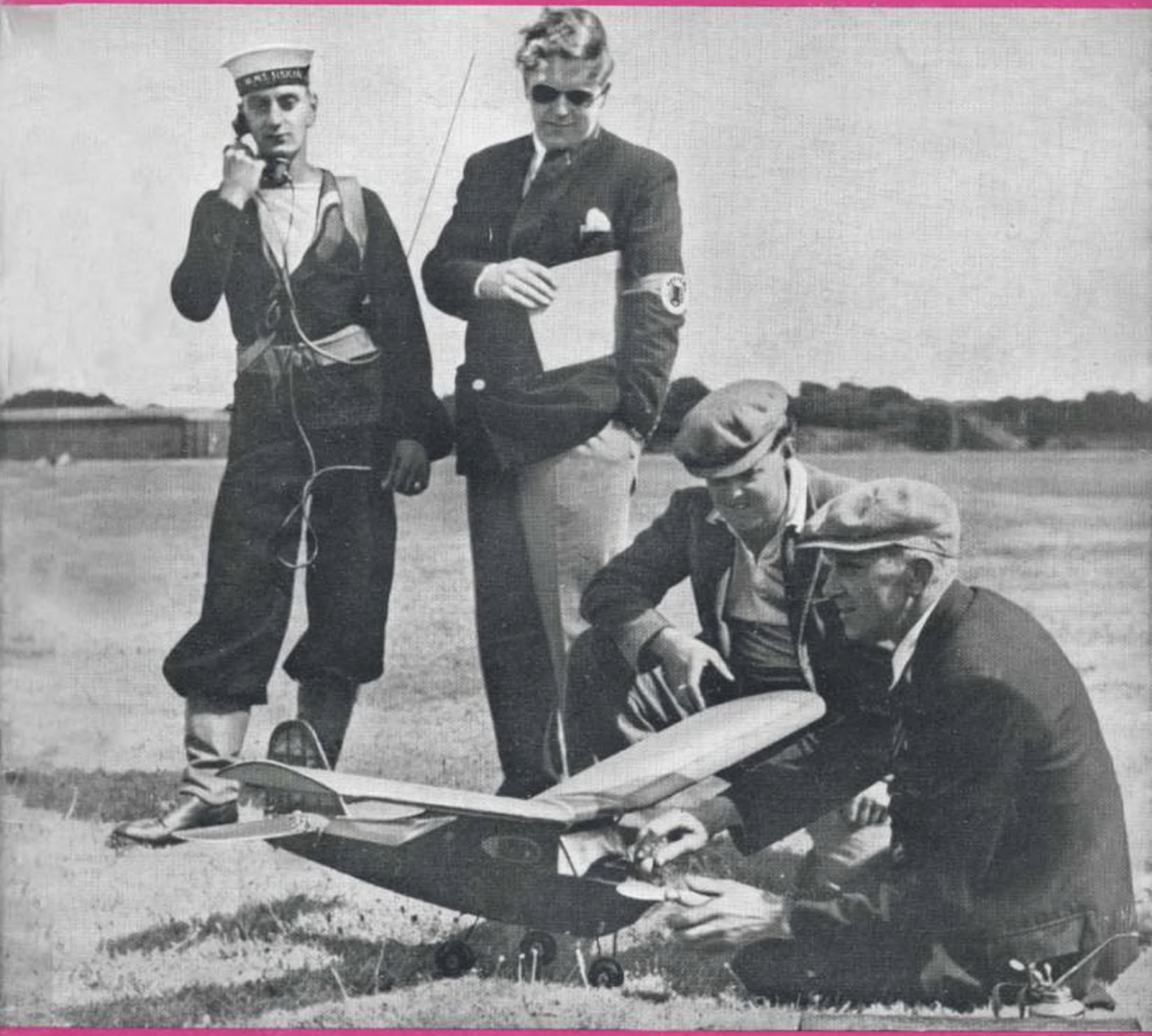
AERO MODELLER

OCTOBER 1952



POWER SCALE PZL FIGHTER ● CLASS A TEAM RACER "BLACK CHIFFON" ● 5 c.c. STUNT MODEL "CALAMITY JANE" ● REPORT ON BRITISH NATIONALS ● FULL SIZE PLAN ● "AEROMODELLER" RADIO CONTROL RECEIVER ● ALL THE REGULAR FEATURES

1/6

Digital Edition Magazines.

This issue magazine after the initial original scanning, has been digitally processing for better results and lower capacity Pdf file from me.

The plans and the articles that exist within, you can find published at full dimensions to build a model at the following websites.

All Plans and Articles can be found here:

Hlsat Blog Free Plans and Articles.

http://www.rcgroups.com/forums/member.php?u=107085

AeroFred Gallery Free Plans.

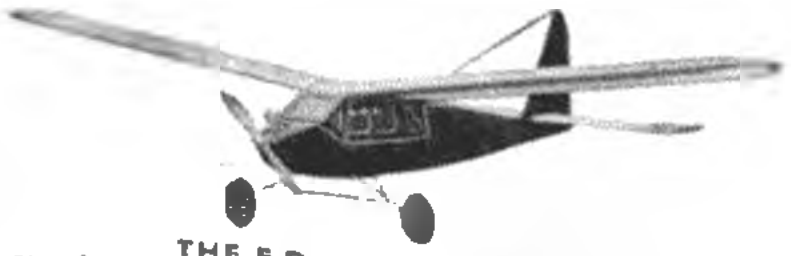
http://aerofred.com/index.php

Hip Pocket Aeronautics Gallery Free Plans.

http://www.hippocketaeronautics.com/hpa_plans/index.php

Diligence Work by Hlsat.

E.D. GAIN FIVE PLACES IN THE FRENCH INTERNATIONAL.



THE E.D. "RADIO QUEEN"

This graceful and perfectly designed aircraft of 7 ft. wing span has been specially designed for remote control by the E.D. Radio Control Unit and to be powered by the E.D. 3·46 Mk. IV Diesel. Radio Queen Kit Set **Price £4 . 5 . 0**

The French International held at Cormeilles-en-Vexin on Sunday, 29th June, 1952. Placings :—

1st Dr. C. Gobeaux (Belgium) E.D. "Radio Queen" and E.D. Mk. IV Engine.

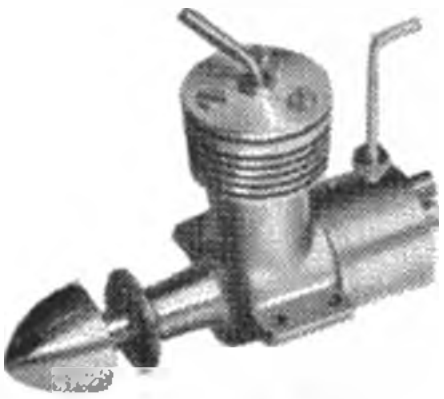
2nd H. J. Taplin (Britain) E.D. "Radio Queen", E.D. Mk. IV Engine and E.D. Mk. II Radio.

4th J. E. Ballard (Britain) E.D. 2·46 c.c. and E.D. Mk. III Radio.

6th G. Honnest-Redlich (Britain) Veron Sky Scooter, E.D. Mk. IV Engine and E.D. Mk. III Radio.

7th J. D. Taplin (Britain) E.D. "Radio Queen", E.D. Mk. IV Engine and E.D. Mk. II Radio.

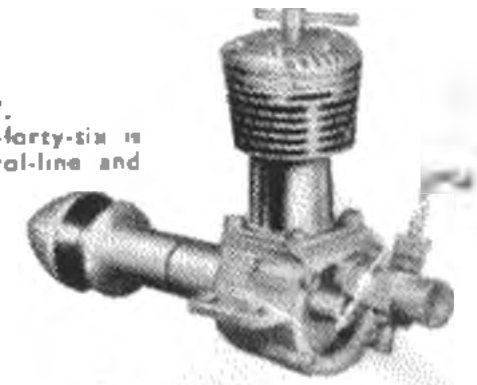
(out of 18 competitors)



E.D. 1 c.c. Mark I (BEE)

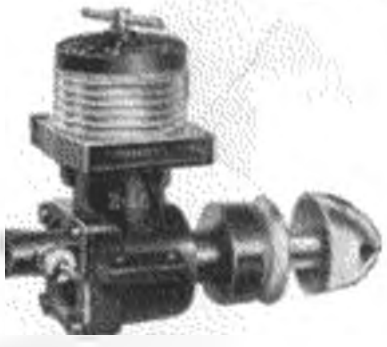
A very compact little motor with an overall height of 2¼ in., it weighs only 2¼ oz. Bore 0·437 in., static thrust 12 oz., stroke 0·400., R.P.M. 7 000 plus.

Price £2 . 17 . 6



E.D. 3·46 c.c. Mk. IV.

Developing 10,000 r.p.m., the three-forty-six is one of the finest engines for control-line and stunt flying. Stroke 0·625 in., height 3 in., width 1⅝ in., length 4⅛ in., weight 5¼ oz. **Price £4 . 2 . 6**



E.D. Mk. III 2·46 c.c. RACING ENGINE

Specially designed for use as a diesel, glo-plug or spark ignition engine, the 2·46 develops over ¾ b.h.p at 14,000 r.p.m. plus. Incorporates a two-ball-race crankshaft and exhausts as an integral part of the crank case. Total weight 5 oz **Price £4 . 2 . 6**

AND A FIRST AT BRUSSELS

First in the Control Line World Championship, held in Brussels on Sunday, 6th July :—

Engine	P. Wright (Britain)
Speed	E.D. 2·46 Glo plug head
Position	98·54 m.p.h.
	First in 2·5 c.c. Speed Class

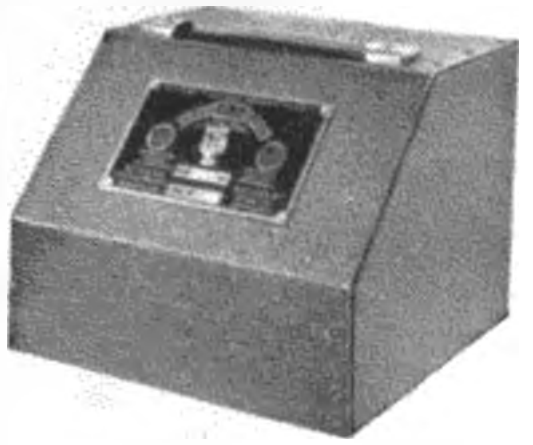
E.D. MK. III MINIATURE RADIO CONTROL UNIT

Designed to meet the requirements of smaller models. Consisting of one valve transmitter of 3A5 Twin Triode type with up to 4 watts input; **CRASH PROOF** receiver (weight 1¼ oz.), escapement (weight ¼ oz.) with meter and battery sockets and plugs, on-off switch and potentiometer; and sectional 8 ft. transmitter aerial.

