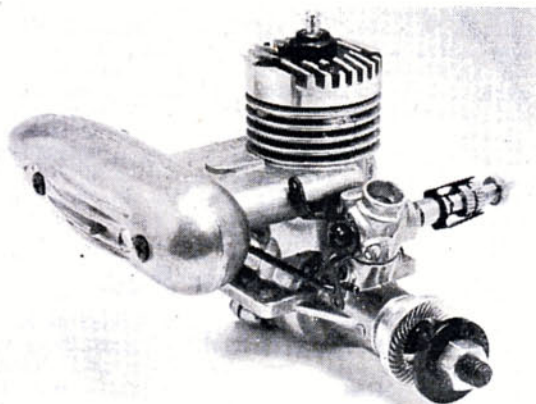
That's what I thought! So, having dispensed with the primary details, I had to choose the final subject. Leaving a friend, John Ralph, to make a mere rudder-only R.C. autogyro out of the A.P.S. *Skeeter* design, I set out to make a multi-channel version of the *Bensen gyro-copter*. No doubt you've guessed the outcome; John's model proved difficult enough and mine proved just about impossible.

Seven hundred and twenty-eight cups of coffee later, and after reading the *T.V. Times* from cover to cover, I knew the answer. Obvious, when you consider it. Build the full-size one first. If, for instance, people would only knock out a Bucker Jungmeister full-size first of all, they would not have those puzzling moments about the elevator trim on the model version and so on. That's just one example, but now I have breathed the subtle secrets, I suppose everyone will get in on the act.

Anyway, to revert to my own project; I bought a mass of aluminium tubing, bits of steel angle, some cable marine ply and a flock of nuts and bolts from Campbell aircraft and away I went—feet first, you might say. I scrounged some heavy timber from a friend and made my trestle on which to build the blades. A *Campbell-Bensen gyrocopter* uses a two-blade rotor constructed from marine plywood with a steel spar and beech leading edge. The main rotor structure is glued together first and the other parts screwed and bolted to it. My son Paul and I went into exile for a weekend, after which we had two rough-shaped blades and backache!

We then tackled the airframe which did not present any real problems. The only tools we used were ordinary files, handsaws and a 5/16 in. electric drill. The rotor-head unit was fitted as a single item, bought ready-made because no drawings can be obtained to permit it to be home-constructed. The whole aircraft, including the blades, took about 150-160 hours to build.

Anyway, came the day for final assembly and colour-spraying. This was done and the machine towed to Bucklebury for storage in Geoff Whatley's little hangar. This man is a fantastic person. Undaunted by the loss of his right hand he wades into any construction job without a second thought. I am sure his enthusiasm, ability and unstinting kindness have been a spur to me. He flies fixed-wing aircraft, gyro-gliders and gyro-copters, trains people to fly gyros, test-flies new gyro-copters and a host of other things. Under his skilled surveillance I am learning to fly my whirly-bird with great success. And at last I know what was wrong with my models; the only thing I do not know is what the heck to do about it.



Engine Test

By Peter Chinn

O.S. MAX-10R/C

Very useful 1.76cc. engine with characteristics of bigger units

THERE have been few serious attempts, in Britain or the U.S., to produce pukka R/C engines in the under 2½ c.c. capacities. It can be argued that the majority of small single-channel models are built merely as rudder-only machines and that there is no point in producing a 1½ cc. engine with effective throttle control if the throttle is seldom going to be used. Presumably this is the reason why, for example, our largest manufacturer of small engines does not include among them a single R/C motor.

The position is a little different in Japan where single-channel systems commonly include much more than just rudder control and where throttle control is added as a matter of course. With single-channel servos replacing escapements and the availability of three position throttle servos (giving slow, medium and fast positions instead of the earlier fast and slow set-up) the small motor possessing a throttle performance comparable with that of large engines, now has a place in the scheme of things.

Such an engine is the O.S. Max-10 R/C. In size and weight this motor comes in the popular 1.5 c.c.—.099 cu. in. group, but, in general design and construction, it is more closely related to larger designs and to the 5 cc. O.S. Max-S 30 R/C engine in particular. Like the S.30, it is a loop-scavenged shaft-valve motor with a one-piece body casting, drop-in cylinder liner and a barrel type carburettor with jet feeding into the centre of the barrel. Construction and finish, generally, are to higher standards than one usually finds with "beginner" type small engines and, in consequence, the price of the engine, while quite competitive, is a little higher than those of the simpler O.S. Pet 09 R/C and other low-priced small motors.

The Max-10 uses a hardened, counterbalanced crankshaft having a 9 mm. (.354 in.) dia. journal (large for an engine of this size) and a generous, 6.5 mm. dia., gas passage. A rectangular valve port registers with a parallel sided intake aperture, in the cast-in phosphor bronze main bearing, to give a 40 deg. ABDC to 45 deg. ATDC valve timing. The cylinder liner, finely finished both inside and out, is closely fitted to the cylinder casting and is located in the usual way by a flange at the top. The piston is of Meehanite cast-iron with a flat crown and filleted baffle. It is coupled to a machined connecting-rod of 24.ST3 duralumin by a 3.5 mm. dia. hardened tubular gudgeon-pin, which is fully floating, with brass pads. Designed cylinder port opening periods are 125 deg. exhaust and 105 deg. transfer. These

were checked correct to within one degree on our test sample. The cylinder head is of diecast and machined aluminium alloy and has a hemispherical combustion space interrupted by a slot for piston baffle clearance. The head is recessed for a 15 thou. soft aluminium gasket and is secured with five screws.

On first acquaintance with the Max-10 R/C, we were sorry to see that the airbleed control featured on all other Max R/C engines had been omitted from the Max-10 carburettor. In practice, however, it was quickly found that, on the Max-10, this lack of a means of adjusting low speed mixture strength was not disadvantageous since the engine idled as well as, if not better than, any other R/C engine of similar size. Although the carburettor casing appears to have been originally intended for an idle-stop screw, this is not fitted to the production model and the low-speed position of the throttle, therefore, has to be set by servo linkage arm adjustment or by adjusting the position of the throttle arm on the throttle barrel. Actually, the absence of a stop is regretted only when one is bench testing the motor.

In all other respects, the carburettor resembles those of the larger O.S. R/C engines, including the well fitted ground throttle barrel with, feeding into its centre, a jet that is adjustable so that choke area may be varied for more suction and less power—or vice versa. The needle-valve and tee-fitting fuel inlet are on the left hand side of the engine and do not interfere with the movement, on the opposite side, of the throttle arm. This latter is coupled to a centrally pivoted exhaust blanking plate which, however, will normally be discarded in favour of a silencer. The standard O.S. Jetstream Type "S" silencer fits the engine.



Performance

Our tests on the Max-10 R/C were carried out with the Type "S" silencer fitted, including the 1/2-inch extension adaptor and rear nozzle ring. We found the Max-10 extremely easy to handle. It would start from cold equally well with the throttle open or in the idling position and, usually, after merely choking the intake for three or four preliminary turns of the prop. Warm, closed-throttle restarts were practically instantaneous and, with the tank in the correct position and the fuel line full, without choking or priming. Running-in, as such, was not really necessary. Naturally, we exercised some caution at first, but it was quickly established, after a few minutes running, that the Max-10 was quite free from any tendency to overheat and tighten up.

Typical prop speeds achieved with the Max-10 R/C included 7,900 r.p.m. on a 9 x 4 Top-Flite nylon, 10,000 on an 8 x 4 Tornado nylon, 11,100 on an 8 x 4 Power-Prop wood, 11,900 on a 7 x 4 Tornado nylon and (rather too fast for best performance) 14,200 on a 7 x 3 Trucut wood. On the 8 x 4's the Max-10 idled consistently at 2,500 r.p.m., which is extremely good for an engine of this size, and also had a useful "inbetween" range of speeds.

Maximum power developed by the Max-10 R/C on test was, as our performance graph shows, just over 0.14 b.h.p. at slightly below 14,000 r.p.m. This is quite good for an engine of this size running on 5 per cent nitro fuel and with silencer fitted. We also tried the engine on more powerful fuels. These improved maximum torque but did not make a really worthwhile improvement to top-end power and we would regard standard, lower-priced mixtures as quite adequate for this motor. We also checked the power loss caused by the silencer and found this to be very small—only about 5 per cent in fact. This is due, no doubt, to the relatively generous volume of the Jetstream Type "S" silencer (originally designed for the O.S. 15 and 19) when fitted to the Max-10.

In all, we would rate the Max-10 R/C high among currently available small R/C engines and well worth the attention of the modeller who aspires to a better standard of engine performance for small R/C models.

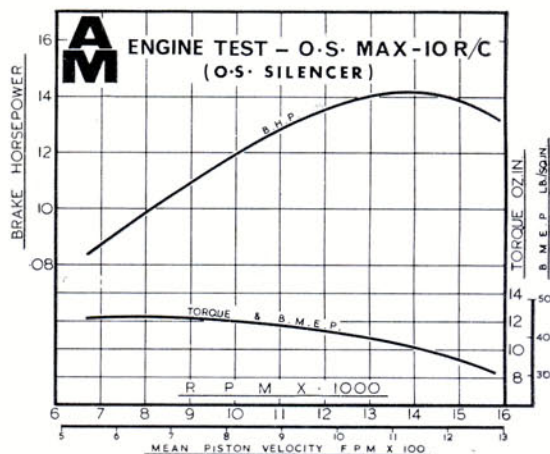
Power/Weight Ratio as tested with silencer): 0.60 b.h.p./lb.

Specific Output (as tested with silencer): 81 b.h.p./litre.

Heading photo on opposite page shows the Max-10 R/C with the O.S. Jetstream Type R/C-S silencer fitted.

FULL SIZE MOUNTING POSITION AND SIDE VIEW

At left parts of the Max-10 R/C are well finished and accurately fitted. Motor's design and construction follows larger engine practice.



SPECIFICATION

Type: Single cylinder, air cooled loop-scavenged two-stroke cycle, glowplug ignition. Crankshaft type rotary-valve induction. Bronze bushed main bearing.

Bore: 13.4mm. (0.5276 in.) **Stroke:** 12.4mm. (0.4882 in.)

Swept Volume: 1.749 cc. (0.1067 cu. in.)

Stroke/Bore Ratio: 0.925:1

Weight: 3.2oz. (3.8oz. with Type S silencer).

General Structural Data

Pressure diecast aluminium alloy crankcase/cylinder-block/front-housing unit with cast-in phosphor-bronze main bearing and drop-in unhardened steel cylinder-liner. Detachable p.d.c. aluminium alloy crankcase backplate secured with four screws. Case-hardened steel counterbalanced crankshaft with 9 mm. dia journal, 6.5 mm. bore gas passage and 4 mm. hollow crank-pin. Lapped Meehanite piston with baffle and case-hardened 3.5 mm. tubular-gudgeon-pin with brass pads. Machined high-duty duralumin connecting-rod. Pressure die-cast aluminium alloy cylinder-head with machined joint face, recessed 0.4 mm soft aluminium gasket and secured with five screws. Machined duralumin prop driver. Pressure diecast aluminium alloy carburettor body seating on rubber grommet in intake boss and secured with two screws. Ground brass throttle barrel in honed bearing surface in carburettor body. Plated brass needle-valve assembly. Beam mounting lugs.

TEST CONDITIONS

Running time prior to test: 1 hour.

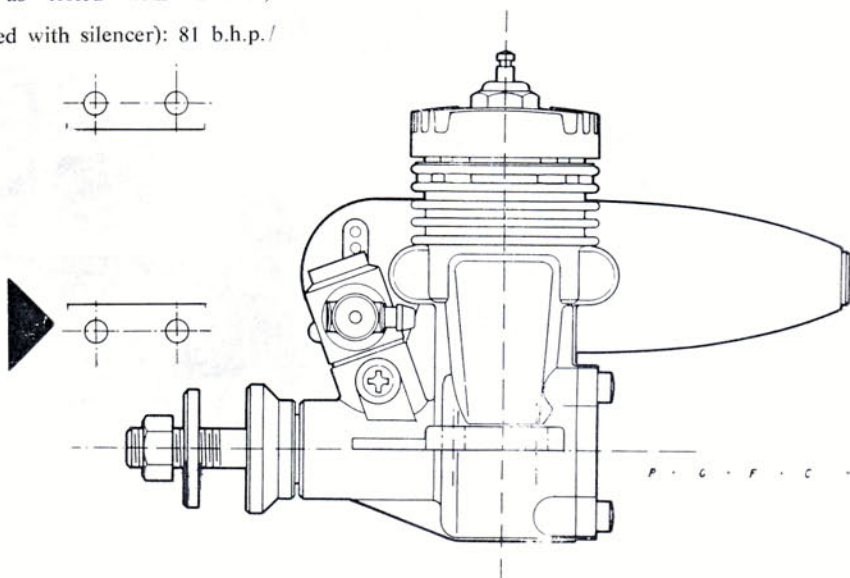
Fuel used: 5 per cent nitromethane, 25 per cent Duckhams Racing Castor-oil, 70 per cent I.C.I. Methanol.

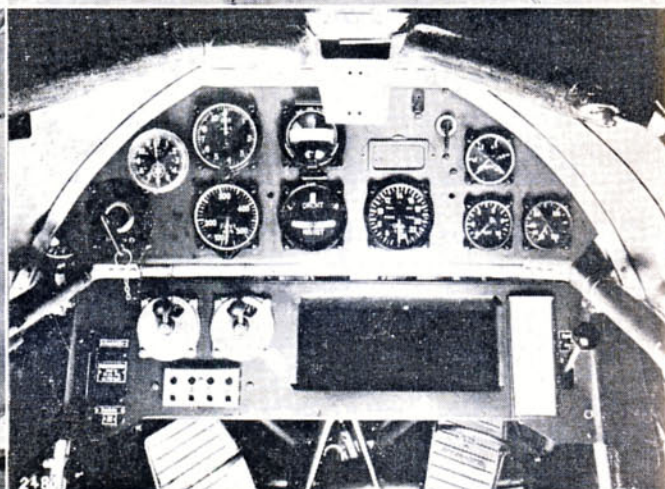
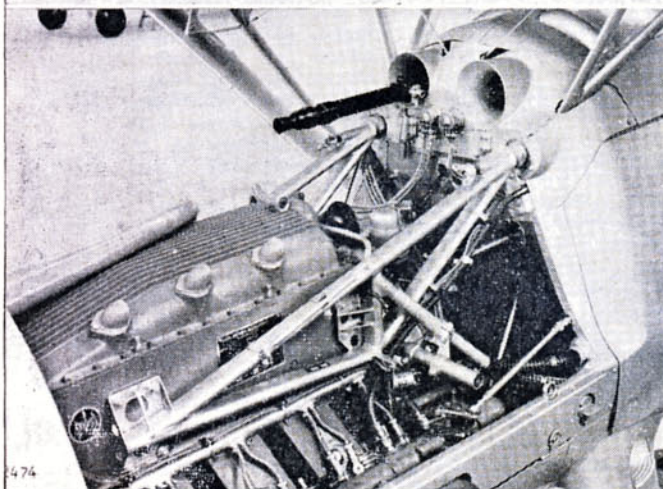
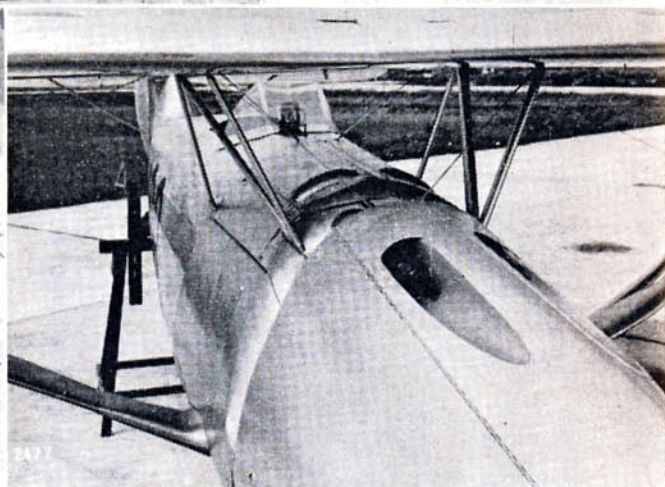
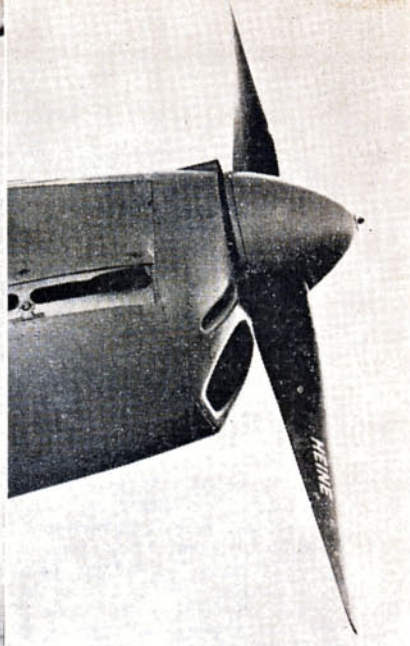
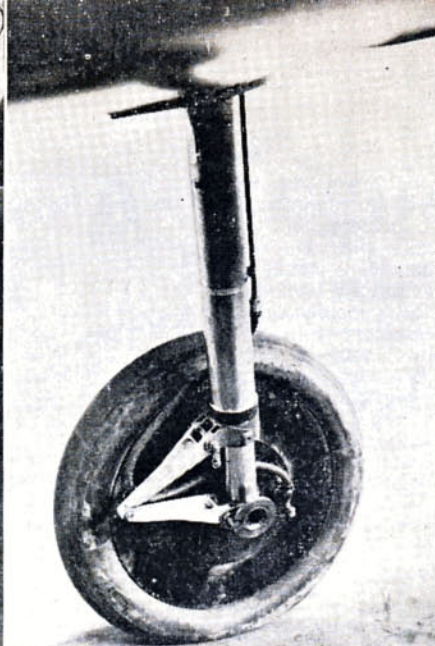
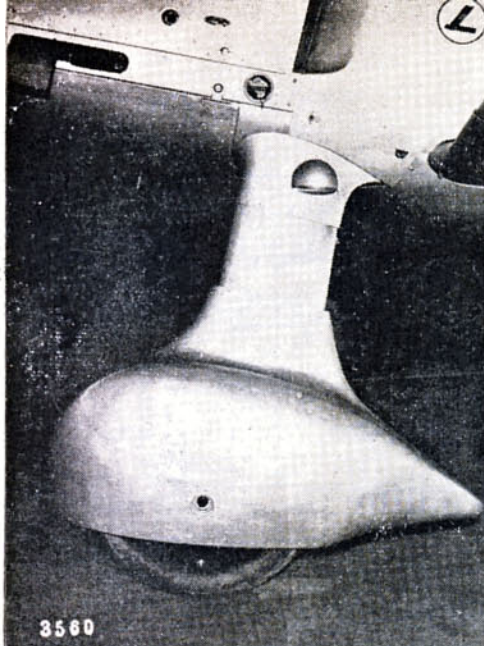
Glowplug used: O.S. No. 7 bar type, platinum filament, 1.5 volt medium (3/16 in.) reach.

Air temperature: 58 deg. F.

Barometer: 29.8 in. Hg.

Silencer Type: O.S. Jetstream Type S.



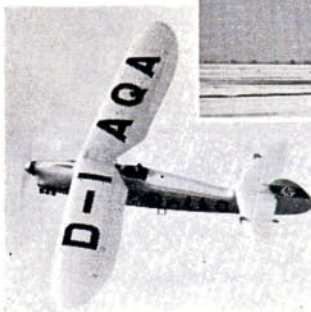


AIRCRAFT DESCRIBED No. 165

Focke-Wulf Fw56 Stosser

drawn by Ian Stair

The first in our new series of subjects specially selected for scaling up as flying models.



D-IKNI with identification lettering on the nose was flown in the U.S.A. under the sponsorship of The Gilmore Oil Company by Gerd Achgelis. It was distinguished by additional small windows for illumination of the instruments during prolonged inverted flight. Seen at the famous Cleveland Air Races this Stosser was an extremely popular performer. D-IAQA shows its planform in a turn at left, note the prominence of the three exhaust stacks.

