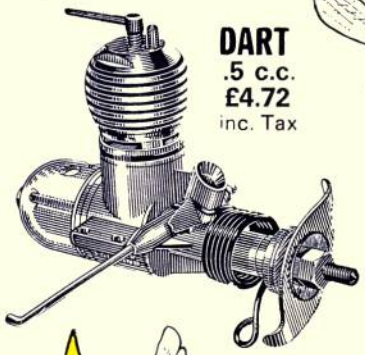
Aero Modeller

September 1972
15p
U.S.A. & Canada 75c.

INCORPORATING
MODEL AIRCRAFT

MAP HOBBY MAGAZINE



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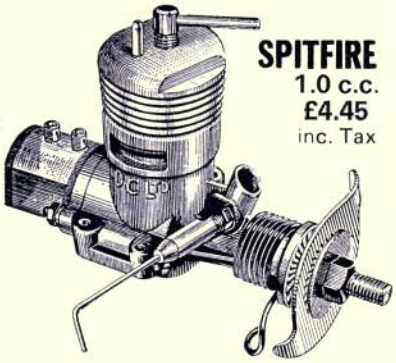

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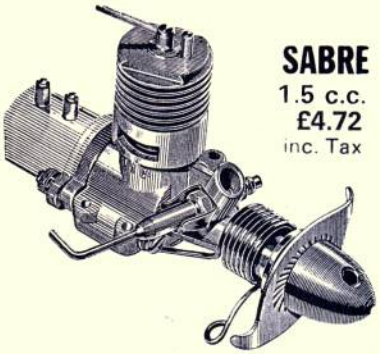

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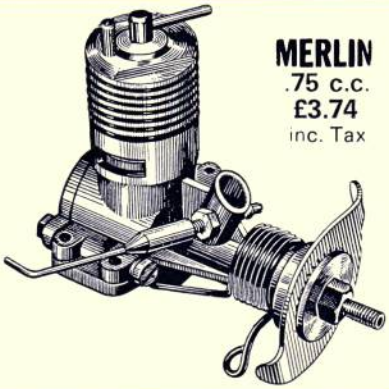

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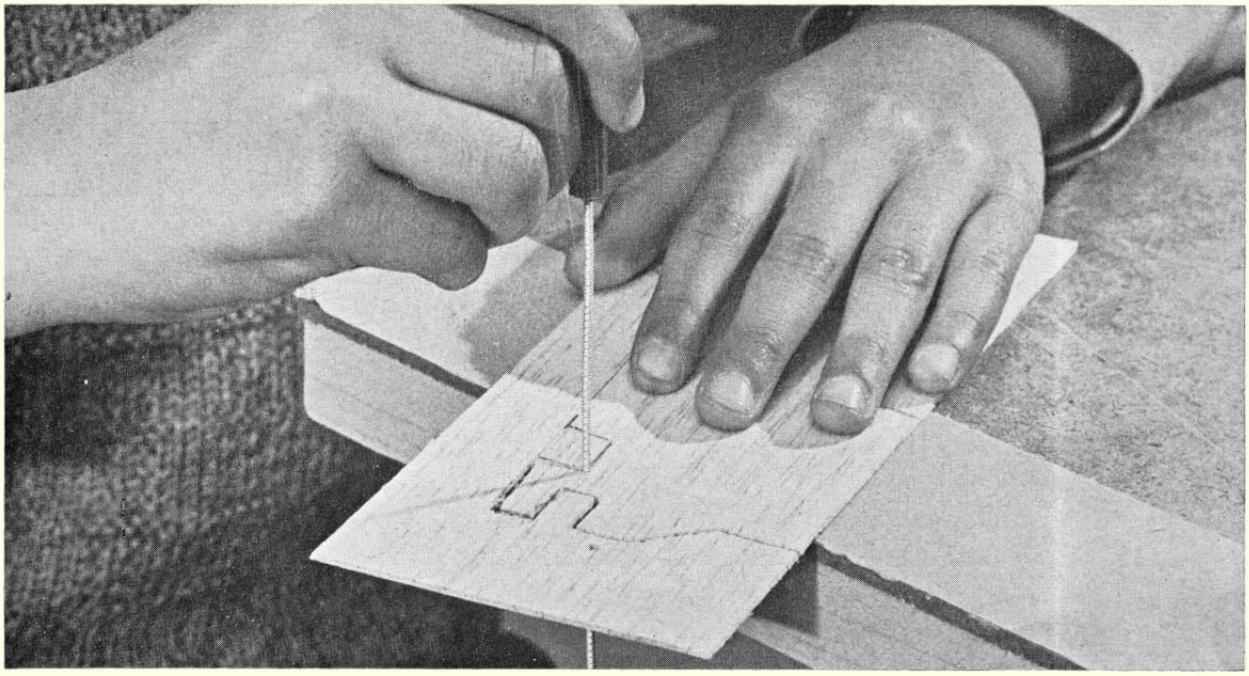

What's going on here? Cutting out sheet formers with a 'mousetail' file? Not to be recommended . . . even for very junior aeromodellers. Accuracy of cutting out is all important, using a modelling knife. But it does illustrate the point that Balsa is easy to cut. And even if junior does break off the corner (as he inevitably will), he can glue it back on as good as new with balsa cement.

Cutting parts from thick sheet is more of a problem. Try using a stiffback razor saw for all the straight line cuts and tackle the curves with a knife or fretsaw. Better still, invest in a powered jigsaw. That's the real answer for avoiding 'slanting' cuts.

There's one good tip in the photo though. A strip of fine glasspaper glued to a hardboard cutting board makes it easy to hold the work without slipping (but don't cut over the glasspaper with a modelling knife . . . all cutting tools for Balsa must be kept really sharp). Blunt tools are like poor balsa – not worth using. You will never suffer from the latter problem using SOLARBO Balsa. Every single piece is true **aeromodelling quality.**

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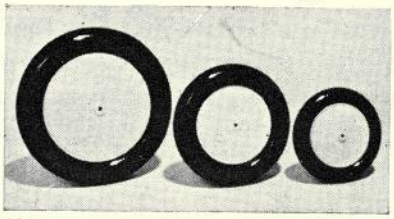

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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

September 1972 Volume XXXVII No. 440

CONTENTS

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COMMENT

The following extracts are from speeches made at the opening ceremony of the World Control Line Championships. Firstly, from Mr. Uolevi Raade, President of the Finnish Aeronautical Association:

'We have today gathered here in Messukenttä to open the contest which in a way is dualistic in nature.

'On one hand you are competing in skills in designing and building a control line model aircraft, combining aerodynamic and technical design, in a model which is capable of competing for the highest positions in the world-wide contest.

'On the other hand you are competing in a top-level sports contest which requires the same sort of determination and concentration on each flight as any other sport on this high level. You can get results only by combining top-level models with top-level sportsmanship in the world contest where almost 200 participants from 19 countries will fly for the titles.'

Secondly, from Mr. A. K. Loimaranta, deputy mayor of Helsinki:

'For this hot weekend, Helsinki will be the host for a hot international competition in which the stakes are high, the titles of World Champions in one of the most technical sports of our modern times, control-line model aircraft. This sport which combines requirements for high technical skills and strict concentration on each flight is very suitable for today's technical and sports-minded 'man'.

It is hardly necessary to contrast the differing attitudes towards Aeromodelling which the Finnish and British officials hold. Hopefully, we can educate the 'powers that be' to accept our sport in the way more enlightened nations already have.

on the cover

Bill Werwage won the Aerobatics class at Helsinki to become the new World Champion. His immaculately-finished model 'USA-1' has 18 coats of filler and just two coats of colour – all lightly sprayed at a weight penalty of just 4 ounces. This design is the same as he flew at Namur in 1970 and took six months to build.

next month

Two free plans once again – **Spyrogyro**, a snappy control-line stunter for 1.5 c.c. engines, plus an A/1 glider **Wee Kee Wee** designed by Martin Dilly. More on the **C/L World Championships**, as well as news from the **Scale World Champs** at Toulouse. Plans for Trevor Faulkner's **Thermal Soarer**, plus regular features – on sale September 15th.

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2nd GREAT Model Railways EXHIBITION

24th August, to 2nd Sep., (Not Sundays)

£250 in Prizes

CENTRAL HALL · WESTMINSTER · LONDON S.W.1.

OUR EXHIBITION
The MODEL RAILWAY EXHIBITION comes at the traditional beginning of the model railway season, and we shall be once again in Westminster, over the Bank holiday period to promote an exhibition devoted to the smaller gauge of Model Railways. This strikes a new note in that it is at the beginning of the modelling season rather than the end. It lasts for nine days, which includes two Saturdays and a Bank holiday Monday so that we feel there should be a great opportunity not only for enthusiasts to visit us, but for many in London, perhaps on holiday, who would not otherwise have had the opportunity.

TRADE STANDS
A number of proprietary exhibition layouts (of international calibre) will be on display. The model railway trade will be in strength offering a wide range of goods. Firms and manufacturers whose goods will be on sale and on display already include: Beatties of London, Chuffs, A. A. Hales Ltd., Studiolith, Traction Engine Enterprises, Plaistow Pictorial, M. & R. (Model Railways) Ltd.

GRAND LAYOUT COMPETITION

ENQUIRIES TO EXHIBITION ORGANISER

We are offering prizes of:
First Prize – £50 Second Prize – £30 Third Prize – £20 for the best club and for the best individual layout £200 in all! The layouts displayed will be limited to 200 sq. ft. which gives a maximum size of about 16 x 12 ft. Gauges eligible will be O gauge and smaller gauges.
How to enter is simple – a club or an individual has only to drop us a line and send a photograph of the layout; if possible a rough sketch/plan and a note of dimensions and special features. We will visit layouts which seem likely to be of interest and make our choice from them.

OTHER COMPETITIONS
STATIC DISPLAY MODELS: O GAUGE & SMALLER.
£50 in prizes which will be divided into units of £10 first prize, £7 second prize, £5 third prize and miscellaneous additional awards to a total of a further £28
BEST LOCOMOTIVE – ROLLING STOCK – LINESIDE FEATURES – LOW RELIEF BUILDINGS – (group of three) STATION BUILDINGS – POINTS & TRACKWORK.

SOUVENIR HANDBOOK & GUIDE
MODEL RAILWAYS comes out on August 11th and will contain a special Exhibition Souvenir handbook and Guide Supplement and provide a grand enlarged number.

ADMISSION
Hours of opening:
The exhibition will be open on the 24th August 1972 at 10 a.m. and will continue through daily to 9 p.m. except Sundays, when it will be closed, and will finish on Saturday, September 2nd at 7.0 p.m.
Prices of Admission
Price of admission at the door will be 30p adult, 15p child.
Reduced admission charges for pre-booking as under:
Single and small number pre-booking tickets available from these offices. Adult 25. Child 12½p.
Parties of more than 10: Adult 20p. Child 10p.
Teachers i/c parties free – one per 10 in party.
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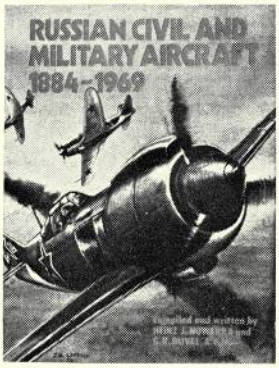
HARLEYFORD

IS BACK AGAIN!

RUSSIAN AIRCRAFT

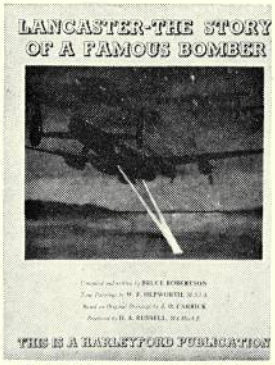
Undoubtedly the most ambitious work undertaken by the Harleyford research team, this book traces the origins of Russian Air Power through both World Wars to the modern day. Masses of rare photographs are liberally sprinkled throughout the text. Captions are given in Russian as well as English. There is also a section on airships. 50 aircraft are illustrated by 1/72nd scale 3-view tone paintings, some of the drawings are in 1/144 to fit the pages. Types range from the DUX type II right through to the MIKOYAN STOL, which has flown, since publication of the book. Compiled and written by Heinz Nowarrà and Geoff Duval, with drawings by W. F. Hepworth.



288 pages, 70 pages of 1/72 half-tone drawings. Over 600 photographs. One colour plate. **£5.25**

LANCASTER

by Bruce Robertson



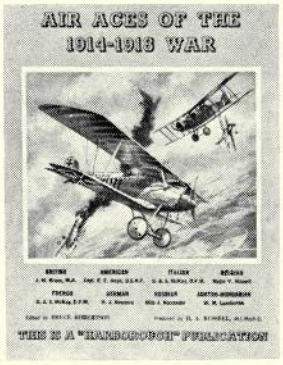
Essentially the 'Lancaster Story' rather than just Lancaster, for the Lancaster evolved from the Manchester and the Mark IV and V Lancaster became the Lincoln B.1 and B.2. Thus, both the unfortunate history of the Manchester and the post-war history of successful Lincolns qualify for coverage. Since the York transport used Lancaster wings and undercarriages and the Shackleton evolved from the Lincoln, these and the Lancastrian transports are covered in the text and with photographs and drawings.

A type-by-type review gives the specification details of the series from issue of the Manchester tender in 1937 to the Shackleton. Apart from all the marks the various modifications are covered, including the famous 'Aries' and 'Thor' and the subsequent jet-engine test beds.

The fate of all 7,374 Lancasters is presented with serials, squadron numbers, service histories and final fates.

216 pages, 362 photographs, 28 pages drawings, 24 pages 1/144 scale tone paintings, colour plate. **£3.50**

AIR ACES OF W.W.I



Biographies of 135 leading British, French, American, German, Italian, Belgian, Russian and Austro-Hungarian aces, and mention of over 1,000 others, each with his score. Also the background to the airforces in which they served and details of the aircraft they flew. Listed are those awarded the V.C., Congressional Medal of Honor and the Ordre pour le Mérite.

212 pages, 335 photographs, colour plate. **£3.50**

SOPWITH

by Bruce Robertson

The fascinating story of Thomas Octave Murdoch Sopwith and his famous aircraft, one of which, the Sopwith 'Camel' will perhaps be the most remembered of all W.W.I aircraft.

The book traces the development of the Sopwith Aviation Company through its long and successful history.

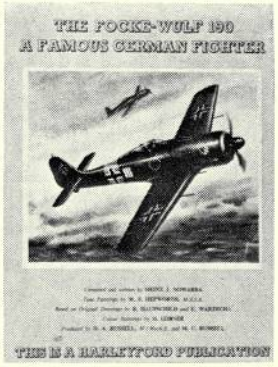
Text was compiled and written by noted historian Bruce Robertson, with drawings by Peter G. Cooksley. Mr. Robertson produced the book with the closest co-operation of T.O.M. himself. The majority of the photographs are from private files and have never been seen before. Drawings are well detailed, and there are six pages of intimate details of the renowned 'Camel'.

As well as the drawings there is a type-by-type review of all Sopwith types, and a section on surviving Sopwiths and replicas. No self-respecting enthusiast can afford to be without this invaluable book.

244 pages, 28 three-view 1/72nd scale drawings. Over 400 photographs. Two colour plates. **£4**

F-W 190

by Heinz J. Nowarrà



Early days and experiments of Heinrich Focke, George Wulf and FW109 designer Kurt Tank from the background to this detailed account of one of Nazi Germany's best aircraft.

Throughout the book the history of all the FW190 and Ta152 V-series experimental aircraft can be traced, together with all the operational versions and a number of other interesting projects – the 'Mistel', Glide-bomb and 'Doppleriter'.

Action, both on the Eastern front and over the rest of Europe, is vividly described and supported by translations of extracts from combat reports of several German 'ace' pilots, including reports of action against women pilots.

Supporting the narrative are schedules of complete Luftwaffe battle orders, right up to the final breakdown in 1945.

The accuracy and detail of this book could only have been achieved with access to the Focke-Wulf organisation's official files and reports.

216 pages, 360 photographs, 12 pages drawings, 24 pages 1/72 scale tone paintings, 6 pages in colour. **£3.50**

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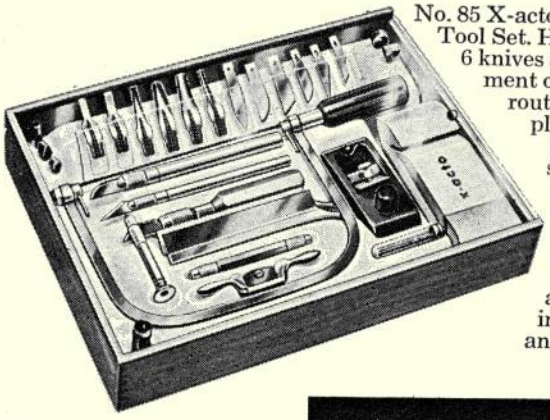

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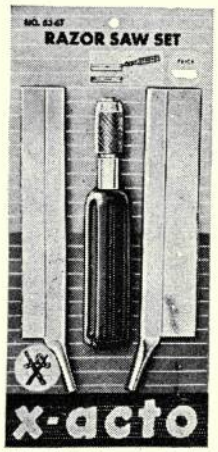

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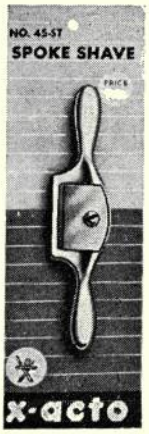

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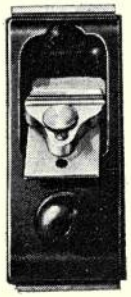

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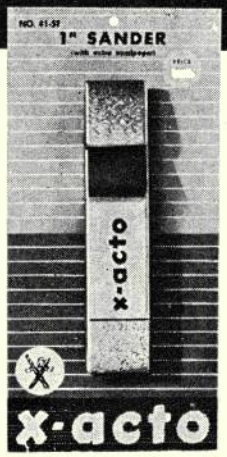

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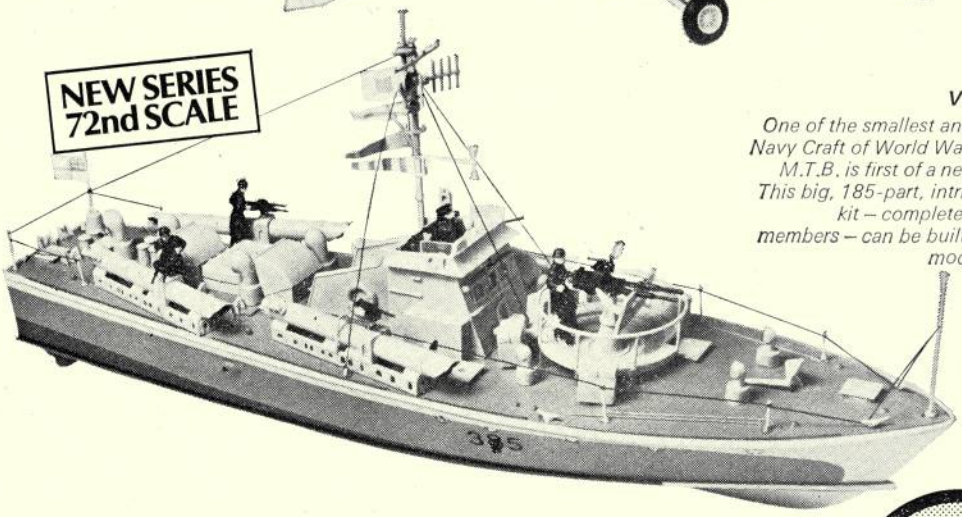

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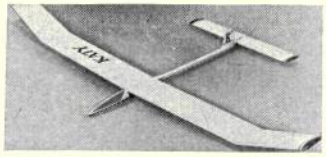
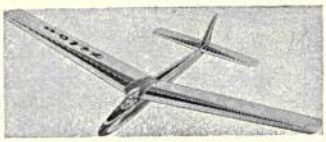
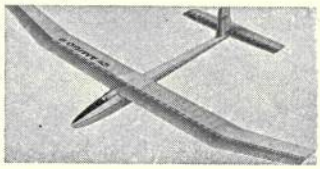
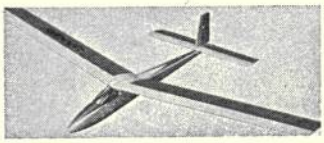




FILOU SAILPLANE £4.85
50" span sports-type sailplane which converts to auxiliary power (pylon mount 92p extra). Kit contains quickbuild plan, printed and die-cut sheets of ba sa and ply, canopy, wire parts, tissue covering, decals and miscel.aneous items. Model also recommended for R/C flying.

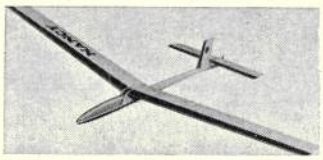
AMIGO 2 ..... £8.30
Here is a real contest-type sailplane, 78¾" span and total area 694 sq. in. Extensively prefabricated, the kit includes die-cut and printed balsa and ply parts, milled and slotted stripwood, ready-formed tow hook, canopy, tissue covering, decals, etc., etc. The Amigo 2 also adapts readily to pylon power and is ideal for R/C (R/C installation plan included).





DANDY £6.90
A kit designed for rapid assembly with die-cut sheet, preshaped fuselage parts, milled and slotted stripwood, canopy, cement, tissue covering, decals, etc. Span 63". Total area 540 sq. in. Can be converted into a powered glider with pylon mount (92p) and 049 engine.

NANCY £4.15
Another design in the popular A1 class. Span 48¾". Kit includes milled fuselage nose section, die-cut sheets, milled stripwood, preshaped wire parts, tissue, adhesives, decals, etc., plus a two-colour exploded drawing and plan.
Also **JOLLY A1** £3.55
A 45" span Quickie model. This kit is extensively prefabricated and very complete. Model takes pylon mount for conversion to power.



CIRRUS £18.75
Giant 118" span. A fabulous kit with finished fuselage mouldings in ABS plastic, precut wood parts, complete hardware, moulded canopy, control horn, cement, covering material, etc., etc.
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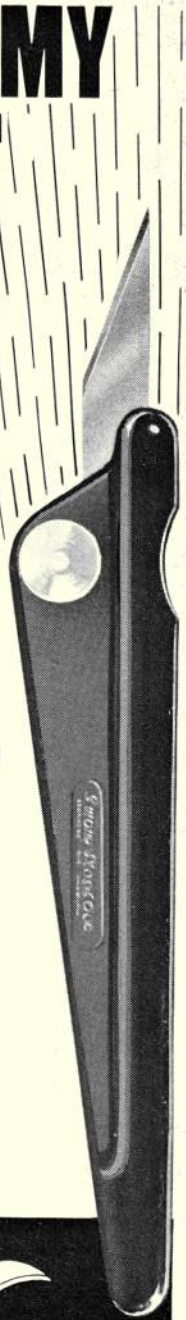

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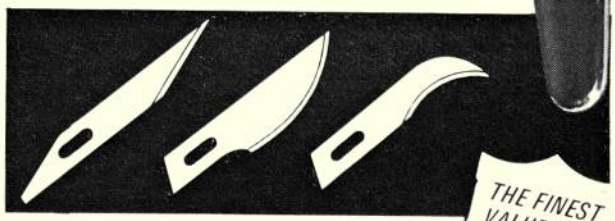

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The Birthday Present

Exactly one year after the deHavilland aircraft organisation came of age, September 25th 1942, four of their then unknown Mosquitos from 105 Squadron, gave Norway a birthday present.

Led by Squadron Leader D. A. G. Parry, D.S.O., D.F.C., the Mosquitos left Leuchars in Scotland bound for the Gestapo Headquarters in Oslo. Their mission was threefold. First: to disrupt a rally due to be held there and which would be attended by Vidkun Quisling. Secondly: to destroy as many documents, traitors, collaborators and Gestapo personnel as possible. Thirdly, and perhaps most important of all: to give a much needed boost to Norwegian resistance morale.

There was a further reason why Mosquitos were chosen for this particular raid. The low level day bombing attacks employed by the Mosquito Squadrons had not, until this point in time, yielded many spectacular successes. Its whole future as a day bomber was therefore being hotly criticised at top defence command levels. The Oslo raid helped to swing opinions over towards the Mosquito's retention in the role for which it had been specifically designed.

The Mosquitos flew at sea level, in order to deceive enemy radar, and were given to expect full cloud cover at 2,000 feet and no enemy aircraft. Their expectations were not fulfilled. They met with cloudless skies and Focke Wulfe 190's.

Four Mosquitos attacked the target in pairs, Squadron Leader Parry and Pilot Officer Rowlands leading. They flew over Oslo at rooftop height towards the headquarters – easily discernible due to the large dome and Nazi flag surmounting the building. One enemy aircraft engaged the leaders and two more 190's dived hard on the second pair. Flt. Sgt. Carter's aircraft had fallen slightly behind and was hit badly – with a FW 190 on his tail and one engine blazing, he turned towards Sweden, only to crash in a lake – his aircraft was subsequently salvaged by the Germans. The others bombed the target with an accuracy which captured the imagination of both the Norwegians and the British.

At least 4 bombs entered the roof of the Gestapo buildings before the 3 remaining Mosquitos turned and streaked home along the valleys of Norway. The pace was fantastic; and indicated air speed of 330 mph; with the Mosquitos steadily drawing away from the fighters. One of the chasing 190's crashed near Oslo and the pilot was killed. At the time rumours circulated that it had been shot down by a Mosquito – an impossibility since these Mosquitos did not carry any armament and were originally designed to rely on speed as their main defence. Subsequently, the crash was attributed to either the Mosquito's slip stream forcing the fighter out of control or the effect of the bomb blasts over the Gestapo HQ.

The three remaining Mosquitos returned safely to England, the total 1,100 mile journey having taken 4¾ hours; and the following day the 6 a.m. news carried details of the raid and told the British Public that they had a new light bomber. At 22 years of age deHavilland had given the Germans a birthday present it would be hard to live down, and the British, one which they would never forget: The Mosquito.

Revell's new 1/32 scale model of the Mosquito IVb Series 2 "GBE" is a faithful reproduction of an aircraft attached to the famous 105 Squadron that carried out the above raid. With a wingspan of over 20 inches and details such as removable cowling displaying a Rolls Royce Merlin engine, detailed cockpit interior and movable wheels and propellers, it cannot fail to take pride of place in any model collection.