Price complete (less batteries) ... £9 . 17 . 11

Prices separately :

Transmitter	£5 . 14 . 9
Escapement	£1 . 2 . 11
Receiver (including meter and battery sockets and plugs, on-off switch and Potentiometer)	£3 . 14 . 5



E.D. Mk. II "MINIATURE 3" RADIO CONTROL UNIT

comprising Transmitter and Receiver. Combines the three main features of range, reliability and safety against interference, but with **reduced weight, size** and **battery consumption.** A standard battery pack will give over **3 hours' CONTINUOUS OPERATION** with a receiver and batteries weight of only 10¼ ozs. Deaf aid **HARD** valves with a life of over 3,000 hours are used in the receiver. The transmitter is wired for dual purpose use and will operate either carrier or modulated receivers. **Price** complete, **£18 . 10 . 0**

Receiver ... £11 . 10 . 0 Transmitter ... £7 . 0 . 0

All prices include Purchase Tax.

ORDER THROUGH YOUR MODEL SHOP.

E.D. ELECTRONIC DEVELOPMENTS (SURREY) LTD

DEVELOPMENT ENGINEERS

1223 18, VILLIERS ROAD, KINGSTON-ON-THAMES, SURREY, ENGLAND.

NORTH SOUTH

GREGORY'S

SERVICE IS THE BEST

EAST WEST

RADIO CONTROL

E.D. Mk. I, 3-valve unit. Complete transmitter, receiver and escapement. 290 0 + 69 9 P.T.
E.D. Mk. II, 3-valve unit. Complete transmitter and receiver only. 296 0 + 74/0 P.T.
E.D. Mk. III Miniature (Hivac) Unit. Complete transmitter, receiver and escapement. 159/6 + 38/5 P.T.
E.D. Mark IV Tuned Reed 3-channels unit. Complete. 400 0 + 100 0 P.T.
Any of the above can be purchased as separate items.
E.C.C Standard transmitter. 80 0 + 20 0 P.T
E.C.C. international transmitter. 150 0 + 37 6 P.T
E.C.C. 950A Hivac receiver. 70 0 + 17/6 P.T.
E.C.C. 951A hard valve receiver. 70 0 17/6 P.T.
E.D. III escapements, compact and normal type ... 18 6 + 4 5 P.T.
E.D. polarized relay. 24 0 + 6/0 P.T.
E.C.C. 5A relay. 25 0 + 6, 3 P.T
E.C.C. escapement. 17 6 + 4 5 P.T.
E.D. Reed Unit (high or low frequency, state which). 60 0 + 15/0 P.T.
Frequency Meter ... 21/6
Hivac Valve ... 17/6 + 3/10 P.T.
Batteries stocked for any of above
VENNER ACCUMULATORS

The ideal Boat Kit for Radio Control
WAVEMASTER CABIN CRUISER
Suitable for 2·5 c.c. engines. All ply construction.
60 0 + 12/10 P.T.
Length o.a. 34" Beam 12"

C.L KITS

	P.T.
Frog	
Vantire ...	24/2 + 5/4
Vandiver ...	12/3 + 2 9
Vantage ...	17 2 + 3/10
Keil Kraft	
Ranger ...	10 6 + 2/4
Pacer ...	15 0 + 3/4
Stunt Queen ...	21 0 + 4 8
Skystreak 26" ...	9 6 + 2/1
Skystreak 40" ...	10 6 + 2/4
Phantom ...	18 6 + 4 2
Scout Biplane ...	22 6 + 5 0
Phantom Mite ...	11 6 + 2/7
Veron	
Beebug ...	12 0 + 2 8
Panther ...	25 0 + 5 6
Minibuster ...	15 0 + 3/4
Philibuster ...	23 6 + 5/2
Midget Mustang ...	22 6 + 5 0
Focke Wulf 190 ...	21 0 + 4 8
Sea Fury Mk. IX ...	23 6 + 5/2
Spitfire Mk. XXII ...	27 6 + 6 1
Wyvern ...	23 6 + 5/2
Mercury	
Monitor ...	18 3 + 4/1
Team Racer I ...	23 0 + 5 1
Team Racer II ...	19 0 + 4/3
Marlin ...	19 6 + Nil
Speedwagon 20 ...	14 3 + 3/2
Midge ...	5/3 + 1/2

Veron Sky Skooter—designed around an E.D. Bee and E.D. III R/C Receiver. 25/– + 5/6 P.T.

ORDERING INSTRUCTIONS

HOME CUSTOMERS. Cash with order or C.O.D.

POSTAL INSTRUCTIONS. All orders under 10/– add 9d., 25/– add 1/1, 40/– add 1/6, over 40/– post free. For overseas, according to postal service requested and destination. Postal information concerning dispatch to any country given on request.

NOTE. Will all customers requiring information please include a S.A.E., or if overseas International Reply Coupons.

OVERSEAS CUSTOMERS

As a result of so many enquiries for our "Overseas Cash on Delivery Service" we are again listing the countries which will accept such consignments. Part I this month includes —Azores, Bahamas, Barbados, Belgium, Bermuda, Br. Guiana, Br. Honduras, Burma, Cayman Islands, Ceylon, Cyprus, Denmark, Dominica, Egypt, Falkland Islands, Faroe Islands, Fiji Islands, France, Gibraltar, Gold Coast Colony, Grenada, Holland, Iceland, Iraq, Jamaica, Kenya and Uganda, Leeward Islands, Luxembourg, Madeira, Malaya, Malta, Mauritius, Netherlands. *Remainder in next issue.*

Customers resident outside United Kingdom, including H.M. Forces, buy free of Purchase Tax.

FORCES CLUBS. Recognised Clubs can buy on a credit account. Details on request.

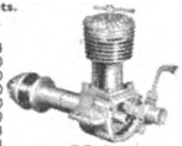
ATTENTION MODEL SHOPS ABROAD—We are now in a position to act as your buyer in the United Kingdom.

ENGINES

The supply position varies from day to day, and apart from E.D. products it is impossible to forecast stocks at publication date. Whenever possible an alternative choice will be appreciated, and every effort always made to supply original requirements.

	P.T.
Allbon Arrow G.P.	55/0 + Nil
D.C. 350 ...	53/4 + 13/4
E.D. Bee I c.c.	47/6 + 10/0
E.D. 2·46 Racer	72/6 + 10/0
E.D. Mk. IV 3·46 c.c.	72/6 + 10/0
Frog 150 Diesel	40/6 + 9/0
Frog 250 ...	59/6 + 13/0
Frog 500 Red Glow	61/8 + 13/4
Frog 500 Petrol	69/9 + 15/3
Mills P.75 ...	60/0 + 10/9
Mills S.75 ...	55/3 + 11/9
Mills 1·3 ...	75/0 + 16/1
Allbon Dart ·5 c.c.	52/6 + 12/8
Elfin ·5 c.c. ...	54/0 + 13/6
E.T.A. 29 ...	119/6 + 29/11
Frog 50, 5 c.c....	40/6 + 9/0
Elfin 1·49 c.c. ...	47/6 + 12/0
Elfin 2·49 c.c. ...	56/0 + 14/0
Allbon Javelin...	55/0 + 13/3
E.D. ·46 ...	45/0 + 10/0
E.T.A.19 ...	99/6 + 24/11

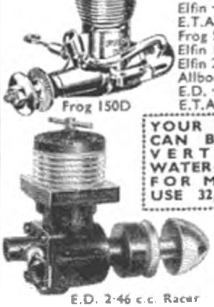

Mills ·75 c.c.


E.D. 3·46 c.c.

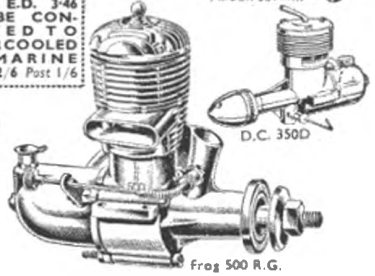

Frog 150D


Allbon Javelin

YOUR E.D. 3·46 CAN BE CONVERTED TO WATERCOOLED FOR MARINE USE 32/6 Post 1/6


E.D. 2·46 c.c. Racer


D.C. 350D


Frog 500 R.G.

WHEELS: All rubber-tyred. For power models. K.K. Streamlined, 1¼", 1 3 + 3d. P.T.; 2", 2 0 + 5d. P.T.; 2½", 3 0 + 8d. P.T. S.I.A. Sponge Rubber, 2½" 3 6 + 9d. P.T.; Veron Scale Type, 1¼", 3 0 + 8d. P.T.; 2" 4 3 + 11d. P.T.; 2½", 6 6 + 1 5 P.T.
M.S. AIR WHEELS: Standard, 2", 10 0 + 2 3 P.T.; 2½" 14 3 + 3/2 P.T., 3", 18 6 + 4 2 P.T.; 4" 22/6 + 5 0 P.T.; Superlite, 2", 7 0 + 1/7 P.T.; 2½" 12/6 + 2, 9 P.T.

GLIDERS

	P.T.
Frog Fortuna ...	12 3 + 2 9
K.K. Chief, 64" ...	18 6 + 4 2
K.K. Soarer Minor, 48"	8 0 + 1 9
K.K. Soarer Baby, 36"	5 0 + 1 1
K.K. Soarer Major, 60"	11 6 + 2/7
K.K. Minimoa, 50" ...	7 0 + 1/7
K.K. Invader, 40" ...	6 6 + 1 5
K.K. Cadet, 30" ...	4 0 + 11d.
Veron Coronette, 26"	3 6 + 9½
Veron Verosonic, 46"	10 6 + 2 4
Mer. Marauder, 65"	14 6 + 3 3
Mer. Martin, 40" ...	6 9 + 1 6
Mer. Gnome, 32" ...	4 0 + 1 4
Frog Prince ...	20 6 + 4 6
Frog Diana, 36" ...	7 5 + 1 7
Mer. Grebe, 49" ...	12 0 + 2 8
Frog Vespa ...	5/9 + 1 3

VORTEX A.2 by VERON
Super kit. See Trade Review, June AEROMODELLER
18 6 + 4 1 P.T.

XACTO TOOLS. From 3/– to 84/– All spare blades in stock. No. 86 Tool Chest, 84 0; No. 82 Toal Chest, 30 0; No. 78 Wood Carving Set, 37 6; No. 77 Wood Carving Set, 23 0; No. 1 Knife (with No. 11 blade), 3 0; No. 2 Knife (with No. 22 blade), 3 6; No. 5 Knife (with No. 19 blade), 6 6; No. 51 Knife Set (No. 1 knife and 6 blades) 5 6; No. 52 Knife Set (No. 2 knife and 6 blades), 6 9; No. 62 Knife Set (No. 1 and 2 knives with 12 assorted blades), 12 3.
See August issue for illustration of blades and knives.
An XACTO illustrated leaflet will be sent on receipt of S.A.E. Contains full range, prices and contents of tool chests, etc.

