Aero Modeller

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MODEL ENGINEER EXHIBITION 1968

INCORPORATING
MODEL AIRCRAFT

JANUARY 1968

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USA & CANADA 60 CENTS
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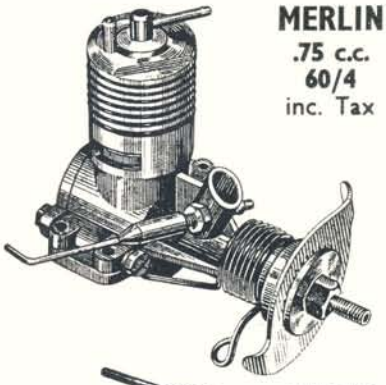
AN MAP HOBBY MAGAZINE

U.S. NATIONALS Photo-report



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

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So will Your Model if it is Powered by

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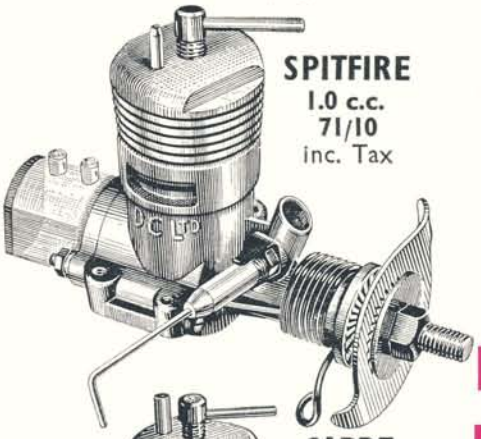
QUICKSTART **ENGINES and ACCESSORIES**

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



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71/10
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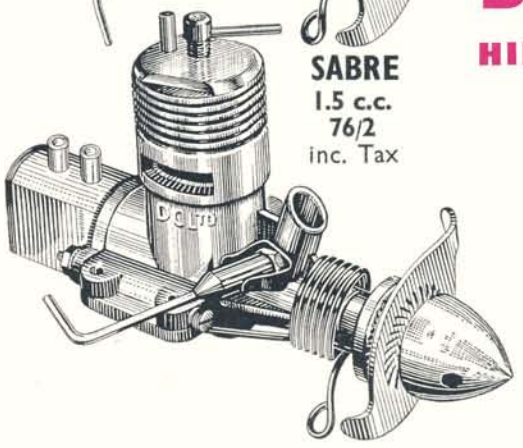
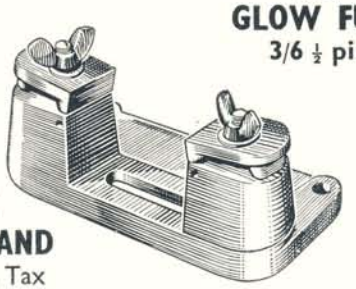
HILLS MEADOW, DOUGLAS, ISLE OF MAN



SABRE
1.5 c.c.
76/2
inc. Tax

DIESEL FUEL
and
GLOW FUEL
3/6 ½ pint



ENGINE TEST STAND
14/10 inc. Tax

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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

January 1968 VOLUME XXXIII No. 384

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MAP **HOBBY MAGAZINE**

ABC

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

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Advertisement Manager **ROLAND SUTTON**

COMMENT

It's a topsy turvy world! The Federation Aeronautique Internationale General Conference in Athens ruled that because Israel was excluded, though entered, from participation at the Free Flight Championships in Czechoslovakia the event is down-graded from "World" to "International" status.

At home, the Society of Model Aeronautical Engineers enters 1968 with a full staff of officers: but because of apathy among the members, four of them had to be co-opted. The S.M.A.E. elections produced just one nominee for only one of the five vacancies! Yet there were many among the 90 at the S.M.A.E. Annual General Meeting ready to speak for what they want out of their Society. Never was it more evident that the trend today is toward individual activity with a minimum of interest in national organisation. Division of specialist interests in the competition sphere and an almost universal move to radio control among sports fliers calls for a complete re-appraisal of the system whereby clubs affiliate to the National Body. For the sake of some of the major meetings, notably the Nationals, we hope that an acceptable change will soon be agreed.

On top of this—devaluation rears an ugly prospect of increased prices for anything connected with Balsa, which means all kits and raw materials.

Keep smiling!

on the cover

Miss Model Aviation 1967, 19 year old Tere Rich of Anaheim, California with David Gierke's "Novi" Stunter at the U.S. Nats. Model placed 5th in Open Stunt, has OS Max 35S, three blade 9 x 6 prop and is liberally decorated—with Miss Rich as well as multiple inscriptions. Photo by John O'Donnell.

next month

The Soviet intercepter/attack fighter, **Sukhoi Su 7M**, now standard equipment in many countries is both cover and scale plan feature. For free flight scale an **FK 8** W.W.1 biplane and **free pull out plans** of the month are a 30 in. all sheet sports model and a trio of chuck gliders. **Oliver Tiger** Copeman Mods. Design features, **Wichita** Glider Development, and many other novel items of interest will add to your enjoyment. Out on January 19th.

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SOLARBO . . .

Naturally we have competitors—every successful firm has—and we notice their names often appear in big, bold letters in their advertisements. So just for once we thought we would spread our name right across the page. We won't do it again—we don't have to, for aeromodellers the world over know that **SOLARBO** stands for the Best Balsa, specially selected *for* aeromodelling use. In fact, many experienced aeromodellers don't ask for balsa at all—they simply ask for **SOLARBO.**

Buying the best Balsa is as simple as that. Just ask for 'Solarbo' sheet, strip or block, or look for the **SOLARBO** stamp on every piece of sheet or block. Besides being specially selected and graded by Solarbo that means it has passed Solarbo final inspection as well (and that's a very high standard). We can't stamp strip—it would drive our inspectors mad having to mark each piece as well as examine it! Besides, you do not want your airframe labelled with 'Solarbos'. It would not make it exclusive for most models are built from **SOLARBO** anyway. That's our best advertisement—tens of thousands of satisfied aeromodellers who use **SOLARBO,** not because it is the only Balsa available but the *best*. And if you want to sand our trademark off, that's all right by us. It's only there for you to identify the best balsa in your local model shop!

Solarbo BALSA — THE BEST YOU CAN BUY

ALWAYS ASK FOR IT BY NAME

SOLARBO LTD.,
COMMERCE WAY, LANCING, SUSSEX

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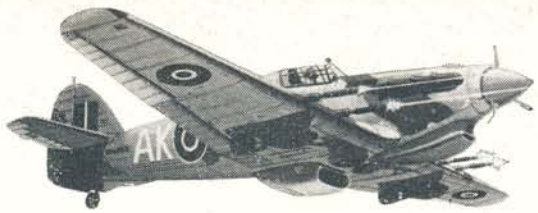
Monogram

the NAME FOR Quality HOBBY KITS



QUARTER INCH SCALE
WORKING ACTION MODELS

The obvious choice for the model enthusiast seeking COMPLETE AUTHENTICITY AND REALISM in 1/48th scale. Realistic working action, such as retracting landing gear . . . opening canopies . . . folding wings . . . bomb-dropping action (where appropriate). Hurricane, Lightning, Mosquito and Tiger Shark also include extra parts and alternative decals for completing any one of several variants. Above all, of course, Monogram plastic kits are noted for their COMPLETE ACCURACY down to the most minute detail . . . true scale miniatures which have set new standards in the plastic kit field. See them today at your local model shop !

- ☐ NAVY TBF AVENGER Kit PA31 . . . 20/3
- ☐ SBD DAUNTLESS Kit PA54 . . . . . 20/3
- ☐ GRUMMAN F4F WILDCAT Kit PA66 . . 13/9
- ☐ HELLDIVER SB2C Kit PA69 . . . . 20/3
- ☐ JAPANESE ZERO Kit PA73 . . . . . 13/9
- ☐ MESSERSCHMITT 109 Kit PA74 . . . . 13/9
- ☐ SUPERMARINE SPITFIRE Kit PA79 . . 13/9
- ☐ F6F-5 HELLCAT Kit PA80 . . . . . 20/3
- ☐ NAVY F4U-4 CORSAIR Kit PA82 . . . . 20/3
- ☐ HAWKER HURRICANE Kit PA90 . . . . 13/9
- ☐ P-40B TIGER SHARK Kit PA96 . . . . 13/9
- ☐ P-38 LIGHTNING Kit PA97 . . . . . 27/6
- ☐ FOCK-WULF 190 Kit PA107 . . . . . 13/9
- ☐ T-28D F/BOMBER Kit PA121 . . . . . 13/9
- ☐ DH MOSQUITO F/BOMBER Kit PA129 . . 27/6
- ☐ KINGFISHER OS2U-3 Kit PA135 . . . . 20/3
- ☐ HUEY ARMED HELICOPTER Kit PA151 . . 13/9
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Monogram PLASTIKITS . . .
Authentic

The same superb scale detail and working realism in a range of miscellaneous scales to accommodate larger aircraft in a practical size. Sculpted figures and other miscellaneous extras included. A number of models have real operating features, a Monogram origination.

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- ☐ PBY-5 CATALINA Kit PA8 . . . . 13/9
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- ☐ PIPER TRIPACER Kit PA25 . . . . 13/9
- ☐ NAVY BLUE ANGELS Kit PA29 . . 13/9
- ☐ WRIGHT KITTYHAWK Kit PA30 . . 13/9
- ☐ B-58 HUSTLER Kit PA32 . . . . . 13/9
- ☐ A3J NAVY VIGILANTE Kit PA53 . . 13/9
- ☐ PHANTOM MUSTANG Kit PA67 . . . 68/6
- ☐ F3F-3 FIGHTER Kit PA70 . . . . 27/6
- ☐ P-51 MUSTANG FIGHTER Kit PA77 . . 27/6
- ☐ CESSNA 180 Kit PA123 . . . . . 13/9
- ☐ C-47 Kit PA147 . . . . . 13/9

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SCHOOLGIRL...65/- All sheet Fully prefabbed construction. fly as mono or bipe! 32" span

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39" span 'Compact' for engines up to 1.5c.c.—the IDEAL R/C TRAINER for single channel up!..... 71/6
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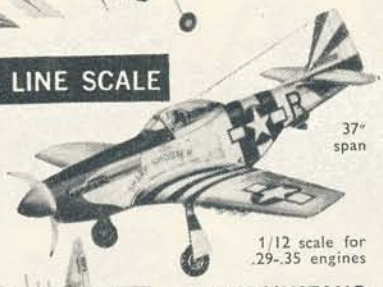
Ideal sports model for .02's

TOP DAWG £7.2.6
Ideal for 'Galloping Ghost' 39½" span Engines 049-15

CONTROL LINE SCALE

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



37" span

1/12 scale for .29-.35 engines

P-51D MUSTANG.. super de luxe kit 142/6

P-40 WARHAWK . . . 87/6
28" sp. for .15-.29 engines

SEMI-SCALE STUNTERS:—
42" sp. HURRICANE . . . 65/0
42" sp. TIGER SHARK . . 65/0

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

½A FORM-FLITES (SCALE U/C)

21/11 each

Absolutely FULLY PREFABBED KITS which you can assemble in a single evening! Specially designed for top performance on .049 engines, each model is 18" span.
HELLCAT . . . JAPANESE ZERO . . . THUNDERBOLT.
Just the job for that spare ½-A engine!

CONTROL LINE • STUNT

NOBLER 19-35's 137/6 NOBLER JNR 77/6
U.S. Nats and World Champ winners!
PEACEMAKER de luxe stunt . . . 87/6
FLITE STREAK Combat .15-35's . . . 55/0
FLITE STREAK JNR. for .09-25's . . . 38/6

Here are kits which GUARANTEE you a top contest standard performance . . . prefabbed to the *n*'th degree for fast and accurate assembly

new from Sterling

STEARMAN PT-17
This fabulous model is ONE-SIXTH ACTUAL SIZE and absolutely true to scale (even to aerofoil, section and rib spacing!) Span 65½". Kit includes dummy radial engine etc. **£21.19.6.**

ROYAL COACHMAN
Here's the quickest and easiest to build R/C model yet! 48" span for single-channel up. Super prefabbed kit . . . . . **£5.9.6.**

OTHER R/C KITS:—
48" **CESSNA** 180 scale..... £4.18.6
34" **COSMIC WIND** Goodyear Pylon Racer... £4.18.6
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54" **WIZARD** biplane £7.2.6
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64" **SPITFIRE** scale £16.9.6
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45" **FAIRCHILD PT-19** scale £5.9.6

CONTROL LINE
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NEW FLYING SCALE
Build as RUBBER POWERED or ENGINE POWERED—F/F, C/L or R/C ! ! Wingspan 16" to 24". Fully prefabbed kits.

Hawk P6E.....16/6	Thunderbolt 21/11
Ju87 .....21/11	Stearman PT-17 27/6
AT-6 Texan ...16/6	
Zero 43/6	SE5A 32/6
Fokker D8 ...21/11	Me 109G 16/6
Birddog 10/11	Piper Cub.....43/6
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Fokker D7 ...32/6	Bonanza 27/6
Nieuport 32/6	Spad 43/6
FW 190 .....32/6	Spitfire 32/6
Ansaldo.....27/6	Corsair F4U-5 43/6

CARL GOLDBERG MODELS

JNR FALCON 54/6
37" span for single-channel and 049 engines.

FALCON 56 . . . 131/6
56" span for single to 6 channel, .09—.19.

SNR FALCON 252/-
69" span for 10 channel multi engines .35—.45.

54" span-Engines -19 to .40

A SUPERB KIT 197/6
Here's the most beautiful R/C model ever kitted — a Goodyear Racer with enough stability for ANYONE to handle! For 6, 8, 10 channel or proportional. You can use 'Shoestring' for Sport or Contest flying and pylon racing.

Single or Twin!

Jr SKYLARK . . 65/-
37" span. 049 or twin 02's.
SKYLARK 56 . . . 153/6
56" span for single to 10 channel Engines .09 to .19 (single or twin)

SKYLANE 42" span . . . 76/6
62" span . . . 219/6

Two beautiful models—the '42' for single channel and the '62' for multi or proportional. Both fully prefabbed kits.

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TOP ACCESSORIES from RipMax

Tornado PROPS FOR POWER PLUS!

TYPE A 2-bl tractor
TYPE B 2-bl pusher **TYPE C** 3-bl tractor
TYPE D 3-bl tractor **TYPE E** 3-bl pusher

TYPE A *Yellow nylon*

5 ×3.....	2/3
5 ×4.....	2/3
5½×3.....	2/3
5½×4.....	2/3
6 ×3.....	2/3
6 ×4.....	2/3
7 ×4.....	3/6
7 ×6.....	3/6
7 ×8.....	3/6
8 ×4.....	5/6
8 ×6.....	5/6
8 ×8.....	5/6
9 ×4.....	7/6
9 ×6.....	7/6
9 ×7.....	7/6
9 ×8.....	7/6
10×4.....	7/6
10×6.....	7/6
11×4.....	9/–
11×6.....	9/–
12×4.....	13/6
12×5.....	13/6
12×6.....	13/6

SUGGESTED SIZES*
For 15's. 8x4, 8x5 9x9, 9x5
For 19's. 8x6, 9x5
For 29's. 10x6, 11x5 11x6
For 35's. 10x6, 11x6
For 49's. 11x6, 12x5
For 60's. 12x6
*Adjust by test

TYPE B

5½×3.....	2/3
5½×4.....	2/3
6 ×3.....	2/3
6 ×4.. ...	2/3
8 ×6.....	7/6
9 ×6.....	9/–
10×6.....	9/–

All type B props in yellow nylon

TYPE C

5 ×3.....	4/6
5 ×4.....	4/6
6 ×3.....	4/6
6 ×4.....	4/6

All type C props in yellow nylon

TYPE D

7 ×6.....	7/6
7 ×8.....	7/6
8 ×6.....	11/6
8 ×8.....	11/6
9 ×6.....	13/6
10×4.....	13/6
10×6.....	13/6

All type D props are in metallic aluminium colour nylon

TYPE E
6 ×3..... 4/6
Type E prop in yellow nylon

TOPFLITE NYLON

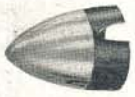
5½×3.....	3/–	9 ×4.....	9/11
5½×4.....	3/–	9 ×6.....	9/11
6 ×3.....	3/6	9 ×7.....	9/11
6 ×4.....	3/6	10×3½.....	11/–
7 ×4.....	4/11	10×6.....	11/–
7 ×6.....	4/11	11×4.....	12/3
8 ×4.....	7/3	11×6.....	12/3
8 ×6.....	7/3	12×6.....	17/6

GRAUPNER NYLON

2 blade		3 blade	
10×4.....	6/6	8 ×6* ...	5/11
10×6.....	7/3	8 ×6.....	8/11
11×4.....	8/6	9½×5.....	9/11
12×6.....	9/6	*plastic	

RMA/SEMO NYLON

7 ×4.....	1/10	8 ×8.....	2/8
7 ×8.....	2/4	9 ×4.....	3/2
8 ×4.....	2/4	9 ×6.....	3/2
8 ×6.....	2/8	all 2 blade	



RIPMAX 'MG' Spinners (metallised nylon)
40 mm. 8/6
50 mm. 9/6
60 mm. ... 10/6

Graupner Plastic Spinners
For 2-blade propellers 1¼"...2/9 1½"...3/4
For 3-blade propellers 1¼"...3/9
1½"...5/– 1¾"...5/6
1½" dia. polished metal (uncut)... 7/6

Black Flexible Fuel Tubing
Standard fuel line size, non hardening price **2/6 per yd.**
Also **Clear Plastic Tubing** 1/16", 3/32" and ⅛" bore, **3d., 4d. or 5d. per ft.** respectively.

WHEELS . WHEELS . WHEELS

Graupner Record	RMA Balloon
1⅜" dia. ... 6/– pr.	2" dia. ... 18/6 pr.
1½" dia. ... 6/– pr.	2½" dia. ... 22/6 pr.
2" dia. ... 6/6 pr.	2¾" dia. ... 24/11 pr.
2⅜" dia. ... 8/6 pr.	3" dia. ... 27/6 pr.
2¾" dia....13/6 pr.	2¾" scale 18/6 pr.
3½" dia....21/6 pr.	
2" scale...10/– pr.	

RMA Contest

20 mm. ... 2/6	25 mm. ... 2/11
30 mm. ... 3/6	35 mm. ... 3/11
40 mm. ... 4/8	45 mm. ... 5/4
50 mm. ... 5/11	

RMA 'Maximu' brake wheels 2⅜" 62/6 pr.
RMA 'Maximu' brake wheels 2¾" 65/– pr.

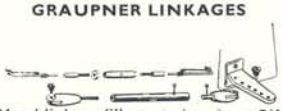
TANKS
There's a size and type of tank to suit every model in the RMA range . . .

Clunk (1 vent)	Clunk (2 vent)
1 oz. 6/6	4 oz. 9/6
2 oz. 7/6	6 oz. 10/6
Polythene bottle (With brass tube)	8 oz. 11/6
	10 oz. 12/6

GRAUPNER TANKS
10cc Team Race 7/9 28cc Team Race 9/3
22cc Stunt tank 8/6 30cc Stunt tank 8/6
45cc Diamond tank 10/6
60cc (for Amateur) 12/6
17cc Tubular tank 6/9
25cc Tubular tank 6/9
20cc (for Consul) 10/–
100cc Clunk tank 12/6
200cc Clunk tank 13/3
300cc Clunk tank 15/–

Fuel Filters
For positive engine protection against jet blockage.
GRAUPNER in-line fuel filter ... 3/4
Sintered bronze for Clunk tanks 6/11

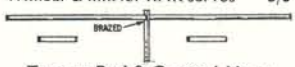
GRAUPNER LINKAGES



Metal linkage (illustrated top), set 5/6
Moulded linkage, set 4/–
Extension tubes 20"×5 mm 2/8
for above 20"×7 mm 2/8
Quick-Clip linkage (pair) 8/6

RIPMAX/RMK LINKAGES

Long Yoke K-link, pair 6/6
Pushrod moulded end linkage, pair 7/6
Trimbar & link for RMK servos 5/6



Torque Rod & Control Horn
Sturdy all-metal construction with brazed on horn and hinge tubes.
Small (14g) ... 3/– Large (12g) ... 4/6

RMA Control Horns
These standard size horns are moulded in nylon and are suitable for both R/C (rudder) and control line (elevator).
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Bellcranks
Medium (metal) 2/11 each
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Metal arm for ailerons, etc. 2/6

UNDERCARRIAGES

12 swg single nose leg... 3/–
10 swg single nose leg... 3/3
12g leg with 2" wheel... 9/9
10g leg with 2½" wheel 9/11
5/32" single nose leg... 4/11
10g twin leg, 2" wheel 18/3
12g twin leg 2½" wheel 18/3
L/W undercart pack... 10/9
U/C grooved block & clips...4/11
Large dural U/C & axles 12/6
Small dural U/C & axles 11/6

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RMA PMM L/Reach R/C 1.5 v. ...9/11
D-C Short Reach 1½ v. 5/4
D-C Long Reach 1½ v. 6/6
D-C Long Reach 2 v. 9/8
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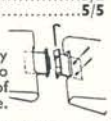

1023 neutral axis 3/16" for tails
1024 neutral axis ¼" for ailerons
1025 top axis ¼", ailerons, flaps, etc.
1026 neutral axis for ⅛" sheet
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Just insert control rod wire, swing and snap to secure! Positively the best hook-up item yet!
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Garnet paper (15 assrtd. sheets) 1/6

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12" lengths in	10swg 1/2	16swg 1/–	
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RMK DYNAMITE S/N . . £4.9.6
Single-channel 'Compound' type. size 1⅞"×1⅜"×1", weight 1⅞ oz., 2.4-3 volt operation, centre tapped. More power, better reliability than escapements.
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RMK DYNAMITE 'S' S/N £5.5.0
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Size 1⅞"×1½"×1⅜", weight 2¼ oz., output via rotating disc with self-neutralising or progressive action, as required. In two basic versions, 'Multidyne' for relay Rx's, and 'Amplidynes' (with amplifier) for relayless Rx's.
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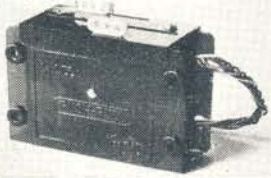

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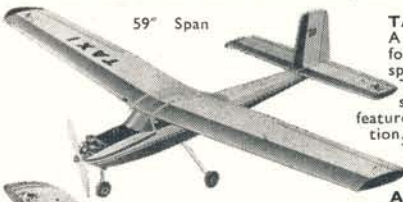

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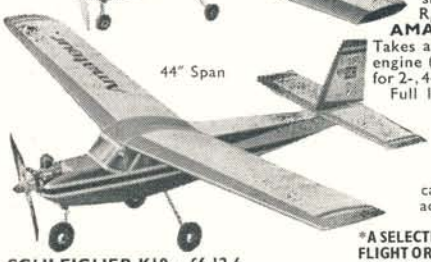

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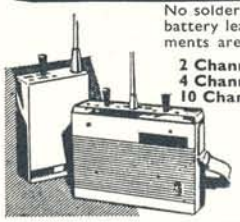

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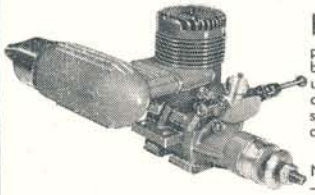

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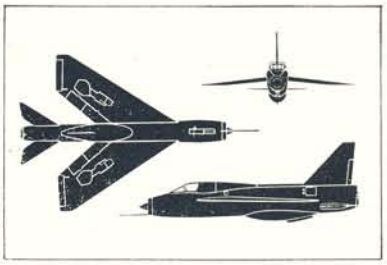

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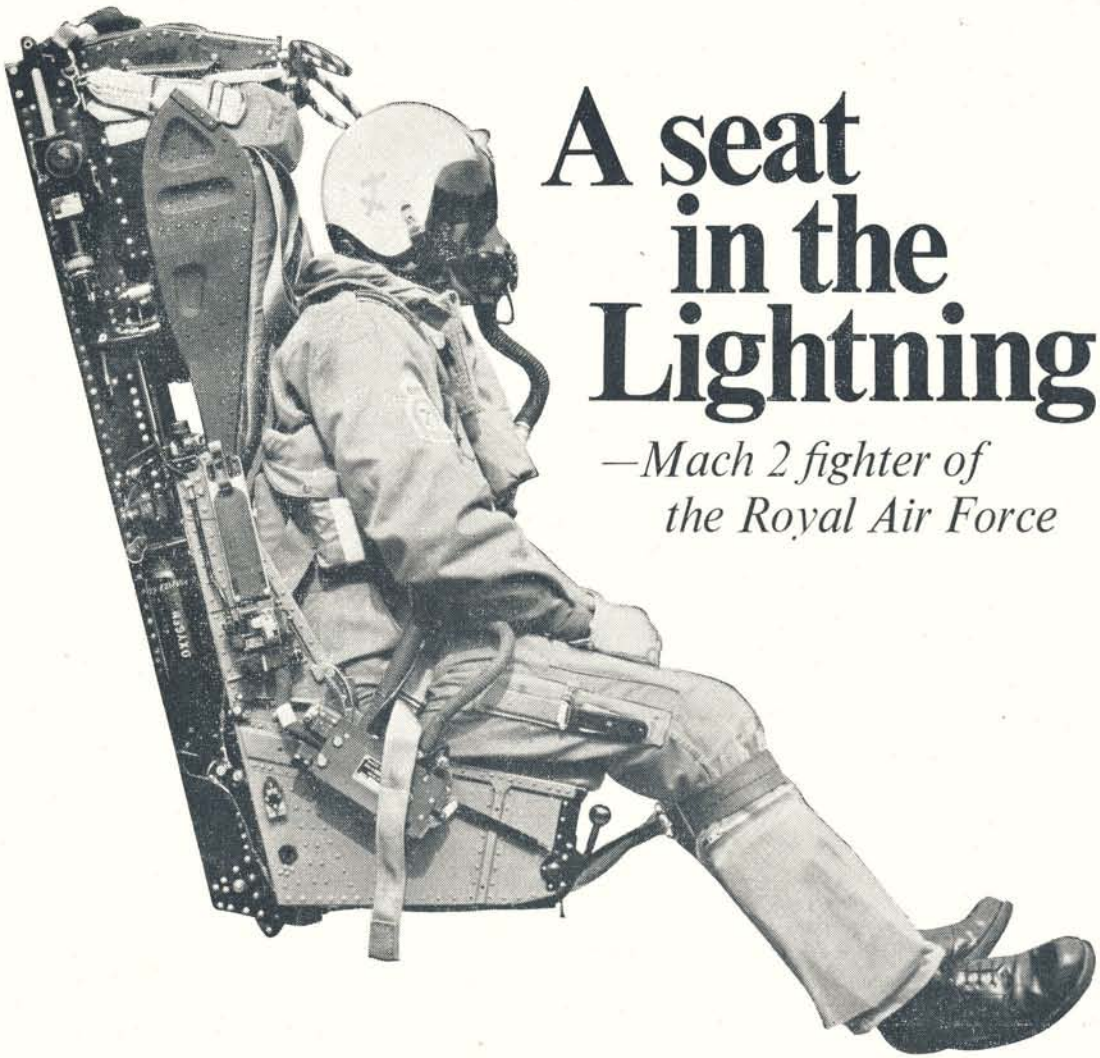

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A very special CHRISTMAS EXTRA issue of *MODEL ENGINEER* will be coming out on second Friday of December. This will be the EXHIBITION SOUVENIR HANDBOOK & GUIDE. It will contain exhibition entries, details of trade stands PLUS articles by experts on all aspects of modelling—fold out Avro 504 plan, Ships' Guns drawings, Evans on Passenger hauling locomotives, articles on model aero engines, classification of boat racing classes, whys and wherefores of R/C systems, the hobby now and in the future, model railway operation ... in fact lots for everyone. Guide will be 84-page size, price 2/6d. on sale everywhere and at the show. If you cannot come get a copy and it should persuade you ... if you expect to come read all about it first.