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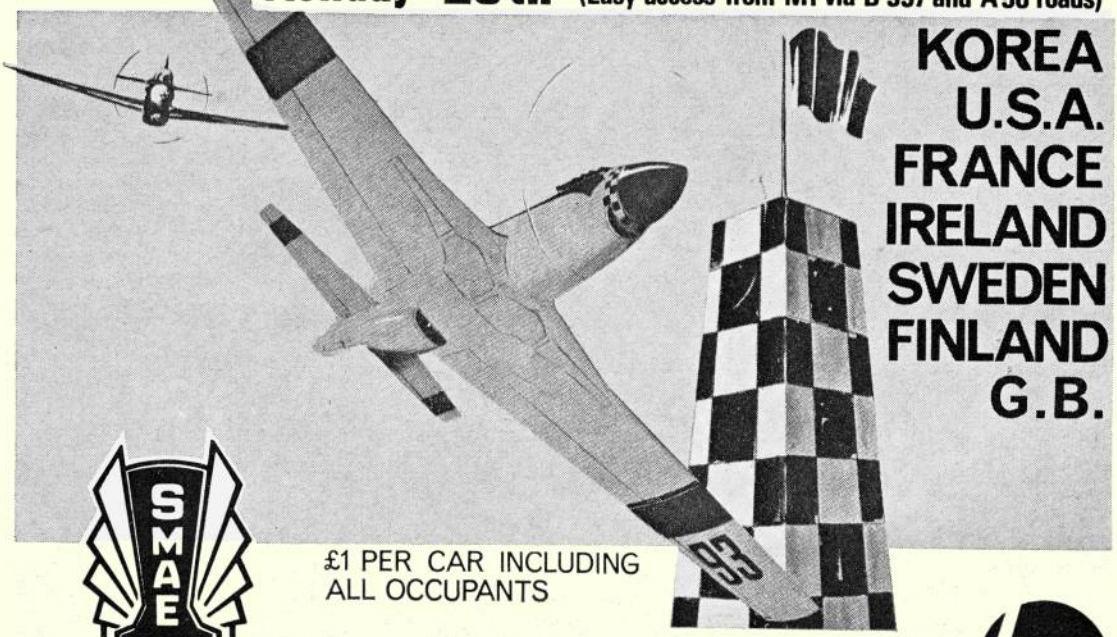

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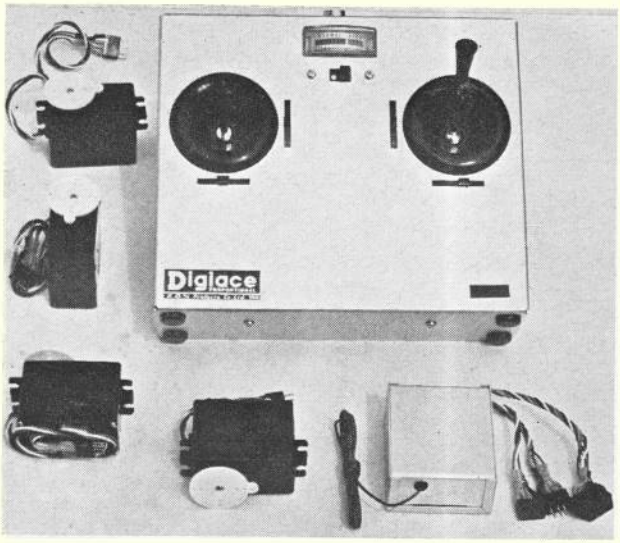

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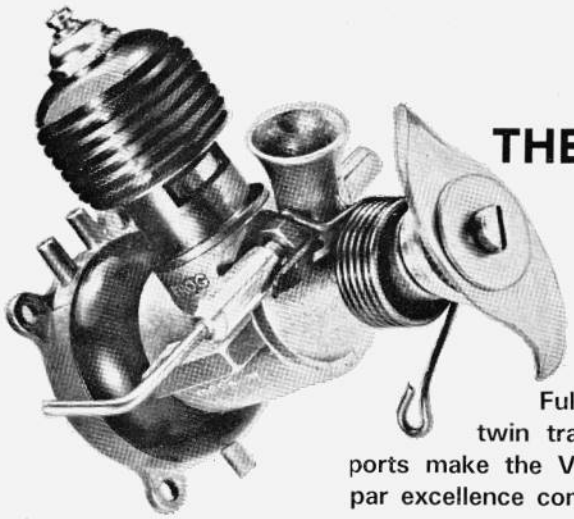

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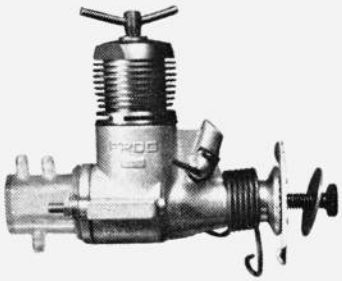

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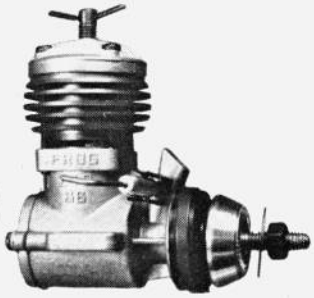

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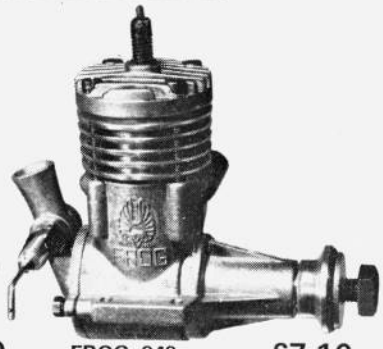

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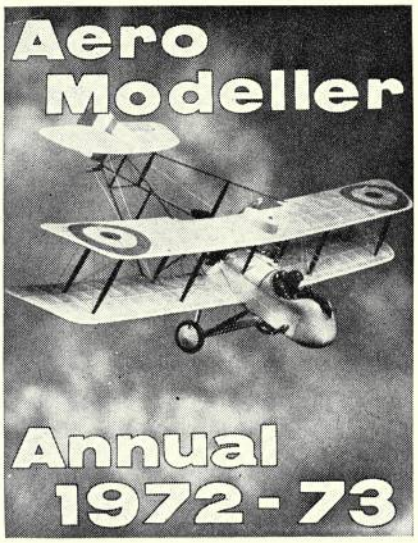

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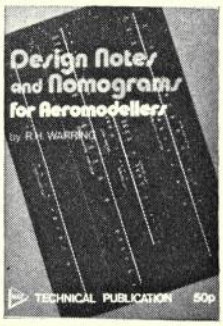

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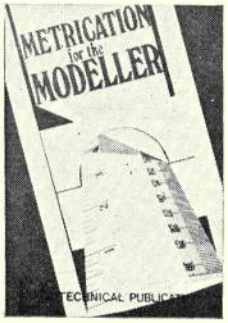

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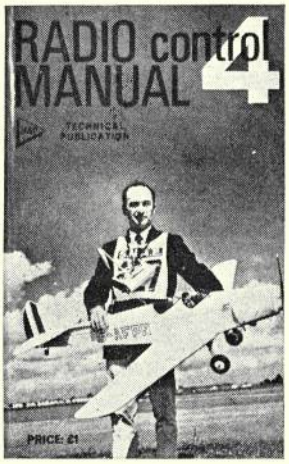

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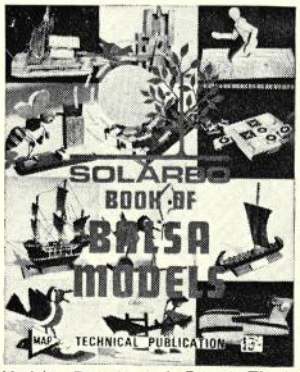

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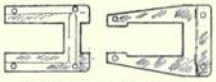

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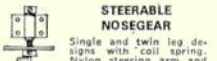

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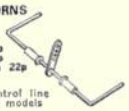

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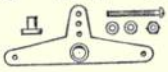

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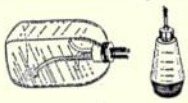
Belly mounted (Both single leg steerable units). £2.34
L/W STEERABLE NOSEGEAR
Short or long £1.19
Noseleg bracket (2) 32p
Nylon Steering arm (2) ... 34p

RETRACTABLE UNDERCARRIAGES

MAIN U/C Nylon (pair) ... £3.95
NOSE U/C Nylon £3.95
MAIN U/C DURAL (pair) ... £10.50
NOSE U/C DURAL £7.45
MASTER RETRACT SERVO £8.75
AUXILIARY RETRACT SERVO £8.75



SEALITE SQ. CLUNK TANKS

4 ounce	72p	6 ounce	76p
8 ounce	80p	10 ounce	85p
Large 14 ounce 90p			

Squeeze Bottle with twist cap 49p

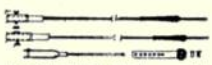
SCREW-UP FILTERS

Tank type ... 29p
Line type ... 29p

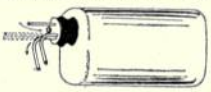
NOISELESS THROTTLE LEVER

Moulded nylon throttle arm gives freedom from 'noise' on R/C models. Pack of 2 16p

RIPMAX-MK LINKAGES



Long Yoke K-Link (pkt 2) ... 34p
Set K-Links with Rods, etc. ... 43p
Pushrod Holder & Keepers (2) ... 34p
Nylon Kwik Link (packet 2) ... 22p



OVAL CLUNK TANKS

50 c.c. (1¾ ounce) Tank	...	74p
100 c.c. (3½ ounce) Tank	...	86p
150 c.c. (5¼ ounce) Tank	...	94p
220 c.c. (7¾ ounce) Tank	...	99p
320 c.c. (11¼ ounce) Tank	...	£1.05

SQUEEZE BOTTLE with Spout 29p

MINI CONNECTORS

Miniature plugs and sockets.
6-pin ... 30p
8-pin ... 40p

NYLON SPINNERS

for 2-blade props.
1¾" dia. ... 64p
2" dia. ... 69p
2¼" dia. ... 76p
2½" dia. ... 84p
2¾" dia. ... 94p

ADJUSTA-HORN (for RUDDERS)

Packet of 2 15p
(for AILERONS)
Small (pair) 17p
Large (pair) 28p

NYLON HORN (RUDDER)

True geometric design for equal movement. Packet of 2 10p

SCREW-ADJUST HORNS (AILERON)

Metal and nylon. For strip ailerons. Pair 32p

DIFFERENTIAL CRANK KIT

A complete kit for providing selectable differential movement on conventional inset ailerons. 46p

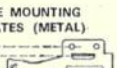
COCKPIT INSTRUMENTS

True to scale and fully detailed printed instrument panel gauges (including alternative forms where applicable).
5 mm ... 39p 9 mm ... 39p
7 mm ... 39p 12 mm ... 39p

PUSH ROD EXIT GUIDES

Semi-hooded type (2) ... 13p

JUSTIK CABLE ANCHORS



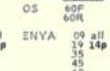
Self-adhesive base with metal arms bent to anchor cables, etc. Packet of 6 ... 18p

JUSTIK SERVO RAIL SUPPORT

Self-adhesive brackets for mounting servo rails. Packet of 4 18p

CAM LOCK FASTENERS

Complete with hardwood blocks and bolts, etc.
Small (pr) 44p
Medium (pr) 44p
Large (pr) 44p



ENGINE MOUNTING TEMPLATES (METAL)

OS		OS	
	09		60F
	10		60R
	15		
	19 all	ENYA	09 all
	30 14p		19 14p
	35		35
	40		45
	58		60

Mounting Template for K&B 40R 14p

Take-apart Fuel Filter 30p
Rubber Fuel Tubing (40") 16p
Silicone Fuel Tubing (20") 39p

RIPMAX NYLON

TENSILE NYLON in white, yellow, orange, red, blue and khaki. White 35p per yd. or 99p per 3 x 1 yd.: Colours 42p per yd. or £1.20 per 3 x 1 yd.
SUPALIGHT (white only) 35p per yd.; or 99p per 3 x 1 yd.
ECONOMY NYLON (white only) 29p per yard; or 82p per 3 x 1 yd.

Screw-Adjusting Aileron Horns	33p
Differential Aileron Horns (2)	49p
Flat Nylon Hinges (pkt. 10)	40p
Short Nylon Horn (pair)	15p
Medium Nylon Horn (pair)	16p
Long Nylon Horn (pair)	17p
Nylon Wing Fixing Bolts (2)	30p
Rubber Wing Seatings (pair)	39p

¼" Control Surface Fairing
(32" long, pair) 24p
5/16" ditto (32" long, pair) 33p
⅜" ditto (32" long, pair) 40p

STANDARD AIRSPAN WHEELS

1¾" dia. pr.	68p	2" dia. pr.	76p
2¼" dia. pr.	85p	2½" dia. pr.	95p
2¾" dia. pr.	£1.05	3" dia. pr.	£1.18

WHITEWALL AIRSPAN WHEELS

1¾" dia. pr.	78p	2" dia. pr.	86p
2¼" dia. pr.	95p	2½" dia. pr.	£1.05
2¾" dia. pr.	£1.15	3" dia. pr.	£1.28

STEERABLE NOSEGEAR

Short £1.63
Long £1.80

STEERABLE GEAR

with brake £2.25

NEW LOW-BOUNCE WHEELS

1¾"	... pr. 35p	2½"	... pr. 87p
2"	... pr. 62p	2¾"	... pr. £1.05
2¼"	... pr. 67p	3"	... pr. £1.23
2½"	... pr. 75p	3½"	... pr. £1.40

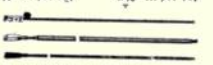
GRAUPNER RECORD WHEELS

1½" (30mm)	34p	2¾" (60mm)	59p
1¾" (40mm)	39p	2¾" (70mm)	78p
2" (50mm)	47p	3½" (90mm)	£1.34

Ripmax 'PB' Aerascale Airwheels			
2½"	... pr. 97p	3½"	... pr. £1.50
2¾"	... pr. £1.10	4"	... pr. £1.80
3"	... pr. £1.25	4½"	... pr. £2.30
3¼"	... pr. £1.46	5"	... pr. £2.90

Ripmax 'KBK' Tru-Spin Airwheels			
¾"	... pr. 16p	1½"	... pr. 39p
1"	... pr. 22p	1¾"	... pr. 44p
1¼"	... pr. 28p	2"	... pr. 49p
1½"	... pr. 34p		

Nylon Hub Hub Tru-Spin Airwheels			
1½"	... pr. 47p	2"	... pr. 63p
1¾"	... pr. 54p	2¼"	... pr. 79p



Black Kwiklink with 5" rod	10p
Silver Kwiklink with 5" rod	16p
Silver Kwiklink with 10" rod	20p
Nylon Kwiklink with 10" rod	8p
Black Kwiklink only (pkt. 2)	16p
Silver Kwiklink only (pkt. 2)	24p
Nylon Kwiklink only (pkt. 2)	12p
L'wt. Snake & nylon K/link	24p
L'wt. Snake & silver K/link	40p
H'wt. Snake & silver K/link	49p
K/link with Large Connector (2)	33p
K/link with Small Connector (2)	33p
Small Snake Tube only (white)	8p
Small Snake Tube only (gold)	10p
Large Snake Tube only (white)	12p
Small pushrod end cap (pkt. 2)	15p
Medium pushrod end cap (pkt. 2)	16p
Large pushrod end cap (pkt. 2)	17p

SILVERED NYLON SPINNERS

(¼" UNF or 7mm thread)
1¾" dia. 54p 2" dia. 62p
2¼" dia. 70p 2½" dia. 79p

Tornado

PROPS FOR POWER PLUS !

TYPE C 3-bl. tractor
TYPE D
TYPE A 3-bl. tractor
2-bl. tractor TYPE E
TYPE B 3-bl. pusher
2-bl. pusher 6 x 3 28p

TYPE A			
5 x 3	11p	9 x 4	37p
5 x 4	11p	9 x 6	37p
5½ x 3	13p	9 x 7	37p
5½ x 4	13p	9 x 8	37p
6 x 3	16p	10 x 4	45p
6 x 4	16p	10 x 6	45p
7 x 4	21p	11 x 4	53p
7 x 6	21p	11 x 6	53p
7 x 8	21p	11 x 8	53p
8 x 4	29p	12 x 4	75p
8 x 6	29p	12 x 5	75p
8 x 8	29p	12 x 6	75p

TYPE B	
5½ x 3	13p
5½ x 4	13p
6 x 3	16p
6 x 4	16p
8 x 6	45p
9 x 6	53p
10 x 6	60p

Types A, B, C and E yellow nylon Type D, aluminised nylon.

TYPE C	
5 x 3	26p
5 x 4	26p
6 x 3	28p
6 x 4	28p
TYPE D	
7 x 8	43p
8 x 6	64p
8 x 8	64p
9 x 6	75p
10 x 4	75p
10 x 6	75p

TOPFLITE NYLON			
5¼ x 3	15p	10 x 3½	55p
5¼ x 4	15p	10 x 6	55p
6 x 3	20p	11 x 4	67p
6 x 4	20p	11 x 6	67p
7 x 4	26p	11 x 7	67p
7 x 6	26p	11 x 8	67p
8 x 4	34p	12 x 6	82p
8 x 6	34p		
9 x 4	45p		
9 x 6	45p		
9 x 7	45p		

SUPER M MAPLEWOOD			
9 x 6	42p	11 x 7½	48p
10 x 6	45p	11 x 8	48p
11 x 6	48p	12 x 6	53p
11 x 7	48p		
11 x 6, 7, 7½, or 8			48p

POWER (WOOD) RMA/SEMO NYLON			
7 x 4	14p	8 x 8	18p
7 x 8	14p	9 x 4	21p
8 x 4	18p	9 x 6	21p
8 x 6	18p	all 2-blade	

SEE THEM ALL AT YOUR LOCAL MODEL SHOP!

Heard at the HANGAR DOORS

Three lucky winners of the Revell 'Spot the Plane' competition were Ian Brown, Jeffrey Golding and Michael Simpson. In addition to their prizes of £50 plus a Polaroid camera each, the lads spent an action-packed day with the R.A.F. at Station Valley, Anglesey which included a special demonstration by an Air-Sea Rescue helicopter, plus a 'flight' on a Gnat Flight Simulator.

FINAL TEAM trial selection to choose our representatives at the World Indoor Championships, to be held at Cardington, Bedfordshire, on August 27-28th, was held at this venue on 23rd July. The results were: Laurie Barr, John Blount and Mike Shepherd with two best flight totals of 67:03, 59:28 and 58:47 respectively. During these Trials Laurie Barr established a new Indoor Record for F.A.I. models with a flight of 33 minutes 42 seconds, which is now being submitted to the S.M.A.E. council for ratification. Team Manager will be fourth placed man (57:25), Reg Parham.

MORE TEAM trials results. This time from the U.S.A., where they completed their team selection finals for the 1973 World Champs. Power will be defended by Henry Spence, Frank Wolff and Tom McLaughlan, Wakefield by Frank Parmenter, Bob White and Jim Davis, while A/2 glider sees Hugh Langerin, Paul Crowley and Vince Croghan. Team manager will be Dave Lindstrum.

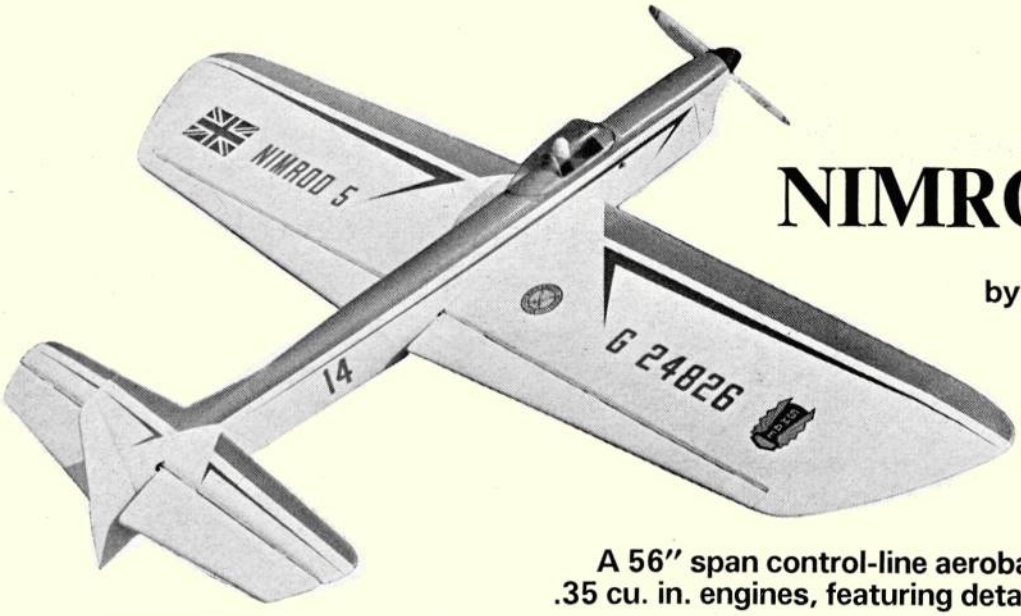
TWO EXCELLENT films on aeromodelling are due to be shown on August 24th at the Islington Scout Centre, 319 Holloway Road (just 200 yards from Holloway tube station), London N7, from 8 p.m. These are really excellent productions made by Robin Lehman – a well-known scale modeller himself – and indeed one, named 'Flyaway', won the Berlin Film Festival, while the other, 'Wings and Things', has been accepted for next year's Cannes Film Festival. Obviously, a show not to be missed and, as the hall seats just 200, advance booking is advisable. Tickets and information are available from Richard Nicholls, 308 Holloway Road, London N.7. Telephone North 4272. Coffee and refreshments will be available.

SPECIAL EVENT at the Shuttleworth Collections airfield at Old Warden, Biggleswade, Bedfordshire, on Saturday, 30th September will bring back memories of that famous aviation venue of Hendon. Part of the programme will depict the machines that equipped the flying schools there prior to the First World War, while the second part of the day's events will include some of the military types that made the R.A.F. Hendon Pageants so popular during the '30s.

Mrs. V. A. Carter, wife of the late, well-known control line scale enthusiast, Jack Carter, presents a Trophy in his memory to R. Cuthill of Sudbury for his magnificent Handley Page Heyford, which flew at the Old Warden Scale meeting.

CLAIMS have been announced for three remarkable duration records made in three different countries on the 25th, 26th/27th and 28th June. First record was that by Winfried Kaiser of West Germany who pushed the Radio Controlled Seaplane record to 12 hrs. 11 mins. 33 secs., which is no mean achievement when you consider that the model must have used about 5 lb. weight of fuel and was 11 lb. gross when lifted off the water. Second record was so long, it spread over two days, when Einar Myr of Norway, kept his Radio Controlled Glider airborne for 19 hrs. 19 mins. and 9 secs., during a record attempt session organised by the Norwegian Aero Club on a mountain near Lillehammer.

Only remark we can make on this one is that Einar must be blessing both the midnight sun and also strong physical control. On the next day, June 28th, somewhere in the U.S.S.R., an unnamed modeller made an Indoor duration flight under an 8-metre ceiling of no less than 1 hr. 57 mins. 28 secs. Doubtless, all those attending the World Champs are breathless to discover his technique.



NIMROD V

by Jim Mannall

A 56" span control-line aerobatic model for .35 cu. in. engines, featuring detachable wings

IN THE LAST issue, some of the design points of a stunt model were discussed, and I now intend to concentrate on the structural design of the *Nimrod*.

Nimrod I, completed early in 1968, used a constant chord wing of 620 sq. in. area, the thickness/chord ratio for the section being 20 per cent, while the wing and tail surfaces were sheet covered, resulting in a weight of 52 ounces. Performance was disappointing, with a tendency to kick on the exit of square corners, and pitch up and down in level flight. *Nimrod II* was drawn after the 1968 World Championships and was the first of the series to have detachable wings. The decision to produce a two-piece model was made despite the knowledge that the basic design was already heavy, and the extra weight involved in such an arrangement was an unknown quantity. In order to improve on the performance of Mk. I, the tail moment was increased by two inches. This would have resulted in a rearward centre of gravity, so the nose was lengthened by 1 inch to compensate. A tapered wing was employed, and again this was entirely sheet covered. The wing attachment system used has remained virtually unchanged on later models. In designing the system, the most obvious structural considerations were seen to be:

(a) Loads should be distributed over as large a joint area as possible. There is a danger of concentrating all the load at the fixing bolts and causing local failure.

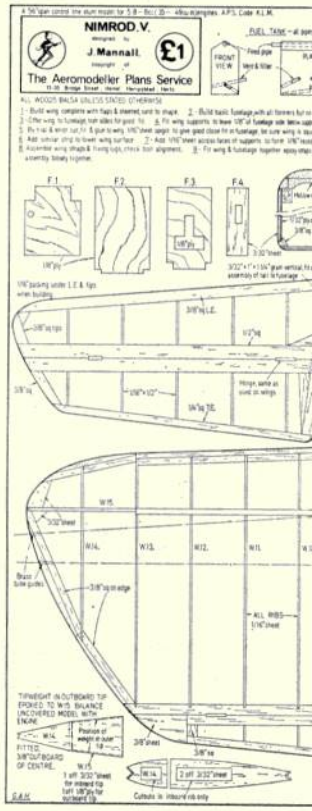
(b) The model must withstand a pull test of 15 times its own weight. In flight, the inertia forces are distributed over the whole airframe and in consequence the wing-fuselage joint only sees that force arising from the weight of the fuselage which is about 60 per cent of the total weight. During a pull test, the whole load is concentrated at the points where the model is held.

(c) During tight manoeuvres, the inertia of the engine, silencer, etc., imposes a large vertical bending moment on the fuselage structure at the wing root. Normally, this loading is carried by the full depth of the fuselage, but with the wing and fuselage now separated, the fuselage structure above the wing must carry the whole of this load.

(d) The design should be such that the fastening bolts can be screwed down tight without increasing the load on the wing structure or causing distortion.

Before choosing the present system, one or two other ideas were considered, mainly concerned with how the fixing lugs should be attached to the wing. Perhaps one alternative is worth mentioning. The bellcrank platform was to be extended fore and aft until its ends protruded through the leading and trailing edges. The ends would then be used to bolt the wing to the fuselage, and the load from the bellcrank would be directly transferred to the fuselage. The problem arose that the bellcrank platform would have had to carry vertical loads. A further practical difficulty was that the lugs were far from the bottom of the fuselage; which meant having the fixing bolts deeply recessed. Also, the fuselage fittings at the trailing edge would not clear the pushrod between the flaps and elevators.

Finally, it was decided to employ a conventional centre section with sheet covering and to use $\frac{3}{16}$ in.



FULL-SIZE COPIES OF THIS 1/7th SCALE REPRODUCTION MAY BE OBTAINED AS ORDER No. CL/1161 PRICE £1 POST FREE FROM AEROMODELLER PLANS SERVICE, 13-35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

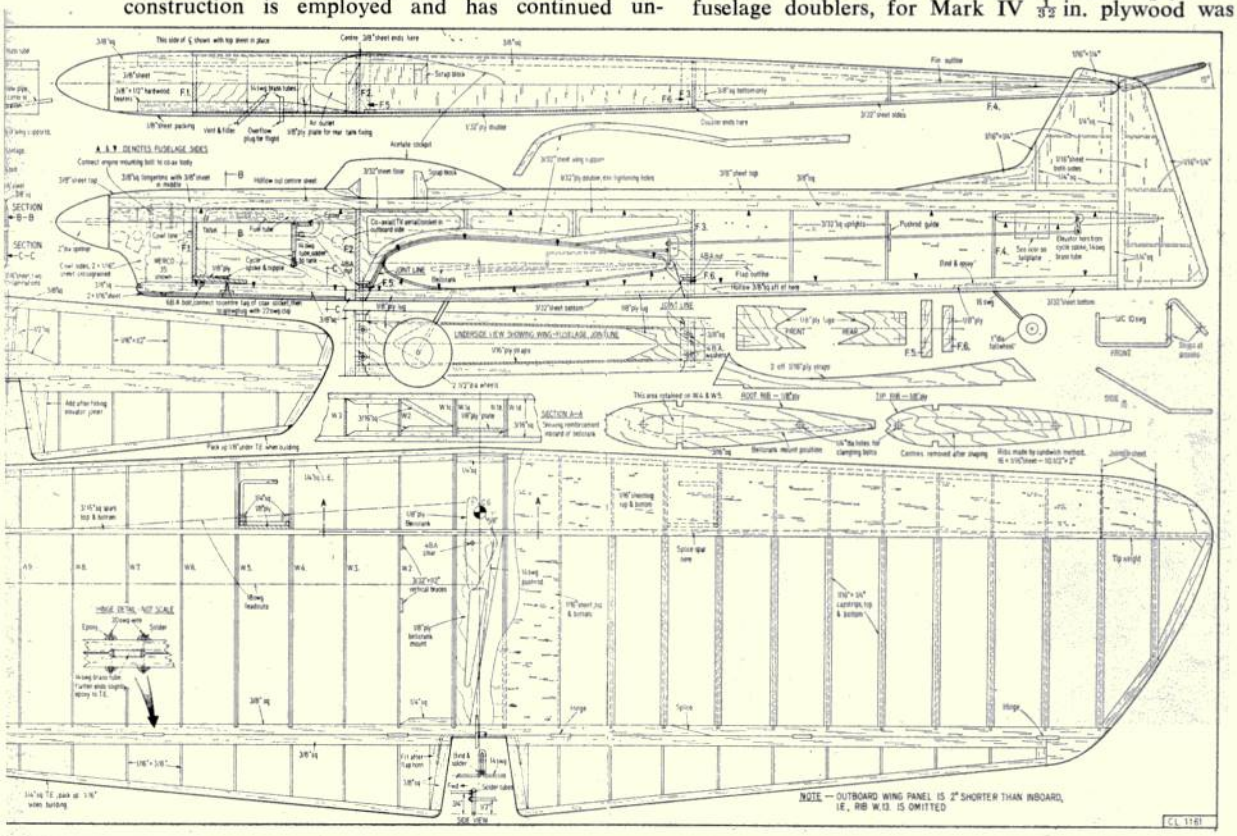
plywood 'straps' along the underside of the wing to clamp the latter to the fuselage. This method retains some of the strength of a one-piece model in that the loads are distributed over the whole of the wing centre sheeting. To carry the side loading (line tension), a spigot over the top of the wing is located between the fuselage sides. The recess in the fuselage is made the same depth as the spigot with the intention of distributing the vertical load over the whole width of the fuselage. On the underside, a double layer of sheeting, again narrower than the fuselage width, provides extra strength where the mounting straps are attached. To avoid having the straps too close to the edge of this centre strip, they are arranged along the inner faces of the fuselage longerons. The bellcrank platform is firmly braced to the upper and lower spars so that the load from the pull test *can* be taken by holding the undercarriage legs, although in practice it is more practical to hold the lower part of the fuselage, thus removing the load from the joint.