FREE-FLIGHT KITS

	P.T.
Veron	
Skyskooter, 48" ...	25 0 + 5 6
Streaker, 37" ...	19 9 + 4 4
Cardinal, 35" ...	14 6 + 3/2
Mercury	
Mallard, 48" ...	18 3 + 4/1
Jnr. Mallard, 34" ...	15 0 + 3 4
Monocoupe, 40" ...	22 9 + 5/1
Scimson 105, 42" ...	28 6 + 6 1
Sky Jeep, 40" ...	28 6 + 6 1
Aeronca Sedan, 65"	57 0 + 12 6
Frog	
Cirrus, 48" ...	21 0 + 4/6
Fox, 43" ...	17 2 + 3 10
Firefly, 36" ...	18 5 + 4 1
Janus, 44" ...	14 4 + 3 2
Vixen, 36" ...	12 4 + 2 8
Powavan, 48" ...	22 1 + 4 11
Zephyr, 33" ...	10 3 + 2 3
Strato D, 42" ...	14 4 + 3 2
Keil Kraft	
Skylon ...	10 6 + 2 4
Slicker 42 ...	17 6 + 3 11
Slicker 50 ...	25 0 + 5 6
Outlaw ...	22 6 + 5 0
Bandit ...	18 6 + 4 2
Ladybird ...	18 6 + 4 2
Pirate ...	12 0 + 2 8
Junior 60 ...	39 6 + 8 9
Cessna 170 ...	18 6 + 4 2
Luscombe Silvaire ...	18 6 + 4 2
Piper Super Cruiser	18 6 + 4 2

P. E. GREGORY & SON (ALTON) LTD., ALTON TEL. 3376 **HANTS**

AN UNEQUALLED RETURN POST SERVICE. 3d. STAMP FOR LISTS.

WORLD WIDE MAIL ORDER Service

Order in comfort—at home

Wherever you live, if you are not served by a Model Shop in your District, order with confidence from my Mail Order Dept. Return Postage Guaranteed.

Five Star Reasons why it is to the advantage of Overseas customers to use my Mail Order Service :—

★ 1. **Purchase Tax.** All Overseas orders, including ALL Forces Overseas, are FREE of Purchase Tax.
★ 2. **Despatch.** All Orders are despatched on day of receipt.
★ 3. **Packing.** Guaranteed to stand passage to any part of the World.
★ 4. **No Delay.** As a Licensed Exporter I can supply direct.
★ 5. **Currency.** Correct rates of exchange given to foreign currency.

KEILKRAFT KITS

		P.T.
Chuck Gliders		
Vega	1/3 +	3d.
Spook	1/6 +	4d.
Polaris	2/6 +	7d.
Gliders		
Cub, 20"	2/6 +	7d.
Cadet, 30"	4/0 +	11d.
Soarer Baby, 36"	5/0 +	1/1
Soarer Minor, 48"	8/0 +	1/9
Soarer Major, 60"	11/6 +	2/7
Invader, 40"	6/6 +	1/5
Minimos, 50"	7/0 +	1/7
Chief, 64"	18/6 +	4/2
Rubber Powered Models		
Pixie, 23"	4/0 +	11d.
Playboy, 23"	3/3 +	9d.
Achilles, 24"	4/0 +	11d.
Eaglet, 24"	4/6 +	1/0
Ace, 30"	5/0 +	1/1
Senator, 32"	5/6 +	1/3
Ajax, 30"	6/0 +	1/4
Competitor, 32"	7/0 +	1/7
Gypsy, 40" (W)	10/6 +	2/4
Contestor, 45" (W)	23/6 +	5/2
Flying Scale		
All Models	3/0 +	8d
Free Flight Power		
Slicker Mite, 32"	9/6 +	2/1
Southerner Mite, 32"	10/6 +	2/4
Skylon, 38"	10/6 +	2/4
Pirate, 34"	12/0 +	2/8
Slicker, 42"	17/6 +	3/11
Slicker, 50"	25/0 +	5/6
Slicker, 60"	35/0 +	7/9
Southerner, 60"	40/0 +	8/11
Junior, 60"	39/6 +	8/9
Bandit, 44"	18/6 +	4/2
Outlaw, 50"	22/6 +	5/0
Ladybird, 41"	18/6 +	4/2
Falcon R.C., 96"	107/6 +	23/11
Flying Scale Power		
Piper Super Cruiser	18/6 +	4/2
Cessna 170, 36"	18/6 +	4/2
Luscombe, 40"	18/6 +	4/2
Control Line Models		
Phantom Mite, 16"	11/6 +	2/7
Phantom, 21"	18/6 +	4/2
Scout Bipe, 20"	22/6 +	5/0
Ranger, 24"	18/6 +	2/4
Pacer, 30"	15/- +	3/4
Skystreak 26	9/6 +	2/1
Skystreak 40	18/6 +	4/2
Stunt Queen	21/0 +	4/8

MERCURY MODELS

		P.T.
Gliders		
Magpie, 24"	4/0 +	11d.
Gnome, 32"	6/0 +	1/4
Norseman, 58"	24/- +	5/3
Martin, 40"	7/6 +	1/8
Marauder, 65"	14/6 +	3/3
Grebe, 49½"	12/3 +	2/9

MERCURY MODELS (cont.)

		P.T.
Rubber Powered Models		
Mentor, 36"	9/0 +	2/0
Free Flight Power		
Jr. Mallard 34"	15/0 +	3/4
Mallard 48"	18/3 +	4/0
Stinson 42"	28/6 +	6/1
Aeronca Sedan 65½"	57 - +	12 6
Monocoupe, 64"	57 0 +	12/6
Monocoupe, 40"	22/9 +	5/1
G.H.3. Skyjeep 45"	28/6 +	6/1
O.H. Tiger Moth, 33"	28/6 +	6/1
Control Line Power		
New Jr. Monitor	19/3 +	4/3
Monitor	18/3 +	4/1
Mk. I T. Racer, Cl.B	23/0 +	5/1
Mk. II T. Racer, Cl.A	19/0 +	4/3
Midge	5/3 +	1/2
Speedwaggon 60	22/6 +	nil

VERON MODEL AIRCRAFT

Gliders		
Verosonic, 46"	18/6 +	2/4
Coronette, 26"	3/6 +	9d.
Vortex, 66"	18/6 +	4/1
Rubber Powered Models		
Goblin, 20"	3/9 +	10d.
Rascal, 24"	5/6 +	1/2
Sentinel, 34"	10/6 +	2/4
Hi Climber, 38"	25/0 +	5/6
Hi dgeling, 24"	7/6 +	1/8
Free Flight Power		
Streaker 32"	19/9 +	4/4
Skyskooter 48"	25/0 +	5/6
Cardinal 37"	14/6 +	3/2
Lavochkin, 37"	25/0 +	5/6
Control Line Power		
Bee Bug	12/0 +	2/8
Midget Mustang	22/6 +	5/0
Sea Fury	23/6 +	5/2
Wyvern	23/6 +	5/2
Phillibuster	23/6 +	5/2
Spitfire	27/6 +	6/1
Panther	25/0 +	5/6
Goshawk	79/6 +	17/8
Focke Wulf	21/0 +	4/8
Minibuster	15/0 +	3/4

INTERNATIONAL MODEL AIRCRAFT

Gliders		
Vespa, 30"	5/9 +	1/3
Diana, 36"	7/3 +	1/7
Vanda, 40"	9/6 +	2/1
Prince, 60"	20/6 +	4/6
Fortuna, 48"	12/3 +	2/9
Rubber Powered Models		
Goblin, 24"	4/6 +	1/0
Venus, 38"	14/4 +	3/2
Minx, 30"	6/6 +	1/6
Witch, 36"	10/6 +	2/4
Stratosphere	17/4 +	nil
Stardust, 37"	10/5 +	2/4
Free Flight Power		
Frog 45	25/9 +	5/9
Strato D, 42"	14/4 +	3/2
Janus, 44"	14/4 +	3/2
Zephyr, 33"	10/3 +	2/3
Vixen, 36"	12/4 +	2/8
Powavan, 47"	21/0 +	4/6
Fox, 40"	17/0 +	4/0
Firefly, 36"	10/5 +	4/1
Cirrus, 48"	21/0 +	4/6
Control Line Power		
Vanfire	24/2 +	5/4
Vantage	17/2 +	3/10

BOOKS

ABC of Aeromodelling 8/-

SKYLEADA KITS

Gliders		
Midge	1/3 +	2d.
Wizard	3/0 +	8d.
Three Footer	5/0 +	1/0
Flying Scale		
Junior Series	2/0 +	5d.
16-inch Series	2/3 +	6d.
Auster, 26"	3/0 +	8d.
Grasshopper	3/0 +	8d.
Tiger Moth	3/0 +	8d.
Control Line Power		
Auster	7/6 +	1/6
Curtis Hawk	15/6 +	3/6
Thunderbird	14/0 +	3/6
Flying Wing	14/0 +	3/6
Hornet	8/6 +	1/11
Free Flight 5	8/0 +	1/6

ENGINES

		P.T.
Diesel		
Allbon Dart .5	52/1 +	13/1
E.D. Baby .46 c.c.	45/0 +	10/0
Elfin .5 c.c.	54/0 +	13/6
Frog .5 c.c.	40/6 +	9/0
Mills 0-75 c.c.	50/0 +	10/9
Mills 0-75 c.c., with cut-out	55/0 +	11/9
E.D. Bee I c.c.	47/6 +	10/0
Mills 1·3 c.c.	75/0 +	16/1
Elfin 1·49 c.c.	47/6 +	11/10
Javelin 1·49 c.c.	85/0 +	13/9
Frog 150 1·5 c.c.	50/6 +	9/0
E.D. Mk. II 2 c.c.	55/0 +	7/6
E.D. Comp. 2 c.c.	57/6 +	7/6
Elfin 2·49 c.c.	57/0 +	14/0
E.D. 2·46 c.c. Racer	72/6 +	10/0
E.D. Mk. IV 3·46 c.c.	72/6 +	10/0
D.C. 350 3·5 c.c.	53/4 +	13/4
Glo Plug		
Frog 500	64/6 +	14/3
Frog 500 Spark	69/9 +	15/3

All above engines in stock and available for immediate delivery.

Fuel Cut-off Valve ... 3/6 + 10d.

Jetex		
Jetex 50 motor	7/6 +	1/8
Jetex 50 Outfit	10/11 +	2/5
Jetex 100 Outfit	22/5 +	5/0
Jetmaster	24/0 +	5/4
Jetex 200 Outfit	31/8 +	7/1
Jetex 350 Outfit	43/2 +	9/7
Augmenter Tube	3/8 +	1/1

Fuels and Spares in stock.

Kits for Jetex		
Fouga Cyclone	5/8 +	1/1
Sea Hawk	5/6 +	1/2
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Vampire 100	8/8 +	1/11
Flying Wing	5/6 +	1/3
Meteor 50	7/6 +	1/8
Jeticopter 50	5/0 +	1/1
Jeticopter 100	8/8 +	1/11
Attacker	5/6 +	1/2
Sabre	5/6 +	1/2
K.K. Sabre	3/0 +	8d.
K.K. M.I.G. 15	3/0 +	8d.
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Saunders Roe	8/8 +	1/11

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E.D., E.C.C., Flight Control.

Hivac XFGI Valve ... 17/6 + 3/10

Balsa, Obechi, Spruce Sheet and **Strip** at advertised prices.

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Dopes and Cement Callon, Titanine, S.I.A., O'My, Britfix, all sizes.

