

AERO

RADIO & CONTROL LINE CHAMPS

FULL REPORTS, RESULTS, PHOTOGRAPHS

MODELLER

OCTOBER 1965

TWO SHILLINGS

U.S.A. & CANADA 40 Cts.

- AMAZING NEW
ENGINE DETAILS
- D.H.5 & D.H.34
SCALE PLANS
- PROPELLER TESTS
- TOP WAKEFIELD DESIGNS



£50,000 MODELLERS'
INSURANCE SCHEME



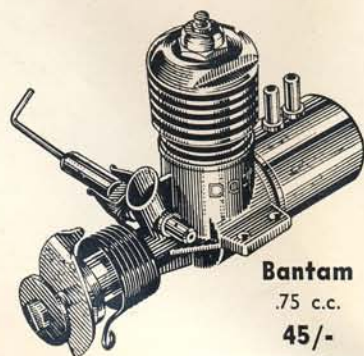
HOBBY MAGAZINE



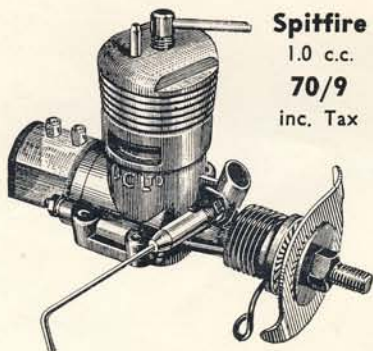


Dart
.5 c.c.
75/-
inc. Tax

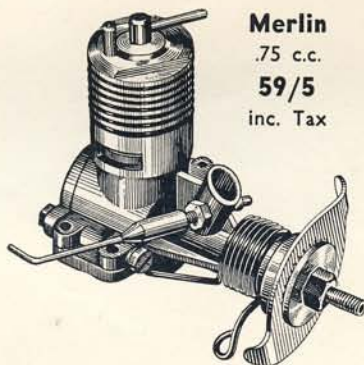
QUICKSTART



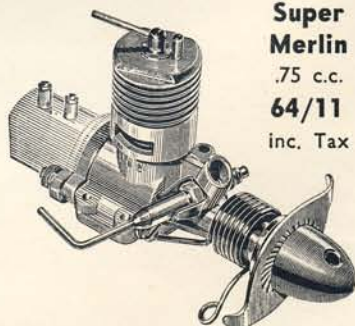
Bantam
.75 c.c.
45/-
inc. Tax



Spitfire
1.0 c.c.
70/9
inc. Tax



Merlin
.75 c.c.
59/5
inc. Tax

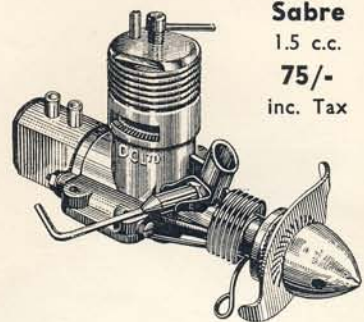


**Super
Merlin**
.75 c.c.
64/11
inc. Tax

Marine Engines

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

1 pint 6/-
½ pint 3/6



Sabre
1.5 c.c.
75/-
inc. Tax

Quickstart Accessories

TEST STAND

CONTROL LINE HANDLE

QUICKCLIP CONNECTOR

QUICKSTART GLOWPLUGS

E.G. 98

E.G. 99

E.G. 200

SILENCERS

NYLON PROPELLERS

FULL RANGE OF SPARES



CALL IN AT YOUR MODEL SHOP TODAY

In case of difficulty write direct to :

DAVIES-CHARLTON LTD.

HILLS MEADOW, DOUGLAS, ISLE OF MAN

Editorial Director

D. J. Laidlaw-Dickson

EDITOR

R. G. MOULTON

other modelling angles . . .

October **Model Cars** features two Prototype Parade drawings, of the 1965 flat 12 Ferrari F/1 as driven by Lorenzo Bandini and the Lotus Elan in standard and fast-back forms. Maserati 4CLT drawing and Fangio details, V.I.P. Club Special motor tested, Brabham F/1 construction. Simple 4 wheel drive, Hints for young drivers, Prospects of Pay circuits and Re-winding gen from Barrie Wade to complete an extra interesting issue.

Model Boats for October include free fullsize drawings for 14th century Swedish Warship Vaasa 19 in. long. E.D. Hunter marine tested, the start of a regular newcomers' Construction Series, drawings of an advanced Marblehead Yacht design and a semi-scale Sailing Barge design. More details on Pairs Racing, Vane Steering gears and Recent Regattas, etc.

Technical details and pictures of the World R/C Championships is the leading feature in October **Radio Control Models & Electronics**, details and drawings of a sea wall soaring model and a comparative test on Escapement and Motorised actuators. Japanese Futaba radio gear is tested and the issue completed with regulars, Rally Reports, Commercial Developments, plus Gadgets and Gimmickry.

Please note our new address :

Editorial and

Advertisement Offices

13-35 Bridge Street,

Hemel Hempstead, Herts

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

CORRESPONDENCE anticipating a reply to addresses within the United Kingdom must be accompanied by a stamped and self-addressed envelope. News reports should be submitted to arrive not later than the 15th of each month for publication in the next immediate issue. Photographs should be accompanied by negatives where possible and can only be accepted for use on an exclusive basis for British copyright.

AERO MODELLER



HOBBY MAGAZINE

October 1965

VOLUME XXX No. 357

contents

HEARD AT THE HANGAR DOORS	464
CRITERIUM OF ACES	466
SHOW OFF (Publicity model)	471
AIRCRAFT DESCRIBED—De Havilland 34	472
A 'DIFFERENT' 10 c.c. ENGINE DESIGN	474
COMBAT COLOURS	478
METALLISED GLADIATOR	479
GADGET REVIEW	480
PROPELLER TESTS	482
AIRCRAFT QUIZ	483
"AIRCO D.H.5"	484
WORLD RADIO CONTROL CHAMPIONSHIPS	486
PLASTICS OF THE MONTH	489
KAUHAYA TECHNICALITIES	490
CLUB AND CONTEST NEWS	492
RALLY REPORTS	494

cover

Ken McDonough prepares his De Havilland 34 free flight model at the 1965 British National Championships. Note the cockpit detail and replica cylinder banks on the "Napier Lion" engine. Details of the model and scale drawings of the full size machine from which this model was produced, appear in pages 472/3 of this issue.

next month . . .

Research on Aerofoils for model use has not received all the attention it deserves. Dr. Eppler whose work is now famous in connection with full-size sailplanes has produced a series of new sections from study and use of a computer. They will be summarised in a feature of interest to all aeromodellers. C. A. Foss has produced another fine sport power model to follow his "Smoke trail". Suitable for engines up to .75 c.c. "Skyscraper" is 28 in. span and plan carries detail of radio installation. **Amateur Rocketry** in Great Britain reveals information on Ministry of Defence approved experiments. More technical details from the recent championships. **F.A.I. Team racer** developments, and all our regular features out October 15th.

This periodical is sold subject to the following conditions: that it shall not, without the written consent of the publishers, be lent, re-sold, hired-out or otherwise disposed of by way of Trade except at the full retail price of 2/- or 40 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., 255 Seventh Avenue, New York 1, N.Y., U.S.A.

Direct subscription rate 29/6 per annum including enlarged December edition and index. U.S.A. and Canada direct rate \$4 AEROMODELLER incorporates the MODEL AEROPLANE CONSTRUCTOR and is published monthly on the third Friday of each month prior to date of publication by:—

MODEL AERONAUTICAL PRESS LTD

VERON**Champions All!****DOMINETTE**

28" Span soarer. Flight Test proven and ideal for beginners. Die-cut ribs, shaped and slotted leading and trailing edges. Flight Test Proven.

Price 11/4 inc. P.T.

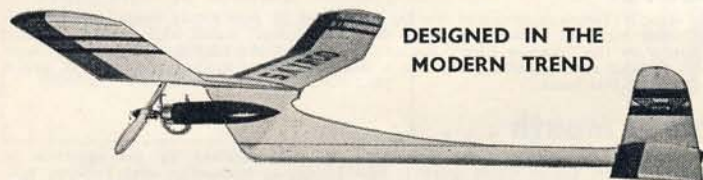
COMPLETELY PREFAB.
FOR EASE OF ASSEMBLY

CARDINAL

Span 35". Small transistorised units can be fitted to this free flyer. Ultraton. R.E.P. (MINI-REPTONE). For up to 1 c.c. motors.

Price 21/6 inc. P.T.

THE IDEAL
INTRODUCTION
TO POWERED
FLIGHT!

SKYROD

DESIGNED IN THE
MODERN TREND

35" span. Completely prefabricated high thrust line power duration model for 'A' class—.32 to .85 c.c.

Price 25/3 inc. P.T.

Webra

**ENGINES—
Finest for
Your Models**

PICCOLO

One of the highest rated small diesels in the world. 8 c.c. 68/6

RECORD

Powerful beginners motor. 1.5 c.c. 74/5

RECORD R/C

With radio throttle. 1.5 c.c. 84/1

BULLY II

3.44 c.c. 121/8

BULLY II R/C

3.44 c.c. 135/1

WINNER II

2.46 c.c. 86/7

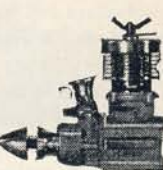
WINNER II R/C

2.46 c.c. 96/5

Glostar, 3.5 c.c., 120/9. Glostar R/C, 3.5 c.c., 134/1. Big Ben Glo, 5 c.c., 121/8. Big Ben R/C, 5 c.c., 137/9 (subject to 10 per cent surcharge at current rate).

and the latest
Special Mach II

Mach II 2.5 c.c. Racing Special. Double Ball Race Contest Engine. Equal of the World's Best High performance engines. Price £7.6.11. R/C version complete with variable throttle control. £7.19.11.

**SILENCERS**

Now Available for **WEBRA, RECORD, WINNER & BULLY ENGINES** in three sizes.

Record 3/8" hole—15/9. Winner 3/8" hole—15/9. Bully 3/8" hole 15/9. Piccolo Manifold 7/1. Suitable for many other Annular Exhaust Motors.

ALSO: Exhaust Manifold for Mach II

Exhaust Manifold for Big Ben 5 c.c. and Glostar

Extension Silencer for Mach II (used with above and for other 1.5 to 3.5 motors)

Extension Silencer for Big Ben (and other 5 to 6 c.c. motors)

Subject to 10% surcharge at current rate.

18/11 inc. P.T.

15/9 inc. P.T.

15/9 inc. P.T.

20/2 inc. P.T.



MODEL AIRCRAFT (B'MOUTH) LTD.

NORWOOD PLACE • BOURNEMOUTH

DISTRIBUTORS IN U.S.A.: WESTEE HOBBY EXPORTS, 5808 West Chicago Avenue, Chicago 51, Ill., U.S.A.

DISTRIBUTORS IN CANADA: ACADEMY PRODUCTS LTD., 106 Tycos Drive, Toronto 19, Ontario.

DISTRIBUTORS IN AUSTRALIA: GEORGE PIZZNEY & SON LTD., 121-141 Johnston Street, Fitzroy, N.6, Melbourne.

**JUST
LIKE
THE REAL
THING!**



The most versatile of all German bombers, the famous JU 88 flew throughout the Second World War. It was used not only as a bomber but also as a reconnaissance plane and trainer. This exciting 1/72 scale model has

125 detailed parts and costs only 4/6.

There are over 200 Airfix kits covering 13 different series. And at prices from 2/- to 17/6 you can well afford to make all your own models *just like the real thing!*

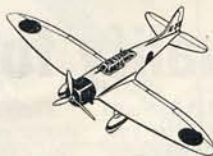
AIRFIX CONSTANT
SCALE

CONSTRUCTION KITS

Just like the real thing!

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

STOP PRESS



AICHI D3A1 "VAL" —

The Japanese dive-bomber that struck at Pearl Harbour carrying a 550 lb. bomb with a top speed of 225 m.p.h. and a 900 mile range. Fully reproduced 34 part kit—3/-.

ALSO NEW! — H.M.S. AJAX, 6" gun cruiser of

River Plate fame, complete with own aircraft. 90 part kit—4/6.

AIRFIX MAGAZINE 1/6 MONTHLY
AIRFIX CATALOGUE 9d.

ALLEN SCOTT

(MODELS) LIMITED

581 LONDON ROAD,
ISLEWORTH, MIDDX.

**For all the best in models
we are here to serve you
either personally or by mail**

ROLAND SCOTT

LIMITED

147 DERBY STREET,
BOLTON, LANCs.

R.C.S. GUIDANCE SYSTEM Mk. II. COMPLETE UNIT WITH ACTUATOR AND WIRING HARNESS ...	£16	3	0
R.C.S. "INTER SIX" SIX-CHANNEL Tx AND SUPER REGEN Rx AT THE REALISTIC PRICE OF ...	£34	0	0
R.C.S. "INTER SIX" Tx, Rx AND THREE SERVO PACK. COMPLETE UNIT READY WIRED ...	£54	0	0
R.C.S. "SPORTS TEN Mk. II." LATEST Tx WITH POWER PACK AND SUPER REGEN TEN Rx ...	£49	0	0
R.C.S. "COMPETITION TEN Mk. II." LATEST Tx WITH POWER PACK AND SUPERHET TEN Rx ...	£62	0	0
METZ TWO-CHANNEL GIFT SET. TRANSMITTER RECEIVER AND TWO-CHANNEL SERVO ...	£38	10	0
METZ THREE-CHANNEL ALL TRANSISTOR UNIT. Tx, Rx AND TWO SERVOS. READY WIRED ...	£61	0	0
METZ TEN-CHANNEL SIMUL Tx, SUPERHET Rx AND FIVE SERVOS. READY WIRED ...	£150	0	0

—DESCRIPTIVE LEAFLETS YOURS FOR THE ASKING—

★ SELECTED ENGINES ★	
FUJI 049 Glow	49/6
FUJI 061 Glow	49/6
FUJI 099 Glow	57/6
FUJI 15 Glow	85/-
FUJI 35 Glow	117/6
McCoy 19 Glow	69/6
McCoy 35 Glow	79/6
P.A.W. 1.49 c.c. Diesel	86/-
P.A.W. 19 B.R. Diesel	126/-
E.D. Racer 2.5 c.c. Diesel	85/-
Fox 15x 2.5 c.c. Glow	69/6
Cox Pee Wee .3 c.c. Glow	42/6
Super Tigre G15 Racing	175/-
Super Tigre 15 Glow	135/-
Super Tigre 19 Glow	135/-
Super Tigre 35 Glow	135/-
Super Tigre 40 Glow	162/6
Super Tigre 46 Glow	179/6

STACKS MORE IN STOCK

★ POPULAR KITS ★	
Sterling 'Skylark' C/L Stunt	119/6
Goodyear 'Denight Special'	200/-
Sterling 'Mambo Special'	145/-
Enterprise 'Navigator' R/C	150/-
Enterprise 'Tony' C/L Stunt	110/-
Enterprise 'Navy Fighter' C/L	49/6
Enterprise 'Starshooter' T.R.	25/11
Goldberg 'Skylark' Scale	71/3
Goldberg 'Voodoo' Combat	35/-
Goldberg 'Shoestring' C/L	47/6
'Bergfalke' R/C Glider	161/9
'SB7' Slope Soarer	161/9
Veron 'Mini Robot' R/C	49/-
Veron 'Robot' R/C	89/-
Veron 'Concord' R/C	235/-
Veron 'Topsy Nipper' R/C	71/-
KK 'Mini Super' R/C	90/-

HUNDREDS MORE IN STOCK

★ R/C ITEMS ★	
Bonner 'Duramites'	112/-
R.C.S. T.A.S.A. Amp.	68/-
Elmic Commander Act.	59/2
Elmic Corporal Act.	47/2
Elmic Conquest Act.	35/-
Elmic Compact Act.	67/4
Enterprise Clunk Tanks: 1 oz.	5/6;
2 oz., 6/-; 4 oz., 8/-; 6 oz., 9/-; 8 oz. 10/-	
Enterprise 'K-Links'	4/9
10-Pin Flat Plugs and Sockets	7/6
Nylon Control Horns	1/9
Dubro Wheels: 2 1/2", 27/9; 2 1/4", 29/9; 2 1/8", 32/-; 3", 34/-; 3 1/8", 36/3; 3 1/4", 38/6	
Araldite Two-Tube Glue Pack	6/-
R.C. Backplates for E.D. 246	30/-
Johnson Automix No. 3 for 19	
Size Engines (No Others)	37/9

★ "POP" ACCESSORIES ★	
Modellers Nylon in Yellow, Red, White, Blue, Black sq. yd.	6/6
Finest Japanese Silk sq. yd.	7/6
Fox New Glow Plugs	4/3
FUJI S.R. Glow Plugs	3/6
Eta 15 Twin Silencers	64/3
Enya 15/19 Silencers	19/8
Enya 29/35 Silencers	23/8
O.S. 15/19 Silencers	25/3
O.S. 29/49 Silencers	30/6
Merco Silencers, all sizes	26/3
P.A.W. Silencers 2.5/3.2	13/9
Large Bushed Bellcranks	3/11
Burlington Hobby Chest	103/-
Mini Drill No. 6 complete with Chuck and Attachments	25/-

STYROFOAM WINGS AND TAIL
PLANES — ANOTHER OF OUR
SPECIALITIES.**F. A. & F. ALLEN**

LIMITED

2 DICKENS LANE,
POYNTON, CHESHIRE

**Part Exchanges our Speciality
News Letter and S/H List on request
Hire Purchase with Pleasure**

ALLEN SCOTT

(MODELS) LIMITED

54 SHUDEHILL,
MANCHESTER 4

Navigator

Do you qualify for an R.A.F. flying career?

Your job as a navigator in the R.A.F. would be a fascinating one. Because it is on you, more than on anyone else, that the pilot must rely for the pinpoint accuracy which is vital for today's aircraft, whether your mission is locating a ship in distress five hundred miles from land, carrying out air survey photography over some poorly mapped part of the world—or directing the run-in for a parachute drop to the army.

There are various lengths of service; shorter periods qualify for a tax-free gratuity up to £5000; longer engagements are pension-earning. For more information, telephone the officer in charge of your nearest R.A.F. Careers Information Centre, or write for full details, giving your date of birth (age limits: 17-26) and details of education (minimum qualification: 5 acceptable 'O' levels, or equivalent; one or two 'A' levels would defi-

nately help) to Group Captain J. W. Allan, D.S.O., D.F.C., A.F.C., R.A.F., Adastral House (AM 265), London, WC1.

FLY WITH



The Royal Air Force

Equado
BALSABWOOD

the MODELLERS CHOICE the WORLD OVER



More and more satisfied clients the world over receive their regular shipments of Equado—such is the popularity of this fine balsawood used by modellers everywhere. Equado balsawood is supplied in metric and English sizes.

TRADE PRICE LISTS ON APPLICATION TO SOLE MANUFACTURERS AND SHIPPERS

E. LAW & SON
(TIMBER) LTD

272-274 HIGH STREET, SUTTON,
Telephone: VIGILANT 8291-2

Graupner

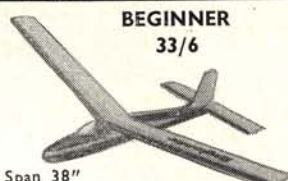
FEATURING THE WORLD'S "TOP
TEN" IN GLIDER KITS



NEW UHU
21/6

Span 27½"

Contest performance for the novice! Specially designed for easy construction and flyability.



BEGINNER
33/6

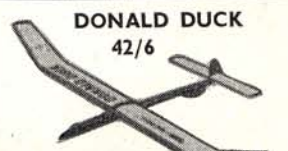
Span 38"

Easy to assemble, very good performance. A perfect trainer.



JOLLY AI
45" span 42/6

A new and very popular high-performance glider for sport or contest work with exceptional towline stability.



DONALD DUCK
42/6

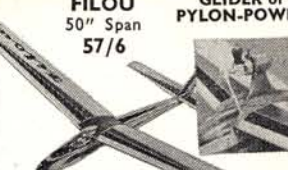
Span 43"
An easily built model specially designed for the advanced beginner.



PASSAT 57
57/6

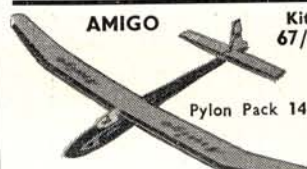
Span 74"

A 'quick-built' model with a top performance for contest work.



FILOU
50" Span 57/6

For free flight or radio control!
Pylon kit 16/-.



AMIGO
Kit 67/6

Pylon Pack 14/6

Span 69½"

High performance towline or slope soaring model, optional power egg installation and suitable for R/C.



WEIHE 50
71" Span 89/6

True to scale and as efficient as the full size craft. Kit includes finished foam plastic fuselage. Ideal for R/C.



SCHLEICHER 'K 10'
DE LUXE KIT 132/6
79" scale SAILPLANE
FULLY FINISHED foam plastic fuselage.

A SUPER MODEL in DE LUXE kit form specially designed for R/C and adaptable to pylon power (pylon kit 18/6).



HS-91 'CLOU' 199/6
For R/C rudder only or up to 6-channel!

97" span for towline soaring!
75" span for slope soaring!

GLIDER
OR
POWER!

A TRULY FAB. MODEL and a super kit. Fly as a sailplane or fit detachable nose unit for power! THE YEAR'S TOP DESIGN!

U.K. DISTRIBUTORS

RipMax
MODELS &
ACCESSORIES

WHOLESALE DISTRIBUTORS

other Graupner Agents include—

U.S.A.: POLK MODEL HOBBIES,
314 Fifth Avenue,
New York, N.Y.

AUSTRALIA: PAUL GROSHANN
14a Tinsdale Road,
Jahfield N.S.W.

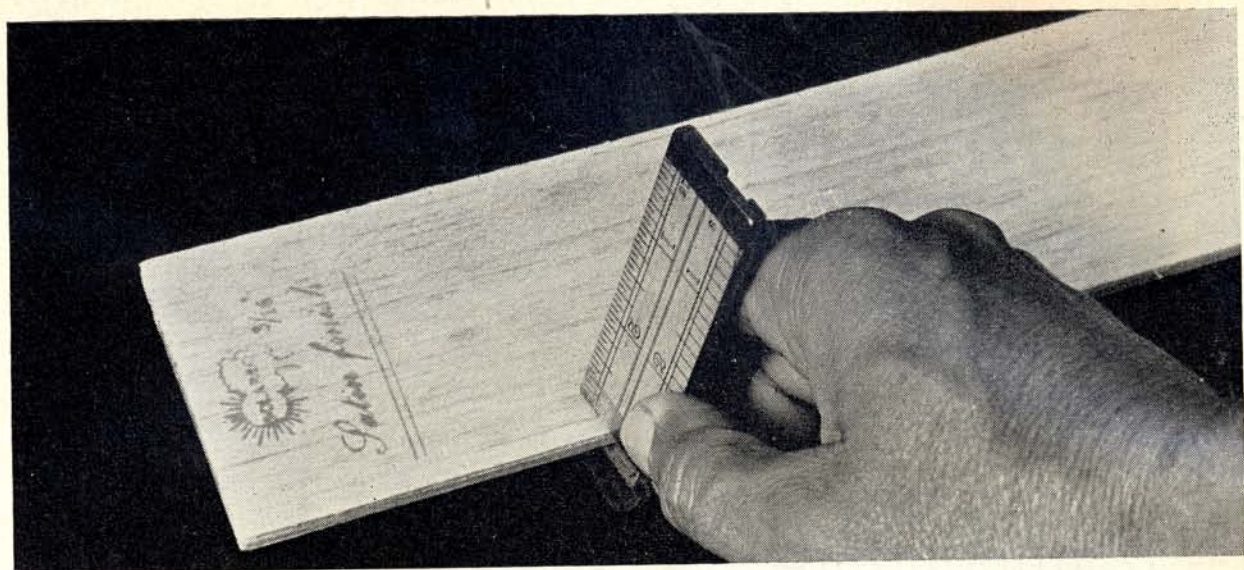
CANADA: G. BOK & CO.,
45 Wingfield Avenue,
Toronto 19, Ont.

S. AFRICA: PHIL DE BRUYN
25 Pritchard Street,
Johannesburg.

N. ZEALAND: BURTON BRADFORD
261 White Street,
Wellington, C.Z.

HONG KONG: RADAR CO. LTD.,
2 Observatory Road,
Kowloon N.K.

80 HIGHGATE RD, LONDON, N.W.5



"METRIC" BalsaWOOD SIZES . . .

Balsa wood is the standard aeromodeling material the world over—and the Continental countries and many others work with it in standard metric sizes. You find metric balsa sizes and metric dimensions, for example, on the Continental model plans. Converting these into English units can be quite laborious, unless you have a set of 'equivalent' already worked out, when you merely have to look up the various sizes or dimensions involved.

To save all this preparatory work we give a set of Conversion Tables below. These should cover just about all requirements and cover all the standard metric sizes of Balsa. We do, in fact, cut and distribute a vast quantity

of metric Balsa sizes all over the world—the Solarbo reputation for top quality Balsa is not confined to this country!

It may also interest you to know that whilst the Continental European countries want metric strip sizes and metric sheet widths and thicknesses, not all prefer a standard metric length. Thus Spain and Holland for example prefer 36 in. lengths of "metric" sizes (915 mm.); whilst other countries like Belgium, France, Germany and Sweden demand metre lengths (39.37"). One thing all the countries have in common, however, is that they all prefer Solarbo Balsa!

STANDARD METRIC SIZES		
Standard	inch	Nearest
Metric	equiv.	in.
.8 mm.	.0315"	(1/32")
1 mm.	.0394"	
1.5 mm.	.0591"	(1/16")
2 mm.	.0787"	(5/64")
3 mm.	.1181"	(1/8")
4 mm.	.1575"	(5/32")
5 mm.	.1969"	(13/64")
6 mm.	.2362"	(15/64")
8 mm.	.3150"	(5/16")
10 mm.	.3937"	(25/64")
15 mm.	.5906"	(19/32")

"METRIC" SHEET WIDTHS		
Standard	inch	inch
metric	equiv.	nearest
75 mm.	2.95276"	(3")
100 mm.	3.937"	(4")

INCH to mm.	
in.	mm.
1/32	.794
1/16	1.5875
3/32	2.381
1/8	3.175
5/32	3.969
3/16	4.7625
1/4	6.35
5/16	7.94
3/8	9.525
7/16	11.1125
1/2	12.7
5/8	15.875
3/4	19.05
7/8	22.225
1	25.4

CONVERSION MILLIMETRES TO INCHES										
M.M.	0	1	2	3	4	5	6	7	8	9
0	—	.0394	.0787	.1181	.1575	.1969	.2362	.2756	.3150	.3543
10	.3937	.4331	.4724	.5118	.5512	.5906	.6299	.6693	.7087	.7480
20	.7874	.8268	.8661	.9055	.9449	.9843	1.0236	1.0630	1.1024	1.1417
30	1.1811	1.2205	1.2598	1.2992	1.3386	1.3780	1.4173	1.4570	1.4961	1.5354
40	1.5748	1.6142	1.6535	1.6929	1.7323	1.7717	1.8110	1.8504	1.8898	1.9291
50	1.9685	2.0079	2.0472	2.0866	2.1260	2.1654	2.2047	2.2441	2.2835	2.3228
60	2.3622	2.4016	2.4409	2.4803	2.5197	2.5591	2.5984	2.6378	2.6772	2.7165
70	2.7559	2.7953	2.8347	2.8740	2.9134	2.9528	2.9921	3.0315	3.0709	3.1102
80	3.1496	3.1890	3.2284	3.2677	3.3071	3.3465	3.3858	3.4252	3.4646	3.5039
90	3.5433	3.5827	3.6221	3.6614	3.7008	3.7402	3.7795	3.8189	3.8583	3.8976

CONVERSION - INCHES TO MILLIMETRES								
INS.	0	1/8	1/4	3/8	1/2	5/8	3/4	7/8
0	—	3.175	6.35	9.525	12.7	15.875	19.05	22.225
1	25.4	28.575	31.75	34.925	38.1	41.275	44.45	47.625
2	50.8	53.975	57.15	60.325	63.5	66.675	69.85	73.025
3	76.2	79.375	82.55	85.725	88.9	92.075	95.25	98.425
4	101.6	104.775	107.95	111.125	114.3	117.475	120.65	123.825
5	127.0	130.175	133.35	136.525	139.7	142.875	146.05	149.225
6	152.4	155.575	158.75	161.925	165.1	168.275	171.45	174.625
7	177.8	180.975	184.15	187.325	190.5	193.625	196.85	200.025
8	203.2	206.375	209.55	212.725	215.9	219.075	222.25	225.425
9	228.6	231.775	234.95	238.125	241.3	244.475	247.65	250.825

Solarbo Balsa

— THE BEST YOU CAN BUY —

ALWAYS ASK FOR IT BY NAME

SOLARBO LTD.,
COMMERCE WAY, LANCING, SUSSEX



VALUABLE BOXES

These new one-piece boxes from Frog easily fold down into a handy working tray avoiding the irritating business of misplacing parts. Each box carries an accurate painting guide and to cap it all, these new Frog boxes include Gold Tokens for exciting free gifts—ideal for any child you know who collects them.

These are some of the kits in new boxes: how many have you built?

2/6
Supermarine Spitfire II
Focke-Wulf 190
Mitsubishi Zero-Sen
Republic Thunderbolt
Curtiss Kitty Hawk
Hawker Typhoon
 3/6
Hawker Hunter
Fairey Gannet

Vickers Supermarine Attacker
English Electric P1
Hawker Sea Hawk
North American Sabre
DH 110
Fairey Delta
 5/-
Gloster Javelin
 10/6
Avro Vulcan

FROG®

CONSTRUCTION
 KITS—
 CREATED FROM
 MANUFACTURERS
 BLUEPRINTS

HENRY
HINODE

HENRY HINODE SAYS—

DOWN UNDER THEY GO WILD ABOUT

HINODE MULTI—It's MIGHTY!