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PRICES QUOTED ARE PRIOR TO DEVALUATION AND SUBJECT TO INCREASE

Heard at the HANGAR DOORS

FAI DECISIONS made at the reunion of the International Aeromodelling Committee meeting October 24th/27th in Budapest, Hungary affect in the main, Radio Control and Free Flight. As far as *Radio Control* is concerned, it has been decided there will be only one attempt for each official flight. Since all three flights score in the competition, this now places a firm requirement on the competitor to be thoroughly efficient and score at his best standards in each of three rounds. Radio Control judging standards are also due for changes. An International Licence is to be introduced for judges in R/C and C/L categories and the first examination and training course for R/C judges is to take place at Hirzenhein, West Germany on 13th/15th April, 1968. National Aero Clubs will be invited to send up to two trainee judges and they will be the guests of the West German Aero Club at its youth centre for the three days. After practical tests, the judges will be passed out on oath, issued with their Licences, and then will be available for selection at any World Championships. The 1969 Championships is programmed to take place in West Germany at the end of July beginning of August and is most likely to be accompanied by an International R/C Scale event. Proposals to alter model specifications, the schedule of manoeuvres and to permit relief of pilots in World Record attempts were all rejected by vote. In *Free Flight*, the major change is the introduction of two extra rounds making a total of seven for all Championship events. There are no other changes to the specification of the models or the competitions; but as far as administration is concerned, the control area for Free Flight for launching models must have a minimum length of 250 metres and be so arranged to be "perpendicular" to the wind. The Sporting Code will also be altered to allow for models which disappear behind obstacles or into cloud. Timekeepers will be allowed to wait for a maximum of 10 seconds and should the model not re-appear, timing will cease and 10 seconds subtracted from the time of flight. During the fly-off, a period of four minutes will be allowed within which all competitors must launch their models. Hitherto approximately 15 minutes have been allowed. Those who arrive without proper processing in future, that is to say without F.A.I. certificates, licences or processing records, will be dealt with by the organisers at the Fine of £1 for each model—a costly business for some Countries if they repeat their habits of 1967! The *Control-line* World Championship in 1968 is now scheduled to take place in Helsinki during the second half of August. The *Indoor* World Championships will be held at the Sports Palace in Rome, already the scene of a very successful event. No date is announced but October is suggested. The *Free Flight* Championships for 1969 are still very much "in the clouds". The Royal Aero Club of Spain was not represented at the F.A.I. Meeting and according to our information, is no longer inclined to take on the responsibility of the organisation. The Italian Delegate undertook to investigate the possibility of running the event but this can in no way be taken as an assurance that the Italian Aero Club has the field facilities, finance or man power to take on a Championships. The forward programme for 1970 is, if anything, more secure as the U.S.S.R. has offered to run Control-Line and Poland the Indoor event.

DISSOLUTION of the International sub-committees was another decision reached by the C.I.A.M., and one with which we certainly cannot agree as being for the good of aeromodelling. It was stated that the technical sub-committees in the F.A.I. Models Commission could not work properly because the members had not corresponded with the Chairmen. Thus, on a proposition from Czechoslovakia the Committees have been dissolved and only the Chairmen are retained. These Chairmen are now free to correspond with whom they please in order to produce an opinion on any proposals made by National Aero Clubs. The burden on the unfortunate "Chairman" or "Technical Rep." is a heavy one and he certainly cannot be expected to know all of the most useful correspondents through the World who are likely to aid him in his purpose. The previous arrangement may have been largely representative of the European view, but at least it should have, if properly effective, obliged five representatives of different Nations to offer carefully considered views. The fact that some of them did not meet their obligations is as much a reflection on the appointed Chairmen as it is upon the F.A.I. system. The Chairmen were always free to correspond with anyone, and in our own experience they certainly spread their questions around as far as possible, but without having a delegated committee the danger is now that a parochial or local view will be expressed rather than a truly International one.

FIRST INDOOR International event in the Sports Palace of Rome, scene of the next World Championships, was held on the 7th and 8th of October and attracted 15 competitors. Visiting representatives filled the first four places, and the winner was Jiri Kalina with his consistent flying of just under half-hour. Results indicate that this event has stimulated interest among Italian aeromodellers and gives great promise for the future.

We understand that there is a considerable hot air effect from the sun in this Palace so that the World Championships, which are likely to take place in October, will be programmed after 5 p.m. until midnight for each of three days.

1. J. Kalina (Czech)	29:11	29:25
2. M. Koller (Austria)	26:22	24:07
3. H. Beck (Germany)	22:21	25:47
4. P. Romak (U.S.A.)	21:21	19:47
5. L. Kanneworff (Italy)	12:49	13:59
6. E. Corazza (Italy)	13:33	13.15

MECCANO MAGAZINE reappeared on December 1st and judging by the initial response, is due for a bright future in its new "M.A.P." style format. All credit to the new editor, John Franklin who learned his craft the "hard" way in the staff of *Aeromodeller*. John was promoted from his post of Assistant Editor and will, of course, now be spreading his interests with the broader coverage of *Meccano Mag*. We are sure that all our readers and especially those who followed his control-line features, will wish him all success at the new desk.

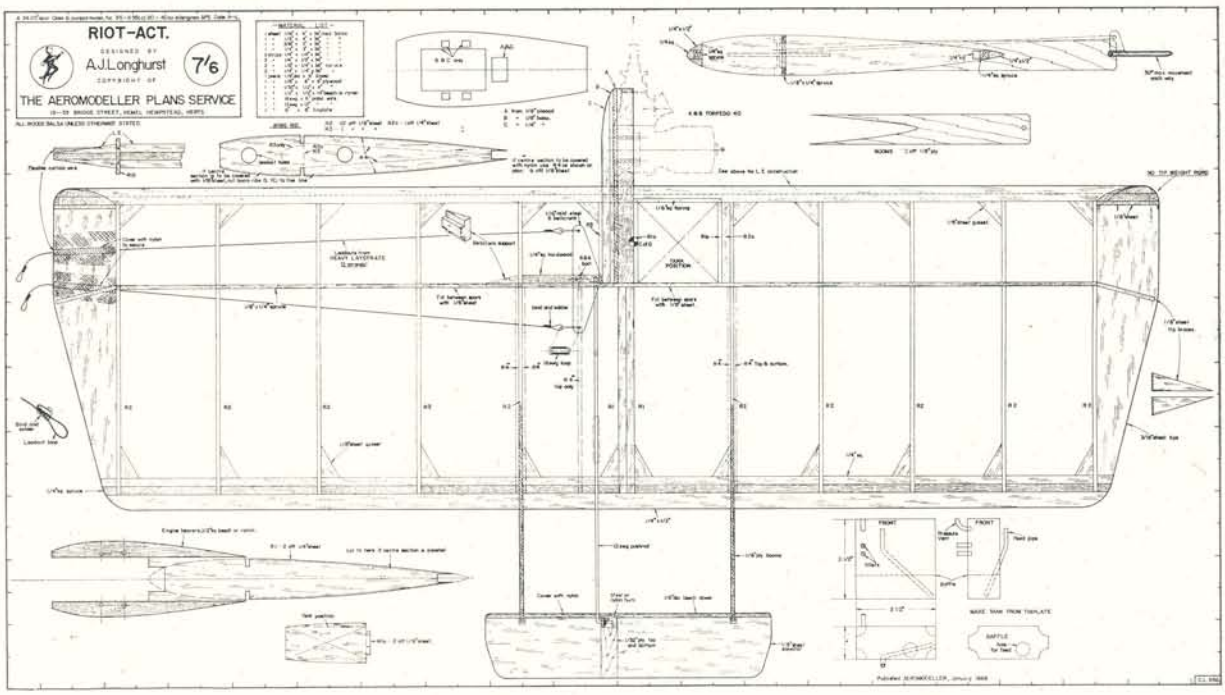
RIOT-ACT

Andrew Longhurst's CLASS 'B' COMBAT DESIGN FOR UP TO 6·55 c.c.

☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

BASED ON THE usual American layout with an all-moving elevator mounted on booms, this is the first Class B combat model in the APS range. In this design however, a development has been made, the elevator is mounted on extra-long booms for increase of effective moment, this in turn allows a smaller elevator to be used with less range of movement. The result is that very tight manoeuvres with a minimum of deceleration are possible. The basic design has been developed from three models and the structure is taken from a class "A" combat model which has many successes to its credit. Favourable comments have been made by all who have flown it.

The model is built around the Fox 36X or equivalent front rotary engines. Be careful to observe that the C.G. position is not greatly altered. Other engines have in fact been fitted including a very powerful K & B 35 and an O.S. 29. An "out of the box",



Fox 36X running on commercial K.K. Nitrex 15 fuel should achieve around 90 m.p.h. (with a Merco or similar silencer). Better motors will take speeds up to or over 100 m.p.h.

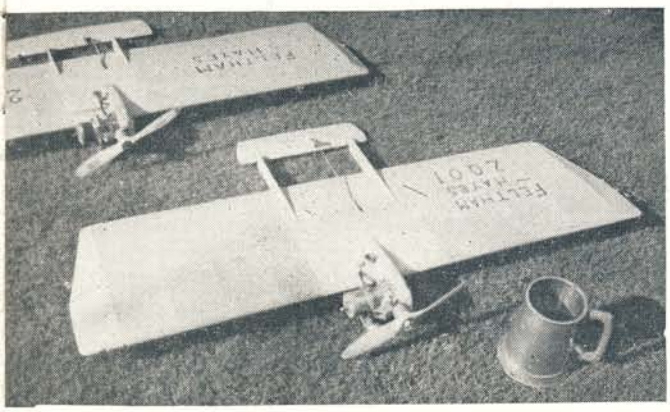
Construction

The fuselage ribs, bearers and fairings are cut out roughly to shape excluding the leading edge hole. The complete fuselage is now built up using "Cascamite" or "Aerolite 306" resin glue. This is done in two or three stages, holding the assembly together with clips and rubber bands at each stage, this is then cured in the oven at gas Regulo mark ¼ for 10 minutes. The finished fuselage is now carved to its final shape using a razor plane and sand paper. The engine mount holes are drilled and another small hole is drilled through the fuselage where the Leading Edge is going to be, through this hole a Fret-saw blade is inserted and the final hole for the Leading Edge is fret-sawed out. The fuselage being completed, the leading and trailing edges are assembled from the balsa and spruce parts and are carved to shape. Rib and fuselage positions are marked on both, and then the L.E. is inserted through the hole cut in the fuselage until the fuselage is at the marked point. The L.E. is then fixed into the fuselage using balsa cement and at this point the fuselage and L.E. should be carefully squared up. When the glue has set the T.E. is stuck to the rear of the fuselage and aligned carefully with the leading edge. This may be done on or off the building board, whichever is preferred by the constructor. When dry, the result will be the L.E. and T.E. stuck to the fuselage in perfect alignment, if any misalignment is present this can be corrected now to avoid any possibility of warps later.

Ribs are now stuck to L.E. and T.E. on points marked and the ¼ x ⅛ spruce spars are added. The 1/16 in. sheet tips can now be added after which the spars etc. can be cut to length and carved to shape. All gussets and tip braces from ⅛ in. sheet are now installed together with the fuselage stub ribs. The tank can now be constructed, bearing in mind that it will have to bear a considerable pressure from the motor. Use plenty of heat, solder and flux and re-solder any seams which appear too weak. The tank is cemented into position with scraps of balsa. The next part to be fitted is the control system which is quite straightforward but it must be remembered that the pull from "Riot-Act", can be very strong and thus only the finest materials should be used (no aluminium or Bakelite bellcranks for example). The bellcrank is mounted on a 1½ in. steel 6 B.A. bolt inserted through the two ¼ x ¼ spruce mounts glued to the spars. At this stage the reinforcement for the ribs on which the booms are mounted can be added, alternatively the entire centre panels may be sheeted in 1/16 in. balsa although this incurs a small weight penalty. The fuselage to L.E. and fuselage to spar joints may be fibreglass at this stage if so desired. The covering is now undertaken in best quality nylon and one coat of dope is applied.

The elevator is cut from ⅛ sheet and the booms from ⅛ birch 3 ply. The pivot is a piece of ⅛ beech dowel which is inserted through the holes drilled in the booms and which is then cemented to the L.E. of the elevator. The elevator is then covered in nylon wrapped round the dowel to help retain its control horn is mounted on two small strips of 3/32 in. or 1/16 in. ply stuck either side of the elevator. The booms, with elevator attached, can now be glued with cement to the reinforced ribs or to the sheeting as the case may be. Small strips of excess nylon are now glued, on the boom to wing joints to provide a strong fillet. Sufficient coats of dope are now applied to fill the nylon, then any trim or paintwork is added and here I would recommend a polyurethane based paint since cellulose based paints dissolve on contact with nitro methane fuels. A coat of fuel-proofer is added and polyurethane varnish is advised for this, all that remains is to connect up the pushrod to the elevator horn and it should be remembered that 20 deg. will be more than enough movement in each direction so try and limit it to this.

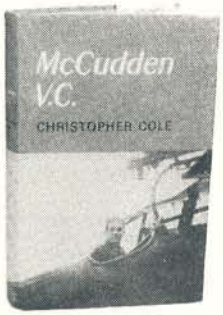
Not one but TWO! "Riot-Act" is the first Class B (S.M.A.E. Rules) Combat design for Aeromodeller Plans Service and full size copies of the one sixth scale reproduction opposite are available price 7/6d plus 6d postage direct from A.P.S. at 13/35, Bridge Street, Hemel Hempstead, Herts. Quote Plan CL956 when ordering. Tried and tested in the melee of British contests, Riot-Act is tough, manoeuvrable and easy to make. What more could one want? The Mug is the Trophy won by Andrew Longhurst at the Finchley "B" Combat event.



Flying

When flying, the lines should be such that the handle to centre of model distance is 60 ft. A Keil Kraft 9 x 7 in. nylon prop seems as good as anything with the 36X although with a more powerful motor one might get away with a 9 x 8. Tight turns can be executed with virtually no loss of speed so the model is quite a thrill to fly even for sport. The streamer must be 10 ft. long, 1½ in. wide on a 60 in. thread. If competition work is contemplated however it is of the utmost importance to know the motor and how to start it, because big glow motors all have a different starting technique. Getting into the air fast with a good motor run will carry you through the first few rounds of most "B" combat comps, although in the Feltham-Hayes clubs we hope that more competitions will lead to greater efficiency. By American standards the weight of 20 to 24 oz. is heavy but in the designers opinion American models are excessively weak turning to instant garbage even on the slightest contact with the ground (or the opposition model).

Riot-Act is supremely strong and its hardwood spars help it to hang together through many misfortunes. At Finchley it was unfortunate enough to hit a set of wooden railings at over 90 m.p.h. during a combat heat. Surprisingly only minor damage resulted, leaving the model almost intact!

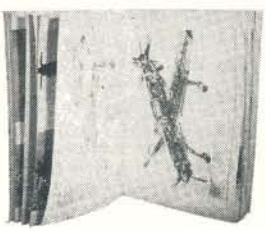


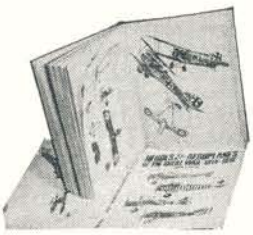
Recommended Reading

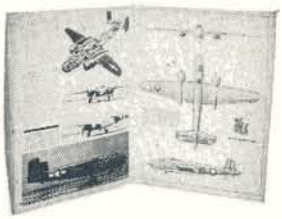
A selection of recent and new publications reviewed

AT THIS time of year, many of us turn to books for relaxation, and what better than one of the many aviation titles which have been released in recent months? Our selection starts, without preference or prejudice, with "AIRCRAFT, AIRCRAFT" by John W. R. Taylor, a 140 page 8×11 in. volume for the very reasonable price of 15/-. Published by Paul Hamlyn of London, it includes some fine colour pages, original photos and a fund of interesting facts, one which is J.W.R.T.'s claim that the Meteor *preceded* the Me 262 in going into action. "McCUDDEN VC" is Christopher Cole's 224 page biography of the famous W.W.I fighter ace and his brothers. Rare photos, and a style of text that makes the book hard to put down and impresses for its sheer weight of factual research renders this a "must" at 50/-. Any modeller contemplating a specific S.E.5a should read this one, published by William Kimber. That perennial that never seems to fade from service, the Douglas DC-3 is the subject of another "biography" in "THE PLANE THAT CHANGED THE WORLD" by Douglas J. Ingells, a 256 page 7×10½ in. paperback filled with an enormous amount of detail on the old lady of the skies. Mr. Ingells' only boob is to call the DH 88 Comet a *biplane* and we'll forgive him this in a work that reflects a lifetime of study. It seems a pity that the book is not topped off with a three view, but then most modellers know where to come for a planpack of the DC-3, or the S.E.5a for that matter. W. E. Hersant of Archway Rd., London N.6 are the agents for Aero Publishers who produced this, and a whole range of other fascinating references. After devaluation, prices have changed, that for the Ingells book is 46/6d. including post. Other Aero titles include "RACING PLANES AND AIR RACES" Volumes I, II, and III of which span the periods of 1909 to '23, '24 to '31 and '32 to '39 at 24/6d. each, 96 pages, 7½×10½ in. cover most, but not all of the racing planes with fine photos and drawings. As a modeller's reference, the books lack cross section detail and colour information though there's plenty to tantalise the pipe-dreamer. Hersants of Archway Rd., Highgate, N.6 also handle all the Aero monographs at 24/6d. each and among our pile of these picture volumes in stiff covers which measure 7½×10½ in. are the following, the Vol. number being quoted in brackets. (9) Dornier Do 335, (10) Spitfire, (11) Chance Vought F4U Corsair, (12) Heinkel He 100, 112, (13) Heinkel He 177, (14) Messerschmitt Me 262, (15) North American P-51 Mustang and (16) just in handy time to coincide with the new Monogram plastic kit, the Messerschmitt Bf 110. Each volume is offset printed, with four pages in colour to show a three view and individual markings so that the aeromodeller has a ready reference with adequate pictorial evidence to produce fine detail on a model. The Me 163 and a two part FW 190 series are to follow.

Aero are based in California, not to be confused with Arco of New York, for whom Hersants are also agents. The Len Morgan books have already established themselves, and latest, under the Arco-LM combo is "ALLIED ACES OF W.W. II" at 26/- by W. N. Hess, a 64 page 8½×11 in. documentary with brief biographies, portraits and tabulations. Two books from the same house but arranged in smaller landscape 5½×8½ in. format with 96 pages are "AIRLINES OF THE WORLD" and "FIGHTER AIRCRAFT OF THE U.S." at 18/3d., each an interesting reference source though on rather well worn territory. Our personal preference among all these semi-stiff imports from the United States through Hersant is for the "HISTORICAL AVIATION ALBUM" series by Paul R. Matt and edited by Ken Rust. 8½×11 in. and offset printed, they offer a standard of draughtsmanship and such delightfully chosen subjects that the astute scale modeller cannot help himself when he reaches for cash at the sight of a new cover. For example. Volume IV has diagrams of the Thomas Morse MB-3, two of the Navy-Wright Mystery Racers, those fine subjects for free flight scale the Heath Parasol and the Piper Super Cruiser, and Paul's usual "odd-bird" choices; the big Martin T4M-1 bipe and the unusual Alcor Junior Transport, plus a pictorial feature on the huge Johns Multiplane which almost defies description. The price is 26/-. Not all of the books from the U.S.A. are in the semi-stiff cover binding of those just described. "HEROES AND AEROPLANES OF THE GREAT WAR 1914-1918" by Joe Phelan is hard bound, and







handled at 42s. by Arthur Barker in Britain. The 128, 9×12in. pages are a joy to study, with arty, but not too crafty layout and fine sketches by the author, many in colour and all with a style of authenticity that attracts the browser. We liked this one, and particularly like the endpapers as they carry (in full and correct colour) 12 different upper wing planforms in W.W. I camouflage patterns.

How about a change from aviation? "TWO STROKE EXHAUST SYSTEMS" is a 48 page 4½×7½ in. treatise by Roy Bacon which will titillate the engine tuners with information on those mysterious tuned length resonance pipes as used on motor cycles. For only 7/7d. incl. post via Lodgemark Press of Beckenham you really cannot go wrong.