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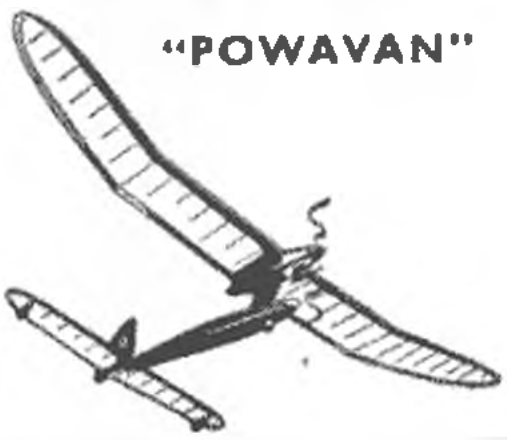
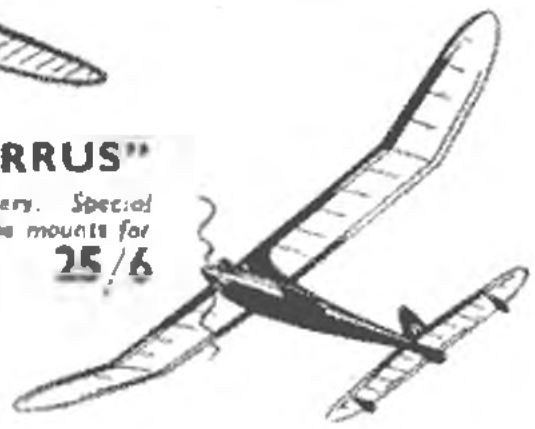
FROG models have a world-wide reputation for being both simple-to-build and a pleasure to fly . . . but beyond this they are essentially models which have a performance to CONTEST WINNING standards. Think of this when you buy a kit—only a FROG is fully prefabricated AND a potential winner!

NEWS FLASH! Winner of recent U.S.A. model design contest was adaptation of FROG "Powavan" layout . . . FROG leads again!!



"POWAVAN"

The finest thing in power duration jobs. Another "VAN" design for the FROG "100" or "150" motors and with a fantastic rate of climb. Rough weather stability is unequalled **25/6**



"CIRRUS"

A first-class design by C. T. Buffery. Special features include alternative engine mounts for "150" or "250", a mono wheel retracting undercarriage and a really hot flying performance **25/6**

"JANUS"

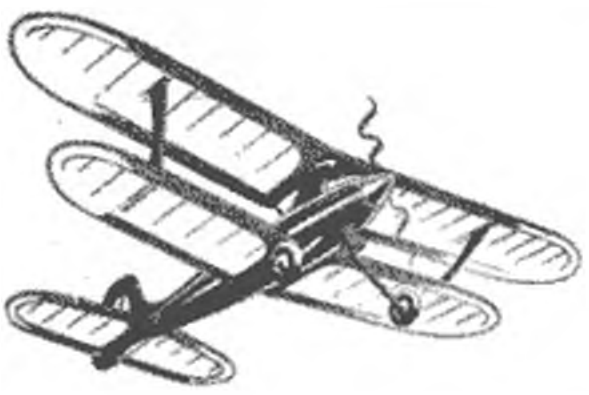
A high performance, shoulder-wing duration model. With FROG "100" or "150" has terrific climb. Span 44 in. **17/6**

"FOX"

A neat pylon streamliner for the FROG "150". Of 40 in. span, the "FOX" is specially suitable for newcomers to power contest flying. **21/—**

"VANFIRE"

J. R. Vanderbeek's latest "VAN" stunt model—40 in. span, semi-scale fighter type. "500" powered for 80 m.p.h. flying. The "Vanfire" kit is absolutely complete with all accessories **29/6**



"FIREFLY"

An attractive all-weather "sports" biplane. Flies well with a 1 to 1.5 c.c. motor. Features crash proof wing assembly. Span 36 in. **22/6**

"DART" Mk. II

A new, swept-wing hand or catapult launched glider with a wonderful performance. Span 15 ins. **2/11**

"WASP" 1/11

Another swept-wing glider. May be built in an hour! Span 12 in.

"VANTAGE"

Class B Team Racer—designed by "Van" for the Frog "500". Up to 80 m.p.h. with standard motor, prop and fuel! Prefabricated kit with all accessories **21/—**

Manufactured in Great Britain by

International Model Aircraft, Ltd.

Merton, London, S.W.19

ESTABLISHED 1935

AERO MODELLER

INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

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Contents

Editorial and Advertisement Offices:
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To Pay—or not to Pay!

PRIOR to 1950, the Wakefield Trophy was the only International event in which this country took any interest, for the King Peter Cup of pre-war days remains in cold storage, and other events arranged from time to time never really caught on in a full International interest. 1950 saw the introduction of the Swedish Cup for International class Gliders, and 1951 introduced the first real Championship event for powered models, though even then no British Team competed owing to a clash of dates. The Control-Line Championships, so far always held in Belgium, commenced in 1950, and are now established as a first class meeting on all counts.

In 1949, when the S.M.A.E. organised the Wakefield Contest at Cranfield, competing teams were the guests of the host country, and the only finance to be found was that for transporting teams to and from the venue. Today, however, a very different condition obtains and it is this situation that gives us—and many others—cause for serious thought.

Following Arnne Ellila's win in 1949, the Finnish organisers of the 1950 Wakefield announced that they would be compelled to make a nominal charge for accommodation to both teams and visitors, and knowing something of the low financial state of the country, repaying as they are enormous sums in reparation to Russia, this was duly accepted as a reasonable request. No charge was made in Sweden for the 1950 A/2 Contest, and our Belgian friends have always played the part of hosts since the institution of the Control-Line Championships.

1952, however, has seen a trend towards making visiting competitors pay for accommodation charges, *plus* a contribution towards organising costs, and it is on this score that we view the current trend with some dismay and trepidation. Again the Belgians entertained (at no charge) competitors at Melsbroek, and we understand that a very nominal charge will be levied at Zurich for the Power Championships.

At Norkopping, however, whilst hotel accommodation had been reserved on behalf of competing teams, such bookings were rather haphazard, resulting in competitors having little or no contact with each other, and what is more serious from the financial viewpoint—prices ranged from the reasonable to the frankly expensive, and team budgeting went by the board in consequence. The more serious aspect however was the fact that special charges were made for the provision of proxy fliers, thus adding to the strain on very thin purses.

We now learn that, very late in the negotiations, the Austrian organisers of the 1952 A/2 Glider Contest saw fit to impose an extortionate "entry fee" amounting to approximately £7 per head, thus adding an amount of £35 to the S.M.A.E. budget in one fell swoop. If these charges had been known in the first place, it is more than likely that second thoughts would have withdrawn participation, for it is hard enough to find adequate sums of money to transport full teams abroad, without having the budget completely upset by such last minute additional expenses. (We note that the Dutch entries were withdrawn in protest at this extortionate charge.)

Whilst appreciating the fact that International Contests are costly to promote, we do feel that it is high time the F.A.I., the S.M.A.E. and other responsible bodies investigated this serious situation before matters get thoroughly out of hand, and International Championship events fail through lack of support.

Cover Picture . . . .

At the British Nationals, held at H.M.S. Sisikin, Gosport, D. Murcell prepares his entry for the S.M.A.E. Radio Control Trophy, assisted by Mr. Rabbitt, both of North Kent Club. Watching attentively are the Royal Navy, in the person of Walkie-Talkie controller, Naval Airman Hoarick, and judge "Max" Coote.

1952 S.M.A.E. Annual Dinner

Those who were lucky enough to obtain tickets for the 1952 Dinner all voted the affair one of the most successful social functions the Society has held to date. This year's event takes place again at the "Horseshoe Hotel," Tottenham Court Road, London, the date being the 22nd November, and the demand for tickets is expected to exceed all previous requests. A certain number of tickets are being made available to Trophy winners at cost price, but it is essential that applications be made at an early date to avoid disappointment. Numbers are limited to 150, and it is assumed that many provincial enthusiasts will take this annual opportunity of "killing two birds with one stone", as of course the Annual General Meeting takes place on the following day. Tickets are priced at 21/- each, and are available from the Hon. Secretary S.M.A.E., Londonderry House, Park Lane, London, W.1.

World Championships for A/2 Gliders

As we close for press our Assistant Editor returns from the British Zone of Austria with the full story of this year's battle for the "Swedish Glider Cup" held at Thalerhof Aerodrome just a few kilometres from the picturesque town of Graz.

The contest was won by Bora Gunic of Yugoslavia, flying a superbly constructed model of orthodox design, with considerable skill into a well deserved first place. Second and third places were taken by the Germans, Max Hacklinger and Gustav Samann, followed by Borge Hansen of Denmark and Josef Stelzmuller of Austria. Highest Britisher on the list was Max Byrd in eleventh place, followed by Bill Farrance, nineteenth.

The answer to those who may enquire as to why the British Team did not excel is simply that they did their best, but that their best was just not good enough. Models capable of winning in the British Trials, held this year amongst a veritable crop of thermals, are *not* the models to win under conditions such as were encountered at Graz.

The contest was held very early in the mornings over a two-day period, the latest time of finishing being 7 a.m., *i.e.*, the end of the second round on the first day; rounds one and three finishing at 6 a.m.! The organisers as near as possible achieved their intention of flying under non-thermal conditions, and there is no shadow of doubt that the best models placed by sheer flying ability, plus the skill of their operators.

A fully illustrated report, with plans of the winning model, will appear in our November issue.

Aeromodellers Aldermanhandled

Everything was well organised for the annual control-line championships of the Australian New South Wales M.A.A. Permission was obtained for the use of Balmoral Oval at Sydney from the Commanding Officer of the Balmoral Naval Depot. A collection in aid of charities for the Mosman Spastic Centre was expected to yield about £40 from the expected 4,000 spectators, and competitors began to pour in from hundreds of miles around.

By 10.30 a.m. on the great day, August 10th, over a hundred competitors had arrived, and the stands were beginning to fill with about 1,000 onlookers, when into the Oval came a Police Sergeant and Constable. "Stop it", was the order, and stop it had to be, for a quick 'phone call to the Mayor of Mosman brought forth this reply, "*Many people complained about the noise. My telephone started to ring about nine o'clock and kept ringing until the planes stopped. I asked the police to go to the Oval and stop the flying. People are entitled to peace and quiet on Sundays*"

So competitors and spectators alike had to return homewards, many for distances that we in England would consider a long way to travel for a holiday, let alone a day's model meeting.

And the outcome of this? The Sydney Press has published letters for and against the Mayoral action, the *Daily Telegraph* ran a large feature article clearly in support of aeromodelling, and most pertinent of all, the front page columnist of the *Sydney Daily Mirror* who is a widely read writer under the pen name of Sydney Mann, said:—

"*If anyone has a real reason why kids shouldn't be encouraged to fly model aeroplanes, please write and tell me—and you needn't put a stamp on the letter.*

These youngsters, whom we'll be expecting to climb into the real thing one day to defend our cities, have been hounded out of the Domain and Rushcutter's Bay, are grudgingly given a tiny space at Centennial Park, and have now been aldermanhandled out of Balmoral Park.

There was once a feller named Lawrence Hargreaves who used to fool around with them flying machines, but the aldermen were slower off the mark then."

And the secretary of the M.A.A. of New South Wales tells us that although disappointed at the cancellation of this flying day, the publicity it has aroused will more than compensate, and a record turn-out can be expected at the meeting when it takes place on another site on September 14th.