THIS parasol wing single seater was a unique type when it appeared in 1937. It was the first Kurt Tank design for Focke-Wulf, it was unusual in being a single seat fighter trainer, and it was also the first "Stuka" aircraft. This arose from a visit by W.W.I German Ace Ernst Udet to the U.S.A. where he was impressed by the accuracy of dive bombers. On return to Germany, Udet asked Tank to fit bomb racks to the Stosser and demonstrated the dive technique at the Luftwaffe test centre. The result of this was the order for an all metal machine, the Junkers 87, and the mixed construction Stosser was virtually relegated. While the fuselage and fin were of welded steel tube, covered with fabric, the flying surfaces were of wooden construction and this, coupled with the comparatively low power of the 240 h.p. Aircooled Argus 10C engine, was not considered "good enough"!

Even so, the Stosser was built in large numbers and remained in service for several years. Armed with one or two M.G.17 machine guns as a fighter trainer it was also fully aerobatic and a great favourite with pilots.

Opposite, top row left, the spatted wheel of a prototype and centre, the cantilever leg and torque link of the prototype which was changed to lever action (see plan) to avoid a Patent action. Right, the nose cowl and Heine propeller. Second row, left, the cockpit with starboard access flap down to show control column. Note the gun sight also seen in view at right, where gun troughs and cowling lines are usefully revealed. Third row illustrates the air cooled engine crankcase, engine bearers and gun with cowling shaped to deflect cooling air from engine bay. The Cockpit had a comprehensive array for 1937 when most of these photos were taken. Top row is Clock, Altimeter, Compass, deviation card and fuel pressure gauge. Lower row is ignition switch, Airspeed, Turn and Bank, RPM Oil pressure, Oil Temperature. Twin controls below are for radio, beside cubby hole for maps. At extreme right is a wobble pump for fuel and angled rudder pedals can just be observed. Bottom photos show comparison of a silver with red trim and black lettered RLM Flugbereitschaft liaison aircraft D-IGIR production version, and D-IKA the second prototype with spatted wheels. Photographs from VFW and archives of H. J. Meier.

The first prototype was registered D-JSOT and was generally remembered as the best looking Stosser with its cantilever undercarriage and spatted wheels. Unfortunately it was crashed on a demonstration flight, killing test pilot Siewecke. Patent difficulties over the undercarriage called for a revision and so the lever action gear was developed.

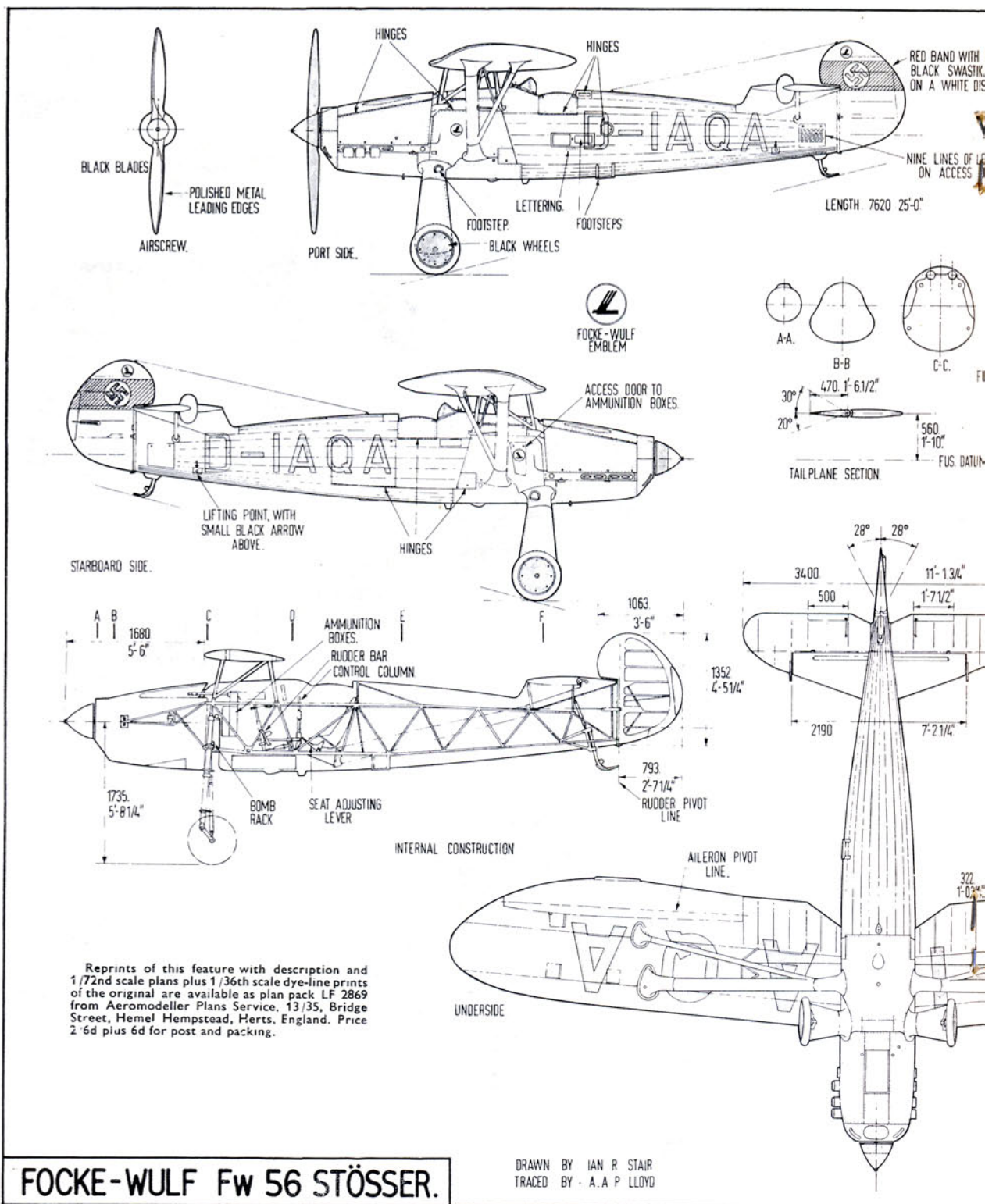
It was a very "clean" aeroplane, usually appearing in silver, at first with civilian registrations and the red band across the vertical tail. This was altered for one publicity photograph where the National black cross was added either side of the civilian markings on the wings and white numerals on a red background blotted out the middle pair of fuselage registration letters. In wartime service, the green/dark green camouflage and light blue undersurfaces changed its characteristic appearance enormously.

The FW 56 also served with the Air Forces of Austria, Hungary, Bulgaria, Bolivia and Holland, but strangely enough, very few photographs have ever been published of the Stosser in other than German markings.

Pre-war sales brochures advertised a maximum speed of 177 m.p.h. at sea level and 156 m.p.h. at 16,400 ft. Landing speed was only 55 m.p.h. and the range approximately 250 miles. Stressed to a breaking load factor of 14, it could carry a disposable load of half its empty weight (amounting to 705 lbs.) and with such utility it was perhaps a forerunner of the all-purpose trainer cum fighter attack type of today as exemplified by the Macchi m.b. 326 and the Jet Provost, except that they are each two seaters. Perhaps the greatest handicap the Stosser had to overcome was its single seat.

As a modelling subject it has always enjoyed popularity for it has all the ideal proportions, especially for free flight. We must thank Hans-Justus Meier for making available his invaluable documentation on the aeroplane which has enabled Ian Stair to produce the precise details in the drawing which follows on the next pages.

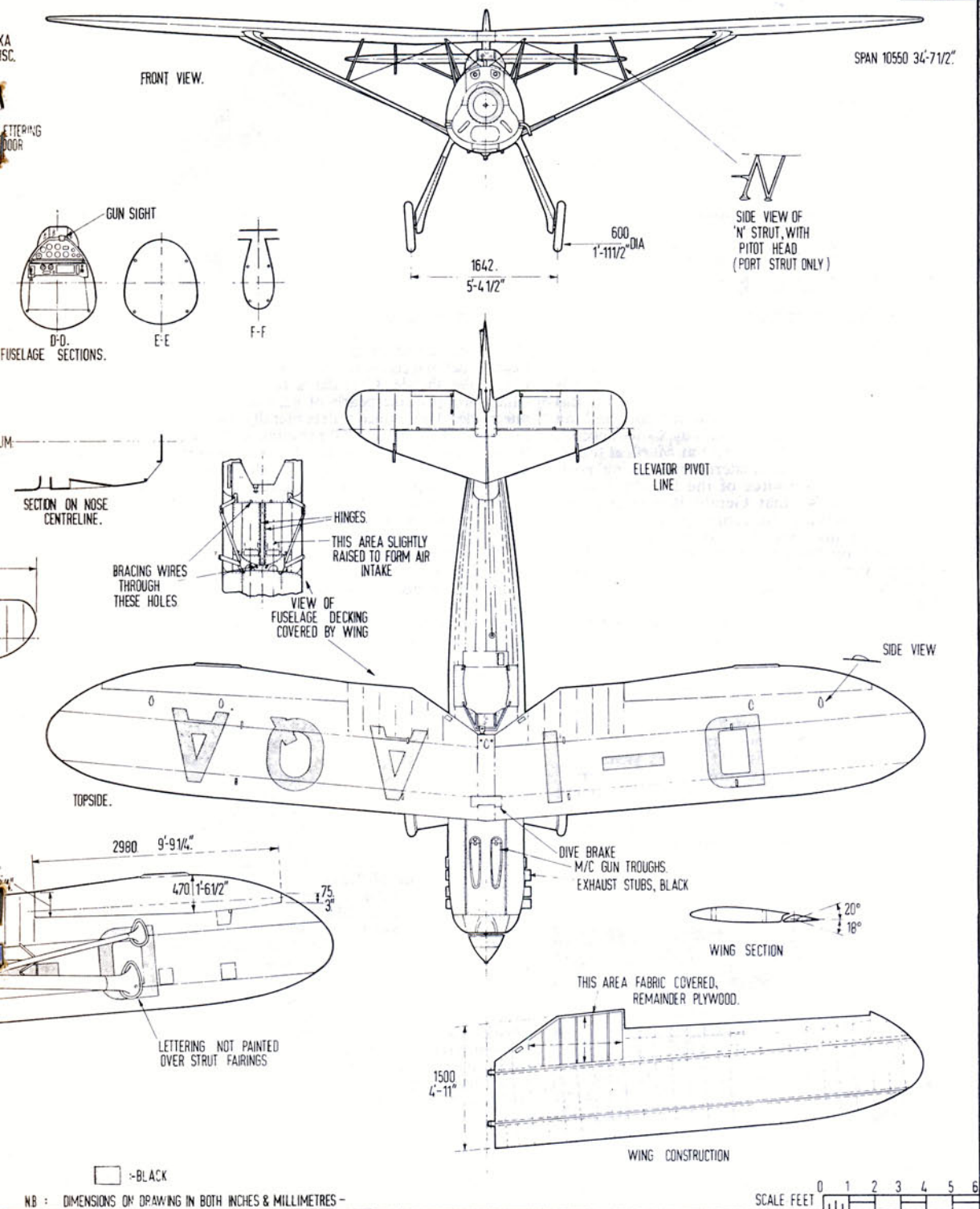
First in a series of aircraft subjects specially selected for suitability a



Reprints of this feature with description and 1/72nd scale plans plus 1/36th scale dye-line prints of the original are available as plan pack LF 2869 from Aeromodeller Plans Service, 13/35, Bridge Street, Hemel Hempstead, Herts, England. Price 2'6d plus 6d for post and packing.

FOCKE-WULF Fw 56 STÖSSER.

DRAWN BY IAN R STAIR
 TRACED BY A. A. P LLOYD



NEXT MONTH: *World's finest aerobatic aircraft, 16 YAK-18 PM*



THE
HOME OF



Britfix HUMBROL

The north bank of the River Humber has always been associated with the paint industry but it has taken many years for that fact to register in the minds of most householders. Expansion of one company has introduced this geographical identification and an aeromodeller's enthusiasm was the key to its success, currently reflected in the large plant at Marfleet today.

We need to recall those austere yet exciting post-war years to reach the source of the Humbrol story, for it was then, in '47 that Gerald Barton returned from his Army service. In common with so many others he found his modelling supplies, like food, petrol and coal, on "ration". Cam Morgan, the Hull Model Shop, suggested to this son of a packaging expert that he made his own cement. So he did—and he called it *Britfix!*

Established in the early twenties, Douglas Barton's Humber Oil Co. had specialised in small packs of material for the handyman and cyclist. Carbides, lubricants, repair outfits and paints established a tradition for stock in trade that remains their speciality. It was only natural that the keen and enthusiastic son should produce his own formulae for shrinking dopes and cement and with the model trade hard pressed to meet the booming demands of twenty years ago, wholesalers accepted the new product with alacrity.

From humble beginnings to the spacious modern establishment is a big step and we were recently lucky enough to see what goes on behind the scenes and to discover the complex processes which produce our staple modelling diet.

At first impression, it is the **SIZE** of the business that really challenges one's imagination. The large frontage

of Humbrol, with attractive garden surround and huge loading bay which we see in the Company advertisement is no false facade. Consider a few of the simple facts which dropped like pearls of hard earned wisdom from our guide. Half ounce tinlets literally pour off the filling machines at the rate of 300 per minute. On one automatic filling line we saw half ounce tubes of cement jerk and pop their way to conveyors and individual cartons at 3,000 per hour. Dopes are mixed in 100 gallon lots. Every single batch is tested, logged and filed on its testpiece for future reference and nothing—absolutely nothing—is left to guesswork or chance.

This sort of standard does not come about easily and we would be the last to say that the team of Humbrol experts settle back in smug confidence of a superlative product from infallible machinery. Far from it! The well equipped laboratory is constantly at work on research, product comparison and development of new formulae. A whole book could probably be written on the subject of camouflage enamels alone, and the story is nowhere near complete as yet—we expect some big news from Humbrol on this in a few weeks' time.

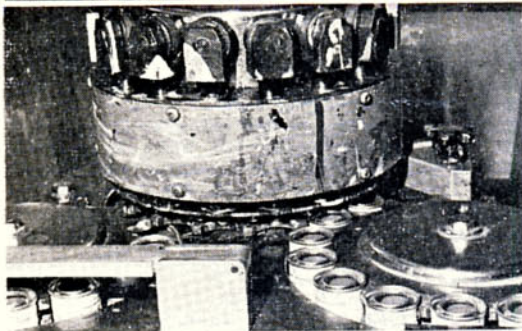
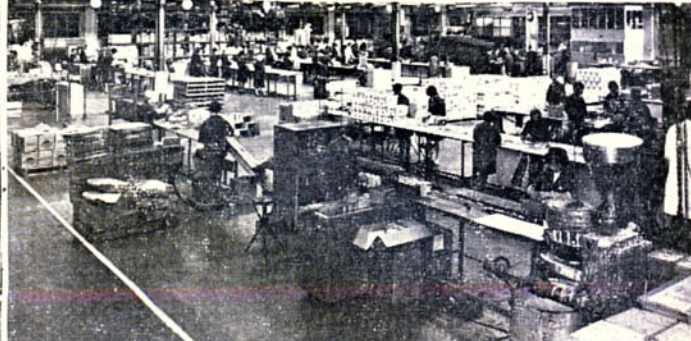
To enter this most interesting side of the modelling trade one has to pick up a new jargon, most of it centred about the term "pugging". This is the process of compounding pigments in a huge tub or "pug". Up to seven pigments may be called for in any colour. Some are common to all. Each used is the best available and the sources appear to be world wide. We looked at a typical colour paint formula. It was for seven components mixed together by weight in ratios ranging from 6lb. to 182 lb. 7 oz. One of the components was already made up of eight different solvents so that the actual formula is as complex as one could imagine.

The Pigments are first ground together with a small amount of resin and solvent. This might be in a rotary pugging device. Then the mixture is pressed through a universal grinder—not unlike a gigantic washing machine. Yet more components are added, more resin, anti-skinning, anti-settling or driers, perhaps diluents or plasticisers and eventually the enormous, very heavy vat content takes on the consistency, colour and quality determined by the Lab. tests

If this mixing appears to be involved, consider the packaging into small units, especially the Aerosols which have increasing popularity. Few of us know what goes on inside the pressure container except to realise that it isn't all paint! In fact it is mixture of enamel and prop-

Top left, fleet of Humbrol Mini-Vans as used for an earlier distribution scheme. Right, Sales Director Victor Duffill and Managing Director Gerald Barton confer over new packaging. Modelling experience counts for a lot with their skilled leadership. Sign of Humbrol's widespread sales is the photo at left, taken while this feature was being prepared and showing V. Duffill in Tokyo, Japan, at a model shop where Humbrol (and Airfix) have prominent display.





INSIDE THE WORKS Top left: the huge mixing area with "pugs" of various dopes and paints awaiting process. Top right, atmosphere of cheerfulness personified by this worker in congenial, clean surroundings. Immediately above a small section of the packaging area where cement tubes and tinlets are filled.

PACKAGING at left, top to bottom, Cement tubes are fed into rotary filler, crimped and "popped" into a chute (note one airborne!) Next, ½ oz. tinlets by the thousand flow through channels to 32 head fillers and are capped. Next is the Aerosol canning, gas being injected for purging and pressurising. Bottom, is what's inside an Aerosol, the clay balls are agitators.

ellent gas plus a couple of china clay balls. (Interesting to note these are unequal in size to give best mixing when the can is shaken). To get this can to a sealed state involves a whole production line. First the empty can is purged not once, but twice with jets of propellant gas. Still open at the neck it receives the product whatever it may be, dope or enamel, then with quick timing the valve is positioned in crimp sealed with a propellant gas added and the loaded can check weighed. As they pass along a rapid conveyor the cans are immersed in hot water for leak tests, dried, code stamped for batch identity and colour, then labelled and packed with a tamper proof shield to prevent wastage before sale.

Complicated? Yes it is, but nothing to the machinery that gobbles up the tinlets for which Humbrol are World famous and which remain a speciality of techniques best known to the fine family business. For it is in the field of small tinlets that the name of Humbrol is truly International. Over eighty countries import the Marfleet factory products and almost every scale plastic maker in the World is an established user.

The company has many other items in its catalogues that have yet to find their way to all model shop shelves. We were not personally aware of the Fluorescent paints for example (five colours), and our specialisation in the aeromodelling field tends to blinker our observation of car racing, or railway colours in authentic tones, Boddy Putty, Expanded Polystyrene cement, Epoxy adhesive, Contact adhesive and even a Plastic Repair kit for PVC are also part of a comprehensive range which we take for granted but which emanate from one of the most interesting factories it has been our pleasure to visit. Much lesser known to the general public is the production of Industrial finishes for a wide and varied range of products from Caravans to toothpaste tubes.

GRMZPF

A 36 inch wingspan control line
Rat Racer for 5 - 6.6cc engines



Designed and developed in the U.S.A. by Don Burke

A LONG scientific dissertation could be written on the methods used to arrive at the design of GRMZPF (pronounced Grim-Zipf) However suffice it to say that it was evolved over a period of 8 years through the method of 95% trial and error and 5% brain power. Through most of the process it's worked on the premise that "if it looks good, it'll fly!" This, coupled with some disastrous experiences with 80sq.in. bricks and some success with F. A. I. Team Racers, has allowed me to evolve a configuration that even the most inexperienced pilot can handle and look like a veteran.

I have built nine of this basic design airplane, changing only the wing and horizontal tailplane area to date. All, with one exception, were excellent flying models and have drawn praise from everyone who has flown them as well as piling up an exceptional record. The best performance to date was a 5:21 in a 140 lap race turned in by Dan Jones and Bernie Tautz at a contest near Bakersfield, California, this past summer. Someone once said, "it's what's up front that counts", and as far as the K&B .40 is concerned it has more power, right out of the box, than anyone has ever seen in this type of engine before.