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

HINODE MULTI SUPERHET Tx Rx MULTI 10 CHANNEL TX CT-110, RX CR-110

PRICE TX CT-110 £A116.0.0 FOR TX AND RX
PRICE RX CR-110

ALSO NEW MS-100 MULTI SERVO TRIM + SN Both £A13.17.0 Each
ALSO DIXIE 27.120 Mc/s TX, RX £A22.19.6 FOR TX AND RX
AND 40.68 Mc/s DIXIE TX, RX £A26.3.6 FOR TX AND RX

OUT OF SIGHT RANGE — FULLY TRANSISTORISED Tx, Rx

OUR RADIO SERVICE & PRICES ARE THE BEST IN AUSTRALIA

TRADE
ENQUIRIES
INVITED

THE MODEL DOCKYARD PTY. LTD.
216-218 SWANSTON STREET MELBOURNE AUSTRALIA



£50,000 INSURANCE!

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

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

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

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

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

M.A.P. INSURANCE MEMBERSHIP FORM

PART I. TO BE HANDED TO NEWSAGENT

To

Please *reserve/deliver one copy of *AEROMODELLER/MODEL MAKER/MODEL CARS/RADIO CONTROL MODELS & ELECTRONICS, 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 MAKER * MODEL CARS *
RADIO CONTROL MODELS & ELECTRONICS (*Delete those not applicable.)

I have today instructed my newsagent

Address

to deliver me the magazine until further notice.

WEBLEY MkIII AIR RIFLE

The finest air rifle handled in 25 years

says Expert Shot

Few people are as experienced in handling air rifles of all makes and calibres as Mr. R. Aries of Bolney, Sussex. He writes:

"I have just purchased a Webley Mk.3 Target Air Rifle fitted with a Parker-Hale 17B aperture rear sight and no. 2 model tunnel foresight. I have specialised in air rifle shooting for some 25 years now and I consider this to be the finest air rifle I have handled. I have been using a . . . (rival model) before buying this one of yours and found that there is no comparison. The . . . (rival model) rifles have rapidly declined in quality and finish. When I bought my last one, I tested eight different rifles before I found one which was airtight round the loading tap; and even then, there was something wrong with the sights and trigger mechanism! Among my other guns I have a Webley Senior air pistol and a new 700 12-bore, which I find is one of the best 'doubles' I have used. So you can see that Webley is represented well in this house!"

Specifications of three outstanding air rifles

Mark III Sports model: .22 calibre with blade foresight and wheel adjustable "U" rear-sight.

Mark III Target or Club model: .177 calibre with bead foresight and wheel adjustable "V" rear-sight. Both models are fitted with a plate for telescopic sights.

Length overall 43½"
Barrel length 18½"
Weight 6 lb. 13 ozs.
Trigger pull capable of adjustment in a few seconds.

PRICE £21.0.0.

Mark III Supertarget Club model .177 calibre.

PRICE £29.15.0. All extras included.

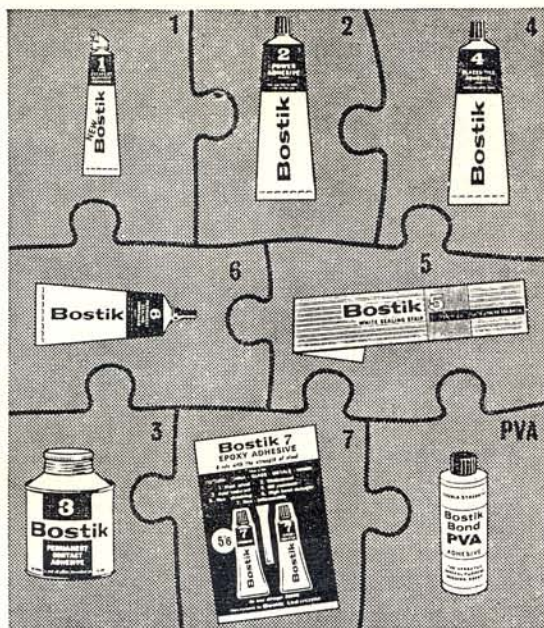
Other famous Webley air rifles available include:

The Falcon £11.15.0. The Ranger £7.10.0. The Jaguar £6.17.6.

Visit your nearest stockists or write for Catalogue enclosing 4d. stamp for postage giving full specifications.

Webley & Scott Ltd

91 PARK LANE, HANDSWORTH, BIRMINGHAM 21



Everything fits together with Bostik

There's a 'Bostik' adhesive or sealant that's just right for your next job. To find out which one, see below.

NEW BOSTIK 1 sticks almost anything to anything. But for these special jobs that demand the real professional touch you may need a different 'Bostik'. Whatever you want to stick or seal, you'll find one of the 'Bostik' range is just the job. Every one of the 'Bostik' adhesives and sealants has been thoroughly tested and used by professionals. All we've done is wrap them up in sizes the amateur can most handily use. Which ones don't you know?

NEW BOSTIK 1—improved formula with spreader

All-purpose adhesive. Clear, clean, simple to use. Heat resistant and proof against water, oil, dirt and damp. Sticks almost anything. And the special thingumajig spreader keeps your hands clean.

BOSTIK 2—power adhesive for outdoor use

Weather resistant. Made for outdoor jobs, ideal for the car. Joins rubber, metal, glass, wood, cork, linoleum, roofing felt, asbestos, to name but a few.

BOSTIK 3—for fixing 'Formica' and other plastics
Quick and easy to apply by brush or spreader. Specially formulated to give a permanent heat-resistant bond

between 'Formica' or other laminated plastics and almost any surface.

BOSTIK 4—for fixing wall tiles

The only adhesive to use for fixing any kind of glazed tile cleanly, easily, permanently.

BOSTIK 5—the white sealing strip

Does not crack, shrink or get brittle. Seals baths, sinks, washbasins, skirting boards, window frames and practically any gap that needs filling.

BOSTIK 6—permanent sealing compound

Heavy-weather sealant for the big, ugly gaps and cracks on the outside of the house, the car or just about anywhere.

BOSTIK 7—epoxy adhesive—for the really tough jobs

Gives the strongest bond of any 'Bostik'. Can withstand almost 1,000 lbs. per sq. in. Use it for metal, wood, glass, china and other materials. Complete with own mixing and spreading spoon.

The eighth step—BOSTIK BOND PVA

White, all-purpose adhesive. Easy to use, quick to bond. Particularly powerful joining wood to wood.

Bostik

The 'Bostik' range of specialist adhesives and sealants is available from Ironmongers, Do-It-Yourself Shops, Garages, and Halford's Branches.

Heard at the Hangar Doors

G-ATGV is the temporary registration for an "S.E.5a", one of two made by Miles Marine Ltd., for the film "The Blue Max".



Insured?

National publicity concerning the case of the 14 year old schoolboy whose Keilkraft "Mini Super" went out of range, triggering off a succession of accidents which ended in the death of four pedigree cows worth more than £500, quite naturally emphasised the question of insurance.

When Andrew Burton's model flew away from Hornchurch aerodrome he had no idea that it would crash into a high tension cable in the national electricity supply grid bringing down 11,000 volts on the unfortunate herd and blacking out local power supplies.

It is not for us to dwell upon the liabilities of the case but the moral of the story is self-evident. Many insurance schemes are open to protect the aeromodeller in cases of legal liability for accidents notably membership of the Society of Model Aeronautical Engineers and of course our own scheme, details of which are to be found on page 462 of this issue.

New Frequencies

It is quite likely that in 1966 five new Radio Control spot frequencies will be allocated by the Federal Communications Commission for the United States of America ranging from 72.08 mc to 75.64 mc. The new frequencies are not expected to interfere with U.S. television reception and cover a band which is the least crowded in the U.S.A. of all those possible for Radio Control. Additional conditions are that the maximum output power of the transmitter should

be .75 watts, no voice transmissions will be permitted and the frequency control must be within a .005 per cent tolerance. Transmitters must be approved by the Commission. This should certainly remove many of the problems at present facing modellers in America but brings with it a large question mark concerning international distribution of equipment from the U.S.A. It is stated that present 27 mc frequency equipment will be allowable for a five year transitional period. No indication is given as to whether this might be an extendable period.

72 mc. would be an unacceptable frequency in Great Britain since it is already allocated to "Fixed and mobile field stations" whatever that may imply. All of the new spot frequencies mentioned above are being used under this category.

A Clashing of Dates

Year by year the Aeromodeller's contest calendar becomes more and more crowded. Clubs and areas have entered into the business of organising events to such an extent that many of them are running more than one rally this year. Inevitably there is a clashing of dates and one of our major tasks has been to sift out some of the unfortunate coincidental selections so that if simultaneous events are to take place in adjacent areas they would be for different classes and not cause any embarrassment.

However, when a major rally is obliged to change its date at the last moment it might well have to duplicate with a smaller event to the latter's disadvantage. Such is clearly the case with the Northern Heights Gala and other free flight events arranged for October 10th. The Croydon Mini-Gala which would have been the only one of the few Galas catering for A/1 Gliders has now been regrettably cancelled. There is only one answer to this problem and that is for clubs to pre-select their dates early in the year and to notify us as a clearing house so that we can keep a general calendar or file. It is impossible for us to allocate space each month for anything more than events for the ensuing six weeks and any additional events that might have been announced while the magazine was being prepared. If club secretaries co-operate we shall be only too pleased to try and avoid the difficulties which have arisen.

This accident at R.A.F. Laarbruch, Germany, was the result of a fellow modeller parking his car too close to the flying area and a model which did not respond to radio when on landing approach. The moral is obvious.



W.W.I. Invasion

Our friends across the Irish sea are renowned for their wit and we have no doubt whatsoever that they have plenty to say about the recent invasion of their flying field at Baldonnell by a fleet of World War I replica fighters. The Model Aeronautics Council of Ireland has been obliged to seek another venue for its 1965 Radio Control Nationals and has gone north of the border to Nutts Corner, Belfast. We bet that had the original 20th Century Fox suggestion to use Radio Control scale models for air battle scenes gone through it would have been a tough job tempting them away from Baldonnell. As it happens, flushed with the success of "Mag Men" film, Fox have assembled a fleet of fully aerobatic replicas sufficient to stir even the most placid aviation buff. Ex-Wakefield team member and noted sailplane ace, Derek Piggott who flew many of the machines in the "Mag Men" film called to tell us how thrilled he was at flying the S.E.5A which was made by Miles Marine Ltd. of Rustington under the direction of F. G. Miles. Of metal construction to meet Air Registration Board requirements it is, like the Fokker D VII's, made at Dinard, France, powered by a DeHavilland Gipsy Queen engine and though slightly longer in the nose

than the original it gives a stimulating performance. Pfalz D.III's have been made by Personal Plane Services at White Waltham and the Hampshire Aeroplane Club, while Fokker Dr. 1 Triplanes have been made in Germany.

Fox appear to have launched themselves into a programme of aeronautical films. The next to be released will come in December and is called "The Flight of the Phoenix" from the book by model maker Elleston Trevor. The plot of this film has a particular aeromodelling twist and the book was reviewed in our issue for December 1964. The "Blue Max" being made in Eire covers the story of the first World War from a German aviator's viewpoint.

Danish invitational

1965 World Champion for the rubber driven model class Thomas Koster will be a contest director at the Danish invitational international event at his home town of Hillerod, Denmark, on the 9th October 1965. All three F.A.I. free flight classes will be run strictly to F.A.I. rules, the competitions will be open to all comers. Further information is available from: Modellflyveklubben "TERMIK", c/o Rytterstien 12, Hillerod, Denmark.



**B.A.
"Sam"
Messom**



Few aeromodellers have a full appreciation of exactly how much the welfare of their hobby depends on the unselfish devotion of those hard-working souls who spend every moment of their spare hours in organisation. These rare individuals find little reward for their industry. They live for the satisfaction of having produced a job well done, they are the people who really care about the "you and I" among aeromodellers. Mostly their efforts remain unsung. Theirs is not the character to make song and dance of upsetting their office routine, their domestic relations, of sacrificing their leisure hours for preparation of a set of contest results, or arranging pre-entries, or producing committee minutes, or filling hundreds of envelopes with circulars. They are the rule-makers, the trouble soothers, the planners, the busy bees on whom each of us depends absolutely and entirely for the success of organised aeromodelling.

And among these good people, there was until the sad day of August 7th, a prince of workers in the person of the late B. A. "Sam" Messom. Who in British aeromodelling could not have heard of "Sam"? The Kingpin of the British Nationals for years, and holding the offices of Secretary and Treasurer of the S.M.A.E. Ltd. at the time of his untimely death aged 55, "Sam" was a natural organiser.

As an ex-army man, with distinct personal codes of honour and sense of duty "Sam" had been active in the S.M.A.E. Council for almost 20 years. His aeromodelling started long, long before that when in the Wembley district of N.W. London. Then he became a delegate to the S.M.A.E. Council from the Northern Area. As a fund-raiser he had no peer. Sam's "fiddles", a rather unfair term for his raffles at social functions, swelled the team travel fund on many occasions. Few could resist his persuasions. When he became Contest Secretary, his principles were strictly applied — and respected. Results appeared almost overnight after a centralised meeting and there were certainly no "fiddles" with late entry or non-members as some were to quickly discover after his appointment. In International events home and abroad he was just as unswerving in his views. At Cranfield, his field organisation set a standard which other Nations have followed, and as team manager for our representatives in Belgium (1959) and Austria (1963) he was the benevolent sergeant-major in charge of his troops, quick with both the entertainment and the criticism.

No matter how demanding the task, Sam had the gift of being able to overcome difficulties of a magnitude sufficient to discourage others. His greatest effort came with the complete re-organisation of the S.M.A.E. membership system. By establishing an office at York, instituting new clerical records methods and application of many hours of sheer hard work, Sam reduced the office charges of the Society to a fraction of previous costs. His was the idea of one-date re-affiliation, and to him must go all the credit for resolving the S.M.A.E.'s financial difficulties of recent years. Only the day before his death he had concluded the accounts for the previous financial year, and on the morning of his death he banked a cheque which assured the Society of a secure future with adequate capital reserves. How sad it is that having just reached his goal, he should have collapsed at a time when at last he could afford to relax.

Out heartfelt sympathies go to his wife Eleanor, and daughter, Jacqueline, for their grievous loss.



Victorious British Team members jubilant after their wins in Combat and Team Racing. Left to right Pete Smith with combat winning "Dominant" model, Baz Bumstead and second place "September Warrior" at right Don Haworth and Dick Place with "Super Nova".

British wins in European Control-line Championships 28-29 August

Report and photographs by John Franklin



THE thirteenth Criterium held for the first time at Liege, Belgium and administrated by the Association of Belgium Aeromodellers was a highly rewarding meeting for British modellers. Flying was restricted to an assembly apron in front of private flying hangars on the civil section of the aerodrome. Due to the small area of hard surfacing which allowed three simultaneously used circles for four programmed events, all practicing had to take place on Thursday, 28th. Not all the Nations bothered to practice, some of them being the eventual winners. The British appeared to monopolise the combat area and the Place-Haworth team lost their new blue and silver model to a line break so reducing them to their red and white identical "Super Nova" as a single chance entry. Conditions were much akin to G.B., about 66 degrees Fahrenheit with moderate humidity, and gusty, with the surrounding area very wet from recent torrential storms that drenched the early camping arrivals.

Accommodation for official supporters, team members and managers was in a nearby (20 minute journey) Technical College hall of residence for men—female supporters being the only ones provided with a room key! The building was spanking new with the carpenter still fixing the door on the "Aeromodeller" staff reporter's room whilst he was unpacking! Though surrounded by steel works belching flame and noise all night, it was still a very pleasant ultra-modern haven for all attending.

The private enterprisers who made their way to Bierset were: **Team Racing:** Dick Place/Don Haworth (Wharfedale), Dave Balch/Alan Dell (Hayes), Brian Turner/Mick Hughes (Wharfedale). **Speed:** Kevin Lindsey (Hayes), Brian Jackson (N. Sheffield), Dick MacGladdery (Hayes). **Stunt:** Jim Mannal (Lincoln) and Mick Reeves (W. Essex). **Combat:** Pete Smith (Outlaws), Baz Bumstead (Northwood), Mick Davies (Outlaws). **Team Managers:** Kevin Lindsey and Flt. Lt. Ralph Gould.

Highlights

Two important rule changes in the F.A.I. Sporting Code had their first effect at the Control Line meeting in this Criterium. In speed, minimum line diameter had been increased by about 15 per cent to 0.4 mm, which makes it all the more remarkable that Hungarian Imre Toth almost equalled the 1964 World Championship speed. In stunt, the new judging system called for all three flights to feature in the points total. This demanded a degree of consistency which some flyers found troublesome.

Missing from the scene were the fast and noteworthy Italian speed experts Prati and Grandesso, both regrettably ill and unable to travel. The U.S.S.R. team did not appear, possibly due to financial or visa problems, which is a pity because in all categories it is known that their standards have improved. But, whatever the meeting lacked in attendance, it gained in thrills and especially so with the two great British victories in Team Race and Combat classes.

Of the models; we would select the Hungarian speedsters, the Italian stunters and Place's team racer along with Dracek's

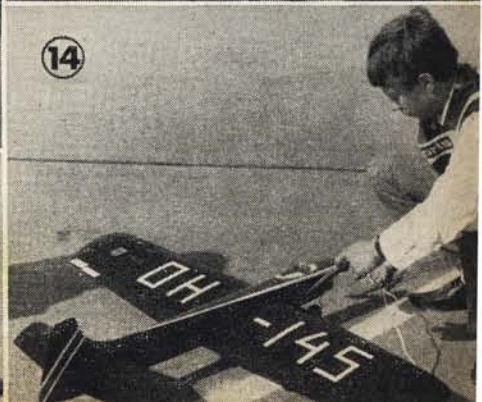
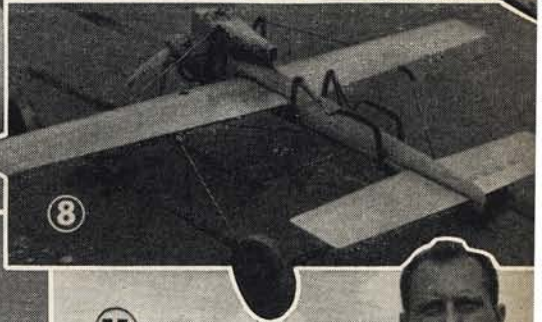
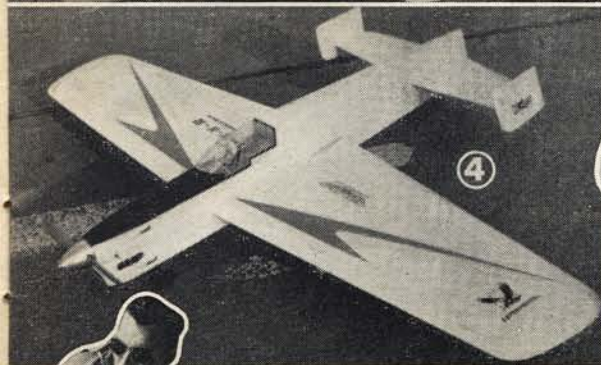
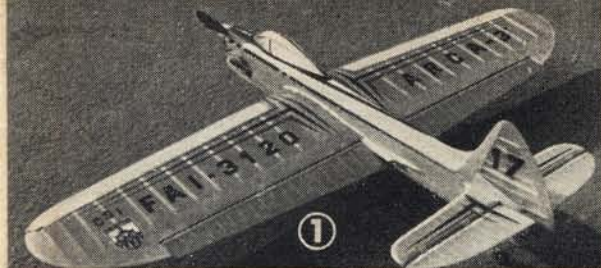
"Orion" as outstanding efforts. Technically we were treated to a practically perfected retractable undercarriage in Fontana's "Woodpecker" and a novel electrically controlled remote compression control by Swede Mans Hagberg. These, then were the outstanding material items but to all present the greatest moment of all was Herb Stockton's amazing recovery when he fell over mid-way through the team race final in which he presented a classic example of precisely how a team race model should be piloted.

Of performances; the most outstanding is clearly that of a small (15 member) club from Helsinki, Finland, known as "Munkka" which carried off the Criterium honours from whole Nations, including some which had been in practice for weeks, by a larger margin of points than ever known before.

Speed

With a smaller entry than usual speed activity was spasmodic with the rather cramped and quickly erected safety fencing (portable airfield barriers topped with chicken wire mesh) very close to the models. Timing was subject to question from the start and this was due to the close proximity of time-keepers to the circle. Differences of up to 0.7 second were reported (equal to 5 m.p.h.) between the official watches though this was eventually resolved. The British team were out of luck and our fastest member Dick MacGladdery only made 125 m.p.h. for 14th position with his conventional model. Dick pranged a "wierdie" in the last attempt to better this. Brian Jackson had dolly problems with the model coming out prematurely and

(1) Elegant black and yellow stunter by Italian Carlo Arbuffi (Fox 35—10 x 6 S/Record prop.) has built up flaps. (2) "Hoppi" cream and red stunter by K. Seeger, West Germany, is in fact a Grondal design now kitted placed 4th with Fox 35 R/C engine. (3) Louis Van den Hout's O/D orange/green (Veco 45) placed 2nd. (4) Square section fuselage and a Veco 35 modified to accept M.V.V.S. 5.6 piston and liner used by J. Trnka from Czechoslovakia. (5) Adolph Malik's 6th place 131.6 m.p.h. Super Tigre G20 speed model. (6) British entrant Mick Reeves with Sandra Gurry. Olive Green model at left has trike U/C and Fox 35, also sheet covered wing. Reserve has Merco 35. (7) J. Gabris' "Super Master" in grey, red, blue, has superimposed lead-outs, placed 3rd. (M.V.V.S. 5.6 c.c.—10 x 4 in. prop.) (8) Czechoslovakian speed model by Z. Pech rear exhaust M.V.V.S. 2.5 RL clear finish, alloy tailplane. (9) "Old look" stunter by L. Compostella, Italy (Fox 35). A first place challenger, crashed on last flight. (10) Fastest speed "private entry" by Finnish R. Ekholm (Super Tigre G.15) placed 4th. (11) Joseph Sladky, M.V.V.S. engine designer with 3rd place model (M.V.V.S. 2.5 RL). (12) M. Sebestyen, Hungary, with 2nd place MOKI S-3 entry which seemed to have excessive line tension. (13) Jim Mannal, British stunt entrant runs up his Merco 35 powered "Mercury Crusader". (14) Stunt winner Juhani Kari from Finland flew his "Nakke" as at Budapest, still with Veco 35.





(1) Half of a Swedish combat model by P. Gerlang after Pete Smith bifurcated it in the first combat heat. (2) Dutchman, J. Schouwstra's fast A.P.S. Cleaver, ST G20 D and Frog 7 x 6 propellor! (3) Italian's Marcelli and Fontana with latters "Evil Woodpecker" retracting U/C ST G20 D racer. (4) Espadon racer by Henri Levesy from Monaco crashed into opposition pilots during take off! (5) All enveloping canopy on Bugl powered racer from Austria reveals tank and engine installation. (6) Britshers Alan Dell (left) and Dave Balch with fast light blue "Trident" II racer. (7) Moki TR-7 engined Hungarian racer by Purgai/ Katona, using U/C bolted to fuselage side, alloy plate engine mount and scale type paneling. (8) Streamlined Belgian racer by Vanderrijcken/ Vanderbeke with large canopy. (9) Milan Drazek's very fast "Orion".





(10) British team member Brian Turner's blue and black racer. (11) Sundell Bro.'s prepare for final (Oliver Tiger). (12) Don Jehlik from U.S.A. warms up Super Tigre G20D prior to final. (13) French all-red racer by Fabre/Favre with retracting u/c (Eta 15, Mk. II).

clipping most of the propeller blade area off on one flight giving him a very fast semi-shaft run. In 21st position Brian had runs of 101.4, 109.7 and 114.7 m.p.h. Kevin Lindsey recorded 121.6 m.p.h. then had his model ground loop several times breaking the universal joint off his Uni-Line handle and both model and dolly then crashed into the fencing.

The Hungarians, with their very fast 'Moki' S-3 engines, were by far the most relaxed team in the whole event. Just in and out of the pylon, no bother at all, with Imre Toth making a brilliant 140.7 m.p.h. for top place on the first day though he was challenged by team mate Miklos Sebestyen. They both flew 1964 models and seemed to pull very hard on the lines. Sebestyen looked quite ill after one of his runs. Only m.p.h. behind the Hungarian, Josef Sladky the Czech 'M.V.V.S.' engine designer and constructor was trying hard for more r.p.m. but it seems he had reached the 2.5 R.L.'s present limit, 2.1 m.p.h. slower than at Budapest last year. Blond Rolf Ekholm from Finland was a surprise fourth placer making 133.2 m.p.h. with his Super Tigre G15 blue and natural painted model. He used the new Top Flite 6 x 7 speed popellers in perfectly standard form for all runs. Zbynek Pech from Czechoslovakia, once a World Champ, was way down in 12th position with a best time of 127.8 m.p.h. and Mokimaker Krizma, the '62 Champ, was 8th.

Single line handles of all shapes and sizes were used, the Lindsey type being the most popular. Bugl the Austrian engine designer (who did not compete) showed us his "mono run". This does in fact look like a flat automatic pistol but with two triggers arranged vertically above each other driving a very small gearing system totally enclosed within the butt.

Of the "Private Entrants" i.e., the home tuners without factory or state support, the German team of Adolf Malik (reigning German speed champion) and Rolf Meibach (ex champion), did very well. Malik's light blue Super Tigre G 20 model made two identical flights of 131.6 m.p.h. using a Czech M.V.V.S. 150 x 180 mm. propeller, tying for fifth position with Jean Magne of France. Malik made no third flight so appears as 6th. Magne used his '64 model with a G 20. Rolf Meibach, who was 7th at 130.8 m.p.h., also used the same model as flown at Budapest, having extremely low (4:1) aspect ratio. Third German Franz Zilliken fared less successful but his 120.9 was enough to place W. Germany a creditable 2nd to the Hungarians.

SPEED

Name	Nation	1st Round	2nd Round	3rd Round	Engine
1. I. Toth	Hungary	140.7	—	—	Moki S-3
2. M. Sebestyen	Hungary	135.6	136.4	—	Moki S-3
3. J. Sladky	Czechoslovakia	135.5	130.8	135.6	M.V.V.S. 2.5 R.L.
4. R. Ekholm	Finland	127.8	131.6	133.3	S. Tigre G 15
5. J. Magne	France	131.6	120.3	125.0	S. Tigre G 20
6. A. Malik	W. Germany	131.6	131.6	—	S. Tigre G 20
7. R. Meibach	W. Germany	117.1	126.4	130.8	S. Tigre G 20
8. G. Krizma	Hungary	117.7	130.8	—	Moki S-3
9. G. Tinef	Bulgaria	130.1	129.3	—	S. Tigre G 15
10. H. Freundt	Austria	130.1	—	—	Bugl
11. Rasckoff	Bulgaria	128.6	—	—	S. Tigre G 15
12. Z. Pech	Czechoslovakia	127.0	127.8	125.0	M.V.V.S. 2.5 R.L.
13. J. Vafa	Finland	122.9	125.0	—	S. Tigre G 15
14. R. Mac-					
Gladdery G. Britain		119.6	123.6	—	S. Tigre G 15

At right speed winner I. Toth (Hungary) with Moki powered model as flown at Budapest made 140.7 m.p.h. At left second place Americans in team racing. Pilot Herb Stockton on left and mech. Don Jehlik right, with cutlery awards and medals at prize giving dinner.



15th-23rd positions listed with fastest times only. (15) Jenatton (France), 123.1 m.p.h. (16) K. Lindsey (Great Britain), 121.6 m.p.h. (17) F. Zilliken (W. Germany), 120.9 m.p.h. (18) H. Hensius (Holland), 119.6 m.p.h. (19) Stefanos (Bulgaria), 118.4 m.p.h. (20) O. Kiedberg (Sweden), 115.9 m.p.h. (21) B. Jackson (Great Britain), 114.7 m.p.h. (22) M. Angeloz (Switzerland), 114.7 m.p.h. (23) W. Holle (Holland), 96.5 m.p.h.

Team Positions—SPEED

1, Hungary; 2, W. Germany; 3, Bulgaria; 4, Great Britain, 5, Czechoslovakia; 6, Finland; 7, France; 8, Holland; 9, Austria; 10, Sweden; 11, Switzerland.

Combat

Fantastic is the only way to describe any Combat event with a mere 14 competitors which could become so prolonged and confused through a distinct lack of comprehension on the part of the officials. Even once started after a two hour delay, the circle marshal forgot to blow his whistle in two heats and they had to be run again!

Pete Smith was the first away for G.B. and he had a hectic time winning; having to re-fly after he had cut the Swedish Per Gerlang's Eta 15 model into two pieces, suffering no more than a crunched leading edge on his "Dominant". Baz Bumstead dunked twice to cure popping engine runs and then crunched one model flattening the soft alloy spinner nut and breaking the bearers off, but he went on to defeat his German opponent with his second model. Our third man Mick Davies lost out with his "Dominant" when well beaten by Dutchman Schouwstra and a "Cleaver"—tough luck for the hard practising Mick. Crash rate was very high. Most of the Continental teams lost at least one model and engine to the very firm concrete apron. By British standards the opposition was in the main at a stage three to four years behind in tactics and model construction, most relying on thin wing section models flying very fast and level to keep out of trouble. Several models were "Peacemaker" style with clever Frenchman André Morelle trying desperately to dent the British with a flapped type that was highly modified. His was the toughest opposition offered and he finally had to retire with two wrecks in the semi-final. Wings were removable and a hardwood open frame "Bleriot" type fuselage carried the Oliver Tiger. One of his victims was Galli of Switzerland, who had a diamond wing section on his all yellow clear finish model with screeching Cox Special 15 driving a 7 x 6 Tornado Nylon propeller.

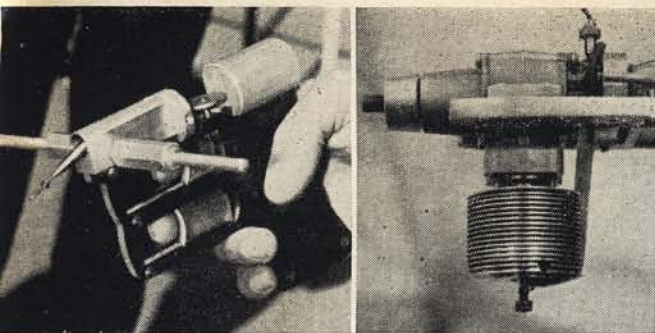
British supporters cheered uncharitably nearly all the time, particular at every crash, most of which were due to inexperience. The climax came with the all British final between Pete Smith and Baz Bumstead. Both had good engine runs (Oliver Tigers) and flew large, open manoeuvres that kept speed up and pleased the spectators immensely. Bumstead's engine started to miss and Pete Smith took two quick cuts to clinch a win for Outlaws over Northwood. At the end Pete Smith went up again to try and get the remaining knot of streamer and each of the mechanics had their turn at the handles as officials tried their best to clear the circle for a radio and rocket demonstration. Flying without silencers they put up a great show and made up for the rule-mongering of the officials and some other teams with a display that thrilled from start to finish.