"Those were the days"

News that the last of the Fairey Aviation buildings are at last to disappear from the vast London Airport will bring back nostalgic memories to many aeromodellers who cut their "balsa teeth" on this famous site on the Great West Road. Pre-war meetings held at this famous spot included all the more important S.M.A.E. fixtures, both National and International, and we remember in particular the Wakefield Contests of 1933, 1935 and 1937, when Fillon of France first broke the long series of Great Britain/American successes in this premier International event. The 1939 contest for the King Peter Cup —the first real glider event ever held in Britain—was also a hallmark of the type of meeting so typical of Faireys.

Sir Richard Fairey was always ready to stimulate aeromodelling activity, and the regular use of the Great West Aerodrome did much for the hobby in its earlier days, producing as it did so many meetings distinguished by their spirit of jolly-goodfellowship.

From the U.S.S.R. to U.S.A.

Heartiest congratulations to Dr. Walter Good, that pioneer of radio-controlled model flying, who on June 15th, 1952, at Andrews Field, Maryland, set up a new International class record for duration with his well-known "Rudderbug" design. Walt's time of 40 minutes 27·8 seconds handsomely beats the former figure of 23 : 07 set by Russians Aizenchtiene and Bachkine in August, 1951.

Powered with a Forster 29, the ship weighed 5 lbs. 14 ozs. fully loaded and fuelled, using ½ pint of fuel. Two extra tanks were strapped on over the windshield, feeding the regular tank by gravity. Receiver was a new 3-valve A.F. tone job that Good has been working on for some time, and uses tubes of the miniature 7-pin base type. It is not selective—that is, it will respond to a wide range of audio frequencies. Rudder was operated by the normal Good Brothers 4-arm escapement, and a motor cut-out was available, but not used on the record flight. Motor run was approximately 26½ minutes, rest of the flight being glide. Walt could have kept the ship airborne much longer, but finally brought it down as he began to worry about the number of turns left in the escapement rubber.

A motor operated "beep box" was used, and Walt says he only missed one "beep" during the whole flight. On the way down he made a pass at a large buzzard that was cruising slowly over the field, but the beast played unfair and flapped his wings to get away! The day was very hot with little wind, and Walt had to spin the model frequently to keep it within sight.

Take-off run was around 200 feet, and the plane touched down only a hundred feet or so from the take-off spot, well within the stipulated 500 metres required under F.A.I. regulations. In our opinion, Walt Good richly deserves this International recognition, for he has been a tower of strength in the fostering of radio-control work.

G.B. on top again

Success crowned the efforts of the British team sent to Namur, Belgium, to compete in a friendly challenge contest with members of the Federation de la Petite Aviation Belge. Alan Hewitt of South Birmingham followed up his "Gold Trophy" success with a clear win in the stunt event, Brian Harper of Outlaws placing second.

Peter Wright of St. Albans comfortably headed off all opposition in both Class I and Class II speed, his remarkable speed of 165·136 km./hr. being well ahead of the old figure of 156·724 km./hr. established by Husicka of Czechoslovakia last May, and will thus be claimed as an International Record. "Gadget" Gibbs was apparently the only competitor in the Class III event, and clocked 240 km./hr. The only event to go to the hosts was a team race, of which apparently our lads had not been told, and thus did not compete!

Class I Speed		
P. Wright	Great Britain	165·136 km./hr.
M. Cordier	Belgium	116·883 "
Class II Speed		
P. Wright	Great Britain	190·395 "
M. Janssens	Belgium	190·496 "
M. Cordier	Belgium	150·427 "
Class III Speed		
G. Gibbs	Great Britain	240 "
Stunt		
A. J. Hewitt	Great Britain	551 pts.
B. Harper	Great Britain	516 "
M. Janssens	Belgium	505 "
M. Defrerer	Belgium	420 "

New service to readers & advertisers

On page 628 of this issue will be found our new "Get It Here" feature which displays for the benefit of readers those enterprising model shops who (in addition to the service they give to local modellers) are prepared to extend this service to all AEROMODELLER readers. In every case readers can be assured that these are genuine model shops, in many instances run by aeromodellers and not merely a local shop with a modelling department. It is, after all, not just the stocking of all those items essential to a modeller's requirements that makes a model shop, but the personal service and knowledge of aeromodelling problems that the aeromodeller has come to expect from the practical enthusiast model shop proprietor.

From the trade point of view we are happy to provide a means by which all model shops, large and small, appear in an easy-to-find reference list at modest cost. In addition, it is a worthy point that those modellers temporarily away from their normal domain can ascertain quickly the address of the local model shop in the district they are visiting.

A 22" SPAN CLASS 'A' TEAM RACER.

BLACK CHIFFON

DESIGNED BY

C.M. MILFORD

4/6

THE AEROMODELLER PLANS SERVICE
38 CLARENDON RD. WATFORD. HERTS.

ALL WOODS ARE BALSA UNLESS OTHERWISE STATED.

MATERIALS REQUIRED

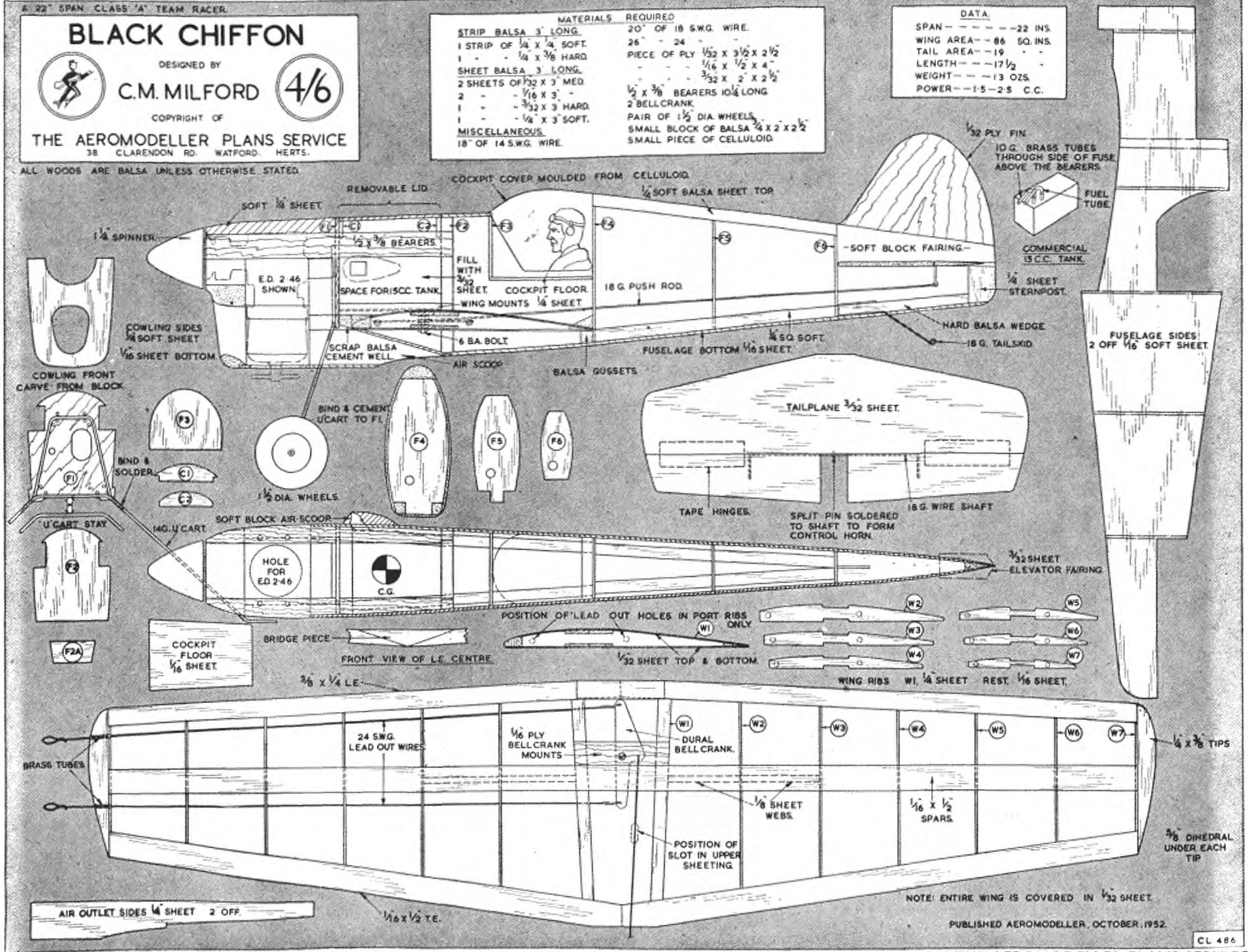
STRIP BALSA 3" LONG.
1 STRIP OF 1/4" X 1/4" SOFT.
1 - - 1/4" X 3/8" HARD.

SHEET BALSA 3" LONG.
2 SHEETS OF 1/32" X 3" MED.
2 - - 1/16" X 3" -
1 - - 3/32" X 3" HARD.
1 - - 1/4" X 3" SOFT.

MISCELLANEOUS.
18" OF 14 S.W.G. WIRE.
20" OF 18 S.W.G. WIRE.
26" - 24 - -
PIECE OF PLY 1/32" X 3 1/2" X 2 1/2"
- - - 1/16" X 1/2" X 4"
- - - 3/32" X 2" X 2 1/2"
1/2" X 3/8" BEARERS 10 1/4" LONG.
2 BELLCRANK.
PAIR OF 1 1/2" DIA. WHEELS.
SMALL BLOCK OF BALSA 3/4" X 2" X 2 1/2"
SMALL PIECE OF CELLULOID.

DATA.

SPAN - - - - - - 22 INS.
WING AREA - - 86 SQ. INS.
TAIL AREA - - 19 - -
LENGTH - - - 17 1/2 -
WEIGHT - - - 13 OZS.
POWER - - 1·5 - 2·5 C.C.



PUBLISHED AEROMODELLER, OCTOBER, 1952.

CL 486

THIS IS A 1/3 SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 4/6 POST FREE FROM THE AEROMODELLER PLANS SERVICE

BLACK CHIFFON

CLASS "A" TEAM RACER FOR 2·5 c.c.

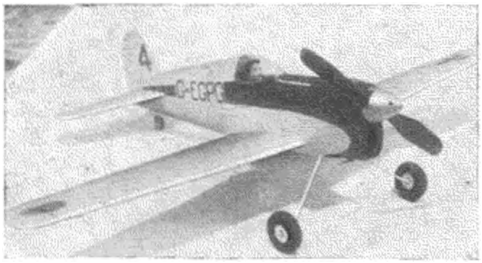
BY

C. M. MILFORD

Aged 25 . . . Member St. Albans Club . . . Mechanical Engineer at De Havilland Engine Company . . . Married . . . keen on scale free-flight, small power duration models for ·5 c.c. . . . also interested in sailing and motor-cycling.

NOW that Class A team racing has thoroughly established itself as an even more popular item than Class B, we can easily deduct from performance of winning machines, that the 2·5 c.c. diesel is best, and that it is more usual for an inverted engine to receive the chequered flag first. Black Chiffon, named for the attire of its curvaceous occupant, comes within the specification for a winning Class A model, and since it has been developed through a series of five machines, one may well undertake construction with every confidence.