Start construction with the hardwood parts, cut to length, mark the centre and taper the $\frac{3}{8}$ in. sq. main wing spar and $\frac{3}{8}$ by $\frac{1}{4}$ in. leading edge to $\frac{1}{8}$ in. thickness at the tips from a point 2 in. each side of centre on what will be the top surface of the wing. Cut two pieces of $\frac{1}{16}$ in. plywood $\frac{3}{8}$ in. wide and 4 in. long for the spar doublers. Bevel the ends as shown in the top view and clamp and glue to the spar with Araldite. Cut the $\frac{3}{8}$ in. by $\frac{1}{2}$ in. engine bearers to shape, along with the crutch sides, cross member, and $\frac{1}{8}$ in. plywood crutch doubler. Pin the bearer to the top view, glue a 1- $\frac{5}{16}$ in. wide by 1 in. long by $\frac{1}{2}$ in. thick hardwood block between them at the front, the crutch sides and cross-member to the rear, followed by the crutch doubler.

Assuming the wing spar is set up, notch the centre for bellcrank clearance and notch the $\frac{3}{8}$ in. hard balsa sheets to be glued to it front and rear to clear the doublers and glue these together on a flat surface. When dry cut to outline shape and add the leading edge.

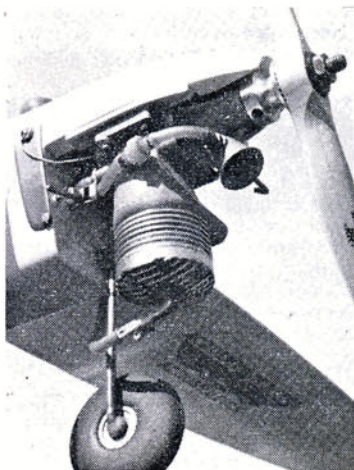
Cut F-1, F-2 and the engine bearer doublers to the shape shown and start thinking about your fuel tank. The tank is built into the model and must be installed shortly. If fabricating a tank is too much bother use a Veco T-32, 2 $\frac{1}{2}$ ounce tank modified to the tubing configuration shown. Remove the crutch assembly from the plan, turn it over, and glue the $\frac{1}{16}$ in. plywood bearer doublers in place. Be sure to have the landing gear attachment nuts in place, then slide F-1 over the fuel and pressure lines and into the crutch, also glue F-2 behind the tank. When these parts are installed, the shut-off trip wire tube may be positioned alongside the $\frac{1}{16}$ in. doubler and through F-1. Allow it to protrude at least $\frac{1}{8}$ in. to keep glue or finish from plugging it up.

Cut the tailplane and elevator outline from $\frac{1}{16}$ in. med. sheet, do not cut apart at this time. Mark the centreline of the leading and trailing edges on the edges of the sheets. Sand to a symmetrical section, leaving the bottom flat where it will mate to the crutch for incidence alignment. Finish sand the tailplane and elevator then lightly mark the hinge line and cut apart. Round the edges of the hinge line except for the fairing area in the centre which will be attached to the tailplane. Install a small Veco control horn inletting into the leading edge of the elevator. Cut clearance grooves for the horn motion into both sides of the hinge line in the centre and gouge the fairing along the hinge line out to the inboard edges of the elevator for freedom of motion after assembly. Apply the first coat of polyester resin on the stab and elevator along with light weight (1oz./sq. yd.) glassfibre cloth for reinforcement at the points shown on the plans.

Tack glue the top and bottom sheets, nose block, pod fairing block, sides and bottom, and $\frac{1}{16}$ in. plywood rudder to the crutch bearer assembly for shaping the exterior of the fuselage. Again personal preference dictates doing it this way. I find it easier to get pleasing lines and contours on the fuselage without the wing and stab in the way. When this is done remove the parts from the crutch prior to installation of the wing and tailplane and controls.

To shape the wing to the proper airfoil sections mark a line $\frac{1}{16}$ in. up from the lower surface of the wing along the leading edge as a datum line. Carve the wing, using a razor plane, to a flat bottom section with $\frac{1}{2}$ in. to $\frac{3}{4}$ in. thick trailing edge and a slight curve at the leading edge to meet the datum line. This gives an airfoil with approximately 1° positive incidence at the centre section.

When the airfoil shaping is completed, cut out enough of the centre section for bellcrank movement and install the modified Veco 2 in. bellcrank. Gouge the lower surface of the wing for the leadouts. Install the brass tubing guides and cap with balsa. When the bellcrank is installed it should have a 6 in. long piece of push rod wire attached. This will be bound and soldered to a sufficiently long



Nose close up shows K & B 40 front induction installation in 'Grmpzpf'. Note Rev Up 8x9 Ser. 200 propeller, fuel shut-off on rear of engine. The large section Veco streamlined tyre and hot glove contacts on side of fuselage wired to engine are essential gear. Large tyre absorbs more punishment.

piece from the control horn to complete the pushrod and allow final adjustment of the bellcrank movement for equal deflection of the elevators.

You are now ready to join the wing and tailplane to the crutch. *Much of the success of your model will depend on how accurately this step is achieved.* With a large flat surface available, block up the crutch assembly so that it is supported rigidly. Make sure it is parallel to the board both spanwise and lengthwise above the surface. Apply glue, preferably epoxy, to the wing-to-crutch mating area of both pieces. Attach the wing to the crutch in such a manner that the wing centreline is parallel to and in line with the crutch centreline; and the wing tips are equally distant above the working surface. Align and glue the tailplane in the same manner after attaching a length of $\frac{1}{8}$ in. diameter piano wire to the horn for the purpose noted previously. Make the tailskid and mount and shut-off for later installation.

When the wing-tailplane-crutch joint is thoroughly dry, solder the pushrod pieces together to give equal movement (at least 25° each way). Install a piece of piano wire in the shut-off wire tube, bend as shown and bind and solder to the pushrod. Leave the end of the shut-off trip wire protruding through the F-1 long for trimming later.

Locate the engine in the crutch and drill the mounting holes and install blind mounting nuts or nut plates as shown. Make the engine mount wear plate from $\frac{1}{16}$ in. aluminium sheet for installation between the engine and bearers.

The shut-off should be attached to the engine and the trip wire trimmed to length so that it will actuate the shut-off on a quick jerk of the down line.

Once you are satisfied that the controls and shut-off are working properly, glue the pieces on to complete the fuselage, install the tailskid assembly, the wing and tailplane fillets, and finish sand the entire airplane.

I use a light weight grade of fibreglass cloth applied

GRMZPF is clean of line as its F.A.I. team racer basis shows here



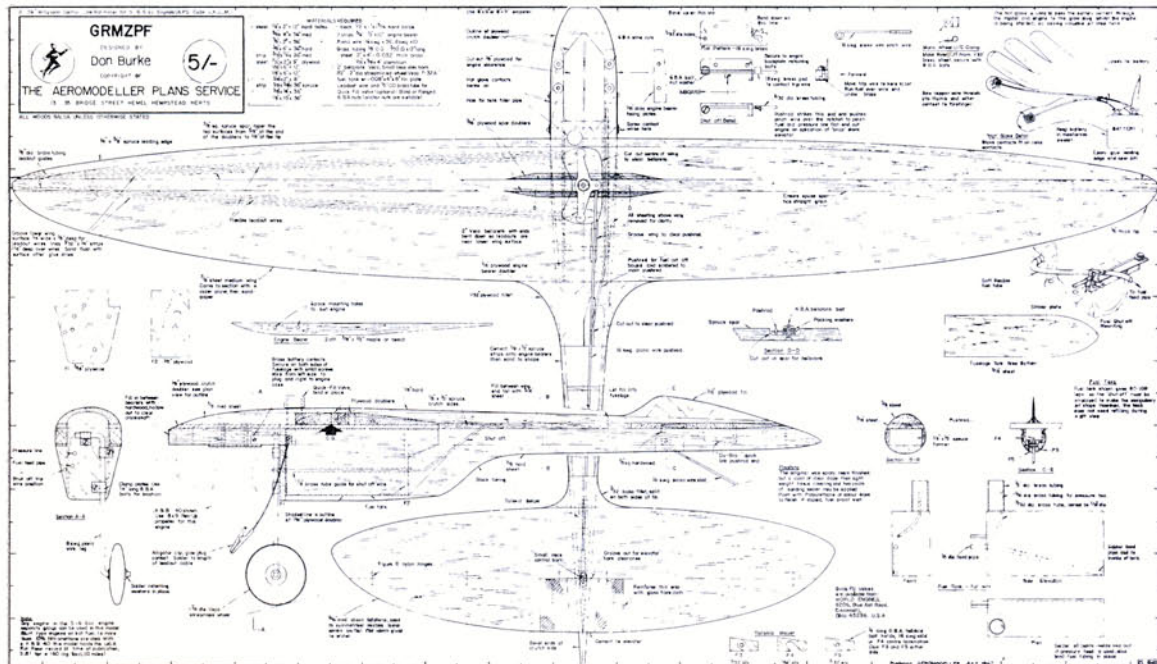
with the first coat of resin over the entire nose and wing to fuselage joint, around the edges of the firewall, and beneath the tailplane around the tailskid area.

Install the landing gear assembly, tailskid, glo-plug contacts, engine and tank filling fitting (Fast-Fill, etc.) and you are ready for the first flight.

For flying, use K & B Supersonic 1000 fuel or 20% castor oil, 25% nitro, and 55% methanol, and 8-9 Rev-up 200 series prop, K & B plug and .014 diameter 60 foot lines (solid lines).

About the flying, takeoff with neutral elevator. If you use "up" you will find yourself staring at the crankshaft of a rather fast moving 40! A word on pitting—The shut-off is shown with a hole big enough for both the fuel feed and pressure line going through. Only the fuel line need go through but experience has shown that you may flood the engine if you fill the tank with the shut-off tripped and the pressure line not through it. The $\frac{1}{16}$ in. tubing in the tank is positioned so the "fast-fill" will normally seal off the line when filling takes place, but it only takes once. We generally pit with the shut-off open thus any excess pressure in the tank will force fuel through the feed line and this will then dribble out of the venturi onto the ground.

FULL SIZE COPIES OF THIS 1/6th SCALE REPRODUCTION ARE AVAILABLE FROM A.P.S. PRICE 5/- PLUS 6d POST. QUOTE PLAN NUMBER CL 940 WHEN ORDERING.





Are you between 10 and 16 years of age? Then don't delay, join today

Dear Sir,
I am building a Jetco Cessna 170 kit for a Cox .049 and was wondering if you could please help me, I intended entering our school free-flight contest which is being held around the end of next month. I really want to complete the model with interior decoration and instrument layout but need details and also the colouring for the inside. If individual planes have different schemes then could you please give me a general one. I am the proud possessor of two Cox engines, but I just cannot use them on any plane I build. The reason being that the glow plug fuel ruins my finishes. No fuel proofer of any sort is available here (in fact hardly anything is). So could you please supply me with a formula for making my own or the commercial name for it. No form of international money order is available here so I cannot get anything from abroad.
Calcutta, India. Sunojit Ghosh

Details of the Cessna 170 series are available from the Cessna Aircraft Co., 5800 Pawnee Road, Wichita 15, Kansas, U.S.A. A cockpit/dashboard view of the Cessna 170 is shown on p. 103 of "Flying Scale Models" price 10/- from this address. Marine varnish is a good fuel proofer and should be available in a local boating shop.

Dear Sir,
I have a plastic fuel bottle and I use Keil Kraft record Diesel fuel in it but when the fuel has been in the bottle about a week, the bottle collapses in and the fuel goes pale. Could you tell me if this affects the fuel and if so, how to stop. Also I have difficulty in filling the wedge tank in my Mercury, Picador. So could you tell me the best way to do it.
Berkhampstead, Herts. I. Wilson.

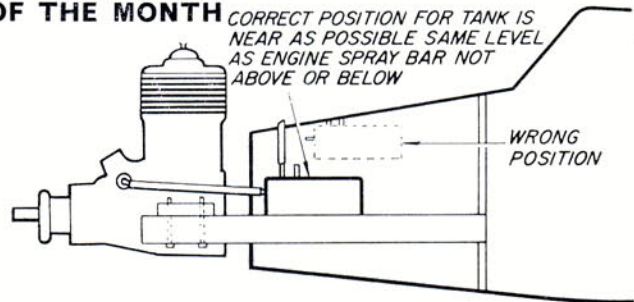
This is a very rare problem. Fuel does not usually change colour unless it's very old or has had other chemicals added to it. If you keep the fuel in a plastic bottle it might well buckle. This is due to expansion and contraction of the fuel related to the changing temperature. An example of this is a fuel can. If you seal the can, leave it in the sun and unseal it you will hear a loud hiss, vapour rushes out, this means it's under pressure due to expansion. Providing all of your fuel pipes are clear and you use the upper pipe your wedge tank, should be easy to fill.

Dear Sir,
On your "Gemini" plan—MAJ221 you say that the Inboard flap has to be lowered 5 deg. while the Outboard flap remains at 0 deg., could you please explain?
London, S.W.11. J. F. Steer.

The inboard flap of MAJ221 is lowered 5 deg. to make the wing lift. This is to help offset the weight of the control lines which react on the model's balance. Other methods used to give the same results are 1, a larger inboard wing, 2, Some lead weight in the outer wing tip.

TIP OF THE MONTH

CORRECT POSITION FOR TANK IS NEAR AS POSSIBLE SAME LEVEL AS ENGINE SPRAY BAR NOT ABOVE OR BELOW



Always mount your fuel tank near the engine and with top at about the same level on the needle valve. Engine flooding must be caused with too high a tank and the fuel will not rise to engine level if it is too low.

Dear Sir,
I have recently bought my first diesel engine, an M.E. Heron, to power the A.P.S. "Cheshire Kitten", but I have found that the engine would have to be side mounted. As the needle valve assembly cannot be turned round to face the other way, this would mean that the needle valve adjustment rod would project from the underside of the plane and scrape along the ground. So instead, I decided that I would use the engine in the A.P.S. "Bouncer", which has an undercarriage, and therefore the needle valve would clear the ground. Please could you tell me if the Heron is a suitable engine for "Bouncer". If it is, please would you tell me what manoeuvres it performs with the Heron, and what would be the best line length be.
Leicester. A. Newton.

The M.E. Heron is an ideal choice for the A.P.S. Bouncer control-line trainer and as you say its design will protect your engine by having an undercarriage. With the Heron engine, Bouncer should perform loops, wingovers, inverted flying and horizontal figure eights, once you are capable of keeping up with it on 40 ft. lines 010 piano wire. (30 swg).

Dear Sir,
Can you tell me if Polycell is a good adhesive for tissue coverings on sports models.
Brixton, London. P. Wilson
We have used Polycell and find that it gives excellent results with tissue covering. You must leave the Polycell for at least half an hour to allow the granules time to dissolve.

Dear Sir,
I have been aeromodelling for two years now, and have made four gliders and two rubber models. One of these was the Keil Kraft "Gypsy". My latest model was a small scale Jetex model. For my forthcoming birthday I am hoping for a Mercury "Mamba" a c/l stunt trainer. Could you please tell me whether or not the Frog, 8 cc. or the D.C. Merlin, will fly in an inverted position, as the "Mamba"? Perhaps even further in the future I may try making the Keil Kraft "Ranger", do you think this would be too difficult for me to build and fly?
Bilston, Staffs. A. B. Higgins.
The Ranger should offer no difficulty after all that experience!

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 enamel club badge, two coloured 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.

2d. in the 1/- Rebate plan purchase coupon Golden Wings Members No. 8/67

TOPICAL TWISTS

by 'Pylonius': illustrated by 'Sherry'

Lost cause

A source of concern and irritation to the model movement is the ruthless pertinacity with which the free flyer pursues his wayward charge across field and furrow. Horrific tales are told of trampled cornfields, devastated crops, decimated fences and general mayhem in the outback of the airfield, and none are so hand wringing in their wailing accusations as the competition organisers.

Now, this strikes me as a little odd. One thing you certainly know about free flight contesting, unless you are extremely wet behind the ears, is that precious models will fly willy-nilly beyond the fringes of the airfield (beyond the fringe you will always find a nut case) and that at least one in every flock of model flying sheep is black. Yet it is here that the organisers introduce the Nelson touch. An exceedingly blind eye is turned upon the consequences of asking 6 minute models to perform on a 2 minute airfield, and the simpleton angle of regarding all model planes as radio controlled, and thus unable to overfly the airfield, is searchingly exploited.

Curious, though, that organisers refuse to face up to the realities of this particular situation; even in highly geared Wakefield events the officials fail to see the woods for the trees. If some trouble making competitor were to ask what conditions he was likely to encounter at the end of his three minute flight he would be looked at aghast. "That's your look out, chum," he would be told in no uncertain terms, and perhaps advised, like his model, to get lost.

I suggest that, in future, before the organisers go into their hand wringing routines they should find out where the models, for whose presence they are responsible, are likely to land, and brief the visiting flyers on the hazards they are likely to encounter. There is no cure like prevention.

Cornflake cowboy

Time was when the model flyer was a very clubbable sort of animal, with a strong sense of group identity. No sooner had the initiate got the wrappers off his Beginner's Kit than he was making tracks to the nearest club room, or, urged on by the distant sound of a model engine (the heard instinct), be hotfooting it to join in the communal fun of the flying field.

This need to fly flock-fashion was perhaps dictated by the fact that the model flyer was not yet a fully accepted form of social phenomenon. In order to pursue his idiosyncratic way of life he had to brave the nudge and the snigger of a 'boys with toys' public complex. Understandably then he found solace and security in the company of kindred spirits, with the clubroom a citadel of sanity, giving sanctuary from a hostile, ignorant world. Clubsters, in those days, were so much in abundance that model club organising became one of the country's top sports. Anyone with a flair for local politics could set up a club overnight, enjoy all the prestige and dignity of chairmanship, and go into presidential retirement without actually having handled a model plane, nor, in some cases, seen one fly.

However, with the advent of the radio unit, the hobby, or rather sport, to use a less Victorian term, became equated with affluence. And with bankroll the operative



"I think he must be a lone ranger"

monetary term rather than an aeronautical manoeuvre the model flyer had made the Lew Grade as it were. No longer did the jet age modeller need the prop of collective support; he could look the whole world in the eye without clutching fearfully at his club badge. The model flyer was no longer the timid clubster; he had become the arrogant individualist.

These thoughts occurred to me of hearing an echo from the past about that staunch, "baked beans in the open" character: the lone ranger. Funny to think that, in these days of self contained model types, the chap who flew by himself was once referred to in this Saturday morning cinema fashion. Imagine asking a modern radio flyer if he were a 'Lone Ranger'.

"Oh, you mean the Wild West Club. Gave that up for this lark, too crowded."

Send-up

A reader pleads for the publishing of more humorous anecdotes from this very risible, though not always risible, hobby of ours. I only wish I could contribute my own little fly-for-fun gem, but I somehow seem to miss all the hilarious, side-splitting stuff, or perhaps I haven't got the right sense of humour. No doubt I should join in the derisive guffaws when someone's multi hits the deck, or double up in glee at the sight of a team race pile-in, but my old fashioned face remains, appropriately, as long as a kite.

Now I am sure that most of the funny incidents we hear about are either invented or contrived. Sometimes its a matter of perseverance. For instance, by setting up a club in a cliff side area, its only a matter of time before you get the hilarious situation of a glider towing patsy walking backwards into the sea. Or, in a shorter term ploy, the slick substitution of bottles can lead to the screaming spectacle of some charlie trying to get an engine started on fizzy lemonade.

Of course, models themselves are funny things, but not, alas, always 'ha-ha' so.

Dear Sir,

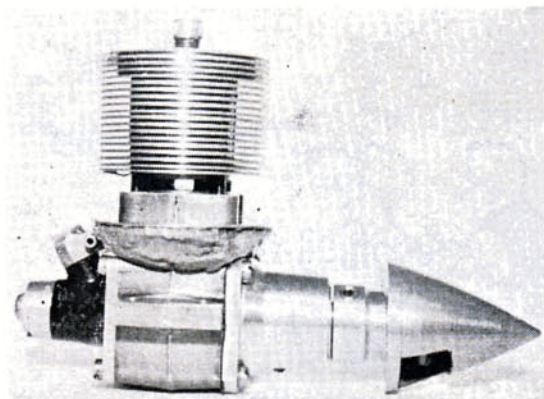
I, too, can lay claim to having spent 600 hours on a model. The effort has been tremendous, but the sense of achievement highly rewarding. Perhaps the most difficult part of all was working out the basic design. I now hope to buy the kit next week,

Yours faithfully, E. Bloggs.