Putnam is *the* name which is synonymous with aviation publications and lists among its titles of the year such gems as "THE BRITISH BOMBER SINCE 1914" by Peter Lewis at 63s., "BRITISH AVIATION: THE PIONEER YEARS" by Harald J. Penrose at 84s. and "BOEING AIRCRAFT SINCE 1916" by Peter M. Bowers at 63s., and latest, "SHORTS AIRCRAFT" by C. H. Barnes at 84s. We have been lucky enough to enjoy them all, and have come to regard each as a definitive work on a broad subject. If you seek a story of manufacturing achievement you must select "BOEING". For anecdotes and slices of intriguing history, go for Penrose or Barnes and if you want to read a tale of one section in the British aircraft industry, now stifled in outlook, read Peter Lewis. Every Putnam book is a mass of reading, copiously illustrated, usually including photographs that have never been published elsewhere and always with a large collection of three-view drawings. As an example, there are 75 three-views in the book on Shorts, 400 photos and 528 pages in the standard Putnam 5½×8½ in. hardbound form. Now how about some aeromodelling? Ed. Wargo is a cartoonist whose cartoons have been published in many U.S.A. publications, mostly dealing with the funny side of radio control modelling. These have been collected together in a 40 page "WARGOTOONS" which is sold at $1 in the U.S.A. and will probably reach a few model shops here in due course. For the impatient send to Ed. at:— 3600 W. Fullerton Avenue, Chicago 47, Illinois, U.S.A. adding 50c. for post. Again from the U.S.A. is "A BEGINNER'S GUIDE TO BUILDING AND FLYING MODEL AIRPLANES" aimed for those from 8 to 12 years and produced by Bob Lopshire. The publishers are Harper & Row of New York and the price $4.95 which would make it a trifle expensive for a 128 page 7½×8 in. instructional book in this country. Bob is a sketch artist and at the rate of 4 to 6 illustrations a page, takes the young novice through all those problems ranging from "What shall I build?" to "Let's fly it!" The technique is unusual and good. The result is a completely illustrated glossary of terms and problems that deserves a mass circulation. Another worthy title which we wish all success is Les Hunt's "VETERAN AND VINTAGE AIRCRAFT" which describes and illustrates many of the aircraft which are preserved in Museums and at odd places throughout the World. 533 photographs cover 320 different types in 157 pages 7½×10 in. on art paper and the listings make fascinating reading. At 27/6d. direct from Les Hunt, 90 Woodside, Leigh on Sea, Essex, "V & V" is an essential for all aero-historians and a guide for the traveller. Who would have imagined finding a YAK-11 in Cyprus? Or the reputedly finest Fokker D VII at Knowlton in Canada? Serials are quoted as well as all items of historical interest so that the intending researcher can pre-brief himself before embarking on a visit to any of the multitude of listed storehouses. Browsing in Jack Beaumont's emporium of aero books at Bath Street in London (recommended by Len Deighton, —no less in his "London Dossier") we "discovered" a couple more monographs from the U.S.A. These are "NORTH AMERICAN B-25" and "Me 262" by Challenge Publications and selling before devaluation at 28/- plus postage 1/6d. These have a higher standard of content and printing than others in a competitive field and can be thoroughly recommended to all scale enthusiasts. The drawings are clear and in the case of the Me 262 include cross-sections, for which we say hooray! Karl Ries has now produced his sixth book on German aircraft in "MARKINGS & CAMOUFLAGE SYSTEMS OF LUFTWAFFE A/C in W.W.II" Vol. III and with agreeable surprise we are obliged to say that it is quite the best yet. One wonders where all these unique photographs come from, and in this latest volume, our pleasure is extended to six prints from wartime transparencies of Me 109s as well as thirty-one other pages in full colour showing various individual markings and schemes. At 66/6 it really is value for money, and those finding difficulty in obtaining this or the other Ries volumes are advised to contact the agent who is Graham K. Scott, 2 The Broadway, London, N.11. Last and by no means the least comes the Harleyford book of the year, "AIRCRAFT MARKINGS OF THE WORLD 1912-1967" at 70/- for 232 8½×11 in. pages which are absolutely crammed with information for the modeller. Both Civil and Military markings are illustrated and described and of particular value is the Chronology which starts with the proposition for International identification letters for aircraft in 1912 through every change of Military marking in many Nations to the change from Transport to "Air Support" Command from August '67. Colour printing includes the National insignia of 120 countries at least and markings for the Me 109 and Fw 190. More than 500 photographs and twelve colour profiles of airliner liveries go to make this a picture book with a difference. This is one you can pick up at any time for leisure or keep handy for intense study whenever a query on markings arises. We're not saying it has *all* the answers on colour schemes, for the subject is so exhaustive it could well fill a dozen such volumes, but it goes as far as most modellers would wish, and so comes out at remarkable value.

. . . "Where's the sticky Dad?"

How to be a
(and have twins)

Donald George gives a

THERE I stand, transmitter in hand, button thumb poised for action, eyes glued to the plane climbing away nicely, when a small voice pipes up behind me "*Dad, I want to wee wee*". "*Not just now Michael*", I say, jabbing at the button, one eye skywards the other looking for help. Then, thank goodness, Mum comes to the rescue. Yes, this is it, family flying.

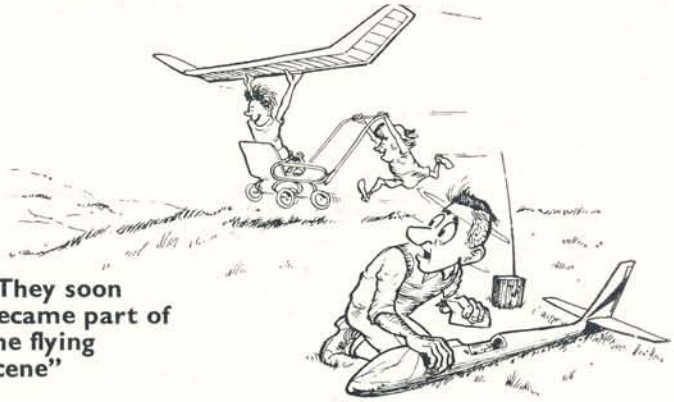
You've seen them, rabid modellers who eat, sleep and dream flying then one day smitten by the female of the species they opt out. Some go with a frightening suddenness. One Sunday they are on the flying field, then never seen again, banished to the front room and afternoon TV and mother's homely tea, or more often the front room couch and no TV or mother. Others go more gradually, though the same inexorable fate gets them in the end. They appear one weekend with a comely wench in tow, all anxious to see what flying is all about. At first she shows interest, then as he is a free flight bod she tends to get a bit fed up with seeing him launch a model then disappear into the distance and turn up again round about dusk probably covered in mud but beaming all over since he found the model all right. Or else the keen radio flyer forgets to tell her not to stand behind the model in her Sunday best when he is starting the motor. Naturally she never expected a great blast of dirty exhaust all over her legs. So, of course, either type loses if he wants to keep the girl, and after a week or two he goes down fighting, is seen less and less on the flying field, and then the inevitable advert. appears in the *Aero Modeller:* "Selling up, etc., etc.!"

But, modelbods, do not despair, it can be done. I mean live a little and still fly; but perhaps I was lucky. When I met my particular female destiny I was a pretty far gone aeromodelling case, but luckily she was an outdoor type which helps with the flying part. You have to play it craftily though, a few photos taken with planes go down well to start with; girl friend with glider for instance, then after a bit of training girl friend launching glider. First we began with the easy, clean stuff. Launching gliders is pretty safe with any normally intelligent female; if she isn't bright enough for this drop her anyway you fool before she grounds you (or is it grinds you?) completely. Anyway, we got through this stage pretty well, then she was even keen enough to hold a control line for launching, suitably attired of course in dirty old clothes. Well, to skip the courtship part, we got married and I was still an aeromodeller, now complete with a fully trained

. . . "a fully trimmed flying assistant"

married modeller

clue to matrimonial conversion



'They soon became part of the flying scene"

flying assistant; that is to say she knew that "dihedral" wasn't a Welshman and chuck glider wasn't a Yankee aeromodeller. After this we decided that she should learn to fly control liners, but this didn't quite work out. After designing a special crash proof model we briefed her and placed her in the centre of the circle. Two perfect (but unintentional) loops later she staggered out vowing she would never touch a control line handle again. Of course the snags do crop up; I mean she still winces at the strain of the last few turns going on a rubber motor when she is holding the model, and we do get involved in long discussions such as why keep towing that glider up when it doesn't fly very well, and I have to patiently explain that it's to find out why it doesn't that I keep on doing it (aeromodellers logic).

After four years wedded aeromodelling my chief assistant decided to present me with twins, but not without a struggle, that is to say she had to spend a whole flying season in bed (well, May to September anyway). However, being an aeromodeller one has to turn adversity into flight, so I had a brainwave. No flying perhaps, but a chance to raise cash to have a go at Radio Control, the finance for which had so far eluded me. Accordingly I gathered up everything saleable which amounted to eleven models in flying trim and a pile of magazines, and by the time my twins were born I had the wherewithal to purchase the radio gear. Meanwhile I was not idle, but sat by developing wife's bedside drawing up plans of the first radio model.

In due course the twins arrived, one of each type, male and female embryo aeromodellers. Although not entirely raised on model fuel and balsa wood they soon became part of the flying scene. Now as I build every little piece of scrap balsa is snapped up by two eager pairs of hands and put together to make wondrous things, and a little boy's pockets are found crammed full of what he calls *"Dad's woody"*. Even at three-years-old the questions are fantastic and non-stop, such as *"what's that tiny wing for Dad?"* this being the tailplane and *"where's the sticky Dad?"* that being the cement. Planes with props, jets, and helicopters are all correctly identified, and this year saw the first model built entirely by the modelling mum on her own who is now proficient at towing up her own glider to the accompaniment of yells of encouragement from the twins. Last year also saw the first family visit to the Nationals and we still hear about the *"lots of planes we saw last week"*. So there you are, it can be done so don't despair when the shadow of a skirt falls across your wing.

The trials of parenthood have their compensations especially when the family can enjoy a fine sunny day at a model rally. A pair of "A.P.S." De Havilland Puss Moths by Fred Longbon have found a willing audience (above) in David Boddington and family.

. . . "Some go with a frightening suddenness"

Tips for FILMING Model Aircraft

Robert Bateman offers Professional advice to ciné enthusiasts

THE 8 MM CINE camera is becoming as much a part of family possessions as was the Box Brownie of thirty years ago—but unfortunately it's usually handled with no more imagination. Films of baby on the lawn are only the beginning; 8mm filming can be pushed right out to the same limits as the professional gauges if you couple imagination with a few simple rules of technique.

Filming model aircraft sounds easy. Just point the camera at the model in flight, press the button, and hey presto!

What you will get is a plane shuddering from top to bottom and side to side of the screen, because the small size of the aircraft forced you to use the extreme telephoto setting of the zoom lens, with which every slight camera shake is magnified. So is every false calculation you make in trying to follow the flight by "panning" the camera round.

Unskilled, unplanned filming also provides no "continuity". This is the technique of storytelling in film, by ensuring that each shot leads logically into the next, and that every shot in some way advances the story.

Let's look, therefore, to see what can be devised as a five minute capsule course in filming models on the ground and in flight.

First, what is the likely audience? Experts? Probably not. Much more likely a lay audience prepared to be entertained by a fast-moving account of somebody's hobby, but lacking the technical knowledge to appreciate lengthy shots of detail in construction. So devise a definite story line centred round a man and a plane, and ensure that the man appears in at least twenty-five per cent of the shots. By "story line" I don't mean high drama, simply a progression of events, such as a shot or two of construction being completed, a travel shot of some kind to change location from home to flying field, a rapid sequence of preparation for flight, then the flight itself. And it is in the flight itself that the problems arise. One of the most irritating things to an audience is what

Use of a high level tripod by Dutch aeromodeller at the 1967 Criterium of Aces should have resulted in some fine panning of aerobatic control-line contest flights. A cable release is being used in this case. Below, is the true Professional approach with a tripod fit to support a relatively heavy camera, but the principles are the same for all types of ciné-camera. Note that the lens has an Ultra Violet filter, recommended for most colour filming.

is known as a jump cut. This is caused by switching off the camera and switching it on again without a change of scene, but with the main object in a different position. To avoid this, use the zoom lens adjuster to change the size of the image seen in the viewfinder, or alternatively, provide "cut-away" shots of the plane's owner looking up and watching it in flight.

Tripods and chest pads

How do you achieve steadiness during these flying shots? A heavy tripod—not the spindly design sold for "still" photography—is one answer, if it is provided with a smoothly-operating "pan and tilt" head, but for most flying shots the cameraman will find himself squatting almost underneath the tripod, and therefore with very little control of the camera. There are better, and cheaper answers. One is a "chest-pod". This can be made very simply by fitting a 12 in. dowel rod with a screw that locks into the tripod socket on the base of the camera. On the other end of the dowel rod is fastened a leather strap, long enough for securing round the cameraman's neck. The camera's vertical steadiness is then ensured, and the cameraman's hands have only horizontal steadiness to control. Leaning back, he can shoot almost vertically without affecting his steady camerawork, and if he can position himself by a wall or fence post, he can arch himself back enough for direct overhead shots without difficulty.

Hand held shots are not necessarily jerky if you have that rare quality of a steady hand. A firm grip on the camera body or a pistol grip is essential. If a hand operated zoom lens is fitted, then the hand held shot is always a risk until one becomes experienced enough to know when to avoid "hose-piping" and jumpy changes of scene.

The "dog leash"

An alternative device for a cameraman who has a wall or fence as support is the "dog leash pod". This need not be specially constructed. A string is passed through the clip of the leash, and tied round the body of the camera. The loop at the other end of the leash is placed round the cameraman's foot. Slight upward pressure with both hands to ensure the leash remains taut will keep the camera steady enough even for extreme telephoto shots, and using the wall for support, overhead shots can be controlled simply by raising the foot.

A few points about direction of movement: if the plane is seen crossing the viewfinder from right to left, it should be seen again, coming towards or going away, before it is shown travelling from left to right, otherwise on the screen it will appear to have been turned round magically and instantaneously. The cine camera tends to deceive about speed of movement; objects in the distance appear to move more slowly than in close shots. This can be remedied by *reducing* the speed of the camera on all long range shots. If the normal shooting speed is 16 frames per second, a reduction to 8 f.p.s. will, when projected at 16, double the apparent speed of movement.

Human reactions

Finally, another reminder about people. The more brief glimpses you can include of people *reacting* to the model in flight, the more your audience will react as well. A small child, staring into the sky and jumping with excitement, will do more to convince an audience that flying model aircraft is fun, than the same two or three feet of film devoted to yet one more swoop, loop, and climb!

Visitor to the World Free Flight Champs in Czechoslovakia should have made a fine film (below). Electric zoom and auto lens with camera on firm tripod and everyone willing to co-operate for such a fair camera girl was a guarantee of success!

Dihedral . . . and Tip rise

FOR building purposes dihedral required is normally given in terms of tip rise. If a specific dihedral *angle* is called for, however, the tip rise will have to be calculated from the formula:
tip rise = wing panel length x sine of the dihedral angle.

The following table can be used to set a wing panel to a required dihedral *angle*, based on using blocks to prop up the panel of 1 in., 1½ in., 2 in. or 3 in. depth. The table gives the distance the inner edge of this block should be placed along the span *from the dihedral joint line* to give the dihedral angle heading the appropriate column.

For example, suppose a dihedral angle of 11 degrees is required and a 2 in. square block is to be used to prop up the wing panel to the required dihedral. The table shows that the inner edge of the 2 in. block should be located 10.3 in. from the dihedral joint line.

As a further example, suppose a dihedral angle of 14 degrees is required. This can be given by using various sized blocks, as under (reading the distance figures from the table).

A 1 in. block at 4 in. from the dihedral joint line.
A 1½ in. block at 6 in. from the dihedral joint line.
A 2 in. block at 8 in. from the dihedral joint line.
A 3 in. block at 12 in. from the dihedral joint line.

Unless the wing panel was particularly short, the obvious choice in such a case would be to use a 2 in. or 3 in. block for more positive support.

BLOCK SIZE	DIHEDRAL ANGLE DEGREES												
	5	6	7	8	9	10	11	12	13	14	15	20	25
1″	11.4″	9½″	8⅛″	7⅛″	6.3″	5.7″	5.2″	4.7″	4.3″	4″	3¾″	2¾″	2⅛″
1½″	17.1″	14.3″	12.2″	10.7″	9½″	8½″	7.7″	7.1″	6½″	6″	5.6″	4.1″	3¼″
2″	22.9″	19″	16.3″	14.2″	12.6″	11.3″	10.3″	9.4″	8.7″	8″	7½″	5½″	4.3″
3″	—	—	24⅜″	21⅜″	19″	17″	15½″	14⅛″	13″	12″	11.2″	8½″	6.4″

Make your own weighing balance

Alan Brocklehurst offers a useful workshop project

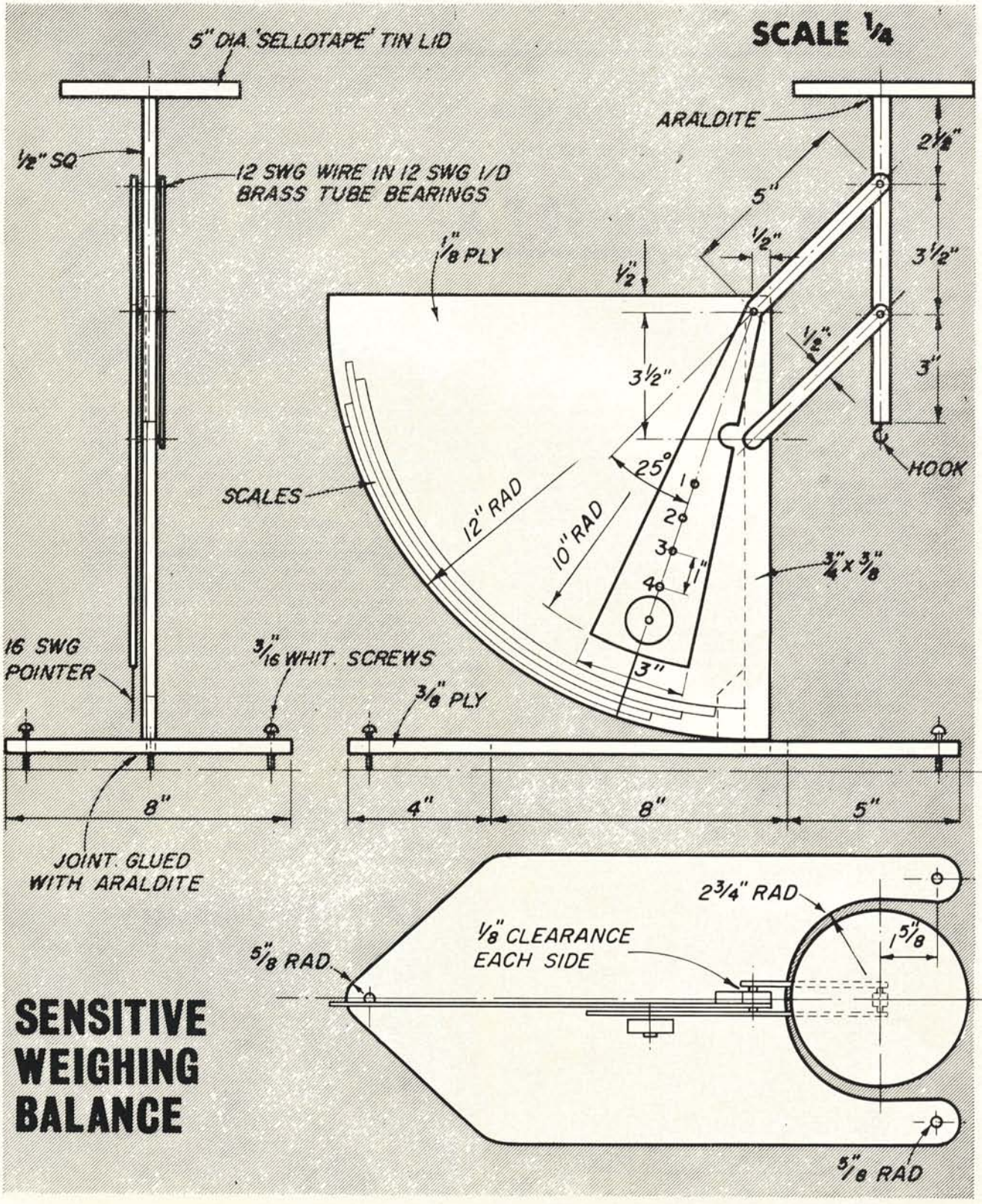
DEVELOPMENT and the design of a model cannot be improved without considering the weight of its various components. One should find no difficulty in weighing anything from 1/40 oz. to 12 oz. on this balance. The main advantage of this type of balance is the speed and case with which articles can be weighed.

Construction notes should be needed as the drawing (and photograph) should be found self-explanatory.

The scales are graduated by attaching a suitable weight in one of the positions marked 1-5, securing it with a 4 or 6 B.A. bolt. Known weights can then be placed on the 'pan' and the position of the pointer marked on the appropriate scale. By varying the position and size of the weights various scales can be made. Scales can be in both ounces and grams, and the best way of arriving at the graduations for a scale in ozs. is to use coins, since one penny weighs ⅓ oz., one half-penny weighs 1/5 ozs. and a 6d. weighs 1/10 oz. When the scales are made the base of the balance should be level and when used on other surfaces the levelling screws can be used to get the pointer at the beginning of the scale and swinging freely.

Finish can be almost anything. The original had three coats of sanding sealer, was then sprayed red and white, and after the scales had been put on with black drawing ink, then the instrument was fuel proofed and assembled.

Keep the pivots free and well oiled or trouble could be experienced. Well made, the balance should last for years.

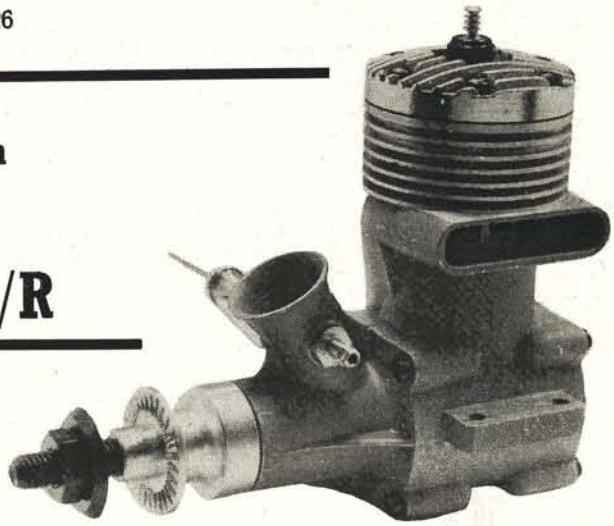


SENSITIVE WEIGHING BALANCE

ENGINE TEST by Peter Chinn

Powerful lightweight engine for Rat Race, Pylon Racing or Combat Class "B"

K & B Torpedo ·40 F/R



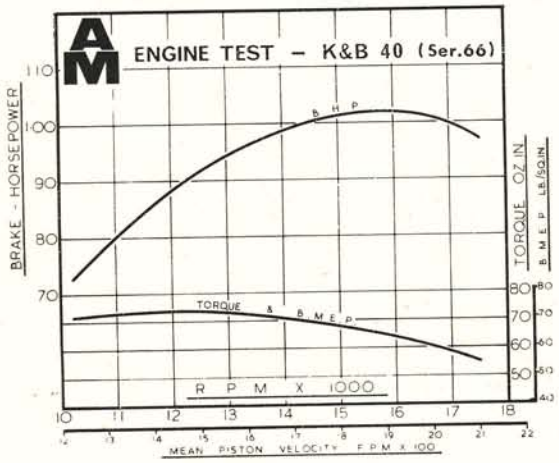
THE Torpedo 40 Series 66 is the largest model in a range of K & B engines that now goes back nearly seven years and had its beginnings in the "Series 61" Torpedo 15R, 29R and 35 engines. It is, in fact, a development of the "Series 61" and "Series 64" Torpedo 35 models, having the same basic shaft and front housing assembly, but with a modified main casting, bigger bore and, for the first time in the K & B range, a ringed aluminium piston.

The 0.399 cu. in. (6.54 cc.) Torpedo 40 was evolved for the control-line "rat-racing" class where maximum swept volume is limited to 0.40 cu. in. With the "Series 67" Torpedo 40, its disc-valve companion model, it has enjoyed considerable contest success in the U.S.A. and, in 1967, these two models took eight of the top nine places in "rat-racing" classes at the U.S. Nationals. The Torpedo 40 offers great possibilities, also, for open class free-flight and Class B combat contest models, largely because, for a weight similar to that of a racing 5 cc. engine, it develops much more power and can turn suitable props a great deal faster.

The Torpedo 40 is intended for operation on a pressurized fuel system only, no venturi insert being fitted in the $\frac{3}{8}$ in. bore intake. A brass outlet nipple is supplied, which screws into the centre of the crankcase backplate, for bleeding the necessary pressure to a sealed fuel tank. Alternatively, of course, a bladder tank can be used, in which case the backplate outlet is sealed by a screw provided.

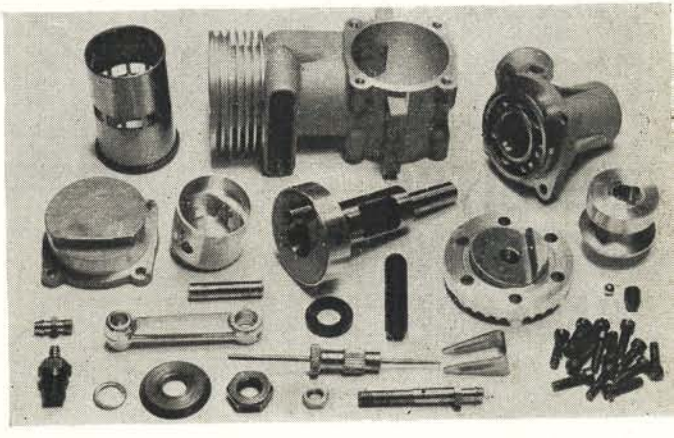
In general, the design of the Torpedo 40 is similar to that of the Series 64 Torpedo 29F model featured in our November 1966 Engine Test, the main difference being its much lower stroke/bore ratio and its machined aluminium piston with unusual single low-pressure L-section ring, the top edge of which is flush with the piston crown. The cylinder ports are, of course, subdivided (five exhaust and four transfer) to provide guide bars for the piston and prevent the ring from being trapped. Port timing (measured from our test engine) is 70–70 degrees exhaust and 61–61 degrees transfer. The induction valve timing is 30 degrees ABDC to 45 degrees ATDC.