The effective depth of the fuselage is approximately halved by removing the wing and that part of the fuselage below it. To compensate for this, the plywood doublers are extended to the rear attachment points 1 in. behind the wing trailing edge. The fuselage fittings for the wing bolts are adjacent to plywood bulkheads and the ends of the wing lugs are supported on the lower edges of these. The wing bolts can thus be screwed down tight without imposing excess strain on the wing structure.

The pushrod connection between flaps and elevators is made in the normal way except that the pushrod is not fixed in the flap horn but is retained in position by the narrow slot in the bulkhead just behind the wing. When the wing is removed from the fuselage the pushrod passes the lower end of the slot and can be moved to the side to disengage.

For the remainder of the structure, conventional construction is employed and has continued unchanged in principle throughout the design's life, although between the Mark II and the present Mark V versions, many detail changes have been made, mainly to reduce weight. The sheet balsa wing covering of Mark II has been replaced by cap strips to the rear of the spars and most wood sizes have been reduced in thickness. Another change on Mark III was the upward taper of the underside of the cowl, which, together with the reduced fuselage depth, produced a better looking design, the shape of which is unchanged on Mark V.

Marks II and III both had solid $\frac{1}{16}$ in. plywood fuselage doublers, for Mark IV $\frac{1}{32}$ in. plywood was



used and large areas were removed to further reduce weight. Perhaps it is appropriate to comment here on weight saving on such items. The area removed by drilling holes is very small and indiscriminate use of this method can lead to unnecessary loss of strength. It is much preferable to carefully consider the loads to be carried, and then remove material in quantity from the redundant or lightly loaded areas.

The wing spar arrangement employed is lighter than a full depth spar and provides a strong support for the vertical undercarriage mounting plates. The use of vertical plates seems superior to the horizontal plates often used – the latter tend to rely on the strength of adjacent ribs, and often provide little resistance to side loading on the wheels. The Nimrod undercarriage uses a short torsion bar parallel to the spars. This provides the ability to absorb shock in the fore and aft direction but is very resistant to sideways movement.

The tailplane-fuselage joint is a weak point on any stunter, as the fuselage is usually quite narrow at the rear, so any extra strength at this point is very welcome. The elimination of sheet covering on the tailplane enabled the mounting to be strengthened by means of the vertical pieces of sheet which fit on the inside faces of the centre ribs and the fuselage sides.

Before describing the method of construction, one or two general points are worth mentioning. Although the *Nimrod* may be considered a fairly advanced model, its construction is quite straightforward and no special techniques or facilities are needed.

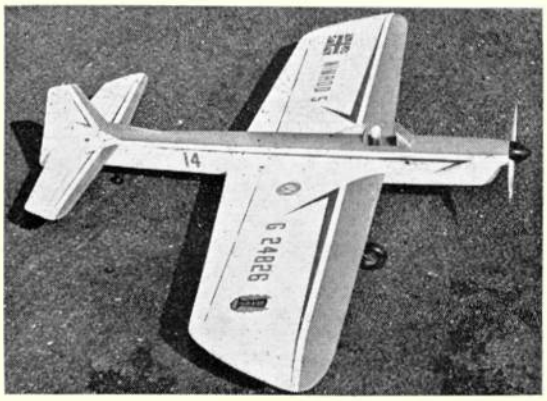
The control system 'hardware' (control horns, bellcrank and hinges) is all 'home-made' from readily available materials. Cycle spokes are used for the control horns, as the material is soft enough to allow the flaps to be easily adjusted when trimming the model. Two long spokes will be required; remember to keep their threaded ends for use as cowl and tank fixings.

Hinges consist of two U-shaped pieces of 20 s.w.g. wire through a piece of 14 s.w.g. brass tubing. The ends of the tubing are flattened to provide a good pivot.

The use of a plywood bellcrank is perhaps unusual on a large stunter, but plywood has good wearing properties and if generously proportioned as shown its strength is adequate. To protect against fuel seepage, give it a thin coat of epoxy adhesive.

The tank size is shown on the plan for those who wish to build their own, although I always use a

Detachable wings simplify the transport problems enormously, as well as providing instant access to the control system which certainly helps with final 'flight trimming' of the design.



Jim favours the plain, functional approach to styling, rather than being limited to semi-scale designs, which can tend to be heavier than necessary to maintain the appearance – and weight does nothing for performance!

commercial 100 c.c. unit and fit my own vent system.

Construction of the wing starts with making the plywood templates of the tip and root ribs. Cut 27 rib blanks from $\frac{1}{16}$ in. sheet and label them in order. Laminate ribs 1A to 1C and 1B to 1D and cut duplicates of ribs 4A, 4B, 5A and 5B to make $\frac{1}{8}$ ribs for the undercarriage bays. Ribs 1A to 13 are for the inboard wing, 1B to 12B for the outboard wing. Pin the trailing edge to the building board with the rib slots uppermost. Ribs 1A, 1B, 12B and 13 are then fixed in place. The leading edge can now be added, making sure the ribs are accurately aligned. When this assembly is dry, the rest of the ribs and the spars can be added. Remove the wing from the board and fit the bellcrank platform before sheeting the leading edge.

Build the flaps over the plan and sand them to shape. The flaps and control system can now be fitted to the wing, making sure that the flaps are at neutral with the bellcrank in its mid position. The wing is completed by adding the tips, centre sheeting and cap strips.

Start the fuselage construction by joining the sides, doublers and bearers, remembering the coaxial socket on the outboard side. Use Epoxy adhesive on all hardwood joints. Assemble the basic fuselage with bulkheads F1, F2, F3 and the $\frac{1}{4}$ x $\frac{1}{4}$ in. tailpost. At this stage, check that the wing is a close fit in the fuselage sides. Now add the rest of the fuselage formers, not forgetting the slots for the elevator pushrod. Make up the wing bolt attachments F5 and F6 with plenty of epoxy around the 4 B.A. nuts. Before these assemblies are dry, run a well-oiled bolt through each nut so that the threads are not clogged with adhesive. Fit the $\frac{3}{32}$ in. wing supports, leaving $\frac{1}{8}$ in. of the fuselage sides clear inside the wing housing. When $\frac{1}{16}$ in. sheet is later fitted across the bottom edges of the wing supports a $\frac{1}{16}$ in. deep recess is formed to accommodate the wing locating spigot. This spigot should now be cut, by trial and error, to be a good fit between the fuselage sides. Note that the grain runs across the fuselage. Cement the spigot to the wing, making sure that the wing-fuselage joint is square. At the same time add a central strip of $\frac{1}{16}$ in. sheet to the underside of the wing to provide extra support for the mounting straps.

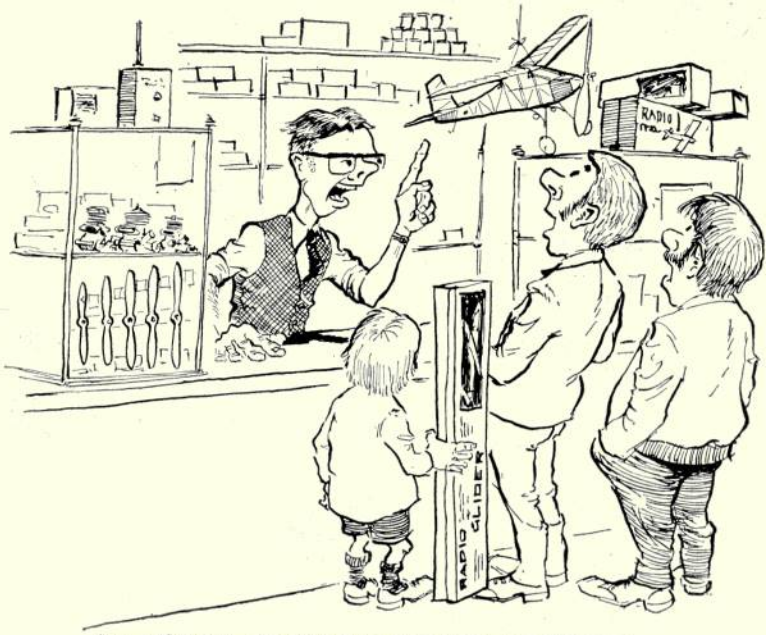
Make up the assembly of the wing straps and lugs, ensuring that the bolt holes are correctly spaced. With the wing in position on the fuselage, apply epoxy adhesive to the curved edges of the straps and bolt the assembly loosely in place. There should be a very small clearance between the lugs and the lower edges of F2 and F3. A 4BA washer should be epoxied in

Continued on page 504

topical twists

by 'Pylonius'

illustrated by 'Sherry'



'This is the latest thing – doesn't need any radio control equipment, nor even an engine.'

Controlling Interest

THE DISTINGUISHING THING about a model aircraft was its ability to ascend and descend without any sort of control. This, when you come to think about it was something of an achievement. We all now take a bit of downthrust for granted, but it was quite a breakthrough when it was first devised, and so, too, were all the other factors which gave the model plane its characteristic, but different, look; so that by the time it was achieving beautifully patterned, 'no hands' flights, it was no longer an indifferent copy of its full-size counterpart, but a small flying machine in its own right.

Now, I may be wrong about this, but it seems to me that the more direct control we achieve, the less our models look like model planes than miniature versions of full-size craft. Many people will regard this as a great step forward, but it does take some of the individual character out of the hobby and puts it as a secondary rather than a separate interest to full-size flying.

'He's just bought his first radio-controlled model aeroplane.'

'Oh, I suppose he wants to be an airline pilot when he grows up.'

'I'm talking about my husband, not my son . . .'

Too Much Control

Oddly enough, Radio might give you the freedom of the air, but not necessarily of the ground. That vast airfield is not, alas, all yours to enjoy. Often the flying area allocated is an obstacle course situated between the hangars and the control tower, and even if you were not thus pinpointed by the powers-that-be you would have to comply with that strict colour code by which we all live these days, and operate near or about the transmitter compound, where the obstacles, both human and metallic, abound. And, again, because of the colour code, you can only fly when your frequency space is available, and in these days of split frequencies you can't always be certain of that.

These strictures might well underline the 'free' aspect of free-flight, although perhaps not quite so free since the improving performance of the models tends to outstrip the shrinking acreage below. In more leisurely times, before such terms as ecology, pollution and environment were thought of, an open space was just an open space – an accident of history and nature – but now, of course, it's an environmental issue. On one side you have the planners and speculators who want to smother it with concrete for some diabolical reason or another, and on the other side the conservationists who want to make it into a wild life sanctuary because of the existence of a few mole hills. Whoever wins, it certainly isn't the model flyer.

For many decades the model flyer has flown his models on bits of land for which other people in general have had little use, such as commons, moor land and old airfields, but now that the environment is the 'in' thing there is hardly an open space which, at weekends, is not filled in with a dense mass of people and cars. Sometimes there is a little flurry of activity as someone turns over a newspaper, or ditches his car in a mud hole, but mostly the visitors just sit or stand around brooding upon the responsibilities of having his own open space. Some of the visitors just come along to see the model flying, and can't understand why there is none going on, even though they have complained to the council of models hitting their cars.

Then, again free-flight is not quite so free of controls as it used to be. In fact, some of the latest power models are more like Radio models without the operating sticks. By a cunning system of timer-operated mechanisms, the craft are programmed to perform in a highly specialised way, and anyone of the old chuck-it-and-hope school who tries to compete without such a built-in control system has about as much chance of winning as a vintage Bentley in a modern Le Mans. And even more complication to come, for the poor old free-flighter of the future will have to incorporate the new split-wing device; a system so complex that even a skilled engineer would go pale at the thought of it. This, inevitably, will reduce even further the already sparse contest entry, and if the trend continues we will finish up with just one brilliant genius of an entrant; a modern Leonardo da Vinci.

Backward Progress

Thermal flying would be a more dignified affair if the competitors or their helpers didn't have to perform the function of a two-legged winch. One of the less graceful postures to which the human body can be put is that of dashing across an open space with one arm crooked backwards and the neck swivelled through a hundred and sixty degrees. If only they could devise some form of mechanical winch for all to use, even we non-athletic types could have a go.

FLYING SCALE COLUMN

by Eric Coates

Our columnist takes a close look at J. G. Watkins' Type 'D' Bristol Scout which he flew under adverse conditions at Old Warden, while later placing third at the North Luffenham meet. Verdict? No warps!

AS THESE WORDS are being penned, in the middle of July, the weather appears to have relented at last on us poor scale modellers!

The National's weather was the worst I can recollect for over 20 years. Nevertheless, a dozen valiant souls attempted to fly in free-flight, and at least three managed the required 30 sec. qualifying flight. Myself, alas, not being amongst them.

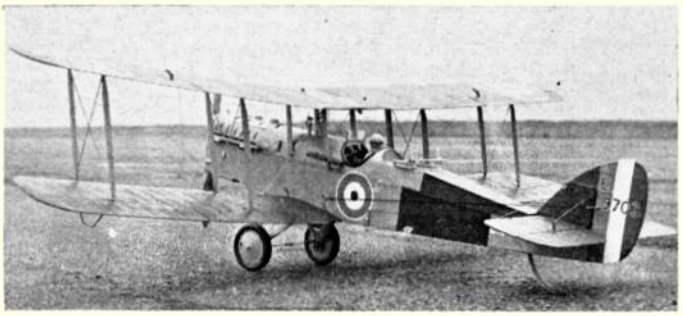
Conditions were worse if anything for the annual scale get together at **Old Warden** on 18th June. Such was the strength of the wind, however, that a 'lee' of flat calm was to be found for about 200 yards downstream of the big wood. A very pleasant couple of hours flying with F/F models was held before the rain washed things out at about 4.30 p.m. I judged the event in the company of Cesare Milani. Of the many models which flew in this period undoubtedly J. Watkin's *Bristol Scout* was the most consistent although the diminutive *Hornet Moth* of L. Perring ran him a close second.

A week later at Cottesmore the wind was still blowing, although not quite so hard, for the **Scale Team Trials** and along with Doug. McHard and Dennis Thumpston, I judged the flying side of things. A very poor entry was attracted – only six in R/C and two in C/L, there being no International class for F/F as yet. Terry Meleney's superb *D.H. Moth Minor,* now completely finished, lead the R/C list by a mile, but there was a close fight for the remaining two places; these eventually going to Roy Yates, flying his venerable *Proctor* and newcomer to R/C Scale, Mick Reeves with his *Cassut* racer. Mick was already assured of a place in the C/L team with his 1970 championship-winning *Zlin.* The only other C/L entry was Mick Staples, with his *Magister,* who was automatically adopted to the team on a flyover. They will also be joined by Derek Goddard and his *Tiger Moth* to complete the team.

The weather gods relented for the **S.M.A.E. Scale Meeting,** held at North Luffenham on the 10th July. This experimental event unfortunately was very poorly supported despite the absolute flat calm all day; perhaps a lot of people had got fed up with the succession of blow outs and expected the same rough treatment at this meeting. For those that did make the journey a very enjoyable day was had, not so much in the competitions but in the excellent free-and-easy sport flying in the afternoon. Only five competitors came forward for the Free-Flight competitions, the results being as follows:–

1.	T. Manley	*D.H.4*	1260 points
2.	E. A. Coates	*D.H.9A*	1098 points
3.	J. G. Watkins	*Bristol Scout D*	966 points
4.	D. Priest	*Be2e*	664 points

The fifth entrant, whose name I am afraid escapes me, suffered a spectacular disaster. His *Blackburn Baby* floatplane slipped off its dolly on take off before flying speed was attained. The subsequent bump on the runway detached the float undercarriage and the remainder of the machine zoomed upwards, in a terrific stall, before crashing back on the runway causing severe damage. Terry Manley made a pair of almost faultless flights, with his D.H.4, which resulted in a high score. Due to the rotten weather I had been unable to re-trim my 9A since its rather disappointing performance at the Nationals. A new engine plate, giving different thrust angles, had been fitted and I therefore had to re-trim before the contest. Unfortunately a heavy landing in a rut smashed a rear undercarriage leg – so much for rigid



Eric's DH9A which let him down at the Nationals has now been fully trimmed, and no doubt he will be a strong challenger in future contests this year. Has obviously survived its unfortunate (so far!) career remarkably well – a tribute to the designer's building methods.

L. Perring flew this diminutive De Havilland Hornet Moth at Old Warden, which uses a Cox .010 cu. in. motor for power. Perhaps it's a case of 'the smaller they come, the lighter they fall'!

U/Cs! This is the first one I have fitted for 10 years, and on a model of this size and weight it will be the last! I still think the torsion bar type is supreme. After this setback I decided to make my contest flights before I did any more damage. Although an R.O.G. was accomplished the flight performance of the half trimmed model was only mediocre, but I finished the trimming session in the afternoon after the contest when I finally obtained the performance I was seeking.

J. Watkin's ⅛th scale *Bristol Scout* flew well from a hand launch, as it did at Old Warden, but it would not R.O.G. A queer beast this. I remember Terry Manley's model, built to the same scale, suffered exactly the same disability. There must be something fundamentally wrong with the undercarriage geometry.

The Control Line and R/C was flown at the other end of the airfield so I saw virtually nothing of these events apart from a short 10 minute visit. I expected dozens of entries for the Radio Class which was being run to the Class 2 rules. I thought this class of competition would prove far more popular than the more exacting Class 1 rules to which all previous S.M.A.E. R/C Scale competitions had been flown, but despite this there were, however, only five entries.

Yet again only two competitors flew in the control line event. What has happened to this once most popular of all scale competitions?

10th September will see another experimental scale meeting for S.M.A.E. members. This one cannot be ruined by the weather for it is for Indoor Scale Rubber models of 3 oz. maximum weight. It will be held in the great Airship Shed at Cardington; in conjunction with the Indoor Committee. This class of model has become very popular in the U.S.A. where the rules have developed considerably over the past few years. Perhaps immunity from the elements will make indoor scale contests just as popular this side of the Atlantic. I hope to run an article on these fascinating little models later in the year. Anyone wishing to compete in this event must first pre-enter by writing to Dennis Thumpston at Hemlingford House, Clifton Drive, Sutton Coldfield, Warwicks, before 3rd September. This is essential, and no exceptions can be made.

A week before the above event the Selby Trophy will be competed for, to conventional outdoor S.M.A.E. F/F rules, at the Northern Area Rally, at Lindolme, Nr. Doncaster. A week before this event, on 27th August, the oldest established F/F Scale Competition, for the *E. J. Riding Memorial Trophy,* will be competed for again at its traditional home; Woodford, Cheshire. This will be at the North Western Area Meeting, which used to be the best supported scale event of all back in the 1950s. I hope it will be restored to its old glory again this year.

* * *

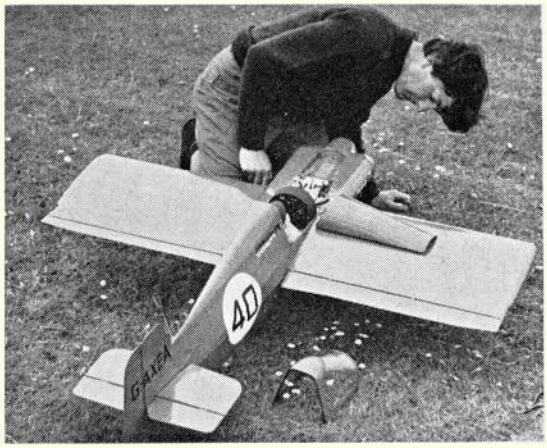
Following my dissertations in the July issue on the colour sheen of 14-18 aeroplanes I will now elaborate further my preference for cellulose based finishes.

As I have stated before, I always use dope as an adhesive for the covering on my models because I find it gives a better bond. Advocates of tissue paste will no doubt deny this and provided the paper is pasted to untreated wood they may have a point. However, I consider it necessary to apply a couple of coats of dope to the airframe before covering, to swell the grain and make the wood less absorbent. If tissue paste is used now it is pretty near useless as an adhesive because, being water based, it cannot key to the doped wood. I am not saying tissue cannot be made to stay in place, particularly if lapped over the edges, but the final bond is very poor. Tissue paste advocates usually water shrink the tissue covering before applying shrinking dope but I find this hardly necessary. One must use dope to apply silk over the tissue and I have yet to find a non-cellulose based solution which shrinks satisfactorily, so at this stage one is committed to dope.

Now for the benefit of beginners and at the risk of boring more experienced modellers there is a golden rule regarding paint finishes:–

Cellulose can never be applied over an oil-based paint, such as plastic enamel and one pack polyurethane. If one tries it the cellulose will boil the finish up into an awful mess. However, oil-based paint can be applied over cellulose; once the latter is completely dry. Therefore, it can be seen that it is perfectly feasable to switch to plastic enamel immediately after the shrinking dope has been applied, for the final colour finish or, as some people do, use cellu-

Full-size racing aircraft are pretty small, which is why Mick Reeves' fine model of the Airmark Cassut has such a bulky fuselage in comparison with its stubby wings. Mick will fly this in the R/C event at the World Scale Champs. Note minute size of tailplane.

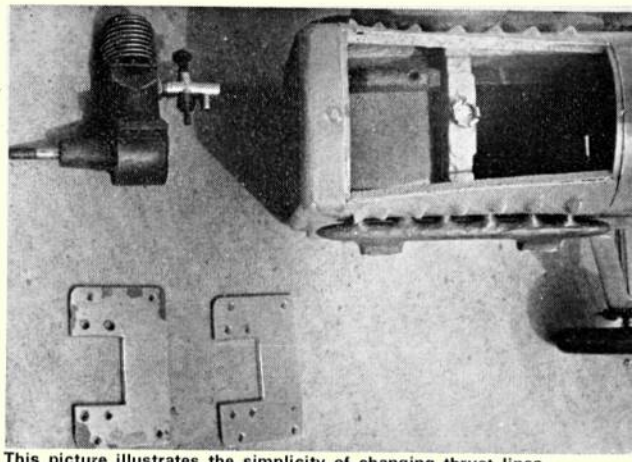


lose for the main colour and plastic enamel for the decorations. I have myself done the latter on one model, the great advantage being that one can paint on top of coloured cellulose without 'leaching' out the base colour. Plastic enamel, however, takes an age to dry compared with cellulose and, therefore, it takes a long time to paint roundels this way.

I have seen some fine models finished entirely in plastic enamel which looked great – when new. The problem comes about when repairs, which I am afraid will be inevitable if the model is to be flown much, are necessary. As soon as dope is used to apply a patch all the enamel in the area boils up making a neat job impossible, but if cellulose is used throughout no such troubles occur. The clear dope may leach out the colour locally but a smooth finish results and a touch-up of colour dope soon produces an almost invisible mend. The same trouble occurs with fuel proofer; most of which these days are nothing more than oil-bound varnish with a small amount of polyurethane added.

As I tend to fly my models until they virtually drop apart, the covering being patched and re-patched many times, my aversion to any finish which is not cellulose based can easily be understood!

We are still left with the problem of the glow-motor fuel proof finish to which I don't really know the answer. For free-flight models the answer is simple: stick to diesels! For R/C and C/L models, which require the greater power and better throttling flexibility of the Glow-motor, the problem is a real one to which I am open to suggestions. At the moment I tend to leave my R/C scale models, which are retired free-flighters, unprotected except in the region of the engine bay. Provided a straight methonal-castor fuel is used and the exhaust is wiped from the surfaces immediately after each flying session, the finish does not deteriorate too badly. I am, however, still waiting for the magic, all shrinking, fuel proof to everything, dope to appear!



This picture illustrates the simplicity of changing thrust lines on models by using the engine plate mounting method. The Mills 1.3 c.c. is shown with the new and old engine plates (which were used to reduce the right-thrust by 2 degrees) on the DH9A – the easily-accessible nose of which is clearly visible.

NIMROD V

Continued from page 500

position at each bolt hole to prevent wear on the lugs, no locking devices are used as the structure has sufficient elasticity to prevent the wing bolts loosening in flight. However, the joint 'settles in' during the first few flights and it is advisable to check the bolts before each flight.

After fitting the engine mounting bolts, wire up the outboard pair to the body of the coaxial socket with heavy duty (i.e. low resistance) copper wiring.

Tailplane construction is straight forward but when fitting it to the fuselage do not forget the pieces of sheet which extend down between the fuselage sides. Note also that there is a guide at the centre of the pushrod.

The fuselage longerons can now be added. Fit the tailwheel leg and cockpit floor before completing the fuselage by fitting the top and bottom sheeting. Build up the cowl as shown and sand the fuselage to shape before cutting away the top sheeting over the cockpit area and adding the tank vents. Remember the tip weight, with the engine fitted, the model should be balanced ⅜ in. off centre.

Cover the wing and tail with heavyweight tissue, the fuselage with lightweight. After doping, the original model was given one coat of white plastic enamel, which was well rubbed down, then the areas that were to remain white were given another coat and the other colours added with one coat each.

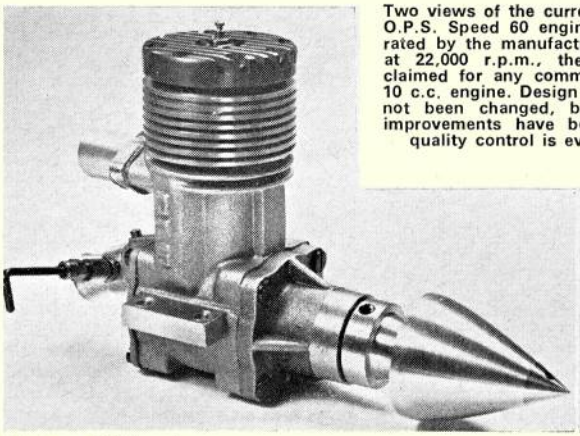
Fuel proof the engine and tank bays thoroughly and then brush one coat (or spray two thin coats) of fuel proofer over the whole model.

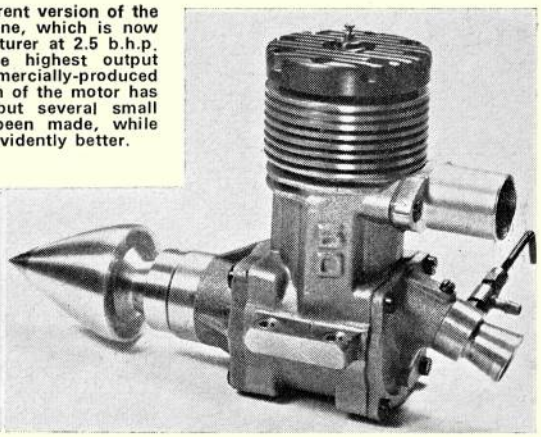
Finally, a coat of wax polish helps to preserve the model's appearance, while a generous application of wax polish over the wing and fuselage joint area helps to prevent them sticking together.