Dear Sir,

I agree with Mr. Corbett that modellers of today do not build models like they used to in the past. After visiting a few vintage events I must say I don't blame them.

Yours faithfully, E. Bloggs Jr.



The modified Eta 15 as used to win the '66 World Team Race Championship. Note the Cox .049 plastic rear housing, large dia. head fins and rubber fixing of exhaust deflector ring.

OUR initial team race engine was a Super Tigre 15D in 1960. We were told by winning modellers at that time that the Super Tigre was an unsatisfactory engine and that our model (*Jefe*) was not the best design. We proceeded to win every race entered by large margins for nearly 2 years and, to make a point, realized that serious practice and familiarity with one engine and model can overcome many obstacles. As time progressed, we felt the need to experiment with engines to see if we could improve upon them. The following concerns the Super Tigre 15D and Eta engines as we have used them

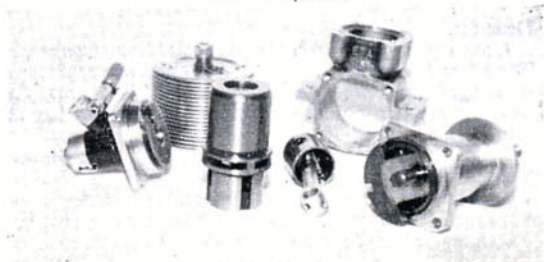
Supre Tigre 15D

Economy has been a difficult problem with this engine. Our current solution is as follows. Machine a plastic (nylon or other plastic) insert to fit the venturi casting and drill and tap $\frac{1}{4} \times 32$ to accept a Cox .049 venturi and needle valve assembly. The Cox .049 venturi will produce 50 laps in an otherwise standard engine and the plastic insert insulates the venturi from engine heat.

Reliability is essentially the ability of the mechanic to adjust the engine to run its best during a race. We use 3 approaches to achieve this. The first is the use of a 2 piece contra-piston. The movable piston of the contra-piston has a diameter equal to 65% of the engine bore. The fixed portion of the contra-piston transfers additional heat from combustion to the head. The small size of the contra-piston makes the engine easier to adjust. The use of Allen head screw and wrench then completes a variable compression system capable of extremely fine adjustment.

The second concerns the use of a chromed piston. We encountered problems of airspeed in 1965. By chroming a piston we raised our speeds from 88 to 96mph.

Component parts, L to R, Rear drum induction unit, Larger diameter head, Liner with two part contra piston, Piston with new con. rod, Crankcase (unmodified), and Front housing with K&B 15 spinner.



Team Race Tips

Super Tigre and Eta engine modifications; Propellers; New fuel formulas; Special lubricants

By World Champions

Don Jehlik and Herb Stockton

The third approach is propellers. We were able to run 3 different propellers at exactly the same airspeed and yet one will be superior at the end of the long 50 lap tank because it does not seem to allow the engine to heat up as much. Our experiments showed the 7×8 or $7 \times 7\frac{1}{2}$ Rev-Up trimmed to $6\frac{1}{2}$ in. to be inferior to the 7×8 Tornado plastic trimmed to $6\frac{1}{2}$ in. and the 8×8 Top Flite racing prop trimmed to $6\frac{1}{2}$ in. to be the best propeller of the 3 types

Eta 15D

With considerable respect for Mr. Bedford's excellent basic engine, we have found that the more we modified the engine, the more reliable it became. Space is too short to state why we feel each part of the engine should be modified; so we will proceed with the instructions for modification as in the accompanying drawings.

Frontplate and Spinner Assembly: Machine the frontplate according to the drawing. The crankshaft should be cut off so that it extends the correct distance into the K & B 15 spinner spool. Grind a small flat on the shaft to accept the spinner drive spool set screw. Allow .003in. clearance between the front bearing and the spinner spool when assembled.

Backplate Housing: The drawing is explanatory. When assembling the works, first drop the rotary drum into the housing. Then drop the 4-40 screw in the shaft hole of the rotary drum and thread it into the tapped hole of the backplate housing until the rotary drum has .002in. clearance. Then tighten the 4-40 nut on the outside of the housing to lock the drum clearance. The final step is to put on the Cox .049 plastic assembly.

Cylinder Fins and Contra-Piston: We use a fin cutting tool made from a hacksaw blade .025in. thick. When cutting the fins, please take very slow, fine cuts and flood the work with kerosene or cutting oil. The small contra-piston should fit as tight in the squinch-plug as in a normal liner. Please note the aluminium gasket that fits between the liner and crankcase.

Connecting Rod: We have not shown a rod in the drawings, although our engine has a rod made from 2024 T6 aluminum. The only dimensional change made is a .020 increase in the diameter of the turned portion of the rod. The rod has no bushings.

Running the Completed Engine: Cut an 8×4 Top Flite nylon prop to $7\frac{1}{2}$ in. diameter. This is a normal test prop and should be used when adjusting the engine prior to a race. The engine is capable of turning this prop 15,000 to 15,500 rpm for 2-3 minutes on a 10 cc tank.

Team Race Fuels

Will one flyer's fuel work better than that of another's? We don't know. The Team Race game is made up of many variables; pilot, mechanic, props, model, engine,

and fuels. Perhaps another way of looking at the whole picture is to say that fuels are just $\frac{1}{3}$ of the whole picture, and no one fraction is really of more value than another. Let's approach the concept of increased performance through fuels from two angles. Increased reliability and actual power increase. Can a Team afford to use propylene oxide in a fuel when it boosts rpm as much as 800 rpm *but* heats very badly and won't restart? The answer, of course, is NO! Should you try hydrazine because of its enormous BTU potential? No! not if you value your life. What then is a balanced approach to diesel fuels? Good performance and consistency will win far more races than exotic fuels.

Fuel composition

The following discussion concerns fuels and ideas about fuels that we have accumulated.

Ingredients: Ether can affect the consistency of your fuels in day-to-day running. We use Anhydrous Ethyl Ether of the highest purity obtainable. This ensures consistent reproducible runs in all types of weather.

Paraffin is the major constituent of diesel fuels. We have found some differences in engine heat when using various paraffin, including JP-4 and JP-x fuels. Any expected difference in rpm or economy was not measurable. We have settled on a single source of paraffin as being the most consistent method of using this ingredient. We use Esso paraffin obtained from a local petrol station.

Igniter: We have found that Ethyl Corporation's "Diesel Ignition Improver" is the easiest igniter to use. It contains approximately 50% amyl nitrate and 50% other ingredients. It costs 35/- per gallon post paid in the U.S.A.! We are working on our second gallon now and use *only* between 1 and 1 1/2% in our fuels. We believe many fuel and flight problems have been caused by the use of too much igniter.

Oils: Oils is the proper term. It seems that just one oil isn't right for a diesel fuel. We have tried a series of oils and oil combinations and believe that a combination of several lubricants is superior. We find 5% castor oil to be a minimum value. Paraffin oil of 125 centistoke value is an excellent piston lube. STP, detergent additives, and moly disulfide all add to the quality of the oil system.

Other Ingredients: From acetone to xylol—what other chemicals can give the TR team an added boost?

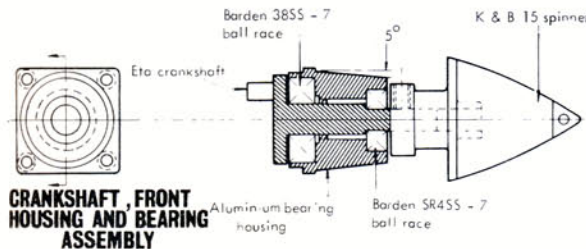
Heptane, pentane, petroleum ether, and nitrobenzene are ingredients that we have found useful.

Lets look at some of our fuel formulas and discuss them.

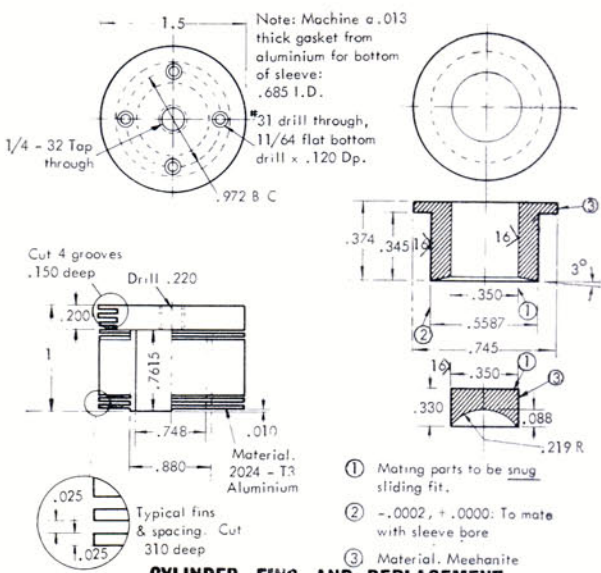
- (a) 50% Paraffin
- 30% Anhydrous ethyl ether
- 20% Castor oil
- 1 1/2% Primary diesel ignition improver

This familiar, basic fuel can still compete with the best providing the purest ether, and diesel ignition improver are used.

Continued on page 432

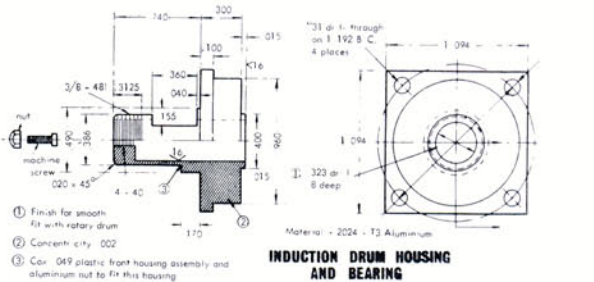


CRANKSHAFT, FRONT HOUSING AND BEARING ASSEMBLY

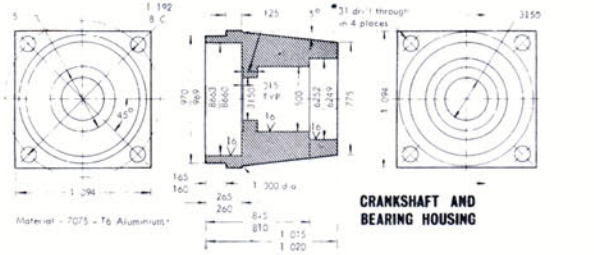


CYLINDER FINS AND REPLACEMENT CONTRA-PISTON UNIT

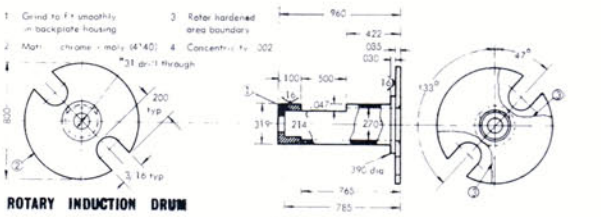
Note
To make these parts the use of a lathe and grinding machine is required, these drawings can be worked to by a machine shop. All decimals are $\pm .002$ unless specified, angles ± 0 deg. 32° , surface finish 16° or 32° rs specified.



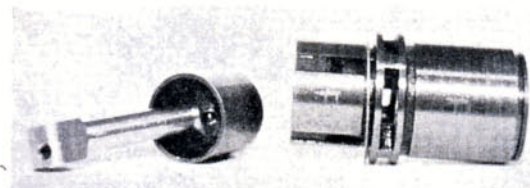
INDUCTION DRUM HOUSING AND BEARING



CRANKSHAFT AND BEARING HOUSING



ROTARY INDUCTION DRUM



Con. rod is unbrushed and .020 larger in turned area diameter. Note aluminium gasket under exhaust port and top of fixed contra piston unit.

- (b) 50% Paraffin
 30% Anhydrous ethyl ether
 5% Castor oil
 10% Paraffin oil (125 c.s.)
 3% STP
 2% Detergent additive (Dupont 3311)
 1/2% Moly disulfide (Slip brand)
 1 1/2% Diesel ignition improver

With this oil system 12 hours running time is not sufficient to break in a Super Tigre.

- (c) 50% Paraffin
 30% Petroleum ether
 20% (Oils from (b) above)
 1 1/2% Diesel ignition improver

Our apologies to Pietro Fontana who guessed this fuel at the '65 Criterium! It is not one mph faster or one lap better than fuel (b) above, but the Super Tigre will not backfire on this mix (we had only one 7 x 8 Tornado prop left).

- (d) 50 parts Paraffin
 6 parts Heptane
 30 parts Anhydrous ethyl ether
 20 parts (Oils from (b) above)
 1 1/2% Diesel ignition improver

This fuel works well in ETA and HP engines.

We used fuel (a) at Swinderby in 1966; fuel (b) in achieving race times of 4.16 with Eta and 4.15 with Super Tigre; fuel (c) achieved 4.13 with Eta in 1963 and

placed second with Super Tigre at the 1965 Criterium; we'll know the performance of fuel (d) at the end of this season. We are presently flying 55 laps on the 7 cc tank with it and the Eta described.

The fuels described above are extremely consistent and will fly in all types of weather; wind, rain, snow, heat, and humidity with no measurable change in performance.

All the fuels may be mixed in large lots (5 gal.) and used over extended periods of time (1 yr.) with no loss in performance.

In 1965, fuel (c) powered our Super Tigre plane to 4.42 at U.S. Nats, 4.41 at Criterium, and 4.37 at the U.S. Team Trials where 4 of 6 flights on 2 days were 4.37 to 4.38.

We must state the fuel does not do it all—it has become for us a predictable one-sixth of the Team Race challenge.

Note: The Diesel Ignition Improver is obtained from:

Ethyl Corporation,
 Attention: Order and Supply Department,
 100 Park Avenue,
 New York 17, N.Y.

STP and slip are obtained from local petrol stations or
 STP Division Slip Group of Companies,
 Studebaker Corporation, 34, Great St. Helens,
 125 Oakton Street, London,
 Des Plaines, Illinois. E.C.3.

The rear drum unit. Components are L to R, drum retaining screw, drum valve, drum bearing and backplate, Cox .049 plastic front housing with Cox venturi and needle valve unit.



Snuffers to heart—the end

Dear Sir,

I am sorry that Mr. Martin Dilly should take my light hearted remarks on snuffer tubes too much to heart. Equally I wonder if he doesn't take the whole issue of snuffer tubes far too seriously. It may well be, as he says, that a number of fires have been attributed to d/t combustion, but there does seem to be scant evidence of this. I, personally, have never witnessed such an incident, nor indeed have other model flyers of long experience whom I have spoken to on the subject.

It should be remembered that the type of "dead" smoulder produced by the d/t fuse will only cause a fire under the most favourable conditions, e.g. when falling on to a hayrick or thatched roof. It is highly unlikely that an outbreak would occur if a piece of fuse dropped on to a cornfield; it would come to rest on the earth and burn out quite safely. Then, too, it should also be borne in mind that the unexpired portion of fuse is rarely more than a quarter of an inch long, giving too short a burning time to build up any degree of heat.

I may be wrong in all this, of course, and I am willing to be corrected, but I do find it curious that part of Mr. Dilly's argument is founded upon the quaint notion that some lynx eyed farmer may

Readers' Letters

find the charred remains of a piece of d/t fuse in his fields, identify it for what it is, and cry "arson" at us model flyers.

Actually, the greatest danger of a d/t fire comes when a model lands with the fuse still attached, as the model itself is highly combustible. Snuffer tubes will not always be used in the most efficient way and models will be landing with lit ends protruding, giving a danger period greater than that of the dropped 1/4" referred to before, particularly as the model itself is so vulnerable. My prediction is that the snuffer tube rule will result in many models disappearing in a puff of smoke.
 Romford, Essex L. Ranson

Interior Colouring

Dear Sir,

I am writing to enquire if you could advise me where I might obtain information on the colouring of aircraft cockpit interiors and such internal surfaces of airframe structures as engine and undercarriage bays, equipment, shelves, etc.

Much seems to have been written on the exterior camouflage schemes for all periods from World War One onwards but the subject of interior colours seems almost completely neglected—a great

mistake considering the ever increasing scale being used on models these days, be they radio control or non-flying plastics where the cockpit becomes a very detailed item.

I appreciate that the colours involved are comparatively few—zinc chromate, green, black, grey and silver, probably cover most cases but the problem I find is which colour on what aircraft?

In addition to this when colours are quoted especially on plastic kits they are often to question as to their authenticity—to illustrate my point. Monogram quote in their kit of the FW 190 "all interior surfaces (including cockpit) visible thro' hatches, etc. a pale grey-green". The FW 190 kept at Biggin Hill has as far as I could determine a grey U/C bay a black cockpit and no paint whatsoever on the airframe interior.

Hoping you can help me.

London S.E. 15

T. Baker

Generally speaking Military aircraft interiors without insulation vary according to (a) the Service under which they are operating, (b) the purpose of the operation (c) the material used for the construction of the aircraft.

Zinc Chromate is the most common-place British Military colour being a leaf green in general tone. Aircraft intended for night ops are generally black.

MODEL RESCUE

Water power saves a wayward A.P.S. Bicki for David Breeze

David Breeze recalls an unusual method of "Trecovery" for us... He lives at Barnwell Hall and since it is on Filton Aerodrome all his model flying is done on the airfield. Unfortunately because of Air Traffic Control restrictions free flight and R/C flying are strictly limited to a few occasions. One of these occasions arose between 13.00 and 13.50 one Sunday.

"Bicki" had only been hand launched to allow the trim to be set, prior to its maiden flight. A quick test of the radio soon showed that at 10 yards the receiver was out of range. Frantic arm waving between one person with the transmitter on one part of the airfield and another person with the receiver consumed valuable time. At last having only 15 minutes left the receiver appeared to be functioning but the engine would not start!

After 10 minutes of flicking the engine decided to start and with everything now appearing to function the model was thrown "skywards".

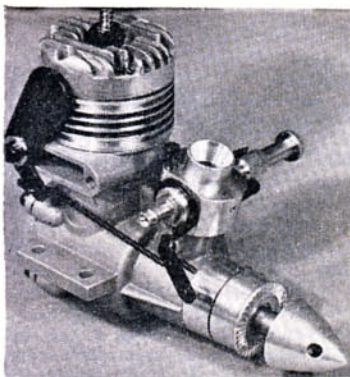
With two minutes of flying to its credit Bicki was at about two hundred feet and about one hundred yards downwind when the receiver stopped receiving! Bicki now headed downwind for the largest tree of a clump.

Five minutes later the model was located at the top of the tree. A ladder was fetched as the tree was vertical and smooth, but it fell short of the first branches by six feet.

Following half an hour of indecision they called out the Airfield fire brigade and in a very short time they arrived. After further attempts to climb the tree and getting no closer than to within 30 feet of the model it was decided to turn the hose on the model. With a careful aim by the fireman the model was "squirted" out of the tree. Damage incurred was a break in the leading edge of one wing multi tissue rips and five soaking modellers (they managed to produce a rainstorm in miniature) the radio was working!

Top left, Robert Chisholm prepares "Bicki" for flight. Top right:— where it ended! a case of hunt among the foliage. Bottom left, the Airfield Fire Brigade unit which came to the rescue and right, the lucky modellers happy with only minor damage.





WE are always interested to see the results of other people's torque tests on model engines. According to Ing. B. Krause, writing in East Germany's *Aerosport* magazine, the 2.5 c.c. Czech MVVS 2.5-RL developed, on his test, approximately 0.56 bhp at 18,200 rpm, against just over 0.56 bhp at 19,500 rpm for the Super-Tigre G.15, both tests being conducted on standard FAI 75/25 methanol/castor fuel. These figures are appreciably higher than we obtained in earlier tests of the G.15 and are just about the highest on a specific output basis (224 bhp/litre) yet claimed for any stock model engine operating on straight alcohol fuel. Actually, the figures for the MVVS are much higher than those claimed by MVVS themselves.