As on all other engines, both shaft valve and disc valve, in this K & B range, the crankshaft is carried in twin ball-bearings and features the Wisniewski "internal counterbalance" system (see report on Torpedo 15R, August 1966 *Aeromodeller*). The shaft has a $\frac{1}{2}$ inch diameter main journal and is made in three parts, the crankpin being pressed in. Unlike the plain (unfinned) hemispherical cylinder-heads fitted to the 15R and 29R models, the 40 has a finned head offering a wedge pattern combustion chamber. On the transfer side, the head is shaped to provide maximum squish effect for improved turbulence. The glowplug is placed centrally in the head. In contrast to most other makes, the engine has the exhaust on the left hand side, although it is possible to reassemble it with the exhaust on the right side.



Performance

As befits an engine designed by the world's number one C/L speed flier and current FAI World Champion, Bill Wisniewski, the Torpedo 40 is an extremely powerful motor and, as the performance graph indicates, it bettered one horsepower on our test.



Where the "40" really scores is in the high torque it develops at high r.p.m. On a fuel of around 30 per cent nitro rating, this is of the order of 74 oz. in., equivalent to a b.m.e.p. of 73 lb.sq. in., at 12,000–12,500 r.p.m., and results in a very impressive power output from this point up to about 17,000 r.p.m., the peak output actually occurring at approximately 16,000 r.p.m. One does not have to resort to tiny props turning at 20,000 r.p.m. in order to realise an extremely high performance. For open free-flight work, for example, revolutions in the 14,000–16,000 r.p.m. bracket can be expected in flight with 11 × 5, 10 × 6 and 10 × 5 props. For rat-racing, we would suggest aiming for in-flight r.p.m. a little beyond the peak so as to gain maximum acceleration up to full speed.

When brand new, the Torpedo 40 was not such a quick starter as the lapped piston Torpedos tested earlier, but this steadily improved and, by the time our nominal running-in period was completed, compression seal had become so much better (with the bedding in of the piston ring) that starting was now really excellent.

Despite its high output, the Torpedo 40 was, in fact, quite easy to handle and remained free from such unpleasant habits as back-firing and kicking its prop loose or "biting" one's fingers. In this respect, the Torpedo 40 continues the tradition of good behaviour established with the earlier models in the range. For cold starts, we used the normal method of an exhaust port prime. When warm, however, the "40" would usually start with merely flipping the prop only, since this effectively primes the intake by pumping fuel through via the pressure system.

All our testing, incidentally, was undertaken using the crankcase system of fuel pressurisation (the backplate outlet being coupled to a Veco pressure-tank) and with an open exhaust. K & B do not offer silencers for their engines and no other type of silencer was used for our tests.

Running qualities of the K & B 40 were also very good. If excessively overloaded (i.e. for speeds below 10.000 r.p.m.) there was some roughness, but beyond this and over a very wide usable speed range, the "40" ran very smoothly and steadily.

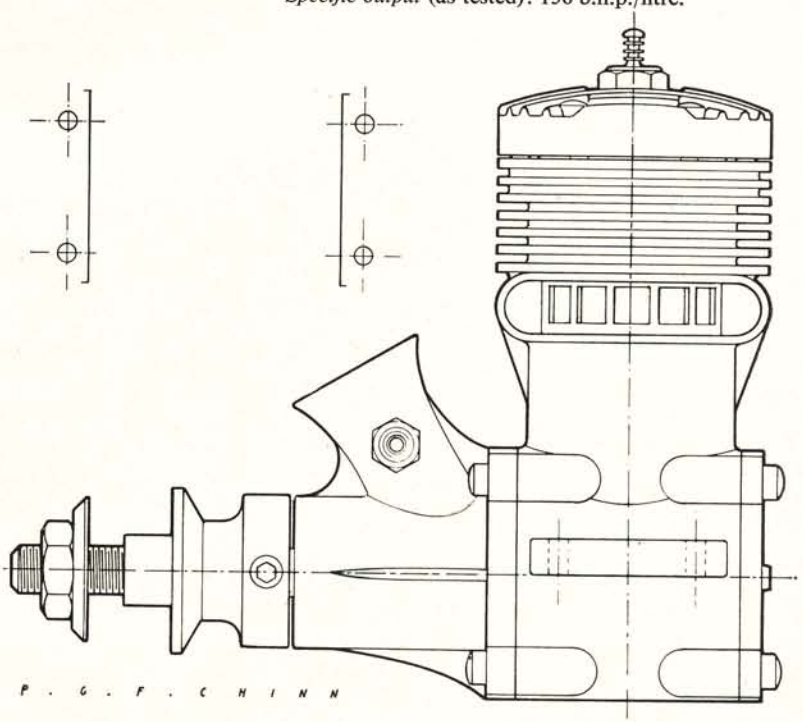
SPECIFICATION
Type: Single cylinder, air-cooled, loop-scavenged, two-stroke cycle glowplug ignition. Crankshaft type rotary-valve induction. Twin ball journal main bearing.
Bore: 0.840 in. **Stroke:** 0.790 in.
Swept Volume: 0.3990 cu. in. (6.539 cc.)
Stroke/Bore Ratio: 0.857 : 1
Weight: 8.6 oz.

General Structural Data
Pressure diecast aluminium alloy *crankcase/cylinder block* unit with drop-in cylinder liner. Pressure diecast aluminium alloy *main bearing housing* secured with four screws and containing one ¼ × ⅜ in. front, and one ⅜ × 1⅛ in. rear, ball journal bearings. Non-hardened, internally counterbalanced *crankshaft* with pressed-in, hardened, 7/32 in. dia. crankpin. Machined aluminium alloy *piston* with baffle and single Dykes type piston-ring. Forged Alcoa 2014 alloy *connecting-rod*, unbushed, with single oil hole at lower end. Fully-floating 0.178 in. dia. *gudgeon-pin* with aluminium end pads. Pressure diecast aluminium alloy *cylinder-head*, secured to cylinder casting with six screws. Pressure diecast aluminium alloy *crankcase backplate* with provision for fuel tank pressurisation and secured with four screws. Machined aluminium alloy *drive hub* keyed to crankshaft and fitted with ¼ in. dia. stud, steel washer and hexagon nut for propeller attachment. Brass spraybar type needle-valve assembly. No gasket-metal to metal joints throughout. Beam mounting lugs.

TEST CONDITIONS
Running time prior to test: Approximately 2 hours.
Fuel used: 75/25 methanol/castor-oil (running-in). K & B Supersonic-1000 (all tests).
Fuel system: Open intake (0.375 in. dia. choke) with spraybar. Pressurised fuel feed.
Glowplugs used: K & B KB-1L, platinum filament, long reach, as supplied.
Air Temperature: 50 deg. F.
Barometer: 29.80 in. Hg.
Silencer: Not fitted.

The manufacturer, the K & B Manufacturing Corporation of Downey, California, does not have a British distributor at the present time, but these engines are, occasionally, obtainable in the U.K. from the larger, specialist model shops. Alternatively, prospective owners can purchase direct from a mail-order source in the U.S.A. The U.S. list price of the shaft valve Torpedo 40 is $24.95 (approximately £10.8s. nett) but one should remember that all such importations are subject to approximately 60 per cent customs charges, i.e., 25 per cent customs duty, plus 27½ per cent purchase tax (calculated on value, plus duty on landed cost) plus clearance fee. For the U.K. purchaser, therefore, the K & B 40 is not a cheap engine but keen types may well feel that this is not an excessive price to pay for such high performance.

Power/weight ratio (as tested): 1.90 b.h.p./lb.
Specific output (as tested): 156 b.h.p./litre.

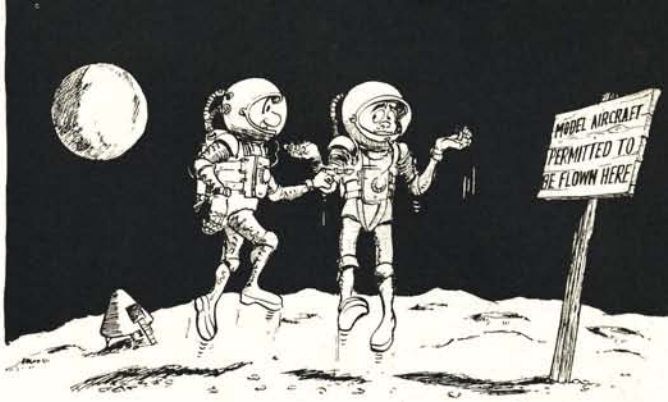


Display of components shows a little of the high standard of workmanship in the K & B 40

P . G . F . C H I N N

TOPICAL TWISTS

by 'Pylonius': illustrated: by 'Sherry'



Fault Lies in our Stars

EVERYONE seems to know what's wrong with aeromodelling today, but get quite woolly when trying to define it. Now I'm prepared to stand by and see anyone get the blame, even myself, but I can't help raising a faint whinny of protest when, in desperation, the pontificators turn their puritan broadsides on the poor old model shops; they are much too few and precious to be abused.

Anyway, we are told the model world would be a place fit for heroes to live in if, instead of displaying baby beginners kits and ready-to-you'll-be-lucky-fly plastic chuckabouts the model shops gave over the windows to a manly eyeful of hairy chunks of rude, uncut balsa, long provocative lengths of intractable piano wire and bunchy skeins of doughty Dunlop. As it is, the would-be adult aeromodeller's public image takes a sharp drop to Nursery level when he is seen to frequent the aerial toy arcade. Concerned Aunties shake blue grey heads at Sonny's infantile fixation

"If only he'd chase after girls like he does those silly toys."

"Time he let his back hair down. Twenty-one, and never had a breathalyser test."

When all else fails the critics fall upon the contest flying expert. Where, they ask, is that chummy, all-lads-together attitude that illumined the flying field of yesterday. Why all the surliness when spoken to whilst winding up his paper bag of rubber? After all, if the motor breaks it is in a metal tube. Were not the expert types so big-headed and aloof the hobby would be all sweetness and light—one big happy, hippy love-in. The family picnic atmosphere would once again prevail, with John Citizen and his family as special guests.

Only trouble is they were saying just the same things thirty years ago.

A.A. Service

Seems there's a chappie in South Africa doing a world goodwill move on behalf of the global model movement. Whenever a modeller lands by jet or docks by ship, our pal is always ready to extend a welcome hand to the model flyer of any race or creed. I have ambitions of doing the same sort of thing, but, at present, the old Anglia just about makes it to Wanstead Flats. So, if you see someone on the Flats with his hand extended. Yes, you'll be right, it will have just started to rain.

But this goodwill visitor reminds me of an American who came over with the same sort of intentions. He was smothered in hospitality.

"Say, where's this English Modellers' reserve we hear so much about . . . ?"

"Well, you go straight up the A.3 past Guildford. It's a place called Chobham Common . . . "

Still on the subject of do-gooders, perhaps you are not aware that there exists a society known as Aeromodeller's Anonymous. Whenever an Aeromodeller finds the domestic going particularly tough, for instance, when struggling gamely with that home extension or picture window on a day when the sparkling sky and cooing breezes conjure up visions of enchanting flying fields, he can, in his agony, ring Aeromodeller's Anonymous for a few consoling words of comfort and cheer.

Novel Experience

I read in a club magazine that it was the Martian style landscape of Chobham Common which gave author H. G. Wells the inspiration for his book, "The War of the Worlds". I can't say I've had any such romantic thoughts when extricating a dripping foot from a Martian style canal, except to make me ponder upon yet another Flying Object becoming Unidentified.

Still, the notion was an intriguing one, and we wondered if it were generally known, so we put the question to one of Chobham's frequent trippers:

"Did you know that Chobham Common had deeply impressed Wells?".

"No. I thought they were just dirty big holes filled with water."

And not all people agree upon the Martian quality of the landscape. One person upon getting a stout Cortez like eyeful was heard to expostulate, *"Jupiter!".*

Naturally, Chobham is an enticing spot for U.F.O. spotters. For some reason they are called Time-keepers.

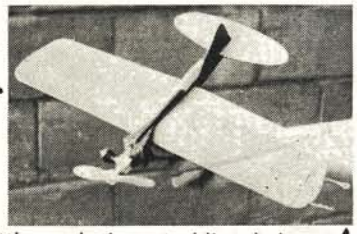
Sign of the Times

It is a sign of our utter defeat and abasement that we should rejoice to see a sign giving permission for model planes to be flown on some wretched piece of ground. I personally don't so much object to a sign prohibiting model flying as one which condescendingly allows it. At least the former suggests that the non model flying area is the exception to the general fly where you like rule, whereas the sign that allows it suggests that it is prohibited everywhere else.

Ain't life getting 'orrible?

GOLDEN WINGS AEROMODELLER MODEL CLUB

Why not join this grand junior Aeromodelling Club?



SPECIAL THIS ISSUE

"Wee-Wun"

on following pages

All Golden Wingers will like the little aerobatic control line design for .020 or .032 cu. in. engines which appears in full size plans by designer M.B. Ashby on the following pages. It can even be flown indoors if you have a reasonably large meeting hall! Usual line length is 15′ of Terylene cord.

Dear Sir,

I have been a member of the Golden Wings Clubs for over a year. I have built seven models two KK cadets, one Caprice, one Skylon, one Graupner Amigo, one Buhl Sports Air Sedan and a little glider of my own design.

My father and I are both in the Bradford Radio Aeromodellers, the local club which meets every first Monday of the month.

I am writing to find out where I can get scale drawings of a mark twenty-two Spitfire as large as possible. I would be very pleased if you could tell me.

Bradford, Yorks. *Timothy Spencer.*

We regret that we do not have drawings for the Spitfire Mark 22, but if you can get a copy of Aircraft of the Fighting Powers, Volume 7, from your library you will find it drawn on page 17.

* * *

Dear Sir,

Although fifteen I am still a novice. I have just come back from doing my first C/L flight, which, incidentally, was made with a model called "Hatchet" with an A.M.15 in it. The plans for this model were printed in a very old number of *Aeromodeller*. I cannot remember which issue but it could be as far back as 1950! The flight was very successful but the wing tissue was torn in two places on landing, and I wondered if you could tell me a good method of repairing this, short of re-covering the whole wing.

Hest Bank, Nr. Lancaster *Michael Bowker.*

The "Hatchet" is still a very popular design and we are pleased to learn of your success with it.

You can repair a tissue tear easily provided you do not allow the two edges to draw apart. Apply thin cement at points on the gap and you will see that as the cement shrinks it will pull the two edges together. You can eventually seal the whole gap after securing odd points and then finally cover with a strip of tissue. If the gap is allowed to pull apart so that cement cannot pull the edges together then you must move the tissue for that bay and quickly re-cover the bay before the adjacent bays become distorted under the tension of the doped existing tissue.

* * *

Dear Sir,

Enclosed is a picture of myself sitting in a Slingsby Tandem Tudor T-31 glider that I fly with the North West of Ireland Gliding Association on the sand beach at Magilligan Point near Londonderry. I am holding my model T-31 that was built from plan FSP/692 and is covered with Solar Film.

The members of the glider club think that it is an excellent model and the only difference is the increased dihedral on the model. They even suggested that I build a scale towing trailer and tow car

Brian Dean with his glider—in a glider!

to make it really complete.

My gliding instructor says that I am ready to solo but that I have to wait until my sixteenth birthday in February. I enjoy flying models and the real aircraft.

I have built models of many types and have been flying control line for several years, and have several gliders that fly well. Recently I built a *Keil Kraft Snipe* that I have flown only a few times because as soon as the power cuts off it comes down in a steep spiral even when it glides perfectly when it is hand launched. Also I built the *Swannee* in the Feb. *Aeromodeller*. I am having lots of trouble with it also. It flies in a straight gentle climb until I give it the least amount of left or right turn when it will turn, bank and dive into the ground before I can straighten it out. I am using Controlaire Galloping Ghost with the Rand Actuator. I have tried it with and without elevator control. It is very discouraging to have saved my money for R/C and am unable to use it. Is there a better trainer to use with .049?

I have two Cox Baby Bees, two Cox QZ, McCoy 19, and two Super Tigre 46 R/C. The last two were given to me by a man who has given up flying, the engines are in perfect condition but I feel that I should learn to fly R/C on the smaller and slower models.

U.S. Navy Station, Londonderry, Northern Ireland *Brian L. Dean.*

The problem with your Keil Kraft Snipe is most probably due to the fact that when the model is flying fast, a warp in the wing is acting in one direction and when it slows down for the glide the warp has an entirely different action. This is a quite common effect, the warp in one instance creates lift and in the second instance creates drag.

Swannee is not very easy to trim. If you have the correct amount of dihedral and balance it at the right place as shown on the plan and also have wash-out on the wing tips it really should give no problem. It has a tendency to spiral, but this is usually only when the rudder is held on too long, and the model has been taken through at least 90 degrees of the turn. Controlaire system is very good with the Rand actuator and we are surprised that you are having difficulty. Pal Joey is a good trainer design for .049, Plan R/C 852 5/6 incl. post.

Dear John Bridge,

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

NAME IN FULL .....

ADDRESS .....

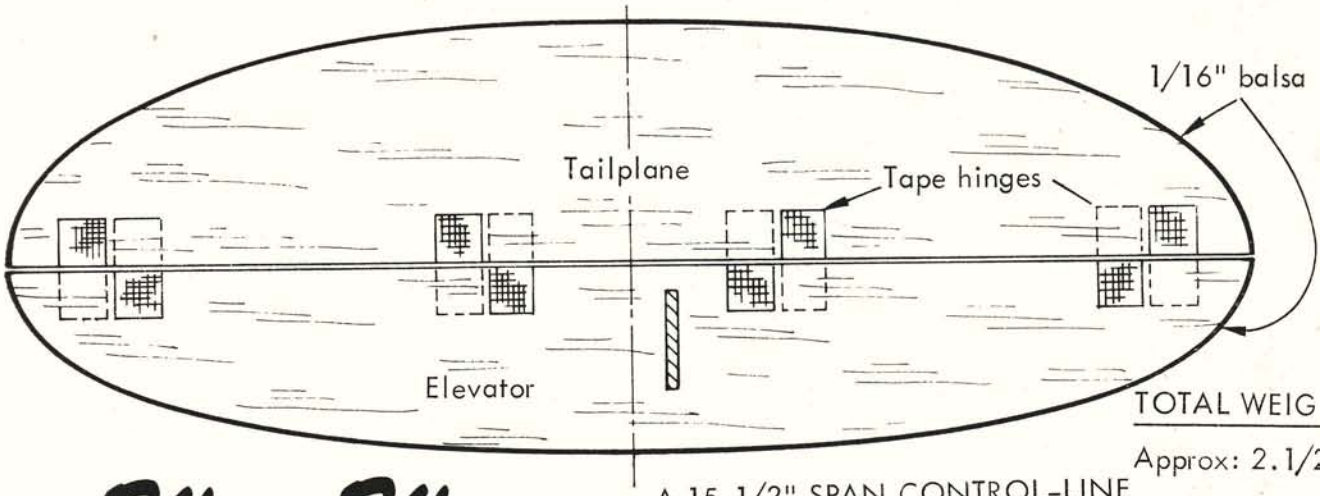
.....

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

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

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

2d. in the 1/- Rebate
1/68 plan purchase coupon
for Golden Wings Mem
G.W. No.....



TOTAL WEIG

Approx: 2.1/2

Wee-Wun

designed by M.B. Ashby

A 15.1/2" SPAN CONTROL-LINE SPORTS AND STUNT MODEL FOR SMALL ENGINES, TO BE FLOWN ON 15 FT. LINES

Here's what you need: One each 3/16" sq. 3/16" x 3/8", two 1/16 sq. strips. One each 1/16", 1/8", 3/16" sheets (enough for several models !.) Scrap 1/16 Ply, 18 s.w.g. wire, 8 B.A. nuts, bolts, washers, covering tissue, cement and dope. Assemble wing over lower spar, align ribs with leading and trailing edges, then add top spar. Fit to fuselage after adding controls and sheeting.

3/16" sq. Leading Edge

Flexible cable lead-outs

2 off 1/16" sq. spars (Hard balsa)

(Light Laystrate)

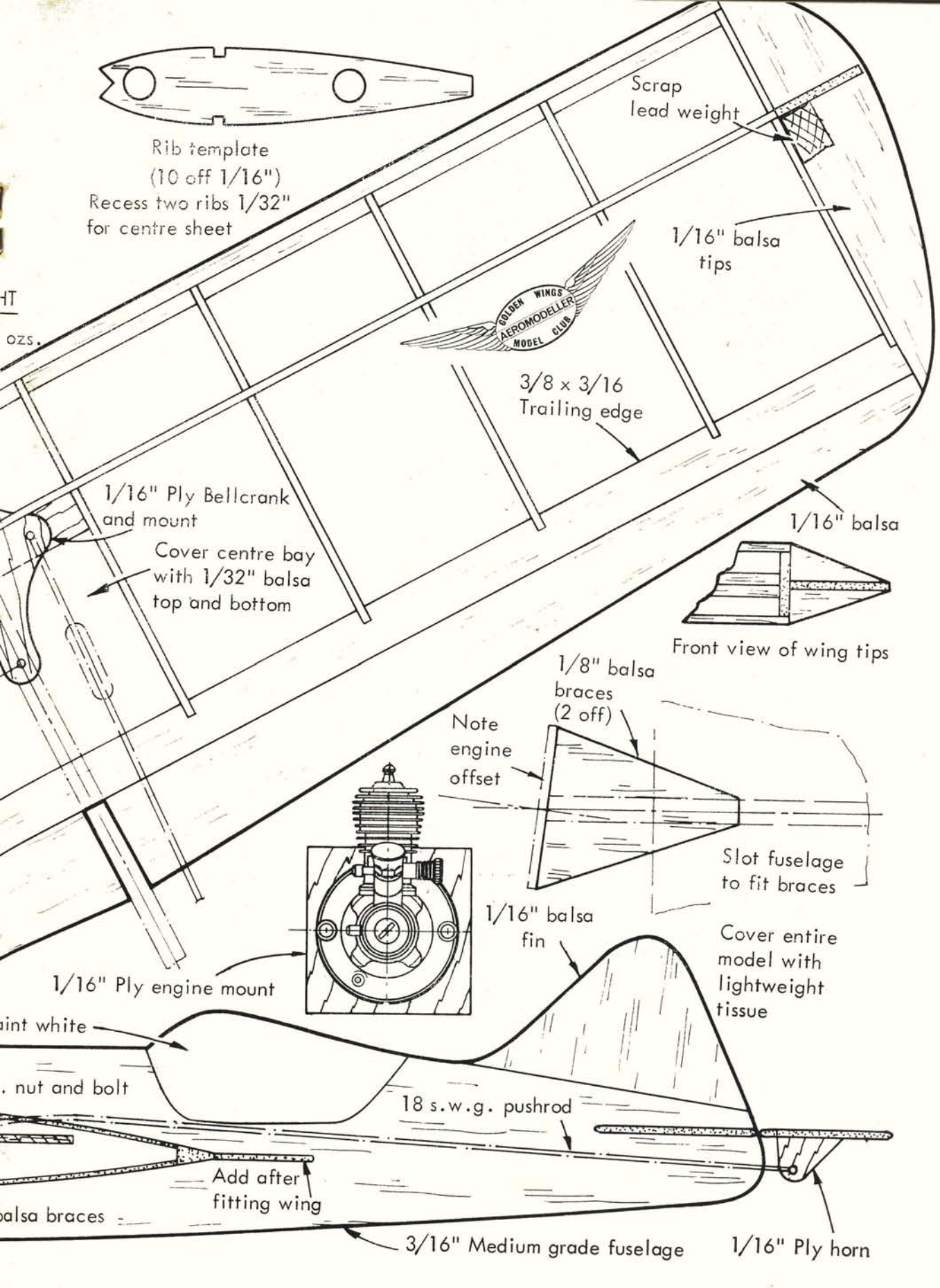
Sew brass tube to tips

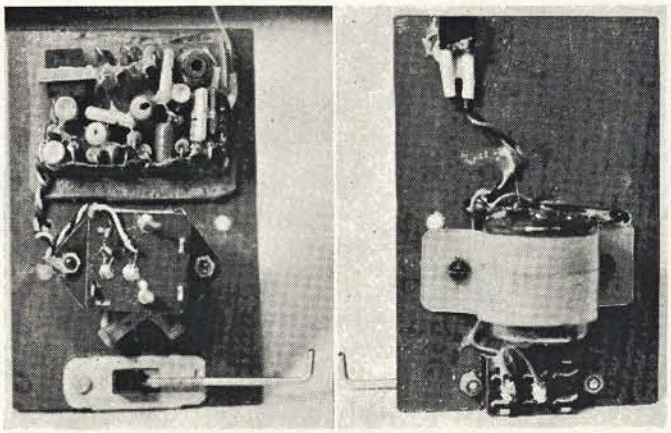
8 B

Balance point

1/8

Cox .020
Use 5" x 3" prop


Rib template
(10 off 1/16")
Recess two ribs 1/32"
for centre sheet
Scrap
lead weight
1/16" balsa
tips
GOLDEN WINGS
AEROMODELLER
MODEL CLUB
3/8 x 3/16
Trailing edge
1/16" Ply Bellcrank
and mount
Cover centre bay
with 1/32" balsa
top and bottom
1/16" balsa
Front view of wing tips
1/8" balsa
braces
(2 off)
Note
engine
offset
Slot fuselage
to fit braces
1/16" balsa
fin
Cover entire
model with
lightweight
tissue
1/16" Ply engine mount
18 s.w.g. pushrod
Add after
fitting wing
3/16" Medium grade fuselage
1/16" Ply horn



STRICTLY SIMPLE

David Boddington introduces a slide-in Single channel R/C unit

Rear and forward views of "Mono-Pack" unit at left.