COMBAT

1. P. Smith, Great Britain.
2. B. Bumstead, Great Britain.

Aerobatics

Using the system which employs six judges (of whom only



Far left, Bugl's "Mono Gun" with gear cover removed, from Austria. Rack and pinion inside butt, one trigger up, one down, not used in contest. Cross bar screws into barrel. Immediate left, electrically operated variable compression system by Swede Mans Hagberg has enlarged head fins on Eta 15. Operates on 30 volts via control lines.

four are in action at any one time, so allowing two judges a rest period of four flights between each group of eight flights) the aerobic event proved to be a little disappointing. Even the winner himself, Juhani Kari from Helsinki, Finland, was not entirely happy with his first placing, but this was merely a personal reflection and indicates that although his standards had fallen since last year, others have not risen to the occasion, with two notable exceptions. One of these is Luciano Compostella from Italy who might well have won had he not completely lost control of the model when at the base of a second square 8. His green model was blasted into the ground by a sudden wind gust. Other rising star is Dutchman Louis Van den Hout whose large "Olympus" we featured last November. The big orange painted model with Veco 45 took full advantage of the newly permissible 21½ metre lines to make some of the most graceful manoeuvres. His first flight must surely have rocked the opposition.

Conditions for the first round were almost perfect. Wind was slight, the sky clear and the sun and judges positioned ideally for best impressions. Kari the favourite appeared nervous and his flight was in fact inferior to that of several others notably Compostella and the Hungarian Maznik, each of whom flew far better square loops than the Finn. For the 2nd round a stronger wind prompted most competitors to apply more power. Van den Hout was notably faster and lost the crispness off his corners but Kari improved almost to his old form having regained his confidence. The best flight of the round was undoubtedly Compostella's in our view although the final scores give the honour to Kari. Of the British flyers Reeves and Manual each made fine patterns with some of their individual manoeuvres equal to those of the leaders. They lost most points in what are considered elementary items, take-off, landing and inverted flight, etc., which score points that cannot be overlooked. In the third round, the real surprise was Carlo Arbuffi from Italy who eradicated his team mate's misdemeanour (Compostella's crash) with one of the most impressive series of vertical 8, overhead 8s, and triangles that we have ever had the pleasure to witness. Moreover the model was one of the nicest finished on the field.

When Compostella lost his chance in the third round it was then up to Kari to return a fairly consistent flight to secure victory. This he did, but the hourglass and horizontal 8s were a disappointment. Van den Hout also lost points for rounding off corners, so did Klaus Seeger from Germany who might also have placed up to second. This gave the opportunity for Josef Gabris to improve with his two week old "Super Master", a beautifully prepared model with a high revving MVVS 5.6 engine. By making what was the best flight of the third round Josef gained a fine third place behind V. d. Hout.

Whoever said stunt was becoming tiresome may have been speaking the truth. The challenge of perfection is still present but the new scheme of having all three flights counting seems to demand more than the modellers are happy to give at present.

On one fact we must surely comment. Stunt fliers are always ready when called to fly on these occasions, and without exception, all the entrants in the two day event flew with only a few moments delay after the previous flight. This meant that 90 seven minute flights were conducted in approx. 13 hours of judging time—a standard of efficiency which contrasted with that of the other circles!

Designwise, the most interesting development is the strong influence of Grondal and Gialdini's models. Triple fins, square fins, the cowed inverted engine and the elegant spatted undercarriage are all very much in vogue in Europe for '65.

AEROBATICS

		Rd. 1	Rd. 2	Rd. 3	Total	Engine																				
1. J. Kari	Finland	3,918	4,252	3,994	12,164	Veco 35																				
2. L. Van den Hout	Holland	4,006	3,815	3,733	11,603	Veco 45																				
3. J. Gabris	Czechoslovakia	3,693	3,714	3,976	11,383	MVVS 5.6																				
4. K. Seeger	W. Germany	3,731	3,858	3,581	11,170	Fox 35																				
5. G. Egervary	Hungary	3,724	3,557	3,841	11,122	Veco 35																				
6. M. Souliac	France	3,571	3,486	3,621	10,678	Fox 35																				
7. M. Vanderbeke	Belgium	3,407	3,599	3,653	10,659	Fox 35																				
8. C. Sbragia	Italy	3,451	3,678	3,361	10,490	Fox 35																				
9. C. Arbuffi	Italy	3,286	3,831	3,355	10,472	Fox 35																				
10. L. Compostella	Italy	3,988	4,127	2,314	10,329	Fox 35																				
(11) B. Metkemeijer	Holland	10,396	(12) A. Kaminski	W. Germany	10,350	(13) G. Masnik	Hungary	10,296	(14) P. Tupker	Holland	10,142	(15) T. Vellai	Hungary	10,098	(16) M. Feit	France	9,945	(17) M. Salathe	France	9,797	(18) Milanoff	Bulgaria	9,435	(19) M. Reeves	Great Britain	9,237

(20) J. Kalev, Bulgaria, 9,175. (21) J. Bartoli, Monaco, 8,605. (22) J. Trnka, Czechoslovakia, 8,115. (23) R. Pfuur, W. Germany, 8,108. (24) J. Mannall, Great Britain, 7,858. (25) P. Cohen, Belgium, 7,396. (26) H. Tork, Austria, 7,337. (27) G. Collignon, Belgium, 7,228. (28) C. Galli, Switzerland, 6,790. (29) A. Jankov, Bulgaria, 6,686. (30) C. Walter, Switzerland, 3,888. (31) Patiala, Finland, 3,249.

Team Positions—AEROBATICS

1. Holland, 32,141; 2. Hungary, 31,516; 3. Italy, 31,391; 4. France, 30,420; 5. W. Germany, 29,628; 6. Bulgaria, 25,296; 7. Belgium, 25,283; 8. Czechoslovakia, 19,498; 9. Great Britain, 17,895; 10. Finland, 15,413; 11. Switzerland, 10,678; 12. Monaco, 8,605; 13. Austria, 7,337.

Team Racing

Planned as an opening event team racing sagged sadly from the planned 8 a.m. start as the organisation sorted itself out. Many new "systems" and gadgets were used, the most advanced being by Swedish Mans Hagberg. His pilot Goran Alseby, used an electrically operated compression adjustment system, so that by giving a slight movement to a self centring push pull switch built into the control line handle he could increase or decrease the compression ratio of the Eta 15 in flight according to instructions given by the mechanic over a walkie-talkie radio. The device really works and could have further applications, on which we shall have more to say in future. Fontana/Amodio and Costa/Marcelli from Italy produced forward cockpit Super Tigre G 20 D oil cooled radiator models with the best yet seen retracting undercarriage units. Wheel axle position was just forward of the C.G. when extended and their landings were perfect. Touch down was 1/3rd of a lap in front of the mechanic, and the pilot applied down elevator to keep the tailend up, so that it ran horizontally, without bouncing, until the mechanic caught it. Some of the other models bounced so much they almost took off again! With a "Cockpit" that was not at the point of maximum cross section the Italians had to talk their way past the jury. As time was taken to the nearest upward second, Fontana/Amodio were eliminated from the final by a mere fraction of time. Turner/Hughes from Great Britain were unhappily disqualified in this first round. They had refuelled at the 98th lap and were over flying the 10 kilometer distance when obliged to go under a landing model, which crashed through obstruction. Trnka/Drazek had the highest airspeed model in practice but in the first heat Drazek missed a catch by a wide margin and the engine took a lot of flicking to start, putting paid to their chances and only recording 5:49 with two stops. Stockton/Jehlik made a first stop at 51 laps in the first round with their Super Tigre G20 D powered "Jele" model. Slightly overcompressed Jehlik did some very fast flicking to restart, the engine "cooked up" at the 70 lap but still returned 4:59—one of the few under five minute times recorded during the first round. They were on top form and are two of the best ambassadors American team racing could have. Balch/Dell had the chance of a fast run with only one other team flying but after a first flick start the Oliver Tiger went off cold and popping, came in and cut at 31 laps to record a 5:04 time, fast under the circumstances. Place/Haworth had a fast run and recorded top first round time at 4:43 doing one stop only with their modified backplate Eta 15 Mk. II. The Hungarians, flying "MOKI" TR-6s and a TR-7, have recorded under four minutes but they had not been able to obtain the correct metal to rebuild the worn engines before the contest. They still made two consistent times of 4:47 and 4:48 by Mohai/Markotai, only fast enough for 8th place. Spanish racers were fast and used Eta, Oliver and Super Tigre engines, Jaime Bonnin-Carreras employed a circular bellcrank with a limit stop, so that, if one of the control lines break the elevator instead of giving full up or down for instant destruction, remains in the neutral position, giving the pilot some time to fend off the inevitable! Sundell brothers retracting undercarriage functioned perfectly and they were one of the fastest teams, with an Oliver Tiger powered "Alert". Their laps were low and inconsistent. Very few models made more than 95 m.p.h. and most were in the 80-92 m.p.h. range. Tineff-Raschkoff from Bulgaria, flew a black and yellow tissue trimmed model, very Fresco-like powered by a Super Tigre G20D with a home carved multi laminated propeller making 34 laps a tank at 92 m.p.h. Follete/Levesy from Monaco were unlucky when their Eta 15 powered "Espadon" ran into the circle on take off and hit one of the Italians, breaking its wing off during a heat! The second round produced faster times from most teams, except the British. Place/Haworth were matched against Italian and French teams and had a close race recording a 4:47, just 4 seconds slower than their first round. Balch/Dell were going in fine style until the second pitstop, Dave Balch caught the model rather quickly and broke the propeller, bolted a new one on and recorded 5:15.

(Continued on page 493)



SHOW OFF

An enterprising means of getting publicity by Fielding M.A.C. (New Zealand)

INSPIRED by the photograph in *AEROMODELLER* "Club News", of the Nuneaton giant display model used in a carnival, Fielding Model Aero Club, from New Zealand decided to build a half size S.E.5a for the Queen Carnival in their town. Some 500 hours work were put into it by A. L. Curtiss, B. Wright and L. Welch to make the model of an aircraft that served in 41 Squadron R.F.C. between March and November, 1918. A Volkswagen van was co-opted as a towing truck with club banners down the side telling the public what the club does and models sitting on the roof made the desired publicity impact on the spectators. A week later it was displayed in a shop window to advertise an Air Pageant at Taonui Airfield (the club's flying site) at which they were giving a model flying display. Subsequent publicity included a generous television plug and newspaper write-up to boost the club's local support. They too have noise problems, and only a stiff fight prevented

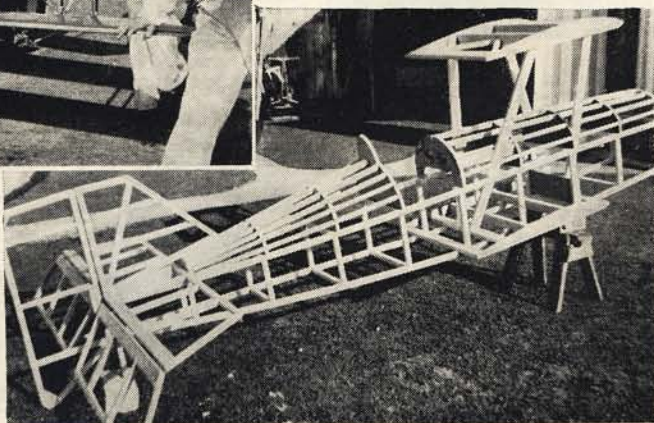
the narrow minded wishes of some members of the public taking advantage and banning aeromodelling from their area. These displays are of vital importance to all model clubs if they wish to keep in public favour, and the only way to do this is, as the Fielding club have found out, to please or entertain them. They would like to congratulate the Nuneaton club on their enterprising venture and the inspiration they received from it.

Other half-size subjects for similar pageant or exhibition style "models" which should have a very popular appeal with the public are the Sopwith Camel, Hawker Hurricane and of course the Spitfire. Strange to say, the biplanes are easier to construct with their straight lines and smaller dimensions. If you want to go really "big" and up-to-date why not a Concord? Semi-scale own designs are also commendable, for example, Swindon M.A.C.'s "Independent Deterrent" (see September, 1963 issue).



At left members of the Fielding club at their stations around the half full size model as it is towed through their hometown streets during the Queen Carnival, note the finish and size in relation to the club members.

At right the uncovered fuselage structure gives a good idea of the amount of work involved in the construction of such a project. Note the instruments on the cockpit panel, and the hinged elevator and rudder.



AIRCRAFT DESCRIBED NO. 144

De Havilland 34

THE COVER PHOTOGRAPH this month introduces a vintage transport aircraft which although comparatively little known to the modern generation, was most influential in creating regular air routes between this country and the continent of Europe. Developed from the D.H.29 the first of the eight passenger biplane airliners was test flown by Alan Cobham from the old Stag Lane Aerodrome on 26th March, 1922. Two were initially ordered by the Daimler Hire Ltd. transport company with an all red colour scheme, and they gave magnificent trouble free service on the Croydon-Berlin routes.

Instone Airline (with blue and silver colours) operated on the routes to Brussels and Cologne and G-EBBT inaugurated the first Croydon-Brussels service in May 1922.

A total of 11 DH 34's were constructed. Six were taken over by Imperial Airways Ltd. continuing in service until retirement in 1926. Powered by a single 12 cylinder "broad arrow" watercooled 450 h.p. Napier Lion engine the DH 34 had a crew of three and cruised at 105 m.p.h. Structure was entirely wooden with fabric covering and petrol was carried



into two streamlined tanks underneath the upper wings. The eight passengers in the midship's cabin occupied wicker chairs and in the case of the Daimler Hire machines, spare engines could be carried across the width of the cabin with the propeller shaft projecting through the fuselage side!

What a contrast these types make with the present day Boeing 727 as illustrated on the inside back cover of this issue!

The loaded weight of 7,200 lbs. was roughly the same as that of the present day Beagle B.206 but range was only a matter of 365 miles, considerably less than half that of its modern "light transport" counterpart.

As a model subject, Ken McDonough reports that the 51 ft. biplane scales down ideally and makes a most stable subject. Those who have admired his models at the 1965 scale competitions will appreciate how realistic it is in flight.

MODEL

Span: 4 ft. 3 in. Length: 3 ft. 3 in.
Wing Area: 590 sq. in.
Incidence: 3 deg. upper wings, 0 deg. lower wings.
All up weight: 36 oz. Dihedral—4 deg.
Wing loading: 9 oz./sq. ft. Sidethrust: 3 deg.
Engine: Frog 150R 1.49 c.c.
Airscrew: 10 in. dia. x 4 in. pitch.

Deviations from scale:

Dihedral increased from 2½ deg. to 4 deg.
Tail areas slightly enlarged.
Decalage: 3 deg. upper wings, 0 deg. lower wings.
Depth of fuselage at tail increased to improve spiral stability.

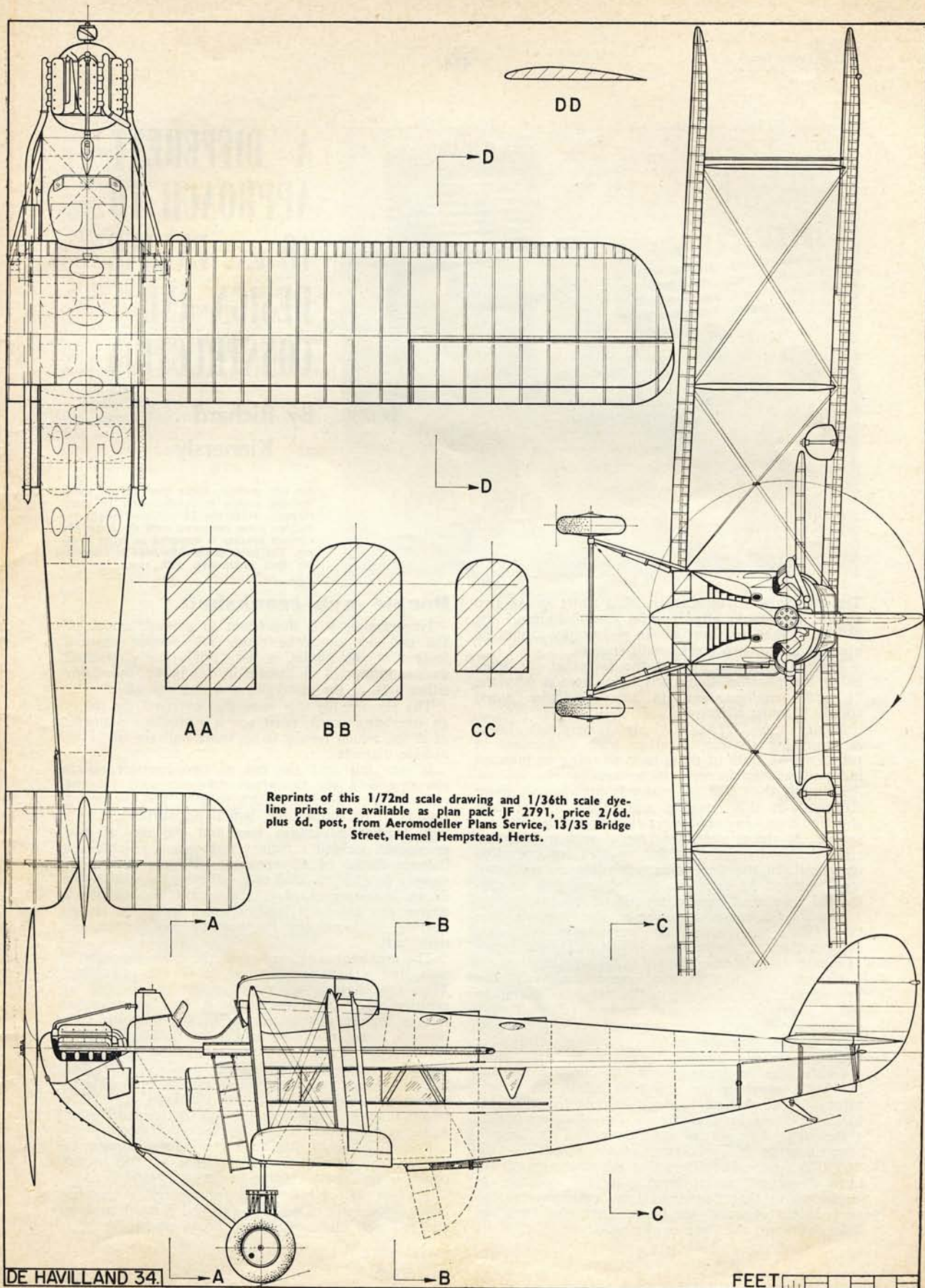
Finish:

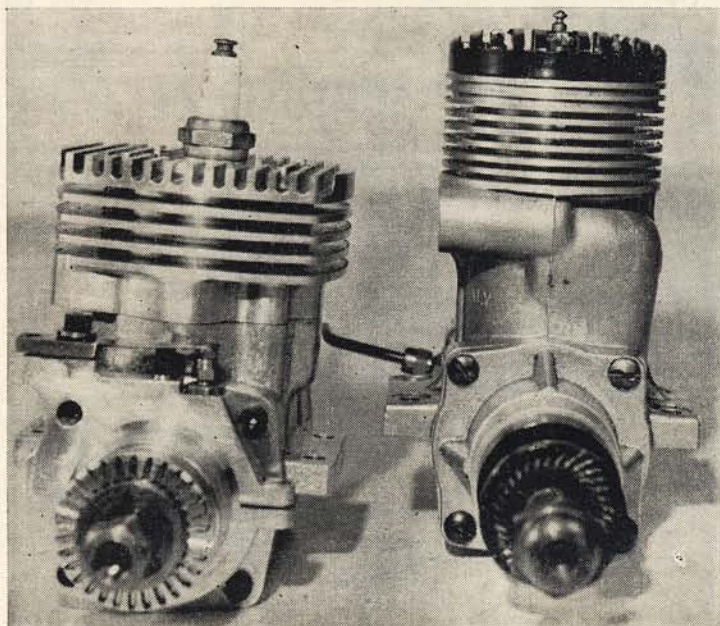
Aero Blue: Fuselage, fuel tanks and struts.
Silver: All flying surfaces. Radiator cowling. White lettering on fuselage. Black registration on wings.



Top right, artist Ken McDonough's model DH 34, details of which are included in the text, indicating very slight deviation from true scale. At left, hardy pioneer aviators of the Instone Airline. The chief pilot, Captain F. L. Barnard is at left (photo from the collection of C. Cain). Below, the DH 34 in true character showing G-EBBQ the prototype, in all red Daimler Hire Ltd. colour scheme.







A 'DIFFERENT' APPROACH TO 10 c.c. ENGINE DESIGN AND CONSTRUCTION

By Richard Kinnersly

Far left, author's Ultra Short Stroke spark ignition engine is revolutionary in many respects. Note the 20 per cent height reduction when compared with the Rossi 60. Contact breaker is mounted on front housing. The large cooling fin area is essential for heat dissipation with spark ignition.

THE DECISION TO DESIGN an *ultra short stroke* two stroke, was made after careful examination of the old belief that the short stroke philosophy cannot be applied to the two stroke with success.

This examination yielded the fact that far from being inapplicable, there was every reason why the "U/S/S" configuration (in small cylinder sizes) should be most effective.

Firstly the "U/S/S" yields very much lower reciprocating stresses, together with a decrease in piston speed. Both of these facts allowing an increase in r.p.m. and an increase in power.

Secondly the "U/S/S" motor is considerably more compact—in this instance more than 20 per cent shorter than any commercially available 10 c.c. engine. At the present, the frontal area is increased considerably by sufficient finning area for operating on petrol. In the final state, operating on methanol with reduced fin area, the frontal area will be substantially reduced over conventional designs.

Thirdly the compact nature of the internals of a "U/S/S" motor, allow an increase in crankcase compression ratio—the most influential single factor in aiding volumetric efficiency at high r.p.m.

Fourthly the short cylinder liner and piston (it has proved safe and effective in the "U/S/S" design to use a piston length factor of stroke x 1.5) yield very short transfer ports. Consequently for any given port cross section volumes go down, aiding still further the pumping efficiency of the crankcase.

Lastly the cylinder form resulting from the "U/S/S", provides for any port height (as a percentage of stroke) an increase in potential area due to the increase in circumference of the port "belt".

Actual port height, as a percentage of stroke, will have decreased by direct measurement in the "U/S/S" motor. It follows that the piston speed will have decreased proportionally to the decrease in stroke. Also that for any given r.p.m./percentage port height/capacity condition, port time will be independent of the bore stroke ratio.

Double web crankshaft

Nevertheless it is dependent to a *small* extent on the con-rod to stroke ratio. The second unusual feature of the motor, is the "full" type crankshaft design, supported on three $\frac{3}{8}$ in. x $\frac{3}{8}$ in. ballraces, one either side of the crankpin, and one outrider.

The reasons for this were that to stand the loads, an overhung crank must use a mainshaft diameter of .5 in., which results in an inner ballrace of $1\frac{1}{8}$ in. outside diameter.

It was felt that the use of two support points allowing a $\frac{3}{8}$ in. mainshaft diameter and thereby reducing the ballraces O.D.'s to $\frac{3}{4}$ in. and increasing rigidity at the same time, would be worthwhile.

A further advantage was that the use of two crankwebs yielded sufficient web mass to achieve a balance factor of 65 per cent. Although it is obviously possible to achieve a sufficient balance factor in an overhung crank, the resultant web thickness moves the crankpin further away from the main-bearing, so increasing the bending moment on the mainshaft.

The crankpin is integral with the drive side crankweb, and a light interference fit on the inlet side. Thus the shaft is assembled with the con-rod in position, then trued on a jig. A tapered expander plug is inserted in the crankpin on the inlet side and, pressed home, resulting in a very "stiff" assembly.

Made in KE805 steel, the connecting rod has a phosphor bronze big end bush .320 in. diameter. The big end eye is generally slotted on the underside to ensure lubricant access to the crankpin. The little end is unbushed and a tight fit on the hardened steel gudgeon pin which is free in the piston bosses.

Rod shank width has been kept to a minimum at .035 in. and runs in a crankweb gap of .050 in., to conserve crankcase volume as far as possible.

The reason for using steel for the rod is that inevitably the bulk of an alloy con-rod is much greater and required more volume to accommodate it.

Another point in favour of steel rods, is their much improved fatigue characteristics. When one considers the damage done by a broken rod, this point becomes quite important.

Piston design is also slightly unusual in that the gudgeon pin bosses are mounted directly in the piston crown. This is a concept which only becomes dimensionally possible in the "U/S/S" design.

There are three advantages in such a piston. Firstly by combining the necessary "heat sink" mass of the crown with the main structural support point of the piston, the piston can be made lighter.

Secondly, since the piston skirt is no longer transmitting gas and inertial loads it can be made lighter.

Thirdly, being unstressed except for side thrust loads, the skirt is free to accept almost any size and position of port window necessitated by the layout of the motor.

Lastly, the gudgeon pin bosses can be situated at the required width of the connecting rod little end eye, enabling a very short, stiff, and light gudgeon pin to be employed (.25 in. diameter, .5 in. long).

Incidentally this type of piston lends itself admirably to die-casting. As there are no female internal shapes requiring a split die core. A simple two-piece die can therefore be used.

Novel piston ring

Piston sealing is accomplished with a single "L" section Dykes type ring. Since the anti-rotation peg is located on the horizontal section of the ring only, it leaves the sealing face uninterrupted. As can be seen in a photo, the vertical section of the ring forms the edge of the piston, promoting good gas control. Piston material is Hiduminium 100.

Situated outboard of the inlet side ballrace, the rotary valve port is inclined upward into the lower end of the cylinder. The purpose of this position is that it gives better gas flow than the conventional

valve delivering into the constricted area of the crank chamber.

Although this arrangement does not aid in mixing the charge as does the more conventional system the designer is convinced that this is the task of the carburettor and any attempt to provide turbulence or mixing in the crank chamber can only be detrimental in increasing drag.

Rotary valve disc itself is made in phenolic resin .040 in. thick and is free to move axially in its chamber which is .055 in. deep.

As can be seen in one photo it is driven by three pins in a boss which is taper fitted to the end of the crankshaft. This method makes alteration of the inlet timing a very easy matter.

As the photos show the motor was designed to be able to accommodate very large ports.

Boost ported

One view shows how the piston design allows very short, compact, transfer ports when the piston skirt is not restricted by structural considerations. The boost port window in the piston and in the liner and jacket can be seen. The boost port is of the same type as described in the designer's AEROMODELLER article of April, 1963, as fitted to the previous 10 c.c. motor.

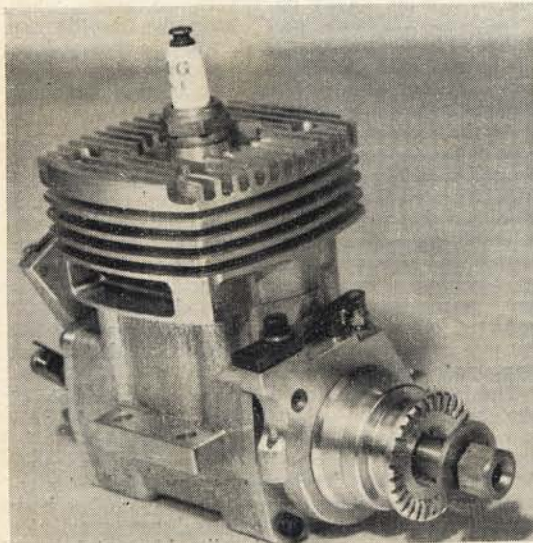
Both views illustrate the size and position of the main Schneulie transfer ports.

The crankcase is a sand casting in "Y" alloy. The cylinder liner is turned from M.S. seamless thick wall tube. The cylinder jacket was milled and turned from Dural bar stock.

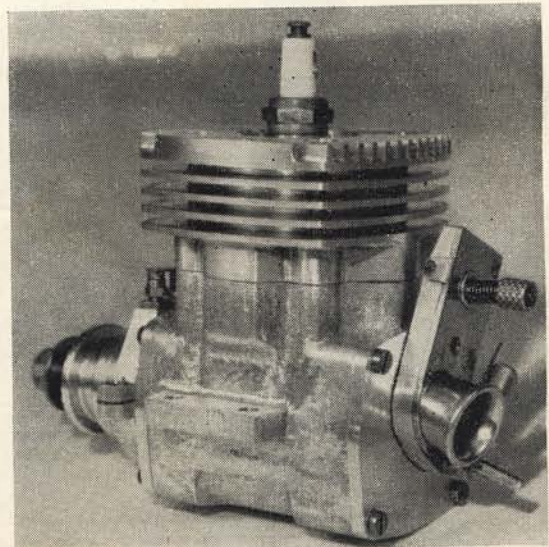
The foundry who cast the crankcase managed to include nearly as many blow holes as casting. They won't see the designer again!

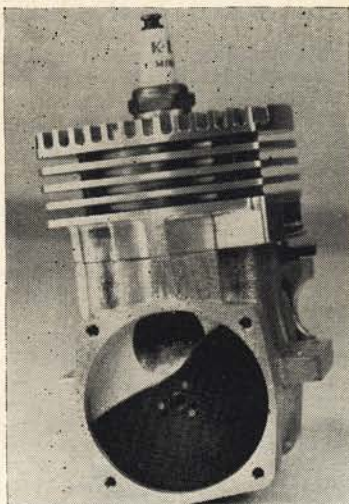
Blow holes can be serious, as they tend to retain abrasive particles that cannot be removed by ordinary methods of cleaning, but are certain to emerge when

View showing contact breaker gear, breaker arm is operated from phenolic resin pushrod running in steel bush (hardened) and actuated by a between bearing cam. Contact gear has an advance-retard range of 30 deg. if required.