Moki, the official Hungarian model centre, have rather more modest claims for their Krizsma-designed and former World Championship winning S-3 racing 2.5. According to graphs sent to us by Rezzo Beck, showing the results of Moki tests, the S-3 developed 0.43 bhp at 21,700 rpm on straight fuel and 0.56 bhp at 21,100 rpm on 45 per cent nitromethane. Maximum torque, in both instances, came out at around 16,000 rpm. Rather interesting, too, were Moki's graphs for their two high performance diesel 2.5's, the loop-scavenged D-1 and the TR-6/S team-racing motor. These showed the D-1 as developing 0.38 bhp at 17,000 rpm and the TR-6/S as putting out 0.35 at 17,800 rpm. Both these tests were run on fuels containing 20 per cent

LATEST ENGINE NEWS

By Peter Chinn



Above left, the new twin ball race Taipan .19 R/C from Australia. A well made and finished engine, with large "multi" type throttle and exhaust restrictor, available shortly from Performance Kits. Centre and right are views of six Cox .049 Babe Bee units which R. Gesty of South Dorset Engineering, Weymouth has joined as a radial 4.8 cc. engine. Shafts are geared 1.4:1 and revised backplates connect the six reed valves to a Webra Glow Star R/C carb: A 13 x 6 in. prop is fitted, seen at the Nats on the Model Aircraft (Bournemouth) display.

The B.H.P. and torque curves below as found by the Moki model engine engineers at the Hungarian model centre, seem very realistic and "uninflated".



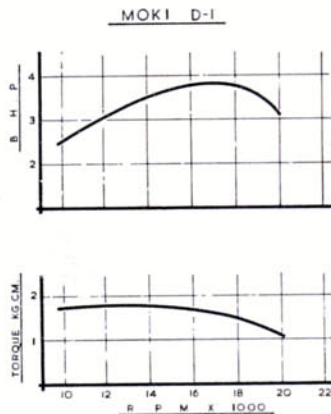
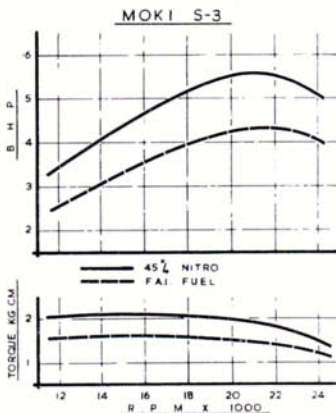
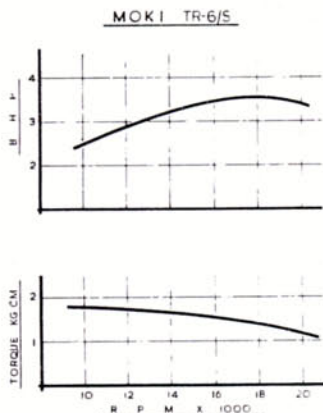
castor-oil with the addition of 3 per cent amyl-nitrite. Base mixtures were 25 per cent ether and 55 per cent kerosene for the D-1 and 30 per cent ether and 50 per cent kerosene for the TR-6/S.

New Engine Production

Ever since the commercial production of model aircraft engines began more than thirty years ago, we have been accustomed to seeing a perpetual stream of new and improved engines from American manufacturers. In fact, this is no longer the case. New American engines have been comparatively few and far between during the past couple of years or so.

This can be blamed on (a) the Vietnam conflict which has resulted in increased sub-contract work in other fields for some model engine firms and (b) the slot-racing boom to which several engine manufacturers committed the major part of their resources. With the recent sudden and quite drastic tailing off of slot car business in the U.S., we may, perhaps, see some American companies making renewed efforts in the model engine field but, meanwhile, imported products are enjoying greater success in the United States than has been the case at any time in the past.

Of course, in the quantity production of small glow engines, American manufacturers such as Cox and Wen-Mac still outstrip the rest of the world and many larger engines continue to command a faithful following. Nevertheless, it is



equally true that, of late, there has been strong infiltration by imported engines in certain specialised contest fields. In the R/C multi classes, for example, American made engines are clearly outnumbered by the combined efforts of Tokyo, Osaka, Bologna and London, N.18.

However, it is also true that similar developments have occurred in Britain and most of Europe. For a long time now, there has been a steady contraction of British engine production into fewer makes and fewer types and the announcement of a new British motor is quite an event. Several of our manufacturers have left the model engine field for greener pastures and of the few who continue to produce engines in quantity, one of the largest has told us that, disillusioned after unsuccessful efforts to substantially increase his sales both at home and abroad, he does not envisage incurring the expense of developing and tooling up any new models in the future. It looks very much as though interesting new engines will have to come (as they have often come in the past) from the smaller manufacturers or, at least, from those for whom model engine production is the major or only part of their business and for whom a personal interest in models continues to be a dominant factor.

It is, perhaps, significant that three of the most active model engine companies in the world today, namely, Enya, O.S. and Super-Tigre, each of whom produces (counting R/C and marine versions) around 40 different models, are run by people who are, themselves, modellers of long standing or who take an active part in the hobby. Italy and Japan, in fact, are the two countries in the world from where most new engines are appearing at the present time.

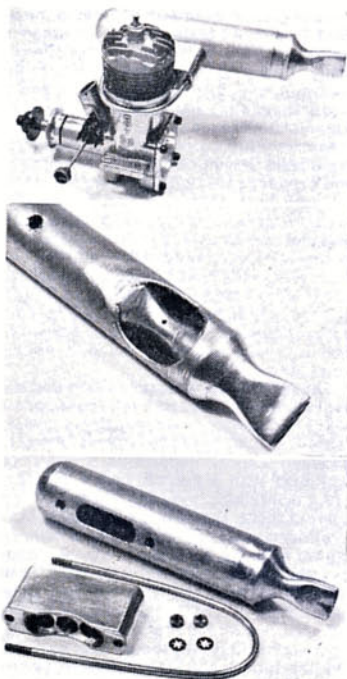
Apart from Super-Tigre in Italy, most continental manufacturers have been even less active than our own in producing new engines. An exception,

however, is the Webra factory in Germany, Fein und Modell Technik of West Berlin, where, since his return to the company four years ago, designer Guenther Bodemann has produced four entirely new models in addition to improving the existing range. Guenther's latest reached us only a day or two ago and a very nice piece of work it is too.

This is the Webra RC-61, which, as its title suggests, is a 10 c.c. radio-control engine and is the first Webra engine — in fact the first German engine — of this type to be put into production.

In many respects, the RC-61 follows contemporary practice. It is a loop-scavenged shaft-valve motor with the crankshaft carried in two ball-bearings and uses a ringed aluminium piston. However, it has a number of features which take it out of the rut. For example, the small end of the connecting-rod is fitted with a caged needle-roller bearing, while the piston has a single piston ring of a special type. The carburettor is of the barrel throttle pattern, with side mounted needle-valve assembly and the jet feeding into the centre of the barrel as on the O.S. and Enya engines but, instead of having an airbleed for controlling low-speed mixture strength, there is a secondary needle. This is installed in the barrel itself which, as on the Johnson Automix, moves laterally as it rotates. In this way, the tip of the low-speed needle enters the main jet, as the throttle approaches the closed position, and reduces fuel flow. The low speed needle is, of course, adjustable, so that the degree of fuel restriction at low speeds can be varied.

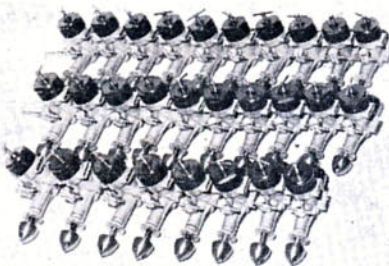
The RC-61 has the 24 x 22 mm. bore and stroke common to most "metric" 10 c.c. engines, giving a swept volume of 9.953 c.c. or 0.6074 cu. in. In overall dimensions it is a fairly big motor — bigger than a Merco, though not as bulky as a Super-Tigre G.60. Weight is approximately 16 oz.



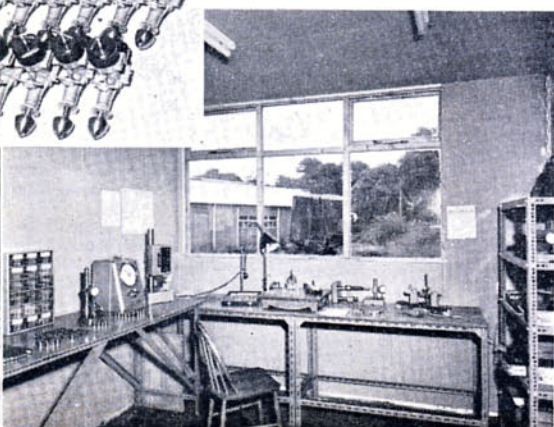
Above, the D.A.C. "Mufflo" silencer for .40 cu. in. engines. This is similar to the type illustrated in the January issue but has a simpler and more secure method of fixing. The top photo illustrates the silencer fitted to a McCoy Stunt 40 engine, while the lower photo shows the component parts of the same silencer. The centre photo is of a "cutaway" model showing the "venturi" section through which gas is led before being released through a fish tail outlet.

Marown Engineering's Isle of Man factory — The home of M.E. Engines

The modern factory of Marown Engineering on the Isle of Man shown here, currently offer two models, the 1 c.c. Heron and 1.5 c.c. Snipe, the latter being also available with throttle for radio control and all in air or water cooled versions. Below, the extremely tidy and well equipped machine shop where component parts are made.



Left a batch of newly assembled Snipe 1.5 cc. diesel engines. All are fully tested before release. Below, the inspection department with components laid out awaiting checking. Highest possible standards are maintained through use of precision equipment. Factory also makes aero-engine parts to very stringent specifications.



Apart from the Nationals, reported separately in some detail, there has only been one contest in the past month. This was the **East Grinstead Gala**, held at Chobham the weekend before the Nationals. If the weather had been good, there would have been many fliers glad of the opportunity to finish off their trimming. Unfortunately, it turned out windy and most people obviously considered that participation would merely finish off their Nationals' chances.

Not only the competitors regarded the events casually. The organisers arrived 30 minutes after the advertised starting time and explained this with the remark that "Aeromodeller" had got the time wrong! (Phooey! Mr. Boyle, EGMFC PRO requested we advise 10 o'clock starting contest, note dated 12/2/67-Ed). With this, plus indecision as to the best location of the "launching point" in the prevailing wind direction, the contest got off to a very slow start. The first couple of flights confirmed that drift was considerable and that recovery of long flights was going to be difficult. With this in mind and to try and encourage better participation, the organisers cut down the max to 2½ minutes. Even this was just about the limit inside the available length of common.

The few that started early found that they had the best weather as it clouded over in mid-afternoon, got windier and rained from 5.30 p.m. onwards! Russel Peers made the only real effort in rubber to take first place on two flights. Power was a tussle between George Fuller with a rather small, if "boxy", design equipped with a Fox 59, and Trevor Payne with more normal (15 power) size models. Trevor changed his model for the second flight, lost it in lift, and didn't take a third.

Glider was a clear win for Al Wisner with 6½ minutes for three flights followed by myself with two maxs — both of us having re-entered. Tony Young was third, again on two flights as he considered that the weather had deteriorated too much to take his third. I, for one, was extremely fortunate to end the day with my A/2 as the first max D.T.'d at 2½ minutes in strong lift, and went O.O.S. still airborne at 5½ minutes (using binoculars). As the downwind area appeared very discouraging I drew a line (on the compass bearing) on a large-scale map, estimated the landing spot, and went round by road. There was only one spot in the predicted locality worth searching — a clearing in the midst of the woods. The A/2 was right in the centre!

Others were not so lucky. Colin Morris lost an A/1 in the same area and had to concede the event to Ken Smith who made three short flights. Jack Allen and Tony Slater had to struggle and persevere to win the Coupe d'Hiver and Chuck Glider events respectively.

When I first started attending the London events they were well worth the journey. Now I'm afraid that the situation has changed in that general interest (and hence the standard of flying) has declined appreciably. This is NOT a criticism of East Grinstead in particular, as all Chobham Rallies are very similar. This in fact is one of the troubles as the "local" fliers have the attitude that there is another contest "just the same" on the following weekend. The organising clubs have long since ceased to provide timekeepers, and consider that a redistribution of the entry fees is adequate as prizes.

Perhaps this downhill trend could be reversed. Certainly the organising clubs could demonstrate that the events are important to them, and this might "rub off" on to the fliers. The situation, however, is still better than in the North where the club organised gala is all but non-existent!

Postal Events

Postal events seem popular at the moment in some quarters. One of which I have had personal experience was the "Spring is Here Tra La Tra La" event run by the **American National Free Flight Society**. (This organisation is within the framework of the A.M.A. and dedicated to promoting F/F interests).

Thanks to personal contacts with Dave Linstrum, my club (Whitefield) and Crawley received invitations to compete. Events were All-in-F.A.I., Coupe d'Hiver, Chuck Glider and Precision. Flights could be made on any day in April, and the events had been selected to enable those with only small fields to participate.

Both Whitefield and Crawley combined the postal events with the S.M.A.E. Area Centralised events held on 16th April. This seems to have been a good day throughout the country, and we made the most of it! Rather surprisingly (to us at any rate) the Americans complained of poor weather throughout April — all but the West Coast that is!

The results of the F.A.I. and Coupe d'Hiver events certainly justified our efforts. If the flyoffs hadn't been included in the team scores my club would have been even better placed. As it

Free Flight Comment

By
J. O'Donnell

The certificate awarded to Crawley M.A.C. members for their team effort in the "Spring is Here" Postal contest at right.



NATIONAL FREE FLIGHT SOCIETY

This is to certify that
P. CAMERON, SUSSEX, ENGLAND
has demonstrated a high degree of skill and proficiency in building and flying model airplanes under the regulations of the Academy of Model Aeronautics

The Society is pleased to recognize this proficiency by awarding this certificate of performance for the flight time of 962 seconds performed on



was Crawley won the Coupe d'Hiver team event with 2nd individual (Pete Cameron), whilst Whitefield were 2nd in F.A.I. and 3rd in Coupe d'Hiver, plus 2nd, 3rd, 4th individual in F.A.I. and 3rd individual in Coupe d'Hiver. However, the value of postal events is not in their being serious contests — there is too much variation in weather, facilities and the like — but in the interest, contacts and friendships that result. I think that this is recognised by the N.F.F.S. in that they allow a month in which to fly rather than a specific date. Certainly there would be little incentive to compete in bad weather against the rest of the world!

Credit must be given to the N.F.F.S. for the speedy distribution of results and certificates — sent airmail to myself and Club members. The impression produced by this efficient treatment was very favourable.

For those who want to get in "on the act" — or an equivalent one — a postal event is to be organised by the **Woomera Model Aeronautical Society** (of Australia). Events are Wakefield, A/2, F.A.I. Power and Coupe d'Hiver, and flights can be made any Sunday in October. The contests are individual, not team. Entries are solicited from all countries. Those interested should contact direct: Pete Everitt, 22 Goonda Street, Woomera, South Australia. *Continued opposite*

Spring is Here—Postal Results

F.A.I. (Combined Wakefield, A/2 & Power)	Total times including Fly-offs
Individuals	in seconds
1. Bob Van Nest (Power) (Sunland, California)	1294
2. Mike Reeves (A-2) (Lancashire, England)	985
3. John O'Donnell (A-2) (Cheshire, England)	857
4. Brian Worthington (Power) (Manchester, England)	853
5. Jim Trego (Power) (Beverly Hills, California)	850

Teams	Total times including Fly-offs
1. R. Van Nest/J. Trego/W. Hartill (SCAT Club, Los Angeles, California)	2984
2. M. Reeves/J. O'Donnell/B. Worthington (Whitefield M.A.C., Lancashire, England)	2695

Coupe d'Hiver	Total times including Fly-offs
Individuals	in seconds
1. Roger Taylor (San Pedro, California)	670
2. Pete Cameron (Crawley, England)	418
3. John O'Donnell (Cheshire, England)	344
4. Bob Stallck (Albany, Oregon)	310
5. Mike Reeves (Lancashire, England)	306

Teams	Total times including Fly-offs
1. P. Cameron/W. Horton/J. Oulds (Crawley & District M.A.C., Sussex, England)	962
2. R. Taylor/H. Harvey (San Diego Orbiters, San Diego, California)	920

Hand Launched Glider

Individuals	Total of 3 Flights
1. Lin Haslem (Salt Lake City, Utah)	456
2. Wayne Henshaw (Denver, Colorado)	431
3. Dave McGhee (Denver, Colorado)	419
4. Ed Whitten (New York, New York)	336
5. Ed Collins (Denver, Colorado)	334

Teams	Percentage Deviation from Target
1. W. Henshaw/E. Collins/D. McGhee (Magnificent Mountain Men, Denver, Colorado)	1184
2. Lin Haslem/B. Taft/C. Goodenough (Utah State Aeromodellers, Salt Lake City, Utah)	700

Individuals	Percentage Deviation from Target
1. Richard Whitton (New York, New York) (Target 45 sec.—Flight 45.8 sec.)	1.8 per cent.
2. Bud Tenny (Richardson, Texas) (Target 85 sec.—Flight 69.9 sec.)	17.8 per cent.
3. Ed Whitten (New York, New York) (Target 45 sec.—Flight 53.6 sec.)	19.1 per cent.
4. Bob Schlein (Denver, Colorado) (Target 90 sec.—Flight 112.0 sec.)	24.4 per cent.
5. Roy Roberts (Lancashire, England) (Target 45 sec.—Flight 60.0 sec.)	33.3 per cent.

Teams	Percentage Deviation from Target
1. R. Whitten/E. Whitten (New York, New York)	73.6 per cent.
2. R. Roberts/M. Reeves (Whitefield M.A.C., Lancashire, England)	99.0 per cent.

CLUB AND CONTEST NEWS

ELLIOTT M.E.C. RALLY

The model engineering club of Elliott Automation, Rochester Airport, organised and ran a fine Control-line rally in the company's car park on June 4th. The entries were good and camera facilities were available as well as chairs etc. for lounging about and watching the flying. Stunt was the largest crowd drawer with Dave Day (Wolves) just beating Mick Reeves (Wanstead), in fact Mick beat Dave by 964 to 912 pts. in the first round then Dave retaliated with 979 to Mick's 924 in the second round. C. Jones, a new name and non club member was a surprise third with a best score of 922 pts. followed by S. Black (Deltas) in 4th position with 906. Richard Wilkens (Sidcup) decided to have a go with his combat model and while the effort was worthy the manoeuvres suffered from excess speed, to say the least of it!

Team Race for Class A models only had 4 entries due to the event not being announced and three flew in a 100 lap heat cum-final which Dave Balch and Richard King (Feltham/Hayes) won with 5:47. Taylor (Tunbridge Wells) made 6:33 for 2nd while Ron James with a silver "Orion" took a leisurely 10:30, Ron by the way, works in R/C all day for Remcon Electronics and is in Elliott M.E.C.

Combat attracted 36 entries where D. Melrose (Heanor) beat Sharpe (Woking) in the final with V. Hunt (Bald Eagles) third. Crashy was not too bad and the standard of combat these days really is on the way up with few level laps flown at all, most of the battle being contained in one segment of the circle.

Rat Racing flown beside and underneath the glass fronted Elliott tower office block drew 28 entries and the window cleaners will rue June 4th for a long while! Some of the heats were quite hectic. Roger Gedge (Ipswich) had his down line break, Franklin/Ives (Wanstead) went straight into his lines, crashed and knocked the engine right out of the model. Unfortunately whipping was allowed, a state of affairs which proved beyond doubt that bad whipping makes for very unsafe flying! Feltham/Hayes entries were everywhere and they dominated the whole rally with three in the four up final. The first semi saw Dave Rudd make a fast 3:18.8 and Gillhespy/Goddard (Wanstead) fail to start, (now traced to a faulty plug that only glows intermittently). The last semi was both fast and hectic, whipping was on full strength and (we were flying in it) models were at times out of the pilot's controls with crossed lines etc. The Franklin/Ives team with a patched model recorded 3:17.8. The final saw team race ace Brian Turner (Wharfedale) pitting Andrew Longhurst's model but a poor starting engine put them out of the running and they eventually retired. Rudd and Franklin were equal in speed at about 115mph then they both slowed a little, Franklin collected some goo in the needle valve and slowed right down. In the meantime King/Balch were flying on steadily slightly slower than Rudd with Rudd the winner at 6:33 followed by King/Balch 7:33 and Franklin/Ives 8:02.