IT IS exactly 12 months ago since this column featured a friendly controversy between Dick Stouffer and myself regarding the merits of various methods of mounting simple single channel equipment in models. I finished my part of the article by saying "I shall now experiment with a few of Dick's ideas in the belief, no doubt erroneous, that I can improve on them. Now let me see, if I can get a really small receiver I could mount the escapement on the same plate and. . . ."

To be truthful, at the time of writing that article I had already started some experiments with a single slide Rx/escapement unit and the unit presented here has now had a full season's flying. To my way of thinking this unit is an improvement on the previous box arrangements and on Dick's two slide installation; but I hold myself in readiness for a full broadside from Dick. The only basic disadvantage with this Mono-Pack unit is, because of its physical dimensions, it is not suitable for the smallest models, but it is ideal for such R/C designs as the *KK Mini Super*, *Veron Robot*, *A.P.S. Pal Joey* and *Tyro* etc., and for an R/C conversion of the *Lockheed "Santa Maria"* design which was a full size plan in August '63 issue and is to be featured in an early article in this series.

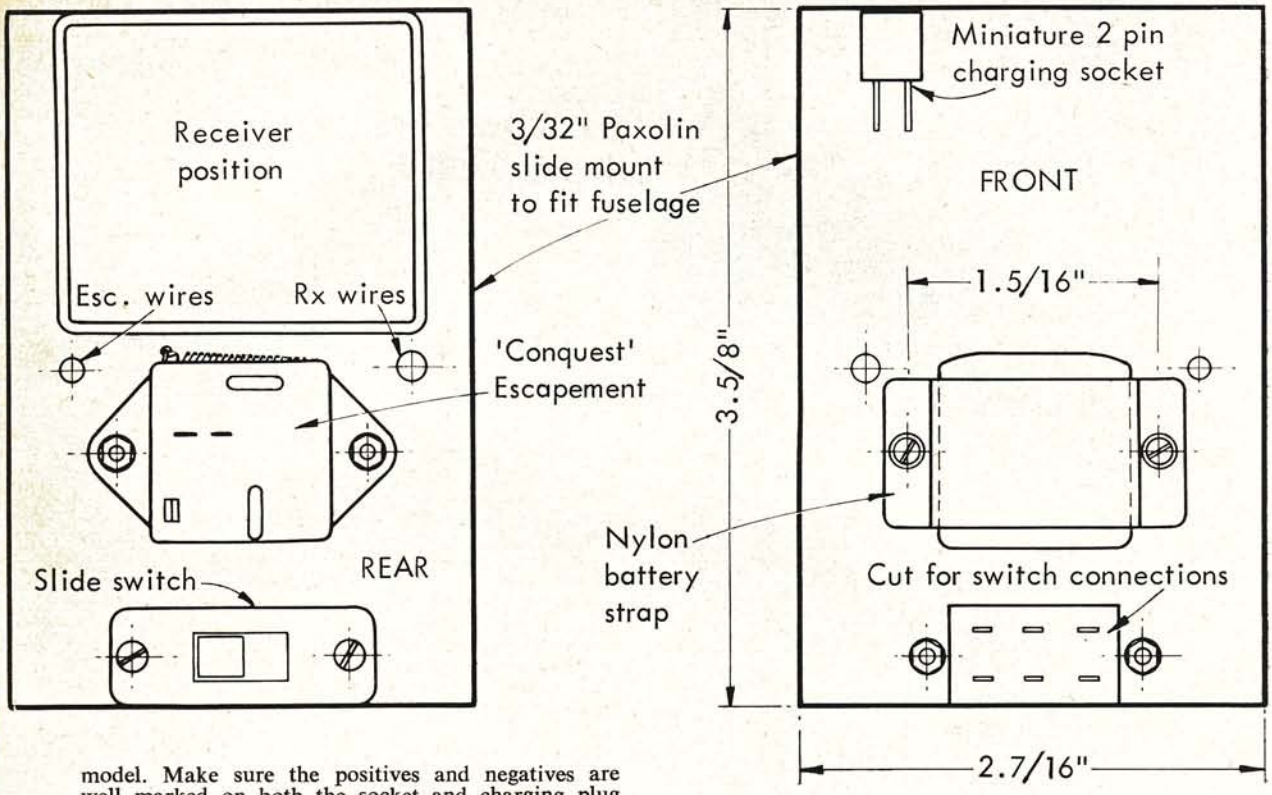
The main advantages with this type of unit are the case in which the units can be transferred from model to model and the neater and more reliable wiring installation made possible by a single removable mounting board.

Without any doubt a tremendous number of failures suffered by newcomers to R/C (and the more experienced flyers) can be attributed to faulty wiring installations. Some R/C installations in models are so slapdash it is nothing short of amazing that they work at all, never mind that they occasionally break down. One of the most common failings, and I have been guilty of it myself on more than one occasion, is to make a "temporary" hook up of the equipment installed in the model just for testing purposes. The "temporary" arrangement is satisfactory during test flights and, instead of being removed and made into a neat and secure arrangement, it becomes the permanent installation. With the Mono Pack unit you get things *right* from the start.

Transferring the board from one model to another could not be more simple. Disconnect the torque rod, remove the escapement rudder, slide out and into the other model. The switch may be operated through a hole cut in the underside of the fuselage or by drilling and 8 B.A. tapping a hole in the slide switch and using a length of cycle spoke as an extension to the switch. The slide rails fixed to the fuselage should be from spruce or beech rather than balsa as the latter may tend to break in a hard landing. Although the batteries are fixed to the slide and cannot therefore be moved independently to adjust the C of G of the model, the position of the slide is adjustable and should be checked for the ideal position before the slide rails are fixed. The limiting factor for the forward movement of the unit will normally be the position of the former immediately in front of the wing leading edge, batteries must slide in to miss the former.

Construction

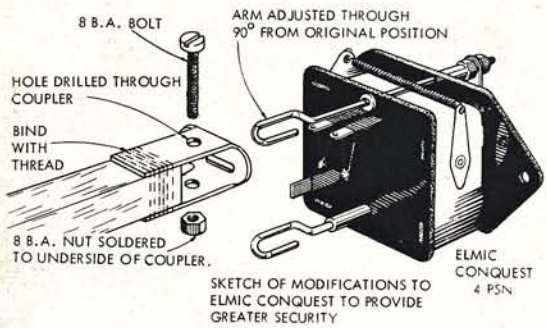
Cut the mounting board to size from $\frac{3}{32}$ in. "Paxolin" fibre sheet, if this is unavailable you could use plastic laminate sheet (i.e. *Formica* or *Warite*) or $\frac{1}{8}$ in. plywood. The dimensions of the slide may be varied slightly to suit different equipment but remember always to leave at least $\frac{3}{8}$ in. at the sides where the slide rails overlap the board. The DEAC pack is held in position by nylon strip or similar material. To reduce the risk of vibration effects, the receiver is mounted on a foam rubber pad. This is particularly important if a relay type receiver is used. Contact adhesive should be used to secure the receiver to the foam rubber pad and the pad to the slide. The mounting bolts for the escapement also retain the DEAC nylon strip and the bolt heads should be on the DEAC side. Try to get a reasonably thick walled brass tubing for the escapement spacers as this helps to give more rigidity. Washers must be used on either side of the slide and escapement plate. Although this method of mounting the escapement may appear to be on the flimsy side it has proved to be completely satisfactory in practice, and in the hands of various modellers, has been subjected to quite rough treatment. The cut out in the bottom of the slide should be made to suit the slide switch you are using and, if you use the cycle spoke method of operating the switch, it should be drilled and tapped before it is installed on the board. A small 2 pin flat socket can be used for the charging point and this is epoxy glued to the top of the board so that charging can be carried out without removing the board from the



model. Make sure the positives and negatives are well marked on both the socket and charging plug to avoid the danger of reversing the polarity during charging.

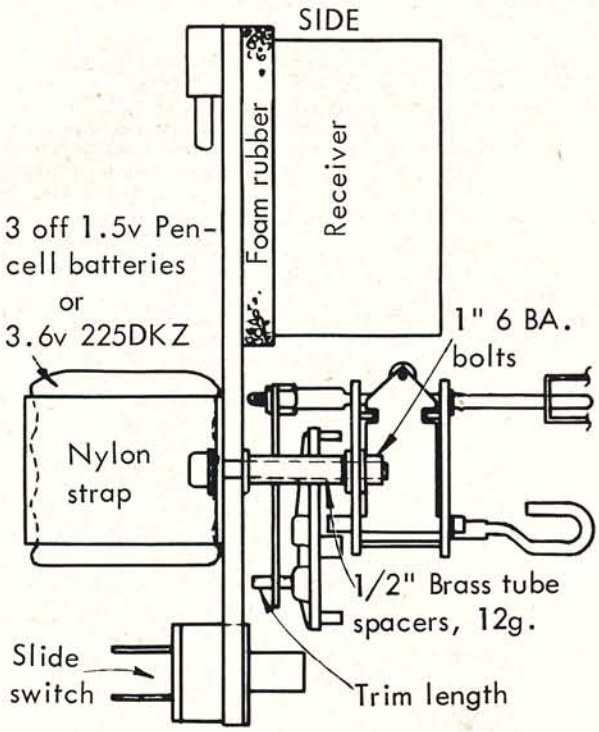
The wiring to the receiver, escapement, DEAC, switch and charging socket should be in accordance with the manufacturers' recommendations. Keep the wires as short as practical and secure them to the slide with liberal application of contact adhesive.

Connection of the torque rod to the escapement can be carried out as shown in the sketch. The receiver aerial can be knotted and then taken through a small hole drilled in the top of the slide to prevent any strain on the connection of the aerial to the receiver P.C. board. A further improved version of this Mono Pack unit has been tested recently with good results. In place of the Paxolin board a glass fibre P.C. board is used with the receiver circuit, leads to switches, charging socket, etc., all etched on. This reduces the wiring to two connections to the DEAC pack and two to the escapement. It was considered, however, that the unit utilising commercial receivers would be of more interest and use to the majority of readers and this is the one presented here.



SKETCH OF MODIFICATIONS TO ELMIC CONQUEST TO PROVIDE GREATER SECURITY

Actual size diagrams for the "Mono-Pack"



Pfalz D.XII

AIRCRAFT DESCRIBED

Number 170

described and drawn
by Ian R. Stair

AFTER the successful D.III and D.IIIa, The Pfalz Flugzeugwerke G.m.b.H., of Speyer did not produce another type to attain full production status until the D.XII of 1918.

Early in that year a new prototype fighter was built. This resembled the final D.XII except for the nose which was similar in shape to the D.III. Two "ear" type radiators were mounted on each side of the fuselage just above the leading edge of the lower wing. The fin and rudder were a different shape to the production D.XII but the rest of the aeroplane appears from photographs to have been identical to the later aircraft. This aeroplane has been referred to as a D.IX and also the D.XI. Neither model number can be substantiated. Whatever its true designation, it is reasonable to assume that it was the first prototype of the aeroplane to be known as the D.III.

Four aircraft were at Aldershof during May and June for the second "D" Type (Fighter) competition and evaluation flights by front line pilots. The D.XII's were Nos. 1375/18, Mercedes D.IIIaü, 1387/18, B.M.W. IIIa and 1371/18, Mercedes D.IIIa. The other machine was a D.XIIa with a 195 h.p. Benz BzIIIboü, V.8.

The D.XII's at Aldershof had the frontal car type radiator of the production aircraft but at least two of them had the original fin and rudder shape of the first prototype.

The D.XII was successful and an order for 500 was placed with the Pfalz Company. The production aircraft began to equip the Jastas in September 1918. On arrival at the front the D.XII was received with some misgivings by both the pilots and ground crews who looked upon the Fokker D.VII as the ultimate in fighter aircraft. While the pilots grudgingly accepted the D.XII once they had familiarised themselves with it, the riggers found it compared most unfavourably with the Fokker D.VII which had no bracing.

As it came into service so late, the D.XII did not become famous although nearly 200 were in service before the armistice. Most reports mention it as having a good turn of speed and climb and it was strong enough to be dived without fear of structural failure. There is no doubt that the D.XII would have been considered a very good aeroplane had it not been compared with the superlative D.VII.

The D.XII was used by the following Jastas: 23, 32, 34, 35, 64, 65, 77, 78 and 81.

Four Pfalz D.XII's are still preserved, 7511/18 and 7517/18 in the U.S.A., one in France and D.2600/18 in the Australian War Memorial, Canberra.

The D.XII was similar in construction to the earlier Pfalz types. The fuselage, including the carefully faired wing root fillets, was a semi-monocoque structure built on plywood formers with spruce longerons. The skin consisted of two layers of thin plywood strips with a final covering of fabric doped on. The tailplane was built as part of the fuselage and was plywood covered. The fin, rudder, elevators and ailerons were of welded steel tube. The Pfalz were well built aircraft and the fuselages in particular were masterpieces of the woodworkers art.

The wings were of wood with fabric covering. Between each rib on the top surface there was one long false rib running back to the rear spar and two short ones back to the front spar. Compression members between the spars were steel. The wings were strongly braced with splayed "M" struts at the centre section and two "N" interplane struts on each side. All struts including the undercarriage were of streamline section steel tube.

The engine was mounted on wooden bearers with a car type radiator in front. Two small flaps on each side controlled the amount of air passing through. A large exhaust on the starboard side varied in shape and it is difficult to say which was standard--if any.

Twin L.M.G. (Spandau) machine guns were mounted on top of the fuselage just in front of the cockpit.

Colour Notes

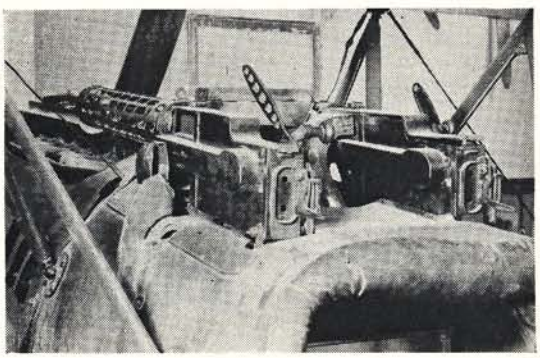
The drawing shows a typical colour scheme on a production aeroplane. This is based on the Canberra aircraft which now has the engine cowling painted light brown. This may well be a later restoration. On some machines, the fuselage colours were divided into smaller areas. The prototypes appeared to have had silver fuselages.

As it is not possible to describe a colour with any degree of accuracy the approximate B.S. references for the losenge fabric have been given on the drawing. Shade cards quoting these are available at most paint shops. The actual colours used were less definite than those in the B.S. range, having a tendency towards grey.

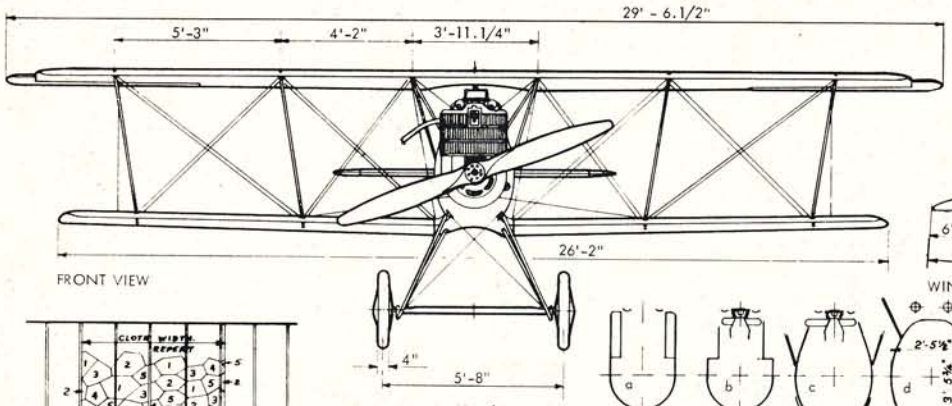
NOTE ON THE CANBERRA AIRCRAFT

This aeroplane was forced down by two pilots of No. 4 Squadron, Australian Flying Corps, on the 9th October, 1918. They were Lieutenants H. N. Kerr and V. H. Thornton, both were flying Sopwith Camels.

The author wishes to thank Peter L. Gray, The Director of the Australian War Memorial, and in particular Neville Hewitt of Canberra for help with information on this aeroplane.



Heading shows a Pfalz DXII in original camouflage, IWM neg. No. Q66673. Right, cockpit of Canberra Museum example showing guns, screen etc. A.W.M. Neg No. 134856. Reprints of this feature, with dye line prints of the 1/36th scale original drawing are available from A.P.S. as plan pack FJ2874 price 2/6d plus 6d postage.

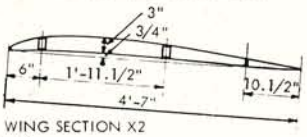


FRONT VIEW

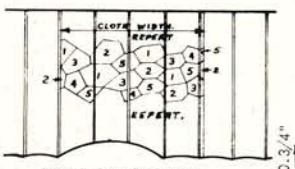
RIGGING NOTES

DIHEDRAL
TOP WING NIL. LOWER WING 1°

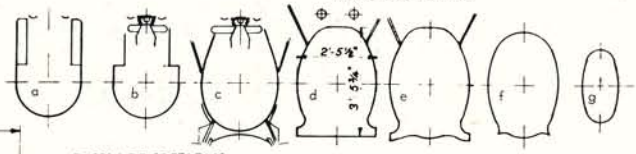
INCIDENCE
TOP WING CENTRE SECTION 4.1/2°
TIP 3°
LOWER WING ROOT 4° TIP 3°



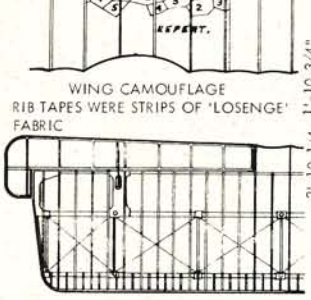
WING SECTION X2



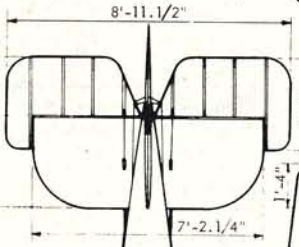
WING CAMOUFLAGE
RIB TAPES WERE STRIPS OF 'LOSENGE' FABRIC

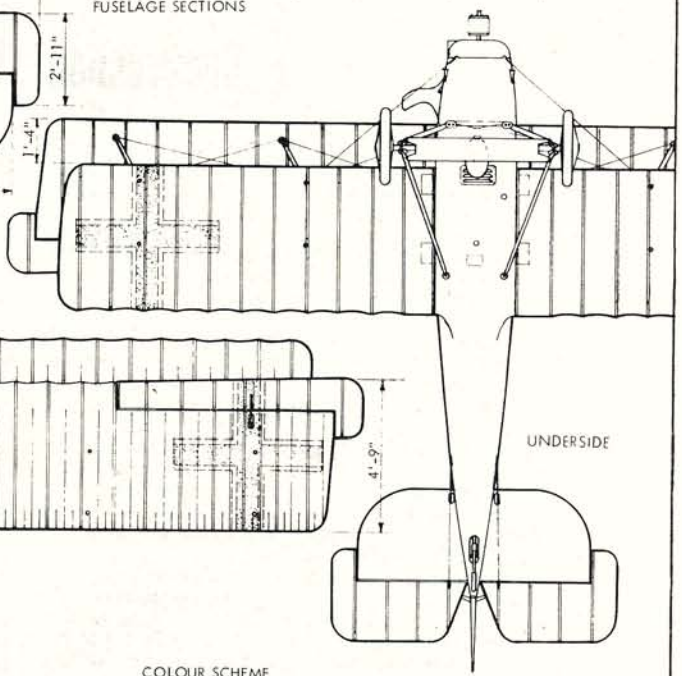


FUSELAGE SECTIONS

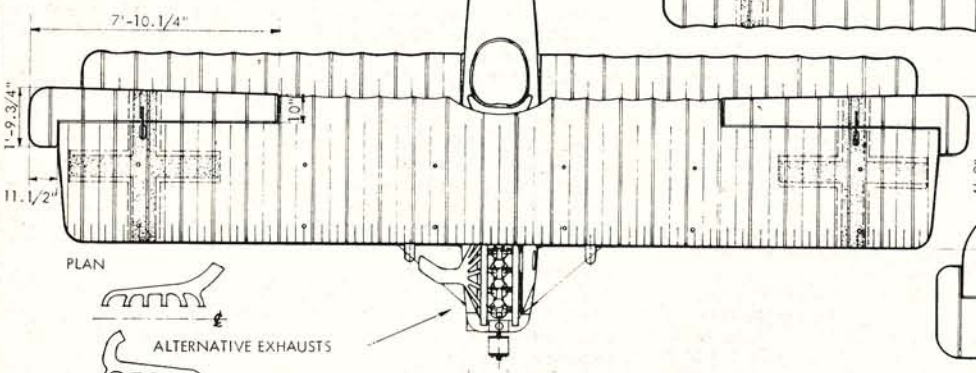


WING STRUCTURE

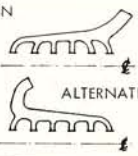




UNDERSIDE



PLAN



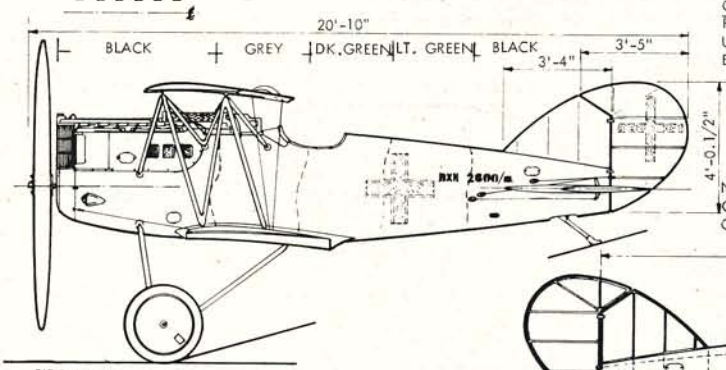
ALTERNATIVE EXHAUSTS

COLOUR SCHEME

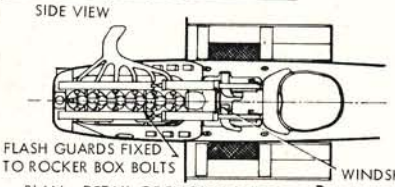
FUSELAGE, FIN & TAILPLANE:- UNDERSURFACES VARNISHED PLYWOOD
UPPER SURFACES CAMOUFLAGED AS SHOWN ON SIDE VIEW. WINGS & ELEVATORS - LOSENGE CAMOUFLAGE.

UPPER SURFACES		UNDERSURFACES	
1. DK. BLUE	7-086	LT. GREY BLUE	7-080
2. DEEP VIOLET	0-014	BRIGHT PINK	8-091
3. GREYISH GREEN	5-064	DULL PINK	1-021
4. TAN	3-044	BUFF	3-043
5. GREY BLUE	7-085	LT. GREEN	6-072

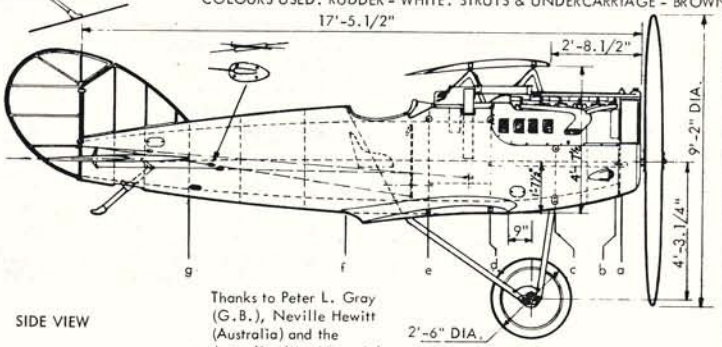
NOTE THE BRITISH STANDARD COLOUR REFERENCES ARE GIVEN AS A GUIDE ONLY. THEY TEND TO BE MORE DEFINITE THAN THE ACTUAL COLOURS USED. RUDDER - WHITE. STRUTS & UNDERCARRIAGE - BROWN



SIDE VIEW



PLAN - DETAIL OF ENGINE AND GUNS.



SIDE VIEW

Thanks to Peter L. Gray (G.B.), Neville Hewitt (Australia) and the Australian War Memorial for help with details.

DRG. BY IAN R. STAIR

PFALZ D.XII 180 H.P. MERCEDES

FT.