With the model completed, check the centre of gravity position. If this is within ⅜ in. of that shown on the plan, only flight tests will show whether it needs to be altered. My models have never had any weight added, the balance point always being close to that shown. Fit a wide-bladed 10 x 6 inch propeller and fly on 60 to 65 feet of lightweight stranded lines.

Although a stunt model should fly 'Straight off the board' it is almost certain that some trimming will be required to obtain the best performance. The object is to produce a model which has no tendency to roll and does not tend to climb or dive in upright or inverted level flight. Trim adjustments are made by twisting the flap horn. Separate the wing and fuselage and use a pair of pliers to grip the centre of the flap horn while bending the flaps up or down as necessary. The object is to alter the position of the flaps relative to the elevators. To cure a tendency to dive, bend both flaps up, if the model climbs, bend the flaps down. A tendency to roll is, of course, corrected by twisting the flaps in opposite directions as appropriate. Final adjustments are best made after observing the model at the top of a slow wingover, when line tension is low and any tendency to roll or veer off to one side is emphasised. The model should now perform equally well in inside or outside square manoeuvres. If this is not so, try adjusting the handle position to increase the control movement in the required direction.

Finally, remember no two stunters fly exactly alike, and it takes time to become accustomed to a particular model. The preservation of a well-tried model should therefore be the prime consideration even in the most important of competitions. If you have yet to become a competition flier, why not give it a try this year – Nimrod was designed for it!





Two views of the current version of the O.P.S. Speed 60 engine, which is now rated by the manufacturer at 2.5 b.h.p. at 22,000 r.p.m., the highest output claimed for any commercially-produced 10 c.c. engine. Design of the motor has not been changed, but several small improvements have been made, while quality control is evidently better.

Peter Chinn's

LATEST ENGINE NEWS

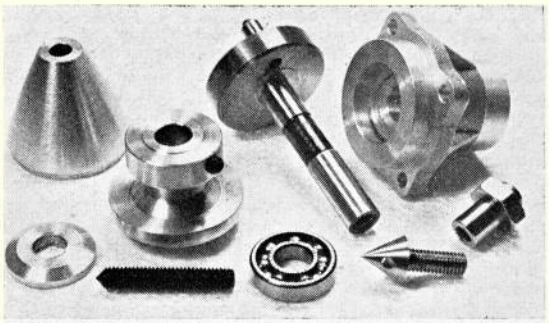
O.P.S. Speed-60

Three-and-a-half years ago in this column we had a description of the then-new O.P.S. 60 racing engine, from Italy. More recently, an improved version of this motor has been put into production. Basically, the design of the engine is the same as that of the original model, its main points of interest being its Schnuerle loop scavenged rear exhaust layout timed for tuned pipe operation, together with Zimmerman type rotary disc valve induction. There have, however, been several detail changes and the engine also shows improvement in quality control.

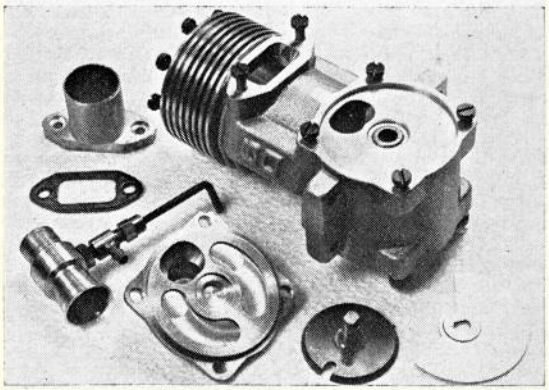
Firstly, a change has been made from a pegged ring piston running in a ferrous cylinder liner to an 'ABC' setup – i.e. ringless aluminium piston running in a chromed brass liner. These components also incorporate some porting changes. The liner has been shortened, eliminating the need for transfer cutaways in the liner and piston skirt. An enlarged unbridged exhaust port is used and is now timed to remain open for 160 degrees of crank angle, with main transfer and third-port periods amended to 120 degrees and 100 degrees respectively. The thin (0.3 mm) steel disc valve in its separate chamber is now timed to open at 45 deg. ABDC and to close at 52 deg. ATDC (our measurements). It is mounted on a 5 mm shaft with slotted disc drive pick-up from the crankpin. The original prototype O.P.S. engine of 1968 had a ball-bearing to support the valve shaft. This was replaced by a bronze bush in the earlier production models but in the latest version a small caged needle bearing is used.

The O.P.S. is a very solidly built engine but not unduly heavy for a motor designed for outputs in excess of 2 b.h.p. The main casting comprises crankcase and cylinder casing and is machined from a robust sand casting with integral transfer channels and rear crankcase wall. The front housing is likewise a sand casting and contains the usual twin ball journal bearings, to support the crankshaft.

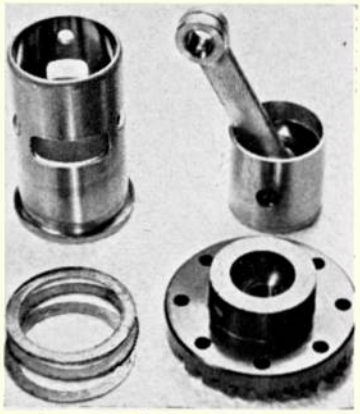
The crankshaft has two $\frac{3}{8}$ in. dia. journals and a full circle crank disc with peripheral counterbalancing slots sealed by a brass rim. The crankpin is 6 mm o.d. The shaft journals, crankpin and crank disc are ground all over. A separate retaining stud for prop and spinner is fitted to the shaft, which now has a machined spinner assembly with the spinner backplate



O.P.S. Speed 60 front end now includes an integral spinner assembly. Motor is robustly made in order to cope with the high b.h.p. output, but is not excessively heavy.



Unique feature of the O.P.S. Speed 60 is its enclosed rotary disc valve, similar to the Zimmerman-type valve used in certain two-stroke racing motor cycles.



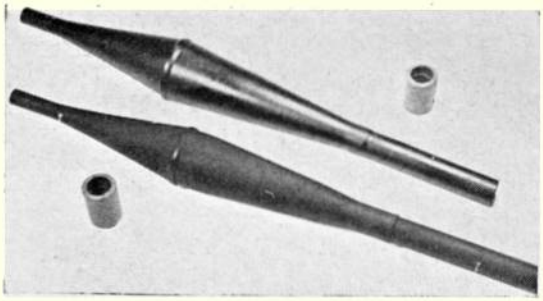
made as an integral part of the drive hub.

The machined cylinder head, now anodised red, features a deep hemispherical combustion chamber surrounded by a 4.5 mm wide squish band. On the engine examined, three copper gaskets (one 0.3 mm and two 0.2 mm) totalling 0.7 mm were used, giving a piston crown to squish-band clearance of 0.55 mm or approximately 22 thou.

Induction is through an orthodox venturi intake mounted at 20 deg. to the horizontal, having a throat diameter of 8.5 mm and an effective choke area, after allowing for the jet tube, of 49 sq. mm. The intake tract from the venturi is inclined upward through the valve chamber cover plate and its shape and angle are continued by the inlet port through the crankcase wall into the crank chamber. The gap between the crankcase wall and the cover plate face (i.e., the space in which the valve disc operates) is approximately 0.6 mm.

Originally designed for operation on a straight fuel mixture of methanol and oil, in accordance with Italian speed contest regulations, the O.P.S. is normally supplied with a tuned pipe suitable for use with such a fuel, but the manufacturer now offers the option of a special 'nitro' pipe of revised dimensions. The standard pipe, of 15 in. nominal length, has a maximum o.d. of 42.5 mm, an inlet i.d. of 16 mm and a tailpipe i.d. of 10.5 mm. The nitro pipe is fractionally shorter, has a maximum o.d. of 49 mm, an inlet i.d. of 18 mm and a tailpipe i.d. of 12 mm.

The O.P.S. has a bore and stroke of 23.85 x 22.0 mm, giving a piston displacement of 9.829 c.c. or 0.5998 cu. in. The checked weight of the engine examined was 511 grammes (18 oz.), including exhaust stub and spinner assembly. The F.A.I. pipe weighs 60 grammes (2.1 oz.), the nitro unit 75 grammes (2.6 oz.).



Far left is seen the ABC type piston and cylinder assembly featured by latest O.P.S. The cylinder-head is notable for its large squish area. Left, O.P.S. tuned pipes for the Speed 60 engine are obtainable in two types: for F.A.I. (in foreground) and nitro fuel.

Distributed in the U.K. by Irvine Engines, of 31 The Fairway, New Barnet, Herts, the O.P.S. Speed 60, complete with pipe, is currently priced at £42.56 retail.

Bartels Glass Fibre Props

Jurgen Bartels, of Oldenburg, West Germany, claims that he is the only manufacturer producing a true fibreglass-reinforced prop with the 'glass going from tip-to-tip'. This we take to mean that the glass fibres run in a continuous length instead of merely being in the form of a filler of short chopped strands, which is the method that has been used for some cheaper so-called fibreglass props and which has resulted in many cases of blade shedding.

Unquestionably, the Bartels props are extremely good products, combining the advantages of both wood and nylon without many of their disadvantages. For example, they offer the stiffness and high resistance to centrifugal loading of a top quality wood prop without its susceptibility to damage. Compared with a nylon prop, they have the latter's advantage of better resistance to minor damage without its tendency to blade-shedding at high r.p.m. or the excessive flexibility that usually makes the nylon prop unsuitable for speed work or very high performance F/F contest use. The main disadvantage of a good glass-fibre-reinforced prop is its cost and the fact that greater care must be exercised to avoid the more serious personal injury that can be inflicted by contact with a rotating fibreglass prop. Here it is worth pointing out that, for R/C pylon racing, the use of wood props is obligatory for safety reasons.

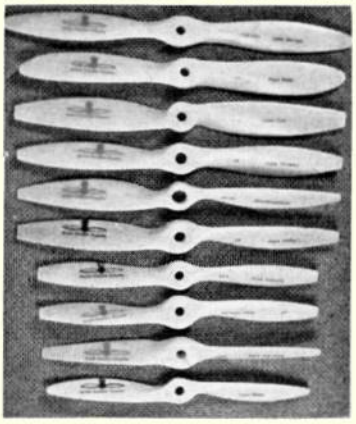
The Bartels' prop range now comprises 24 types, covering various control-line, free-flight and radio-control classes with the emphasis on the high-performance categories. They do not conform to a common design or blade-shape and have, in many cases, been based on successful existing patterns hitherto made only in other materials. These include Top-Flite, Tornado, Rev-Up, Cox, Moki, MVVS, Beck, Drazek and Jehlik types, plus various Bartels originals.

The photograph shows some of the smaller sizes intended mainly for high-performance 2.5 c.c. engines. F.A.I. free-flight types include 7½ x 3¾, 7 x 4 and 7 x 3½. For speed, there is a choice of two types of 6 x 7, plus a Moki pattern 5¾ x 8½. For team-racing there are two 7 x 8s and a Drazek type 7 x 7½. For combat, there is an 8 x 6 and for C/L Goodyear a 7 x 6.

For 5 c.c. engines, there is a 7 x 9 speed pattern and an 8 x 8 team-racing prop. For R/C there are 11-inch diameters in 6, 7, 7¾ and 8 in. pitches, plus special speed props of up to 12½ in. pitch.

A First-Class Mills Replica

There may be some readers who have never heard of the Mills diesel, for it has now been out of production for some eight years. Mention this engine to anyone who remembers the early post-war years of modelling, however, and you will probably be told: 'Those



Part of the Bartels glass-fibre prop range. These examples are intended primarily for 2.5 c.c. competition engines.

were the days!' A very large number of modellers were introduced to power models via the Mills, first in its 1.3 c.c. version and later in the 0.75 model and it was an ideal engine for the purpose, being just about as easy to handle as any model engine can be. In the right model, it was the sort of motor that would give not only the beginner but also the experienced modeller, a lot of pleasure for a minimum of trouble and expense.

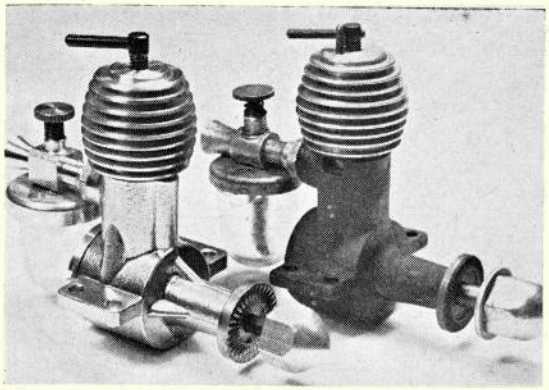
In the opinion of many model builders of long experience (and this is a view with which we entirely agree) the Mills 0.75 has never been bettered as a strictly fly-for-fun small engine. In Australia, for example, the Mills was the No. 1 choice for that conspicuously 'fun' free-flight event, the 'Power Scramble', in which participants strove to build up as much 'flight time' as possible within a given period: starting, launching and recovering; starting, launching and recovering, and where a quick-starting engine and a strong pair of legs were just about equally matched in importance.

Perhaps it is the Australians' fond memories of the Mills for this event that has led to one of their number, Ivor Stowe, of Doonside, N.S.W., to actually do something about bringing the Mills 75 back to us. Ever since Mills Brothers withdrew from the model engine business because of expanding commitments in other fields of precision engineering, there have been suggestions that someone ought to produce a 'Mills Replica'. Now, after a couple of false starts, the 'Doonside-Mills' project has been successfully carried through and one thousand engines have been built.

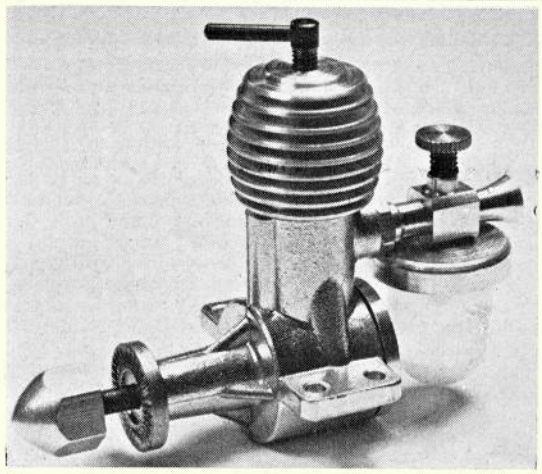
It must be emphasised that the Doonside-Mills is *not* an inferior copy of the original Mills product. All the parts for the engine have been manufactured to special order by Australia's No. 1 model engine manufacturer, Gordon Burford, producer of the finely-made Taipan engines, already well known in the U.K. In fact, in several respects, the Doonside-Mills is an improvement on the original.

The photographs show only a mock-up of the Doonside-Mills. This, assembled prior to completion of the shaft, piston and liner, is merely to show what the engine looks like. Since these photos were taken, two examples have been received from Australia of completed engines and we shall be dealing with them in detail in our next L.E.N.

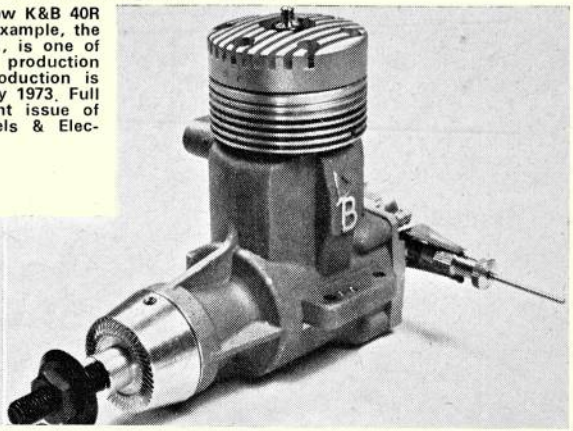
Due to the high cost of a relatively small production run, the Doonside-Mills will not be distributed through wholesale channels and prospective purchasers are therefore advised to contact Ivor Stowe direct at Doonside Mills, Box 11, Doonside, New South Wales, Australia 2767. The engine is priced at 14.95 Australian dollars.



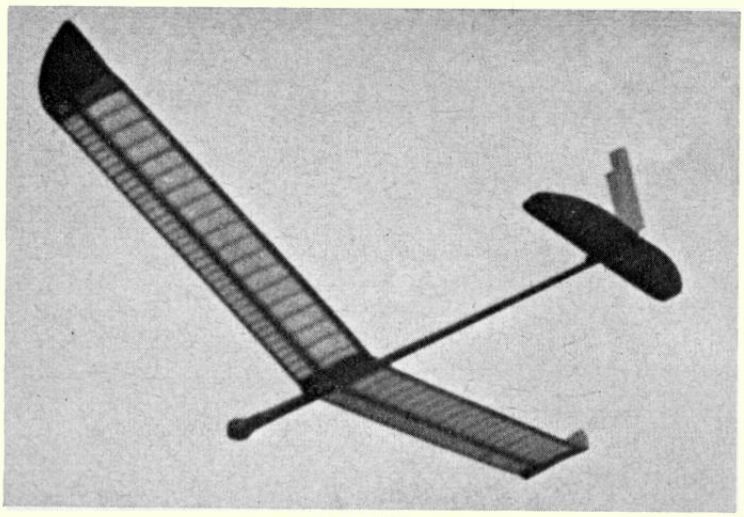
Only minor changes (mostly improvements) distinguish Doonside Mills from original Mills Bros. engine.



Something to make Mills fans happy. One thousand splendid replicas of the Mills 75, known as the 'Doonside Mills' have been produced in Australia.

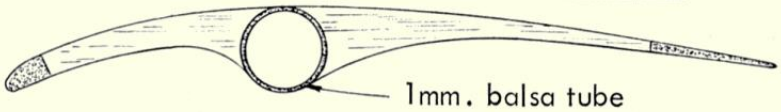


The very powerful new K&B 40R racing engine. This example, the only one in the U.K., is one of the one hundred production models. Quantity production is scheduled for January 1973. Full details in the current issue of 'Radio Control Models & Electronics'.



MAGNET FLYING DEVELOPMENTS

described by
TREVOR FAULKNER
by permission of
EINE WUCHT



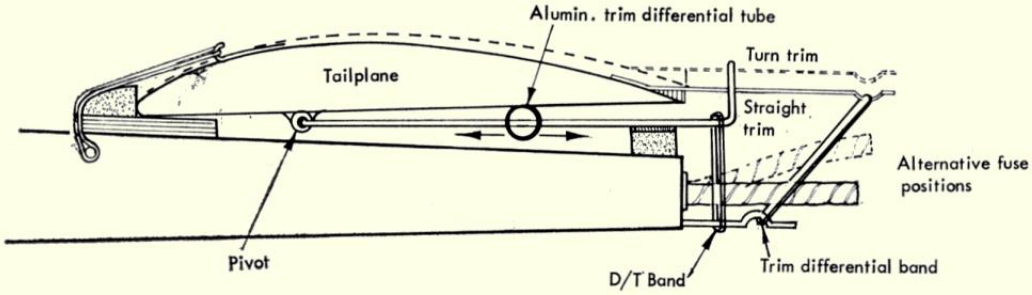
Hans Gremmer's ultra light model (5 gms/dm²) flies very, very slowly, and uses the section shown at left, based around a tubular sheet balsa spar for best strength/weight ratio.

THE RECENT USE of programmed magnet steered flight (detailed in the May 1971 issue of *Aeromodeller*) based on the estimated length of a direct into-wind flight, which then changed to a circular flight path and subsequently returned to the launch-point, was just the start of this line of development. Refinements and variations in this branch of the sport are apt to come along as a result of the shrewd application of commonly-known phenomena, rather than as by-products of technological sophistication. The first requirement was that of dealing with the under-elevation caused by the turn induced by the powerful rear-rudder configuration. (Forward fin models are less critical in this respect.)

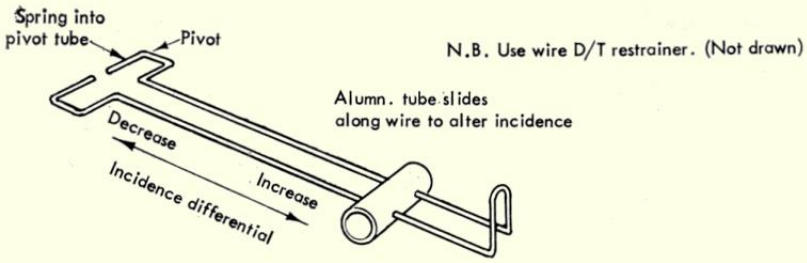
Of course, it is common knowledge that a tailplane incidence shift was required, but how this could best (and by this I mean, most simply) be achieved was the real problem. The variable incidence power model tailplane, operating in conjunction with rudder offset, indicates that for many years this effect and remedy have been recognised and employed. The use of timers is a common way of releasing actuating power, but to produce an effective system based on one fuse length has, I venture to state, the distilled essence of modelling ingenuity in its make-up! The lightness and simplicity of the resultant device make it possible to overlook the applied intelligence behind it.

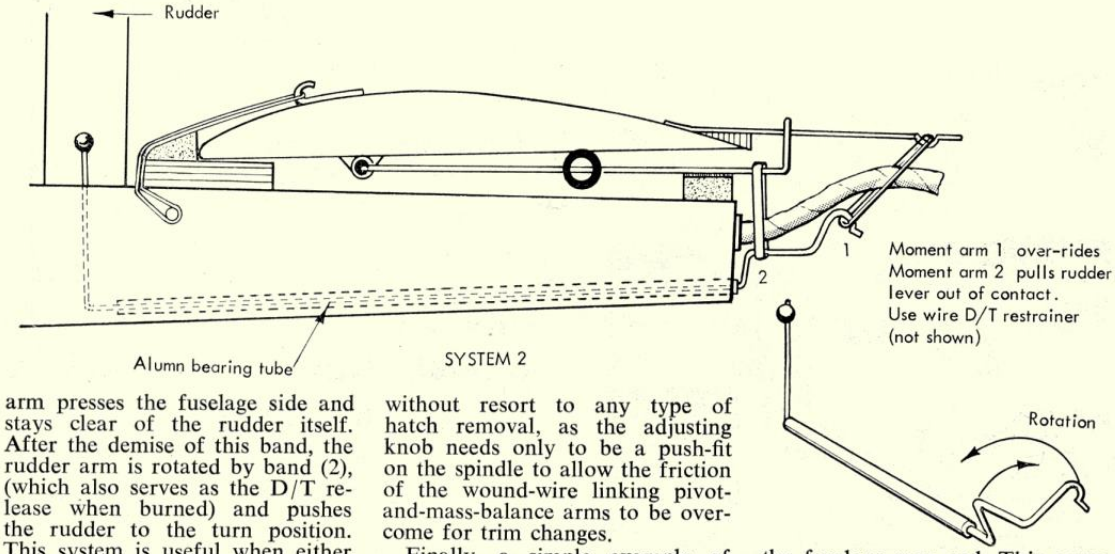
System 2 (illustrated) shows the final arrangement, but it may help to first inspect the drawing of System 1. The diagram is really self-explanatory and the incidence shift here is of the type which is commonly used to take a model through the early, critical stages of its flight. The most turbulent air to be encountered is usually that close to the slope from which one is flying, and so the decrease of tail incidence achieved here is beneficial in two ways; first the flying speed increases with respect to the trimmed norm., and the model flies for some time well away from the stall. When the first band 'goes', then more efficient glide trim is invoked, by which time the model should be in more settled air.

The really intriguing part of System 2 is the cranked lever which is first held by band (1), in such a position that the rudder



SYSTEM 1





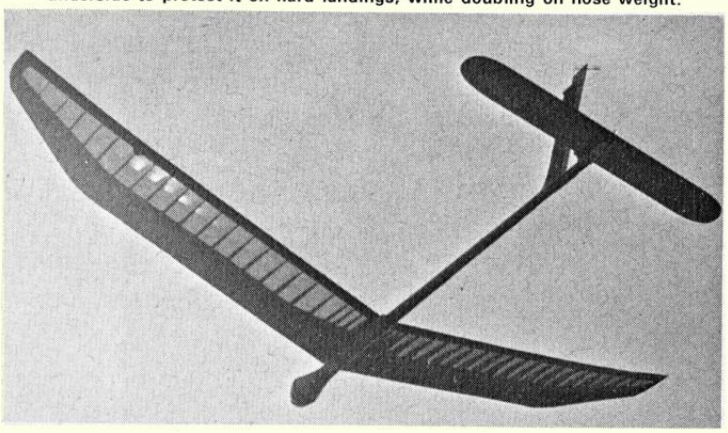
arm presses the fuselage side and stays clear of the rudder itself. After the demise of this band, the rudder arm is rotated by band (2), (which also serves as the D/T release when burned) and pushes the rudder to the turn position. This system is useful when either the slope turbulence is not excessive, and the maximum efficiency is required near the slope (e.g. in very light winds), *or* the model is particularly stable and flies well above prevailing wind speed, and relies upon the circling section of the flight to effect its return . . . *or* finally, the model is being flown on an almost windless day and is set out a little way from the slope in the hope of thermalling.

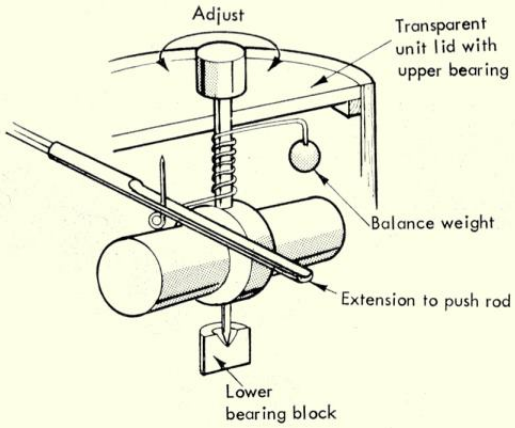
Modellers wishing to employ the system will find it generally simple to modify an existing tailplane and fuselage rear to accommodate this machinery.

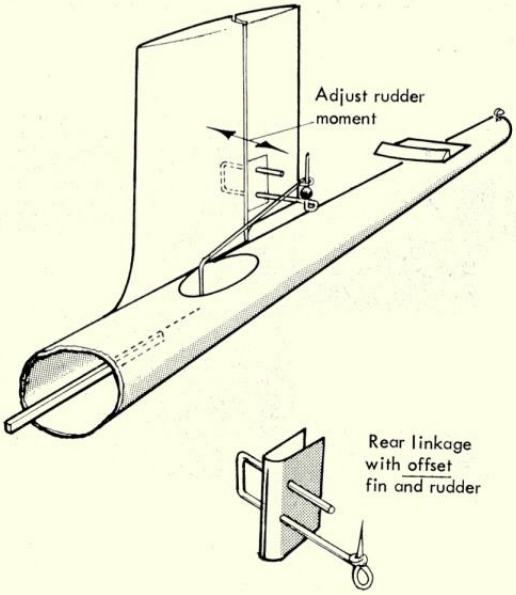
The next development again typifies the refinement to be seen in the models of top competition fliers. Schubert, many times a winner and top place man in National and International competitions, has latterly employed the rear fin model. His use of a transparent hatch is not unique, but its function as the upper bearing is. Similarly, adjustment takes place without resort to any type of hatch removal, as the adjusting knob needs only to be a push-fit on the spindle to allow the friction of the wound-wire linking pivot-and-mass-balance arms to be overcome for trim changes.

Finally, a simple example of applied common sense: in order to get the longest possible rudder horn for maximum power effect, the fin is simply built alongside the fuselage rear end. This asymmetry has an insignificant aerodynamic penalty and offers a rational increase in both mechanical advantage and accessibility.