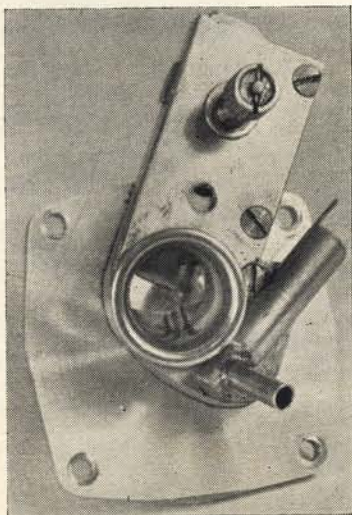


Rear view shows upward inclined carburettor and slide type flat rack restrictor. Note liner jacket is turned from dural stock and not cast as an integral part of the crankcase. Transfer port passages are externally visible.

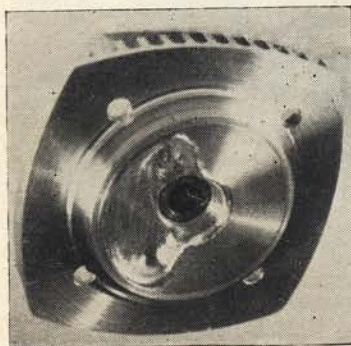




Phenolic resin rear disc is 0.030 in. thick and driven by three steel pins from rear crankweb. Upward inclination of fuel air intake into transfer port is steep.



Close-up of back-plate and carburetor assembly showing flat rack and pinion operated slide half open, with jet needle removed. Click stop fine adjustment wire protrudes at needle valve position, feed tube at bottom.



Cylinder head shape has been developed progressively as can be seen from cutting marks. Termed the "Squish and loop deflector" type, the large flat area is the squish band.

the motor is running. Several early pistons and cylinder liners are witness to their effect.

Closely related to the port design is the combustion chamber shape which is designed to control, as far as possible, the upward transfer loop and deflect it away from the exhaust process.

The flat portion of the cylinder head is intended to provide "squish" for good turbulence and mixing. Due to the proximity of the piston at T.D.C. when no combustion takes place in that region, the large squish face also assists piston cooling. Compression ratio has so far been kept to between 8 and 9:1 (although as a spark ignition motor it could well have been run on around 20:1) because it was desired to keep all conditions as they would be in the final glow plug ignition motor.

Spark ignition is the only exception to this, the reason is as follows. In developing an engine from the drawing board onward, it is essential to have as many *constant* test conditions as possible. In the designer's opinion the glow type ignition is about as far from being consistent as it could be.

So it was decided to substitute spark ignition, till very late in development. The ignition system shown was the result. Total width of the unit is only .25 in. The phenolic resin pushrod runs in a hardened steel bush in the breaker body and at the lower end is actuated by a hardened steel sleeve cam on the mainshaft. At the upper end it bears direct on the spring steel cantilever breaker arm which forms the insulated half of the circuit. The tungsten point is a standard automotive type ground down, the mild steel "butt" of some being riveted and soldered to the arm, early points, which were only soft soldered on, having shown a tendency at around 18,000 r.p.m. to disappear, producing a sudden hush! Lift period of the cam is 35 deg. at a contact breaker point setting of .008 in.

If the lift is not kept as "short" as possible the ordinary automotive coil cannot re-energise before the next primary circuit collapse at very high r.p.m. with the result that a cyclic misfire sets in. The condenser is remote mounted 2 in. from the engine where it is out of the way of oil and heat.

The 6 volt coil and ignition system generally appeared quite happy on the two occasions when, started on a "tooth pick" prop the throttle was opened till the rev-counter showed a nerve and ear shattering 27,000-28,000 r.p.m.

So far no serious testing has been done above 20,000 r.p.m.

At the present moment maximum power is represented by the motor turning a 9 x 10½ prop at around 16,000 on 75 per cent petrol, 25 per cent "R".

All tests so far have been conducted on petrol, it is known that methanol and nitro will produce considerably more power. But their effect can always be assessed as a percentage increase when development on the design is terminated. Incidentally, another good reason for using petrol—it's cheap!

Actual b.h.p. checks have not been made as yet but it is hoped to build a really effective eddy-current type dynamometer soon.

The brake in question will have to be capable of absorbing 3.5 b.h.p. at 30,000 r.p.m. as the designer sees no reason why this figure or more shouldn't be realized from a 10 c.c. motor in years to come. Among immediate developments envisaged, it is intended when a optimum port size/position has been reached, to hard chrome plate all subsequent cylinder liners. Also to fit a capped roller big end bearing

(for which room had been left at the design stage).

With these two alterations it is hoped to cut the lubricant down to 4.5 per cent with a consequent increase in actual fuel content.

Also the extremely "sticky" fuel-oil ratios used do not aid flow, as they possess a much higher drag coefficient than, say, pure air. This fact in conjunction with the bad flow coefficient of very small ports inherent in the miniature configuration, make it all the more difficult to obtain high volumetric efficiency. An important consideration in the miniature two stroke is the "scale effect" which renders it extremely hard to achieve a high crankcase compression ratio, and this high pumping efficiency is essential for good breathing at high speed.

It must be remembered that if the transfer system is not capable of controlling the quantity of gas delivered, then the effect of a high crankcase compression ratio will not be an increase in power but an increase of wasted charge escaping out of the exhaust port.

Therefore though an increase in crankcase compression ratio is essential, for any real increase in performance, if not used in conjunction with an intelligent transfer system, the result is useless.

It is surprising that the miniature two stroke has not kept up in recent years with the power output of the nearest racing motorcycle cylinder size of 50 c.c. Even with the use of "hairy" fuels which can increase power outputs by 30 per cent. For instance the 50 c.c. Suzuki engine produced 11 b.h.p. at 11,500 r.p.m. This represents a b.m.e.p. of over 120 p.s.i. and yields a b.h.p. per litre figure of 220, all this on petrol. As far as the designer is aware there is no miniature engine produced which even on 50 per cent "nitro" produces a b.m.e.p. of over 60 p.s.i. at max. power r.p.m.

As far as b.h.p. per litre rating is concerned the highest figure claimed is one of 180, this was from a Rossi 10 c.c. motor, but was subject to some doubt.

Surely the above figures can be pushed up? Admittedly the very small cylinder sizes suffer from pumping and porting problems, but in their favour they have the ability to operate at much higher r.p.m. Even if present low m.e.p.'s could be pushed up a few thousand r.p.m., that in itself would represent a useful power gain.

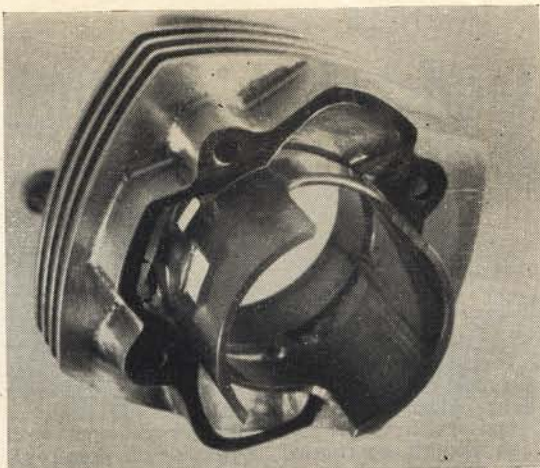
The problem of poor mechanical efficiency of the miniature is not really serious, as correct choice of materials, intelligent design of dimensions and tolerances, combined with the use of accurate ball-races, and lastly some quantities of effective lubricant solve the problem.

Additionally mechanical inefficiency does not stop any given design from providing a high m.e.p. though it can obviously be responsible for a surprising b.m.e.p. figure.

Although it can be argued that except in terms of speed flying, most model engine users are quite content with present power outputs. Manufacturers who adopt this approach are neither helping the speed world at present or keeping an eye on future markets.

In conclusion, the motor described seems so far to have justified the reasons for designing and building it. Although prop/r.p.m. figures are never very accurate it seems to be producing on petrol approximately the power output of commercially available motors, at what must be considered a very early stage in its development.

It is hoped that when time and money permit to pursue the motor to a satisfactory potent conclusion,



Underside of the liner and jacket in close-up above, shows ports cut in liner and transfers machined in dural jacket. Note how they match the crankcase in view at bottom of page. Also note rigid construction and four hold-down bolt holes.

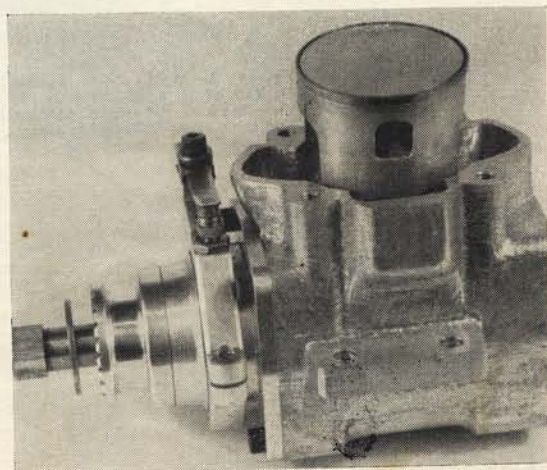
readers will notice the avoidance of using the word "model engine" as this implies that the miniature is something less than a small *real* engine.

To end on an optimistic note concerning the new silencer regulations. It *should* be possible to design an efficient expansion system which while increasing power, conforms to noise requirements. Perhaps with the help of some serious research by manufacturers?

DATA : KINNERSLY 10 c.c.

Bore: 1.150 in. Stroke: 0.580 in. Rod/Stroke: 2:1. Height (without plug): 3.125 in. Weight (spark ignition and throttle carb.): 18 oz. Total Weight of Rod/Piston Assy.: 0.9 oz. Mean Piston Speed at 30,000 r.p.m.: 2,900 ft. per min. Max. Piston Acceleration at 30,000 r.p.m.: 470,000 ft. per sec./sec. Available Ignition Range: 30 deg. Mounting Bolt Centres: Across, 1.95 in.; Along, 0.75 in.

With liner and head removed, Dykes type 'L' section single ring forms upper bearing edge of piston. Boost port window cut in piston skirt on near face matches ports in liner. Flat topped piston is very lightweight with hidden heat sink gudgeon pin supports.



PART THREE

Jagdstaffel Markings

by ALEX IMRIE

Jagdstaffel 15

Summer 1918

Fokker D VII

JASTA 15 was a component of Jagdgeschwader 2 commanded by Obltn. Berthold who was a regular officer. Having previously served in the infantry and in keeping with this service, he had the aircraft of his command coloured in sympathy with the dress tunics of his old regiment. All aircraft of Jagdgeschwader 2 had the fuselages and tail units coloured blue, Jasta identity was effected by painting the nose cowling different colours. The unit received Fokker D VII as replacement for Siemens D III in June 1918, and these machines were finished in the following manner:

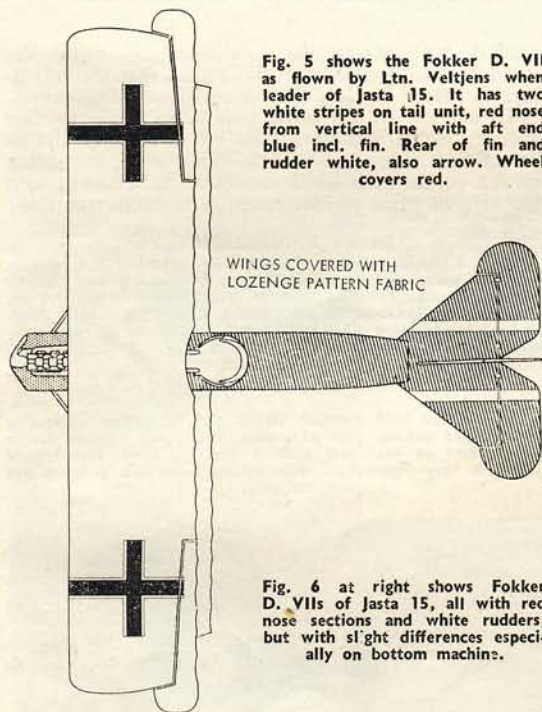


Fig. 5 shows the Fokker D. VII as flown by Ltn. Veltjens when leader of Jasta 15. It has two white stripes on tail unit, red nose from vertical line with aft end blue incl. fin. Rear of fin and rudder white, also arrow. Wheel covers red.

Fig. 6 at right shows Fokker D. VII's of Jasta 15, all with red nose sections and white rudders, but with slight differences especially on bottom machine.

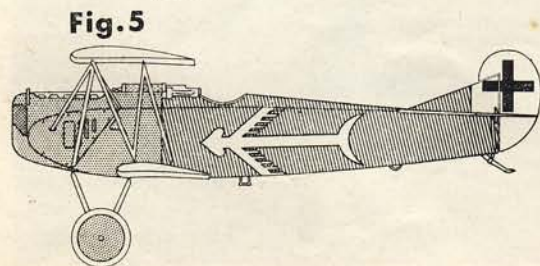


Fig. 5

Wings were covered in the lozenge pattern fabric, nose and front part of the fuselage aft to the line shown on the drawings in Fig. 6 and the wheel covers were painted red. The remainder of the fuselage, fin and the uppersurface of the tail unit were coloured blue. On most aircraft, the fuselage cross was painted out and *not* re-marked. However, some pilots who carried fuselage bands for identity *did* carry the fuselage cross as well. Serial numbers were obscured by the blue dope and were not repainted.

Fig. 5 shows the machine of Lt. Veltjens. As unit leader he carried two white stripes on his tailplane, his "Indian arrow" was also in white, a close-up of the top arm of this insignia is shown in the photograph which was taken while the unit still was equipped with Albatros D Va. Apart from the apparent curve given to the arm by the rounded fuselage of the Albatros, the insignia is identical to that carried on the Fokker D VII.

The following pilots carried the listed identity markings during the period:

Lt. von Hantelmann	White skull and cross-bones.
Lt. von Beaulieu-Marconnay	White branding iron emblem of his old regiment (4th Dragoons).
Lt. von Ziegesar	Three white feathers.
Lt. Schaefer	Snake line.
Lt. Dingel	Dark blue fuselage band.
Lt. Klein	White fuselage band.
Vzf. Claudet	Uhlán lance.

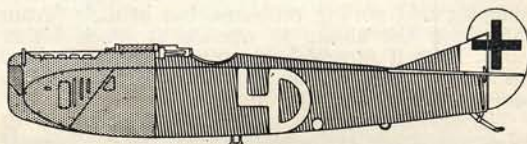


Fig. 6

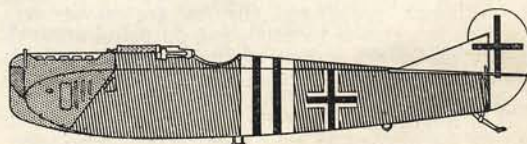


Fig. 6 portrays the location of von Hantelmann's skull insignia on Fok. D. VII. 1445/18. This was the aircraft being flown by Lt. Wüsthoff on the 17th of June 1918 when he was brought down behind the British lines by 2nd Lt. Southey in an SE5a of 24 Sqn. The 2nd view shows the branding iron marking of von Beaulieu-Marconnay. At one period Lt. von Beaulieu-Marconnay flew Obltn. Berthold's machine, and in at least one photograph it is possible to discern the over-painted winged sword marking under the branding iron insignia. The third aircraft is that of Jagdgeschwader 2's commander Obltn. Berthold, he carried a winged sword as personal marking, his machine was marked in the colours of Jasta 15, but had the uppersurfaces of both wings also coloured blue. Undersurfaces of wings and tail unit are believed to have been left in the lozenge fabric (it was quite uncommon, regardless of how bizarre a unit or personal scheme was, to have it extended to include the wing undersurfaces). Wheel covers were red, and the uppersurface of the top wing centre section had a large white panel. The fourth machine shown carried black and white fuse-



Ltn. Veltjens in his Albatros D. Va. of Jasta 15. This is a similar insignia to that shown on his later Fokker D. VII on page opposite. In addition to the fuselage cross, it is included to show that some machines did display the fuselage cross. The pilot is unknown.

Metal Covered Gloster Gladiator

CONSTRUCTED from A.P.S. plan F.S.P. 719 Mr. Ling's 32 in. span 1/12th scale Gloster Gladiator originally designed by Doug McHard has been much modified for greater scale appearance and spectator appeal. Aluminium sheeting was used in place of silver painted balsa sheet on the engine cowling cockpit hood and front half of the fuselage. The sheeting is pinned in position and this gives a most realistic effect except that the pin heads are too large for scale authenticity

and this is exaggerated by the mirror effect of the aluminium sheeting. A scale diameter and shape propeller was used with aluminium tips and the rest of the model is doped silver over the nylon covering. This is a very good effort indeed, and more so when one realises that at 61 years of age, Mr. Ling can't be a midnight oil burning youngster. Note the engine cowling blisters and undercarriage leg, top fairings.



INVENTIVENESS is one of the virtues that most modelers possess. This expresses itself in the form of model design but very often it is a small gimmick or gadget to do a certain job where no commercial part is available. Modellers are also loath to throw anything away so this month's Gadget Review is, in the main, adaptations of old junk for useful purposes. As usual there are also a few useful improvisations.

One of the most useful workshop gadgets that saves one cutting lumps out of the workbench, or the wife's kitchen table is submitted by J. R. Bridge of South Shore, Blackpool, and illustrated in A. Specially made for fret-sawing formers, etc., this frame is constructed from two pieces of $\frac{1}{4}$ in. plywood and a block of hardwood the thickness of your table or work bench. The vee cut-out is used as a cutting gutter with the small circular end for turning the blade around. To attach it to the bench or table slot the frame over the two round headed wood screws that are screwed into the underside of the bench. Care should be taken to get the cutting platform level with the work top, otherwise you will have trouble holding the job, to stop it rocking.

Have you ever tried hunting around the workshop to find a piece of wood to stir up some dope that has been standing for some time and settled to the bottom of the jar? P. Jeffries of Bickley, Kent, has given up the chase and found the method illustrated in B. Take an old fuel can spout and cut the alloy flange with a fine saw or snips and then bend the cut segments to a fan blade pattern. Push some tightly fitting piano wire up the old fuel outlet hole with enough protruding from one end to act as a steady on the dope tin bottom. When complete, "chuck" it into a drill and start stirring, or should we say screwing, as after all it is a dope screw.

Inspired by the fuel can mixing method illustrated in the August 1964 Gadget Review P. Palfreman of Dagenham, Essex, gives us the "gen" on his system in C. Firstly a sight tube is fixed up the side of the can by soldering a small tube on at the base and leading a length of fuel tubing to the top. Labels are then fixed to the side of the can and marked off into percentages. With this method any fuel formula can be mixed and if you have two favourite mixes both can be made up in the same can by scribing the two formulas, one on each side of the sight tube.

Adjustable push rods always come in useful especially in radio control. D. Tiller of Damerham, Hants, submits the system shown in D. A brass electric light fitting is slotted into the balsa push rod and bound firmly in place with strong thread. When secure, a 16 s.w.g. piano wire link is bent to engage in the escapement and is fitted through the brass connector being held in by the clamping action of the two small screws. The screws are those used originally to hold the wires in when it was used as an electrical fitting.

In E L. St. Ledger of Redhill, Surrey, solves the problem of many aeromodelers who do not know what to do with their broken needle valves and are loath to throw them away. In a crash the threads usually break off close to the locking nut on the spray bar. File the lock nut to half thickness then unsolder the steel needle from the female threaded thimble. Solder the broken off piece of male threaded spray bar on to the steel needle and then cut off the end of the female threaded needle thimble and screw the remainder on to the protruding piece of spray bar in the filed down lock nut. The modified needle then has, in effect, an outside thread.

L. A. Beath of Dunedin, New Zealand, suggests two useful gadgets to the scale man. Illustrated in F his suggestion for cleaning up the needle valve in a radial cowled installation. The needle valve is cut down as shown and a bicycle spoke nipple is soldered on flush with the outside of the cowling. The engine fuel mixture can now be regulated by turning the nipple with a screw driver. For a scaly looking tail wheel L. A. Beath uses the method shown in G. Insert a piece of thin walled brass tubing through the wheel hub to act as an axle and bend it to the fork shape shown. The sides of the fork are now flattened and the free ends soldered into a larger piece of tubing to form a coupling with the piano wire pivot also soldered inside it.

A free flight fuel tank idea is submitted by B. Curd of Wolverton in H that makes use of an ink cartridge case. The case he used is a Platignum, empty of course. First step is to cut the top nearly right through so that it is still hanging on and forms a cap. Next open the other end and using fine nose pliers push a piece of fuel tubing in as a feed pipe to the required length. The cartridge will grip on the tubing and prevent any leakage. The ideal way of fixing the tank into the model is to secure it with a small Terry clip.

Two slope soarers for 7d., this sounds crazy, but we are glad to say it is true when you follow the example of B. Tolley from Ewell, Surrey, as shown in J. Cut the two 'models' from a 7d. polystyrene tile as illustrated and sand them to airfoil sections

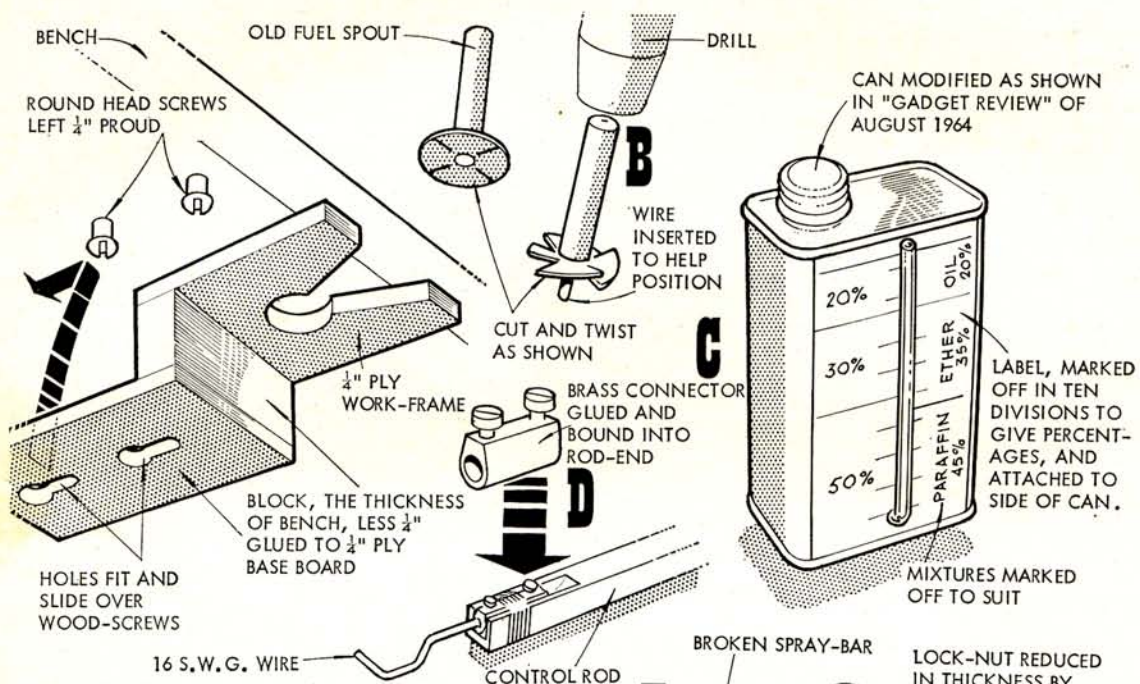
Ideas for modelling

with fine glass paper finishing off with flour paper. Weight the nose with a small brass screw and trim it by adding half an inch panel pins, one at a time to the nose. Bend the dihedral in and crease the elevators on the trailing edge for trimming. If flown on a good slope in calm weather they should produce times of one minute and over.

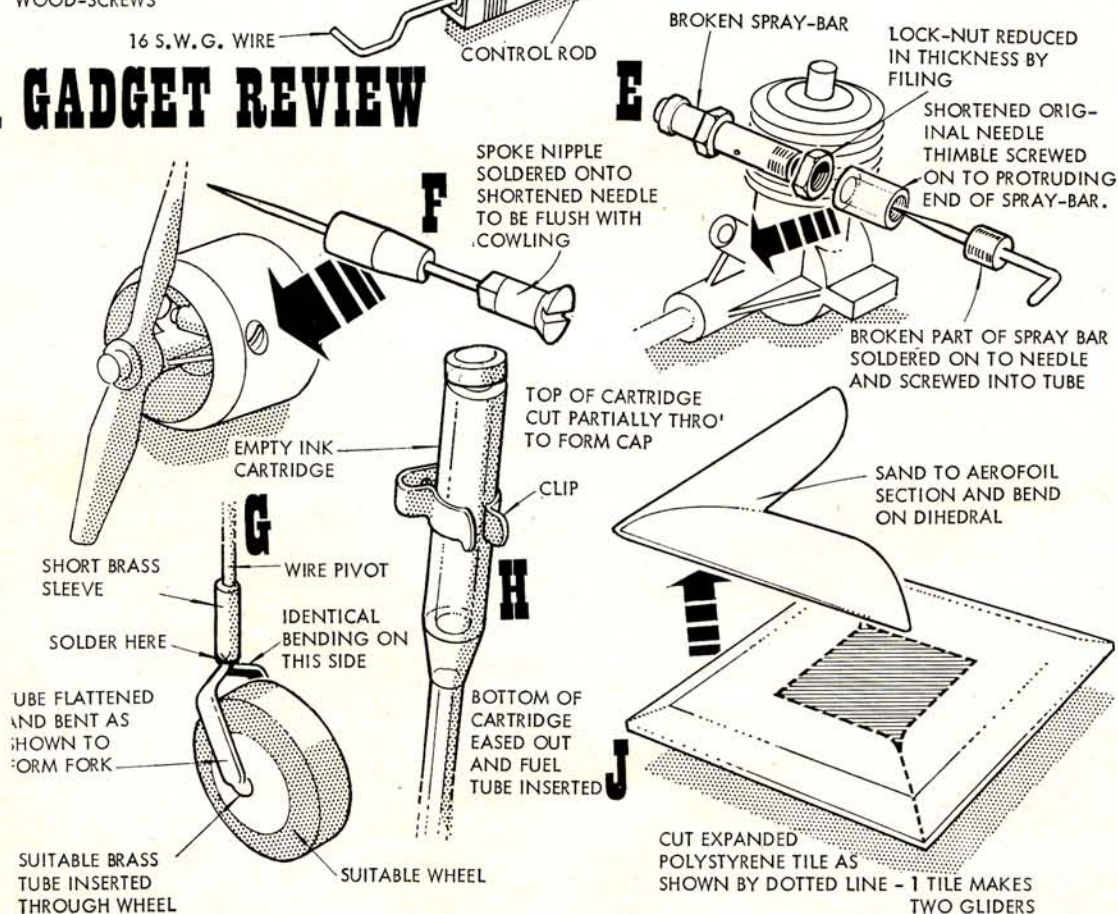
Unillustrated

To make instrument panels for scale models J. S. Collins of Sutton Coldfield, Warwickshire, uses the following photographic method. Firstly the instrument panel is drawn on to tracing paper with indian ink, although pencil will do. Use a paper that has a fine grain if possible. Then, in the dark, clamp the tracing paper up against a sheet of photographic printing paper between a sheet of glass and a flat piece of wood. The photographic paper is then exposed to daylight for a few seconds and developed, the author using Johnson's Contrast developer. After fixing and washing the print is glazed with a coat of varnish. A realistic black crackle finish is obtained when a "White Fine Lustre" printing paper is used. All that now remains is to cut the panel out and to fix it in the cockpit.

To ensure a rigid mount for the wings of his F/F power model Paul Milan from Oxford uses rubber strip (as used for rubber motors) mountings. As most models have polyhedral wings this means a dihedraled mounting platform must be made to give a firm mount. For models with tip dihedral and a flat centre section wing mounting can be tricky, as they tend to slew around. On his Keil Kraft "Gaucho" wing platform, Paul has contact glued $\frac{3}{4}$ in. strip rubber all around the edges.



in.. GADGET REVIEW



Propellers

..... on test

A review of many commercial props in practical air tests

OVER the last year several new makes of propeller have come into popular use in G.B. They have provided the opportunity to run a comparative test on similar sizes, mainly the 7 x 8 for F.A.I. team racing. Tests on propellers are by no means straightforward and to be perfectly truthful the results table below can only serve as a guide to those who have not tried all the available types. Comparative results on a standard model, motor and under constant weather conditions are desirable but this was not entirely possible. The same model and engine were used, namely an Eta 15 Mk. III with a twin Eta silencer fitted and bored out backplate. The tank was a home made Burke type of constant flow design and the model rather heavy at 24 ounces. Although only nine different types were tested, the tests had to be spread over two days as approximately one and a half hours was spent on each propeller. Performance on any given propeller varies quite considerably from model to model, depending on whether it's a clean or dirty air-frame, dragwise.

Glass Fibre

Listed below in top speed order, the *Glasflügel* from West Germany came out best all round and it is as its name suggests made from glass fibre. Rather heavy but with a very rigid form and wafer thin tips it was the best we have ever handled. Revving fast on the ground it gave good acceleration and its extra weight seemed to help the starting with some fly-wheel effect. It would appear that the mould is first coated with approximately 1/32 in. of glass resin then loose strands of glass fibre are placed inside this glass shell and sealed in place with more resin, as none of the fibres reach the blade surface.