Basic Aeromodelling

Part 13 of our Series

Advanced Wing Construction

FIG.86

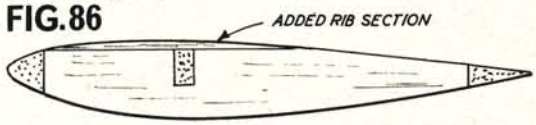
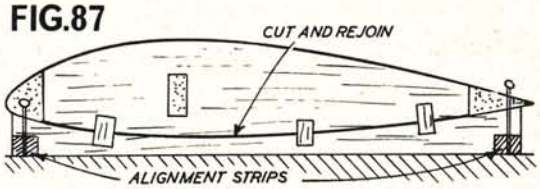


FIG.87



THE building of wings with a symmetrical or bi-convex aerofoil section presents a special problem for neither the leading or trailing edge can be pinned down flat over a building board and the mainspar(s) often run through the centre of the ribs. Also leading and trailing edges are often pre-shaped and of fairly large section, so that it is difficult to block these up accurately and still fasten down to the building board.

One simple solution is shown in *Fig. 86*, the full ribs being split to give a flat bottom so that the whole structure can be assembled like a flat-bottom wing with at least the mainspar pinned down flat to assist alignment. The remaining sections of the ribs are then added after the wing structure has been completed and removed from the board and turned over. This method does, however, have limitations—particularly as it nearly always needs blocking up of the trailing edge and the difficulty of locating this truly symmetrically.

A method which gives a more accurate "base" to the assembly is to leave a square section on the bottom of each rib, as shown in *Fig. 87*. This section can be extended beyond the rib leading and trailing edge to locate and align the leading and trailing edge members. Provided the ribs can be pinned out accurately over the plan—and are themselves cut as perfectly accurate "set"—the ribs themselves then act as a jig for completing the assembly.

Original alignment can be helped considerably by using false spars pinned to the building board to align the ribs. Preferably, too, the individual ribs should be cut away completely and then lightly tack-cemented back onto their bases so that the unwanted part acting as a jig can readily be removed when assembly is complete.

This method can work quite well in the case of reasonably large and rigid wing structures employing large and thick section ribs. The smaller the wing and the thinner the ribs the more tricky it is.

There are literally dozens of possible variations on bi-convex and symmetrical wing construction, some of which are more noted for their ingenuity than complete accuracy. Thus at one extreme some modellers may be able to build a true symmetrical section wing literally in their hands without a building board, whilst others may construct an elaborate jig for the purpose capable of supporting all the spars and ribs in their correct position and alignment. Building can also be influenced by design in that a certain type of bi-convex or symmetrical section wing may be specifically designed to be assembled in a particular manner. In such cases it may not even be adaptable to any other method of building.

In the absence of any other obviously suitable method, a basic technique which can be applied to tackle bi-convex and symmetrical sections is to employ unshaped blocks of generous section for the leading and trailing edge and use these as the main members for alignment. If this can be applied to one mainspar being pinned down flat, so much the better—*Fig. 88*. In either case, using square sections it will be relatively easy to block up the leading and trailing edges accurately. This will mean fairly extensive finish shaping of these two spars after assembly has been completed, calling for accurate work. The fact that these spars are worked equally on *both* sides means that "bowing" stresses are unlikely to be introduced.

For thinner aerofoils a basic "flat" section can be built, with further shallow ribs added to the top; and finally to the bottom when removed from the building board—*Fig. 89*. This is a method much favoured for built-up symmetrical section tailplanes for radio control models and has much to recom-

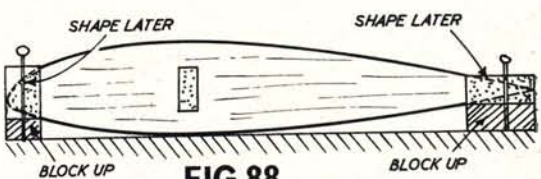


FIG.88

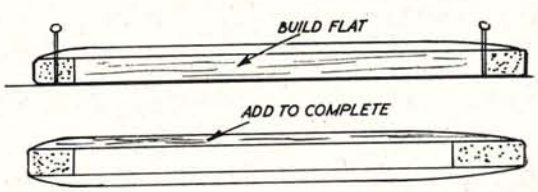


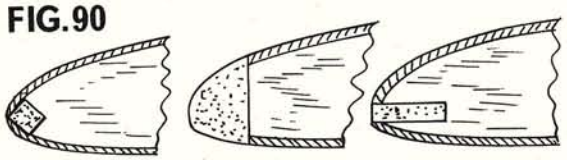
FIG.89

mend it for simplicity, although the resulting aerofoil sections obtained are purely nominal. It is also suitable only for low aspect ratio structures not likely to be subject to bending loads.

Sheet covering presents no particular problems provided that the right type of balsa sheet is used (light and *flexible* stock, *not* quarter-grain) and at least a good proportion of the sheet covering can be applied whilst the main structure is still pinned down to the building board. The resulting assembly will then usually be rigid enough to resist any warping tendencies which may be introduced by adding bottom sheeting after removal from the board.

Sheet covering for wings normally extends from the leading edge back to the mainspar position. The type of leading edge is important for neat results. A square section set diagonally is easiest to tackle but the joint between top and bottom sheeting is not always as good as it could be when the sheeting is trimmed off and finished sanded to final leading edge shape. Butting the sheeting against an over-depth leading edge member is even more tricky to

FIG.90



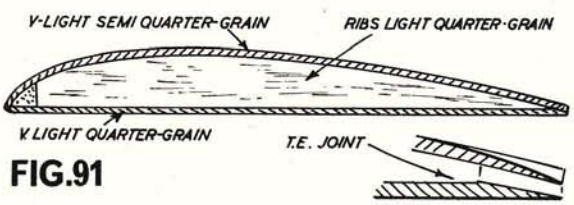


FIG.91

(i) ensure a good cemented joint along the edge of the sheet; (ii) ensure a tight fit; and (iii) position the ribs accurately against the leading edge in the first instance. Marking off the sheeting against a rectangular section leading edge demands even more careful workmanship—*Fig. 90.*

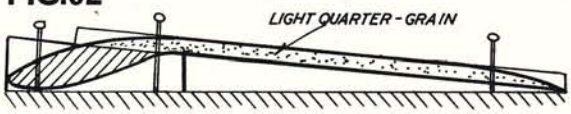
Built-up all-sheet construction is generally avoided as being too heavy for free flight models. However, for low aspect ratio wings, and by choosing light density balsa of suitable thickness, this method can be attractive for speedy assembly of small radio control or sports type model wings. Assembly is carried out directly over a flat sheet pinned to the building board and which forms the bottom "skin" of the wing—*Fig. 91.* Spars can be kept to minimum size. Leading and trailing edge spars are used mainly to ensure good jointing between top and bottom skins and a trailing edge spar may be omitted entirely. Mainspar section does not need to be very generous since much of the strength of the wing comes from the "rigid box" assembly. Ribs are used only to provide the necessary aerofoil section, and are often widely spaced. However, wide spacing can lead to sagging of the sheet between ribs; and also provide "hard" points at which it is easy to go right through the sheeting when smooth finishing the completed wing by sanding.

With sheet construction of this type it is best to "finish sand" the sheets *before* starting assembly, so that little or no final overall sanding is required, except to flatten any grain filler which may be applied. Also a fairly stiff grade of *light* sheet should be chosen—almost true quarter-grain but not so stiff that it cannot be bent to the necessary curvature.

With all sheet covering—i.e., partial sheeting or full sheeting—PVA adhesive has certain advantages over balsa cement. It does not set rapidly like cement, so that large areas can be coated and, if necessary, "shuffled" in place. It is also a clean adhesive and surplus glue can be wiped off without smearing whereas surplus balsa cement invariably sets in hard blobs which are difficult to flatten or remove without damage to the surrounding balsa. PVA is, however, much slower setting and joints made with PVA need to be pinned down and left overnight to dry out.

Solid sheet construction is used on sports type control line models; and also to some extent for very thin aerofoil sections used on free flight models (e.g., gliders). There are also variations based on employing a substantial proportion of the aerofoil section in relatively thick sheet with an added built-up or thinner sheet section. *Fig. 92* is an example which, although not necessarily typical, shows how a heavily cambered thin aerofoil can be produced from a basic composite of two different sizes of sheet balsa.

FIG.92



Wings of this, and similar, type are more for specialised than general use and their success from a strength and strength/weight basis depends on expert selection of the balsa involved. Solid balsa is heavy and not necessarily very strong under bending and twisting loads and is normally to be avoided for general wing construction. Solid balsa block, however, does provide a simple solution for wing tips since it is readily fitted to the basic structure and easily carved and sanded to almost any tip shape. One golden rule applies in such cases. Always use the *lightest grade* block available. Also check that the weights of two tip blocks are the same, as one wing tip substantially heavier than the other can materially affect the trim of a free flight model. If necessary, the weight of a solid wing tip can be reduced by hollowing out, but as with all lightening operations a substantial amount of balsa may have to be removed to show any marked saving in weight. Similar considerations apply to lightening wing ribs with cut-outs or punched holes. Unless these cut-outs account for a reasonable proportion of the section area the weight saving is usually negligible, in which case the wing rib is weakened unnecessarily.

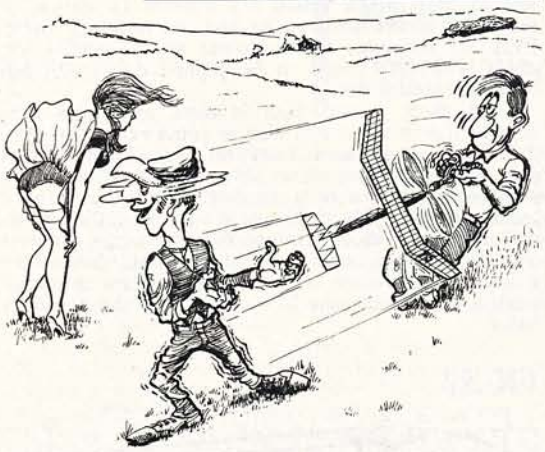
"Solid" balsa construction is also now seriously rivalled by the use of expanded polystyrene as an alternative material, which is available in densities lighter than the lightest grades of balsa. The possibilities and working characteristics of this material will be dealt with in the next article in this series.

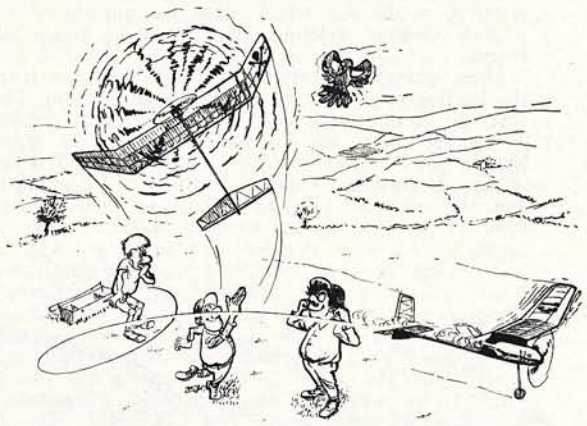
Aero-mod's lament

(CHOOSE YOUR OWN BEAT)

The A/2 Glider, floating free,
Elegant motion, you'll agree.
Though hardly so for the human engine
Winchin'

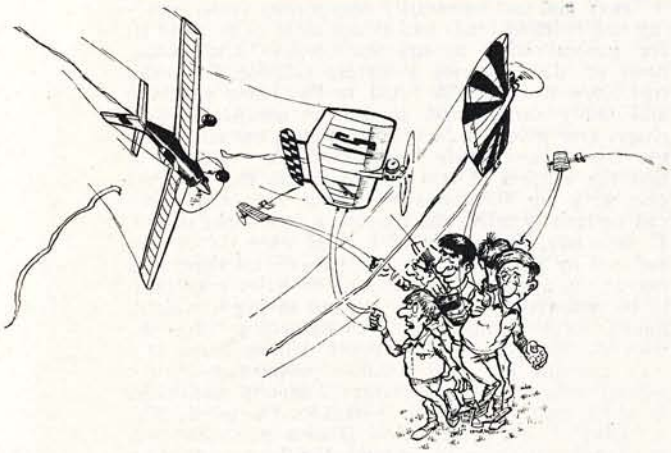
The Power Model; a rabid ten secs
of sound and fury, cricking necks.
But if you wish to stay rooted,
Mute it.





The Rubber Model, quietly unwinding,
Has no care of science blinding.
One thing keeps up, though change be drastic:
Elastic.

The Radio Model, skyward bound,
Gets the yokels gaping round.
Though at the crunch they're just as quick as
City Slickers.



C/L Combat, C/L Stunt,
Try to keep up with the hunt.
The outcome of this struggle tireless?
Wire-less.

The Model Scale, all gloss and style,
Flies a little, rests a while.
"Is it," we ask, "If not too rude,
Verisimilitude?"

Catch 'em young

Dear Sir,

Recent letters to this column reveal an air of discontent within the ranks. Some bemoan the passing of the "Golden Age" when spark control adjustment resulted in a painful manicure and massive gliders soared and wheeled overhead like Condors in the Andes. Others respond to this form of attack by exhibiting what purports to be righteous indignation and defend their, perhaps, specialised interests with vigour. All this seems to me to be just so much waffle and wholly unconstructive.

What is needed is a "Right Way In", and we certainly haven't got it (apologies to clubs and groups who have). I began aeromodelling in 1943 by watching a boy of 16 flying an "Ajax". We talked, I bought the kit, and due to warps mine didn't fly. I joined the local club in Leeds. I watched with awe the older ones talking in some foreign tongue about incidence, thermals R.T.P.'s whilst they sucked their pipes. I sat through hours of committee procedure that resembled to my immature mind obscure religious ceremonial. I built one or two more kits up, and my interest waned; I couldn't trim, the older ones were too busy to help and I drifted away.

I am now a teacher in a Junior School and I have introduced aeromodelling to the older boys as an experiment in improving their attitude to mathematics and other subjects where it may be seen to have a bearing. The response was incredible, and it is continuing. The children seem cheesed with ready made entertainments and find the thrill of satisfaction when a model is completed far more pleasant than watching the box or similar pursuits. For this to continue it has to be fed. They must see the efforts of others more skilled at the craft (I have had to do some frantic construction to keep ahead and learn what I didn't know in '43). This is my job, and any local help as regards flying demonstration will be of enormous value.

May I appeal to all readers who have this ready made opportunity in their work as teachers to try the craft as I have and thus give an outlet to boys (and girls) to develop their skills and interest in a situation where help is on hand and frustrations can be avoided.

Think with pity of the child whose parent in loving ignorance buys him or her a plastic powered C/L model for Christmas. Clubs, do you really make allowance for the needs of your junior members to grow and develop in knowledge and skill, or do you allow their interest to wane and die as mine did?

Finally *Aeromodeller*, why set the age limit so high for the Golden Wings Club? How can I mention it when half of my class are not eligible to join. My own boy built an "Eezebuild" kit at 7 and an Achilles at 8 with minimal help. Why not try your child—boy or girl—and re-think the minimum age limit. I would say 8 to 13 and 13 to your present top age limit would be of more value.

Hornsea, East Yorks. *D. Wilson.*

Play the game chaps!

Dear Sir,

With the trouble that the game of soccer is causing itself by the complete lack of sportsmanship that appears to be dragging the game into the depths of disrepute, I feel that the time is ripe for us to make sure that the same fate does not befall competition flying.

I refer generally to the combat side of the hobby as this is the field in which my interests lie, but I will not deny that the same might be said for other branches of the hobby.

I should like to appeal to the better side of some competition entrants who can do the hobby nothing but harm by their unsporting conduct at competitions. Just to make it clear I mean those who always think that they know better than the timekeepers and scorers. Not only do they hold up proceedings but they hold public arguments and show themselves up for what they are, downright bad sportsmen who can't bear to lose. They do not stop to think what outsiders must think of them, nor what fools they must appear to other aeromodellers.

After the disgusting display, by only a few individuals I must add, which ruined the Northern Gala Combat competition, all I can see if this trend continues is for the sport to be plunged into disrepute, and to be shunned by the real sportsmen.

What is clear to me is that for Aeromodelling to be recognised as a sport and not a boys game, competition entrants must behave like gentlemen and not spoilt children. Perhaps the Public Relations Officer will bear this in mind in his campaign for the furtherance of the hobby.

Buttershaw, Bradford 6. *N. Stewart.*

READERS LETTERS

Silencers & S.M.A.E.

Dear Sir,

I feel that the editorial comment in the December *Aeromodeller* concerning the relaxation of the S.M.A.E.'s silencer rule for control-line and free-flight models calls for a reply.

Firstly the reason that silencers are still required for radio-controlled models is that, in general, these models have larger engines, fly at such greater heights and for much longer than other categories. Thus the "cone of noise annoyance" produced covers a much greater area of the ground.

The use of silencers has been left to the discretion of control-line flyers since usually such models are flown in an area too small for other types; hence if noise trouble arises and the site is lost it is only the control-liners' own loss and they have only themselves to blame. A different situation surely prevails when unsilenced R/C models are flown, often on sites used by F/F and C/L modellers as well; in this case the stupidity of a few people who often may only be flying model aircraft as a passing phase, will lose yet another of the rapidly shrinking number of available flying sites, and serious, long term aeromodellers, participating in one of the most satisfying activities possible, are deprived permanently of somewhere to fly.

Regarding the fact that "by democratic vote the competitive members of the S.M.A.E. have set aside all the stalwart efforts made to restore and retain rights for use of flying sites", it was these same "competitive members" who imposed the blanket silencer rules on *themselves* three years ago, and made the stalwart efforts to retain flying sites. To have these sites lost because thoughtless non-S.M.A.E. modellers have insufficient regard for the sport to use a bit of intelligence makes one wonder why these people ever bother to fly a model aircraft at all.

The paid circulation of the magazine is about 36,000. Let us assume 50 per cent of them are under 16, the rest equally divided between Seniors and Intermediate (16-21) age groups. If these people, who pay 30/- a year for this magazine, thought that aeromodelling was a worthwhile enough sport to join the S.M.A.E. for 12/6, 20/- or 40/- and play a full part in national aeromodelling the Society would have an income of £38,000 per year. This would put modellers in an infinitely better position to negotiate for flying sites, and a permanent model flying centre might even be within reach.

A final thought, it seems pretty pointless to belong to a club that doesn't automatically include S.M.A.E. membership in its subscription, and thus miss so much more that could be available to those 36,000 modellers. It's rather like joining the A.A or R.A.C. and not bothering to get a car.

West Wickham, Kent. *M. Dilly.*

Martin Dilly's arithmetic, although based on assumptions, is certainly near the mark. Our readership survey indicates that 56 per cent of Aeromodeller readers are below the age of sixteen. 37.3 per cent of our readers belong to a club. Approximately 65 per cent of the clubs in Great Britain are affiliated to the S.M.A.E. The average readership per copy is 2.6 persons. The circulation of each edition is in fact frequently in excess of 40,000 copies. Readers may care to make their own calculations based on these figures to assess the number of modellers "outside" the S.M.A.E.

Any takers?

Dear Sir,

A series of problems arising from utilising the increased rpm from tuned pipes led to a poor season in C/L speed for Franz Zilliken and myself and we decided to give our engines away to F/F men just to see them reach their potential. At free flight revs, typical rpm gain over a good G 15 was from 20,000 to 22,500 rpm, equivalent of some 30 to 35% power increase. One of these engines was used by Hans Seelig the new World Champion. Until some manufacturer finally decides to produce a tuned exhaust engine, we are offering G 15s modified in this way to give an output of about 0.65 hp at 22,500 up to 0.7 + hp at 27,000 to anyone interested

R. Miebach

Köln-Nippes, West Germany.

U.S.A. NATS

More reports by John O'Donnell

Left, Originator of the first mass produced model engine series, Irwin G. Ohlsson was at the Nats with repiica of his old Pacemaker of 1937—fitted with a K & B 45! (Doc Nichol pic).

Below, Mary Thulin of Mt. Prospect, Illinois with her own flower bedecked combat entry and Tim Gillott.

Below, Red Enticknap (Mr. "Funny name") and Super Tigre powered "Playboy Senior" in vintage event, popularly supported feature of the Nationals (Doc Nichols pic).

THERE can be little doubt that the American "Nats" is far from typical of most U.S. Contests. In particular I understand that the long queues for timekeepers and the accompanying "3 minutes to fly" rule is specific to their Nationals. Nevertheless many impressions and observations must be general enough to apply elsewhere.

The "Gas" events were 100 per cent glow, and engines generally ran extremely well (almost invariably on commercial fuel). Perhaps this was part of the reason why climbs were better than I would have expected although not as fast as the best of British open models. Another reason could well be the light weight (for their size) of most models. On the other hand I have seen American remarks that this year many models were smaller than usual!

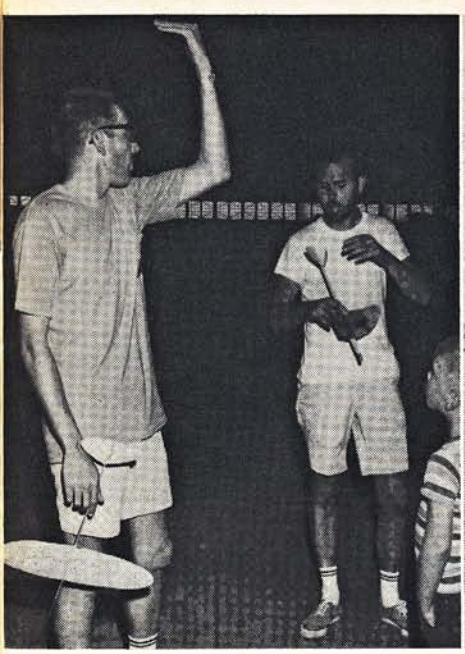
A large percentage of the entry flew magazine or kit designs—which are good enough to be competitive. This is a clear reflection on their current combination of weather/attitude/rules. The commonest design was of course Taibi's "*Starduster*", although there were plenty of alternative choices. Vic Cunningham Jr. took trouble to show me his "*Galaxy*" design, soon to be kitted, that won ½A.

Colourfully decorated models were commonplace. This was usually done with coloured tissue but must have taken considerable time. There seemed few of the battered veterans that one is used to at home. Wooden propellers were quite commonly used—quite a change from our F.A.I.-only approach. I did hear that they cured a lot of the vibration problems on B/C size engines.

Glider was remarkable mainly for the number of models using D.T. *fuse*. Obviously fliers do not intend to tow indefinitely. I did hear that timers were not considered sufficiently reliable! O.H.L.G. (or chuck glider as we know it) had to be seen to be believed. This *was* flown with the attitude that lift was needed *and* could be caught. I saw several instances of many models in the same riser; just like a towline event in miniature. D.T.'s were standard practice with some people!

Jetex, or Rocket as it is known over there, is quite a going concern—with 75 pre-entry for a category that has been "dead" in England for the last 10 years. The power units seem to give trouble that is aggravated, but not caused by, the hot-burning fuel currently available.

Rubber was very different to at home. It lacks much of the enthusiasm shown in the U.S.A. for the powered events. To me, many fliers had a "toss and hope" outlook as they used sheet-box fuselages (with the rest of the air-



Above, Lee Hines (Sweepette designer) in natural pose while conversing with fellow indoor chucker Bob Patchett, note young admirer. Centre is Pat McDonald and his son's stepped airfoil as used by Conover, model made 2 four min. maxes and 2:40. Right, Twin TD 049 powered class A entry by Al Kramer raised a few eyebrows.

frame similarly rugged), or even Wakefields with a little more rubber. Tissue-covered box fuselages were considered vulnerable to rubber troubles!

My winding tube produced reactions of the "*what's that for*" variety. Certainly many had never even heard of the idea. Breaking a motor (even if on only 1/3rd turns) provided quite a convincing demonstration to some onlookers. Incidentally June *had* to hold my open "*Maxine*" as there was no-one else who knew the system.

Expected performance in rubber seemed low, if the reactions to my model's climb was anything to indicate. However I merely proved that you can't do five minutes in severe sink, so perhaps their reliance on lift is born of experience.

In short, American models are developed for American conditions, and the latter need to be seen to be appreciated!

Above, Dr. Bob Jones entered Cox 020 powered 1911 Fokker Spider in F/F scale. Below left: Cathy Monts launches 2nd place Wakefield. Centre, The "Starduster" was the most popular free flight design at the Nats, this "900" version with ST35 won the Oklahoma Champs with a total of 25:46! Right, Walt Mooney's idea of an A/1 glider is a 72 in. span scale BS-1 with timer in cabin, held by J. Bailey.

Jim McCann is always good for a "new look" and at the Northern Area F.A.I. Meeting he produced this pair of high thrust line all-sheet F.A.I. Power model, placing 3rd in fly-off.

ONE of the best contests attended this season was the **Northern Area F.A.I. Meeting** held at Topcliffe on 22nd October. It was very well supported, by present standards, from far and wide—which is a fair reflection on the status this event has acquired over recent years.