Another of Gremmer's magnet steered soarers, which flies at 20 m.p.h. without ballast! Section used is an Eppler 387 and wing is covered with Solarfilm in order to provide the polished undersurface, most important for true laminar flow effect. A strip of lead is bent around the top of the nose and back along the underside to protect it on hard landings, while doubling on nose weight.



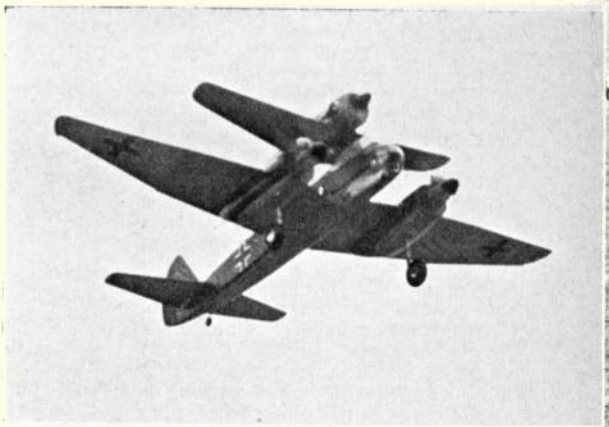




scale

Wet and windy weather fails to annual AEROMODELLER SCALE a huge success on June 18th

Left: '. . . and here is the model which the experts said could never fly with R/C. They are all wrong, Dennis Bryant's Lysander is flying superbly.' So spoke the commentator, but seconds later, it did crash! However, this 81 in. span, HP61 powered craft has now been properly trimmed out and really is showing the experts how modern R/C makes the impossible possible. Below, left, is Jim Leddy with prize-winning Mistel 3c, which he and Mike Enis built for C/L. The lower machine is a 65 in. span Ju. 88 A-6, while the 34 in. Focke Wulfe 190A-6 is carried piggy-back fashion – scales being one-twelfth. Only finished just prior to the meeting, no cockpit detail has yet been added, while only the FW190 had flown. However, encouraged (bullied?) by fellow modellers the pair proceeded to fly the composite machine (below right) and achieved a completely successful separation of the aircraft via a simple pin release. A pair of Enya 35s and a PAW 19D power the craft, and make a fascinating noise!



Left, diminutive Piper Pawnee crop sprayer, one of several models flown throughout the day by Edmund Potter of Cambridge. Another small Cox-powered free-flight scale model by L. Perring, from the Performance Kits model of the Hornet Moth was awarded second place in the free-flight category.

Right: American visitor Leon Bennett brought along this fine rubber-powered P.39 fighter, built to a scale of 1 in.= 1 ft., resulting in a wingspan of 34 in. Light weight was the secret to success for this model which has made more than one hundred flights.

at Old Warden

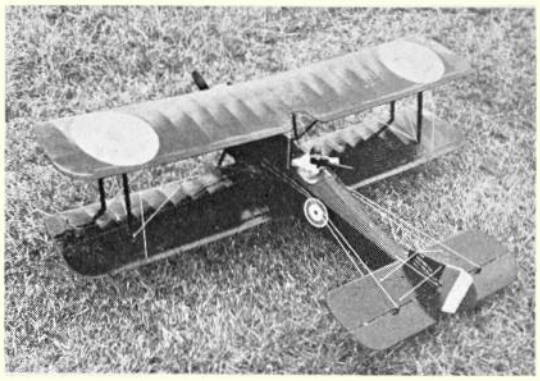
prevent the RALLY from being

Below: Mick Staples won the Shuttleworth Trophy with this 40 in. span C/L Miles Magister, powered by an O.S. 19. It is brush painted except for the edges of the camouflage, which were 'shaded' in with the aid of a Humbrol Jet-Pack spray gun. An aluminium nose section and glass-fibre cowl are employed which, together with the opening doors, full cockpit detail, etc., make a superb model. Below, right, scaled up from Aeromodeller plans published in July '70 issue, is P. Hayward's Morane Saulnier 35 EP 2 which flew in the lee of the Old Warden 'forest', an area which became a haven for the free-flighters during the afternoon.

Above: R. Cuthill of the Sudbury club won the Carter Memorial Trophy with this ¾ in. = 1 ft. scale control line Handley Page Heyford – scaled from Aeromodeller drawings. Two Enya 19 R/C motors are used to power this 6 lb., 50 in. span machine – throttle control being made via a Mick Reeves' sliding bellcrank system. Painted with Humbrol enamel and fuelproofed with Polyurethane matt finish.

Left: D. Whale scaled this Swordfish from Aeromodeller drawings to 1/12th scale. A McCoy 35 R/C powers this 4½ lb. control liner which features working bungee u/c, and beaten aluminium cowl.

Right, '3 Kings' member Allan Westlake produced this C/L Sopwith 1½ Strutter from Aeromodeller plans, with a metal cowl cut from a teapot. Throttled O.S. 35 used for realistic touch and goes.



GOLDEN WINGS AEROMODELLER MODEL CLUB

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

JUNIOR POSTAL EVENT

In order to give everyone a chance to enter a **Junior Kit Contest** this year a *Postal Contest* will be held on Sunday 10th September, 1972. Rules are:

(a) Models must be rubber or glider kits built by the entrant and under 50 in. wingspan i.e. same model rules as for normal *Junior Kit* Contests this year (see March *Aeromodeller page 161)*

(b) Flying rules will also be the same and you will be able to enter either rubber or glider or both – but only one entry in each section. You must be under 16 on the day of the contest.

(c) You must make up to 3 flights anytime between 10.00 hrs and 16.00 hrs. on Sunday 10th September, 1972. You can make these flights *anywhere* you wish. You must be timed by someone other than yourself. Flights under 20 seconds may be ignored and retaken if you wish – but *you must nominate your contest flights before you launch*, i.e. you *must not* make a flight and call it a contest flight if it is a good one! Simply record your three times on a postcard, in seconds. There is no 'maximum' so just record your actual times and also put the total score on the postcard. Add your full name, address, model(s) used, your date of birth and simply send the postcard to:

Ray Favre,
Junior Kit Postal Contest,
Box Number 903,
Aeromodeller,
13-25 Bridge Street,
Hemel Hempstead,
Herts.

to reach there by Thursday 14th September, 1972 at the latest.

Entry is FREE and there will be prizes for the first three places in each section (NOTE: these results will *not* be eligible for the overall best performance S.M.A.E. prize for this year's Junior Contest programme)

MORE JUNIOR CONTESTS!

Five more dates have now been established for Junior Free Flight contests, all to the same rules as used for the Nationals. These are as follows:

Sunday, 27th August: N. Western Gala, Woodford

Sunday, 10th September: Ashdown Forest, Sussex. Sponsored by the South Eastern Area Committee, S.M.A.E. Details from Bill Blake, 78 Parkside, Shoreham-by-Sea BN4 6HA

Sunday, 17th September: South Midland Area Rally at Cranfield, Bedfordshire

Saturday, 7th October: S.M.A.E. Northern Gala. R.A.F. Station, Rufforth, Yorks

Sunday, 29th October: S.M.A.E. Southern Gala. R.A.F. Station, Odiham, Hants

Dear John,

I am writing this letter to you to ask a small favour. My name is Dhamindra Kahaduwarachchi and my hobby is Aeromodelling. I would like to have a Pen-friend from your Country, and he too must be an Aeromodeller. So John, can you kindly give this letter to a member of your club, age is about 16. I hope there will be Aeromodellers who are interested in having a Pen-Pal from Ceylon. I got your address from the 'Aero Modeller' hobby Magazine.

24 Nikape, Dehiwala,
Ceylon. *D. Kahaduwarchchi*

Dear John,

I have noticed at several rallies which I have been to, that some modellers use a type of motor with their starting battery for glow plug engines. What is this instrument, what is it for, and is there any real advantage in using such a device?

Mousehoue, Cornwall. *J. Drew*

Undoubtably the instrument you have seen being used is an ammeter and it is indeed a useful accessory, as it gives a visual indication that the glow plug is functioning correctly. For example, most glow plugs will show a discharge of around 3-4 amps when the lead from the battery is connected. Should the needle deflect right off the scale, then the clip is shorting out on the cylinder head, but if no reading at all is shown, then either the plug has burnt out, or else there is a break in the line between the battery and plug. Alternatively, if the plug shows a different reading from normal, then something is obviously wrong. Such an instrument therefore gives a ready visual indication of the plug condition with recourse to removing it for examination. It is particularly useful when a silencer is fitted and the glow from the plug is thus not visible through the exhaust part. An ammeter is very easy to fit – just take the negative lead from the battery to one terminal, then connect a lead from the other terminal to the glow clip. The positive lead goes straight from the battery to the glow clip. Ammeters are quite cheap – under £1 from Halfords or motor accessory shops, or they may be picked up cheaply from a car-breaker's yard.

Dear Sir,

For a recent birthday present I received a KEILKRAFT ready-to-fly *Hurricane*. It has, as you know, a .049 glow plug motor. However, I have had a lot of difficulty in starting it. When I first had it, the engine would run satisfactorily, but I recently lost the spring out of the fuel tubing. I tried a new can of fuel and a large 1½-volt battery, which has given it spurts of life. Have you any idea how I can make it run properly?

Lyme Regis, Dorset. *D. K. Rothwell*

The spring is placed inside the fuel tubing so the tube will not form a kink when turned through a sharp angle, and this is possibly the root of all your troubles.

The engine may only be running on the prime of fuel and then cuts through fuel starvation, as the kink in the fuel line will stop the fuel flow through it.

It is best to operate this engine on a fuel containing approximately 15 per cent nitro methane, and providing the 1.5-volt battery is in good condition and the plug glows bright orange, the engine should run.

Dear Sir,

On looking through some old *Aeromodellers* of my father's, I came across a plan which appeared in February 1966. The plan is 'Swanee' and it appealed to me, it is a 38 in. single-channel Radio model. Regrettably, I do not possess any R/C equipment, but I do have a Cox Babe Bee 049 engine. Do you think the 'Swanee' would fly free-flight O.K.? If this is possible, could you please give details of what changes may be necessary on the structure.

Bletchley, Bucks. *R. S. Simpson*

Basically, this is NOT a suitable model for free-flight conversion. Being a low-wing design you will encounter certain stability problems and the dihedral would have to be at least twice as much as the R/C version for Free-Flight operation. The all-sheet structure would make it a fast flyer due to its higher wing loading and some form of control over it would be essential.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the 'Golden Wings Club'. With this application I enclose postal order (International Money Order) for 25p to cover cost of the enamel club badge, two coloured transfers and membership card.

NAME IN FULL.....

ADDRESS .....

.....

YEAR OF BIRTH.....**SCHOOL**.....

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

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

9/72 15p in the £1 Rebate Plan purchase coupon for Golden Wing Members G.W. No. .....

FREE FLIGHT COMMENT

by John O'Donnell

Brian Faulkner (just to confuse matters with magnet maestro Trevor F.) launches his magnet-steered glider from the slopes of Clwyd. Uses an airdraulic timer for D/T operation.

THOSE READERS who missed the appearance of my 'Comments' in last month's *Aeromodeller* presumably will have realised that they were crowded out by the 'in-depth' coverage of the Nationals. Inevitably, this has allowed a hefty backlog of contest reports and associated tit-bits to accumulate.

The season's second **S.M.A.E. Area-Centralised** meeting (on 23rd April) was plagued by wind throughout most of the country. If the scores are any guide, the South of England suffered even more than the 'frozen North'. This distinction was most apparent in the Open Rubber contest for the *Gamage Cup*, as all the ten trebles recorded came from either the N.W or Northern Areas. My home area flew at Chetwynd which, although small as airfields go, had the predictable advantage of being sheltered by the Pennines from the worst of the wind. This benefit was utilised to the full by an early start. Eight o'clock in the morning is a bit early for lift, but that is no handicap for Open Rubber!

At the other end of the day we were fortunate in having the wind drop at just the right time for the rubber fly-off. Most of the participants wound and launched together, with Pete Harris, John Carter and Mike Duce all managing a few seconds over the six minute mark. As I had broken my better model in a tree, I had to fall back on the old heavy reserve that could not be expected to out-perform the opposition. Hence, I deliberately flew a little later than the others so as to get different air. This technique put my model into lift and gave me first place in both the N.W. and the country with 7:12 O.O.S. at a considerable height. With good binoculars, it was seen to D/T a couple of minutes later and descend behind the downwind woods. Delaying my search to complete Glider gave enough time for two local farmers to pick up the model and drive it back to the 'drome' for me. This certainly justified the use of temporary labels indicating where and when the model was being flown. Both my *Maxines* differ from the routine approach favoured by most designers in that I use smaller surfaces (only Wakefield area) and much more rubber – 5.4 oz. of Pirelli and a 24 in. x 30 in. prop. give me a two minute plus motor run, *and* quite a useful climb!

Left, Bob Bailey launches simple all-sheet glider at Clwyd, but could not sort out trimming difficulties.

Below, Eric Craven slope soars a 'chuckie'. He lost one testing but only recorded one good official flight.

The Northern Area had a three-way rubber fly-off at Topcliffe but too much wind for good scores. Ron Pollard made the best effort with a 'bitsa', especially intended for rough conditions and using the short-run fast-climb approach. In the conditions the seven flights demanded of the F.A.I. power fliers was quite an undertaking. Perseverance paid off for Brian Martin, who won the *Halfax Trophy* with some very steady flying. His final score of 20:08 included only four maxs but no bad flights. The model had all sheeted surfaces and, naturally enough, a *Ronytube* fuselage. Jim McCann was only thirty-odd seconds behind, but this was sufficient to drop him to fourth in the country. In between came Fred Chilton (at Beaulieu) and Russell Peers (at Chetwynd).

Open glider saw the top places spread round the country rather better, even if I did manage a 'double' by recording the contest's only treble. For this and a rather liftless fly-off I used the pair of A/2s that have served me so well for years. Second place went to Dave Greaves flying at Barkston Heath, and follows his place in the European Championships team! Just three seconds behind was Julian Hopper of Stansted. He flew at Weathersfield, where the East Anglian Area complained of having both wind and cold overcast conditions, and used a glass-fibre rod A/1.

Two weeks later, on 7th May, there were two contests – one at each end of the country. Obviously enough I went to the nearer, the **Northern Area** meeting at Topcliffe. This competition has been described at different times as the *Pannet* or 'Vintage' meeting, presumably depending on the leanings of the author! Attendance was not all it might have been – possibly due to rather scanty publicity beforehand. The morning had overcast murky conditions with just enough breeze to make visibility a problem. This combination did not deter Russell Peers from flying his brand new K&B 40RR model and recording a very quick treble. The model had been trimmed from scratch in only four or five flights earlier that morning!

Also quick off the mark were the top placed Vintage fliers. Three very steady and consistent flights won the event for Jack Kay, whose *Scram* was the only example of this design actually flown in the contest. This was rather surprising in view of the interest (in this design) generated by Ron Firth's *M.A.G.* and its postal contest. Henry Tubbs flew a four-year-old *GH20 Wakefield* into second place. The only real threat to materialise later in the day came from Jim Moseley who got two good flights from his *Lulu* glider, but no lift at all on the third.

A/1 Glider saw John Turner very pleased with his win, saying that he had been trying to beat Tony Cordes for two years! John 'dropped' two flights below the two minute max, but still recorded 9:57 out of a possible 10 minutes. His model had a pod and *(balsa)* boom fuselage, Loffler Wakefield section, and KSB timer. Previous stall

Bob Bailey (St. Albans) wipes down his open power entry 'Night Train' which placed second in the Pannett Trophy at the Northern Area Meeting. Very successful design which has won Bob many contest placings.

troubles had shown the need for a turbulator spar, and as big a tailplane as possible. Tony worked very hard for his second place, making *ten* flights in all! He cancelled his first score when overtaken by John Turner and re-entered. Another set of flights gave him 30 or 40 seconds *less* aggregate, but still second place!

Coupe d'Hiver seems to have suffered from the weight increase imposed earlier in the year, as entries and scores were low. My *new* model had its first public appearance, and caused much interest and comment by virtue of its Hofsass style prop-release system. This piece of gadgetry is rather complex, but it does offer considerable advantages for Cd'H and Wakefield. Details could well fill a complete article and perhaps this will have to come at a later date! At the contest in question everything worked to the tune of an 8:54 total and a two minute lead over Henry Tubbs.

The Power event seemed to progress very slowly. The morning mist cleared to give a bright sunny and breezy afternoon with rather strange ups and downs. Bob Bailey and Jim McCann had recorded two maxs a piece, prior to the wind becoming strong and black clouds threatening rain. Jim had lost a model, and suspected that it had been picked up before he arrived on the scene. Flying just before the rain, his reserve was somewhat off trim, but found helpful air. Bob waited until after the rain and completed his treble with a very easy max. in flat calm conditions just prior to the end of the contest. As the other two were both flying F.A.I. models, Russell was clearly the 'favourite' for the fly-off. That its results bore out this expectation was due largely to the F.A.I. models being off-pattern on climb. Jim flew first, only to have his model edge left under power and lose half its height on the transition. That it still did 3:20 reflects a certain amount of assistance! Bob's model had the same tendency, plus a nose-down over-tight glide, and managed 4:25. Russell's climb was good and was followed by a slow floating glide that seemed to get better as the model got lower! Final time was 5:47. The winning model was depicted on p. 400 of the July *Aeromodeller* and is basically an enlarged 'Woodpecker'. It also sounds impressive thanks to the use of high nitro fuel and only a 9 x 4 in. prop. Bob Bailey's model was a *standard* Nightrain, powered by a Rossi (complete with the manufacturer's special head) and a home-made 7¼ x 3½ in. glass-fibre prop. Timers are an Auto-Knips for power and a KSB for D/T. Jim McCann uses the same outlines and sections for his wings and tail – but likes rather more sheet in the structure. He uses g/f rod fuselages and is changing over to using his own carbon fibre propellers.

Meanwhile the **Devon Rally** was in progress at Woodbury Common near Exmouth. As usual, Barry Hyde has sent me a report and results. Conditions were breezy with patches of sun and rain, but with rather better conditions for the fly-offs. Power was keenly fought with three trebles. Fly-off winner proved to be John Hook with an OS40 *Woodpecker* and a 4:25 decider. Derek Wain got high under power but stalled down for 2:45 and second place. John Mayes flew a *Vegan 4* (from *Northern Area News*) but, although consistent, rather lacked height.

Rubber was poorly supported, and was topped by Hamish Gunn. The two-way glider fly-off caused amusement to those watching. Dick Cummings towed first and released into turbulence, spinning down for only 44 seconds. Dave Tipper waited until near the end of the fly-off period and then towed up confidently, only to be down in an almost unbelievable 27 seconds!

It was obviously Dick Cummings day as he also won the all-in F.A.I. event (presumably doubling up his Open flights for part of his score) and chuck glider. Colin Morris was second in F.A.I. just one second ahead of his travelling companion and clubmate Dave Tipper.

In contrast to the 'multiple choice' contests just described the next weekend featured the **West Lancs A/2 Contest** at Chetwynd. This single-class con est attracted some 30 entrants, mostly 'locals' but with a smattering of representatives from far afield The meeting was fortunate with the weather, having plenty of sun and lift and not too much wind. Flying was in rounds, and towlines had to be across a 'line' between two crosswind markers. The real difficulties were due mainly to an insistance upon having two timekeepers .With practically everyone present (including the host club) flying, finding timers was a real problem.

Maxs were commonplace, and for a while there were expectations of a full-house score. There were five fliers with perfect scores after three rounds, only one (Brian Picken) after four, and none at all thereafter. The eventual winner proved to be Dave Hambley who had to work very hard indeed for his success. He started off with a most unexpected and disheartening wing breakage on tow! Apart from it being hardly windy enough for this sort of trouble, the fracture was in an unusual place, halfway out along the inner panel at the end of the centre-sections doublers.

His subsequent flying also proved expensive as his

Left, Jack Kay r.o.g.'s his 'Scram' to win the Vintage event at the Northern Area Meeting at Topcliffe.

Right, Jim McCann of Leeds launches his second - placed entry in the Pannett Trophy event – this being the same model he used to win the Syerston Easter Meeting, having lost his other model.

Clwyd winner Roy Sutton uses Ronytube G/F rod fuselage with $\frac{1}{8}$ in. sheet box front end, Jedelsky wing and tail with Solarfilm upper surface covering.

Derek Speakman with free-flight soarer. Novel fin layout due to moving tail and upper fin mount forward to improve stall behaviour.

second model was run-over after alighting on a downwind road, and the third disappeared well over dense woods! This left Dave in top position at the end of six rounds and apparently without a model for a seventh flight. He returned empty-handed from searching with just-half-an-hour left to fly, and proceeded to repair the broken wing of his first model. Much five minute epoxy, plenty of external bracing, and some hastily cemented-on tissue gave a rough but serviceable wing. Naturally enough his tow was cautious, especially as he knew he only needed just over a minute to win! The model was 'floated off' the top of the line for an apparently normal glide of just two minutes, and a clear (but far from easy) first place. Dave's models differ one to another, but generally have lower aspect ratio and deeper fuselages than currently favoured practice. The 'repaired' model was illustrated in my July *Comments*, and can be seen to have *Humplehound* wings.

As the top six fliers all had five maxs out of seven flights, their scores were fairly close and positions were determined by the severity of their mistakes. Russell Peers showed that he can turn his hand to glider by securing second place. Organiser Brian Picken was third, and could well have won if he could have found a timekeeper before the last round's mass launch into lift!

There were a number of lost models, mainly due to the time and distance taken to descend on D/T. Dave Barnes was particularly unfortunate in losing two models in this fashion, but at least got them both back before the Nationals. Junior winner David Williams lost one of his *Accipiters* in the woods. A protracted search that evening located Dave Hambley's No. 3 model but not his own.

Prizes were good by present-day standards. There were trophies (rather than plaques) plus cash for the top three place men and for the best juniors, there were also medals for the winning teams. This was adjudged on the best three scores from a club, and was awarded to the Falcons trio of Peers, Dilkes and Boon.

Thanks to the intermission for the Nationals, combined with the lull that always seems to surround the Spring Bank Holiday, the 'next' contests to be reported are the **Area Centralised** events of June 11th. Most parts of the country seem to have been fortunate with the weather. A typical description would seem to be that of light variable winds, odd showers and long bright sunny periods with plenty of thermals. In circumstances like these, the contests are always decided by fly-offs and the local weather conditions for the all-important deciding flights become critical. This certainly applied to the event being described as the winning scores were all done at the same venue, Barkston Heath.

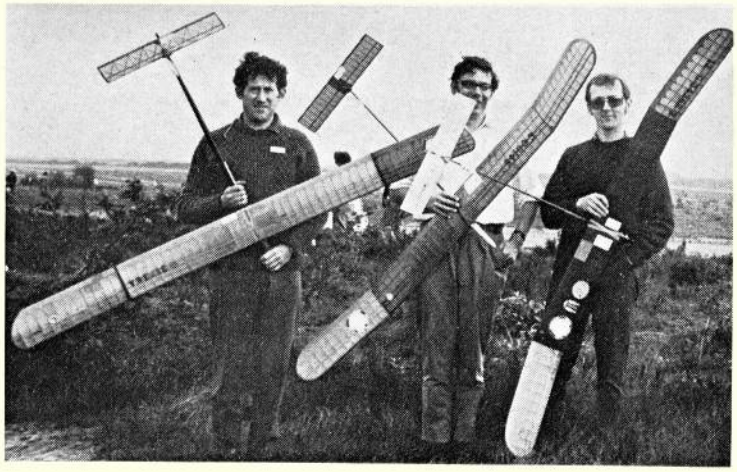
Birmingham were trying very hard in the Wakefield contest for the *Weston Cup*, obviously intending to maintain their grip on the *Plugge Cup* for the third year in succession. Their star performance came from Dave Greaves who capped seven maxs with an 'unlimited' fly-off of 10:37. This D/T'd well in sight and apparently could have been twenty minutes with a longer length of fuse! If all this sounds like the 'one that got away', I had better dispel the impression at once. Also at Barkston, George Simpson recorded a 17:48 fly-off in Open Glider and caught the model on D/T just outside the airfield boundary! He also wished he had used more fuse. The model was not the one with which he won A/2 at the Nationals but was pretty similar.

Dave Pymm rounded off the scene at Barkston by winning the *White Cup* for Open Power with a comparatively modest 5:13 fly-off. He used a G 15 open model displaying a fair amount of Monk's influence.

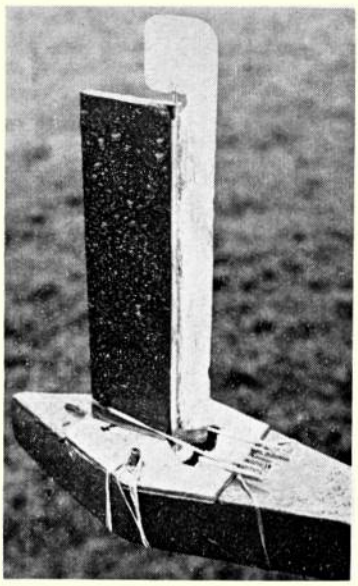
Other areas simply could not match the Wakefield and Glider scores. Both the East Anglian and Northern Areas had rain at the crucial moment and this is reflected in the fly-off scores. In the *Weston* Ray Pavely and I came third and second respectively with respectable enough times, even if rather overshadowed! I used the same model that I lost in Saturday's gale at the Nationals and which 'turned up' two days later, just before I left for home.

There were 18 trebles altogether in Glider. Apart from the winner only Jim McNeil and Tony Evans found real lift to record seven-minute fly-offs and place second and third and flying at different ends of the country.

In Power Dick Cummings managed second with just over five minutes, while John Hook continued in the news with



Messrs. Oldfield, Parker and Woodhouse combined a European holiday with competition in the Eifel Pokal International event in Germany. Mike Woodhouse did particularly well, placing 8th in A/2, while Bill Parker placed 30th, Dave Oldfield being right out of luck to finish 48th out of 65 entries.



Close-up of Roy Sutton's magnet soarer reveals easily - accessible magnet unit – thanks to the ever useful rubber band! Pebble-dash effect is result of raindrops – not for any aerodynamic reasons.

third position. Seven trebles in power is about right compared with glider. Despite the disparity in potential performance, power flying is not currently at a very high standard. Conversely, 'tactics' have turned glider into an event of high scores in good weather!

N.W. Area activities at Cork (or Flookburgh if you prefer that name) were concentrated mainly on the Area's open events. These were interesting at fly-off times as the sea was dead downwind and reachable in seven minutes or so! John Boon put his model O.O.S. well up over the water – and had it picked up two days later by a fishing boat five miles offshore!

I missed the **Southampton Gala** held at Beaulieu on 18th June, mainly through 'losing' my prospective co-driver a day or two before. When I received results and a report from Phil Ireland I realised that I had been lucky after all. This is more that could be said for the Gala as it was ruined by the weather.

The day dawned very windy, cold and with driving rain – but it abated slightly in mid-afternoon. Even cutting the max to 2½ minutes did little to encourage entries. A grand total of 15 entries were received, spread over a scheduled five events! As the organisers had catered for ten times this number they were very disappointed.

Brian Silcocks won Glider with a *total* of 3:26, compared with John Boon's second place score of 2:16. Some idea of the conditions can be gauged from John having four towline breaks! Russell Peers won Rubber by being the only flier, and discouraging imitation by a 1:30 flight O.O.S. into the rain and mist. This was with the 300 sq. in. model used for some of his Nationals flights. Dave Hewitt took the combined Mini (Cd H, A/1 and ½ A power) event with a very modest 1:16 score. Chuck glider was won by Martin Dilly but the time was not quoted. No one even entered, never mind flew, in Open Power!

Southampton followed their usual practice of returning all the entry money in prizes together with merchandise from the local 'Trade'. The latter feature saw A/2 rod blanks being awarded to Messrs. Silcocks and Peers for their persistence!