Construction. Start with the wing by cutting out the lower surface template from butt-joined 1/32 in. Pin over plan, cement lower spar, ribs and T.E. in that sequence, chamfer L.E. and cement on. Score at centre line and prop up starboard side to 1½ in. dihedral. Make up bellcrank with push rod and lead-outs, assemble between ply mounts and add root ribs against these, with lead-outs through ribs, and all movement checked free. Add L.E. bridge piece, top spar, and upper surface of port wing. Un-pin and add top of starboard side and the centre section top, allowing a roomy slot for push rod. After adding tips, sand whole to correct section.



Lash finished u/c to bulkhead, cement to bearers, also F.2. Add wing mounts, fill sides with 3/32 in., shape top block above bearers and steam sheet for tank department lid. Assemble F.4, 5 and 6, on to ½ in. squares, mark former positions inside the sides, pre-cement with Britfix, steam sides, join together at tail with wedge piece and cement over formers. Add backbone, sand to shape. Tail parts are as normal.

Now attach front fuselage to wing, adding scraps to fill, add rear fuselage, threading push rod through and making sure of a good junction with both wing and front fuse; then add tail parts and soft balsa fairings. Build the air outlet under wing, add bottom skin, cockpit floor, pilot and canopy.

Fit engine in place, fit ½ in. sides and front cowl block, add steamed 1/16 in. bottom, and shape before cutting away level with rear of engine. Clean up inside and fuel proof, fit tank and intake block, tissue cover over all. For radial engines, the cowl is best cemented in place, otherwise elastic bands can be used to hold the lower cowl, and a tight fit retains the tank lid.

The prototype was tastefully decorated with black fuselage and flesh pink surfaces—with some very tasty lace work around the wing roots, such as befits the choice name, we leave you to your own ideas for colouring of your model.

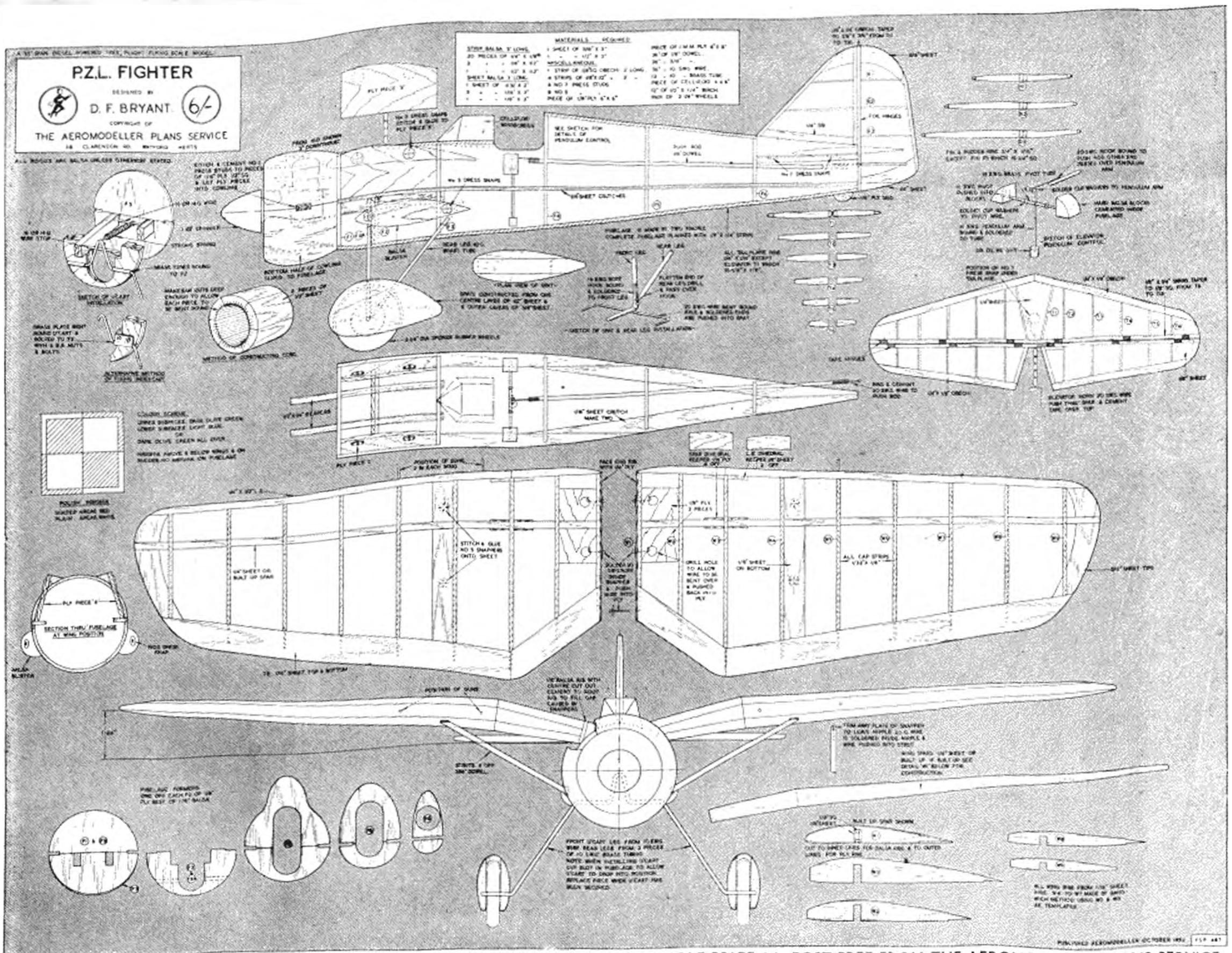
Lazy Lizzie, at left was a slightly larger and much earlier version of Black Chiffon. Note fin numbers, Chiffon in heading is No. 8, plan is of No. 9.

P.Z.L. FIGHTER

DESIGNED BY

D. F. BRYANT

6/-



A ONE-TWELFTH SCALE FOR 1·5 c.c. ENGINES

P.Z.L. P-24 FIGHTER

BY

D. F. BRYANT

Aged 21 . . . member South London (Scale) M.F.C. . . . model shopkeeper . . . has a 100% interest in free-flight scale for aeromodelling; but also studies tropical fish . . . his latest model, a Hawker Demon, was featured on our cover last month.

THE little 35 ft. span Polish fighter produced by the Panstwowe Zaklady Lotnieze, the Polish National Aircraft Establishment of pre-war days, was chosen as a subject for free-flight after Mr. Bryant saw the Comper Swift by D. P. Golding in the February issue. Plans were scaled up from *Aircraft of the Fighting Powers* with all surfaces to correct scale. Subsequent flight tests found the diminutive tail inadequate, so slight deviation from scale is necessary in tail area. Since March, the prototype has made almost 100 successful flights, and apart from one unfortunate mid-air collision with a sailplane at 50 ft. over the runway at Fairlop, all flights have been made without undue event.

The P.24 (full-size) was armed with four 7·7 mm. guns in the wings and fitted with racks for light bombs. Alternatively, two of the guns could be replaced with a pair of 20 mm. cannon. Its top speed of 267 m.p.h. and range of 435 miles hardly compare with performance of the modern interceptor; but as an attractive subject for modelling, it has few rivals among the post war breed.

Fitted with a Frog 150 diesel, and with press stud attached silk covered wings, and tail unit, the prototype has already influenced some of designer Bryant's South London Scale clubmates to produce duplicate models. High wing and power loading mean that its flying speed is relatively fast, yet certainly not in the flying brick class. Rather, the extra airspeed adds considerably to its realism in flight.

Full building instructions are issued free, with each full size copy of the 1/5th scale plan opposite, from the Aeromodeller Plans Service.

Below, at left, is another P.Z.L. P-24, built by fellow clubster, F. Savage, and fitted with a smaller engine. The long undercarriage of the full-size aircraft is a handy feature, as is also the generous dihedral with its attractive gull-wing form. At right, another view of the designer's original, with slightly enlarged tail area the only departure from scale. Colouring is dark olive green above, with light blue undersides, black cowling and yellow spinner.

CALAMITY JANE

DESIGNED BY

P. WEAVER

4/6

"DATA"

WING SPAN — — — — — — 90"

WING AREA — — — — 510 SQ INS

TAIL AREA — — — — — 85 SQ INS

LENGTH — — — — — — 56 1/2"

WEIGHT — — — — — — 28 OZS.

POWER — — 8.5 TO 9 C.C. MOTORS.

ALL WOOD ARE BALSA UNLESS OTHERWISE STATED

FROG 500 SHOWN

POSITION OF TANK

FUSELAGE TOP FROM SOFT BLOCK HOLLOW OUT TO 3/16" THICKNESS

NUT & BOLT FOR FIXING HATCH

1/8" DOWEL TO LOCATE HATCH

CELLULOID COWL COVER

2" SPINNER

14 SWG PUSH ROD

1/32" PLY

SCRAP BLOCK

NOSE SHOULDERS 1/8" SHEET

1/8" SHEET SIDES

SCRAP 1/8" SHEET

CUT OUT SLOT TO SLIDE FLAP THROUGH SURFACE WHEN WING IS IN POSITION

1/32" SHEET BOTTOM

1/4 PLY

18 SWG WIRE BAND & CEMENT TO FU.

7/16" TAILWHEEL

3/8" SQ ENGINE BEARERS

3/16" X 1/16" HARD

ALL WING RIBS OF 1/16" SHEET

POSITION OF LEAD OUT HOLES IN PORT SIDE ONLY

3/16" SHEET FIN

3/16" SHEET FAIRING

OFFSET 1/8"-3/8" TO RIGHT

REPLACE THIS PIECE AFTER FITTING TAIL

10 SWG FUEL FEED TUBE

FILLER & VENT 14 SWG TUBES

"DETAIL OF FUEL TANK"

ADD 1 OZ OF LEAD TO THIS WING TIP

WING IS BUILT IN ONE PIECE BEFORE BUILDING CUT OUT OR TRACE DRAWING OF STAB'D WING TIP & JOIN TO MAIN WING DRAWING ON LINE "A-A"

MAKE TE FD & FS FROM 1/8" PLY
T.E. & FS FROM 1/16" BALSA

1/2" X 1/8" SHEET PINE

TAILPLANE & ELEVATOR FROM 1/2" SHEET

4 G ELEVATOR HORN

TAPE HINGES

14 SWG CONNECTING ROD

1/4" SQ. L.E.

1/16" BALSA WEBS

18 SWG TUBE

FRONT SPARS 3/16 X 1/4"

20 SWG LEAD OUT WIRES

REAR SPARS 3/16 X 3/16

ALL CAP STRIPS 1/16" X 1/8"

1/16" SHEET WEBS GRAIN HORIZONTAL

T.E. 1/16" SHEET TOP & BOTTOM

1/16" SHEET TIPS

1/16" SHEET

PIECE OF 3/32" PLY 2 3/8" X 4"

HOLE IN WING SHEETING

16 G DURAL BELLCRANK

WING SHEETING 1/16" BALSA

HOLE FOR PUSH ROD

SOLDER WASHER TO RETAIN ROD

FLAP HORN

14 SWG FLAP CONNECTING ROD

NOTE STAB'D WING IS SHORTER THAN PORT WING DOTTED LINE INDICATES SHAPE OF STAB'D FLAP

3/16" SHEET FLAPS

TAPE HINGES

PUBLISHED AEROMODELLER OCTOBER 1962

CL 486

Calamity Jane

A CHAMPION AUSTRALIAN STUNTER

FOR 3·5 TO 5 c.c. ENGINES

BY

PETER WEAVER

Aged 26 . . . A Pharmaceutical Chemist . . . member Newtown MAA, Queensland . . . married 1950 Queensland free-flight power Champ and NMAA stunt Champion . . . has no time for other hobbies . . . thanks Bob Palmer for construction methods used in this design.