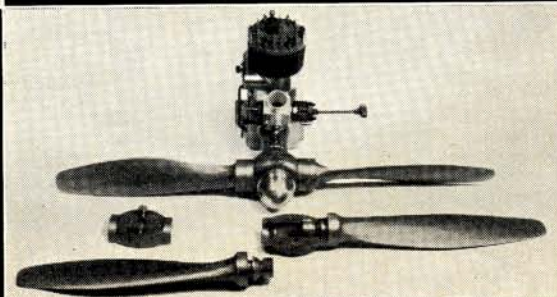
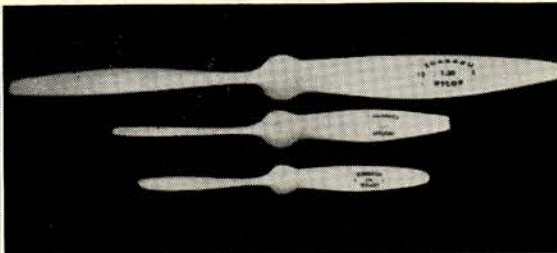
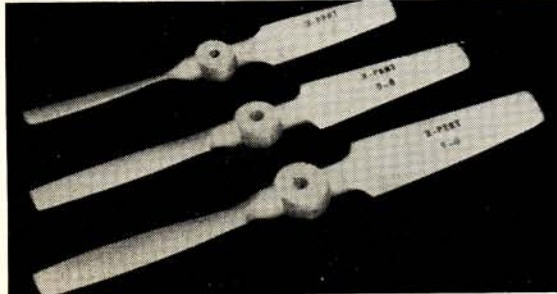
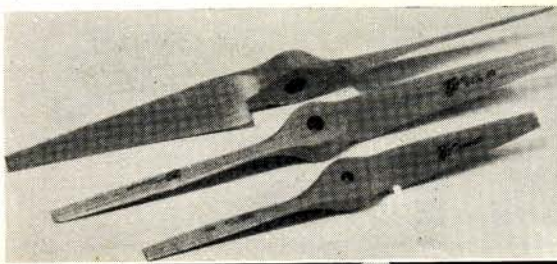
Below top, three sizes of the new Top Flite Speed propellers; note the wide cuffs at the root. Well finished, they do not absorb a lot of punishment. Placed 4th at Criterium of Aces at 133.2 m.p.h. Below bottom, the 'way out' shape of X-PERT propellers with paddle-like blades, need a lot of thinning down.

Contrary to many opinions we did not find it in the least bit dangerous on starting and when we did break one at the N.W. Area Easter Meeting by chipping the tips off, the blade split lengthwise along the fibre grain. This propeller is only available from Germany at present at a cost of 13/- each—what price performance!

Best wooden prop performance

The *Rev-Up* 7 x 8 made in the U.S.A. and sold in G.B. at 5/- each by H. J. Nicholls was the best wooden propeller. Nicely finished with a thin blade section and fully balanced they only required to have the shaft hole reamed out to be made ready. One point that counts very much in their favour is that they are all very well matched and if one is broken, another can be fitted with only a slight change of settings. World Champions Place/Haworth were using these propellers on their Criterium model. *Rev-Up's* were used by the U.S.A. F/F team at the World Champs for full scores. The David Nixon propellers, although not on general sale, were included as they may shortly become available. Made in small numbers the 7 x 8 is practically identical to a thin hub Tornado Plasticote 7 x 8, except for a slightly thicker hub and blade. They have the characteristic back and front waisting of the Tornado but with the blades set centrally on the hub. Price is not yet known but with a performance without any cleaning up of 94 m.p.h. for 40 laps in comparison with the other propellers they will be well worth having. *Top Flite Power Props* have been around for many years now so we purchased some from our local model shop and flew them without any mods. Very strong, with thick blades and a hub of massive proportions, they lend themselves admirably to blade thinning and hub clean-up. Roughly finished with suspect pitch our test example made 90 m.p.h. for 35 laps, another 5 m.p.h. can be added to this power propeller by thinning, balancing, and polishing. Obtained from Roland Scott the latest yellow nylon *Tornado* 7 x 8 is a very well moulded and balanced propeller that looks right and is remarkably similar to the thick hub Plasticotes of some years ago. The blades flex very badly and bend all over the place when the engine is warming up. One odd point is that the exhaust note from the engine is drastically reduced when in the air—any explanations? Performance-wise, it was only giving 88 m.p.h. for 33 laps absolutely flat-out under good conditions. Probably the best value of any propeller ever made the *Super Record* from Italy unfortunately does not seem to suit our Eta 15. Nicely made with a thin

Below, top, yellow nylon Tornado's are very tough for general use but blades flex at high r.p.m. in smaller sizes; note differing tip shapes. Below bottom, Tatone Instant Pitch very scale-like hub blade pitch can be varied to suit model and conditions, i.e., differing weights of two stunt models, spare blades available.



F.A.I. Team Racing Test

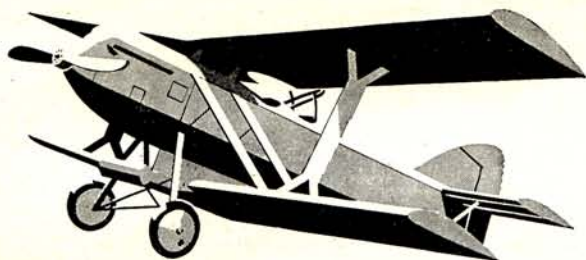
Propeller	Size	Speed	Laps	Remarks
Glasflügel	7 x 8	101 m.p.h.	35	Very rigid and heavy.
Rev-Up	7 x 8	95	36	Good finished, balanced.
Nixon	7 x 8	94	40	On sale at later date.
Top Flite Power	7 x 8	90	35	Strong and reliable.
Tornado Nylon	7 x 8	88	33	Blades flex badly.
Super Record	7 x 8	86	31	Cheap and tough, thick.
Super Record	7 x 8½	85	40	Useful for an extra lap.
X-Pert	7 x 8	82	45	Too much blade area.

hub and a shape that looks right, but rather a thick blade section we were disappointed to say the least in their performance on our test model. In all, three 7 x 8's were tried and the result was a consistent 86 m.p.h. for 31 laps. A 7 x 8½ was then tried but this was 1 m.p.h. slower, with 9 more laps added on the range. Known locally as the "Broomstick Special" the X-Pert propellers made in the U.S.A. have earned this nickname due to the turned blade roots and hub. The blades have most of their pitch at the roots and indeed their 7 x 8 seems to have a lot more blade twist than most other makes. The blades are also very thick (approx. 3/32 in.) at the tips and have blunt leading and trailing edges. In the air ours made 45 laps at 82 m.p.h. The latest *Top Flite Speed* 7 x 7½, 7 x 8 and 7 x 8½ were also taken out for testing but they all broke whilst being flicked over, not one of them surviving to record a time. They are

root cuffed types with very thin blades having most of the area and pitch concentrated at the roots. A full range of speed sizes will soon be available through Ripmax to suit 1 to 10 c.c. engines. We recommend the use of a mechanical starter to preserve the blade for the flight!

Other sizes and types

As for other props, pushers in 8 x 6 and 9 x 6 sizes, from *Tornado*, moulded in yellow nylon, are available from H. J. Nicholls and three bladers from Roland Scott. We also gave the *Tatone Instant Pitch* propeller a few flight tests in a Veco 35 powered Thunderbird stunter. With two separate blades the two part hub has a clamping action over the splined blade roots when two screws are tightened to lock the blades at any desired pitch from 0 to 14 inches. Starting off with 10 inch diameter we set it for 6 ins. pitch then worked our way up and down two inches, in half inch increments. With a finer pitch the model flew more slowly with the engine giving out a few more revs making for smoother manoeuvres but a very slow level flight, that was rather distracting in the windy conditions to say the least. With greater pitch the model flew very fast on the level but did not hang on so well in the wingover, etc. To adjust the pitch the *Tatone spinner* nut used was removed, the two locking screws loosened, then the blades were turned to the required markings on the vernier scale on the two part hub and blade root. On an unintentional landing! we nosed the model in and hit the ground pretty hard but this did not dislodge the propeller blades. Even if we had broken them spare blades are available. Moulded in a metallic impregnated nylon they look very scaly when a spinner nut is used to display the round blade bosses to advantage. Available in 10 and 11 inch diameters they cost 19/6d, each from H. J. Nicholls Ltd.



AIRCRAFT QUIZ

What was it?

When was it built?

The Beardmore XXVI, a two seat fighter, was designed and built in 1925 at Glasgow for the Latvian Government. It was constructed mainly of wood; the wings, employing two spars with ribs of spruce and ply, were covered with ply from the leading-edge to the rear spar. The fuselage had ply covered spruce longerons with bulkheads of spruce and ply. The inter-plane struts were made of dural plate and the mainplane struts of steel with dural fairings, the latter being used as assembly jigs with adjustment for incidence at the rear attachment points. The fin and rudder was conventional but the horizontal stabilizer consisted of a leading edge, a moveable centre portion for trim and an elevator. It was claimed that the controls were fully operative—even in the stall. Powered by a Rolls-Royce Eagle IX developing 360 b.h.p., the aircraft had a maximum speed of 145 m.p.h. and could climb to 15,500 ft. in 20 minutes. Principle data: Span, 37 ft.; Length, 32 ft.; Wing area, 356 sq. ft.; Weight empty, 2,555 lb.; All-up weight, 3,980 lb.

A 1/12th Scale
free flight model
for .5—1 c.c. engines

AIRCO D. H. 5

designed by
C. M. MILFORD



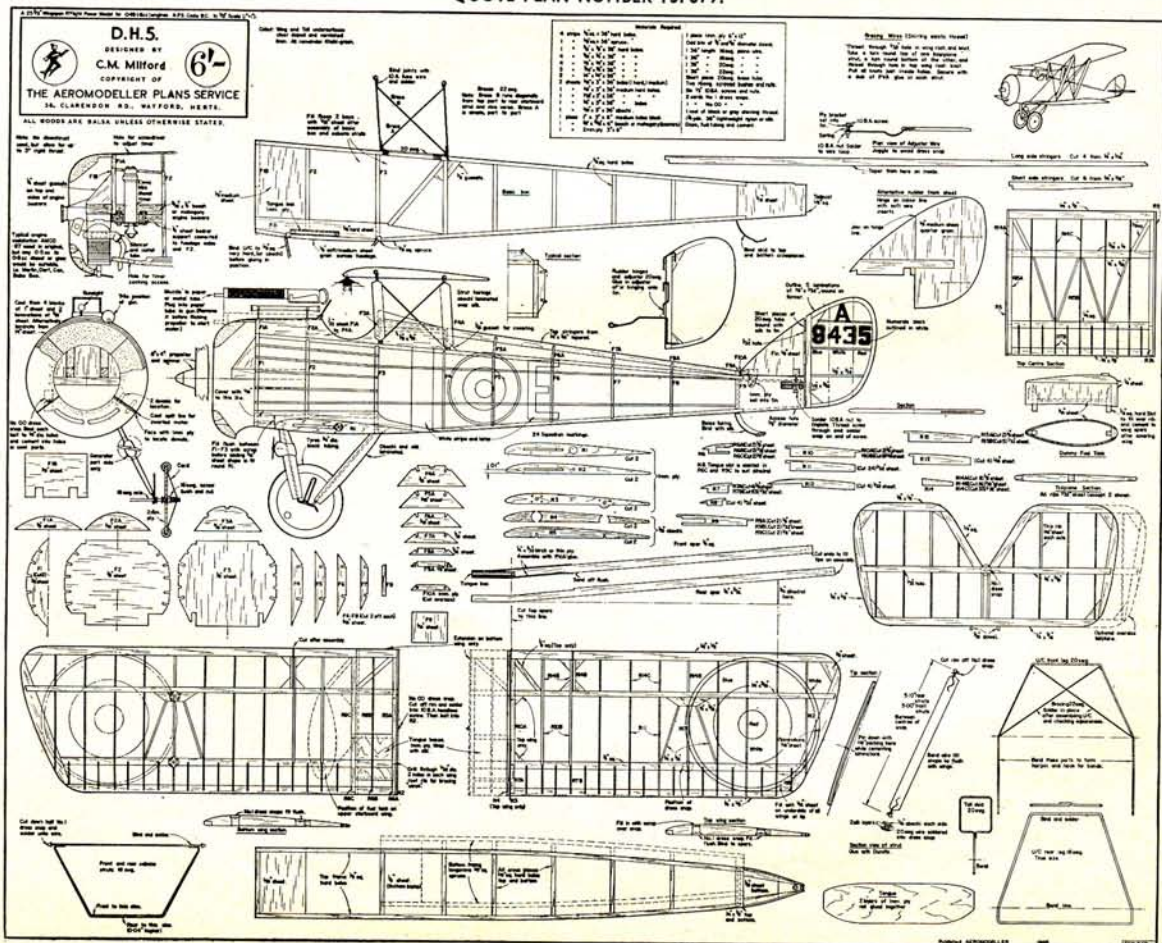
KIT MILFORD has been fascinated for years by the D.H.5 with its unique backstagger and classic de H. tail shape. The *Aircraft Described* feature in the April 1963 *AEROMODELLER* (reprint 2765 price 2/6) finally set him off, especially as he hadn't then seen the statement in the March issue that it was considered a difficult subject! Perhaps for this reason it has proved perfectly straightforward despite using scale tail areas and dihedral.

The structure was designed on the principle that scale models have a hard life and should be built to last. Hard balsa is used throughout, with silk or nylon covering: dress snaps for assembly, and No

rubber bands except for the correctly bungee-sprung undercart. Scale rib spacing gives the wings that true World War 1 character. All this adds up to a really tough model which yet only weighs 10½ oz. (with a heavy engine), with a modest 7 oz./sq. ft. loading.

Stability is quite adequate with the scale tailplane, but a larger version is shown for those who want to play safe: glide trim would be a bit less sensitive with this. Under power the model is very docile: its chief peculiarity is that downthrust merely spoils the take off while having very little effect on the flight pattern. We put this down to the short nose moment plus the heavy downwash from that rear-

FULL SIZE COPIES OF THIS 1/5TH SCALE REPRODUCTION ARE AVAILABLE FROM A.P.S. PRICE 6/- PLUS 6d. POST.
QUOTE PLAN NUMBER FSP879.



ward top wing, so that the angle of the slipstream at the tail is almost independent of downthrust. Result is that tight left-hand circles are used to kill the power stall: this performance has been likened to "a dogfight without the enemy" but is completely stable and safe. Incidentally the model looks much better with the shaft pointing forwards instead of down!

Rate of climb is such that a motor timer is strongly recommended: the prototype started life without one, but was lost for two dreadful days from an accidental two-minute motor run! After this it was grounded till a timer had been fitted. Make sure your timer will work reliably on 20-30 second runs, though a very short run is not a good thing, because the model needs a bit of height to settle into the glide when the motor cuts.



No—that top wing has NOT slipped! Designed by Captain Geoffrey de Havilland to retain the pilot's view of the pusher D.H.2, this backwards staggered biplane offers an unusual and unorthodox compromise with the usual layout. Kit Milford has solved the inherent stability problems.

The prototype model had an ancient Amco 0.87 c.c. diesel with exhaust silencer: using a scale 8 in. x 4 in. nylon prop this gives realistic low revs, and helps to keep the motor clean—very necessary with scale matt dope which shows every spot of oil. Glossy fuel proofing would spoil the realistic appearance, so glow motors are not recommended: any diesel from 0.5 to 0.8 c.c. should be satisfactory.

Construction is quite straightforward. The fuselage is built up with formers and stringers over a basic square box: the undercarriage and cabane struts are wire, faired with laminations of obechi over nylon, giving a very tough assembly. Lower wings are located by a flexible tongue which gives some extra dihedral in flight: dress snaps on the interplane

Flexible dihedral demonstrated to show crash-proof feature of the design.

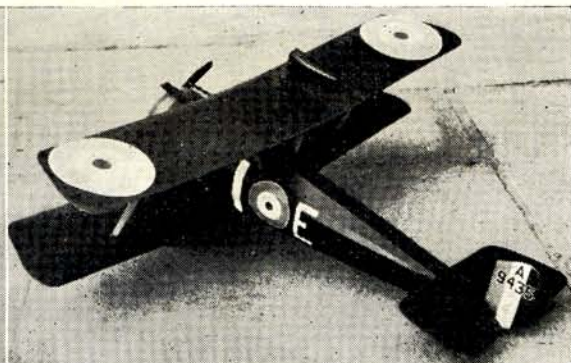


struts and top wing panels allow this flexing, with no unwanted sloppiness. The elimination of hooks and rubber bands helps to reduce those petty but annoying punctures in the covering.

Unusual tyres

The wheel tyres gave a lot of trouble, but the final system adopted is simple, effective and will be a help for modellers of other scale subjects.

- 1—Cut fuel tubing to length.
- 2—Bend into a ring and weld ends together with a flame.
- 3—Trim off the flash at the joint.
- 4—Slit all round the inside.
- 5—Dye with black nylon dye, doing the propeller at the same time.



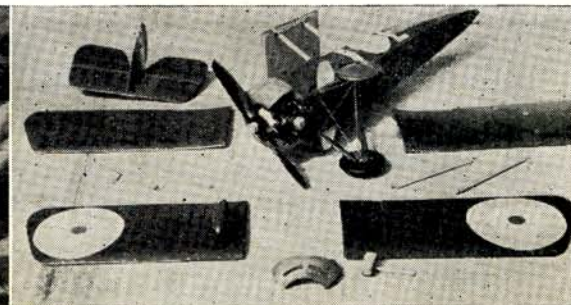
Markings of A9435 are of an aircraft in service with No. 24 Squadron, Royal Flying Corps, with vertical white bar on fuselage behind the lower wing and white identity letter. Fabric was khaki-green on top of all surfaces and all of fuselage except grey cowling. Undersides are natural clear doped linen.

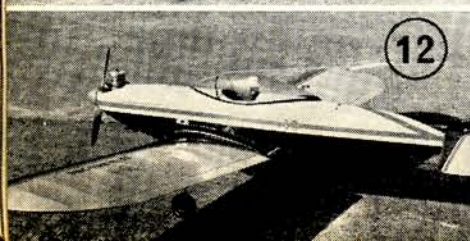
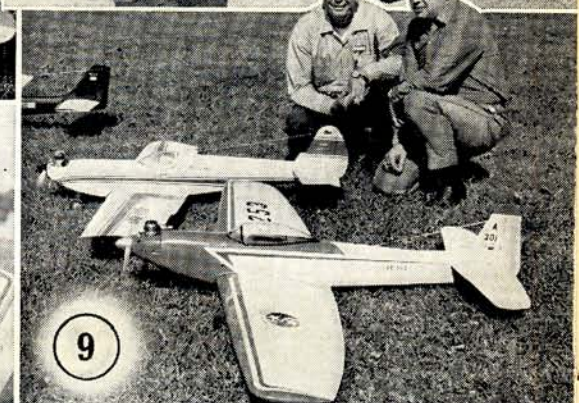
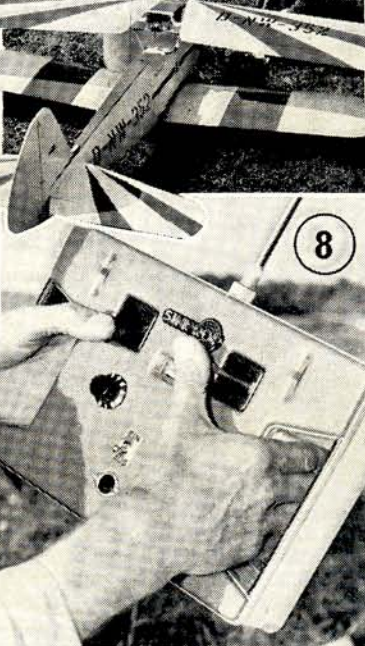
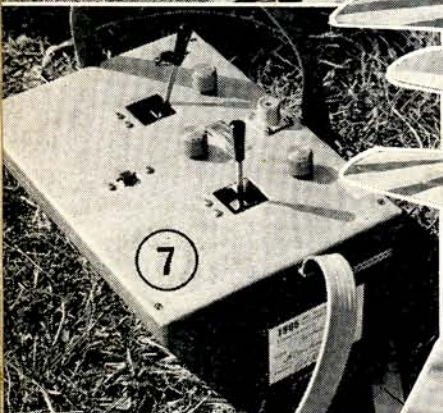
These tyres are then sprung over the discs, avoiding all bother with unsatisfactory adhesives.

The axle is rubber-sprung and really does its job on hard runways. Shurring-elastic bracing wires are optional but very useful: without them the struts can easily get lost in long grass, and a prang into a hedge could be tragedy.

Before flying, get the CG. right and wait for a calm day. Adjust the glide by tail settings and CG. movement, and the climb with side thrust. When trimmed, the model has a long realistic take-off, pulling up into a screaming left-hand "off the deck" climb like an express lift. Just the sort of thing to earn the pilot a carpeting from his C.O.! Fully detailed building instructions are issued with each copy of the full size plan.

The model in pieces for transportation and also to resist accidental damage in a heavy landing.





Dr. Ralph Brooke repeats his win in the World Championship for radio control models

Ljungbyhed, Sweden

August 9th-15th



WHEN 35 of the World's leading multi-control experts assembled at the magnificently arranged Royal Swedish Air Force station to match their skills in the fourth World Championships, one might well have predicted that this was to be the year of proportional control.

Lacking only France, U.S.S.R., Malaysia, Australia, New Zealand and the Argentine, among the known experienced nations in representation, this was a contest to determine trends as well as to discover Champions. In terms of equipment, 10 reed sets were in a distinct minority against 32 proportional outfits

(1) Canadian Ron Chapman prepares his beautifully all gold finished "Norseman" Mk. 4 with C.R.C. proportional gear and triple deBolt retract U/C units. Wheels have flushed hubs. (2) Stewart Foster with multi transfer decorated "Nimbus" Mk. 2 as flown at the British Nationals, using Orbit reed gear. (3) Chris Olsen's new model has tapered surfaces! Also a new colour, white. Chris placed creditable 5th, with his "Upset" using, like other British team members, Merco 61. Radio is F & M. (4th) John Wessels from Johannesburg, South Africa flew a modified "Taurus" (note tail changes) with Bonner Digimite; Being held back by Cliff Culverwell. (5) Fritz Bosch had a "Tiger" biplane reserve model with German Simprop gear (see photo below). (6) Italian mechanic Roberto Bacchi restraining Emilio Corghi's own design "X-26" which operates with Controloire 10 channel reeds. (7) New style German proportional gear by the famous Braun Electronics Company was used by K. Bauerheim, held by neck strap horizontally in front of chest. (8) Also new from Germany is Walter Claas's (maker of famous harvester and agricultural machinery) Simprop. Has throttle at top right, separated from right hand stick. A pre-set throttle over-ride is operated by the stick. (9) Elegant comparison of Zell Ritchie's "Phantom Mk. 4" with Orbit Digital Prototype gear in background and J. Levenstam's Swedish "Mustfire" using Bonner Digimite in foreground. This model is to be kitted and available soon in Great Britain. (10) Chris Teuwen from Belgium flew a red and black "Trouble" with Bonner Digimite into a fine 2nd place. (11) Harold Tom from Edmonton, Canada, and his "Cutlass" using Kraft proportional. Warren Hitchcox looks on. (12) From South Africa, Chris Sweatman took his "Decoder" using locally produced Constellation 7 proportional. (13) Analog or Digital, we're not quite sure, but certainly proportional. This new line in Swedish models proved most attractive but regrettably were not generally available for further details to be obtained. (14) Fritz Bosch's "Delphin" 3rd model which was actually used in contest flights has an unusual appearance—Fritz certainly goes for changes in outline and configuration.

World Champion for the second time Dr. Ralph Brooke from Seattle, Washington, U.S.A. and his charming wife Jeannie. Model is the "Crusader" using a prototype of Orbit digital gear and a Merco 61 engine which had been borrowed only a few days before departure for the contest.

registered on the field, no less than 10 of which were Bonner Digimites. Of the engines—that "other" most vital piece of equipment, the 35 contestants used 17 Mercos, 12 Super Tigres, two Vecos, one each K & B, O.S., Fox, and one Czech of home construction. Thus the Merco 61 was very much the motor of the meeting, adding to its envied laurels of Maynard Hill's outstanding World record achievements a World Championship of very special merit. Ralph Brooke used a borrowed Merco 61, chosen in favour of works supplied Jap and U.S. engines of renown, to win with a performance that was consistently good, and thus further enhanced the prestige of the small British Merco Company.

In the face of strong International competition, the British team, Chris Olsen, Stuart Foster and Peter Waters also deserve high praise for their 2nd placing in the team totals. Flying reed equipment against the sophisticated best of proportional from the U.S.A., Germany, Canada and South Africa, their 5th, 8th and 17th places indicate a high standard of piloting skill where smooth flying is the keynote.

Among other overall impressions (see October *Radio Control Models & Electronics* for extensive details) are those of superb models, notably Canadian Ron Chapman's all-gold "Norseman" with retractable landing gear, the Japanese "Super Thunderbirds" much influenced by Doc Brooke's "Crusader"; Zell Ritchie's "Phantom" with cockpit doll "Xeno"; the Italians, always with a flare for fast lines and South African Chris Sweatman's nearer to scale "Decoder". Unlike the last event where it was almost a one model meet, there were but 10 "Taurus" (mostly modded) among the 62 registered models.

Radio troubles were few. Proportional "glitch"—or twitch into fail safe revealed itself more in prac-

ROUNDS		Position, Name & Country			
		1st	2nd	3rd	Total
1	R. Brooke (U.S.A.)	6,151	7,008	7,188	20,347
2	C. Teuwen (Belgium)	6,168	7,216	6,609	19,993
3	Weirick, C. (U.S.A.)	6,217	6,403	7,269	19,889
4	P. Stephenson (Norway)	5,997	6,103	6,779	18,879
5	C. Olsen (G.B.)	6,005	6,066	6,257	18,328
6	Z. Ritchie (U.S.A.)	5,404	6,095	6,211	17,710
7	R. Chapman (Canada)	5,848	5,013	6,732	17,593
8	S. Foster (G.B.)	5,092	5,476	5,862	16,430
9	K. Blauhorn (W. Germany)	4,691	5,313	6,168	16,172
10	H. Tom (Canada)	5,616	5,504	4,930	16,050
11	J. von Segebaden (Sweden)	5,186	4,939	5,600	15,725
12	F. Bosch (W. Germany)	5,654	2,827	6,974	15,455
13	C. Sweatman (S. Africa)	4,675	4,958	5,578	15,211
14	W. Hichcox (Canada)	4,329	4,804	5,305	14,438
15	G. Haegman (Belgium)	4,649	5,176	4,454	14,279
16	H. Rasmussen (Denmark)	4,189	4,934	5,140	14,263
17	P. Waters (G.B.)	3,923	4,560	4,986	13,469
18	E. Corghi (Italy)	3,956	5,000	4,438	13,404
19	S. Kato (Japan)	4,065	4,826	4,502	13,393
20	J. Wessels (S. Africa)	4,659	3,862	4,574	13,095
21	O. Mantelli (Italy)	3,826	4,316	4,413	12,555
22	F. Guglielminetti (Italy)	3,366	3,390	4,522	11,278
23	J. Hackhe (Denmark)	3,469	3,844	3,927	11,240
24	K. Bauerheim (W.G.)	5,152	5,315	535	11,002
25	C. Culverwell (S. Africa)	5,276	1,065	4,638	10,979
26	J. Levenstam (Sweden)	3,590	3,303	3,749	10,642
27	A. van der Burg (Holland)	3,708	2,621	4,127	10,456
28	J. van Vliet (Holland)	845	4,569	4,964	10,378
29	M. Kato (Japan)	4,388	4,950	988	10,326
30	U. Tonnessen (Norway)	3,256	3,066	3,280	9,602
31	R. Dilot (Sweden)	3,643	3,032	2,914	9,589
32	J. de Dobbeler (Belgium)	1,395	3,243	4,679	9,317
33	E. Andersen (Denmark)	2,850	938	3,904	7,692
34	F. Martens (Holland)	2,961	2,707	485	6,153
35	J. Michalovic (Czech.)	1,274	2,072	1,339	4,685

tice sessions than in the contest, and then only seriously affected Bauerheim (West Germany) whose model went through a series of heart stopping near disasters not once but twice! Reigning Co-Champ. Fritz Bosch, hit troubles with a write-off in practice, then had his engine quit during the second flight tail slide. This was enough to destroy all hope of his predicted high place and dropped the German team position. All three flights counted—and consistency was the great essential.

This requirement stems from a new judging scheme. Six Internationally selected judges work on an "Eight-on, four-off" flight roster four at a time. The scheme groups judges differently throughout the three rounds so that each entrant is seen by each judge at least

once. Minor disadvantage is that inevitably, one group of judges will be more severe than others, and some entrants may get the tougher judges twice just as others will get the more generous judges for two flights. Doc Brooke felt he had passed the hurdle when he had amassed 13,159 pts. at the end of the 2nd round for although Belgian Chris Teuwen had 13,384, he had yet to fly before the tougher group of judges. Chris overdid his effort, flying too low so showing waviness and trying too hard. Brooke accumulated 579 pts. advantage on this last flight alone, and so secured a well-earned victory. Highest pointed flight of the meeting was Cliff Weirick's 3rd with the glass fibre fuselage "Candy"—fresh from his second U.S. Nationals victory.

Other sparkling performances came from Norwegian P. Stephenson who pilots his "Maximum" shoulder wing design with the Bonner Digimite Tx held almost under his chin! Chris Olsen's stable "Upset"—tapered surfaces—no less (!) was in perfect trim and led the reed fliers. Space Control creator and now Orbit technician Zelbert Ritchie remains faithful to the single stick control, almost a lone protagonist for this cause among contest fliers, but his 6th place shows it is no "bag of worms" to Zell.

Technically, the winner used two outstanding items—if the new prototype Orbit Digital outfit may be so termed as one; the other being the new "inert" plastic bounce-resisting wheel by Dubro. Any particular trend might be summarised as a move to more realistic appearance, the only common denominator being the universal requirement for three wheels.

Team Positions

(1) U.S.A. 57,946. (2) Great Britain 48,227. (3) Canada 48,081. (4) Belgium 43,589. (5) West Germany 42,629. (6) South Africa 39,285. (7) Italy 37,237. (8) Sweden 35,956. (9) Denmark 33,195. (10) Norway 28,481. (11) Holland 26,987. (12) Japan 23,719. (13) Czechoslovakia 4,685.

Two attractive models. In the foreground Cliff Weirick's "Candy" winner of the U.S. Nationals 1965 and equipped with a prototype Yeco 60 Bonner Digimite gear, etc. Details of other model apparently exclusive.



From Japan Masahiro Kato and Susuke Kato (at right) flew identical "Super Thunderchief" models each with Bonner Digimite. Below, two Norwegians, in the background P. Stephenson with his "Maximum" which placed 4th and in foreground U. Tonnessen who used his own design proportional gear, both have Merco 61 engine.



NEW

PLASTICS

OF THE MONTH

Simple natural metal scheme on American Airlines 727 makes the Airfix model "different".



LATEST World War I trio from Revell are the Morane Saulnier 'N' (Bullet)—the first interrupter gear equipped fighter, Fokker Eindecker III and the attractive British pusher biplane, the DeHavilland D.H.2. All at 2/11d, each and the usual 1/72nd scale, each makes up into an unusually attractive and worthwhile model—the Bullet and



D.H.2 has rather thick struts but still looks fine.