Contrary to previous practice the f/f events were run in rounds, a procedure that certainly ensured that competitors arrived early. The extra long (2 hour) initial round helped compensate for delays with the rather rudimentary processing. Wakefield motors were weighed before each flight, but the competitor was then trusted as regards their use. Glider towlines were measured *without* the required 2 kilogramme pull. Standard fuel was supplied for those who wished to use it. Not all did.

The contest was very hard fought with emphasis on the tactical approach and other attempts at thermal detection. The first round was overcast and calm, but with very little lift. The second was brighter and more buoyant so most people flew early whilst it was still calm. A breeze sprang up as the round progressed, and a move upwind of the contest control and launch area was necessary. Round times were amended to allow for the time spent moving.

The third and fourth rounds were breezy with murky conditions making timekeeping rather an effort. Even so, maxes barely reached the airfield edge so retrieving was straightforward. It was not without its hazards, however, especially for those cycling along the runways, due to multi-radio fliers trying "limbo". This was *extremely* dangerous as the "controllers" were obviously *not* watching other airfield users.

The breeze dropped for the final round, even though it was still very cold, particularly for the long-suffering "captive" timekeepers. It had been obvious for a while that Wakefield and A/2 were not going to be all-max affairs and results were uncertain right to the end. Ray Monks came up with a final max (after a delay through breaking a motor) to top Wakefield. Second place went to Barry Halford who started well with two maxes, but who had to "drop" glider to keep up with retrieving.

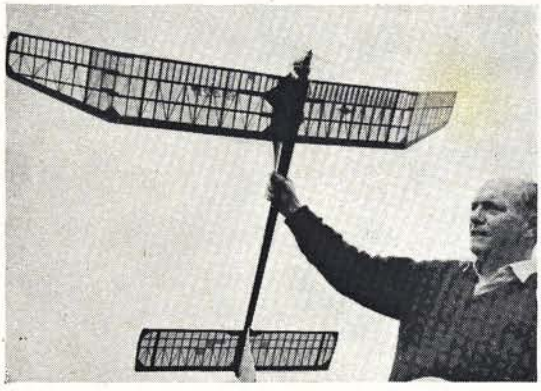
I had a very good day with third place in Wakefield, plus first in A/2. Although I only managed one max in each event I was successful in keeping clear of "holes". Tony Cordes was second in glider with an all-sheet model. This had a Jedelsky wing and a rather large tail on a "Rolling-stone" *style* fuselage. Following positions went to Dave Oldfield and Dave Wiseman, only a couple of seconds apart.

Power was a very different story. There were five perfect scores, and the resultant fly-offs were watched with much interest. They included all of the 1967 Power Team. Four of the models were similar in appearance and general layout, the "odd one" being Jim McCann's all-sheeted high-thrustline entry. Its most novel feature was the motion of its variable incidence tailplane. This was arranged so the tail incidence *increased* a second or so before the engine was flooded-off, so as to flatten the model's straight and almost vertical climb. After the engine cut the tail angle altered again for the glide setting. This was only about 1/64 in. more negative than the power setting, so the whole system was really there to assist the power/glide transition. In this it was certainly very successful.

The fly-off proved an anti-climax for John West as his model D.T'd immediately the engine cut! The other flights produced two distinct ties! George French and Ray Monks cleared the 4 minute max, whilst both Jim McCann and Joe Savini missed by just 5 seconds. The next fly-off was decisive. George's model went o.o.s. still airborne at about 3½ minutes, whilst Ray's was seen all the way down for just over 4 minutes (perhaps due to a slight stall that developed on glide rendering it easier to see). Jim's meanwhile had edged Joe out of the prize list. All the British Power Team members were flying their Championship models, although George French's no longer had the engine he borrowed for Czechoslovakia.

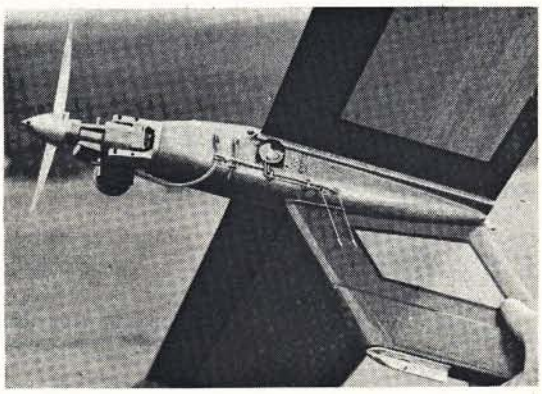
The prize-giving, of trophies, plaques and merchandise (the latter being donated by the Trade), was rather casual, not that this matters overmuch at a "flier's" meeting. The whole contest was very much under-staffed—but this was probably most felt by Henry Tubbs who sacrificed his own participation to organise the events.

Flt. Lt. Tom Cheesely of R.A.F. High Wycombe had a field day with all his successes in the R.A.F.M.A.A. Championships and usually favours the American Simpson Brothers' designs. Tom was 7th at Northern Area F.A.I. event.



Free Flight

RECENT EVENTS, REPORTED BY



Close-up of Jim McCann high thrust line Super Tigre G.15 shows metal engine mount, triple purpose trimmer and neat T section landing skid.

The postponed **Northern Gala** was held the following Sunday (29th October) at Elvington, suffering by comparison.

Attendance was initially very poor although many arrived late. I gather that many "locals" do not like Elvington, or rather the surrounding woods and undergrowth. Southern participation was affected by there being the **St. Albans' Gala** at Chobham.

Weather conditions were reasonable. It was fairly calm before flying commenced, but soon became bright and breezy. This continued through the early afternoon before abating during the last hour. There was plenty of lift early and some late, but little in between.

Glider was very much a case of flying at the right time. Al Wisher and Tony Young started early and apparently simply towed until they found something. Al's first two flights barely made the max, but he proved the only person to manage three.

Comment

JOHN O'DONNELL

Bob Hymers of Bishop Auckland with his low aspect ratio Wakefield seen at R.A.F. Topcliffe. Note tubular fuselage, metal propeller hub and long tail moment.

Third place went to Mantle who made all his flights in the final hour.

The Lady Shelley event had been scheduled mainly through the efforts and propaganda of tailless enthusiasts in the Northern Area. There was certainly activity with both rubber and glider, and Mick Page's D.T. less glider disappeared in an early thermal. Henry Tubbs was a deserving winner after his work on organisation for the Area.

Power and rubber needed flyoffs. These were held rather late, but did produce clearcut results. The three power qualifiers flew at short intervals and found successively better air as their models passed over part of the airfield's notorious "jungle". Russel Peers' Eta 29 model held its glide height for a minute lead over Ray Monks' perennial Cox 15 model. Third was Ginger Cornell whose E.D. Furies are now competitive again thanks to the removal of silencers. (Too much sub-piston induction).

Rubber had only five in the flyoff although I gather Alan Nobbs also qualified but couldn't locate his model. Ron Pollard only arrived back from his final max as the other our were winding. Three models were launched very close together, and I followed perhaps a minute later (due to having appreciably more rubber to wind).

My model went a couple of fields further than any of the others, and this was reflected in the results, by approximately ¾ minute lead over Dave White (whose model landed very close

A. Cordes of Tynemouth placed 2nd at Topcliffe F.A.I. event with Jedelsky wing A/2 built in three nights. Model is very successful in N.E. Area

to Ron Pollard's reserve). Third place, however, was taken by Dave Wiseman who broke at least two strands whilst winding. Unlucky was Dave Hipperson who had the lowest flyoff and spent till after dark trying to extract his model from a tree.

* * *

Richmond have hardly been lucky with their Galas at Chobham this year. Guy Fawkes' day (November 5th to Overseas readers) was breezy, getting windy, with rain at times. The latter washed out the scoreboards and made their control tent more than a luxury. (The very existence of these features at Chobham is worthy of comment.)

Support was not good and the prizes must have exceeded the entry fees, which were "pitched" half way between the old and new S.M.A.E. rates.

A/1 glider was certainly the closest event with only a few seconds separating top positions. Neither Ken Smith nor I managed a max, but we found reasonable air throughout—whilst Mike Reeves who spent much time retrieving his two maxes made his final disastrous flight rather late when the weather had really deteriorated.

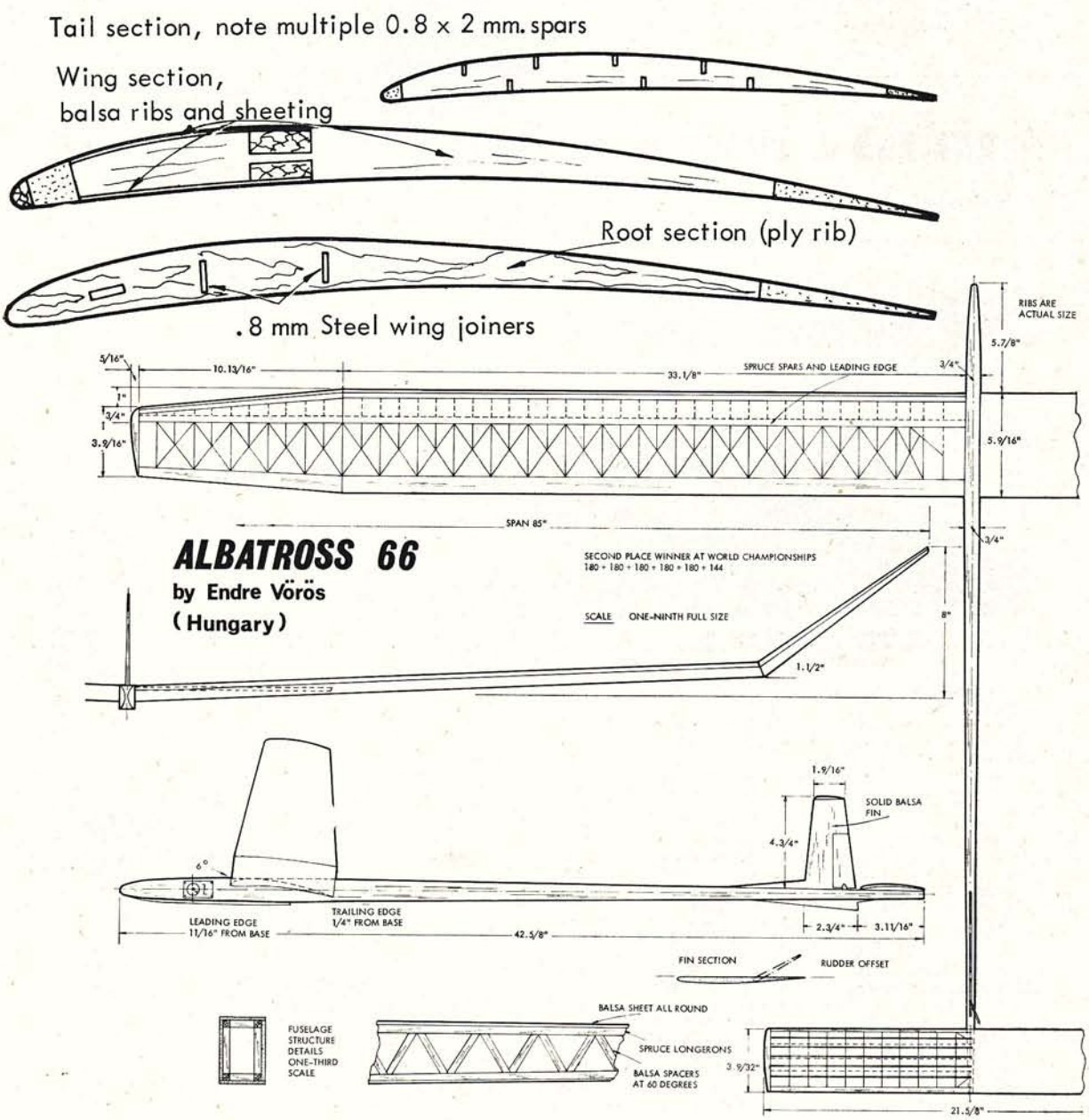
John Mabey's winning treble in Coupe d'Hiver was quite incredible under the conditions. George Sharp and Ginger Cornell followed with scores that were much more representative.

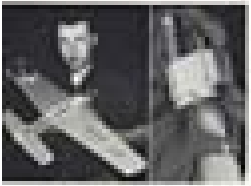
½A power was topped by Russel Peers, whilst the other awards were taken on only two flights. Pete Jellis couldn't start his waterlogged TD 049 before the event closed, whilst Colin Pittard lost his model on its second flight. Last flight of the contest was John Lorimer's fifth in F.A.I. Somehow his Wakefield climbed through the turbulence and found lift. The resultant max gave him first place in front of Croydon glider fliers Al Wisher and John Blount. The tables could have been turned, however, if Colin Morris had recovered his A/2 earlier He got it back, but not in time for a fifth flight.

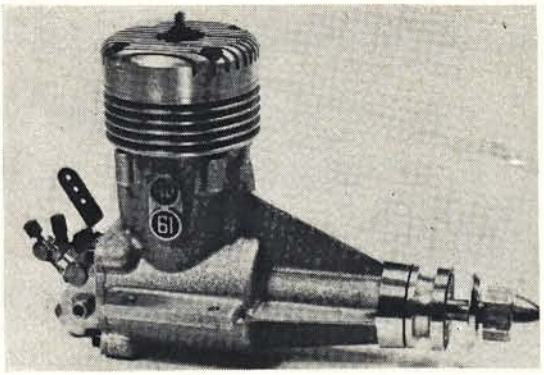
Ron Pollard of Tynemouth was 11th at Topcliffe with sheeted wing Wakefield having Hoener tips and novel blade shape in endeavour to meet European standards.

Championship Technicalities

Construction details and full size airfoils for Hungarian Glider Champ Endre Voros' unusual A/2 design should be a challenge for all enthusiasts. Construction is typical of the "Roser" school in the fuselage, the wing has a complexity which makes it highly original! Note also the unusual tail spar arrangement. Voros flew tactically and towed for long periods in the World Championships for his deserved 2nd place.







LATEST ENGINE NEWS

By Peter Chinn

The Austrian-built Hirtenberger HP 61 R/C engine, designed by Paul Bugl and closely resembling, in basic design, the successful 2.5 c.c. HP 15 engines. Tests on this pre-production sample have indicated that it is the most powerful 10 c.c. R/C engine to date. Full details can be found in the December and January issues of *Radio Control Models & Electronics*.

WE WOULD LIKE to take the opportunity of dealing with one or two questions that have been raised in recent months by readers' letters.

First, just to clear up any misunderstanding in regard to the letter from B. A. Jones and the reply thereto published in the September issue, the Davies-Charlton Wildcat, as mentioned in the July edition of "Latest Engine News", was a 5 cc. diesel, not a 3.5 c.c. unit. The 3.5 c.c. models produced by Davies-Charlton were, firstly, the D-C 350 and, later, the "Manxman". Both these had shaft rotary-valve induction with the intake below the main bearing. (The Wildcat was a 3-port type motor with the carburettor mounted behind the cylinder and having a fuel tank suspended from it.) One can distinguish the D-C 350 from the Manxman by the cylinder design. The D-C 350 used a one piece casting comprising crankcase, main bearing and finned cylinder casing, with a separate head attached with six screws. The Manxman, in contrast, had a separate machined finned cylinder jacket attached to the crankcase with four long screws.

G. B. Sadler of Buxton, Derbyshire, wrote to us for advice concerning spares for an early type Elfin 2.49, but our personal reply was returned "address unknown" by the G.P.O. Aerol Engineering of Liverpool, who made the Elfins are, of course, no longer in business and we know of no source of original spare parts but would suggest Gig Eifflaender's engine repair service (Field Bank, Chester Road, Macclesfield, Cheshire) as the most likely place for satisfactory repair work on these motors. We hope this belated comment will be noted by Mr. Sadler and by others who are still using Elfin engines—quite a few of which are still around.

Dynamic Models Inc. of Van Nuys, California, were well-known in the late fifties and early sixties for their Johnson and Holland Hornet engines but they later became involved in the slot car boom, as a result of which the model aircraft side of their business suffered somewhat. No new engines have appeared from this company for several years, but, now, with the decline of slot cars in the United States, Dynamic are, it seems, poised for a re-entry into the model aircraft field. The first of their new products is a complete line of fuel filters designed to eliminate, once and for all, the risk of blocked carburettor jets.

Filtering is in two, or even three stages. Firstly, there is a fuel-can filter. This is intended to fit into the cap of a standard fuel tin. It will fit in place of the reversible spout used on most British fuel tins, after enlarging the hole in the cap to 5/16 in. dia. Secondly there s a special clunk-weight with built-in filter for installing in bottle type R/C tanks and, finally, there is a normal line type filter.

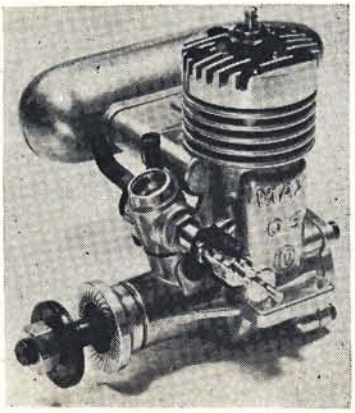
The advantage of these Dynamic filters is that each of them can be completely dismantled for cleaning and without risk of leakage when reassembled. They are of entirely machined construction, very accurately made, with a fibre washer between the two halves which screw together. Inlet and outlet nipples are flared for positive attachment of fuel tubing and although filter screens are only of the usual flat disc type—in which area is always bound to be limited —they are of reasonable size and fine mesh. The line filter, which is of aluminium construction, is made in three sizes to fit all engines from Half-A up to the big 60s and there are also two sizes of clunk weight (all brass) filters.

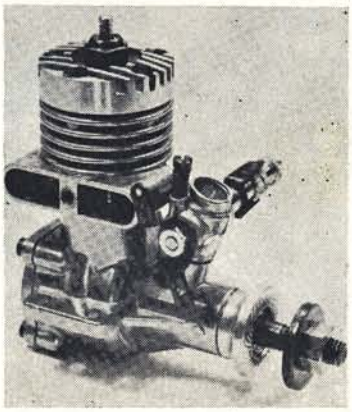
We have been using a set of Dynamic filters for the past three months in all our engine tests and have found them to be entirely satisfactory and preferable to filters used previously. We are not sure whether distribution of these filters has yet begun in the U.K., but doubtless they will be available in the U.K. in due course.

Fuel filtering is, of course, to be recommended at all times, if only to deal with the precipitate which is normally present in all commercial glow fuels.

Below, Parts of the Dynamic Models line filter showing the fine filter screen and fibre sealing washer. Complete fuel filtering system is now offered by the American Dynamic Models Company. On left (bottom) are three fuel-line type filters. Centre is special filter for installing in fuel can. Right are two clunk-tank pick up weights with built-in filters.

Revised version of the 1.75 c.c. O.S. Max 10 R/C engine now has idling adjustment screws on carburettor. This motor is also now obtainable in a standard non-throttle equipped version for free-flight and control-line use. Below, with 2nd without silencer.





Glevum (Gloucester) Model Club out in force with a full range of their models on their airfield, showing a wide variety of interest.

We are sure that those among our readers who remember Nancy Buckeridge will wish her Health and Happiness on her 80th birthday in January. Nancy was a pioneer of the Club movement, a strong force in the S.M.A.E. in the early post-war years and founder of Pharos M.F.C. which produced many subsequent champions and experts from its Junior Section. She is still a Model Club member and takes an active interest in Christchurch M.F.C.

CLUB NEWS

New Year, new style, and from this issue we revert to presentation of the Club scene as a continuous commentary rather than a collection of news items. This affords the opportunity of introducing a more personal touch, not without humour or criticism, offered, of course, in the best of sentiments.

We start off with a typical case of clubroom claustrophobia from the **Debdenairs M.F.C.**, which situates itself between vast suburban sprawl and sylvan Epping Forest. The report suggests that the too glorious summer (Now is the winter of our discotheque) has induced in the members something of a state of torpor. Certainly it is curious how that most contrary of all species, the model flyers, tends to hibernate mid year. But, nothing daunted, the club hopes its excellent facilities will soon come into full blown, or should I say, flown, use. And why not? They include a private flying field (very hush hush) and the use of a schoolroom with many amenities attached. This year it is hoped to get the Junior Building School project under way. No, you don't have to bring along a trowel, just your balsa knife. Only fear is that the Junior school image will frighten off the maturer club membe.s, but who is to notice the odd grey hair or two with all that balsa dust flying about?

Intro to the new Secretary of the long famous **Northern Heights M.F.C.** (remember super champ Bob Copland in the vintage years of aeromodelling?) He is Mr. V. Botta of 60 Sandhurst Road, Edmonton, N.9. He, and other keen revivalists are busy getting the club on to its new pair of feet, and new members will be welcome to join what is hoped to be an attractive proposition. The re-grouping brings hope of the return of the famous Northern Heights Gala this year.

Too often, club officials complain of Juniors being a pain in the neck, particularly when they fly indoor catapult gliders, but in the **Sidcup and Eltham Club** the Juniors appear to be quite a galvanising force. This fact was made very evident when they demanded equality with Seniors in a Jetex 50 design contest. An outdoor event this, not the usual clubroom cough-in. Junior C. Davidson, showed many an older hand the way by placing third. Junior initiative, too, in the corridors of power. They have devised a weird system of nominating their own committee rep. The lad in question is noted more for his tree climbing ability rather than legislative flair—so far, that is, but an equally agile brain will assert itself, it is hoped.

And so to a few pungent comments from the current issue of the **Crawley Club's** *Turbulator*, concerning that perennial thorn in our sensitive flesh, the engine silencer, for and against. Crawley is emphatically for, and takes the S.M.A.E., to task for prematurely rescinding what it considers a most worthwhile rule that would have ultimately brought much benefit to the movement. Given time, it is suggested, the manufacturers would have produced silencers of a quality to satisfy all demands and to make the silenced Power Duration model a viable contest proposition. I, too, share their disquiet at the acknowledged failure to achieve universally silenced engines, but I am less inclined to blame the Society than to congratulate it on a valiant try. The Crawley concern relates to its high degree of contest involvement. Club contests are often as well supported as many an open event. Thus a strong team was available for the, wait for it, "Dick Black Indian Summer Postal Contest". Strongest member of the team was weaker sex representative, Shirley Horton. She made a three flight total of 306 seconds, which takes some doing with the mini-powered Coupe D'Hiver gadget. Hubby Bill came an unabashed third, whilst Pete Cameron came between husband and wife—the cad! Hint for Coupe fans: Crawley use 16 in. by 16 in. props, mostly single bladers, and five strands of $\frac{1}{4}$ in. Pirelli.

It had to come, I suppose. Yes, a 'fly-in'. This one is reported by the **Maidenhead Wayfarers** to have 'happened' at Woodley in October. Mostly a Radio 'tune-in' by all accounts. A tongue in cheek mention, also of Breathalyser tests for men who Drink and Fly (its usually the other way round) all carried out on a crystal controlled basis.

If Maidenhead has its Wayfarers (looking for lost models, no doubt) **Worcester** has its 'Sky Pals'. Talking of such appellations, we conservative British usually stick to the formal sort of district title and leave the Tissue Tearers and Nimbus Nudgers to American inventive fancy. But whether there is an advantage in having a chummier form of title is perhaps a moot point. At least the Worcester Sky Pals can boast of a goodly attendance at club meetings, and also an equally good turn out on the flying field, which is perhaps more important.

Following on the last remark, you winter hardies are invited once again to the **South Bristol Club's** Winter Rally at R.A.F. Hullavington on February 25th (See Contest Calender). If you want more details, such as the whereabouts of the airfield, write to J. B. Mayes at 17 Northville Road, Bristol 7.

Still in the West Country area we have word from the **Bristol Pelicans** of indoor meetings on the 1st and 3rd Fridays of each month, 7:45 p.m. at Begbroke School, Frenchay, Bristol, and outdoor meetings on the 2nd and 4th Sundays of each month at Witchurch Airfield, Brsitol 4, 2.15 p.m.

A letter from Gloucestershire, penned by a Mr. Durham of the **North Cotswold M.A.C.**, unfolds a story of the adventures of a lost model which strains even my green-eyed credulity. Flying from Moreton-in-Marsh drome on June 1st last, the model a "Frog Tutor" landed three months later in a field of thriving barley a mile away. It escaped the combine harvester by a hare's breadth and came back to its owner in one piece. Only saving grace is that the flight claimed was only a mile—not *too* 'far fetched'!

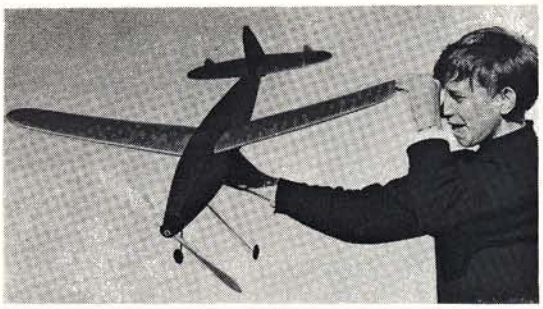
If you live down Newport, Mon., way you may know, or not know, of the **Gwent Aeromodelling Club** which is centred in Caldicot village, look you. The small but valiant membership of twelve meet from distant parts at the Caldicot Village College each Wednesday evening. Any other gents for Gwent?