The prizes were then presented by Mr. S. Ellis, Divisional Manager and Chief Designer of Elliotts to an appreciative crowd. Andrew Longhurst received the "Airtech Challenge Cup" for the first time, presented to the club that scores the most points in all events. In all, a very good rally with ideal weather and a 'friendly' contest air. We should mention here the Elliott M.E.C. badge, this is a simple affair but very effective, a chrome plated combat model with E.M.E.C. engraved across the wing, these and club transfers were for sale on the field.

Open Rubber Rules

From what I hear at least one recent suggestion concerning open rubber rules is to be referred to the S.M.A.E. F/F Sub-Committee for official consideration. The suggestion was to the effect that only one rubber motor be allowed for an entrant to complete his flights and fly off. This, in effect, virtually means one model as well, since any flyaway disposes of the motor. There are other implications. Many competitors with true open models do not wind to maximum in any case and not all change the motor each flight. The people really handicapped will be those trying to compete relatively using Wakefields or other low-performance models. These require winding to the limit to have even a fighting chance and would be further penalised with a one-motor rule. I cannot see this as a solution.

The other recent offering (via "Northern Area News") was an "Open 40" class proposed in print by Henry Tubbs. This involved a 40 grams rubber limit, without model restrictions. This is intentionally phrased so as to encourage Wakefield participation—but would also permit lightweight structure models designed to utilise the same amount of rubber. The most obvious approach is a small model of around Coupe d'Hiver size. Strangely enough I had such a model 3/4 years ago. Using components from my Coupe d'Hiver model and halves of old 80 gram Wakefield motors it was a very useful "stop-gap". Performance was adequate for 3 minutes max but visibility was a different story!

Personally I can't see any answer to the open rubber problem that still leaves it "open" except the radical suggestion of rescheduling the times of flying to early morning or late evening. This would reduce the wind and lift, but has obvious organisation difficulties. Perhaps the first steps have already been taken with the Nationals' fly off and the even more recent authorisation to the N.W. Area Comp. Sec. to stage an Area open rubber event in rounds to be decided on the day to suit conditions.

Any change in the basic concept of open rubber has drawbacks. Most open rubber exponents with whom I have discussed this topic seem happy to live with the present situation—but feel that if change must come then it should be to Wakefield, if only to give a single restricted class. There is still Coupe

CHELTEMHAM SCRAMBLE

Ten contestants took place in the Cheltenham Club's scramble for free flight models on April 23rd. Very few members were present for timekeeping and each time keeper had two or three models at once. After the hectic half hour had passed and while the weary contestants rested, the scores were totted up. First prize went to the 1966 cup holder Peter Risher who managed 9:56 from six flights, a very good achievement. Pete thus retains the "Wreckord" Cup for another year. Second was Allen Price with 7:45 also from six flights. The first three all used tow line gliders but David Plews placed 6th with a chuck glider and 12 recorded flights to give him 4:51. T. Allen placed third in the Western Area Coupe d'Hiver contest and although getting two maxs in open glider he hit down draughts on the third which put him well down the list.

Cambridge News

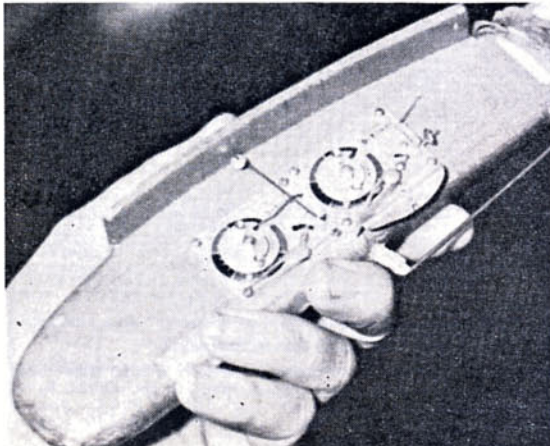
The Cambridge M.A.C. Newsletter starts off very amusingly:—"Junk Sale 19th May. This Friday folks. Bring all rubbish, old and new. Chinese readers please note we are not disposing of a Hong Kong sailing vessel! They find it hard to see the point of using silencers at R.A.F. Duxford when full size car and motor cycle meetings make far more noise than modellers could ever produce, even if they tried. Mike Nelson has built another boomed "Dominator" and Eric Miller has made a great job of a "Frog Musfire" multi radio control model. One of the recent club meetings was the scene of an epic chuck glider battle. Everyone had a good time and the highlight of the evening was the appearance of Malcolm Tye complete with a kit and plan. Malcolm constructed a glider and went on to win. Sue Miller, yes "Sue" took second place in an Area Combat Contest.

d'Hiver of course, but with the present trends and desires to reduce performance I can see Wakefield and Coupe d'Hiver meeting in the not too distant future. I only hope I'm wrong!

East Grinstead Gala Results

A/1GLIDER—1st. K. Smith, Croydon, 2:39; 2nd. C. Morris, St. Albans, 2:30. OPEN RUBBER—1st. R. Peers, Congleton, 4:26; 2nd. J. Wardell, Harlow, 2:02. OPEN POWER—1st. G. Fuller, St. Albans, 5:32; 2nd. T. Payne, Northampton, 4:20. OPEN GLIDER—1st. A. Wisler, Croydon, 6:21; 2nd. J. O'Donnell, Whitefield, 5:00; 3rd. A. Young, Croydon, 4:21. COUPE D'HIVER—1st. J. Allen, Brighton, 3:34; 2nd. L. Burrows, Blackheath, 3:02; 3rd. F. Sharp, Blackheath, 2:10. CHUCK GLIDER—1st. T. Slater, Leatherhead, 1:53; 2nd. N. Clark, Sperry, 1:26.

The "belt and braces" type installation on Tony Youngs A/2 is in fact two timers to ensure a D/T at all costs, seen at the Nationals.



HALIFAX CHALLENGE TROPHY

The postal contest for the Halifax Trophy on April 9th and 16th, attracted 19 entries of whom 10 flew. Open to rubber, glider and power models, the first day's weather was pretty rough and the second date arranged to coincide with area meetings, therefore making airfields available, was rather crowded. This day started well but the wind freshened, eliminating those who fly tailless well down their list. Ken Attiwell (York) had to proxy fly John Pools "Never Forget Vlb" as John was suffering with a jaundice attack, while Ken only managed 5th position he flew John Pools model into top spot. Three maxes were made early with 600 turns on 16 strands of weak Dunlop that gave a 2:10—2:20 motor run. The propeller drawn in N.A.N. was used and the wing as published in Aeromodeller. Kens own model was flown in poorer weather and after an initial max spoiled his chances with a rather tight turn caused through the loss of some side thrust packing. Alan Nobbs (Halifax) used an own design model based on Never Forget VI and a 12 strand motor gave a poor climb, 16 strands then gave a poor glide, his best flight was 1:26 and the 4:00 total made him 7th. Second place went to M. Page (Peterborough) with an own design glider on its first outing. Flying without a D/T after a rapid finish for the contest. C. Peters in 4th position also used a fairly untuned model, though it had been hand launched to try out the D/T system. At first one tip used to go up, this caused a sharp turn with the outer wing travelling too fast to tip up. Stronger bands and horn type attachment have now cured this. Less than common sweepback and central fin is to get away from some of the problems seen in other towline gliders, tailless of course. Wing section used was a slightly modified Draper power section. Brian Faulkner 9 (Chaddle) used a 150 sq. in. tailless model published in N.A.N.,



he only had a 30 second motor run and it climbed too steeply, then swooped in on the glide, this was cured with a turbulator. Noran Couling used an Icarus as drawn in N.A.N., and had life on his first flight with a 200 ft. line. During tow for the second flight the wing broke in half and the repairs left the model in an untowable state.



Left, the Halifax Challenge Trophy for tailless models organised by John Pool. Above Derrick Parker, Midland Area Secretary releases Area Delegate, Derek Culpin's, tailless glider at the Nationals.

Imperial Rain

The Imperial College Control Line Rally held at the College Sports Ground, Harlington on May 14th was rained out and combat prizes were decided by a draw. The rain affected the Rat Race event less seriously, but there were fewer entries than usual. The general standard of flying was rather low and in the heats only 11 out of the 20 entries actually completed 70 laps and taking the fastest 8 for the semi-finals, only eliminated those with times over 9½ minutes! The semi-finals were unspectacular and in the final three did not complete the 140 laps. Dave Rudd won with 7:28 the rest retired. But for the change of date of the Whitsun Holiday, this would have been the 'Nationals' weekend!

Woodford Rally Gen.

The North Western Areas' Woodford Rally is to be held on August 27th during the Bank Holiday period at Hawker Siddeleys Woodford, Cheshire, airfield. Free car parking, catering, trade stands etc. and the normal admission will be 2s. 6d. per person by printed programme. Current S.M.A.E. members will be admitted free of charge, upon production of their S.M.A.E. registration card. Entry fees have been fixed at 2s. 6d. for S.M.A.E. members, full or associate, and 10s. for non S.M.A.E. members. See Contest Calendar—new events for contest classes.

Coming Events

- July 30** Northampton M.A.C. Combat Rally. Midsummer Meadow, Northampton. Pre entry 2/6 to: R. J. Ashby, 20 Hester Street, Northampton.
- August 6** Shuttleworth Scale Rally. Old Warden Airfield, Bedfordshire. All classes of scale, including Plastics. Bring show and fly, starts 11 a.m. Special prizes for best models of Shuttleworth aircraft. Field entry. Aeromodeller trophies for five classes. Send an S.A.E. to Aero Modeller Editorial Offices for general details.
- August 13** Chobham Summer Gala, Chobham Common, Open R/G/P, $\frac{1}{2}$ A Power.
- August 19** Irvine Concours d'Elegance. Static display only. Scale and non-scale. Junior and Senior class. Entry forms, etc., from: D. McIntyre, Minyorea, Stewarton, Kilmarnock, Ayr, Scotland.
- August 20** S.M.A.E. Area Centralised Meeting. Team Power (Keil Trophy), F.A.I. Rubber (Gutteridge), Open Glider, A/1 Glider.
- August 20** Southend Radio Control Rally. Southend, Essex.
- August 27** Torbay Free Flight Rally. Woodbury Common, Open R/G/P and Chuck Glider.
- August 27** Woodford Rally. Hawker Siddeley Airfield, Woodford, Cheshire (not London!) Open R/G/P, Chuck Glider F/F Scale, R/C Freestyle Aerobatics, R/C Pylon Race (Goodyear). 'A' Combat, 'A', F.A.I. T/R Rat Race, Stunt, and C/L Scale. Pre-entry 2/6d. to:—G. Stott, 11 Fairsnape Road, Lytham, Lancs. Car parking free, free admittance to S.M.A.E. members with current affiliation card.

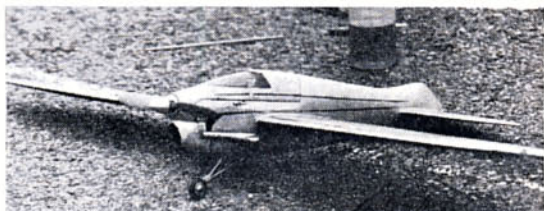
New Events

- October 1** South Bristol Autumn Gala. R.A.F. Hullavington, Wilts. Combined Vintage, Combined F.A.I., Chuck Glider, Coupe d'Hiver.
- October 8** Wharfedale 1000. R.A.F. Rufforth, Yorks. 1,000 lap class B Team Race. Pre entry to: Les Davy, 14 Lansdowne Close, Baildon, Yorks.
- October 22** Imperial College Control Line Rally. College Sports Ground, Sipson Lane, Harlington, Hayes. Class 'A' Combat only, pre-entry 3/- to:—G. Walker, Commonwealth Hall, Cartwright Gardens, London, W.C.1.

CHANGE OF DATE

November 19 Croydon F.A.I. Gala (was October 8th)

At right, top, this silver painted "Orion" F.A.I. team racer from A.P.S. by Ron James placed third at the Elliott Rally. Right: Andrew Longhurst, chairman of Feltham M.A.C., accepts the Elliott Challenge Cup from Mr. D. Ellis of Elliotts for the best club effort.





HENRY HINODE SAYS—

New Hinode Package Deal Set, featuring ***Hinode St. 146 6 Transistor Transmitter, with built-in R.F. Meter and Tone Monitor. ***Hinode R.450 Receiver. ***Hinode MS.50 Servo. This low price for all on 40.68megs.: \$62.00, a saving of \$38.00.

Convert your single Tx. Rx. to Galloping Ghost or buy Hinode G.G. outfit complete, comprising 2A-5T with pulser built-on, R.250 Receiver, LR.3 Servo, New Tx. case built into Transmitter

CHOOSE FROM:

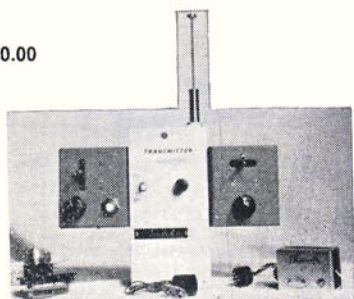
Mk. 1 outfit at \$112.00

Mk. 2 outfit at \$150.00, equipped with SERVO DEAC pack.

HINODE SINGLE CHANNEL PROPORTIONAL EQUIPMENT
SUPERHET TRANSMITTER RECEIVER, SERVO etc. \$177.10 (£A88.11.0)
HINODE 6 CHANNEL SUPERHET SET, TRANSMITTER & RECEIVER \$150.00
HINODE 10 CHANNEL SUPERHET TRANSMITTER RECEIVER \$211.25
HINODE DIXIE RECEIVER TRANSMITTER ONLY \$45.95 ON 27 MGS
HINODE DIXIE RECEIVER TRANSMITTER ONLY \$52.35 ON 40 MGS
HINODE HS50 SERVOS SINGLE CHANNEL ONLY \$12.35 EACH
HINODE HS200 MULTI SUPERHET SERVOS ONLY \$30.90 TRIM & S/N

JUST ARRIVED MK. 2 A GO-GO HINODE OUTFIT NEW
TRANSMITTER. THIS UNIT IS COMPLETE WITH RECEIVER.
RAND LR.3 SERVO DEAC, PRE-WIRED. ONLY \$150.00

TRADE ENQUIRIES INVITED. SO WHY NOT WRITE
FOR OUR NEW PRICE LIST 20 CENTS EACH.
OUR RADIO SERVICES AND PRICES ARE THE BEST IN AUSTRALIA



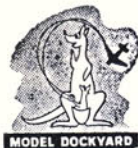
HINODE G.G. OUTFIT
\$112.00 FOR Tx, Rx. SERVO

FROM

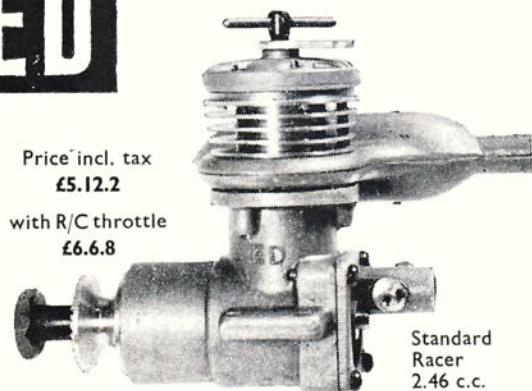
TRADE
ENQUIRIES
INVITED

THE MODEL DOCKYARD PTY. LTD.

216 SWANSTON STREET MELBOURNE C.1. AUSTRALIA



ED



Price incl. tax
£5.12.2

with R/C throttle
£6.6.8

Standard
Racer
2.46 c.c.

COMING SOON NEW SUPER RACER

FAST—POWERFUL—ECONOMICAL

ELECTRONIC DEVELOPMENTS

ASK
FOR
ED FUEL

64 BRIGHTON ROAD,
SURBITON, SURREY

Dealer enquiries welcome

S. H. GRAINGER & CO.

the Midlands' leading model shop

★ MAIN AGENTS

FOR ALL LEADING MAKES

★ KITS ★ ENGINES ★ SPARES ★ REPAIRS

★ RADIO CONTROL EQUIPMENT ★

MAIL ORDER ● PART EXCHANGE

NO DEPOSIT HIRE PURCHASE

Single Channel
Gem
Raven
McGregor
O.S. Pixie
Futaba
Etc.

Reed
Raven 6 & 10
Citizenship
O.S. 6.10 & 12
Remcon Kit
F & M
Etc.

Proportional
Remcon Versaplex
Citizenship 3 ± 1
Citizenship Digital
Kraft KP4 & KP6
Grundig
Etc.

GEM TX & RX

K.K. Mini Super
Engine, Escapement
& Wiring Harness

£25

or 9 monthly payments
of £2.18.9

Most advertised goods available from stock, at the above rates
Your old equipment taken in part exchange.

S.A.E. WITH ENQUIRIES

CALDMORE MODELS

108 CALDMORE ROAD—WALSALL—STAFFS.

Tel. 23382

AMERICA'S BEST FROM RipMax

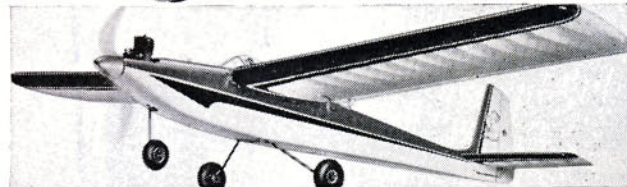
CARL GOLDBERG MODELS



Shoestring!
Most Beautiful R/C Ever Kitted!

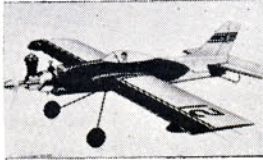
Design-engineered for perfection in performance... quality... value! All kits fully prefabricated in selected TOP QUALITY balsa and include hardware, etc.

SHOESTRING... £9.17.6
54" Goodyear Racer for Contest or Sport Flying. Takes .19-.40 engines.



JNR FALCON 54/6 37" span for single-channel & 049 engines.
FALCON 56 131/6 56" span for single to 6 channel 09's to .19.
SNR FALCON 252/0 69" span for 10 channel multi engine .35-.45.

SKYLARK for single- or twin-engine installation! SKYLARK 56... 153/6
JNR. SKYLARK (37" sp)... 65/-
SKYLANE for real semi-scale beauty. Two versions SKYLANE 42... 76/6
 SKYLANE 62... 219/6



CONTROL LINE MODELS
SWORDSMAN 18 21/6
L'IL WIZARD 27/6 (illustrated)
SHOESTRING 54/6
JUNIOR SATAN 27/6
L'IL SATAN 16/6 (Combat)



Completely modern ALL SHEET Balsa construction with every single part accurately die-cut. The TOP FLITE 'COMPACTS' are outstanding value for money—every one an outstanding performer!



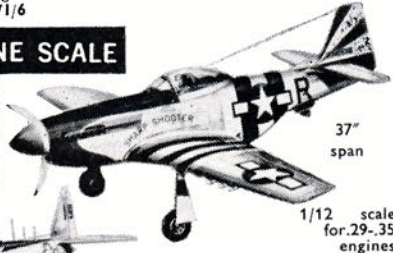
SCHOOLGIRL. 65/- 32" span
 Different! Exciting! Fly as 'mono' also.
29" SCHOOLBOY for single channel 38/6
30" CESSNA R/C scale for .02's... 43/6
27" RASCAL cabin R/C rudder only... 32/6
ROARIN' 20 for .02's and R/C... 32/6
 ALSO THE WORLD'S TOP MULTI KITS 57" **TAURI** for lightweight 'full house'... 239/6 70" **TAURUS** the supreme contest model... 359/6



SCHOOLMASTER 39" span 'Compact' for engines up to 1.5c.c.—the IDEAL R/C TRAINER for single-channel up! 71/6

CONTROL LINE SCALE

These superbly detailed scale model kits include PREFORMED Balsa FUSELAGE SHELLS for easy, accurate assembly. Each model a potential 'Concours' winner—and every one stuntable!