III are entirely brand new to the plastic kit world and we can only think of one other (1/48th) D.H.2. Builders with the time and skill will surely wish to rig these models when complete since the kits, especially the two monoplanes, just beg for such treatment.

A simple and fairly quick way to rig and fit the bracing wires, etc., on plastic kits is to mark off the distance between rigging points on the model with a pair of dividers. An accurate measurement for the amount of wire needed to span the distance can be obtained this way, and transferred to a piece of cold drawn light gauge fuse wire. A touch of water soluble glue such as 'Seccotine' can be used to secure the wire which should be positioned on the wings or U/C with tweezers. Avoid bending or kinking the wire when placing it in position—nothing looks worse than a World War I model with saggy bracing!

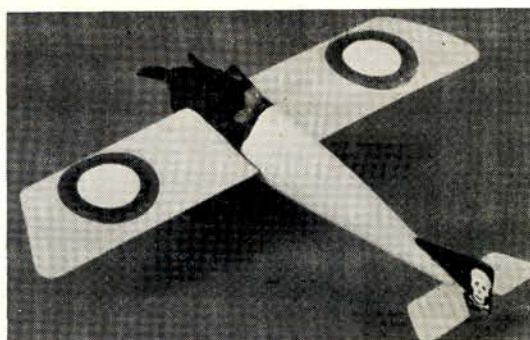
Fokker E.1. below is unusual and realistic.



Both the monoplanes that we tried went together beautifully, without snags. The flimsy undercarriages on the Morane and Fokker assemble easily and when dry, proved surprisingly strong but when it came to assembling the D.H.2 biplane wing, we ran into trouble. This is no fault of the kit, however, since all parts are accurately made to fit excellently; it's simply that the positioning of the top wing over the bottom plane on this model is a very tricky procedure. So, when you build yours, follow Revell's instructions to the letter and proceed carefully.

With patience and a little extra trouble these kits can be made up into little gems of models as indeed can the whole of Revell's first World War series. They benefit greatly from careful rigging and bracing, and here, the beautifully produced box designs should be invaluable.

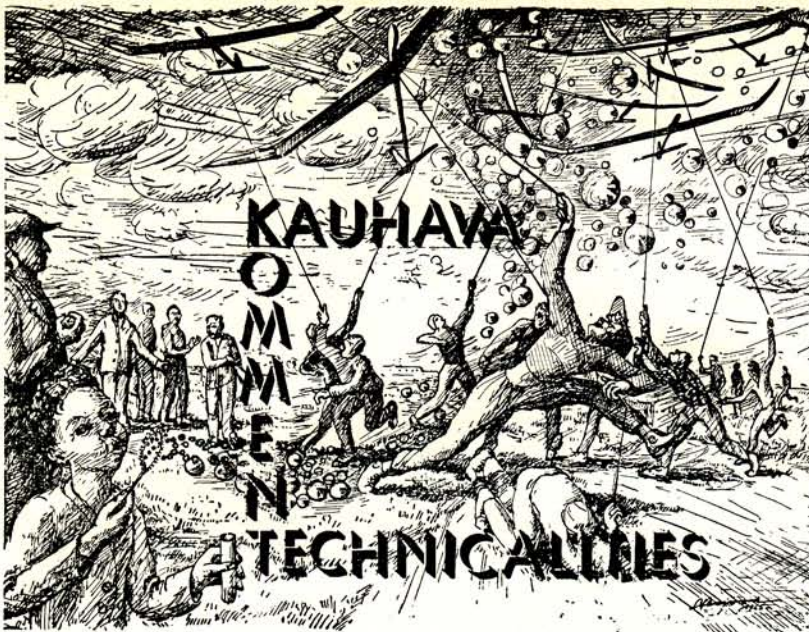
In direct contrast as an aircraft type this month is Airfix's long awaited (by us, anyway) Boeing 727 at 1/144th scale. Supplied in Trans World Airlines' colours,



Morane fighter is in Russian markings above.

this quite large (8½ in.) span up to the minute model contains 62 parts and sells for 4/6d. We built ours in the colours of American Airlines, whose insignia is a black eagle against a white field with red surround. "AA" aircraft retain their natural metal finish with matt black anti-dazzle panel in front cockpit and white trim at nose and tail. Fuselage flash is red picked out in white and the words "American Airlines" above passenger windows are italic capitals again picked out in white. We used black Sellotape sliced into thin strips and applied with tweezers to achieve our lettered effect, but the result still leaves a lot to be desired. Still it's "different". Those who use the kit transfers for a TWA machine will get the finest effect with least bother and for the fastidious we've picked five other alternatives for colourful 727s. Note that we've included two Australian airlines. In our humble opinion they are among the nicest schemes used on any of the modern jets. See inside back cover.

Interesting details
discovered at the
World
Championships
for free-flight
models

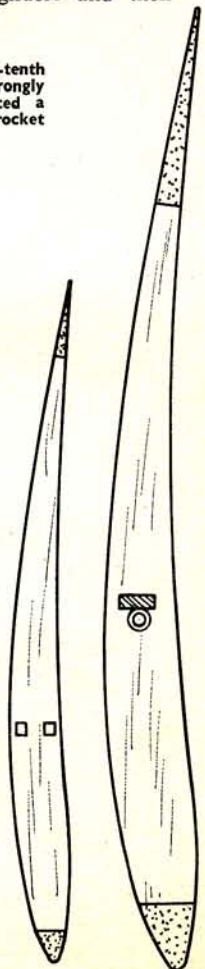
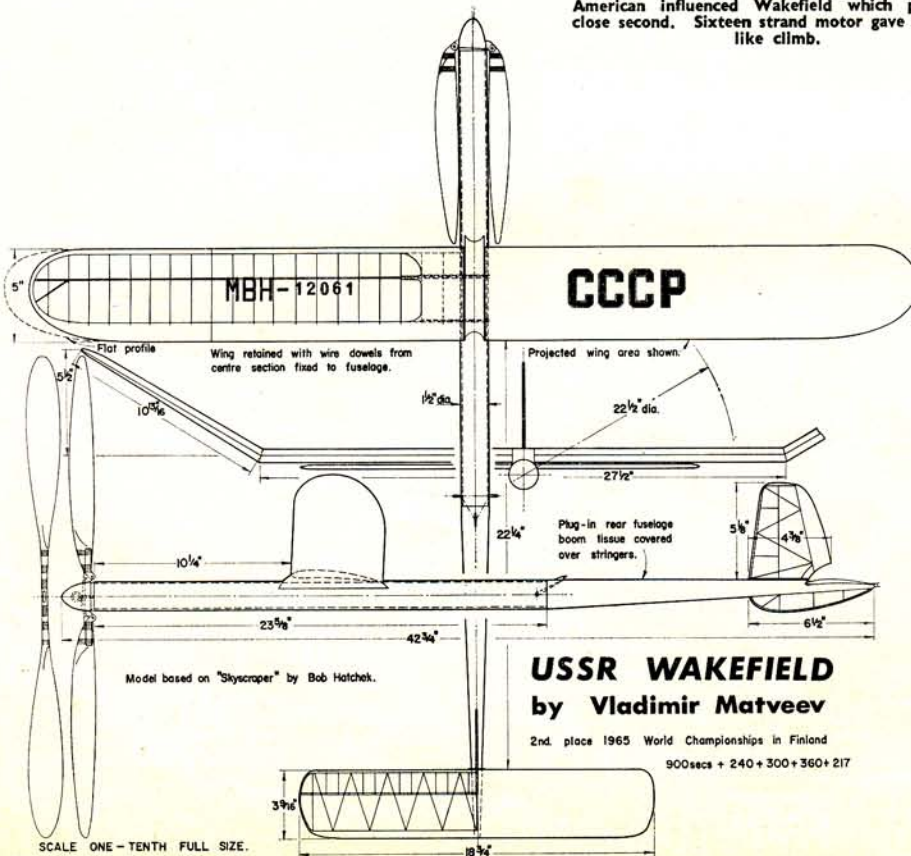


STAN ZURAD captivates the Kauhava scene as thermal tacticians tangle lines in the A/2 glider event (above). This was the meeting for both tactics and tail trips. Hungarian Erno Frigyes' amazing power performance in past years had influenced almost every nation. Zurad was one of several with auto-incidence on the tail of his Wakefield, of which more next month. Meanwhile, two almost gimmick-free models fought nine rounds to eclipse Wakefield opposition. Plans show their salient features.

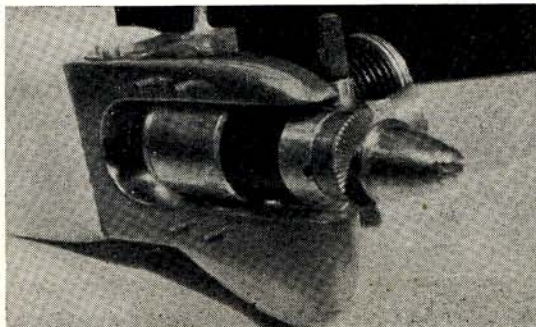
Koster's winning Wake has a moulded balsa fuselage formed over a carved block. The forward 25 in. are double layer 1 mm. sheet with silk sandwiched

between, and tapered tailboom added. This weighs $3\frac{1}{2}$ oz. Wings have warp free centre panels, with wash-out in the tips and are kept at all times in Jigs. Thomas Koster is emphatic on the value of this in reducing the need for test flights. Now in his final year of High School, 18 years old, and a modeller for five years, Thomas built his first Wake in '62, closely following Nienstadt's designs. Wakefield is now his main interest after starting with gliders and then power models.

Full size aerofoil sections at right and one-tenth scale details below show Matveev's strongly American influenced Wakefield which placed a close second. Sixteen strand motor gave a rocket like climb.



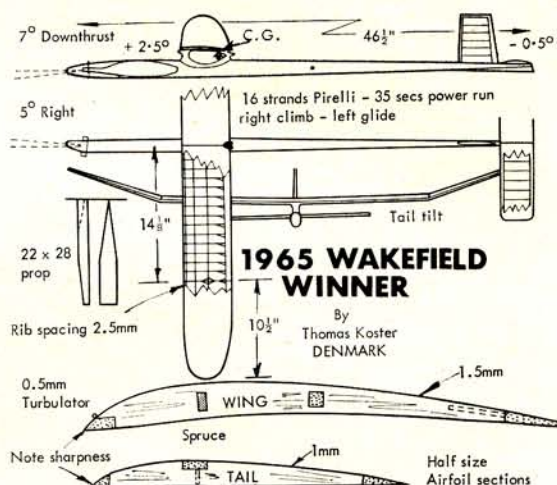
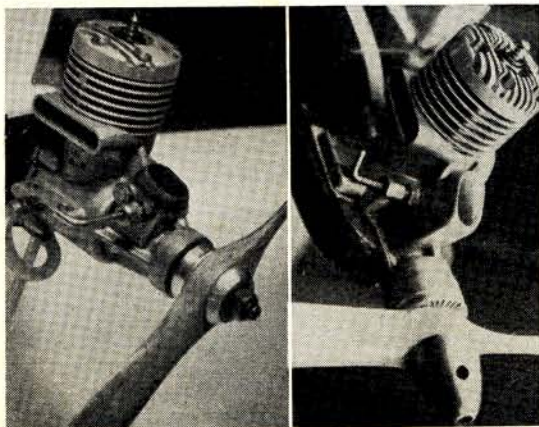
Swiss entrant Rudi Schenker has always had a penchant for micro-engineering in his power models. Latest has a two-piece wing, with the port (left) panel fitting over a machined root spar. This rotates, so that for the power run the port panel is at 1 degree negative to control the climb. The Super Tigre G.15 was mounted neatly in a typical Schenker cowling complete with tank and pressure system. Radial mounting of the G.15 was favoured by R. Cheny (U.S.A.). This meant that the pressure tap was taken from the side of the normal mounting lug, an idea which allows plenty of metal to support the tapping as evident in the photo. Another interesting mounting, for a Cox Special 15, appeared on Alain Landeau's (France) power model which reached the fly-off. This is in the form of a very solid aluminium mounting incorporating a bulge to accept landing abrasions, the whole making up enough ballast to ensure a short nose. Sharp leading edges first brought to fame by Larry Conover in his "Lucky Lindy" are shown with Koster's 3-view. We hope to do similar service with the power winner which also had the Conover style entry on both wing and tail plus multiple tabulators on the upper surface. Another newer



Alain Landeau's cast nose-mount for Cox powered F.A.I. model with bulge for landing loads. Fits radially on to front bulkhead.

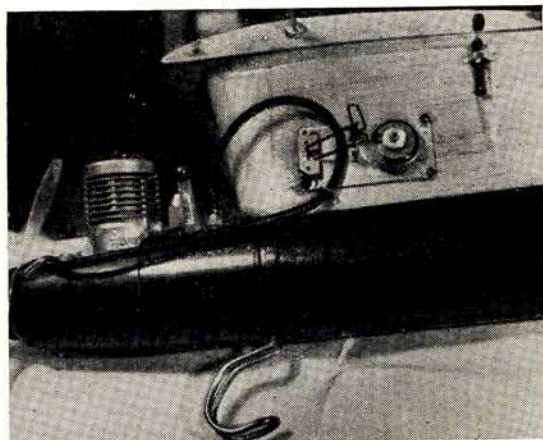
Right, Rudi Schenker's F.A.I. power model with auto-incidence change for port wing panel. Screw allows micro-adjustment for glide setting. Schenker timer operates wing change, dethermaliser and flood-off for Super Tigre G.15 engine.

Below, left is Bob Cherny's G.15 on radial mounting. Note pressure tapping into engine lug. Right is Benno Schlosser's much modified G.15, fastest in the field. Note intake extension, finned head, compare needle valve with position of Cherny's.



development is use of the curved tip on Sokolov's A/2 glider and K-H Rieke's power model. Construction details will be given next month.

The large fly-offs, due more to strong thermal conditions enhancing the luck element more than anything else, has prompted a rash of rule-change suggestions in the European modelling press. We see no reason for such a move. The argument that "hot" fuels are hard to obtain is scarcely substantiated by



the high nitro content (up to 70 per cent) of every glow fuel can on the field. The Canadian's had fuel that was too "hot" for easy starting—and resorted to using a milder mix in a second can for the prime.

Most fascinating aspect of the free-flight Champs is its attraction of entrants from all quarters of the globe. Australian Dave Anderson returned to Adelaide via the U.S. Nats., modelling on East and West coasts of Canada, in California, and finally stopping over at Hawaii—what a way to go back! Peter Visser, decidedly shaky after falling in a water filled dyke, was found to have jaundice on return to Cape Town—bad luck Pete! As for Tony Young, whose Bond 250 c.c. Mini-car fascinated all Scandinavia, he had a trouble free drive all the way—shows that carrying a spare engine in the boot is good insurance against trouble!



B.E.A. Viscount looks in at the display given at Queen's Links, Aberdeen . . . only it is not the real thing but a model from the A.P.S. plan by Peter Gray of Aberdeen M.A.C. on one of its first ever flights. Good show!

IMPROVING THE IMAGE

Properly organised flying displays have always been a commendable activity to bring in new members, extra finance and invaluable publicity for the hobby. In recent weeks **Larkhill R/C, M.A.C.** gave displays at both Aldershot and Woolwich "At Home" Army displays. Team members were S./Sgt. Bott, Ed. Johnson and Jack Morton, plus visitor from Wales, Peter Waters. These expert radio controllers entertained huge crowds that had come to see the Army at work with an hour long low level precision and aerobatic display. Ed. Johnson flew his semi-scale "Firefly", Jack Morton his "Tiger Moth", Peter Waters his "Altair" while S./Sgt. Bott took the "mike" for an informed commentary. Only disappointment was the ineffectiveness of the smoke cannisters. At Woolwich conditions were blustery enough to ground parachutists, and as the helicopter that was to have lifted 95 Commando Detachment into the arena went unserviceable the modellers had to fill in extra time at short notice. Climax at

both shows was simultaneous aerobatics by two models in formation, a real crowd pleaser. **Leicester M.A.C.** also had two fine displays one for the Leicester Boy Scouts Carnival and the other at the "Accent on Youth" show. Very blustery winds gave some trouble for the controllers, creating dramatic incidents to satiate the crash-lust of the crowds. On the whole, the spectators were very good, staying behind the barriers except for one (!) little lad, who was found walking through the middle of the circle, while combating was in progress. Ivan Birch had the misfortune to break his C/L scale model, which turned into the circle, although it was 'free fighting' really well for some seconds—and his well finished four engined bomber, just wouldn't become airborne even though Ian tried to hand launch it. Ken Worrell had his "Attacker" stunt model leadouts jam while looping, but got away with only slight damage. Ian Tennant stunted well with his semi-scale "Stampe Monitor". Team racers astounded the spectators as seeming really fast. They drew a crowd of between three and four deep around a 200 ft. square area, which adds up to a considerable number of people.

Prestwick M.A.C.'s event in Scotland took the form of a four day local Town Council sponsored hobbies exhibitions. A large part of this was a display of static models, engines, R/C gear and . . . boats. Highlight was a flying display on a local school playing field in which more than 50 models were demonstrated ranging from 0.5 c.c. sportsters to '35' stunters. Unfortunately strong winds again marred the day for the modellers with the demise of O.S. .35 powered "Nobler" and "Crusader", but we are sure the crowds did not mind one bit! **Whitefield M.A.C.** also boasts of a demonstration team that got off the ground at the start of the carnival season rather shakily but with some hard practice on the club fields, has produced a pattern of flying to arouse the public interest. They hope to liaise with

the Bury Club shortly and include radio in the programme. Alan Moss and Dave Peters have a couple of A.P.S. Autogyros and John Parrott has a semi-scale Tony for crowd appeal. Bill Bailey gives a commentary which is now possible with silencers in use.

Scottish model clubs from all areas combined to give a flying display at Queen's Links, Aberdeen on August 1st, as part of the City's Festival of Bon-Accord. Watched by a 2,000 strong crowd, many undoubtedly holidaymakers, as the site was near the sea front. Radio control models were flown by **Glasgow M.A.C.** members and also control line models were flown by **Elgin** and **Aberdeen** and other local modellers who are now working on the production of a 22 minute film of aeromodelling with **Grampian Television**. Peter Gray of **Aberdeen** gave some demonstrations with his control line A.P.S. Viscount that took him three years to construct.

During the beginning of June, **Dagenham M.A.C.** took part in the Dagenham Essex Town Show. The club's contribution consisted of a static display supplemented by the loan from Jetex and local model shops of other items. By far the most popular part of the club's display was the R.T.P. flying, which drew large crowds throughout the show. They were also awarded a certificate of merit for the best display by the organisers.

North Sheffield M.A.C. organised and flew in a Combat event (open to modellers in the district) that took place during a full size aircraft display in co-operation with the Odeon Theatre, Sheffield, 20th Century Fox Ltd. and the Northern Premier of the film "Those Magnificent Men in their Flying Machines". From 20th Century Fox came a trophy and from the Odeon Theatre much help and space for a club stand in the Circle Foyer for the length of time the film is being shown there. A heavy demonstration programme has been in progress in recent weeks thanks to several industrial concerns, the National Coal Board, a local church and a helping hand was given to the Huddersfield Club at their annual event in **Greenhay Park**.



Mrs. Barbara Hartley of Liverpool, "Miss North Regional (N.R.C.O.)" and John Parrott, of Whitefield M.A.C. with a Kookaburra kit "Swallow" at the club display (see this page).

Bald Eagles Go It Alone

Worthing Bald Eagles are to be disbanded and reformed under the Bald Eagles M.A.C. banner. Reason for the change is that the club was becoming too large and the administration unwieldy.

NOTE.—CLUBMAN HAS MOVED! To 13-35 Bridge Street, HEMEL HEMPSTEAD, Herts.

Way Down West

Exeter & District R/C M.F.C. are planning a public "Model Air Show" for Sept. 26th, purely for entertainment (i.e., no contests) featuring streamer trailing, smoke, "bombings", mass and delayed-action parachute drops, dog-fights, etc. It is hoped that a TV camera team will cover the event. A spot-landing contest held during a recent "at-home" to modellers from other parts of the South-West resulted in a win for John

Haytreed (Teignmouth), with Len Lawrence (Exeter) second and Hugh Price (Paignton) third. Other interests are in pylon racing and scale.

Pen Pal

Stanley Naney is 17 years of age and lives in Ghana. His interest is in beginners models, especially Keil Kraft. He would like to write to a young enthusiast in G.B. His address is H/No. C H1/2, Adama Avenue, Adabraka, Accra, Ghana.

V.-d. Bergh Wins Rolls

The elegant trophy won by Frank Van den Bergh for his multi R/C win at the April Rolls Royce Welfare M.A.C. meeting turns out to have been crafted by Rolls Royce. J. Heyworth, the R.R. model club president, designed it. The construction of it, 18 inches high made of stainless steel and mahogany, was carried out by the Derby Apprentice Training School. Frank at one time worked for Rolls Royce.

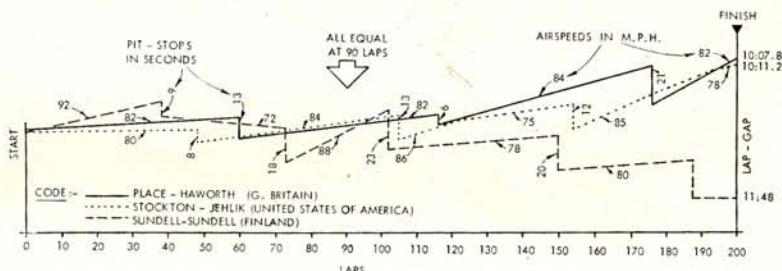
CRITERIUM OF ACES

Continued from 470



Jim Mannal of Lincoln, flying Merco 35 equipped standard Mercury "Crusader" kit model, did well in the Criterium, returned to win with it at the S.M.A.E. Northern Gala to add to his '65 successes.

Turner/Hughes were also fated to have a slow run, this time through an off motor run to start with, but it came in to return 5:02. A very fast race that put Stockton/Jehlik into pole position and overtook the British lead was with Fontana/Amodio. Flying at the same speed for almost all the race the difference between these two was only 1½ laps at the finish with Stockton/Jehlik recording the fastest time of the meeting at 4:41 and Fontana/Amodio making 4:43.5 which counted as 4:44. They tied with Fabre/Favre from France. The final took place in the late afternoon of the 30th. The atmosphere was electric with large crowds surrounding, to play havoc with the three team's nerves. Finalists were Place/Haworth, Great Britain, Eta 15 (mod.), heat time 4:43; Stockton/Jehlik, United States of America, Super Tigre G 20 D (mod.), heat time 4:41 and the Sundell brothers from Finland, Oliver Tigre, heat time 4:43. One might have heard a pin drop as the countdown began, the starting flag dropped and Place/Haworth were first away with a quarter lap lead over Stockton/Jehlik and the Sundells who took off simultaneously, Sundell's Oliver was misfiring and Stockton/Jehlik's Super Tigre was a little too cold, but picking up. Both "came-in" and Sundell's undercarriage retracted as the blue "Alert" model overtook at 90 m.p.h., a gusty wind sprang up, Sundell came down for his first stop at 39 laps, Olaf caught the model 9 inches off the ground, filled up, started in reverse, restarted in the right direction but at low revs, re-started yet again and then away in only 9 seconds! Jehlik signalled 5 laps to Stockton, who was next to land, Jehlik caught the model on the bounce, re-fuelled, flicked six times for an 8 second stop, at the 49th lap, Place/Haworth's Eta "Super Nova" droned on. Then Don Haworth missed the catch, to run three segments to it; slow filling took 13 precious seconds at lap 60. All models were flying at the same speed on lap 65. The Sundell's Oliver was next to cut, Olaf missed the catch and the pilot nosed the model over to brake it. The subsequent two segment retrieve on lap 73 took 18 seconds. Both Place/Haworth and the Sundells had warning lights for not holding handles to the ground during pit stops. Sundell's was clearly the fastest model at this stage. Then they came down early for a re-set of compression. The Oliver Tiger started backwards and took all of 23 seconds at lap 102. Stock-



Progressive Lap Chart for the Team Race Final

TEAM RACING

			Heat 1	Heat 2	Final	Engine		
1.	Haworth-Place	Great Britain	4:43	4:47	10:07.8	Eta 15	Mk. II	
2.	Stockton-Jehlik	U.S.A.	4:59	4:41	10:11.2	Super	Tigre	G 20 D
3.	Sundell-Sundell	Finland	5:09.5	4:43	11:48	Oliver	Tiger	Mk. III
4.	Fabre-Favre	France		5:1	4:44	Eta 15	Mk. II	
5.	Fontana-Amodio	Italy		5:37	4:44	Super	Tigre	G20D
6.	Jarvi-Aarnipalo	Finland		5:18	4:45	Eta 15	Mk. II	
7.	Fischer-Meusburger	Austria		—	4:45	Bugl		
8.	Mohai-Markotai	Hungary		4:47	4:48	Moki	TR-6	
9.	Honenberg-Turk	Austria		4:53	4:48	Bugl		
10.	Tinef-Raschoff	Bulgaria		4:48	6:22	Super	Tigre	G20D
11.	Bonnin-Carreras	Spain		4:56	4:50	Super	Tigre	G20D
12.	Ahlstrom-Samuelson	Sweden		4:50	—	Oliver	Tiger	Mk. III
13.	Alseby-Hagberg	Sweden		5:28	4:55	Eta 15	Mk. II	
14.	Costa-Macelli	Italy		5:05	4:59	Super	Tigre	G20D

15th to 35th places listed with fastest times only. (15) Bador-Bador, France, 4:59. (16) Turner-Hughes, Great Britain, 5:02. (17) Kroll-Russ, Austria, 5:03. (18) Cipolla-Cipolla, Italy, 5:03. (19) Dell-Batch, Great Britain, 5:04. (20) Methemear-Methemear, Holland, 5:04. (21) Arroyo-Ruiz, Spain, 5:05. (22) Trnka-Drazek, Czechoslovakia, 5:05. (23) Palho-Nore Finland, 5:08. (24) Schevin-Souliac, France, 5:18. (25) Matile-Meier, Switzerland, 5:21. (26) Gambocz-Toth, Hungary, 5:22. (27) Purgai-Katona, Hungary, 5:23. (28) Schluter-Fromm, W. Germany, 5:24. (29) Lenzen-Rumpel, W. Germany, 5:27. (30) Nenin-Creola, Belgium, 5:36. (31) Gafner-Gafner, Switzerland, 5:37. (32) Lutkat-Lutkat, W. Germany, 5:43. (33) Comas-Parramon, Spain, 5:48. (34) Vanderrijcke-Vanderbeke, Belgium, 6:49. (35) Galli-Wittwer, Switzerland, 7:20.

Two others did not complete a race.

Team Positions—TEAM RACING

1, Finland 876. 2, Austria 876. 3, Italy 886. 4, Great Britain 889. 5, France 901. 6, Hungary 932. 7, Spain 943. 8, W. Germany 994. 9, Switzerland 1,098.

ton/Jehlik's engine cut and Jehlik made a fast mid-air catch at lap 105. An extra prime through the exhaust was needed for a restart which took 13 seconds. After take-off Stockton tripped over Sundell, rolling over. The recovery as he changed the handle from right to left hand around the rotund figure of Dick Place displayed superb alertness. Place/Haworth came down for a very quick 6 second stop at lap 116, just what they needed. Sundells were next at 150. Two backwards starts followed by a restart that would not pick up called for four starts in 20 seconds. Stockton/Jehlik cut to land at lap 154 and took 11½ seconds despite an unco-operative motor. This was their last stop and were only three laps behind Place/Haworth who landed at lap 176. In the 21 desperate seconds it took Don Haworth to restart, all British hearts pounded painfully, the U.S.A. model was in the lead by two laps and only a speed gap could save the day. In the last eight laps Stockton/Jehlik's engine s'owed enough for a 1½ lap victory by Dick Place and Don Haworth at 10:07.8 for the 20 kilometres distance. A marvellous final which will long be remembered.

ROUND THE RALLIES

S.M.A.E. Summer Gala

As an experiment, this event to cater for southern clubs in a year when the British National Championships were taken far north to Newcastle, was an outstanding success. It attracted a good entry, offered excellent flying facilities, particularly for control-line events, and laid on a perfect weather day to provide free flight results that are by British standards practically a record.

Early drift, slight though it was, went straight into corn. The farmer recalled a similar circumstance 10 years earlier when R.A.F. Odiham was last used as a venue for a team trials, and his understandable comments swiftly resulted in a change of free flight take-off location. As the day warmed and drift varied, the Gala adopted a strong social atmosphere. Hundreds of sport fliers used the airfield to advantage. The air was not quite so crowded as Shirley Horton's severed rubber model suggested after being intercepted by a climbing power job; but at any time in the afternoon one could see dozens of airborne models at a glance. With most of the "experts" on their way to Sweden, Radio (won by Frank Knowles) was more of an open event than usual, and became a pleasant, quite separate social rally of its own with such notables as M.A.N., Editor Walt Schroder and "Hobby Poxy" Bev Smith as onlookers for the U.S.A. Combat (another Wilkens' victory) was specially well run by the "Bald Eagles", etc., with stunt and team race on the vast expanse of adjacent apron. Chuck Glider, introduced for the first time by the S.M.A.E. was popular, and the air was good enough for thermal flyaways. Reg Lennox of Birmingham entered late, made two max's and 36 secs. in the space of 12 minutes. But it was in the Open Free Flight events that excitement was greatest. Twenty-four qualified for Glider fly-off! Len Larrimore trotted off at the whistle, went way upwind and released. By the time the mass realised he had "something" his advantage was another 100 ft. altitude and 3 minutes duration, so he led with 15:13 against next man "Wiz" Wiseman's 4:37. Power was less spectacular, only nine in the F/O, West d/t'ing through a broken band, and old stagers Glynn (5:04), Buskell (4:07), Monks (4:01) leading. Then came rubber. Eighteen were involved in the F/O, and few expected that it would last almost a half-hour. Wisner (27:26), Wells (27:13) and Hipperson (27:10) flirted with an overhead cloud and others hung for little less in a closing event that will be remembered forever.