There was a counter attraction up North, for those with the right sort of model in the shape of the annual **Clwyd Slope Soaring Rally.** Not being so equipped I merely went to see what happened. Over the years this meeting has become largely a radio contest, with the F/F side being badly supported. Genuine F/F slope-soaring is a very hit-or-miss affair, and cannot compete with the magnet-steered approach for consistency and performance.

Despite all that has appeared in print in this magazine Magnet Models have not 'caught on' to any extent. They seem to be regarded as complicated or demanding special care and expertise. In fact, most of the few models I have seen at contests display remarkable little finesse. Nevertheless, they are quite effective and completely out-class any 'uncontrolled' opposition.

This year, the Clwyd event was flown to a 3:00 max, with the best 3 out of 4 launches being counted. This approach puts a premium on consistency and further favours the magnet models. The weather was hardly pleasant with a cold wind, patches of low cloud and rain (even hail) at times – but flying was quite practical.

Ray Sutton established an early lead at the expense of a very long but successful search for his model. Paul Fynn had troubles in a D/T timer failure on a *test* flight, and a subsequent landing in a Forestry plantation. The precautionary compass bearing that I took from the launching spot proved accurate enough for Paul to find the model later in the afternoon. His contest flights were made very late and limited to three launches, two of which were maxs! The last was fatal in that the model went round the next promontory and could not be found.

Meanwhile Ray Sutton finished off his flights to take first place in a very convincing manner. His model was last seen through binoculars far out in the valley after a six minute plus flight. Paul was runner-up, but was awarded the **Gosling Trophy** for the best single flight of the day. This was a modest 3:26 D/T'd. Brian Faulkner could have exceeded this easily enough at his last flight – but could not reset his *airdraulic* D/T timer to suit. He said that he reckoned clockwork D/T timers were too expensive to lose!

Derek Speakman of Chester managed third with a F/F model, mainly by dint of a 3:09 flight. Eric Craven slope-soared two perfectly normal chuck-gliders and obtained one good official plus an O.O.S. test flight! Junior awards went to S. White and G. Salomon flying small gliders that never really 'got away'.

If this months 'Comments' reads a little like 'How I won the war' its because I have had a good run recently. Being both a *competitor* and a reporter does have its drawbacks!!

Results

2nd SMAE AREA CENTRALISED MEETING – 23rd April, 1972
Gamage Cup – Open Rubber (36 entries) 1. J. O'Donnell (Whitefield) M+7:12; 2. P. Harris (Evesham) M+6:08; 3. J. Carter (Falcons) M+6:05; 4. M. Duce (Liverpool) M+6:01; 5. B. R. Peers (Falcons) M+5:29; 6. J. Boon (Falcons) M+4:35; **Halfax Trophy** – F.A.I. Power (36 entries) 1. B. Martin (Tynemouth) 20:08; 2. F. Chilton (Crookham) 19:47; 3. B. R. Peers (Falcons) 19:38; 4. J. McCann (Leeds) 19:31; 5. P. Harris (Evesham) 19:14; 6. J. Bailey (Bristol & West) 19:11; **Open Glider** (65 entries) 1. J. O'Donnell (Whitefield) M+2:20; 2. D. Greaves (Birmingham) 8:47; 3. J. Hopper (Stanstead) 8:44; 4. B. Baines (R.A.F.M.A.A.) 8:20; 5. P. Ireland (Southampton) 8:01; 6. D. Tipper (St. Albans) 7:58.

NORTHERN AREA MEETING Topcliffe – 7th May, 1972
Pannett Trophy – Open Power 1. B. R. Peers (Falcons) M+5:47; 2. R. Bailey (St. Albans) M+4:25; 3. J. McCann (Leeds) M+3:20; 4. J. O'Donnell (Whitefield) 8:46. **Vintage Trophy** (3X3) 1. J. Kay (Leeds) 7:10; 2. H. Tubbs (Leeds) 7:05; 3. E. Smailes (Blackburn A/C) 6:30; 4. J. Moseley (Leeds) 6:11. **A/1 Glider** (5X2) 1. J. Turner (Darlington) 9:57; 2. A. Cordes (Leeds) 8:38; 3. B. Kenny C.M. 7:23. **Coupe d'Hiver** (5X2) 1. J. O'Donnell (Whitefield 8:54; 2. H. Tubbs (Leeds) 6:46; 3. J. Dean C.M. 6:13.

DEVON RALLY Woodbury Common, Exmouth – 7th May, 1972
Open Power 1. J. Hook (Southampton) M+4:25; 2. D. Wain (Bristol & West) M+2:45; 3. J. Mayes (S. Bristol) M+1:58. **Open Rubber** 1. J. H. Gunn (Bristol & West) 8:35; 2. C. Chapman (Torbay) 8:09; 3. B. Hyde (Torbay) 3:00. **Open Glider** 1. R. Cummins (Bristol & West) M+0:44; 2. D. Tipper (St. Albans) M+0:27; 3. P. Freebrery (Northwood) 8:23. **All-in-F.A.I.** (5X3) 1. R. Cummins (Bristol & West) 13:45; 2. Co Morris (St. Albans) 11:56; 3. D. Tipper (St. Albans) 11:55. **Chuck Glider** (5 x 1) 1. R. Cummins (Bristol & West) 3:32; 2. B. Silcocks (S. Bristol) 3:31.

WEST LANCS F/F SOCIETY A/2 CONTEST, Chetwynd – 14th May, 1972
A/2 (30 entries) 1. D. Hambley (York) 19:58; 2. B. R. Peers (Falcons) 19:03; 3. B. Picken (West Lancs) 19:01; 4. D. Greaves (Birmingham) 18:50; 5. A. Evans (Liverpool) 18:13; 6. J. O'Donnell (Whitfield) 17:11.
Team Award: Falcons (Peers, Dilkes, Boon) 47:50.

3rd AREA CENTRALISED MEETING – 11th June, 1972
Weston Cup – Wakefield (85 entries) 1. D. Greaves (Birmingham) M+10:37; 2. J. O'Donnell (Whitfield) M+3:04; 3. R. Pavely (Anglia) M+2:38; 4. G. Walker (Birmingham) 20:52; 5. R. Elliott (Croydon) 20:35; 6. P. Putman (St. Albans) 20:22. **Open Glider** (110 entries) 1. G. Simpson (Grantham) M+17:48; 2. J. McNeill (Crookham) M+7:24; 3. A. Evans (Liverpool) M+7:00; 4. D. Thomson (Croydon) M+3:31; 5. D. Tipper (St. Albans) M+3:11; 6. P. Stewart (Crookham) M+2:32. **White Cup** – Open Power (64 entries) 1. D. Pynn (Walsall) M+5:13; 2. R. Cummins (Bristol & West) M+5:03; 3. J. Hook (Southampton) M+3:46; 4. D. Welch (Brighton) M+3:13; 5. P. Buskell (Surbiton) M+3:04; 6. D. Short (Northampton) M+3:02.

SOUTHAMPTON GALA, Beaulieu – 18th June, 1972
Open Rubber 1. B. R. Peers (Falcons) 1:30. **Open Glider** 1. B. Silcocks (S. Bristol) 3:26; 2. J. Boon (Falcons) 2:16. **Open Power** (No entries) **Combined Mini** 1. D. Hewitt (Portsmouth) 1:16. **Chuck Glider** 1. M. Dilly (Croydon).

CLWYD SLOPE SOARING RALLY – 18th June, 1972
F/F-cum-Magnet (Senior) (Best 3 from 4, 3 mins max) 1. R. Sutton (Leek) 8:42; 2. P. Fynn (St. Albans) 7:30; 3. D. Speakman (Chester) 5:10; 4. B. T. Faulkner, 5:07; 5. E. Craven (Urmston) 3:28. (Junior) 1. S. White, 0.50; 2. G. Salomon, 0.23; **Gosling Trophy** (Best single flight) P. Fynn (St. Albans 3:26.

World Control Line Championships

HELSINKI 1972

FOR THE SECOND time in four years, the *Finnish Aeronautical Association* hosted the World Control Line Championships – and a magnificent job they made of it too, particularly in respect of the 'behind-the-scenes' troubles which existed. Originally, the French were expected to organise the event, but they opted for the Scale Championships instead – while the second in line nation Russia, was not keen to oblige. At the last moment the Finns stepped into the breach and made their offer but even this was not quite straightforward when they found that they were forced to bring forward the competition date by one month, leaving little time for the mass of organisation neccessary.

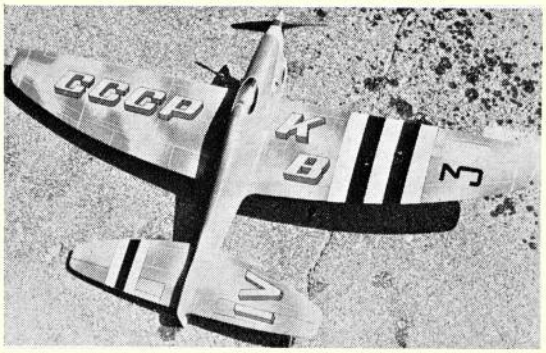
The site was the same as in '68 – the car park area for the Helsinki Olympic Stadium – and its shortcomings were not surprisingly just as before, namely no room to practice (although this was possible at Malmi airfield provided one had transport), a rather poor tarmac surface, and an aerobatics circle surrounded by turbulance – invoking obstructions although in effect the latter did not cause many difficulties due to the generally still conditions. On the credit side, the site was only minutes from Helsinki's modern shopping centre while the teams' eating and sleeping arrangements were really excellent for meetings of this nature. Perhaps the organisers were a little understaffed, but this never really showed, the events progressing well and for once no complaints were heard of unfair decisions or biased judging. In all, a competition with a happy, relaxed atmosphere – no doubt aided greatly by the magnificent weather. The organisers obviously chose the dates with great skill to coincide with a heat-wave, resulting in temperatures frequently above the 85°F mark, and rarely below it!

The only disappointment of the entire meeting lay not in the hands of the Finns, but in the competing nations, or rather in the non-competing nations. For example there were no entries at all from the East Germans, French, Hungarians, or Austrians, although the latter three were absent due to 'political' reasons – not 'full-size politics', but for rather petty reasons. In particular, the Austrian Aero Club would not permit a team to be sent from that country due to the increased entry fee ($75 U.S. in lieu of the previous $50 U.S.) – despite the fact that all the enthusiasts offered to pay their own fees by themselves. A great shame as they would have enlivened the team race circle considerably. Entries were received from a couple of Polish fliers, but none arrived, while the Bulgarians were represented in team race only, and only Delhez/Dessaucy travelled from Belgium. A great shame as a World Championship ceases to be so meaningful when several important countries are not competing. To help offset this, it was good to see Cuba represented (and in force) for the first time at such a meeting – and even if they were in general outclassed, then at least they now know the standard to aim for and show great willingness to learn. Perhaps the same comment could have applied to the Greek lads when they made their first international appearance at Peers. Now they are showing the skills and advice which they have gleaned from such an experience and are aquitting themselves well. Given more time, they could be a real force to be reckoned with.

Other 'new nations' to be represented, by just one entrant, were Japan and Israel – the former one of his country's best stunt fliers – did exceedingly well for such a newcomer, and earned everbody's admiration for coping so well under the disadvantage of not being able to talk to a soul – no one else speaking a word of Japanese, and he not understanding English.

As for the British showing, well, quite frankly we knew we weren't going to exactly sweep the board, but without exception everyone tried extremely hard, even if the eventual placings do not show it clearly. However, close examination of the results *prove* the efforts made. Steve Blake's 11th place in Aerobatics was a truly outstanding effort (just look at some of the 'names' whom he beat), and he was ably backed by Jim Mannall – who missed the fly-off by just 26 points – and John Newnham, who did so well in his first World Championships. In speed, both Ron Irvine and Alan Woodrow broke the existing British record, while Brian Jackson came *very* close to it. This was directly the result of an enormous amount of practice flying and testing which they performed before and during the contest period. The team-race lads were perhaps the least fortunate, al-

Kraznorutsky's reserve model was this beautifully-finished racer with pale camouflage markings and retracting undercarriage – which proves that models need not be ugly to perform well. Drazek is considering a semi-scale Spitfire next – perhaps the start of a new trend?



Team race victors at last – Plotsin (left) with mechanic Timofeev and the winning model. Their motor's better range saved them a pit stop in the very fast 200-lap final.

though just a small slice of luck would have been greatly appreciated – and entirely deserved! Above all, the thanks of the team (and supporters for that matter) must go to the Team Manager, Gordon Isles, who even surpassed his previous excellent standards of organisation which extended far beyond the normal call of duty for such an appointment. Besides all the paperwork and administration which he undertook prior to the event (and this included obtaining a charter air trip at less than half the normal price) he arranged car hire, accommodation and all associated contest headaches while feeling considerably under the weather with a throat infection. Well done, Mr. Isles . . . but please, no more 6.45 a.m. calls!

Team Race

The first 'scare' to hit the team-race competitors occurred during processing, when it was decided that to comply with the semi-scale rule requirement, each model must have a fin or a 'V' tail. This resulted in several teams having to add small appendages in order to get their models approved, but in our minds it is a step in the right direction. The term 'semi-scale' is a very poor, loose description, but the trend of recent years has been towards some truly stark designs, with little or no thought given to this basic requirement. Agreed, the objective is to produce an efficient machine to cover the distance in the shortest time, but does the appearance *have* to suffer? It would seem that the models themselves have little effect on top speed as the majority (up to 90 per cent) of the drag is accounted for in the control lines themselves, so why not follow the intention, rather than the letter, of the rules? The worst offenders of this rule-stretching design seems to be following in the wake of Paul Bugl's latest brainwave. This consists of a full-length lightweight aluminium crutch some ⅜ in. deep which is designed to carry a Bugl 15 plus the bellcrank assembly and undercarriage leg. Around the Bugl 15s crankshaft is carried a thin, metal, pointed cowling, while the cylinder itself is scarcely enclosed in a metal cowl clipped to the underside. The idea is to simply glue on the wing and tail, add a soft balsa top, a bubble canopy, and presto, the instant team racer. Don Jehlik had one such basic model completed in 1½ days. Clever, quick, but oh – so-ugly! Several teams had such models, some with scant balsa fairings behind the metal cowl to fair this unit in, to become a more conventional pod and boom design.

On the subject of Bugl 15s, these engines seemed during practice as if they would sweep the board, many teams having them in their possession. However, the race days themselves proved that this was not to be, only six eventually being used. Why? Possibly through them being so new that competitors had yet to come to grips with them, while others found problems with the motor going off peak rather quickly. Respect for the quality and potential of these motors was indeed high – tales of their absolutely identical performance straight-from-the-box being legion. All seemed capable of around 96 m.p.h. for 25 laps in anyone's hands. Perhaps next year will see them achieve the success they no doubt deserve.

Indeed, the curious result of analysing the various engines used revealed that no one engine is clearly superior! It would seem that give any top team years of experience with one particular brand, then they will produce practically the same performance as any equally experienced competitor, irrespective of engine manufacturer.

Rather than give a 'blow-by-blow' account of the various heats flown, perhaps it would be more interesting to see how various nations performed in those qualifying flights against the clock.

The **Cubans** were, quite frankly, inexperienced at team racing, and their MVVS diesels seemed very much over-pitched turning 7 in. x 8¼ in. MVVS props, and consequently suffered from slow models and overheating engines. They all seemed reluctant to coax their models to the pitmen, and consequently suffered slow stops. Likewise, their take-offs were somewhat erratic and could have caused troubles for faster teams. More practice is their main requirement – they have plenty of enthsuiasm!

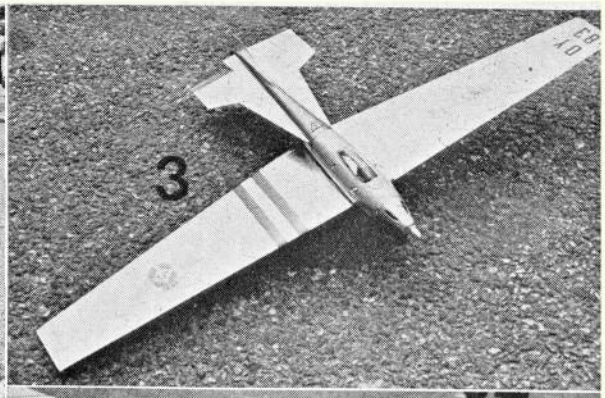
The **Czechs** were unique (apart from the Russians, of course) in that they all qualified for the semi-finals, each producing a best flight of around 4:38 to do this. Safler/Kodytek used their glass-fibre fuselaged design (as drawn in the July '72 issue of *AeroModeller*) while Votypka/Komurka used the same beautifully finished *Hot Dog* model that they had at Pecs. Drazek/Trnka had their usual, very pretty, all-balsa, eliptical winged design, but actually used a square-tipped model in the event. This featured extensive cooling to the motor and in common with the many other competitors was covered overall with glass-fibre cloth. Total weight was just 18 oz. and he used a deeply cuffed 6¾ in. x 7 in. Supa Nova prop. His best (first) heat time of 4:37.5 would have been quicker but for an unexpected loss of range, when his motor cut out after 37, 69 and 90 laps, while he suffered bad luck in his second flight when the engine cut shortly after a pit stop. Even so, he made the semis.

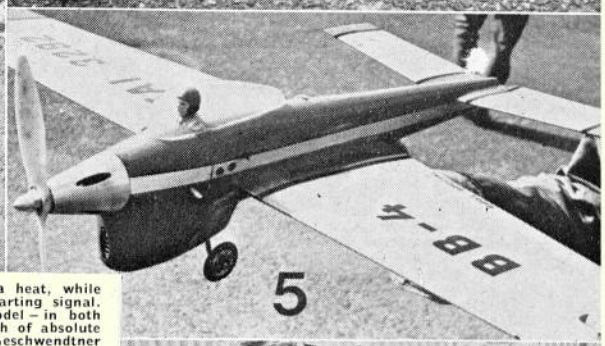
Potentially always strong contenders, the **Danes** fielded a team with mixed approaches and equipment. The most basic approach was by the Rivold/Geschwendtner pair who used an Ole Hasling-prepared Super Tigre G15RV in a very simple design devoid of such 'gimmicks' as fuel shut-off, pressure-refueling system, etc. – just a rapidly constructed model with a good old-fashioned squeeze bottle to refuel it! In the second round they flew a two-up heat with Hodgkins/McCollum of the U.S.A., and with this advantage achieved a 4:39.8 – thus joining the semi-finals. Their compatriots used more complex approaches, but with less success. Flying with the brother of the previous team's pilot, Per Hasling had an HP15 model which was equipped with an electrically-operated fuel shut-off. Although the Sondel brothers used this arrangement two years ago, Hasling seems the only one to have developed it. His unit is extremely compact and weighs just 8 gms, being epoxied to the tank itself. Carrying batteries in a belt, he merely presses a button to activate the switch – and can thus cut the motor at will, irrespective of 'traffic' conditions and altitude. Operation lag is just ½ second, and the motor can be 'blipped' if desired! Very neat, and being spring-loaded to 'on', the cut-out is most reliable.

Hasling's luck never seems good at these meetings – in the first heat the motor was sent off under-compressed so he cut it after nine laps. He then made good progress but could not make up the time spent on this extra (fourth) stop. In his second heat he was again the fastest flier but pulled the model too hard on take-off after his third stop, causing it to run-in at 76 laps.

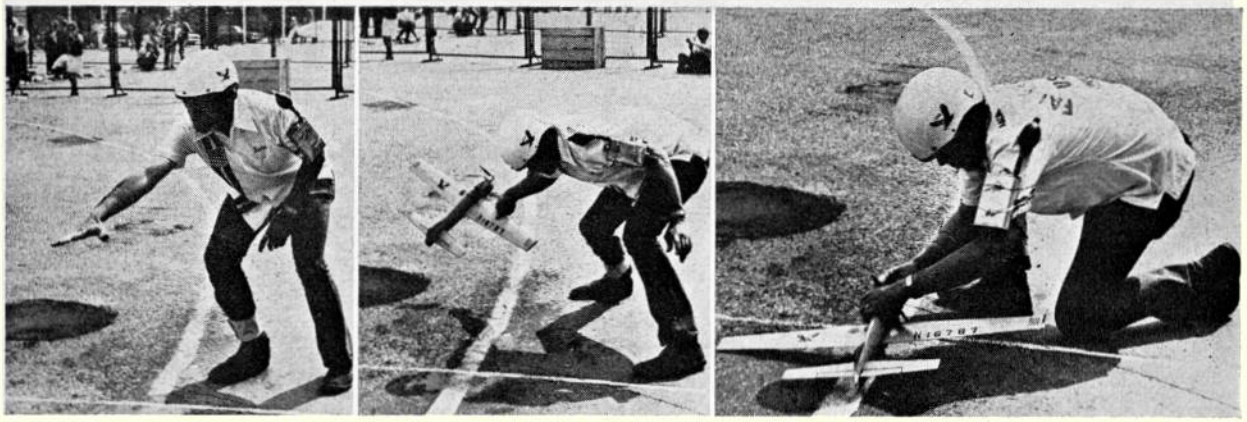
Third Danish team members were Bobjerg/Siggard, who used a similar cut-out in their unorthodox model which is basically the same as their 1970 entry at Namur. This features balsa wings covered with .05 in. aluminium foil to provide rigidity at a weight penalty of just 1¼ oz. A Bugl 15, with the Bugl conical crankshaft fairing provides the power, while a sprung undercarriage is also fitted. This latter device, in conjunction with the nose skid, permits the machine to stop from full speed in just 20-35 feet. A regulated exhaust stack primer is also fitted, and the complete model, less motor, tips the scales at a measely 8¾ oz. They, too, were unlucky in the first heat, the motor averaging only 21 laps until the third stop when the needle was leaned in and 31 laps were achieved – too late to save an extra stop. In their second attempt, the carburettor body itself came loose and they failed to complete the distance.

Winners of the 1971 International, Nore/Ekholm of **Finland**, were unable to repeat this form, and just missed the semi-finals by a scant three seconds, using the same *Karbunkle* design and Super Tigre G20/15D powerplant. Likewise, the **Germans** (West, that is), who did so well at Pecs, failed to maintain their standards. Highest placed were Bader/Kaul with the same design model used at Namur, now fitted with a Bugl (and guess whose fuel shut-off!), plus his own glass-





1. Timofeev prepares motor prior to a heat, while Rashkov of Bulgaria (2) awaits the starting signal. 3. Bobjerg/Siggard's unconventional model – in both appearance and detail. Opposite approach of absolute simplicity (4) was used by Danes Geschwendtner (left) and Rivold with their Super Tigre RV model. Fritschi/Borer of Sweden used a typical Bugl model (5) – the full-length crutch, nose fairing and cowl (in this case faired in with balsa at the rear) are all proprietry items. 6. Second-placed Russians Krasnorutsky (left) and Kamerenko. 7. Far-travelled competitor – Basil Menges of South Africa with HP powered model built in just 10 days. 8. Pontan/Winkler used Solarfilm/Monokote covering on flying surfaces. 9. McCollum of the USA fires up his ARM – note 'stop' sign in background to signal pilot. 10. Drazek with square-tipped design in lieu of his usual all-eliptical model. Beautiful 'natural wood' finish. 11. Cipolla brothers once more used their own built and designed motor. 12. Onufrienko catches his model in the final. Same design as in 1970.



How about 'How does that grab you, baby?', or 'Yours in anticipation' as suitable captions? In truth, it shows past double World Champion Don Jehlik waiting for, catching and refuelling his racer. Some pit men kneel throughout the catch-refuel sequence, others (such as Timofeev) only crouch during the whole process. A mixture of the two techniques for Don evidently.

fibre copy of Babichev's prop. They were among the few to achieve a two-stop race (32 and 68 laps) with this motor, but they were down on air speed and obviously set the needle lean, as in their first heat the motor sagged on take-off after 74 laps, and the model ran-in. Schwartz/Ilg had no obvious trouble from their HP15 but could not reach top form, while Brendel partnered by Kosmalla, not Glodeck on this occasion, also failed to meet expectations. His models was the same design with which he placed third in Hungary, but featured a different pan made of magnesium by Rumpel, which was very light *before* it was perforated under the cockpit area! Normal performance from the Cox-carburated, diesel-converted Super Tigre G15F.I is a 25-6 laps at 23-4/10. Complete model weighs 20 oz.

Keeping to alphabetical order, we now contemplate the fate of our own showing! Drawn to fly in the first heat of the contest were Joe Devonish and Les Davy. By burning the midnight oil, Joe had produced a couple of new models to supplement his usual elliptical-winged model which won the recent Nationals. In addition to his HP, he had a new Bugl, but in common with many other competitors decided to play safe and use the 'trusted' equipment. However, bad luck struck them seconds after the start when the HP sagged and cut-out on the point of take-off, causing Joe to reach into the circle to retrieve it and losing four laps in the process. A good stop followed, then a poorer one, and finally the motor slowed as it ran out its last tankful for a disappointing 5:18.6. Their luck was better in the second round when the motor behaved itself, feeling thirsty at 32, 66 and 98 laps (glided to finish), but it just wasn't quick enough. Second team to fly was the Nixon/Ellis combo who had built two models in just a few weeks since notification of the vacancy on the team. Their Super Tigre had given overheating problems in practice, but the judicious cutting of holes in the glass-fibre fuselage helped overcome this. Even so, they prayed for rain – unsuccessfully – even though it was slightly cooler. In the race they had too lean a setting, and although the motor did not 'cook up' too badly – only one stop could be considered slow – the edge was taken from the top speed and 5:37.8 was the result. In the second heat they were low on laps, an extra stop being necessary at the 97th lap, and this was slowed by Mick Ellis having to gouge the prop to clear a cowl retaining screw which had loosened and was rubbing – no doubt the cause of the lost laps.

Malcolm Ross elected to use their familiar ETA model for the first flight, and used a Babichev deep-cuffed prop, loaned from the Russians. This gave poor initial acceleration, but prevented the motor from being overloaded on overtaking, and generally gave better performance. They came unstuck, however, after the first stop when the lead-out guide tube came loose, causing the lines to slice the wing and operate the shut-off after a further lap. Even so they finished in 5:00.4, which included a two-lap glide to the finish. Next time out they used their new Bugl, but suffered the same misfortune as Joe Devonish when the motor burped and cut prior to take-off. Running back one segment, Malcolm soon restarted it, but they couldn't make up for this handicap, and recorded a flight two seconds slower than before.

Always consistent performers, the **Dutch** were no exception this year, once more all flying their well-developed *Turtle* designs. Highest placed were the Metkemeyer brothers, but an overlean run from their Super Tigre G20 in the first heat slowed them considerably. A change to a Rossi 15 in the second round brought a drop in laps from 38 to around 25 with attendant increase in airspeed. However, this motor also suffered from overheating – as do many rear exhaust motors, and so they just missed qualifying for the semis. Buys/Visser used a Super Tigre G20 crankcase fitted with a G15 liner in their *Turtle*, but despite 'no problem' races, were just not quick enough. Kroon/Helmick damaged their Rossi 15 in a practice prang, and found their reserve motor, a dieselised S.T. G15 F.I., lacking in top performance, and not too consistent at restarting.

Prize for unluckiest country must go to the **South Africans.** Their tale of woe began during unofficial practice when Basil Menges and Mike Todd had a collision. Both repaired their models overnight with plenty of 'five minute' epoxy, but on their next practice session John Wellman and Mike Todd had a further prang with a mix-up in the centre involving Herb Stockton. This time damage was more serious – indeed Todd's Bugl was completely written off. Next, during the second round, the Todd/Parsley's reserve model, with a Moki engine, snagged on the Israeli's lines, which promptly removed the front cowl. For the re-run this was glass-fibred back together, but tank troubles completed their run of ill-luck.