THIS model is the end product of four years fairly successful stunt flying, and incorporates many features from various famous commercial designs, plus a number of original points, to make it the ultimate in control-line stunt. In this country, the obvious trend is towards smaller wing area, fast flying 2·5 c.c. model; but elsewhere, particularly in the U.S.A., Australia and South Africa, the large area model, as typified by Calamity Jane, is the current vogue.

Here is a model for any 5 c.c. motor, that will also go through the book with a 3·5. The original has alternated between D.C. 350 and Frog 500 to give top class results with either, and the designer would go so far as to speculate that an Elfin 2·49 might do the trick. With such a wide range of potential power units, " Jane " fills a gap that has long been evident in this country, and we venture to state that she will be very popular with our readers.

As for successes, variants of this design are universally flown by members of the Newtown M.A.A., the crack stunt club of Queensland, and by the Dalby M.A.C., one of whose members won the State Championships with such a model. Perhaps the construction is a little more involved than average; but if you decide to build it, you will be well rewarded for your trouble.

Construction. Start the fuselage by cutting two sides and adding nose doublers, notching for flap and horn to pass through. Bolt u/c to its bulkhead, and assemble sides on to it, and the other ply F.2. Bring rear ends together with a 3/16 in. spacer, then set aside. Make up full length wing spars and L.E. and cut all ribs from medium 1/16 in. Assemble them on to one main spar and pin over plan, with spar underneath, block up fore and aft, add other top spars, turn over and add L.E. and other spars. Trailing edge, tips, bellcrank platform and L.E. sheeting follow in sequence, then cut flaps, add horn, and hinge to wing, making certain that the horn is on top. Bend an accurate push rod, connect with lower flap horn hole and bellcrank to find best location of pivot hole on platform. Drill, and bolt bellcrank in place after lead out wires are attached. Remove push rod and add centre section sheeting, all cap strips, lead out guides and 1½ oz. tip ballast. Cut holes in centre sheeting, sand well, cover and dope, give at least two coats and check warps.

Elevators are from soft ¼ in. sheet, sanded symmetrical with centres cut out and ribs added. Horn is made up of 14 g. wire and brass, attached to elevators and the whole assembled with tape hinges. Now slide wing through fuselage and cement secure, replacing parts slotted for flap and horn access and flap push rod. Lay elevators in tail end, pin level, and also pin flaps neutral before bending elevator push rod. Fit rod, and slide elevators to obtain precise neutral, then cement securely. Slide engine bearers into place, Britfix is best for this joint, install tailwheel and cover bottom with 3/32 in. sheet. Lightly cement top blocks in place, carve to shape, remove and hollow out as much as your patience allows. Cut a slot for the sheet rudder (with off-set), and add blocks and rudder in one go. Front block is detachable, keyed by dowel, and held in place with cycle spoke or bolt. Fuel proof tank department, fit motor, add nose ring, F.1, and other cowling blocks, fit tank and canopy . . . and you are ready to dope and colour trim. As for flight tests, just be careful, feel your way into manœuvres and soon you will be thinking of challenging the Hewitt's. Lines should be around 60/65 ft. long.

(1) Scottish contingent, drove for 24 hours to reach Gosport. (2) E. London's "Gadget" Gibbs, here with the Checksfield powered Class VI model which recorded 149 m.p.h. at Namur.

(3) Power winner Tony Brooks holds for clubmate Jimmy John. Model is known as "Buzzbar". (4) Welsh visitors. Mrs. Holland and Frank Holland, join with Ireland's Dick Twomey at right to watch George Woolls launch his latest version of the "Witch".

1952 BRITISH

OUR STAFF REPORTS ON CONTESTS

HELD at H.M.S. "Siskin", Gosport, by kind permission of the Officer Commanding, Captain G. N. Hawkins, R.N., this was undoubtedly the most enjoyable Nationals of the past few years.

Credit for such a successful meeting is due to the "Nationals Committee", composed of officials and members of the Southern and South Eastern Areas S.M.A.E., backed by absolutely first class co-operation from the Navy. It is impossible to credit all those stalwarts responsible for success by name but we do mention in particular L/Commander C. R. Bateman, R.N. His unflagging energy and enthusiasm on ground organisation, including supply of "Walkie Talkie" sets, Naval personnel complete with mobile P.A. vans, recovery service, and other items too numerous to mention, set an exemplary standard. A first class camping site, equipped with water bowser, was also provided by the Senior Service, this facility being taken to full advantage by modellers from the length and breadth of the British Isles. In fact one might almost term this the most international "Nationals" we have ever held, with entries from England, Scotland, Northern Ireland, Wales, Eire, Canada, U.S.A. and South Africa.

Weather was to the usual Nationals standard, that is, a strong wind with gusts up to 30 m.p.h., sufficient to make things difficult for the competitors and a little easier for the organisers. Otherwise the elements were fairly kind, only one or two showers (no offence to visiting aeromods.) interrupting the sunshine.

Gosport aerodrome is an all grass drome shaped like a very broad "T", with the prevailing wind on this occasion blowing straight up the vertical leg. There was a most convenient tarmac area in the middle of the drome which proved an ideal spot for the control line events. Free flight contests were held at the extreme downwind edge of the vertical leg, with the main control point at the junction of the "T". The very shape of the drome made it ideal for the holding of simultaneous model contests, and the wind made up for its unusual strength by kindly blowing in from the sea. That is, in from the Lee-on-Solent side of the Gosport peninsular and out towards Portsmouth Harbour. Few models managed this journey, which was some 4½ miles, and those that did were speedily recovered by a most efficient nautical recovery service.

S.M.A.E. Radio Control Trophy

With a total of 32 entries, out of which some 50% actually flew, the radio event can be said to have been reasonably well supported.

Max Coote, assisted by Partner "Rip" and not forgetting a "Walkie Talkie" link up, did a

NATIONALS

HELD ON AUGUST 3rd/4th AT GOSPORT

stalwart job of judging, and surprised quite a few competitors by sticking rigidly to the rules, particularly in relation to call-up time. Those who did not appear within the stipulated three minutes from their name being called, were promptly disqualified, as were those who did not complete their flight schedule in the required fifteen minutes. We applaud the judges for their strict adherence to the rules, for otherwise the event would still be running.

Radio reliability was good, in fact we did not see one entry lost through technical failure. On the other hand, one and all, with the exception of the winner, were blown downwind, to land or be spun down, as the case warranted, on the other side of the drome. Never have we seen such a lack of correct trim to suit prevailing weather conditions. Even such stalwarts as the respective Sids, Sutherland and Allen, who we have seen fly correctly trimmed in infinitely worse conditions, were as guilty as the rest. The winning machine, flown by C. G. Sallis of Cambridge, was no better, but gained its success by a judiciously short engine run which left the model so placed at the end of the first section of the flight that it was able to make a very close spot landing. Mr. Sallis then went on to score several points in the second part of the flight before blowing away down wind like the rest. Ted Hemsley, flying a model built in 1947, placed second by completing more of the flight pattern than most, although he again drifted too far down wind to qualify for spot landing points. Highlight of the radio flying was a perfect down wind loop by Alfie Hook, using a most efficient transmitter "beep-box", just after he had cut his motor to prevent the model being blown O.O.S. Unfortunately this was an unintentional manœuvre and gained no points.

Finally, a bouquet to the only entrant who was correctly trimmed for the wind, D. Murcell of North Kent. His model flew straight to the upwind pylon, executed a perfect turn, and then, alas, the motor cut prematurely, thus concluding what looked as though it would be a business-like flight.

Rubber and Glider

If that chap Johnny O'Donnell and the closely knit group of Whitefield fliers (who must be on their way to creating a record for contest hours this season), had not turned up, the results of the "Thurston" and "Model Aircraft" contests might well have been identical to last year. O'Donnell won *both* events, a magnificent achievement, and second to him in each case came the trophy holders, Johnny Lamble and Ron Warring respectively. Back from Norkopping, O'D flew his Wakefield in the Open Duration, and after a hectic chase managed to recover the job from the mudflats himself, though on the second flight the model was completely lost O.O.S.

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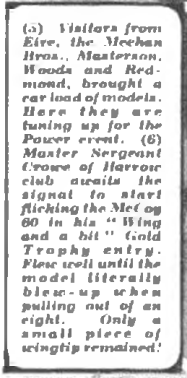

(5) *Visitors from Eire, the Meehan Bros., Masterson, Woods and Redmond, brought a car load of models. Here they are tuning up for the Power event.* (6) *Master Sergeant Crowe of Harrow club awaits the signal to start flicking the McCoy 60 in his "Wing and a bit" Gold Trophy entry. Flew well until the model literally blew-up when pulling out of an eight. Only a small piece of wingtip remained!*

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(7) *A. D. "Dekker" Bennett of Whitefield and his austere power entry which boasted the longest pair of engine bearers on the field. Model placed fourth, and is powered by Amco 3·5.* (8) *West Essex men, Sid Sutherland and Bill Tickner, tied for third place in Radio Control, each with 100 points. Bill is launching for Sid in this photo.*

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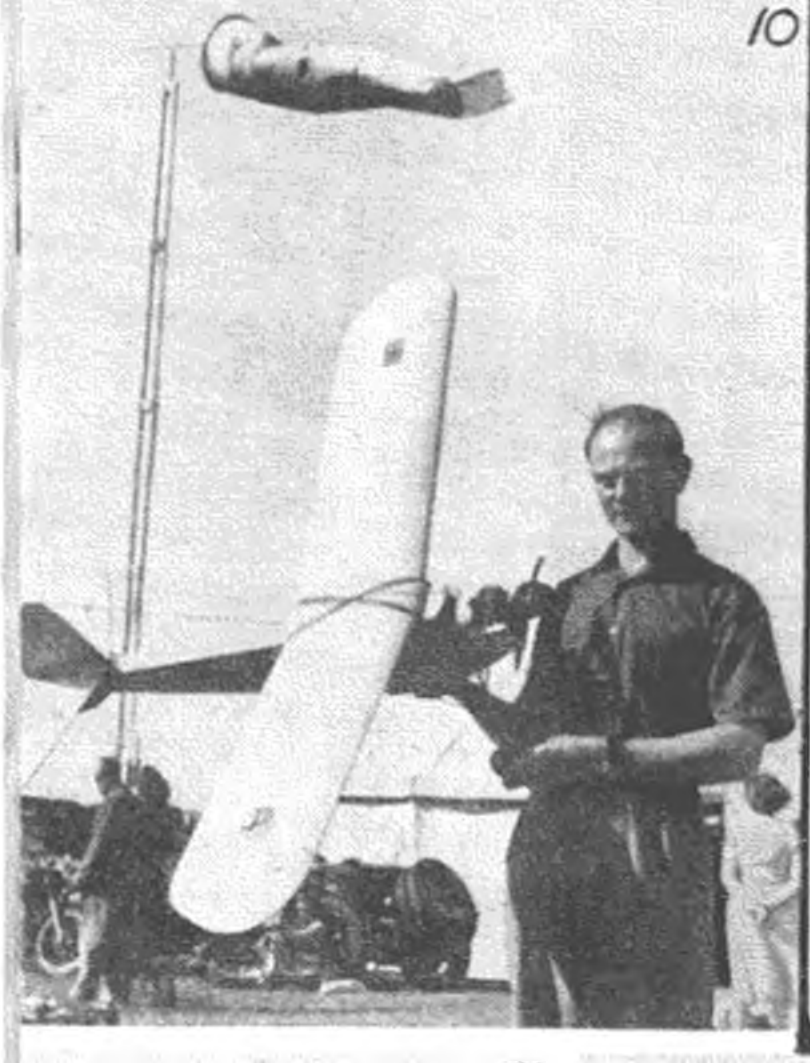

(9) Ed. Rogers of Weybridge heaves his "Sizzling Shadow" into the air with Hornet engine screaming. (10) Radio winner C. G. Sallis, old time modeller and founder member of Cambridge club with his Jr 60. E.C.C. 951 A receiver, E.D. transmitter were used (plus a diligent short run with the E.D. 2·46 engine). In (12), the closeness of his spot landing can be appreciated. (11) L/Commander Bateman instructs N/A Howick in use of the Walkie Talkie outfit, many of which played a great part in the super Naval recovery service.