Northern Challenge

An inter-club battle took place between York M.A.S. and Sheffield S.A. at Elvington on July 25th. Sheffield won this year—by over thirteen minutes! Started last year the two teams flew glider, rubber and chuck glider. York team was Dave Gilchrist, Dave (Wiz) Wiseman, Dave White and Gerald Abbott. From Sheffield came John Shaw, Phil Scaife, Fred Wilkinson and Graham Freestone. Dave White made the best time with three maxes. In rubber and Graham Freestone totalled 8½ minutes in both rubber and glider. Despite relatively calm conditions, White, Wiseman and Shaw all lost rubber models during the contest. Sheffield totalled just over 46 minutes to York's 33.

High Times at Horsham St. Faith

Poorly supported from the Area viewpoint, the East Anglian Inter Area Contest was a real clean out for Norwich on July 18th. The day was warm and sunny with 7-11 miles an hour winds, thus enabling plenty of thermal flights to be made without too many going beyond the airfield boundary. Tony Abbs was unlucky to lose his No. 1 Wakefield on his second flight, but went on to the fly-off with Mike Woodhouse, winning by a handsome margin late in the evening. P. Martin of Cambridge unfortunately lost 11 seconds with his small power job, thus spoiling a perfect open power score, all too rare in this area. But it was in glider that the real clash arose, since A. Abbs, S. Bowles, B. Halford and W. Parker all made nine minutes, and agreed among themselves that they should have a F.A.I. style progressive fly-off; thinking that anybody to do 2.50 would win anyway! Despite the early demise of Bill Parker, the other three went on to make four, five and six minute maximums each in large weak thermals and a decreasing rate of drift. Messrs. Abbs and Halford both made seven minutes in fine style reaching perhaps 300 feet before d/t, while S. Bowles, though launching in the same rising air was down in 53 seconds through the failure of auto rudder tensioning. Eight minutes at 8.15 p.m. proved too much and Barry Halford had a sufficient margin over Tony Abbs to emerge as a tired, exhilarated and somewhat astounded winner. Results:—Glider: 1, B. Halford (Norwich) 9:00 + 4:00 + 5:00 + 6:00 + 7:00 + 2:20; 2, A. Abbs (Norwich) 9:00 + 4:00 + 5:00 + 6:00 + 7:00 + 1:36; 3, S. Bowles (Norwich) 9:00 + 4:00 + 5:00

+ 6:00 + 0.53. Rubber: 1, A. Abbs (Norwich) 9:00 + 3:20; 2, M. Woodhouse (Norwich) 9:00 + 1:22; 3, B. Halford (Norwich) 7:27. Power: 1, P. Martin (Cambridge) 8:49; 2, S. Miller (Cambridge) 5:52; 3, D. Oldfield (Norwich) 1:43.

East Anglian Area Gala

Held at R.A.F. Upwood on August 1st, the E. Anglian Area Gala was blessed with indifferent weather conditions, stiff breeze, sun, cloud and heavy rain, which though apparently not deterring the entry did at least curtail the general standard of flying and of course the amount of time when flying was possible. However there were fly-offs in Open Rubber and Power which attained a satisfactory conclusion to these events in reasonable evening air. Tony Young was the only one surprisingly to finish with nine minutes in glider, and scores dwindled down to the five minute mark quite near the top of the list. Wakefields dominated the Combined F.A.I. event, but with a few relatively unknown names in Power ending high up. Results:—Combined F.A.I.: 1, B. Rowe (St. Albans), 13:13 Wakefield; 2, R. Lennox (Birmingham), 12:56 Wakefield; 3, G. Lefever (Norwich), 12:46 Wakefield. Coupe d'Hiver: 1, D. White (York), 5:28; 2, B. Rowe (St. Albans), 4:48; 3, Fleetwood (Hornchurch), 4:11. Open Glider: 1, A. Young (St. Albans), 9:00; 2, P. Perry (Birmingham), 8:45; 3, J. O'Donnell (Whitefield) 8:14. Open Rubber: 1, T. Stoker (Baildon), 9:00 + 7:07; 2, R. Paveley (Hornchurch), 9:00 + 6:20; 3, D. Hipperson (Croydon) 9:00 + 6:12. Open Power: 1, J. West (Brighton), 9:00 + 6:20; 2, T. Stoker (Baildon), 9:00 + 6:03; 3, R. Monks (Birmingham), 9:00 + 4:51. John West lost his famed "Dixielander" in the local housing estate. We doubt if its new owner's will ever be able to reproduce its contest winning performance.

Esher Intermediate Rally

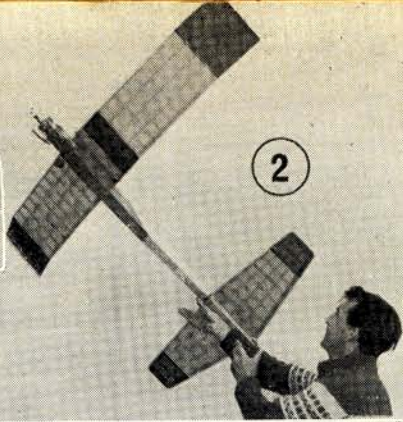
This interesting event to cater for the modeller with limited control facilities and the novice was held at Old Warden Aerodrome, the home of the Shuttleworth Aircraft Museum, near Biggleswade. Originally it was to have been held at Woburn Abbey but unfortunately permission to fly there was withdrawn just two weeks before the competition. Weather was good and over 1,000 spectators were given a commentary over the P.A. system by Peter Cabrol. The simplified and abridged schedule was basically to F.A.I. rules and had to be completed in nine minutes so club members built a large clock to show each competitor's progress. Competitors were divided into novices and experts according to their previous experience of national competitions and a cup was awarded to the top expert and top novice. Cups were awarded by Messrs. Electronic Developments, who also contributed with C & L Developments, Radio Control Specialists Ltd., and Whitewoods over £60 worth of prizes. It was interesting to note how well the rudder-elevator and motor control models coped with the pattern, spins were noticeably better than those obtained with full house multi models minus rudder control, although rolls were a little more difficult to execute correctly. R. Dench made 905½ pts. to win novice, flying a U.S. design "Aristo Cat" using homemade proportional R/C and feedback servos. He showed very little loss of altitude or directional change of the rolls. The experts (few had been expected as it was really organised for novices) showed up and a special points handicapping system was used. J. Marden won with 1099.25 pts. flying a Super Tigre 56 powered O/D model with Orbit 10 radio gear. Ed. Johnson came second and Peter Cabrol third with a Veron "Concord", R.C.S. 10 radio and of course Climax Servos (he makes them).

In the Wet at Hullavington

Bristol R/C club rally at R.A.F. Hullavington on July 25th proved to be very popular both as a spectacle and for competitors. Two flight lines—at times uncomfortably close and events for Multi, Intermediate and Scale kept the 39 entrants fully occupied from 10 a.m. A change of schedule made for more fun and at the close of round four, Geoff Franklin (Leicester) led V. D. Berg and Ed. Johnson. First two swapped places after round two, and torrential rains fell to prevent a 3rd flight decider. Arthur Lalley was caught airborne by the deluge during a fine flight with his scale "Corsair" plopping down in what appeared to be 2 ft. of water! Up periscope! Don Thumpston's "DH9", Den Bryant's "Miles Satyr" and the "Corsair" finished 1, 2, 3. At one time there were three biplanes simultaneously airborne—quite a treat! S. Read won intermediate and new name to watch in Multi is that of Peter Newitt who is said to have six "Nimbus" (Nimbii?) on the way with the 1967 World Champs in view.

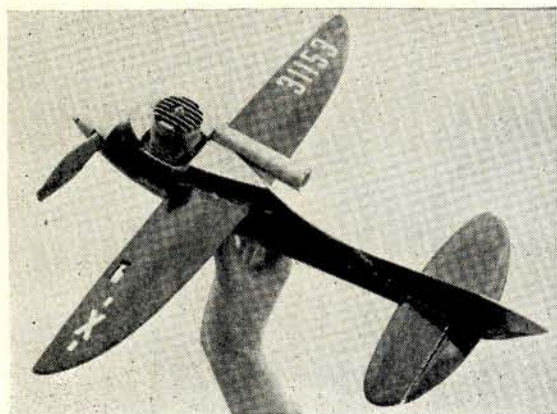
Finchley C/L Gala

Held on June 20th, at Glebe Land the Finchley D.M.A.C. Annual C/L Gala was a well supported meeting, with extremely good weather conditions and well organised with co-operation of the Delta's members. Class "A" combat was another win for Richard Wilkins of Sidcup flying his "Early Bird" model to beat Moggs Morris of Northwood in the final. Bazz Bumstead had a heated semi-final against Morris and was awarded the wooden spoon by the organisers for the most arguments of the day. Dave Balch (Hayes) in class B combat outstripped all the opposition. Stunt was disappointingly supported but Dave Platt (Wanstead Warhawks) made up for this with his standard of flying.



AT SMAE SUMMER GALA. (1) RAFMAA members from Lyneham Sgt. Tony Boonham with J/T Lellow holding open rubber entry. (2) Open glider winner releases his Eta 29 Ramrod 600, Len Larrimore of Lee Bees. (3) Big 'un by Hayes man Roy Wootton is 850 sq. in. 80 oz. Chow Mein Mk. 3. Hit windsock in fly-off! (4) Shorter than ever, John Cartwright's glider nose, note over-wing d/t fuse. (5) Combat action as Mick Nelson of Cambridge launches. (6) At Hullavington this F-9 was flown by E. Poole of Wincanton. (7) The Rogers family, Norman & Paul prepare for judges at Summer Gala. (8) Jack Morton has re-engined the Little Toot with a Merco 61 and how it goes! Has Min-X 12 channel, two channels still unused. (9) John Jackson of Feltham caught our eye with unusual wing plan shape on a 1/4A class team racer at Summer Gala. Note gull effect at centre. Oliver Tiger Cub with Oliver silencer. (10) York Vs Sheffield S.A. Challenge at Elvington resulted in some fine flying by these stalwarts, see report. (11) Lou Roberts lets go at Odiham in mammoth fly off but missed the big lift. (12) Dave White about to release his winning Coupe d'Hiver design Barron Knight, winner of the Aeromodeler Postal event and others this season.





Ivor Roffey's McCoy 60 silenced speedster which ended in spectacular flamer at Burtonwood. Note absence of cowl to compensate for silencer overheating.

CONTEST CALENDAR

- Sept. 18 & 19 *Irish Radio Control Nationals*, Nutts Corner Airport, Belfast. 18th Single Channel and Intermediate. 19th Multi Channel for Air Rianta Trophy.
- Sept. 19 *Crawley Rally*, Great Buckwood Farm. F/F R/G/P/ and F.A.I., 1/4A Power, Chuck Gilder. Single Channel R/C Spot landing, Combat.
- Sept. 19 *Wanstead Warhawks C/L Rally*, Hayes Circuit, Charville Lane, Hayes, Middx. F.A.I. Team Racing and S.M.A.E. class A. Combat.
- Sept. 26 *S.M.A.E. Event*. Area Centralised Team Power, Open Glider.
- Sept. 26 *Northern Area Vintage Competition*, R.A.F. Topcliffe. Combined R/G/P. Model plans published pre 1/1/51, must R.O.G., 164' towline, 15 second motor run unless motor designed prior to 1/1/51 then 25 sec. run, 3 Ft's 3 min. max., unlimited fly-off if necessary. Entry fee 1/6d. to J. Moseley, 7 Elmwood Ave., Walton, Nr. Wakefield, Yorks. Double fee on day, open to all S.M.A.E. members.
- Oct. 3 *South Coast Rally*, Golden Cross, Lewes, Sussex. Single Channel R/C nominated time and spot landing. Glider class also, Multi Pylon Racing, Open class Stunt 5 min. flight time.
- Oct. 3 *Luton & D.M.A.S. Slope Soaring Rally*, Ivinghoe Beacon, Nr. Dunstable, Beds. Single and Multi R/C, F/F and Chuck Glider. No Power models. Details from D. W. Bateman, 14 Ridgeway Drive, Dunstable, Beds.
- Oct. 10 *Lincoln Rally*, R.A.F. Hemswell. Open R/G/P Single Channel R/C. All-In Vintage Pre 1951 models. Pre-entry K. Barrat, 1 Geneva Ave., Lincoln.
- Oct. 10 *Northern Heights Gala*, R.A.F. Halton, Bucks. R.G.P., 1/4A, R/C Spot Landing, Combat, Helicopter, Queen Elizabeth Cup.
- Oct. 17 *S.M.A.E. Event*. Area Centralised. 1/4A Power, Open Rudder.
- Oct. 17 *2nd Imperial College Combat Rally*, College Sports Ground, Sipson Lane, Harlington (Near London Airport). Class A Combat & B Rat Race.
- Oct. 17 *Tony Pannett Memorial Trophy*, R.A.F. Topcliffe. Open Power. Entry fee 1/6d. to J. Moseley, 7 Elmwood Ave., Walton, Nr. Wakefield, Yorks. Double fee on day.
- Oct. 24 *5th N. Area F.A.I. Meeting*, R.A.F. Topcliffe. R/G/P, Team Race, Stunt Combat. Team Award in F/F. Pre-entry Full senior and Intermediate 2/6d. per event, juniors 1/6d. Late entries 3/6d. to: J. Moseley, 7 Elmwood Ave., Walton, Nr. Wakefield, Yorks.
- Oct. 24 *South Bristol Gala*, R.A.F. Hullavington, Wiltshire. Combined F.A.I. F/F (3 rounds). Vintage R/G/P pre 1951. F.A.I. Team Racing. Details J. B. Mayes, 17 Northville Rd., Northville, Bristol, 7.

H. M. G.

PRODUCTS

A MUST FOR THE ENTHUSIAST!

NEW! NEW! ETCH PRIMER
AND NEW! HAMMER FINISHES

- ★ HOT FUELPROOF DOPE
- ★ HEAT AND WATERPROOF ADHESIVE
- ★ ALL PURPOSE CLEAR ADHESIVE
- ★ POLYSTYRENE CEMENT
- ★ Balsa CEMENT
- ★ CLEAR SHRINKING AND COLOURED DOPES
- ★ MARINE FINISH

Every day model making seems to grow more and more complex. But we believe in keeping up with the times! That's why we're constantly bringing out new products and working to perfect our other successful lines. Whatever you're modelling, there's an HMG product to make life easier! Buy HMG today—from model shops everywhere!

H. MARCEL GUEST LIMITED

Riverside Works, Collyhurst Rd., Manchester 9.

Tel: COLlyhurst 2644 and 1536



**RADIO
CONTROL
SPECIALISTS
LIMITED**

**FULL
MONEY
BACK
GUARANTEE
OVER
2,500 NOW
IN USE**

This outstanding outfit can now be offered at a price anyone can afford because of increased production and demand.



GUIDANCE SYSTEM

**SUPER Mk. II
POWER**

**BUY DIRECT
at an incredible
13 gns.**

**R.C.S. Mk. II
Guidance
System
(The Best
Outfit
Available
Anywhere.)
WITH
SUPER
POWER Tx.**

All transistorised. Single channel. Xtal controlled. Half watt output Tx 12 volt operation. New design Rx with quick blip facility for motor control. Rx £6.10s. Tx only £7.10s. Complete 13 gns. ACCESSORY OUTFIT. Consists of new Elmic Compact compound escapement, wiring harness, battery box, switch, allows immediate operation. £4.10s. MOTOR CONTROL ACCESSORY OUTFIT. Plugs into above for reliable motor speed change, £3.

R.C.S. Ltd. National Works, Bath Road, Hounslow, Middlesex

THE MODEL SHOP

(MANCHESTER)

★ YOUR R.E.P. RADIO CONTROL SPECIALISTS AND SERVICE AGENTS ★

Get 'your' fabulous "Futaba" R/C equipment from the Sole Area Agents. We carry full stocks, and maintain a complete after sales service.

Futaba—F.T.3A Tx £8.2.6
Futaba—F4/LR Relayless Receiver £7.17.0
As above with relay £8.2.6
Futaba—F15c Tx, and matching F6-STR Superhet Rx £28.5.0
R.E.P. Gemini Self Assembly Relay Rx and Tx £14.5.0
As above but Relayless £13.17.8
The Fantastic O.S. Pixie Single channel Tx & Rx Relay £16.15.0
The Latest and Greatest F & M Midas 10 Superhet receiver and Matador Transistor Transmitter now in stock £87.10.0
"Oakfield" Single Channel Tx and Filter Receiver £19.19.6
Grundig 10 Tx £54.10.0
New "Grundig" S/het Rx £27.10.0
"Grundig" Filter Units £10.19.6
Acc K3VK Rx Kit £5.19.6
New O.S. Minion 12 Tx & Superhet £97.10.0
Oakfield Superhet 10 Channel Rx & Matching Tr/tor Tx £62.10.0

Whit 63 Superhet Receiver Kit (ex Reed Bank) £6.19.6
The "MacGregor" (Mk. 2) range of Radio Control Kits are excellent for the beginner, extremely reliable and easy to construct: Available as follows:—
Carrier Wave Receiver Kit £3.10.0
Carrier Transmitter Kit £2.19.6
Tone Transmitter Kit £4.5.0
Terrytone Receiver Kit £5.19.6
Case and Aerial for both Transmitters £2.15.0
O.S. Rudder Servo S.101 £5.2.6
O.S. Motor Control Servo £4.9.6
All "Elmic" escapements are precision made and super reliable with any single channel unit.
Elmic Conquest Escapement 35/-
Elmic Commander 59/2
Elmic Compact 67/4
Elmic Corporal 47/2

"CLIMAX" SERVOS FROM STOCK

"Unimite" Single Chan. £3.10.0
"Servomite" Multi £2.18.9
"Musclemite" Standard £4.10.0
"Musclemite" Kit form £2.10.0
As above, Transistorised £5.10.0
"Unipack" for Rudder & engine control with s/chan. £11.19.0

The Model Mecca of the North

SELECTED KITS

Junior Flite Streak 35/-
Goldberg & Viking F/F 33/3
Top Flite Schoolmaster 72/6
Top Flite Nobler C/L 95/-
Top Flite Taurus £16.10.0
Veron Concord Multi £11.15.6
Veron Mini-Robot 36" R/C £22.6.0
Veron Robot 45" R/C £4.3.6
Mercury Crusader C/L £3.13.1
K/K Spectre Stunt C/L 41/9
Goldberg Falcon 56 £5.19.0

GENERAL ACCESSORIES

D/C Control line handle 7/1
K.L.G.E.G. 200 plugs 8/6
Merco Silencers .29/.35 26/7
Merco Silencers .49/.61 26/7
O.S. Jetstream Silencers
Small for .15/.19 25/-
Large .29/.49 30/-
Roberts F/Control Handle 66/3
Roberts Control Unit 28/9
Tornado 10" x 6" 3-Blade 13/6
U-Reely C/L Handle 86/6
Accurate Vibro Tachometer 1,000-25,000 r.p.m. 32/6

SPECIAL:

Italian Rossi Glow Plugs.
Type 2 for up to 3.5 c.c.
Type 3 for up to 6 c.c.
Type 4 for up to 10 c.c.
All only 4/9 each.

Rossi 7 in. x 8 in., 7 in. x 9 in., 7 in. x 10 in. 4/6
Rossi 9 in. x 12 in. 5/-
Rossi 2.5 c.c. Speed pan with spinner 21/-
As above, but for 5 c.c. 26/6

We regret that our stocks of O.S. 35 R/C engines are now exhausted.

NEW! O.S. 29 Racing £10.12.6
O.S. 35 Combat £8.17.0
O.S. 30 R/C £8.17.0

Frog 150R 1.5 c.c. Diesel 59/6
Frog 100 1 c.c. Diesel 57/-
O.S. .06 Glow only 59/6
Cox Pee Wee .020 42/6
Cox Babe Bee .049 42/6
McCoy .29 Glow Still 58/9
McCoy 19 Stunt Still 53/9
Merco .61 R/C Glow £12.16.0
Merco .29 or .35 Stunt £5.19.6
Merco .29 R/C or .35 R/C £7.12.6
P.A.W. 1.49 Diesel £4.6.0
P.A.W. 2.49 Diesel £4.18.0
P.A.W. .19 (3.5c.c.) D. £5.4.6
P.A.W. .19 B.R. £6.6.0
D.C. Dart .5 c.c. £3.15.0
D.C. Merlin .76c.c. £2.11.2
E.T.A. 15D Mk. 3 £7.8.6
Cox Tee-Dee .049 £4.16.9
M.E. Heron 1 c.c. £3.0.6

OUR EXCLUSIVE NYLON

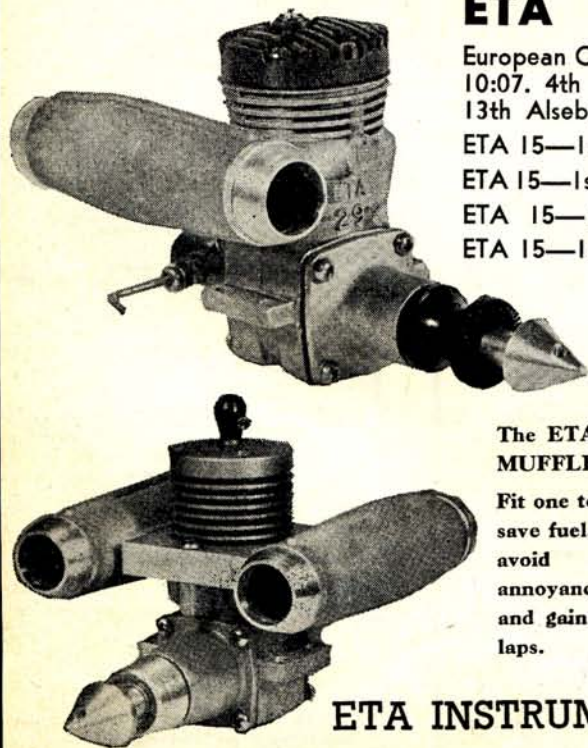
Lt. Wt. only 6/- sq. yd. plus post. Red, Blue, Black, Lemon, White, Apricot, Powder Blue, Turquoise.

SEND NOW TO OUR ONLY ADDRESS

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

13 BOOTLE STREET, off Deansgate, MANCHESTER 2

Tel.: BLACKFRIARS 3972



The ETA MUFFLER

Fit one to save fuel, avoid annoyance and gain laps.

ETA engines WIN everywhere

European Championships (Criterium of Aces)—1st Place/Haworth 10:07. 4th Fabre/Favre (France). 6th Jarvi/Aarnipalo (Finland). 13th Alseby/Hagberg (Sweden).

ETA 15—1st, 2nd & 3rd Tern Hill. FAI Team Race—Turner/Davy.

ETA 15—1st, 2nd, 3rd, Hemswell. FAI Team Race—Turner/Hughes.

ETA 15—1st, High Point. FAI Team Race, U.S.A.—Perkins.

ETA 15—1st, 2nd, 3rd—Burtonwood—FAI T/R—Turner/Hughes.

ETA 29—1st German Control Line Champs. Speed (Morns).

ETA 29—1st Class B T/R Western District Champs. Australia—Kidd/Bertina.

ETA 15—1st FAI T/R Western Dist. Champs. Australia—Kidd/Bertina.

ETA The most versatile system in the world

Eta 15 Mk. III at £6.5.0d. + £1.3.6d. P.T.
Eta 29 Mk. 6C at £6.9.6d. + £1.4.4d. P.T.
Single Muffler System including Manifold and Blanking Plate at £1.12.8d. + 6/2d. P.T.
Twin Muffler System including Manifold at £2.14.1d. + 10/2d. P.T.
Muffler only at £1.2.9d. + 4/3d. P.T.

ETA INSTRUMENTS LTD. 289 High St. Watford



'Joy-Plane' BALSA CEMENT

New and improved quality. Very quick and hard setting. Penetrates deeply, and is heat resisting and fuel proof. In tubes.

8d.; 1/2d.; 1/10d.

(Recommended retail selling prices)

Made by Modellers for Modellers



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



Top quality trio

PRECISION BUILT BY:—

**MAROWN
ENGINEERING
LIMITED**

UNION MILLS,
ISLE OF MAN

FOR AIRCRAFT

Heron A/C 1c.c. 60/6
Snipe A/C 1.49c.c. 67/-
Snipe A/C R/C 76/6

FOR BOATS

Marine Heron W/C 79/6
Marine Snipe W/C 89/-
„ Snipe R/C W/C 109/-



Built to
the highest
engineering
standards

Distribution:
E. KEIL & CO. LTD.

Effective silencers available

A revolution in the R/C Field!

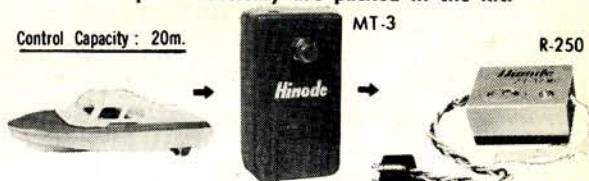
Sunrise Boat Kit
Type SB-40
for Beginners!

Just right for those about
to embark on the excite-
ment of radio control!

FEATURES:

- Even a boy of grammar school age can assemble this within 30 minutes.
- No solder is required.
- Body is sturdily made and polystyrene-coated.
- Price is attractive for teenagers.
- All parts necessary are packed in the kit.

Control Capacity: 20m.



Control Capacity: 200m.



HINODE DENKO CO., LTD.

13, Kamiyama-cho, Kita-ku, Osaka, Japan

AUSTRALIA

Tel.: MF 3918

**CENTRAL AIRCRAFT
CO. PTY.**

5 PRINCES WALK, MELBOURNE, C.1

Australia's Main Distributor for:
AEROMODELLER — MODEL MAKER
and their Plans Service.

HONG KONG

P.H.L. MODEL CO.

(Model Builders & Engineers)

40 ELECTRIC ROAD, CAUSEWAY BAY
The largest stockists of Hobby Supplies in
Hong Kong. Sole Agents for Keil-Kraft,
Aerokits, AM, Merco, DeBolt and
Ambroid, Agents for Ohlsson-Rice, Cox
Thimble-Drome, and other brands.

MALTA

Tel.: 33301

JONWIL MODEL SUPPLIES

297 PRINCE OF WALES ROAD, SLIEMA
Stockists of all the leading makes of
model kits and accessories, including:
Webra, Graupner, Veron, Frog, Rovex,
Minic, Scalextric, Airfix, HMG, and
Ripmax.
Mail order Service.

AUSTRALIA

Tel.: MA 3603
MF 1975

HEARNS HOBBIES

303 Flinders Street and 5 Collins Street,
MELBOURNE

Our 1965 world buying tour brings the
tops in all aeromodelling equipment to
our shelves. We fly what we sell. All
O.S. gear in stock. Your business is our
pleasure. Mail Order service a speciality.

HONG KONG

Tel: 636507

RADAR CO. LTD.

2 OBSERVATORY ROAD,
TSMHATSUI, 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.

SINGAPORE

Tel.: 22938

BALBIR & CO.

111 NORTH BRIDGE ROAD,
SINGAPORE 3

Leading stockists of Model Aircraft
requirements in Singapore and Malaya.

CLASSIFIED ADVERTISEMENTS

PRESS DATE for November issue, 1965, October 27, 1965.

ADVERTISEMENT RATES:

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

Trade Minimum 18 words 12/- and 8d. per extra word.

Box Numbers to count as six words when costing.

Box replies to be sent care of Advertisement Department, 13-35 Bridge Street, Hemel Hempstead, Herts, England. Copy received after first post on October 27, 1965, will be held over until the next issue, unless cancelled in writing before 20th of following month.

FOR SALE

Tiger Moth scale drawings, four sheets 38 in. x 28 in. general arrangement structure details and engine—24/- set. J. A. Brixey, 28 Layton Road, Parkstone, Dorset.

Frog 150 D recently serviced, new silencer fitted, 35/- o.n.o. S. Cannon, Branscombe, Woodburn Green, High Wycombe, Bucks.

Selling up multi equipment. 'Skyliner' complete five Bonner transmitters, Veco 45, steerable nosewheel, dubro brakes, polywing, £55; F & M Matador/Midas superhet with 1000 DKZ, £55; beautiful new 'Skyliner' fuselage, pushrods, etc., £9; used polywing £3; 'Orion' airframe, polywing £4; 'G String', Trike U/C, five transmitters, K & B 45, £45; Great Lakes Biplane Kit £19; matching fibre glass cowling £4; K & B 45, £8; 'Taurus' wing kit, £3; 'Tommytone' Monitor 50/-; Deac's, glowplugs, switches, Aeromodellers, R.C.M. & E.'s etc. S.A.E. for details, Borrett, 8 Woodlands Avenue, Carlton Colville, Lowestoft.

Transistorised Orbit 12 Tx & Rx, complete with five Bonner servos on board, deacs, plugs and charger, as new, £125. Moffat, 37 Woodcote Road, Braunstone, Leicester. Telephone: Leicester 895621.

P.A.W. 19D-11, excellent, £4; two AM25s, E.D. Racer, 37/6 each; D.C. Manxman, AM15, D.C. Dart 35/- each, two AM10s, 30/-, 25/-; D.C. Bantam, Wenmac 049 15/- each v.g.c. E.D. Comp Special, offers? Sherratt, 80 Pennegrove Road, Hereford.

O.S. 12 Superhet Tx & Rx £70 o.n.o. latest model, O.S. 50 R/C with silencer £8, O.S. 30 R/C £5. All new and unused. Howe, 9 St. Aubin Ave., Keyham, Plymouth.

Little used Rivers 3.5 90/- also well used P.A.W. 249 with muffler 40/- J. Routh, 86 Lion Road, Bexleyheath, Kent.

Remcon 12 and matching receiver with Deans Reedbank 4 amplified duramites, one transmitter, 500 Deac pack, Switch, etc., £65 complete. M. Charles, 3 Bourne Hall, Bushey, Herts. Tel. Bus. 2419.

R.E.P. Sextone-set (Tx, Rx and two servos) £27 o.n.o. Also McCoy 35 R/C (not even started) £4.10s. Tech tester (3 months old) £1.10s. Details: M. Nock, 1 The Mount, Virginia Water, Surrey.

Macgregor tone Tx, Rx, perfect, installed in thoroughly proven 40 in. trainer with F.R. escapement, 4.8 Deac, A.M.15, ready to fly £16. Birch, "Pathe", Holst House, Museum Place, Cardiff.

Cox Tee Dee 15 flown once. Excellent condition £5. Thomson, 14 West Castle Road, Edinburgh.