27" span P-47 THUNDERBOLT... 87/6

P-51D MUSTANG... super de luxe kit 142/6
P-40 WARHAWK... 87/6
 28" sp. for .15-.29 engines
SEMI-SCALE STUNTERS:—
 42" sp. HURRICANE... 65/0
 42" sp. TIGER SHARK... 65/0

AT YOUR LOCAL MODEL SHOP!
 in case of difficulty write **RIPMAX, 80 Highgate Road, London NW5**
 ALL PRICES EXCLUSIVE OF PT SURCHARGE

Equado

TOP QUALITY Balsa AT ROCK BOTTOM PRICES

COMPARE OUR PRICES WITH OTHER BRANDS
 Below prices are our recommended retail prices

1 1/2 in. x 3 in. x 36 in.	1/-	1 1/8 in. x 1 1/8 in. x 36 in.	1 1/2 d.
1 1/4 in. x 3 in. x 36 in.	1/2	1 1/4 in. x 1 1/4 in. x 36 in.	2 1/2 d.
1 1/2 in. x 3 in. x 36 in.	1/4	1 1/2 in. x 1 1/2 in. x 36 in.	4d.
1 1/4 in. x 3 in. x 36 in.	1/9	1 1/4 in. x 1 1/4 in. x 36 in.	9d.
1 1/2 in. x 3 in. x 36 in.	3/-	1 1/2 in. x 1 1/2 in. x 36 in.	1/6

SEND FOR FREE WHOLESALE PRICE LIST
E. LAW & SON (TIMBER) LTD.
 272-274 HIGH STREET, SUTTON, SURREY
 TELEPHONE: VIGILANT 8291—3 LINES
 GRAMS: TIMBERLAW SUTTON

CLASSIFIED ADVERTISEMENTS

PREPARE DATE for September issue, 1967, July 24th. 1967.

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 July 24th, will be held over until the next issue, unless cancelled in writing before 15th of following month.

FOR SALE

F. & M. Matador/Midas 10 channel, 4 Bonner servos set deacs. Bargain at £65. Telephone West Kingsdown 2628 evenings. L.

Macgregor Tone TX, Motors tested £5, Rivers 3.5 c.c. Diesel £3, Cox Babe £1, Miller, 16 The Drive, West Raynham, Fakenham, Norfolk. L.

Factory tuned and tested MacGregor S/C Tone TX, RX, Elmic Compound escapement. 500 DKZ Deac and Charger. Possibly sell separately £11 o.n.o. 48 Short Heath Road, Erdington, Birmingham 23. Phone ERD 7163. L.

Collectors item, Elfin 1.8 P.B. offers, Enya 35 11 with throttle £4.10s., A.M. 10. 30/-, D. Allman, 9 Vauxhall Road, Nantwich, Cheshire. L.

Enya 19 MK.4 (latest model). New, boxed, instructions. £3.10s. Craik, 31 Malvern Road, Gosport, Hants. L.

AM 25 50/-, AM 15, Fok 1 c.c. £2 each. Frog 349 silencer 70/- all v.g.c. plans magazines. Rowlands, 126 Riverway, Christchurch, Hants. L.

Enya 09 Mk III as new £4. Frog 3 1/2 c.c. and CL back-plates £2.10.0d. Frog 1 1/2 c.c. 48/-, Frog 1 c.c. 35/-, Peewee new £2. R. Jones, Trehelig, Welshpool, Montgomeryshire. L.

"Two 60" Control Line Models less engines. "Vickers Viscount", excellent flyer. "Sterling Spitfire" not flown. S.A.E. Offers. 1 Shepherds Close, Beaconsfield, Bucks. Telephone 4971. L.

"Tony" Stunter. Merco 35. £8. "Shoestring" Stunter, Monokoted. McCoy 40 £8. Cox P.T. 19. Trainer. £5. Wenmac King Cobra. £5. Phone Valentine 4754. L.

For Sale. K/K Super 60. Almost completed and Frog 500+R.C.S. single channel. O.N.O. Box No. 812. L.

P.A.W. 2.49 £3. A.M. 15. 30/-, Tuned ED 2.46 £3. All little used. Oliver 1.5 £4. unrun. McCoy '29' £2. unrun. John Macready, 12 Bell Lane, Thame, Oxon. L.

Citizenship Propo. Single stick 3+1. 4 servos, deacs dual charger. £75. New Jamaica 61 £10. The Cox, 31 Charles Aulfray House, Jamaica Street, E.1. Phone, 790-6942. L.

Collectors items, sensible offers please. 1939 Brown JR (as new with tank and electric). Boxed unrun Taplin Twin MK 1, OS Max 1 35 R/C. Box No. 813. L.

Model Airplane News Plan Latest Addition

M.A.N. 68A

SPECIAL PLANS FOR THE MULTI-AEROBATIC AND SCALE FANS. BUILD AND FLY THE CHIPMUNK AS YOUR LATEST OR FIRST SCALE MODEL. FULLY AEROBATIC, JUST THE THING FOR SPORT OR CONTEST!

Chipmunk:- A 59in. wings palow wing scale aerobic model of Hal Kiers modified De Havilland Chipmunk. Drawn for polystyrene foam wings this is a smaller than usual model for 8-10 c.c. engines. The outline drawings would also be a good basis for a control line stunter or scale model. Designed by Jack Stafford.

290 Special:- A control line all sheet construction trainer for .049 engines, especially the Cox 290. This is the engine supplied in the Cox ready to fly plastics and the 290 Special is the first model designed to suit this engine. Designed by Cox engineer Dale Kirn.

Ugly Duckling:- A simple all sheet tow line trainer glide with simple diamond section wing or slightly more advanced wing construction shown. 30in. wingspan.

THE ABOVE THREE PLANS ARE ALL PRINTED ON ONE LARGE SHEET FOR 7/6+6d. POSTAGE. DON'T MISS THIS BARGAIN FOR R/C, C/L, or F/F.

Limited stock, order whilst they last. For a full list of Model Airplane News Plans, send a 4d. stamped addressed envelope. All plans are priced 7/6d. plus 6d. postage from Aeromodeller Plans Service, 13-35 Bridge Street, Hemel Hempstead, Herts.

Cox Thimble Drome Stuka Control Line model in Original Box. Used a few times only. Owner going on to more advanced flying. £4.10s. post free. Cooke, 46 Blunden Road, Farnborough, Hants. L.

RCS Guidance System Tx. & Rx., AM 15 R/C in Nylon covered model. Elmic Commander and Corporal, DC Sabre, £16. Campton, 19 Jubilee Drive, Glenfield, Leicester. L.

New unused OS12 Superhet Transmitter Receiver £65. Four amplified Duramites, one amplified Ancco, mounted for installation, plugs switch Deac £22. The lot £80. Unused equipment—OS H40 RC £6. OS Max29 £4.10.0d. OS Max19 £4.0.0d. H55C £5, Electric Servos OS1015 Rudder, MK3P motor, MK3PN Rudder, £3.10.0d. each. Used OS101 motor £2.10.0d. Unused works Modified Tigre III £6. Good Fox 19 £2.10.0d. Original Tornado Plasticotes 7x8, 7x9. Pomadi F.A.I. Pan 15/-, V/good T.D.09 £3.0.0d. Satisfaction assured. Farningthorpe, 2A Adastral Close, Felixstowe, Suffolk. L.

Medelectric "Astral" transmitter with "Minimod" receiver, hardly used £15. Unused Medelectric MK.I receiver £5. Elmic Compact £2. F.R. Clockwork £1.10s. Babcock Hypercompound £2. Webra Mach II R/C £6.10s. P.A.W. 19D-11 tuned, silencer (cost over £7), £5.10; both hardly run. Snipe R/C, silencers, £2.10s. Water-cooled Sabre with "Sea Hornet", all fittings, £3.10s. Merlin, Wenmac Rotomatic, E.D. Racer, Hawk (excellent), £1 each. Miscellaneous equipment, S.A.E. lists. 80, Penn Grove Road, Hereford. L.

Studette solid model kits, genuine collectors items 1939 vintage. Avro Lancaster (few only) Flying Fortresses 1/72nd scale, 10/- each +2/6d. post and pack. M. Beacom, 11 Queenswood Road, Four Oaks, Sutton Coldfield, Warks. L.

WANTED
A .46 E.D. Diesel in any condition, to 36 St. Georges Avenue, Wiedmill, Bridgend, G150

Worn out PB Amco 3.5. Frog k0, for spares. State price. N. Holme, 119 Lune Street, Syerton, Lancaster. L.

Davies Charlton Tornado twin cylinder, Eijo motor, good condition—M. Beacom, 11 Queenswood Road, Four Oaks, Sutton Coldfield, Warks. L.

Kemp 2; Kalper; Bambi or similar miniature diesel. State condition and price. Tillotson, 85 Highbury Grove, Clapham, Bedford. L.

Who is BINDING ?
Authorised agent for standard style binding of Aeromodeller and other Model Aeronautical Press Journals, to whom all loose copies of issues should be sent, is:

Beaumont Aviation Literature,
11 Bath St., London, E.C.1

charge per volume of Aeromodeller, Model Cars, Model Boats, or R.C.M. & E. £1, 25/- for Model Railway News or 30/- for Model Engineer plus post and packing, index provided.

The Advertisement Manager reserves the right to refuse or suspend advertisements without giving any reason. Every care is taken to avoid mistakes, but the publishers cannot be held liable in any way for clerical and printing errors or omissions. Receipt of "copy" for publication implies acceptance of these conditions by the advertiser. Whilst every care is taken to exclude advertisements from doubtful sources, no responsibility can be accepted by the publishers for the bona fides of advertisers.

Pre-war Model Engines, regardless of condition. Also pre-war kits and kit plans. Raddon, 22 Byng Road, Barnet, Herts. L.

World War II British 1/72nd wooden Identification models of German Aircraft. Peter Scott, 26 Barrswood Road, New Milton, Hampshire. L.

MODELS BUILT

Have a plane as good as the competition winners. Models expertly built for F/F, C/L single or reeds or proportional. You name it, we will build it. S.A.E. 84 Hospital Road, Hammerwich, Walsall, Staffs. L.

EXCHANGE

Will exchange Pylon Racer competition winner, fitted 8 c.c. engine, for "Super 60", would collect. Phone EN8 8163. L.

GLIDING

Gliding courses with the Lakes Gliding Club. 17pns per week all found. For brochure apply to.—D. H. Millett 27 Scoforth Road, Lancaster K/L

SPECIAL OFFER

Advertising Pencils, Superb Ball-Pens, Combs, Brushes, etc. Raise funds quickly, easily. Details: Northern Novelties, Bradford 2. L/T

TRADE

ROSSI 60 10 c.c. chromed 19.15.0 Rossi 60 chromed R/C £23; Speed pan and spinner, 6 grades glow plugs, speed props. Rossi. Via Pace 13, Brescia, Italy. T/C

Military and Civil Aircraft, Photographs, lists 3d. S.A.E. please. T. A. Brown, 45 Clifton Road, Southall, Middlesex. No callers please. L.M.

Soviet Airfilms, Farnboro' Railway, Kong, Batman. Drag hire from 1/-, membership 2/-, lists 1/-, Standard 8 m.m. only film library. Lydney Road, Bream, Glos. L.

One year old McCoy 19, Glow for sale. 30/- O.N.O. Apply 29A Lebanon Park, Twickenham. L.

Power Modellers! Just arrived from Japan, the I.M.P. "Acada" fuel cut-off timer, only 26/-, available from: Michael Smith, 1 Station Road, Kimberley, Wymondham, Norfolk. L.

PLANS

Now build and fly a full scale Aeroplanel Luton, Jodel, E.A.A. Gyrocopter Plans. Brochure 5/-. Phoenix Aircraft, Cranleigh. J.O

COMPLETE-A-PAC

SOLARBO SPECIALISTS

ANY SIZE AND DENSITY

YOU REQUIRE

RIPMAX & VERON PRODUCTS

Most of the popular A.P.S. plans+pacs in stock.

All R.M. plans+pacs in stock.

Annual Holiday, 29th July to 7th August

**C.A.P. WEST HIGH ST.,
EARLSTON, BERWICKSHIRE**

List of 40 collectors engines and 70 aircraft engines sent to you for 3d. stamp.

New and used R/C equipment lists —3d. stamp.

Sale lists and ready made model lists—3d. stamp.

Part exchange our speciality. H.P. if required.

Phone 27097 **ROLAND SCOTT** Phone 27097

147 Derby Street, Bolton, Lancs.

TELL THE ADVERTISER you read his announcement in AEROMODELLER—he will appreciate the knowledge of how you came to learn about his bargain. DO NOT FORGET A STAMPED ADDRESSED ENVELOPE IF YOU ARE EXPECTING A REPLY.

MOTOR MART

Bill Davis (for many years proprietor of Sheen Models) announces his new personal service of engine maintenance, spares supply, exchange scheme, collectors items, bargain offers and plain honest dealing for all modellers throughout the world.

Do you collect engines? Have you any damaged or old engines for disposal? Send your engines for valuation estimate, cheque by return, or engines returned with postage refund. Can't be fairer than that can I?

BILL DAVIS MOTOR MART,
15a Long Drive, East Acton,
London, W.3

GIG EIFFLAENDER REBORING SERVICE

CHESTER ROAD, MACCLESFIELD

REBORES, DIESEL ENGINES 23/6 c.w.o. GLOW-PLUG ENGINES 35/- c.w.o. C.O.D. SERVICE (pay the postman, UK only) 5/6 extra. 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.

BOOKS

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. T/C

American Magazine. Year's Subscription, "Model Airplane News" 45/6. "Air Progress" 52/7. Full catalogue free. Willen Ltd. (Dept. 1), 61a Broadway, London E.15. T/C

Aviation Books Wanted. Especially Putnam, Harleyford, Macdonald—Sales Booklist—4d. Bohemia Bookshop, 166 Bohemia Road, St. Leonards, Sussex. J.U.

SAILPLANE & GLIDING—The magazine for all gliding enthusiasts. Published alternate months. Send 4s. for current copy or £14.0 for a year's sub. to British Gliding Association, Artillery Mansions, 75 Victoria Street, London, W.1. T/C

The new monthly AMERICAN MODELER magazine incorporating GRID LEAKS Radio Control World, offers the latest in full scale, free flight, control line, radio control and scale plans and articles. For the best in U.S. aeromodelling send \$1 (7s. 6d. international Money Order) for airmailed current copy. American Modeler, 1012 Fourteenth Street, N.W. Washington, D.C. 20005, U.S.A. T/C

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

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. T/C

SINGLE CHANNEL

Always in stock the Fabulous 'R.C.S. Guidance System', the best and fastest selling single channel tone outfit in the world. Highest power Tx. Smallest Rx. with 1 amp. transistor output. Excellent wiring harness and battery box. Just fit batteries and go! . . . Mk. II 13 gns. Mk. III 14 gns. Accessory outfit ready wired and using the reliable 'Compact' escapement which gives you selective right and left rudder, fast/slow motor, and up or down elevator every time . . . only £4.10.0 'Corporal' motor control accessory outfit £3.

S.A.E. brings free 'An Introduction to Radio Control'. Now being demonstrated or dispatched post free by

RADIO CONTROL SUPPLIES

581 LONDON ROAD, ISLEWORTH, MIDD. ISL. 0473.
52 LONDON ROAD, LEICESTER LEIC. 21935

AEROMODELLER INDEX 1967

Copies of the 1967 Aeromodeller Index are available from Editorial offices at 1/- each, providing a stamped addressed envelope is enclosed with each separate order. Send to:-

Aeromodeller Index,
12-35, Bridge Street, Hemel Hempstead, Herts.

HOLIDAYS WITH A DIFFERENCE HAVE YOU TRIED GLIDING?

Five-day Courses available from June to September at the Soaring Centre of the Scottish Gliding Union, Portmoak, Scotlandwell, by Kinross.

Apply to Secretary for further particulars.

EXTRA HUGH EVELYN COLOUR PRINTS OF EARLY AEROPLANES FREE IF YOU ORDER NOW!
SAVE 16s. **SIX PRINTS FOR THE PRICE OF FOUR** (which is 32s. instead of 48s., post free)
or SAVE 8s. **FOUR PRINTS FOR THE PRICE OF THREE** (which is 24s. instead of 32s., post free)

This offer is limited to readers of Aero Modeller and closes on the 30th September 1967.

Please tick the prints required:—

- AD1 Bleriot XI, 1909
- AD2 Antoinette, 1908
- AD3 Wright Flyer, 1907/1909
- AD4 Gordon Bennett Deperdussin, 1913
- AD5 Sopwith Camel, 1917
- AD6 Avro 504K, 1917

Hugh Evelyn Early Aeroplanes prints measure 13½ in. by 18½ in. and are entirely accurate in scale, colour and detail. Normal price per print—8s. Choose your prints from the list and complete the coupon below, or list the prints you require on a separate sheet of paper and enclose it with your remittance and name and address.

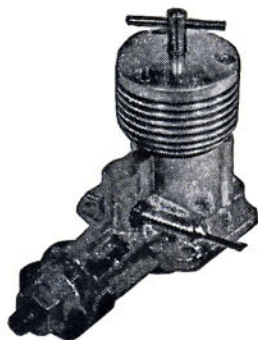
To:—**HUGH EVELYN PRINTS, 85 Lower Sloane Street, London S.W.1.**
Please send me the Early Aeroplanes prints I have marked/all six prints.
I enclose cheque/P.O. for 24s/32s.

Name

Address

P.A.W. ENGINES LATEST!

THE
2.49 Mk. 4
with SQUISH HEAD
especially designed
and timed for
SILENCED RUNNING
with MINIMUM
power loss



The P.A.W. 2.49 Mk. 4 is a newly designed shaft valve 10-ball race diesel engine weighing 5½ ozs. and delivering .34 b.h.p. at 15,500 r.p.m. in the best P.A.W. tradition. It has large bearing surfaces, reasonable price, and the P.A.W. 2-month Guarantee. All our engines are backed by our "by return" spares service.

THE P.A.W. RANGE OF ENGINES:

P.A.W. 1.49	£4 12 4
P.A.W. 2.49 Mk. 4	£5 10 10
P.A.W. 19-D Mk. II	£5 6 1
P.A.W. 19-BR	£6 7 11
Exhaust Muffler for 1.49	12 8
Exhaust Muffler for 2.49+19	14 0

All prices include Purchase Tax. Obtainable from Model Shops. In case of difficulty write to:

PROGRESS AERO WORKS
CHESTER ROAD, MACCLESFIELD

look!
low prices

DIESEL and GLOPLUG AERO ENGINES

DC Bantam .8 cc.	38/1
DC Merlin .76 cc.	50/4
DC Spitfire 1 cc.	59/11
DC Sabre 1.5 cc.	63/6
PAW 1.49 cc.	77/-
PAW 2.49 cc.	92/6
PAW 19D 3.2 cc.	85/6
ME Heron 1 cc.	56/1
ME Snipe 1.5 cc.	62/3
OS Pet 1.6 cc.	45/9
ETA Elite Mk. 2	160/-
COX Medallion 049	72/-
Webre Winner 2.46 cc.	83/1
Webre 61R/C 10 cc.	304/10
Super Tigre 35R/C	184/4

Many more Aero and Marine (New Zealand orders welcome)
Send S.A.E. and 1/- for lists

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



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

BARKINGSIDE

Tel.:
01-500 2007

PAGE'S OF BARKINGSIDE
LTD.

M.E.T.A.

19 BROADWAY MARKET, BARKINGSIDE
ILFORD, ESSEX

Why go to town?

We can supply all your needs
at Ilford's largest Model Shop

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

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

BATH

Tel.: 60444

CYRIL HOWE'S

CHEAP STREET, BATH, SOMERSET

The Model Shop of the West for all your
modelling requirements. Aircraft, boats,
engines, radio control. Expert advice
available
M.A.P.