Ponton/Winkler of **Sweden** suffered from a 'tight' engine in the second round, the Cox-carburated Super Tigre G20/15 providing neither speed nor laps. A pity this, as the attractive model (Monokote wings, Solarfilm-covered tail and painted fuselage) looked promising, featuring a richening tube to the venturi for take-off, a regulated exhaust primer, but strangely, no fuel shut-off. Propeller used was a home-cast glass-fibre copy of the Drazek 7 in. x 7½ in., while an 'anti-vortex' starboard wing tip acted as a useful catching aid.

It was assumed right from the start that the team from the **U.S.A.** would provide the greatest challenge to the Russians, but things do not always work out as planned! Stockton and Jehlick, World Champions in '66 and '68, had visited Paul Bugl in Germany on the way to this meeting to collect a new Bugl 15, and while there Don built a 'caricature' Bugl model, which performed quite well, but despite hard practising in Finland, he was not satisfied with it and reverted to his ARM-powered model which was at times a little slow restarting, and lacked its usual airspeed to record a 4:48.2 in the first heat. In their second round, they suffered the misfortune to have an unscheduled stop on the 99th lap which was made worse when the engine promptly cut

The unlucky South African team consisted of (l. to r.) Pat Parsley, Mike Todd, Allan Hamilton, John Wellman, Basil Menges and Tommy Scholtz.

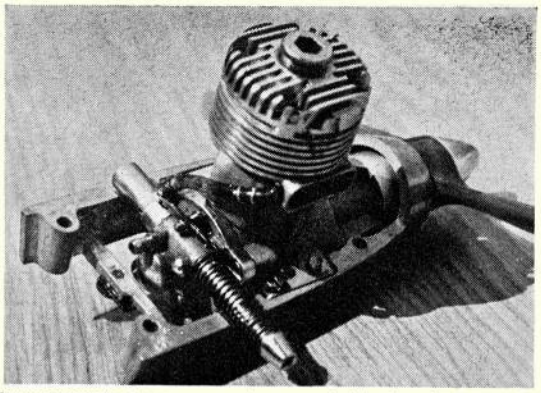
on take-off, putting them way behind at 5:09.3. An over-long range of 39 laps on the first tankful was blamed on overheating the motor. Dunkin/Wright were all set for a respectable time with their HP15-powered machine, but pilot Jim Dunkin misinterpreted his pitman's shout of encouragement and cut the motor after 82 laps, believing he had finished. The illuminated lap counters *were* working at the time. . . . A change to an ARM-powered model later did them no good, as a slow landing and pit stop pushed them too far behind. Third American team, Hodgkins/McCollum, were more fortunate, however, and some excellent pit work to a well-behaved ARM gave them a pair of really good times. A sprung undercarriage provided landings which seem to glue the model to the tarmac no matter what the speed, and with no pitching being evident. Normal 'traffic' airspeed is around 90 m.p.h., with 95 plus available when solo.

And finally, the teams from the **U.S.S.R.** All used engines based on a casting marked 'TMA', but each team's motor differed slightly internally. Plotsin/Timofeev had the best range – they set the needle to achieve 48 laps in practice, then richen it up so that 42 laps result, although their normal practice is to cut the motor after 35. Their model features a thin (approx. ¼ in.) wing section and has an asymetrical wing, although this cannot be determined by eye! No nose skid is employed, but the wheel is closely shrouded by a titanium fairing, so that it acts as a brake on landing, but the tyre is pulled free on take-off. Weight is only 16 oz., so acceleration is terrific, while speed loss is equally dramatic on landing – the model arriving in the pitman's hand relatively slowly. The complete model is covered with a layer of glass-fibre cloth.

Kraznorutsky had a new pilot on this occasion – Kamarenko replacing Babichev – and used a model which appeared identical to his 1970 winner. Again, lightweight seemed the secret to its success – there being nothing special about the models used by any of the Russians. No fillets were employed around the wing or tail joint. This team also produced a beautifully finished racer, completed in camouflage scheme with a retract undercarriage – the wheel being brought up via centrifugal force and lowered as the cut-out was operated on down elevator. Although they practiced with this model, it was not used, possibly due to the bumpy nature of the tarmac which could have been embarrasing to such a design.

Third team members were Onufrienko and Shapovalov with a model again identical to that used in Namur, and once more very light! To see how well these teams performed, just look at the results – and bear in mind that their slowest time (4.30.5) by Plotsin was the result of an accidental extra pit stop.

And so for the first semi-final between Kamerenko/Kraznorutsky, Drazek/Trnka and Italians Penso/Marini. All were off together, but the Russian's motor was still rather cool, sounding undercompressed, while the Czech's MVVS was 'crackling'. The Russian motor picked up after 10 laps and then showed its superior airspeed, which combined with two ultra-fast stops gave them a time of 4:15, despite being slowed by the Italian pilot's walking-backwards technique. Drazek had one slowish stop at 66 laps and was



Krasnorutsky's team race motor mounted in its short crutch. Note the engine shut-off device combined with refuelling valve, automatic exhaust primer and auto reset for the cut-off, similar to many continental devices. Russian motors have speed and range!

forced to take an extra stop at the 99th lap to result in 4:56, just behind the Italians at 4:47. Next to appear were Votypka/Komurka, Plotsin/Timofeev and Hodgkins/McCollum were were left to uphold the honour of the U.S.A. However, once again this proved a walkover for the Russian pair who had the highest airspeed and who only needed two stops, and they recorded 4:18, some 32 seconds in front of the 'three-stop' Czechs, who finished a further second better than the Americans who were forced to have an extra stop at 96 laps when the motor hardened off. The third semi produced the same story once again – Shapavolov/Onufrienko recording 4:34 with a motor which seemed thirstier than its compatriots, achieving 35 laps per tank, but the cut-out was hardly necessary, the motor just 'coughing' at this range. Rivold/Geschwendtner finished in 4.54 with their three-stop Super Tigre way down on speed (the Russian completed 10 laps in 22.6 seconds, the Danes 26.1). Safler/Kodytek suffered from an over-hot motor, taking 5:07 to complete the distance.

Therefore a duplicate situation of the '70 Champs existed – three Russian teams in the final! Each team was offered a practice flight immediately prior to this final, but only Krasnorutsky bothered. As the whistle blew, Onufrienko and Krasnorutsky got their motors going immediately, leaving Timofeev one lap behind. However, Krasnorutsky's motor was still cold (he cut his finger during warm-up) and so his pilot stopped the motor after five laps. Away again, it still was not quite on song until after the first 'proper' stop at 34 laps. Shapovalov landed at 33 laps, and it was obvious that his shift lack of airspeed was due to the frayed ends of his glass-fibre prop which had touched the ground on take-off. Plotsin, of course, had greater range, and continued to 43 laps before refuelling. The race pattern was now decided, and with all pit stops approaching perfection, any bad luck could have stopped Plotsin from winning, which he did, pitting again at 84, 126 and 147 laps, finishing with a fantastic time of 8:30.4. Some 17 seconds later came Kamerenko/Krasnorutsky, following five further stops. Kamerenko's model was clearly the faster, having been nine laps down at half distance, and only seven down at the end despite the extra stop. Shapovalov/Onufrienko suffered a slow stop and this, plus the damaged prop, slowed them considerably.

So Plotsin/Timofeev are at last World Champions, having been so close to it on many occasions. Not bad at all for a pair who live a thousand kilometres apart, and only fly together approximately three times a year. . . .

Aerobatics by Steve Blake

LAST YEAR in my 'observations' on the European Championships, I noted a distinct trend towards larger engine sizes. Surprisingly, however, this trend was reversed at the Helsinki competition, where only 12 competitors used engines of 0.40 cu. in. or larger, less than half the entry. I find this encouraging for, as I stated before, I believe a smaller model flies more accurately, and nothing I saw in Helsinki has altered this view.

For the record, the engines used were: Fox 35 (five),

Aye, and proud – even happy – about it! Our interests were looked after by (l. to r.) Messrs. Ross, Newnham, Davy, Devonish, Nixon, a partially obscured Mick Ellis, Derek Heaton (even more hidden behind standard bearer Jackson), Blake, Woodrow, a just-visible Ron Irvine, and last (and to coin a well-known phrase) by no means least, the industrious team manager Gordon Isles.

The new World Aerobatic Champion, Bill Werwage seen with his Team Manager Doc. Jackson. Bob Gieske had led the contest through the qualifying rounds, but lost his title when his motor ran out of fuel during his first fly-off flight.

Merco 35 (four), M.V.V.S. 35 (four), S.T.46 (four), O.S. 35S (two), Veco 45 (two), and one each O.S.40HP, O.S.40S, Merco 61, Enya 45, Akrobat 40, S.T.35S and S.T.40.

More wooden propellers were in use, only six competitors choosing nylon types, this trend being in keeping with the smaller engines used. From conversations, it would appear that good quality wooden props are difficult to obtain in some countries, and it was noticeable that Plotsin (U.S.S.R.) was using a repaired 10 x 6 Top-Flite with hardwood inserts neatly grafted into the tips.

Plenty of new models were in evidence – 12, in fact, which is a high figure for an International competition. Werwage had a modification of his 1970 model, which looked identical, but close examination revealed a shorter tail moment, less weight, bigger engine, and new cowl shape. Gerry Phelps' *Venture* looked more practical than his 1970 model, which was very 'bulky', but lost out because it would not turn tightly enough. It featured a detachable wing, the joint of which was almost imperceptible. Bob Gieske's model was a slight development of his well-known Nobler modification. Rossi (Italy) had two new models, but still appears to be searching for the right design to develop further. Keller (Switzerland) used a model of his own design, which appeared to fly well, and given practice could justify a higher placing. Two Russians produced new models: Plotsin, and Kondratenko. These were certainly overdue, as their 1970 models were too big and too heavy for their engines. Their new models would appear to have contributed significantly to a greatly-improved Russian team performance. It was good to see an entry from Japan, and although direct conversation was impossible, as he spoke no English, I am sure that Mr. Yamazaki left a very favourable impression on all who attended the Helsinki meeting. He used his own design (I believe) Enya 45-powered very semi-scale Tony, which must have been the second largest model flown at the Championships. Actually, the largest was the model flown by Lief Eskildsen (Denmark), and, as always with his models, excelled in the square manoeuvres. However, this model was also about the poorest-finished at the meeting, together with his team mate! This is quite surprising, as Danish models have in the past, whilst not being ultra well-finished, have been turned out very neatly. Claus Maikis (West Germany) used a very attractive model, which, however, failed to fly too well, due to being rather overweight, the price of a good finish!

Just two flyers used silencer pressure tank arrangements, Gieske and Yamazaki, but while both achieved a good run, I can see no real advantage in this method. I noticed that Gieske's still increased in speed in the final manoeuvres. It still amazes (and pleases!) me how well stunt fliers are fitting silencers that comply with the spirit of the rules, and not just the letter of the rules, the vast majority being commercial types without 'modifications'.

Enough of the machines, now for the flying. The Helsinki venue was, of course, well known to International stunt competitors, as it was used for the 1968 Championships. It has been widely criticised for being in an area which would cause severe turbulence in a moderate to strong wind. These critics expect the Championships to be flown in the middle of a large airfield, which would remove all possibility of severe turbulence occurring. My own feelings on this subject are that while an airfield site is idyllic, experience shows that the vitally necessary financial considerations of running the World Championships have without exception provided sites equally as difficult to fly, or even worse than the Helsinki site. This fact leads me to the belief that competitors in International Championships should expect to fly in rough conditions, and come prepared with a model that has a strong resistance to turbulence and sufficient offsets to maintain line tension without having to move from the flying spot. They should also practice in similar conditions at home before the competition. However, once again we were fortunate that the winds stayed light for the entire competition, providing very equal conditions.

This year was, of course, the first year that the fly-off system has been used, and it was generally well received. I feel that it possesses the following advantages over the old system. Firstly, there is greater competition in the 'middle positions' to qualify for the fly-off. Secondly, each flight is now more important either for individual results for those competing in the fly-off, or for the team results for those who do not qualify. Thirdly, it gives the judges a much better chance to do their task properly, particularly since each fly-off round is only two hours in duration the climatic conditions are unlikely to change drastically.

On the subject of judging, there is fortunately little to say, as the results were better received by the competitors than any others I can remember! During the competition, the individual judges' score became generally available on an unofficial basis, the maximum differences for each set of scores varied from practically nothing to approximately 250 points, and averaged around 100 points. It seems to me that a difference of the order of the larger figure is too great; however, it did vindicate the use of the five judge system, since the larger differences in judging were confined in most cases to two judges.

I would thus like to put forward some suggestions regarding the judging of these events. Firstly, that some method should be employed so that a competitor can have access to his score sheets. This is necessary, I believe, if the competitor is to realise the mistakes he is making. Secondly, that the panel of judges appoint one of their number to act as a co-ordinator, who would serve two functions. Before the competition it could be possible through him to make contact with all the judges to develop a common approach to the judging. In particular, I feel that it would be advantageous to establish clear precedents on such matters as incomplete manoeuvres, poor hand signals, models touching the ground in flight, etc. During the competition he would be the person to whom all queries regarding judging matters would be addressed.

Now for the most important subject of all, the flying. Once again, the Finnish organisers imposed the same engine starting restrictions as used in 1968; that is, once the prop is flicked, the stop-watch is started, regardless of whether

1. Plotsin had a new stunter, finished to his usual immaculate standard. 2. Claus Maikis had a most unusual yet attractive model, but too much work on the finish made it rather overweight. 3. Sole Greek aerobatic flier was John Constantacatos who used this superbly painted Chipmunk from the Sig kit. 4. Gary Phelp's 'Venture' was surely the most beautiful ship to be seen with 15 coats of dope/primer, 2 only of colour. Uses detachable wings (2 dowels at T.E., two nylon bolts at front). 5. Josef Gabris, long-time stunt maestro, placed 2nd. 6. Campostella used last year's Macchi 202 – still looking like new! 7. Biggest model of the meet was Lief Eskildsen's Merco 61 powered, tricycle u/c design. 8. Louis v.d.Hout's 'Spider' performed particularly good 'squares'. Has wing area of 54 sq. in., weighs 56 ounces. 9. Jurecka caused quite a sensation by placing 4th in his first World (or International) Championships. The ill-fated Bob Gieske used his familiar modification of the Nobler. (10) Our best placed pilot (eleventh) and observer, Steve Blake is seen in 11. First entrant from Japan to these meetings was Atae Yamazaki who flew extremely well with the large semi-scale Tony design.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VENTURE
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SPIDER
KHER-001
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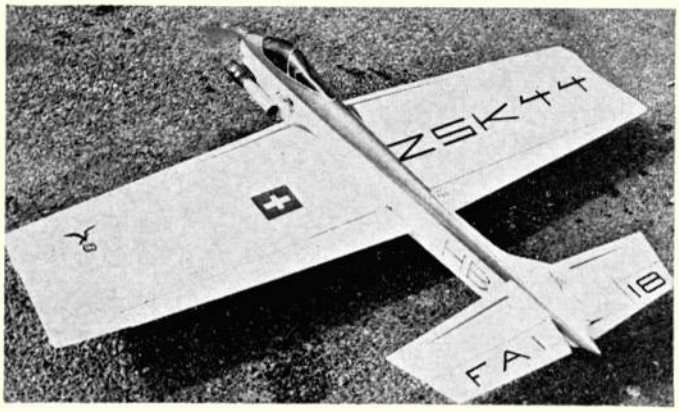

Arthur Keller of Switzerland flew this impressive, large area machine powered by a Veco 45 fitted with a home-made silencer. Very well finished, too.

the plug was connected or not. While I can understand the reasons behind this move (language difficulties and reduction of time-wasting preparations), I believe that a better method would be to have a fixed time limit from being called into the circle, during which an attempt must be commenced. Many flyers take an unnecessarily long time in preparing to fly. However, this is a small point, and the overall organisation was excellent, little points like using two watches for the flight time, checking line diameters, and the absolute impartiality of the officials were all much appreciated.

Take-offs generally seemed better, probably due to the new rule definition, though most fliers could gain extra points with a little extra effort. Reverse wingovers showed a tendency to large corners on entry and exit, which was probably due to high flying speeds generally adopted. There is a tendency to neglect the loops, inverted, bunts sequence, as they are low 'K' factor manoeuvres. In fact, to do them correctly requires great skill, usual faults are egg shapes, wrong line angles, and flat sides. These faults are often so smoothly done that only the most experienced judge could detect them. Square loops and bunts generally suffered from one of three faults: unequal length of sides, wrong top and side angles, and incorrect line angles. Very few good triangles were seen, almost invariably the top angle exceeds 90 degrees, instead of the 60 degrees it should be. Horizontal eights were generally stretched in length, and even some of the highest-placed competitors were unable to get their models vertical through the intersections. Square horizontal eights are usually considered to be most important, due to their high 'K' factor, and is one manoeuvre where the model must be really good to succeed well; faults tend to come in every part of this manoeuvre. Most common faults in the vertical eights are egg-shaped loops, model not going horizontal in the intersections, and model flying over the back of the pilot's head. The hourglasses performed are almost invariably too wide, and the last pull out too high. Overhead eights generally suffer from being too large. The clover leaf is really a very simple manoeuvre, but is seldom executed properly, the common fault being to overlap the various component loops. Landings were generally very good, but the approaches could be better, a bounce was so rare as to be cause for remark.

Summarising, then, nobody is performing the current schedule to a standard approaching anything like perfection, so that any move to change the schedule would be unnecessary.

Personally, one of the highlights of my journey to Helsinki was meeting George Aldrich and seeing him perform with my Nobler after the event. His flying was in marked contrast to the American team, his stance in the circle is very relaxed, and he makes no effort to lead the model with his arm. Although he had not flown a stunter for a year before the champs, and my model having a rearward C of G compared to his own, he was soon performing some impressively accurate manoeuvres, with the motor set deliberately rich. I think that his trip to Helsinki has given George the itch to try his hand at competition flying again; anyway, I hope so!

Speed

by Ron Irvine

As in previous years a practice circle had been laid on at the Malmi Airport just a few miles away on the outskirts of Helsinki. A number of teams, notably the Italians and Americans had arrived a few days prior to the contest in order to acclimatise themselves to the conditions prior to the official practice. However, as there was only one circuit at Malmi with a good enough surface on which to fly speed models and even team racers, this did mean that the circle was very congested at times, and it was very difficult for many competitors to get in all the flying that they would otherwise have liked. Nonetheless, several very good flights were seen with speeds in excess of 240 Km/hour being recorded. From stories which circulated in the bar during the evening it appeared that two of the competitors with the most likely chance of winning the contest were Carl Dodge of the USA and Ugo Dusi of Italy. They were practicing very early in the morning and speeds were reported as being in the region of 260 Km/hour and from these tales it certainly looked as though the contest was going to be very keenly fought, with speeds considerably in excess of those which were achieved in 1970.

The British team spent the whole of the Tuesday and Wednesday at the practice circle squeezing in flights whenever they could. Weather conditions in England during the first part of this year had been so bad that the British team members had been virtually unable to get any proper practice, with the result that much of the sorting out of problems which might otherwise have been done beforehand, had to be done on this flying circle at Malmi. However, by the end of the official practice on the Thursday, this work had begun to pay dividends, and the British team members were recording speeds in the region of 140 mph plus. Allan Woodrow in particular had one very good Rossi on which we were pinning all our hopes. I had two new-type Rossis which arrived a few days before the contest, but it appeared that these were still too tight to realise their proper potential. Brian Jackson was in trouble with engines and I lent him one of mine but this did not appear to get him over his problems. Even the old faithful T.W.A. would not perform the way that it should.

The Thursday was to be given over to processing and official practice and whilst processing went very smoothly, the speed and team race practice, which was scheduled to take place on the one circuit at Malmi, had very little organisation about it and it developed into a complete free-for-all with the team race models retaining the circle for most of the time, much to the consternation of the speed fliers who wanted to put in a few practice flights.

The contest proper commenced at 10.30 a.m. on the Friday morning, and it would be fair to say that throughout the next few days the organisation and timekeeping as far as the speed contest was concerned was much better than in many previous years. Certainly it was much better than in 1968. . . . The main contenders for the top honours this year seemed likely to be the Italians, the Americans and possibly the West Germans. Two of the Italians, Dusi and Larcher, were using new-type front induction Rossi 15s with modified timing which seemed to give them the capability of turning largish high pitch props such as 6 x 8 in. The third Italian, Ricci, used a prototype of the new rear exhaust Super Tigre 15. This is a rear induction engine and in con-

New speed champion Ugo Dusi holds his metal-skinned, Rossi 15-powered ship, being partnered by Ugo Rossi of Fratelli Rossi – nothing like having the engine designer/manufacturers to hand when you need a few extra km./hr.!

1. Giancarlo Ricci placed second with the new Super Tigre rear exhaust motor – quite a challenge to the Rossis! 2. Carl Dodge (U.S.A.) had the lightest models, but found T.W.A. lacking in power. 3. Only other competitor using the X-15 Super Tigre was Pagani of Switzerland – no doubt more will be seen when motor reaches production stage. 4. Burtzev used a small volume pipe and very little cooling for his Start engine. Same engine used in Zhidkov's asymmetric design (5) flown proxy by Natalenko and appearing identical in design to Rodzher's model flown at Namur in '70. 6. Spaniards Parramon (left) and Pacheco had a new-type Rossi, but it was still too tight to perform as it should. Free-flight Power champion Rolf Hagel (7) flew in the Swedish team with home-tuned Rossi. 8. Another view of Hagel's model reveals metal flying surfaces. Crankcase pressure and CFS used. Motor turns 5½ in. x 7 in. Topflite propeller. 10. Louis Bilat discovered how to get your model's picture published – just use an 'Aeromodeller' transfer! 11. Robert Stahr (U.S.A.) used this 'one-sider' design with metal wing wrapped around wood spar. Drops badly when engine cuts! 12. Our best performer, and holder of new British record, Alan Woodrow.

sequence Ricci was able to use, with considerable success, the uniflow type fuel tank. It also appeared that the Super Tigre must develop its power at fairly high r.p.m. judging by the exhaust note and the length of pipe which was being carried.

Of the Americans, Carl Dodge was the only one this year to use T.W.A. He has rebuilt his T.W.A. with some of his own parts including a new pipe which he claimed gave him more power than the production pipe. Chuck Schuette and Bob Spahr were using Rossi 15s which they had converted to rear valve induction. They were also using uniflow-type tanks. The three German team members were using assymetrical models with Miebach Rossi engines and centrifugal fuel switches.

There were no radically new things to be seen this time, but rather there were a number of very fine models with mechanical refinements. Carl Dodge of U.S.A. had a most beautiful all-balsa model which was the lightest model of the whole contest, weighing only 13½ oz. The Italian models were also very fine works of art with metal-covered balsa wings and removable fibre-glass cowls, producing an all-up weight of about 14½ oz. The two Rossi men, Dusi and Larcher, also had built-in fuel shut-offs which they operated by plucking the down lines. This is an innovation as far as speed flying is concerned and offers a number of advantages in that one can use a somewhat bigger tank than might otherwise be advisable, and the best part of the run can then be selected for the timed run in the pylon and the engine cut immediately afterwards before it starts to go lean. It furthermore has the advantage that should anything go wrong, or the needle setting not be correct, then the engine can be stopped immediately before any harm is caused. Both Ugo and Cesare Rossi were in attendance and they were very much to the fore in giving instructions to their men via an airhorn system of signals in order to advise them when they should commence their timed run in the pylon.

At the end of the first round the results looked very much in accordance with what had been expected. Ugo Dusi of Italy was in the lead with 246 Km/hr., Antonio Larcher was second with 244, Jääskeläinen of Finland was third with 238 and Baidalinov of U.S.S.R. was fourth with 238 also. Dodge of U.S.A. was the leading American in fifth place with 237. Lenzen of West Germany was sixth with 235. I was in eleventh place with 229, Alan Woodrow was thirteenth with 228 and Brian Jackson was twenty-first with 212 Km/hr.

At the end of the second day the results had not altered very significantly. Dusi was still in the lead with 250, Larcher of Italy was second with 244, but surprisingly enough, Pagani of Switzerland, who was the other member of the Super Tigre team, was third with a very good run of 244. Chuck Schuette of U.S.A. had moved up into fourth place with 243, Lenzen of West Germany had improved considerably with a second run of 239, Ricci of Italy, with the second Super Tigre was sixth at 237, Dodge of U.S.A. had now fallen back to ninth place as he did not get a timed run in this round. Alan Woodrow was in twelfth place with a time of 232, I was in fourteenth with 230, Brian Jackson was in twenty-second with 224.

Jose Ferron of Cuba with his nicely prepared MVVS powered speed model, featuring a balsa-spruce wing and half pan. Cubans were alone in not using tuned pipes – a sign of the times!

There were still no signs of the speeds which had been reported in practice, and the last day therefore remained very interesting to see whether one of the top men could pull one of these very high speeds out of the hat. However, it did appear that perhaps the heat was against us, although Ricci of Italy put in a very good run of 251, which took him up into top place for most of the day. This was only bettered right at the end of the contest when Ugo Dusi just pipped him with a run of 252. The surprise was when Lenzen of West Germany got into a run of 247 almost unnoticed, which took him up into third place above Larcher. Pagani was then in fifth place, Chuck Schuette was top-placed American with 243, followed by Carl Dodge of U.S.A. in seventh with 242. Alan Woodrow got in a very good run of 237 which took him up into eleventh place. I was unable to better my previous speed of 230 and dropped back to sixteenth. The whole team also put in a lot of effort to try and get Brian Jackson's speed up somewhat, but it appeared to be just one of those days when nothing would go right, and the best that Brian got was 224.

Some measure of how keen the competition was this time, and how much things have improved since 1970, may be seen from the speeds. Gaya of Spain recorded a best time of 229 which would have taken him into third place in 1970, instead, this year, it took him into seventeenth and the winning speed made by Dusi went up by over 12 m.p.h. There is no doubt that the new Rossi is really developing a tremendous amount of power, whether or not Rossi Bros. can find even more for next time remains to be seen, but presumably they will be able to do something, as there has been a steady development and improvement since they introduced the first 15. The new Rossi and the new Super Tigre are scheduled to go into production later this year and it is going to be very interesting this time next year at the Criterium to see whether the production versions of the Super Tigre will be a match for the Rossi which is, of course, a production engine at present. It certainly does appear that the long run of success which the T.W.A. has had is well and truly over.

SPEED

			Best Flight Km/hr	Engine
1	U. Dusi	Italy	252	*Rossi 15*
2	G. Ricci	Italy	251	*Super Tigre X-15*
3	J. Lenzen	W. Germany	247	*Rossi 15*
4	A. Larcher	Italy	244	*Rossi 15*
5	F. Pagani	Switzerland	244	*Super Tigre X-15*
6	C. Schuette	U.S.A.	243	*Rossi 15*
7	C. Dodge	U.S.A.	242	*T.W.A.*
8	K. Jääskeläinen	Finland	241	*Rossi 15*
9	L. Bilat	Switzerland	240	*Rossi 15*
10	E. Rumpel	W. Germany	239	*Rossi 15*
11	**A. Woodrow**	**Great Britain**	**237**	*Rossi 15*
12	G. Baidalinov	USSR	237	*Start*
13	R. Spahr	U.S.A.	237	*Rossi 15*
14	V. Fagerström	Finland	233	*Rossi 15*
15	S. Burtzev	USSR	232	*Start*
16	**R. Irvine**	**Great Britain**	**230**	*Rossi 15*
17	L. Gaya	Spain	229	*Rossi 15*
18	L. Parramon	Spain	228	*Rossi 15*
19	R. Hagel	Sweden	226	*Rossi 15*
20	Natalenko	USSR	226	*Start*
21	L. Cernold	Sweden	226	*Rossi 15*
22	**B. Jackson**	**Great Britain**	**224**	*TWA/Rossi 15*
23	C. Collias	Greece	223	*Rossi 15*
24	O. Kjellberg	Sweden	220	*O/D*
25	S. Pacheco	Spain	217	*Rossi 15*
26	L. Scholtz	W. Germany	210	*Rossi 15*
27	A. de Brie	Holland	209	*Rossi 15*
28	M. Lambrou	Greece	208	*Rossi 15*
29	L. Eskildsen	Denmark	201	*Rossi 15*
30	C. Nassiopoulos	Greece	172	Rossi *15*
31	C. Hernandez	Cuba	144	*MVVS*
32	J. Ferron	Cuba	141	*MVVS*
33	A. Alvarez	Cuba	—	*MVVS*
34	M. Pietinen	Finland	—	*Rossi 15*

Leif Cernold of Sweden, yet another Rossi flier (indeed what else!), fills his tank with 'standard brew'.