Three excellent drawing boards, ideal for designed purpose or perfect as flat modelling boards, sizes 62½ x 41½, 60 x 42½ and 60 x 35. New value £22 each. Two stands also available. To clear at £6 each board £2 for stand. Buyer must collect. Aeromodeller 13/35 Bridge Street, Hemel Hempstead.

KK Mini Super. Complete with Elmic Commander and Corporal escapements, M.E. Snipe and twin silencers. Proved flyer, out-of-sight range, immaculate appearance. Will sell for the cost of the kit and equipment, say £23. Box No. 758.

SEARK 45, stunt. Wing only built. £3 or take marine diesel or boat kit. Scott, 4B, Peabody Estate, London, W.6.

Unmade Mercury Matador, Frog 100, single channel Guidance System £11.10s. Oskam, 2 Llanover St., Cadoxton, Barry, Glamorgan.

F & M Hercules Tx; two F & M Receivers (superhet) 16 Bonner type servos, £5.10s. each o.n.o.; Super Tigre 56; Veco 45; four Deac packs (will split) any offers; other articles given free, with bulk order: Call 321 Walworth Road, Walworth after 6 o'clock.

Cardinal with AM15 and home made Galloping Ghost. Slightly warped wing. 349 Ansty Road, Coventry, Warwickshire.

R.E.P. Twin triple receiver and transmitter + two escapements wired, in Veco 19 powered Robot perfect £20 will exchange for electric guitar or 8 mm. cine projector. Cole, 79 Pashley Rd., Eastbourne, Sussex.



Veron Concord R/C 235/6; KK Mini Super R/C 90/-; Topflite Schoolmaster R/C 72/6; Merco 61 R/C 255/9; Fox 15x 2.5 69/6; Automic Carb. state engine 37/9; AM Silencers 10/15 25/35 11/10; Spinaflo Silencers from 42/6; MacGregor Tone Tx 219/6; MacGregor Minimax Rx 179/6; OS Pixie Tx and Relay Rx 335/-; Bonner Duramite

110/-; Nylon—white, red, black, yellow, lt. blue, dk. blue 6/9 yd. Topflite and Tornado Propellers. Kits By: Goldberg, Graupner, Frog, Mercury, Veron, Keikraft, Topflite, Engines By: A.M., Enya, Cox, Frog, E.T.A., McCoy, M.E., Merco, Oliver, Super Tigre, P.A.W., Fox. Radio and Accessories: F.M. Futaba, O.S., Grundig, Elmic, MacGregor, etc.

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

Phone Dartford 24155

MODEL MAKERS

Required for creation of high class scale models of aircraft, ships, cars, and engineering subjects, for exhibition and display. To work in modern factory near London Airport.

Write giving details of previous experience and age to Mastermodels Ltd., Spur Road, Feltham Trading Estate, Mddx.

Merco 49 R/C. PAW 2.49 D. two PAW 1.49 D. All unused; Sterling Mustang kit, new, offers. B. Stuchbury, 2 Hackett House, Hobbs Road, Lichfield, Staffs.

Clearing for space. Valuable bound volumes. All in good library condition. Aeromodeller, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1952, 1953, 1954, 1959, 1960, 1961, 1962, 1963, 1964. First come, first served. Limited supply of each at 32/6 per volume. Also "Aircraft of the Fighting Powers", volumes I, III, V, VI at 12/6 each. Aeromodeller, 13-35 Bridge Street, Hemel Hempstead, Herts.

Bonner Digimite Proportional nearly new. Perfect. £225. complete. Extra Servo £12.10s. F & M Proportional. Perfect as new £165. Pike, 2 Middlebeck Avenue, Mapperley Plains, Nottingham. Phone: 263227.

F & M Matador 10 Mk. 2 with Deac and charger £55 o.n.o. Genuine sale. Hammant, 37 Axholme Road, Doncaster, Yorks.

New Veco 29 and O.S. 35 £3 each. Little Run Mills 75 and D.C. Bantam £1 each. Tee Dee 049 £2. Mills, R.A.F. Ouston, Newcastle upon Tyne.

Partly built "Nobler" Kit. Cost £6. Also loads of equipment, books, etc., £4 lot. G. Harvey, 117 Hunts Drive, Writtle, Chelmsford, Essex.

WANTED Flight link control propo. outfit or similar type. Box. No. 757.

Aircraft of Fighting Powers—any volumes. Aeroplane Spotters—bound. Books of Westland, Miles, Bristol Aircraft, Stroud—Japanese, Red Air Forces, Thetford—Camouflage 1914-18, 1939/45 Aircraft. Letchford, 116, Bohemia Road, St. Leonards, Sussex.

Pre-war engines regardless of condition, also pre-war magazines and plans. Raddon, 22 Byng Road, Barnet, Hertfordshire.

Johnson Stunt Supreme Crankcase. Must be perfect. Complete engine considered. Broome, 41 Epsom Road, Morden, Surrey, Mit. 3025.

8 c.c. Air-cooled Taplin-Twin new or S/h urgently required. Coppard, 34 Cross Road, E. Croydon, Surrey.

Wanted Urgently. Diesel or Glowplug engines up to 2½ c.c. Good condition absolutely essential. Mr. Shallercass, 57 Courtney Road, Colliers Wood, London, S.W.19.

BOOKS AEROMODELLER BACK ISSUE MART. Vast stocks of back issues held in stock. Beaumont, 10 Bath St., London, E.C.1. Special

just taken over many ex-Aeromodeller Library Books and back issues, foreign mags after their move.

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

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

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

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.

AERO-MODELLERS 1950 to 1960. Clean condition. Offers to Mansell "Wynath" The Hollylands, Shustoke, nr. Colehill, nr. Birmingham.

TRADE Rossi 60, 10 c.c., chromed, £17; Rossi 60 (chromed) R/C £19.10s.; Rossi 60 £13.10s.; Speed pan for 2.5 c.c. with spinner, £1; 5 c.c. pan, £1.5s.; 2.5 c.c. team race pan, 13/-; four grades glow plugs, 4/- each; Vulcan Jet, £12; 6 x 8, 6 x 9, 6 x 10 speed props., 3/-; 7 x 8, 7 x 9, 7 x 10, 3/2d.; 9 x 11, 9 x 12, 9 x 13, 4/-.

Rossi, Via Pace 13, Brescia, Italy.

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

Radiomodels, Regent Road, Hanley, Stoke-on-Trent: Radios, Engines, H.P. 10 per cent deposit. Single Channel with Compound Actuator. £13.5s. S.A.E. Lists.

EXCHANGE Encyclopedia Colliers 20 vols. 1955. New condition. £22 o.n.o. or exchange large model R/C aircraft kit with engine. Mansell, "Wynath", The Hollylands, Shustoke, nr. Colehill, nr. Birmingham.

GIG EIFFLAENDER REBORING SERVICE

CHESTER RD., MACCLESFIELD

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

BIRMINGHAM Tel.: NOR 5569**THE MODEL MECCA**204 WITTON ROAD,
BIRMINGHAM 6Aircraft, Boats, Trains, etc., B'ham's
Telecont Radio agents, "Gena" Fibre
Glass Hulls.**BIRMINGHAM** Tel.: EAS 0872**THE PERRYS LTD.**769 Alum Rock Road, Ward End,
Birmingham 8British and Imported Engines, Kits and
Radio Control units, etc. Model Racing
Car and Railway sets and accessories.
All Leading Agencies. Postal Service.**BLACKPOOL** Tel.: 24695**MODEL CRAFT**24a DEANS GATE,
BLACKPOOLAgents: Skol-Kits, Keilcraft, Revell,
Monogram, Taplin, Jena, E.D.,
Thimblebome, McCoy.**BLACKPOOL** Tel.: 27402**THE MODEL SHOP**

75-77 CAUNCE STREET

KITS & ACCESSORIES

Keil, Ripmax, Airfix, etc.

BOLTON Tel.: 27097**ROLAND SCOTT LTD.**

Mail Order Specialists

The obvious shop for all your modelling
requirements. The showroom of the North.Phone your order ANYTIME
147 DERBY STREET**BONESS** Tel.: 2482**THE WOOD SHOP**43 NORTH STREET, BONESS,
WEST LOTHIANKits and Accessories — KEIL, FROG,
REVELL, RADIO CONTROL.**BOURNEMOUTH** Parkstone 3981**WESTBOURNE
MODEL SUPPLIES**2 Grand Cinema Buildings,
Poole Road, Bournemouth WestThe shop that meets a modeller's needs
— so why not visit us when in
Bournemouth.**BRADFORD** Tel.: 26186**THE MODEL SHOP**182 MANNINGHAM LANE
(Opp. Bellevue School)Kits, Engines, Radio, Accessories.
Yorkshire's Telecont stockists.
Solarbo balsa, silk, dope, plywood, etc.
Mail Order. S.A.E. for lists.**CARDIFF** Tel.: 29065**BUD MORGAN**The Model Aircraft Specialist
For Keilcraft, Mercury, Veron, Ripmax
MacGregor R/C, R.E.P., Radio Control.
Revell, Airfix, Frog, Monogram.
K.K. Handbook 3/-, A.P.S. Handbook
2/-, Inc. postage. Send S.A.E., stamped
please for assorted lists.
22 & 22A CASTLE ARCADE, CARDIFF**CHICHESTER** Tel.: 3592**PLANET MODELS
& HANDICRAFTS**108 THE HORNET,
CHICHESTER, SUSSEXAircraft and Boat Kits, All Accessories
"Tri-ang", "Trix", "Scalextric"
Personal Service. Mail Orders.**CHORLEY** Chorley 4707**THE HOBBIES SHOP**

(J.D.R. CAMERAS LTD.)

1 ST. THOMAS'S ROAD,
CHORLEY, LANCModel Aircraft, Boats, Radio Control
Model Cars, Railways & All Accessories**DONCASTER** Tel.: 2524**B. CUTTRISS & SONS**

MODELS AND HANDICRAFTS

40 DUKE STREET

Call and see our Shop

EXETER Tel.: 76661**HOBBIES LTD.**

9 North Street, Exeter

Kits & accs. Keil, Veron, Skol, Gold-
berg, Sterling, Graupner, Dubro Radio
by MacGregor, Citizenship, F & M,
Bonner, O.S. Mintron.

Send or call for list.

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 Cinema105 WOODBRIDGE ROAD, GUILDFORD
Stockists of all leading makes of model
kits and accessories.

Mail Order Service. M.E.T.A. Dealer

HEMEL HEMPSTEAD Tel.: Boxmoor 6800**TAYLOR & McKENNA**

(Hemel) LTD.

206 MARLOWES,

HEMEL HEMPSTEAD, HERTS

For Model Boats, Aircraft, Railways,
Racing Cars and Accessories.**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.**KIDDERMINSTER****MODEL MART**

2 Comberton Road (opp. Railway Station)

We are Aeromodelling enthusiasts, and
wish to help you with your requirements.

MAIL ORDER SERVICE

Headquarters: Kidderminster District F.C.

LANCASTER Tel.: 3031**THE MODEL SHOP**

8 CHINA STREET

Large stocks of all Plastic and Flying
Kits, Engines and Accessories. Scalex-
tric Roadways, Tri-ang and Lone Star
Electric Railways.**LEEDS** Tel.: 27891**THE MODEL SHOP**

58 MERRION STREET

(Nr. Tower Cinema)

Model Aircraft—boats—cars—railways,
all makes engines. Every accessory, R/C
equipment. same day postal service.**LINCOLN** Tel.: 27088**THE MODEL MAKERS
MECCA**

13 CLASKETGATE

(Next door to Theatre Royal)

Large stocks of all Plastic and Flying Kits,
Engines & Accessories. Scalextric Roadways.
Tri-ang and Lone Star electric railways.**LONDON** Tel.: STE 1972**ANGEL**166 MILE END ROAD,
LONDON, E.1YOUR Modelling needs are here. The
enthusiasts' shop run by enthusiasts!!
Full range of Kits and Accessories.
Open all day Saturday.**LONDON** Tel.: Woolwich 2820**SIDNEY ROSS & CO. LTD.**9-13 POWIS STREET,
WOOLWICH, S.E.18.For all OS Engines, spares, and R/C
Mail Order

LONDON

Tel.: North 4272

**HENRY J. NICHOLLS
& SON LTD.**

308 HOLLOWAY ROAD, N.7

We stock only the best
for AEROMODELLERS
Specialists in Radio Control.**LUTON**

Tel.: 7858

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

Tel.: ROM. 44508

HOME & HOBBY STORES

144 NORTH ST., ROMFORD, ESSEX

Extensive Modeller's Department. Keil—
Veron — Frog — Top Flite — Mac-
gregor — A.P.S.

Late Closing Fridays 7 p.m.

LONDON**ALLEN SCOTT**581 LONDON ROAD,
ISLEWORTH, MIDD.

Mail Order Specialists

The obvious shop for all your modelling
requirements. London's newest model
showroom.**MANCHESTER****ALLEN SCOTT**54 SHUDEHILL,
MANCHESTER 4

Mail Order Specialists

The obvious shop for all your modelling
requirements. Manchester's newest model
shop.**SHEFFIELD**

Tel.: 77585

REDGATESMOORHEAD,
SHEFFIELD

THE NORTH'S LARGEST MODEL DEPT.

Mail Order a Pleasure.

LONDON

Tel.: HOP 3482

**MODEL AIRCRAFT
SUPPLIES LTD.**

29 OLD KENT ROAD, S.E.1

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

Tel.: BLA 3972

THE MODEL SHOP13 BOOTLE STREET,
MANCHESTER 2THE UP-TO-DATE SHOP WITH THE
COMPREHENSIVE STOCK

Mail Orders by Return

SHEFFIELD

Tel.: 26149

**SHEFFIELD ELECTRICAL
& MODEL ENGINEERS**

248 SHALESMOOR, SHEFFIELD 3

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

Tel.: Brixton 5422

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

Tel.: 50273

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

Tel.: 3420

JOHN W. BAGNALL

MODEL CRAFTSMEN'S SUPPLIES

18 SALTER STREET, STAFFORD

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

Tel.: MAIn 8812

ALAN NICHOLLS(RADIO ENGINEERS)
151-156 LEES ROADAll R/C components available for valve
or transistor Tx/Rx. Deacs — Graupner
— Metz — Schuco — Sterling — and all the
others. Mail Order S.A.E. for lists.**WAKEFIELD**

Tel.: 4677

**Homecraft Supplies
(Wakefield) LTD.**

7 Market Way, Wakefield.

The all round model shop run by all
round modellers.

Mail order a pleasure.

LONDON

Tel.: KEN 5925

MODELS & TOYS

146 KINGS ROAD, CHELSEA, S.W.3.

Corner of Markham Street, London's lead-
ing boat centre. Model boat specialists,
any model built to order.**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

WALSALL

Tel.: 23382

S. H. GRAINGER

CALDMORE MODELS

108 CALDMORE ROAD

Everything for the Modeller

Aircraft — Railways — Boats — Electric
Cars — Repairs — Rebores — Overhauls
Spares — Radio Control — Part Exchanges**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.**POYNTON**MODEL CENTRE
POYNTON 4377**F. A. & F. ALLEN
LTD.**2 DICKENS LANE,
POYNTON, CHESHIRE

★ Radio Control Specialists ★

Guaranteed repairs — all aspects of
the hobby catered for. — H.P. terms.**WELWYN****H. A. BLUNT
& SONS LTD.**38 FRETHERNE ROAD,
WELWYN GARDEN CITY, HERTSComplete range of model aircraft, engines
and accessories. boats, cars and railways.**LONDON**

Tel.: TID 6292

D. BRYANTMODEL SUPPLIES,
328 BROCKLEY ROAD, S.E.4For Futaba R/C equipment and all
other leading makes, Keil, Veron,
Frog, Airfix, etc. Expert advice on
scale problems, easy parking.**READING****MODEL SUPPLIES**1 Hosier Street, St. Mary's Butts,
READING, BERKSFOR CHEERFUL SERVICE WITH
MODEL AIRCRAFT AND BOATS
KITS AND ACCESSORIES**WOLVERHAMPTON**

Tel.: 26709

MODELS & HOBBIES

19 ST. JOHN ST., WOLVERHAMPTON

EXPERTS COME TO US. VISIT US
AS WELL, WE HAVE ALL THE BEST
IN MODELLING

LONDON

Tel.: North 4272

HENRY J. NICHOLLS & SON LTD.

308 HOLLOWAY ROAD, N.7

We stock only the best for AEROMODELLERS

Specialists in Radio Control.

LONDON**ALLEN SCOTT**581 LONDON ROAD,
ISLEWORTH, MIDDX.
Mail Order Specialists

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

Tel.: Brixton 5422

L. H. W. WYATT BROS. LTD.260 BRIXTON ROAD,
LONDON, S.W.9

Stockists all leading makes of Plastic and Balsa Kits. Also "Tri-ang" and Scalextric

LONDON

Tel: WELbeck 8835

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

Tel.: KEN 5925

MODELS & TOYS

146 KINGS ROAD, CHELSEA, S.W.3.

Corner of Markham Street, London's leading
boat centre. Model boat specialists,
any model built to 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.**LUTON**

Tel.: 7858

AEROMODELS (LUTON)59 WELLINGTON STREET,
LUTON, BEDSModel Aircraft, Cars, Railways and
Boats for the beginner and expert.**MANCHESTER****ALLEN SCOTT**54 SHUDEHILL,
MANCHESTER 4

Mail Order Specialists

The obvious shop for all your modelling
requirements. Manchester's newest model
shop.**MANCHESTER**

Tel.: BLA 3972

THE MODEL SHOP13 BOOTLE STREET,
MANCHESTER 2THE UP-TO-DATE SHOP WITH THE
COMPREHENSIVE STOCK

Mail Orders by Return

NOTTINGHAM

Tel.: 50273

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

Tel.: MAIn 8812

ALAN NICHOLLS(RADIO ENGINEERS)
151-156 LEES ROADAll R/C components available for valve
or transistor Tx/Rx. Deacs — Graupner
— Metz — Schuco — Sterling — and all the
others. Mail Order S.A.E. for lists.**OXFORD**

Tel.: 42407

HOWES MODEL 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

POYNTONMODEL CENTRE
POYNTON 4377**F. A. & F. ALLEN
LTD.**2 DICKENS LANE,
POYNTON, CHESHIRE

★ Radio Control Specialists ★

Guaranteed repairs — all aspects of
the hobby catered for. — H.P. terms.**READING****MODEL SUPPLIES**1 Hosier Street, St. Mary's Butts,
READING, BERKSFOR CHEERFUL SERVICE WITH
MODEL AIRCRAFT AND BOATS
KITS AND ACCESSORIES**ROMFORD**

Tel.: ROM. 44508

HOME & HOBBY STORES

144 NORTH ST., ROMFORD, ESSEX

Extensive Modeller's Department. Keil—
Veron — Frog — Top Flite — Mac-
gregor — A.P.S.

Late Closing Fridays 7 p.m.

SHEFFIELD

Tel.: 77585

REDGATESMOORHEAD,
SHEFFIELD

THE NORTH'S LARGEST MODEL DEPT.

Mail Order a Pleasure.

SHEFFIELD

Tel.: 26149

**SHEFFIELD ELECTRICAL
& MODEL ENGINEERS**

248 SHALESMOOR, SHEFFIELD 3

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

Tel.: 3420

JOHN W. BAGNALLMODEL CRAFTSMEN'S SUPPLIES
18 SALTER STREET, STAFFORDThe 100 per cent Model Shop since
1936, is well worth a visit. Sales
and Service with Satisfaction.**WAKEFIELD**

Tel.: 4677

**HEMOCRAFT SUPPLIES
(WAKEFIELD) LTD.**

7 Market Way, Wakefield.

The all round model shop run by all
round modellers.

Mail order a pleasure.

WALSALL

Tel.: 23382

S. H. GRAINGER

CALDMORE MODELS

108 CALDMORE ROAD

Everything for the Modeller

Aircraft — Railways — Boats — Electric
Cars — Repairs — Rebores — Overhauls
Spares — Radio Control — Part Exchanges**WELWYN****H. A. BLUNT
& SONS LTD.**38 FRETHERNE ROAD,
WELWYN GARDEN CITY, HERTSComplete range of model aircraft, engines
and accessories. boats, cars and railways.**WOLVERHAMPTON**

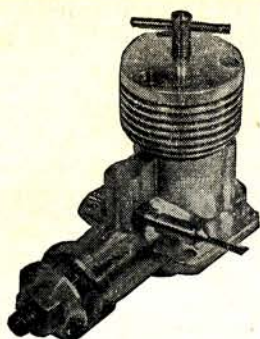
Tel.: 26709

MODELS & HOBBIES

19 ST. JOHN ST., WOLVERHAMPTON

EXPERTS COME TO US. VISIT US
AS WELL, WE HAVE ALL THE BEST
IN MODELLING

PAW ENGINES



P.A.W. 19-BR. Giant shaft, terrific power output. Super high-speed 10 ball race. Extra large bearing surfaces. Mounting interchangeable with 2.49 and 19.

EXHAUST MUFFLERS. Designed to reduce direct exhaust noise whilst taking minimum of power. Sold with fitting instructions.

THE P.A.W. RANGE OF ENGINES :—

P.A.W. 1.49	...	...	...	...	£4. 6. 0
P.A.W. 2.49 Mk. III	...	...	...	...	£4.18. 0
P.A.W. 19-D Mk. II	...	...	...	...	£5. 4. 6
P.A.W. 19-BR	...	...	...	...	£6. 6. 0
Exhaust Muffler for 2.49 or 19	...	...	...	...	13. 9
Exhaust Muffler for 1.49	...	...	...	...	12. 6

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

PROGRESS AERO WORKS
CHESTER ROAD, MACCLESFIELD

FOCKE-WULF 190

THE STORY OF A FAMOUS FIGHTER

BY H. J. NOWARRA

TO BE PUBLISHED
9th OCTOBER 1965

CONTAINING 212 PAGES (INCLUDING FIVE IN FULL COLOUR), 24 1/72 SCALE 3-VIEW TONE PAINTINGS, SEVERAL PAGES OF LINE DRAWINGS, OVER 350 PHOTOGRAPHS, AND OVER 100,000 WORDS OF TEXT.

THIS TITLE IS RIGHT UP TO HARLEYFORD'S STANDARDS. IT TELLS YOU THE WHOLE STORY OF THE FW190 AND Ta 152 AIRCRAFT. SIZE IS 8 1/2 IN. WIDE x 11 1/2 IN. DEEP, PRINTED ENTIRELY ON GLOSSY ART PAPER, CLOTH BOUND IN STIFF BOARDS WRAPPED IN A FULL COLOUR DUST JACKET.

ORDER YOUR COPY NOW

FROM ANY W. H. SMITH'S BOOKSHOP, YOUR LOCAL BOOKSELLER OR MODEL SHOP, OR DIRECT FROM THE PUBLISHERS POST FREE.

60/-

HARLEYFORD PUBLICATIONS LTD
LETCHEWORTH, HERTS, ENGLAND

R/C SAILPLANE KITS

GRAUPNER K.10. 79" sp. Ready-shaped Ex Poly. Fuselage	132/6
HEGI BERGFALKE. 90" span. Cut-out Parts, etc.	160/-
ENGEL LO.100. 80" span. Cut-out Wood Parts, etc.	160/-
GRAUPNER WEIHE 50. 71" span.	89/6
ROBBE RHONADLER. 73" span.	102/11
ROBBE DONAR. 68" span.	92/6
GRAUPNER HS.19 CLOU. 97" & 75" span.	199/6
HEGI SB7. 90" span. Ex. Poly. Fuselage.	160/-

JONES BROS. OF CHISWICK

56 TURNHAM GREEN TERRACE, CHISWICK, W.4

(Phone: CH1 0858) (1 min. from Turnham Green Station) Est. 1911

INDISPENSABLE REFERENCE

Our most ambitious publication Historical background to all developments given, plus the very latest techniques. Here are some of the chapter headings to stimulate your interest: 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 aerobatic schedules, speed charts, wire equivalents, etc., in an extensive appendix.

Price 15/-

216 pages size 8 1/2 by 5 1/2 in. printed on best gloss paper, with bound cover, gold blocked spine, three-colour dust cover. Chapter headings by cartoonist Roland, over 300 diagrams, sketches, photo-illustrations, many of historic interest, or absolutely exclusive, 74,000 words of text. All rules and regulations.

MODEL AERONAUTICAL PRESS LIMITED
13-35 BRIDGE ST., HEMEL HEMPSTEAD, HERTS, ENGLAND

**CONTROL
LINE**

MANUAL

BY R. S. MORTON

Beaumont



Every model, technical reference or historical book on aviation, plus plans, photographs.

Send 1/- for 22-page catalogue.

Aviation Literature

11 Bath Street, London, E.C.1

CLE 9512.

Open daily 9.30 a.m. to 6 p.m.

AIR PICTORIAL

There's always something new in
AIR PICTORIAL

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

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

At newsagents and bookstalls
1st each month
2/- Ann. sub.

inc. post £1.10.0.

Send remittance to:

Min-X Radio Control Equipment

The advertisement which appeared in September edition for equipment produced by this Company was included in error, and, as the agents indicate to us as publishers, quoted prices which are now misleading and incorrect. We apologise for having given them publicity they did not seek and trust that we have not caused too much embarrassment among potential customers.

Model Aeronautical Press Ltd.

SPINAFLO SILENCERS

42/6d. to 62/6d. over 65 types

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

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

D.A.C. COMPONENTS, Albion Rd., Horsham, Sx, Eng.

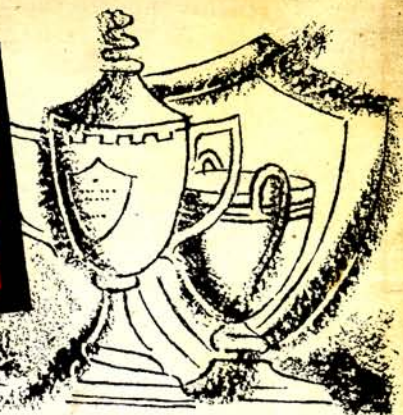


BOEING 727 MARKINGS

Five Variants for the Latest AIRFIX 1/144th scale Kit of the Month

Service with many airlines and treatment by one of the World's foremost aircraft livery designers makes the Boeing 727 an exceptionally colourful modelling subject. At top, a 727-51 of Northwest Orient Airlines in straight line but attractive red, white, blue scheme. Company title and "Fan-Jet" emblem is near to nose. A lighter shade of blue is favoured by United who have no less than 65 727-22s known as "The Jet Mainliner" which is finely written in white along blue extension aft of engines. Note gold line beneath white upper half. Ansett-ANA have three 727-77s in a really striking big "A" scheme, note that the fin has a natural metal leading edge. Eastern, who operate the 727-25 in numbers second only to United (40 in Service) have changed style to the sleek two-blue "Whisperjet" decor. On starboard side, the Company name and emblem appear in same relative positions (Emblem ahead of "E" of Eastern) and "Boeing 727" appears aft of "Whisperjet". Trans-Australia Airlines have the big "T" to distinguish them from their competitors on their three 727-76s, also have thin chordwise red, white, blue riband just inboard of tips.

★ *Be among the*
WINNERS *this year*



WITH

KEILKRAFT

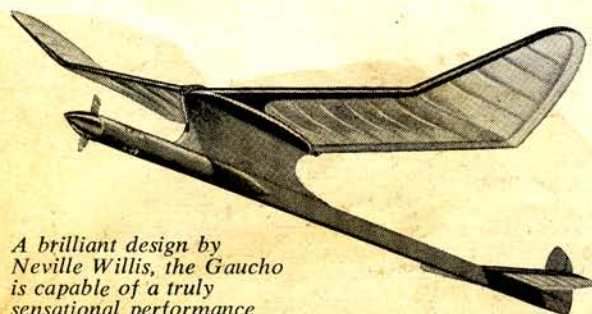
There's still plenty of
summer left to build
and fly one of these
super models!



SUPER 60

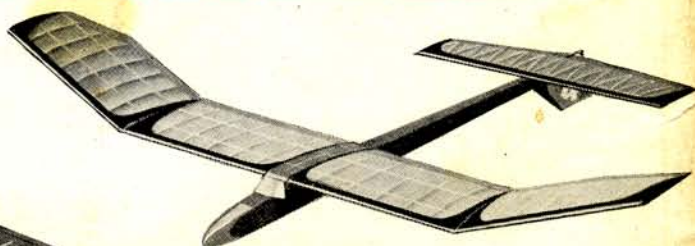
63" span Radio Control or Free Flight model for motors of 2.5-5 c.c. capacity. All shaped parts are pre-cut. The kit features a prefabricated dural and wire undercarriage; a reinforced vulcanised fibre mount and an aerobatic fuel tank. Besides ample building and covering materials, the kit contains an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

£5.9.11



*A brilliant design by
Neville Willis, the Gauch
is capable of a truly
sensational performance*

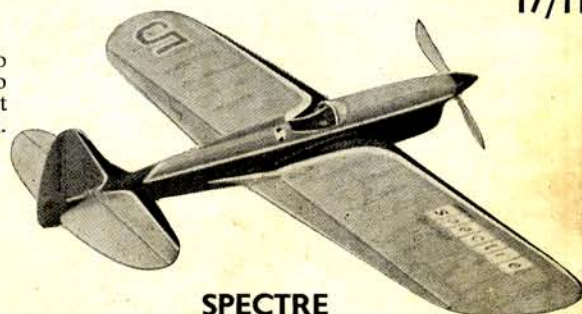
A large plane that is quite easy to build. Although designed for radio control the SUPER 60 is equally at home as a normal free flight model.



CAPRICE

High performance contest glider. Rugged and straightforward to build. Kit features all sheet parts die-cut. Although capable of long flights, it is also a good beginner's model. Wingspan 51".

17/11



SPECTRE

Outstanding stunt model featuring combined wing flap and elevator control. Exceptionally complete kit, with wing ribs, formers, etc., die-cut in highest quality balsa. For 2.5 to 3.5 c.c. engines. Wingspan 41".

41/9

GAUCHO

Outstanding contest model of the pylon type for 1 to 1.5 c.c. engines. High quality materials and die-cut parts make it a pleasure to build. Wing-span 44".

24/5



**Keilkraft sets the
pace for perform-
ance and
durability**



KEILKRAFT

**Right from the
Start**