Over the chilly North Sea comes a bumper News Letter from the **Belfast Model Flying Club**—nine pages full, to providing a chastening reminder to two page strugglers just what can be done. Perhaps they should import some of Editor, Maurice Doyle's persuasive brand of Irish charm to get the contributions rolling in. There's some straight talking, too, to be found in the copious pages. For instance, in a potted biography of Club Chairman, Ronnie Armstrong, we get this quote, ". . . though is rather too well mannered for some of the yahoos he has to deal with."

A good news sheet, too, from the **Model Aeronautical Council of Ireland,** main feature of which is a probing article into the possible causes of diminishing model flying interest throughout the 32 counties. Some good points are made, but it would seem that the reasons for the present decline, which is not, of course, limited to Eire, are perhaps too complex to define. Most sports and activities suffer periodic fluctuations, and these are no cause for despair if a healthy nucleus is maintained. The Irish problem is aggravated by the incursions made upon the model flying centrepiece. Baldonnel (We have O'Donnell). These include 'Blue Max' style film units and a human mincing network of swishing glider lines.

Back in equally beleaguered England to perhaps a more optimistic report from the **Southampton Model Aeroplane Club.** Membership has soared above the 50 mark, and the ton up (£100) level has been reached in the kitty. A growing up tendency amongst the Junior section is maturing them out of the Combat arena into the more sophisticated precincts of the Team Race circle. But, paradoxically, we are told that the Combat jobs are becoming more sophisticated, too, with fully symmetrical wings and highly inbuilt manoeuvrability. A suggestion also that we may yet get breathalyser tests for model flyers. "But I only had one after launch . . ." Might I point out that radio flyers are usually drunk with power rather than with methane fumes.

A Newsletter which has kept up a steady output over the years is the **South East Area's** *Seadog*. Oddly enough, the item which caught my eye was contributed by Ron Firth of N.A.N. fame. He deplores trendy tendencies towards the radio controlling of free flight, (RAFF—Radio Assisted Free Flight) suggesting that the F/F adherent will find himself seduced away from a basic aeronautical interest into the world of electronics and expensive gadgetry. Contest success will depend, as in multi R/C, on access to the right sort of equipment,



"Zombie" from A.P.S. plans flown by Mr. Whitson of Blackheath at St. Albans Gala. Plan is 5/6 plus 6d. post. No. D. 316

not easy to come by if you have neither wealth or influence, whereas in the F/F contest world as it is, you can go all the way on basic talent only; a meritocracy rather than an autocracy. Then again, there are many who prefer a technically unencumbered approach, finding delight in craftsmanship rather than technology. Mainly Ron Firth is countering an idea of P.R.O., Nick Neve to radio control A/2 gliders, and it should be said that Nick stipulates single channel only, and that the rules would seem to give scope both for design development and piloting skill.

The name Ray Malmstrom is familiar to all *Aeromodeller* readers, but did you know that it is at the **Impington Village College M.A.C.**, that he concocts those way-out little offerings of his? Anyway, he founded said country seminar of aeromodelling way back in 1946. The village is within a dreaming spire's distance of Cambridge, where they are yet to found a faculty of model flying. Membership is a comfortable 25, a figure which has stayed constant over the years, and three of that number have been an integral part of it over a long term of service to junior guidance and enlightenment. They are Messrs. Tom Colling, Terry King and Derek Camps. The club, having survived a happy, comradely 21 years is confidently looking forward to an equally long and productive future.

Radio Leicester is not, as you might think, a Midlands R/C club, but a local radio station. The station, which may be the first of many, gives opportunity for the local hobbyist to give his interest a public airing. Quick off the mark in the new medium was the **Leicester M.A.C.** putting on a quartet of members to give a potted, 15 minute survey of model flying in its various guises. An interesting sidelight was the Sputnik like tones of the R/C signals from Jack Marsh's ten channel Orbit sounding clear behind the noise of the engine. It made a useful and characteristic fade out device for the programme. Club indoor antics include the now popular sixpennyworth-of-balsa-produce-a-masterpiece diversion, and the construction of Solarbo balsa bridges (Why not flyovers?). Outdoors the club has a realistic airfield policy, preferring eternal vigilance to the bemoaning of fate and the wringing of hands, as is so often the case. Result: a useful acreage of farmland, which has been retained in spite of alarms over litter and damaged fencing. A.G.M. notes. Senior Champ, N. Jackson, Junior Champ, A. Garnett. Slight balance of payments problem: too much going out, too little coming in. Hoped this will be solved without unduly raising sub fees.

Newsletter from the **Whitefield M.A.C.**, conjures up countrified 'nurgling' rituals in their reference to a 'Round the Ploe' night, but as mention is made of Jetex, Rubber and Electric, we think we know what is meant. Unlike Crawley, the club welcomes the new Silencer rulings, but do not give reasons. Quite a few contest placings to the club's credit during the latter part of the season, with the redoubtable J. O'Donnell prominently featured.

A witty word of congratulation from the Editor of **Midland News** to a caller at his home for the navigational skill shown in finding his way through the wilderness of weeds to the front door. It is often possible to tell whether or not a modeller is having a good season by the height of his weeds.

New to the modelling fold is the **Teeside M.F.C.** Ken Croft is mainly responsible for getting the fledgling group airborne, initially functioning in the Pooh-Bah capacities of Hon. Sec., Treasurer and what have you, but help has now arrived. Meetings are held at the Settlement Centre in Middlesbrough every 3rd Tuesday in the month at 7.30 p.m. Several successful Bring and Buy Sales have been held, and two film shows put on. Flying field is the old aerodrome at Thornsley, but, sad to relate, the field is being whittled away by the concrete spreaders, and other venues are being surveyed. The club would like to have it put on record that it is the only club with permission to use Thornaby.

Northern Area News is a 'must' for the committed F/F contest flyer, and it is proper that it should give much space to the conflicting views on the state of contesting today, particularly in regard to accusations of gamesmanship, not to mention downright cheating, and the recent increases in entry fees. Good arguments put by top modellers both North and South. On balance it would appear that some modellers take themselves and their public image just a bit too seriously, and that the higher fees could frighten off the less enthusiastic participants. To the opposite end of the flying pole, where it is purely fly for fun, there are a few deserving plaudits for the sports flyers who put on such a fascinating series of side-shows at the Cranfield Rally. These will undoubtedly be echoed by all who attended that colourful and varigated meeting.

Up to bonnie Scotland, where it is suggested by the **Irvine R/C** club (Ayrshire), that a hardier breed of R/C flyer is emerging—one that does not shrink before a bit of balmy breeze. Even the Single Channel types do not quail before a close isobar forecast. A blow not so easily sustained, however, was the loss of the club flying field. The field is the property of the Army, and a complaint, presumably of noise, from the married quarters, resulted in the unceremonious order of the army boot. Temporary alternative is a peat bog, which suggests that the pursuit of airfields these days is something of a will o' the wisp.

Further airfield trouble in the land of the thistle. The **Glasgow and Renfrewshire M.A.C.** have been kicked around something chronic, from Abbottsinch almost to breakfast time. After much travail they now expect Paisley Town Council to come to the rescue. The club sends along a copy of the Paisley Gazette, depicting a full centre page story and picture spread of the club in action.

Fittingly, model flying can still boast quite a following in the R.A.F. A fact which was well demonstrated at the recent **R.A.F.M.A.A. Champs**, where a total entry of 210 covered a wide spectrum of events. Top all rounder was Fl. Lt. Tom Cheeseley who won Open Rubber, Open Glider, Coupe D'Hiver, F.A.I. Power and A/2 Glider. Needless to say, also the Victor Ludorum. His one man band technique is worthy of closer study, particularly as the weather was far from ideal. The weather also upset the Radio events, nevertheless there was a record entry of 35 in the Multi, Intermediate and Single events.

Pen Pal wanted, interested in A/2's. Write to Milan Kusel, Sloranska 'aly 15, Plun—Slorany, Czechoslovakia.

That's about all for this month. Let's see those reports rolling in.

The CLUBMAN

CONTEST RESULTS

NORTHERN AREA MEETING, October 8th

Pannet Trophy (open power): 1. J. O'Donnell (Whitefield) 8 : 56; 2. D. Wiseman (York) 8 : 24; 3 B. Peers (Congleton) 8 : 16. **Vintage:** 1. H. Tubbs (Baildon) 8 : 06; 2. G. Tideswell (Baildon) 7 : 25; 3. D. Woolstenholm (E. Lancs.) 7 : 04. **Coupe d'Hiver:** 1. R. Kenward (Croydon) 4 : 57; 2. J Pool (York) 4 : 37; 3. H. Tubbs (Baildon) 4 : 21. **A/1 Glider:** 1. M. C. Reeves (Whitefield) 8 : 00. 2. J. B. Pool (York) 7 : 28; 3. D. White (York) 7 : 15.

NORTHERN AREA F.A.I. MEETING RAF TOPCLIFFE, October 22nd

A/2 Glider: 1. J. O'Donnell (Whitefield) 14 : 03; 2. Cordes (C.M.) 13 : 33; 3. D. Oldfield (Norwich) 12 : 42; 4. D. Wiseman (York) 12 : 40; 5. A. Young (Croydon) 12 : 39; 6. A. Wells (Hornchurch) 12 : 33. **Wakefield:** 1. R. Monks (Birmingham) 14 : 39; 2. B. Halford (Norwich) 14 : 08; 3. J. O'Donnell (Whitefield) 13 : 36; 4. A. Welles (Hornchurch) 13 : 06; 5. R. Bailey (Croydon) 12 : 58; 6. G. Lefever (Norwich) 12 : 54. **F.A.I. Power:** 1. R. Monks (Birmingham) 15 : 00 +4 : 00+4 : 05; 2. G. French (Anglia) 15 : 00+4 : 00+3 : 55; 3. J. McCann (C.M.) 15 : 00+3 : 55+4 : 04; 4. J. Savini (Wallasey) 15 : 00+3 : 55+3 : 56; 5. J. West (Brighton) 15 : 00+0 : 35; 6. B. Hooley (B.A.C.) 13 : 02. **Rivers Trophy (Team Race):** 1. Balch/King (Felthem/Hayes) 9 : 56 : 1; 2. Place/Haworth (Wharfedale) 10 : 3 : 0; 3. Hughes/Turner (Wharfedale) 10 : 18 : 7.

NORTHERN GALA RAF ELVINGTON, October 29th

Combat: 1. D. Harmersley (Outlaws); 2. J. Duncan (Mel Moe); 3. R. Wilson (Tynemouth). **Handicap speed:** 1. B. Jackson (Worksop) F.A.I. 134.7 mph 99 : 5%; 2. C. Parker (N. Sheffield) 1.5 cc. 101.7 mph. 97.5%; 3. G. Farnsworth (N. Sheffield) F.A.I. 123.6 mph 91.5%. **½A Team Race:** 1. Turner/Hughes (Wharfedale) 7 : 45; 2. Haworth/Place (Wharfedale) 8 : 54; 3. Heaton/Ross (Leigh) 8 : 55. **F.A.I. Team Race:** 1. Laurie/Clark (Novo) 9 : 45; 2. Heaton/Ross (Leigh) 10 : 12; 3. Place/Haworth (Wharfedale) 111 laps, retired. **Class B Team Race:** 1. Yates/Hampson (Leigh) 7 : 39; 2. Haworth/Place (Wharfedale) 64 laps retired; 3. Turner/Hughes (Wharfedale) 3 : 30 first heat. **Radio:** 1. Brunt 6422; 2. Cooper 5820; 3. Russell 4834. **Open Power:** 1. R. Peeks (Congleton) 9 : 00+4 : 57; 2. R. Monks (Birmingham) 9 : 00+4 : 01; 3. G. Cornell (Croydon) 9 : 00+3 : 15; 4. G. Lowe (Wallasey) 8 : 15; 5. B. Hooley (B.A.C.) 7 : 37; 6. B. Worthington (Whitefield) 7 : 06. **Open Rubber:** 1. J. O'Donnell (Whitefield) 9 : 00+ 5 :36; 2. D. White (York) 9 : 00+5 : 07; 3. D. Wiseman (York) 9 : 00+4 : 46; 4. R. Pollard (Tynemouth) 9 : 00+4 : 44; 5. D. Hipperson (Croydon) 9 : 00+4 : 40; 6. A. Nobbs (Halifax) 9 : 00+2 : 34. **Tailless:** 1. H. Tubbs (Baildon) 8 : 22; 2. K. Attiwell (York) 8 : 06; 3. J. B. Pool (York) 6 : 31. **Open Glider:** 1. A. Wisher (Croydon) 9 : 00; 2. A .Young (Croydon) 8 : 36; 3. Mantle (Halifax) 8 : 27; 4. M. Reeves (Whitefield) 7 : 34; 5. Yates (Wigan) 7 : 29; 6. B. Baines (York) 7 : 26.

RICHMOND GALA CHOBHAM COMMON, November 5th

Combined F.A.I.: 1. J. Loraminer (Woking) 10 : 47; 2. A. Wisher (Croydon) 9 : 07; 3. J. Blount (Croydon) 8 : 40. **½A Power:** 1. R. Peers (Congleton) 6 : 38; 2. P. Jellis (Croydon) 5 : 18; 3. C. Pittard (Hornchurch) 4 : 36. **Coupe d'Hiver:** 1. J. Mabey (Lee Bees) 6 : 00; 2. F. G. Sharp (Blackheath) 4 : 07; 3. G. Cornell (Croydon) 3 : 46. **A/1 Glider:** 1. J. O'Donnell (Whitefield) 6 : 39; 2. K. Smith (Croydon) 6 : 37; 3. M. C. Reeves (Whitefield) 6 : 31. **Chuck Glider:** 1. M. Fantham 1 : 46 **Sealed Time:** 1 : 34. Worrall 1 second error.

COMING EVENTS

December 26	*Boxing Day Shakedown Gala*, Chobham Common. Open R.P.G. Half-hour Scramble. Coupe d'Hiver, A/1 Glider 10 a.m.
January 21	*Blackheath Gala*. Open R.G.P. Wakefield. Bill White Trophy for Open Rubber—Chobham Common.
Jan./Feb./March	*Winter Wakefield Events* organised by A. R. Wells, 26 Nelmes Way, Hornchurch, Essex. Chobham Common, January 7th, 21st; February 4th, 18th; March 4th, 18th, fee 2/6 each round.

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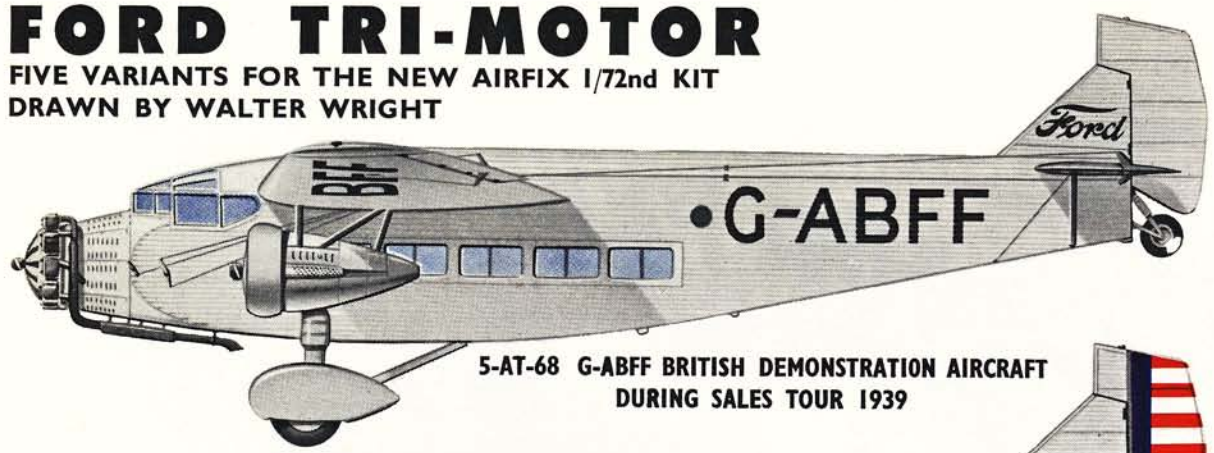

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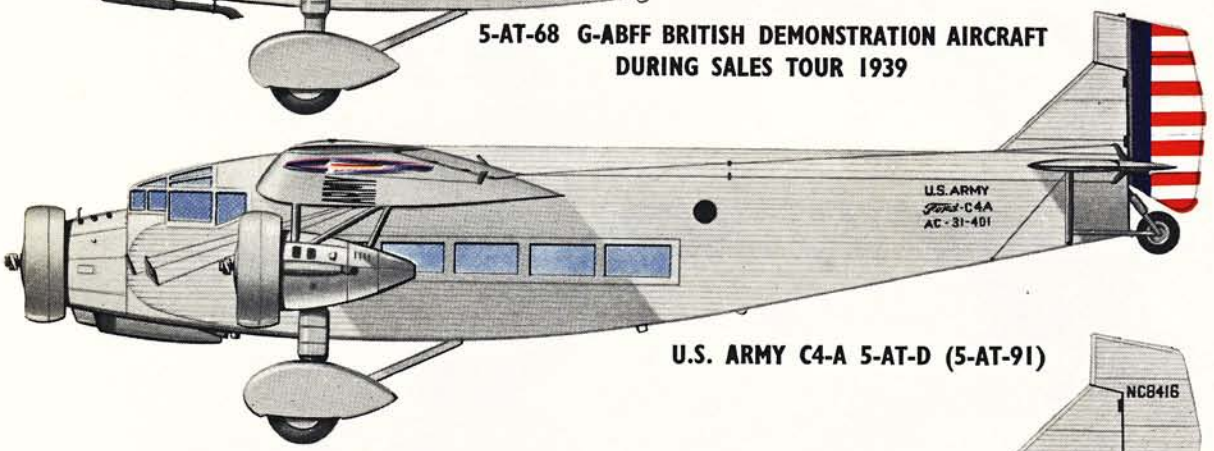

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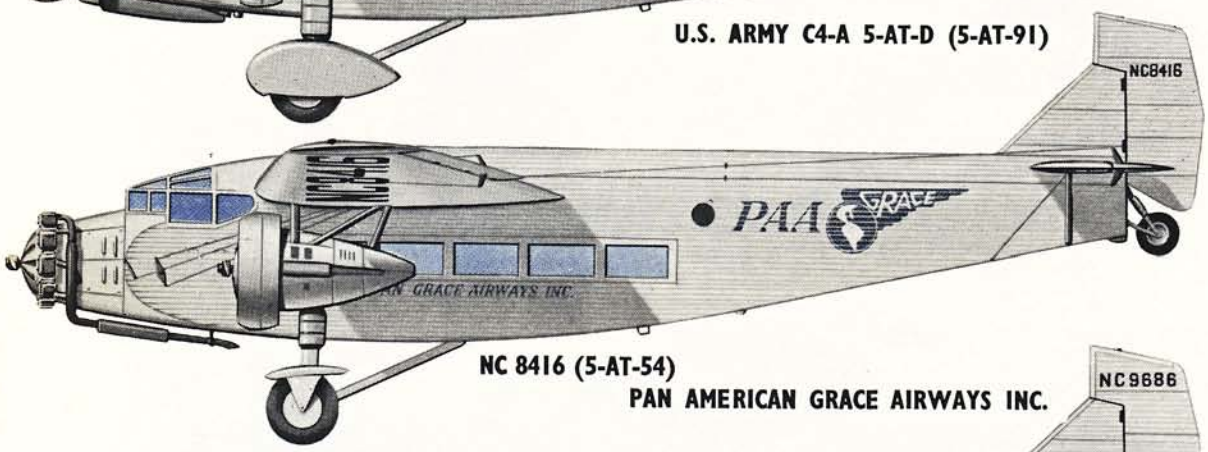

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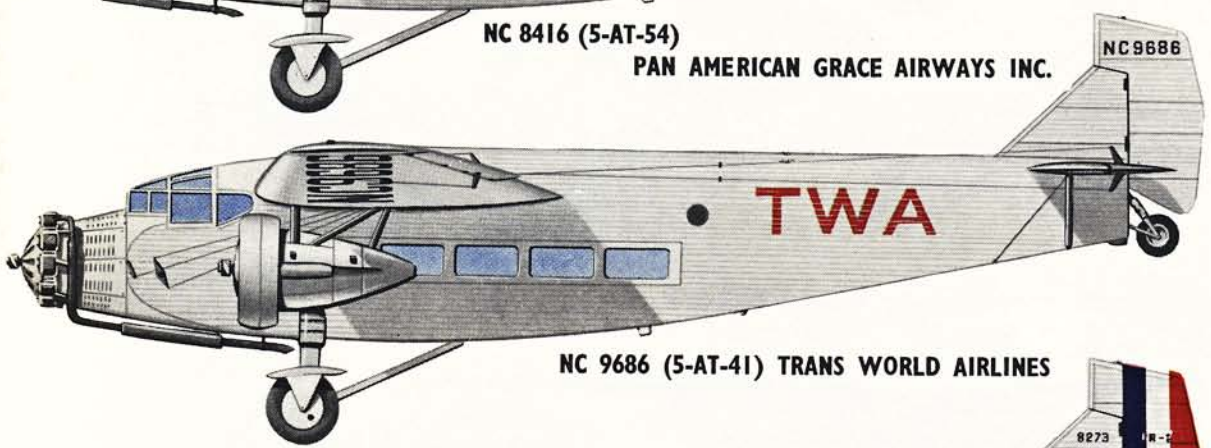

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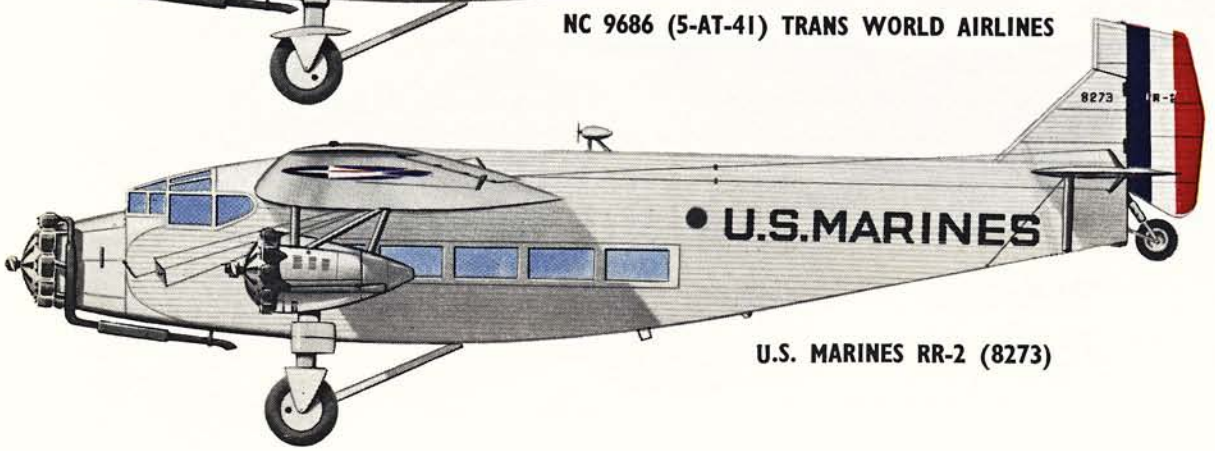

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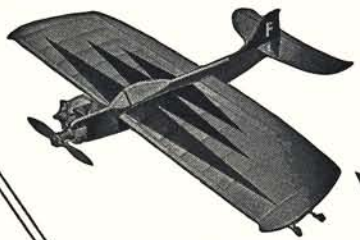

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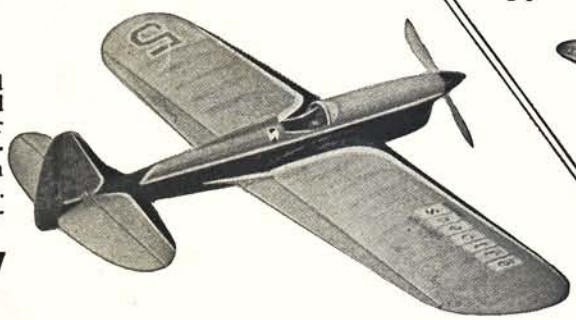

MARQUIS

A very fine looking stunt model with attractive semi-scale lines, featuring tricycle undercarriage and extra large cockpit. For 1 to 1.5 c.c. engines. Wingspan 30".

40/8

TOPS FOR RADIO CONTROL TOO!

Wingspan 48"
For 1.5 to 2.5 c.c. engines.
Single channel or intermediate R/C.

£4. 19. 8

MINI SUPER

Keilkraft's popular radio control model. A real pleasure to build and fly. Kit contents include—all parts pre-cut, metal clunk tank, preformed undercarriage, three sponge rubber wheels, pre-shaped leading edge section, full size plan and building and flying instructions.

KEILKRAFT FOR TOP PERFORMANCE