CARDIFF

Tel.: 29065

BUD MORGAN

The Model Aircraft Specialist

For KeilKraft, Mercury, Veron, Ripmax
MacGregor R/C, R.E.P. Radio Control,
Revell, Airfix, Frog, Monogram
A.P.S. Handbook 2/-, inc. postage. Send
S.A.E., stamped please for assorted lists
22 & 22A CASTLE ARCADE, CARDIFF

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

BEXLEYHEATH

Tel.: Danson Park 2055

REMCON

FOR ALL MAKES OF RADIO EQUIPMENT
AND MODELLERS' SUNDRIES

Our Speciality:

Do-it-yourself Superhet Equipment
★ Advice from practical modellers ★
Write: Dept. M.S.D., 4a Broadway
Bexleyheath, Kent

CARDIFF

Tel. 65453

G. H. ROWSELL

20 PANTBACH ROAD,

BIRCHGROVE, CARDIFF

Aircraft and Boat Kits.

Experts in Radio Control.

Fibre-glass Fuselages.

Run by Modellers.

For Modellers.

HEMEL HEMPSTEAD

Tel.: Hemel Hempstead 53691

TAYLOR & McKENNA

(Hemel) LTD.

203 MARLOWES

HEMEL HEMPSTEAD, HERTS

For Model Boats, Aircraft, Railways,
Racing Cars and Accessories.

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

CHICHESTER

Tel.: 83592

PLANET MODELS

& HANDICRAFTS

108 THE HORNET, CHICHESTER, SUSSEX

Aircraft and Boat Kits. All Accessories

Balsa Wood, Engines, Fuels, Finished, etc.

Model Railways & Racing Cars

Personal Service

Mail Orders

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.

BIRMINGHAM

Tel.: NOR 5569

THE MODEL MECCA

284 WITTON ROAD

BIRMINGHAM 6

Aircraft, Boats, Trains, etc. Birmingham's
Telecont Radio agents. "Gena" Fibre
Glass Hulls

DONCASTER

Tel.: 2524

B. CUTTRISS & SONS

MODELS AND HANDICRAFTS

40 DUKE STREET

Call and see our Shop

KENT

Tel.: RAV 0818

AVICRAFT LTD.

6 CHATTERTON ROAD, BROMLEY

I sell as much modelling gear as I can
afford to stock. Radio Control, Boats,
Planes. Good selection of wood and
accessories.

Whatever you want in the way of gear
for Aircrafts sake, send your orders here.

BIRMINGHAM

Tel.: NOR 6770

TRYFAN MODELS

90 ROOKERY ROAD, HANDSWORTH

BIRMINGHAM 21

Small shop, large stock entirely for the
model enthusiast. Proprietor gives
personal attention and advice to all your
requirements

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.

Banner, R.E.P., O.S., Minitron, etc.

PHONE OR CALL

(Mail Order by ret. C.O.D. with pleasure)

KENT

Tel.: Dartford 24155

MODERN MODELS LTD.

49/51 LOWFIELD STREET

DARTFORD, KENT

For all that's best in Model Aircraft and
Boats, including Radio Control
American Kits and Accessories a speciality

LEEDS Tel.: 27891

THE MODEL SHOP
38 MERRION STREET
(Nr. Tower Cinema)

Model aircraft—boats—cars—railways, all makes engines. Every accessory, R/C equipment. Same day postal service.

LEICESTER Tel.: Leicester 21935

RADIO CONTROL SUPPLIES LTD.
52a LONDON ROAD
Mail Order Specialists

Largest R/C Stockists in the Country. The obvious shop for all your modelling requirements
Leicester's newest model showroom

LINCOLN Tel.: 27088

THE MODEL MAKERS MECCA
13 CLASKETGATE
(Next door to Theatre Royal)

Large stock of all Plastic and Flying Kits, Engines & Accessories. Scalextric Roadways. Triang and Lone Star electric railways.

LINCOLN Tel.: 25907

MODEL CENTRE
24 NEWLAND

THE ENTHUSIAST'S SHOP

Big Stocks of Kits, Engines, Balsa, Accessories, R/C Gear etc.
MAIL ORDER

LONDON Tel.: GUL 1818

AERO NAUTICAL MODELS
39 PARKWAY, CAMDEN TOWN, N.W.1

Aircraft Engine Tuning and Specialist Exhaust Systems made to requirements. R/C equipment. Sterling, Goldberg, Graupner, Veron, Aerokits, etc.
LONDON'S LEADING BOAT CENTRE

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 Tel.: ISLeworth 0473

RADIO CONTROL SUPPLIES LTD.
581 LONDON RD., ISLEWORTH, MIDDX.

Mail Order Specialists
Largest R/C Stockists in the Country. The 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 to Friday, 10 a.m. to 7 p.m.
Saturday, 9 a.m. to 6 p.m.
Closed all day Thursday
Postal Service

LONDON Tel.: 01-902 4823

WALLY KILMISTER LTD.
6/7 NEED PARADE
WEMBLEY TRIANGLE, MIDDX.

Radio Control Boat Specialists. Aircraft. Engines. Servos etc. Ripmax, Keilcraft, Veron, Hales, Rovex. Scalextric stockists.
WEMBLEY BOAT CENTRE

LONDON EDMonton 3719

TELERADIO EDMONTON

Huge stocks of parts for radio control. Send S.A.E. for Kit list.
3257 FORE STREET, N.9. (Nr. Angel)

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.: 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

LUTON Tel.: 7858

AEROMODELS (LUTON)
20 GORDON STREET
LUTON, BEDS

Model Aircraft, Cars, Railways and Boats for the beginner and expert

MAIDENHEAD Tel.: 21769

E. WALTON
61 KING STREET

Wide range of Modelling Kits and Accessories
Engines and R/C Equipment
Railways, etc.
Established 1932

MAIDSTONE Tel.: 51719

J. F. CARTER & SONS LTD.
(THE MODEL SHOP)
19-23 UPPER STONE STREET,
MAIDSTONE, KENT

Complete range of modelling equipment and accessories, including R/C.
MAIL ORDER

MANCHESTER Tel.: BLA 3972

THE MODEL SHOP
13 BOOTLE STREET
MANCHESTER 2

THE UP-TO-DATE SHOP WITH THE COMPREHENSIVE STOCK
Mail Orders by Return

NEWARK Tel.: 5851

NEWARK MODEL CENTRE
(Peter Anderson)
47-49 BALDERTONGATE, NEWARK

For the best range of Model Goods offered by an Active Modeller who is interested in your problems. Come to Newark. Mail Order, Trade-in, Straight Purchase of Unwanted Items.

NEWCASTLE Established 1924

THE MODEL SHOP
(NEWCASTLE UPON TYNE) LTD.
18 BLENHEIM STREET Tel.: 22016
NEWCASTLE UPON TYNE, ENGLAND

Pioneers of modelling with 34 years' experience . . .
Our Expert Staff are at your Service

NORTH CHEAM Tel.: Derwent 6493

THE LITTLE ARTIST
505 LONDON ROAD
NORTH CHEAM, SURREY

Complete range of Leading Kits, Engines and accessories
The new Futaba radio, and MacGregor, of course
Comprehensive stock of Plastics

NOTTINGHAM Tel.: 50273

GEE DEE LIMITED
40 GOOSE GATE
NOTTINGHAM

Everything for the aeromodeller at Nottingham's leading shop

OLDHAM Telephone: MAIN (Oldham) 8812

A.B.C. ELECTRONICS (OLDHAM) LIMITED
83 LEES ROAD, OLDHAM, LANCS.

* Radio Control Manufacturer *

All leading makes of R/C, engines, kits and accessories in stock.

OXFORD Tel.: 42407

HOWES MODEL SHOP
 9-10 BROAD STREET
 Largest stock in the Midlands
 Model Aircraft—Railways—Cars
 Boats—Radio Control
 Run by Modellers for Modellers
 MAIL ORDERS BY RETURN

READING Reading 51558

MODEL SUPPLIES
 1 HOSIER STREET, ST. MARY'S BUTTS
 READING, BERKS
 FOR CHEERFUL SERVICE WITH
 MODEL AIRCRAFT AND BOATS
 KITS AND ACCESSORIES

READING Tel.: 50074

G. SLEEP, LTD.,
 22/24 KINGS ROAD, READING
 For over 30 years we have had one of
 the largest Model Stocks in the
 South of England

ROMFORD Tel.: ROM 44508

HOME & HOBBY STORES
 144 NORTH ST., ROMFORD, ESSEX
 Goldberg — Graupner — Mail Order —
 Keil — Veron — Frog — Top Flite —
 MacGregor — A.P.S.
 Late Closing Fridays 7 p.m.

SHEFFIELD

**SHEFFIELD ELECTRICAL
& MODEL ENGINEERS**
 248 SHALESMOOR, SHEFFIELD 3
 The Real Modellers' Shop. Now in stock,
 all the the latest engines. including Super
 Tigre, O.S. and Merco, Air and Water cooled.
 Radio Control Specialists. Mail Order
 S.A.E. for reply.

STAFFORD 'Phone 3420

JOHN W. BAGNALL LTD.
 M.E.T.A.
 18 SALTER STREET, STAFFORD
 Comprehensive stock of Kits, Engines,
 Radio Control Equipment, Spares, etc.
 Established 1936

ST. ALBANS Tel.: 50717

BOLD & BURROWS LTD.
 12-22 VERULAM ROAD
 ST. ALBANS, HERTS
 The Modellers' Den

STOCKPORT Tel.: STO 5478

THE MODEL SHOP
 280 WELLINGTON ROAD SOUTH
 (BRAMHILL LANE CORNER)
 Aircraft, Boats, R/C Equipment, Engines,
 Railways, Car/Racing, Plastic Kits
 Postal Service

SUTTON Tel.: Vigilant 8292

E. L. S. MODEL SUPPLIES
 272 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 & CO
 CALDMORE MODELS
 108 CALDMORE ROAD
 Everything for the Modeller
 Aircraft - Railways - Boats - Electric Cars.
 Repairs - Rebores - Overhauls - Spares -
 Radio Control - Part Exchanges

WATFORD Tel.: Watford 43026

MODEL EXCHANGE
 71 SAINT ALBANS ROAD
 WATFORD, HERTFORDSHIRE
 The shop with stock and expert advice.
 Free radio and engine testing service.
 S/H engines and radio bought and sold
 anytime. Models built to customers
 specification, speedy service, reasonable
 prices.

WOLVERHAMPTON Tel.: 27150

**THE HANDICRAFT
CENTRE**
 491 DUDLEY ROAD, WOLVERHAMPTON
 Everything for the Modeller
 Kits, Engines, Radio Control Equipment
 etc.
 Mail Order Service

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.: 26709

MODELS & HOBBIES
 BELL STREET, MANDERS CENTRE
 WOLVERHAMPTON
 EXPERTS 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 PRINCESS WALK, MELBOURNE, C.1
 Australia's Main Distributor for:
 AEROMODELLER — MODEL BOATS
 and their Plans Service

AUSTRALIA Tel.: 43-1673

**MELBOURNE HOBBIES
CENTRE PTY. LTD.**
 9 DONALD STREET, GREENSBOROUGH
 VICTORIA, AUSTRALIA
 Write for free Price List of
 Model Aircraft and Accessories
 AUSTRALIA'S FASTEST
 MAIL ORDER SERVICE

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, KOWLOON
 The 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 KeilKraft,
 Aerokits, A.M., Merco, DeBolt and
 Ambroid Agents for Ohlsson-Rice, Cox
 Thimble-Drome, and other brands

SINGAPORE

BALBIR & CO.
 111 NORTH BRIDGE ROAD
 SINGAPORE 3
 Leading stockists of Model Aircraft
 requirements in Singapore and Malaya

EVERYTHING FOR THE AEROMODELLER NEW RADIO-CONTROL!

Send S.A.E. for list of Single, Reed or Proportional Radio-Control Super-Het system using separate add-on units
NEW! VERON S2in. Glider IMPALA, suitable R/C, 79/6 kit.
MOTORS—Send for our list of 100 types—SAE, please
AIRCRAFT KITS by Keil, Veron, Frog, Graupner, Mercury, etc
 LISTS — S.A.E.
 Accessories, fuels, paints, transfers, balsa, obechi, plywood, etc
 All regular kits, motors and accessories in stock.

JONES BROS. OF CHISWICK

55-62 TURNHAM GREEN TERRACE, CHISWICK, W.4
 Phone 994-0858 (Prefix 01 for out of town calls)

(1 min. from Turnham Green Station) Established 1911
 HOURS: Mon., Tues., Wed. and Sat., 9 a.m. — 6 p.m.;
 Fri., 9 a.m. — 7 p.m. Closed all day Thursday

RADIO CONTROL EQUIPMENT

Britain's largest manufacturers and pioneers of transistorised equipment and proportional control. S.A.E. for details of the world's best single channel tone guidance system. Over 3,500 in current use throughout the world, quantity produced and fully guaranteed for best range and quality at only 14 gns.

Complete 6 and 10 channel Multi Reed outfits with or without Servo Packs, from £34.
 Digital two, three, four and five channel Proportional equipment from £90.

Take advantage of direct sales with large savings in cost. All equipment undergoes extensive final checks and inspections including field testing before despatch with full guarantee. Prompt after sales service always available from factory or agents.

Main Agents: **RADIO CONTROL SUPPLIES**
 581 LONDON ROAD, ISLEWORTH, MIDDX. Tel. ISL 0473

RADIO CONTROL SUPPLIES
 52a LONDON ROAD, LEICESTER Tel. Leicester 21935

Manufacturers: Radio Control Specialists Ltd.,
 National Works, Bath Road, Hounslow, Middx.



'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 product for STICKING, STAINING, POLISHING, PAINTING



£50,000 INSURANCE !

We are able to offer a £50,000 third party insurance to our readers! This magnificent 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 RAILWAYS NEWS (*Delete those not applicable.)

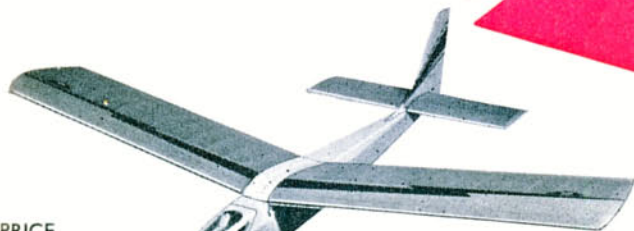
I have today instructed my newsagent to deliver me the magazine until further notice.

VERON

SKY HIGH QUALITY at GROUND LEVEL PRICES

THE NEW

Impala Radio Control Hillside Soaring Glider for Single Channel



PRICE
79/6

Internal fuselage capacity permits any transistorized Relay or Relayless Radio coupled to Rubber driven compound or Electric Actuators for rudder control. Space also for Pulse-proportional, Galloping Ghost, even Light Multi, (4 Channel reeds or 2 Proportional).

A balanced and progressively developed design capable of stable flights for all varieties of wind and all conditions. Small, tough and rigidly compact for ease of handling.

SPECIFICATION

Span: 52". Length: 41.5". Chord: 8.25"
Weight: 32 oz. Wing Area: 428 sq. ins.

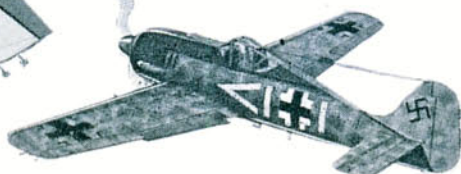
IDEAL FOR WEBRA 'PICCO'

★ MINI-ROBOT

Sport Radio Plane for Single Channel. Rugged, stable and dependable plus tricycle undercarriage. For motors up to 1 cc. Ideal for Piccolo .8 cc., some will even fit the NEW SPORT-GLO 1.7 cc.
Price 55/1 inc. P.T.



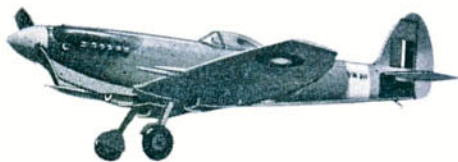
★ F.W. 190 A3



Combined flap and elevator Scale Stunter for 3 to 5 cc. motors. 33 1/2" span. Lightweight, robust and highly manoeuvrable.
Price 34/3 inc. P.T.

★ SPITFIRE XXII

Veron's most famous original Lightweight Scale Stunt Model Combined flap and elevator for 1 to 2.5 cc. Drop off undercarriage 27" span.
Price 42/9 inc. P.T.



★ STUNTER

High performance, lightweight Stunter capable of every stunt in the book. For motors 1 to 1.49 cc. Extensive pre-fabrication. Ideal for Webra 'Record' 1.5 cc. or 'Sport-Glo' 1.7 cc. Span 32".
Price 36/7 inc. P.T.

Webra

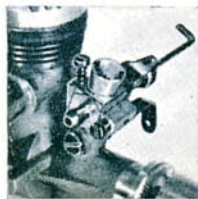
THE FINEST ENGINES

FOR YOUR MODELS

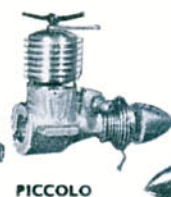


Sport-Glo Carburettor Radio-Control Carburettor Unit. Fit it yourself! Makes your engine instantly convertible from Free-Flight and Control-Line to Radio.
Price 35/6 inc. P.T.

Now firmly established as the finest .1 cu. in. Glow-motor in its class! 1.7 cc. Phosphor-bronze bearing. Neat, compact, light. A highly versatile motor. Price 91/4 inc. P.T.
Silencer available as an accessory. Expansion chamber type—no power losses. Price 26/9 inc. P.T.



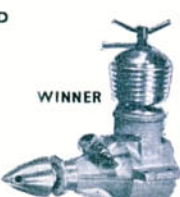
BULLY II



PICCOLO



RECORD



WINNER

MARINE VERSIONS OF ALL ENGINES AVAILABLE WITH COMPLETE SELECTION OF MARINE FITTINGS, COUPLINGS, SHAFTS, WATER-SCREWS ETC.

Piccolo .8 cc. 78/11
Record 1.5 cc. 90/1
Record R/C 102/4
Winner 2.5 cc. 105/2
Winner R/C 117/9
Mach II 2.47 cc. 177/2

COMPLETE LIST

Mach II R/C 193/4
Bully II 3.44 cc. 149/3
Bully II R/C 166/3
Glo-Star 3.5 cc 149/3
Glo-Star R/C 166/3

Webra prices do not include 10 per cent Purchase Tax Surcharge

MODEL AIRCRAFT (B'MOUTH) LTD · NORWOOD PLACE · BOURNEMOUTH

DISTRIBUTORS IN U.S.A.: WESTEE HOBBY IMPORTS, 5720 West Chicago Avenue 51, Ill., U.S.A.

DISTRIBUTORS IN CANADA: ACADEMY PRODUCTS LTD., 108 Tycos Drive, Toronto 19.

DISTRIBUTORS IN AUSTRALIA: GEORGE PIZZEY & SON LTD., 131-141 Johnston Street, Fitzroy N.6., Melbourne.

For successful radio control—

choose a

KEILKRAFT

KIT

3 SUPER MODELS DESIGNED SPECIFICALLY FOR RADIO CONTROL, AND KITTED TO HIGHEST KK STANDARDS

SUPER 60 63" span

Radio Control or Free Flight model for motors of 2.5-5 cc. capacity. All shaped parts are pre-cut. The kit features a prefabricated dural and wire undercarriage; a reinforced vulcanised fibre mount and a clunk fuel tank. Besides ample building and covering materials, the kit contains an informative instruction booklet and two full-size plans.

£6.2.0



MINI SUPER 48" span

A real pleasure to build and fly. Kit contents include—all parts pre-cut, metal clunk tank, preformed under-carriage, three sponge rubber wheels, pre-shaped leading edge section, full-size plan and building and flying instructions. Wingspan 48". For 1.5 to 2.5 c.c. engines. Single channel or intermediate R/C.

£4.19.8



GYRON 36" span

The perfect introduction to radio control flying for the owners of small engines! The entire model is balsa sheet covered for strength, and designed for single channel R/C with .8 c.c. engines. A small, strong, inexpensive model with a performance to please even the most critical!

£3.10.10



O.S. PIXIE
Single channel
Transmitter and
Relay Receiver

£15.13.4



Power your model with an

O.S. ENGINE

and fit it with O.S.
RADIO CONTROL

That's what the
experts do!



O.S. MAX 15 R/C £6.11.0
O.S. MAX 19 R/C £7.0.10

If you're a newcomer to R/C—better buy KEILKRAFT