WORLD CONTROL LINE CHAMPS

HELSINKI, FINLAND,

13-17 July, 1972

OFFICIAL RESULTS

NATIONAL TEAM RESULTS

Aerobatics

1	U.S.A.	16774
2	Czechoslovakia	16728
3	USSR	16217
4	Italy	15382
5	**Great Britain**	**14481**
6	Holland	14183

Speed

1	Italy	747 km/h
2	U.S.A.	722 km/h
3	W. Germany	696 km/h
4	USSR	695 km/h
5	**Great Britain**	**691 km/h**
6	Spain	674 km/h
7	Sweden	672 km/h
8	Greece	603 km/h

Team Racing

1	USSR	12:50.4
2	Czechoslovakia	13:53.3
3	U.S.A.	14:03.4
4	Holland	14:42.8
5	Sweden	14:43.5
6	W. Germany	14:45.0
7	Finland	14:54.4
8	Denmark	15:08.6
9	**Great Britain**	**15:23.1**
10	Bulgaria	15:29.5
11	Italy	15:46.6

AEROBATICS

			Fly-off Rounds 1	2	Total	Engine
1	W. Werwage	U.S.A.	2847	2994	5841	*Super Tigre 46*
2	J. Gabris	Czechoslovakia	2808	2858	5666	*MVVS 35*
3	B. Jurecka	Czechoslovakia	2816	2783	5599	*MVVS 35*
4	L. Eskildsen	Denmark	2803	2776	5579	*Marco 61/O.S. 35*
5	L. v.d. Hout	Holland	2681	2891	5572	*Veco 45*
6	R. Gieseke	U.S.A.	2640	2879	5519	*Fox 35*
7	V. Esjkin	USSR	2721	2769	5490	*Akrobat 40*
8	I. Cani	Czechoslovakia	2752	2711	5463	*MVVS 35*
9	L. Compostella	Italy	2704	2754	5458	*Super Tigre 46*
10	K. Plotsin	USSR	2699	2700	5399	*Merco 35*
11	**S. Blake**	**Great Britain**	**2632**	**2737**	**5369**	*Merco 35*
12	S. Rossi	Italy	2557	2710	5267	*Super Tigre 46*
13	O. Andersson	Sweden	2618	2578	5196	*Fox 35*
14	G. Phelps	U.S.A.	2544	2650	5194	*Super Tigre 40*
15	E. Kondratenko	USSR	2510	2676	5186	*Fox 35*
			Initial Rounds			
16	A. Yamazaki	Japan	2376	2476	4852	*Enya 45*
17	**J. Mannall**	**Great Britain**	**2183**	**2465**	**4648**	*Merco 35*
18	C. Cappi	Italy	2266	2366	4632	*Super Tigre 46*
19	**J. Newnham**	**Great Britain**	**2173**	**2291**	**4464**	*Merco 35*
20	A. Metkemeyer	Holland	2202	2245	4447	*Super Tigre 35S*
21	P. Tupker	Holland	2017	2145	4162	*Fox 35*
22	Fjord	Denmark	1722	2097	3819	*O.S. 35*
23	H. Meder	Finland	1974	2027	4001	*O.S. 40*
24	C. Maikis	W. Germany	1093	1922	3015	*O.S. 40P*
25	J. Constantacatos	Greece	1906	1911	3817	*O.S. 35S*
26	S. Aaltio	Finland	1713	1894	3607	
27	R. Berger	Switzerland	1732	1861	3593	*Fox 35*
28	A. Keller	Switzerland	1612	1699	3311	*Veco 45*
29	J. Fernandez	Cuba	696	745	1441	*MVVS 35*

Team Racing

			Round 1	*Round 2*	*Final*	
1	Plotsin-Timofeev	USSR	4:30.5	4:13.1	8:30.4	*O/D*
2	Kamarenko-Kraznorutsky	USSR	4:16.4	—	8:47.4	*O/D*
3	Shapovalov-Onufrienko	USSR	4:20.9	—	9:12.7	*O/D*
4	Hodgkins-McCollum	USA	4:26.5	4:34.2		*ARM*
5	Trnka-Drazek	Czech.	4:37.5	4:48.1		*MVVS*
6	Votypka-Komurka	Czech.	disq.	4:37.5		*MVVS*
7	Safler-Kodytek	Czech.	4:58.3	4:38.3		*MVVS*
8	Rivold-Geschwendtner	Denmark	5:07.0	4:39.8		*S.T. G15 RV*
9	Penso-Marini	Italy	4:40.2	5:23.0		*S.T. G15 RV*
10	Nore-Ekholm	Finland	4:43.2	97 laps		*S.T. G20/15D*
11	Timev-Rashhov	Bulgaria	4:52.8	4:44.9		*S.T. G15 RV*
12	Metkemeyer-Metkemeyer	Holland	4:45.5	4:46.9		*S.T. G20/15 and Rossi 15D*
13	**Devenish-Davy**	**England**	**5:18.6**	**4:46.9**		*HP 15D*
14	Stockton-Jehlik	USA	4:48.2	5:09.3		*ARM*
15	Dunkin-Wright	USA	4:54.5	4:48.7		*HP15D/ARM*
16	Lutchev-Lutchev	Bulgaria	4:49.8	4:59.2		*S.T. G15 RV*
17	Larsson-Rylin	Sweden	4:52.8	4:59.3		*S.T. G15 RV*
18	Bader-Kaul	W. Germany	75 laps	4:52.9		*Bugl 15*
19	Axtilius-Samuelson	Sweden	5:00.5	4:53.1		*Bugl 15*
20	Schwartz-Ilg	W. Germany	4:54.2	4:58.3		*HP 15D*
21	Buys-Visser	Holland	4:57.9	4:56.0		*S.T. G20/15*
22	Dessaucy-Delhez	Belgium	5:10.8	4:56.0		*Oliver Mk 3*
23	Geschwendtner-Hasling	Denmark	4:56.0	76 laps		*HP 15D*
24	Pontan-Winkler	Sweden	4:57.6	5:14.7		*S.T. G15/RV & S.T. G20/15*
25	Brendel-Kosmalla	W. Germany	—	4:57.9		*S.T. G15 F.I.*
26	Aarnipalo-Fagerström	Finland	4:59.6	5:36.2		*S.T. G20/15*
27	**Heaton-Ross**	**England**	**5:00.4**	**5:02.4**		*Eta/Bugl 15*
28	Kroon-Helmich	Holland	5:01.3	5:06.7		*S.T. G15 F.I.*
29	Nordlund-Pihkanen	Finland	6:00.6	5:11.6		*S.T. G20/15*
30	Cipolla-Cipolla	Italy	5:28.2	5:13.9		*O/D*
31	Wellman-Hamilton	South Africa	5:36.2	5:25.4		*Rossi 15D*
32	Bobjerg-Siggärd	Denmark	5:32.8	90 laps		*Bugl 15*
33	**Ellis-Nixon**	**England**	**5:37.8**	**5:35.8**		*S.T. G15 RV*
34	Holz-Menges	South Africa	5:47.2	—		*HP 15D*
35	Sighinolfi-Onesti	Italy	50 laps	5:52.5		*S.T. G15 RV*
36	Stantchev-Jordanov	Bulgaria	5:54.8	0 laps		*S.T. G15 RV*
37	Fritschi-Borer	Switzerland	5:55.6	62 laps		*Bugl 15*
38	Gaffner-Berger	Switzerland	7:07.8	6:27.8		*Rossi 15D*
39	Hernandez-Pous	Cuba	50 laps	8:06.7		*MVVS*
40	Carasco-Aguirre	Cuba	8:58.0	9:00.4		*MVVS*
41	Todd-Parsley	South Africa	31 laps	45 laps		*MOKI TRS*
42	Rosenberg-Brafman	Israel	disq.	disq.		*Eta 15*

CLUB NEWS

NO ACTIVITY, not even sailing, is so dependent on fair weather than aeromodelling. And, certainly, this summer we have had our share of off-putting days, with a wet and windy Nationals thrown in for good measure, but people keep a cheerful model flag flying, nevertheless. A good example of this comes in our first report.

Tony Rogers, P.R.O. of the **Western Area,** presents a less gloomy view of the Nationals than some we have heard. Plenty of enthusiasm on the part of the Area visitors put the weather in its place, and a good time was had in consequence. Successes there, too. Derrick Wain placed second in Open Power and fourth in F.A.I. Quite a feat considering the high standards you now get in these almost specialist events. Dave Bailey, too, did well in Power. After breaking several glider jobs as a prelude, he was just pipped into second place in the ½A event. John Bailey, flying in Coupe D'Hiver, also lost by a short nose; failing to max out on his last flight. Tony Rogers braved the conditions in Glider to return a useful, but not quite good enough, 4½ mins., but Butch Hadland, on the other hand, had too much respect for his models to take the lid off his box. Notable absentee was Rex Woodruffe, who was kept away by illness.

Our next report comes from Mr. M. L. Wood, of the **Croydon & D.M.A.C.** This club has a long and distinguished record in the free flight contest field, and it looks as if they are set for yet another pot lifting season. They started off promisingly with Tony Young and Dave Hipperson placing second and third in the first S.M.A.E., Area centralised meeting, and followed this up with Dave coming second at the two-day F.A.I. event, at Syerston, with John Mabey placing fourth. Then a contingent from the club took a trip to France to compete in the Criterium du Nord, but were out of luck, apart from a fifth place in Wakefield by John Mabey, despite having two models stolen downwind and only 1½ returned (from whence comes the term half-a-Wake). At the Nationals, memorable for its model-battering weather, Ian Kaynes and John Blount took third and fourth places in Wakefield. As Mr. Wood points out, Rubber does seem to be the club's strong suit this year.

Mr. A. C. Booth, who is styled Publicity Secretary, reports from another stronghold of F/F contesting, the **St. Albans M.A.C.** They, too, had their share of success at the Nationals – more, in fact, than usual – collecting two firsts and two seconds. Vic Driscoll won Free Flight Scale with his *Wappitty* and Colin Morris came out top in A/1 Glider. Dave Tipper, always good for a place, placed second in Open Glider, and Nick Tillet was runner-up in the Junior Kit competition. Reassuring to club morale, these Nationals successes, as this is an event which, in previous years, the club has been only too pleased to forget. On the home front, strong winds blasted across Nomansland during the Thermal Soaring Rally back in May. Even so, a respectable total of 25 entries were accepted, although there were obviously many more visiting modellers who were deterred by the atrocious weather. Rules were simple: 150 metre line or bungee – any R/C Glider – target flight time, 6 minutes – points awarded for each second of flight plus a bonus for spot landing.

Fortunately, the ever threatening rain held off, but in spite of the wind blowing favourably up the hill times were generally low. One or two patches of lift located, though, and several spot landings accomplished. The winner, Mr. Thompson, of C.R.C.S., collected 390 points on his second flight, but was perhaps not quite so consistent as the next two placings, Mr. Brind, of Newbury, and Mr. Clark, of Luton.

Mr. Anthony B. Holden, who sends us a report from the **Stockport & D.M.A.C.,** is, apparently, better known as *Phred*, though phor what reason we are not told. Anyway, he tells us that members, Mike Daly and Bob Morrison enjoyed their visit to the Wolves club fly-in. Made very welcome and had nothing but praise for the organisation. Mike came sixth in Stunt. With a handle you can hold your own in the vilest weather – well, almost. And perhaps for that reason no complaints are forthcoming about the Nationals weather, only satisfaction at a second place in F.A.I. Team Race by John Daly and Dave Clarkson. They also had the shrewdness to use a Bartells prop for the purpose, and in doing so collected the *Bartells Trophy* for good measure. The same team did well in Goodyear, too, coming third, and might have done better had their M.V.V.S. motor not cooked up. Model was Dave's *Cassutt*, recently published in this journal. Highlight of the Club Dinner evening was a 20-minute film which Anthony Holden took at the R/C World Champs in the U.S.A. last year. Anyone interested in joining the club is advised that the main interest is C/L. Please contact Mr. B. Thompson, 56 Barnfield Road West, Adswood, Stockport.

Next comes a report from the **Morley & D.M.A.C.,** sent to us by the Secretary, Bob Ashby; one that is compounded of success and mishap. Success when Chairman, B. Judge, came fourth in Open Power at Topcliffe on the 11th June, and the sole Lady Member, Mrs. A. Godden, won the Mini-Comp Event at the same meeting. Whether or not this bit of Women's Libbing on the part of his good lady caused husband, J. Godden, a Leeds member (?), to fly off his brand-new Wakefield without a D/T is open to doubt, but whatever the militant madams might or might not burn, some ignitions are vital. The surest way to catch a thermal is to forget the D/T. A club precision comp held the week before was won by – of all things – a lashed-up chuck glider. Bob Ashby was hoping to enter his new Dart-powered Cardinal, but – further mishap – it flew away on a test flight. His wife thinks it has been hijacked to Cuba.

New members welcome to the club. Mr. Ashby's address is 99 Dark Lane, Batley, York WF17 7PW. Telephone 6709.

Those domestic odds and ends should not be overlooked by the aeromodeller, according to the *Scimitar*, newsletter of the **Buckaneers Model Club.** For instance, you can carry a piece of carpet to the flying field. Not the red stuff to be put down for the landowner, but any old bit to put under the wheels if the car gets bogged down. Then again you can use old bank credit cards to mount your servos – very good for taking the shock of a crash. Also you can make useful C/L hornplates from plastic gutter fixings. But to wax a bit more technical, one of the worst things a radio modeller can suffer is excommunication due to faulty apparatus. In Mike Parrot's case his induced lay-off was due to a frustrating lack of range, requiring the return of his gear to the manufacturers. I've had the same trouble myself – it always coincides with a spell of good, flyable weather. Anyway, Mike lost his last S/C ship last year when it landed in a cornfield. Come harvest and the model was recovered almost intact, but with a damp-ravaged and useless radio. He is now looking forward to a change of luck and another go at the club S/C trophy.

According to *Nitro*, the **Belfast M.F.C.** have managed to book Bishopscourt for a few times during the season, one occasion being a June gala, and this no doubt makes a welcome change from down on the farm. Emphasis in the June newssheet is very much on C/L. Mr. M. Shaw continues his reminiscences of the heyday of C/L flying when it occupied the place R/C does today. Then it was all pioneer work in producing the prototypes of the breeds we are all so familiar with today. Remember the Hewitt brothers and the famous Yulon engine? However, to come up to date, the club now has concrete circles available to all members at Knutts Corner. Even veteran free-flighter Maurice Doyle has taken to the handle, and with the splendid facilities they now have it's just a question of pushing up the standard – which, of course, means bags of practice. To help matters along, it is hoped to provide carbon-fibre props and cut outs on a

Ten-year-old David Savage won the rubber section of the Junior Kit Contest held at R.A.F. Strubby over Whitsun, using a Mercury Mentor. Several more 'Kit Contests' are being held this year – see 'Golden Wings' page and 'Contest Calendar'.

club basis, so that a number of models might come within the 4.25 range instead of the odd one.

A snippet in a London daily tells us that Waltham Forest Council, which serves a large area of the North-east of Greater London, has banned model flying from 47 parks and open spaces, leaving but one sports ground for model flying purposes. In consequence, the Chingford club is reported to be somewhat dissatisfied with the arrangement. On inquiry, though, we find that a total ban on model flying over the whole council area has been in force for some years, and it would seem that most of the park sites are unsuited to the purpose anyway. The new by-law, which is still in preparation, may give some concession, but if there is any open space that could accept model flying without inconvenience to the public it is up to the local model flyers to press their case. Chingford Plains, incidentally, does not come within the council's jurisdiction.

From *South Island News* (New Zealand) we learn that International free-flighter Bill McGarvey is returning to Auckland with a whole lot of world class experience and the premier U.K. Wakefield trophy under his belt. He should have a lot to offer N.Z. aeromodelling. Ain't Wakefield getting complicated? *Trialist*, by F. A. Morrison, which placed second in the Trans Tasman event, is featured in the magazine. A beautiful noseblock assembly and all the known gadgets. The auto stab. cuts in at 5-6 seconds and the auto rudder flicks in at prop. fold. What you might call a real modeller's model.

Australia's *Free Flight Down Under*, issued by the **Southern Cross M.A.C.**, is mostly a plans issue, one of which is Elton Drew's A/2 with the Spooner type solid wing.

We have received an item from the **Northern Heights M.F.C.**, a club once very famous both for its contest successes and the celebrated Gala it ran for so many years, and which seemed to have drifted into obscurity in the middle Sixties. Centrepiece of the gala was the Queen Elizabeth Trophy, which was first presented in 1948 for a specification event. This did not prove all that popular, as the coming of the i.c. engine took the flavour out of a 12 ounce rubber model, and so the cup was competed for by F.A.I. models on an alternating class basis: one year Rubber, the next year Power, and so on. The last such event was held in 1966, after which the trophy went into storage. But now, Mr. V. Botta, the hon. sec., is pleased to inform us, it has been presented to the R.A.F.M.A.A. for inter-station competition. While, no doubt, it would have been nice for the handsome trophy to have come within reach of aeromodellers in general, it is perhaps fitting that the R.A.F. should have it as a gesture of appreciation for the provision of amenities over the years.

The **Feltham & D.M.A.C.** held their club rally on 2nd July. Weather was unsettled, but good enough to allow the schedule of F.A.I. and Goodyear Team Racing and Combat to be run off. Combat was particularly well supported; the 24 entries being made up in generous part by visitors from the Hatfield and Glevum clubs as well as some others. A healthy entry in Goodyear also: 16. This was far from a walk-over for the host club; only one of their teams making the final. Final was over 200 laps, with all teams using E.T.A. 15s. An all-Feltham final in F.A.I. though, with a glow engine making the fastest time of the day, an S.T.15. Sounds like the death-knell of the diesel. The tank on the Gray/Russell glow was only 6 c.c., yet it was doing 34-36 laps at 92 m.p.h.

Results:

Combat 1. Thompson (Wanstead), 2. Cox (Glevum), 3. Smart (Glevum).

Goodyear: 1. Tribe/Tribe (Elliotts) 12.04. 2. King/Rudd (Feltham) 12.06. 3. Hughes/Willis (Cosmo) 12.11.

F.A.I.: 1. Smith/Fry (Feltham) 10.20. 2. Gray/Russell (Feltham) 10.31 3. Bedford/Allen (Feltham) 10.50.

Speed men J. Dixon and M. Radcliffe showed a clean pair of heels at the Nats., keeping the Sheffield boys at bay. And where have all the F.A.C.C.T. boys gone? New members welcome at Fairholm Junior School, Bedfont, on Tuesday evenings.

I am not all that sure that a too complete obsession with old-time models is all that healthy, but certainly many people – more in the States than over here – seem to get a lot of fun out of it. Reading through *Hot Leads*, the newsletter of the **Southern California Antique Model Plane Society**, the re-creation of what many consider the golden age of flying does seem to open up whole fields of interest of a more spacious kind than we find in the 'ultimate' flying of today.

Down in South Africa they seem to have taken R/C Thermal Soaring quite seriously, according to *Prop Shaft*, newsletter of the **Salisbury M.A.C.** Awards of 'Eagles' on a graduated merit scale are being competed for. At one end there is the Bronze Eagle for Six minutes off a 150-metre line, plus a 50-metre diameter spot landing, and at the other end a Diamond Eagle for 30 minutes' duration but landing in a 12.5-metre circle. Not a bad idea for other clubs to follow.

Keep those reports rolling. **Clubman**

Contest Calendar...

August 20	**NORTH BERKS THERMAL SOARING MEET.** 10 a.m. start. Near Garford on A338 Oxford-Wantage road. Field entry.
August 20	**BURNS BROWN – COMBAT** Rally. Venue: Lowthair Road Playing Fields, Luton. Pre-entry essential from G. Johnson, 37 Oxford Road, Kirtlington, Oxon.
August 27	**DEVON RALLY Open R/G/P.** All in F.A.I. (Torbay Trophy), Chuck. Unlimited re-entry. Venue: Woodbury Common, nr. Exmouth, 10.00 a.m. start.
August 27	**WOODFORD RALLY.** Open R/G/P, Mini Comp. (A/1, ½/A, Cd'H), Chuck Glider (best 5 from 9), F/F Scale, C/L: F.A.I. & Goodyear T/R, Stunt Combat, Speed, Scale, R/C Class 2 scale – details and pre-entry (free) for R/C scale, E. Herbert, 2 Elizabeth Drive, Haslington, Lancs.
September 3	**NORTHERN AREA RALLY.** Venue: R.A.F. Lindholme. 33 events for R/C, C/L, F/F, including indoor and Jetex.
September 3	**S.M.A.E. THERMAL SOARING.** Venue: R.A.F. Cottesmore, Rutland.
September 3	**S.E. AREA C/L CHAMPS.** Stunt, Scale, Combat, Goodyear. Venue: Elliots Airport Works, Rochester, Kent. Details: H. J. Tindal, 19 Wakehurst Drive, Southgate, Crawley, Surrey.
September 3	**EXETER & DISTRICT R/C OPEN DAY.** Fun events. Class II Scale, Pre-entry (free) to R. Allum, 68 Causey Lane, Pinhoe, Exeter, Devon. State frequencies.
September 10	**S.M.A.E. INDOOR SCALE** – Rubber & CO_2 only at Cardington, Bedford.
September 10	**C/L TEAM TRIALS FOR CRITERIUM OF EUROPE.** Stunt, F.A.I., Speed. Venue: North Luffenham, Rutland.
September 10	**6th AREA CENTRALISED MEETING** – Area venues – Team Rubber, F.A.I. Glider, ½A Power.
September 17	**STH. MIDLAND AREA GALA** – Cranfield, Beds. F/F: Open R/G/P, Cd'H, Wakefield (Ted Evans Memorial), Helicopter, Junior Kit Contest, Chuck Glider, Tail-less. C/L: F.A.I., Goodyear, Combat, Junior Stunt, Aerobatics, R/C: Aerobatics, Class 2 Scale, ½A pylon race. Details and pre-entry (free) R/C events, R. Rutty, 84 Swifts Green Road, Stopsley, Luton, Beds. Scale on Blue/Brown frequencies only. Other events Red, Orange, Yellow, Green frequencies only.
September 24	**S.M.A.E. ALL-SCALE MEETING.** R/C, C/L, F/F. Venue: Little Rissington, Glos.
September 24	**LIVERPOOL D.M.A.C. C/L FLY-IN.** Aerobatics, Fly for Fun (most entertaining flight wins), short grass surface. Silencers plus Insurance proof essential. Venue: Kirkby Gold Club, Kirkby, Lancs. Details: C/L Comp. Sec., G. Barnes, 80 Cartmel Road, Huyton, Lancs.
September 24	**S. MIDLANDS C/L. GOODYEAR MEET.** Turweston, Brackley. Details from G. H. Johnson, 37 Oxford Road, Kirtlington, Oxon.
September 30	**2nd F/F WORLD CHAMPS TEAM TRIALS**
October 1	1st day – F.A.I. Glider (10.00-18.30) 2nd day – F.A.I. Rubber (09.00-18.15) F.A.I. Power, Fly-offs 18.30 onwards.
October 1	**NORTHERN AREA GOODYEAR MARATHON.** R.A.F. Topcliffe – S.M.A.E. members only, no spectators. Details: J. C. Horton, 10 Lawn Avenue, Burley-in-Wharfedale, Ilkley, Yorks LS29 7ET.
October 1	**HARPOLE 4th ANNUAL STUNT CUP.** The competition with the built-in lunch. Full details: Maurice Patterson, 21 Manor Close, Harpole, Northants.
October 1	**S.E. AREA R/C FLY FOR FUN.** F.A.I. Pylon, Scale, Spins, Touch & Go, Limbo, Bi-plane pylon race, Novelty Events at Golden Cross, near Hailsham, Sussex. 10 a.m. start.
October 7	**NORTHERN GALA. 21 events** – F/F, C/L, R/C, Jnr. Stunt. (.19 cu. in. max.) Venue: R.A.F. Rufforth, Yorks.
October 8	**RICHMOND GALA.** F.A.I. R/G/P (3 'STAG' trophies) A/1, ½A. Cd'H plus Chuck. Venue: Bassingborn (on A14 north of Royston, Herts.).
October 8	**THREE KINGS CLUB C/L MEET.** Aerobatics & Class 2 Scale. Silencers compulsory, and proof of insurance essential. Venue: Croydon Airport Industrial Estate, all vehicles to park in Imperial Way.

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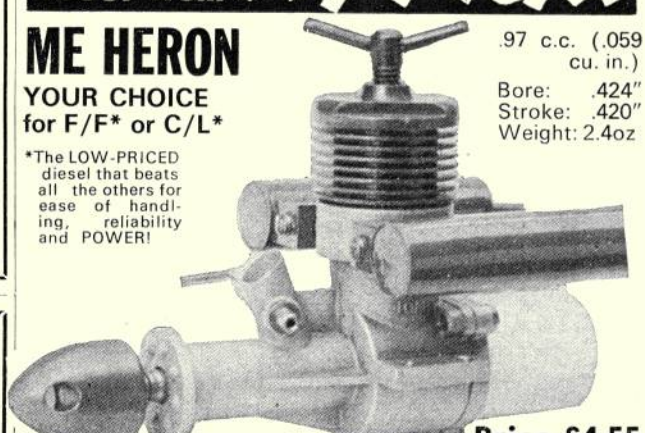

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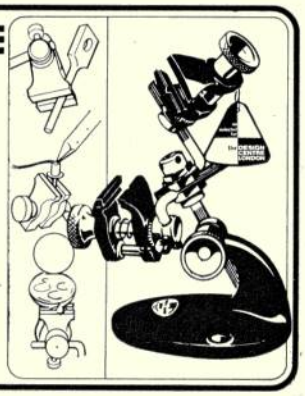

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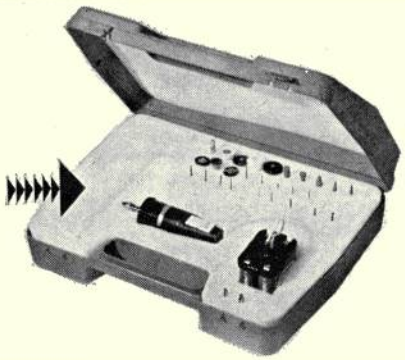

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Mini Super

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A single channel sports model designed to take the newcomer through the first difficult steps of getting a radio controlled model successfully into the air. Wingspan 45". Engines 09-15 cu. in.
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- Crystal controlled Transmitter.
- Transmitter and Receiver both operate from 9 volts.
- Lightweight Relay Receiver.
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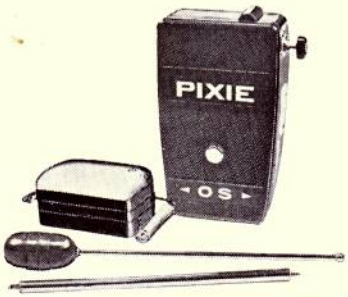

The ideal R/C outfit for all single channel models. Makes a fine combination with KEILKRAFT single channel kits

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