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Ron Warring was perhaps the luckiest man on the field, for his job landed well out in the drink, was spotted by a passing boat, taken to a pier where a telephone message was made to notify control, and Brenton Neil, of W. Middlesex, (who emigrated to Edmonton, Canada, a few days later), retrieved thinking it was his model! So Ron, who had given up thought of recovery, had his job served up on a platter for a second flight, which was just not quite good enough to catch up with the winner.

The "Thurston" had a similar occurrence, when O'D managed to retrieve his nine-footer, and last year's winner, John Lamble, was equally set to compete with him and Jackson of Littleover for top honours. Best first flight came early in the day when Marsh of Sevenoaks had his "Nord II" catch a bump which ended into the blue for a maximum. Second flights of Lamble and O'D decided the final placing, with the maximum giving Marsh a one-flight third place.

Gold Trophy

Only one man came anywhere near to challenging Alan Hewitt and his "Ambassador" for possession of the most respected control-line stunt contest of the year, and had it not been for a fearful wind gust that all but took the handle out of capable Pete Smith's hand, the trophy might have gone to Chingford instead of to the Hewitt homestead for the fifth consecutive year. Smith was indeed unfortunate (it is the third time he has been second to a Hewitt), his flying being a great deal smoother, and certainly more impressive if less spectacular than the zip and dash of the winner's performance. But all credit to Alan; he was the only man to complete the schedule in a gale-force wind.

For the record, 23 entries were made, of whom 12 flew, six pranged, two failed to start, and only one went through the "book". On the other hand, we might also record the amazing finale to M/Sgt. Crowe's McCoy 60 "flying wing and a bit", which did not prang in the accepted manner, but contrived to blow-up into a hundred pieces whilst pulling out of an "eight". Only a short length of wingtip remained as evidence that there had been a model on the lines!

Outside the competition area, another noteworthy demonstration was given by Ken Muscutt, who found that he could fly "on the wings of the wind" and (with a dead motor) kept his model airborne in a series of bunts, loops and eights for over five minutes. He repeated the spectacle even without a prop and from a swift hand-launch!

Another noteworthy fact arises from the results, in that all the first six places were taken with British 2·5 c.c. diesels.

Team Racing

The most popular section of the aerodrome was undoubtedly the tarmac area roped off for the control-line events, marked out primarily for the privately organised and run Godalming club team

race meeting. Few people seemed to realise that in reality the well organised racing was not originally part of the Nationals, but the annual contest for the "Eastbourne Trophy" and "Godalming Team Race Trophy".

Bystanders around the control tent were treated to quite a number of interesting stand-up arguments as to which scraped in this rule or that, and we gather that not so very many kind words were said concerning an alteration to Class A line length. As a direct result of this strict administration, the racing was of a very high standard. Even when Referee Bourne abided by whistle blast and rule book to admonish excitable Harry Timms for leaving the centre spot too soon after a classic win, we heard more than a few "about time too's" to prove the point that this was racing as it should be.

Later, fully qualified team race pilot as he is, Mr. Bourne allowed a re-run of the heat in question, and we are happy to report that on this occasion the pilot behaved "to the book" and flew popular U.S.A.F. M/Sgt. Crowe's white model to first place.

To win the handsome full-size airscrew which was given by Godalming for Class B, Ken Muscutt and his team had to go like hares on a greyhound track to keep ahead of young Greenwood of Worthing and clubmate Bill Morley, the actual average speed being 64 m.p.h. for the 10 miles. One pit-stop in particular was stop-watched at 4 secs. from the crew reaching the model to take-off, and not one of the finalists could be said to have taken more than 10 seconds for the same duty!

Class A, for the Eastbourne handsome beer tankard Trophy, had a larger entry, and an equivalent extra number of prangs, most of which were due to the vicious wind and not to pilot error. As usual, we might say, that unbeatable team which was victorious all through last season, and has so far won all four of this year's major events, was first to complete the 200 lap final. All credit to owner/starter R. Edmonds, of High Wycombe and his pilot D. Langston, plus of course a very loose and easy starting E.D. 2·46 diesel.

Speed

"Too fast for owner", that traditional advertising catch-phrase for selling fast pieces of road-burning machinery, might also be applied to several of the very fast Class IV, V and VI speed jobs. Jim Hedges with the model which has exceeded 150 m.p.h. at Singapore, "Gadget" Gibbs and the beautifully made Checksfield B.R.E., and Davenport, just back from Melsbroek, all failed to find the unpopular pylon, cope with the wind *and* keep their models airborne at the same time. Nevertheless, all these types were circulating at speeds we have not witnessed before, and we trust that with the co-operation of more favourable elements, they will be able to get a timing on the next occasion.

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(13) J. O'Donnell, with winning Glider which placed sixth last year. He also won Rubber. (14) P. Wright and World Record claiming Class II winner which also won at Namur. (15) Bob Copland copes with wind: but had tough luck. (16) High Wycombe Class A T.R. captain collects the tankard from A. F. Houlberg: organisers West and Bourne look on.

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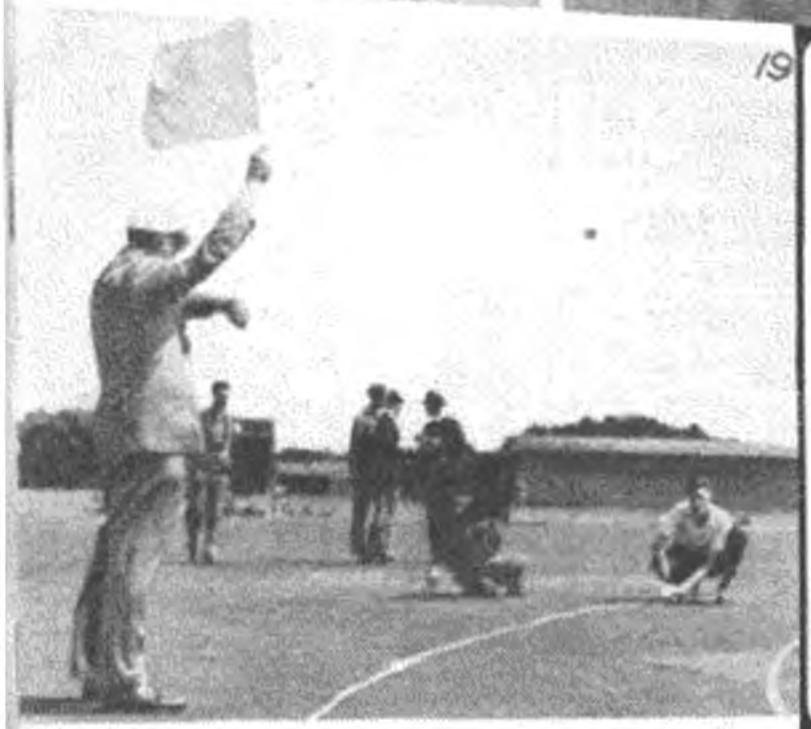

(17) Three T.R. lap scorers made specially by Mr. Bourne, seen about to flag off a start in (19). (18) Jackson of Littleover and A.P.S. Ursa. (20) King and Thomas of Thames Valley with Dady's glider. (21) D. Free with Class II entry. (22) Murcell's radio model chases spectators. (23) Gold winner, Alan Hewitt, prepares his Ambassador before judges.

Pete Wright, distressed by the disintegration of the disc valve in his record-holding Dooling 29 was also hard done by when timed for more laps than should be, in Class II. Just the same, 103·5 m.p.h. with his glowplug E.D. 2·46 is certainly going some, and is likely to be improved upon next time. As usual, the speed circle was not at all active until the closing hours, when Capt. Taylor started a whiz-bang " in you go—out you come " service that recorded more flights in one hour than had taken place in the previous twelve!

Power

When we published the photograph of Tony Brooks and his model in our August " Model News " we noted that this man from Grange Club, (the Boffin types from RAF Farnborough), was appearing with regularity in the result sheets. By winning the " Sir John Shelley Cup " with an easy lead on August Monday, he maintained a standard which has already made him first reserve for the British Power team, Gala Champion at Northern Heights, 2nd at the West Essex Gala, and 3rd, with a triple max., in the Hamley. This time he lost the model in the drink; but there is every hope of its return, if the Navy continues its magnificent service which operated so efficiently on the day.

Many of the power entries were content to forego the paid fee, and watch the rest have their go at launch and chase. Perhaps bitten by the loss of Rubber or Glider entries on Sunday, a number of our leading fliers kept their model boxes shut tight, and among them were three International Power team members present, who were wisely retaining their first-strings for the trip to Switzerland. Pete Buskell pulled out an old model, as did Laurie Barr, and this appeared to pay off, for they finished third and second respectively. Bill Dean, we noted, returning to competitive flying after a long lapse, was well in hand for second place, but eliminated himself with over-running the power timing, a slip that was all too common throughout the competition.

Around and about

Wandering around the aerodrome, odd snatches of conversation, rumours and scandal, grouses and rebuffs, plus a high number of very funny sights took our fancy, and among them were—" It's all your fault—you sharpened the needle valve after last night's test flight " (pilot to mechanic concerning a motor that would not lean out in the Gold) . . . " Look at that one daddy—it's flying backwards "—weren't they all in that wind? . . . " I'm gonna re-organise the S.M.A.E., they can't do this to ME " . . . To recover Den Allen's R.C. model from a mud bank, a boat rowed up with the tide as it came within reach . . . " Judging by this walkie-talkie business, we ought always to have the Nats at a Naval Air Station " . . . Who could it have been, we wonder, who reassembled a busted fuselage with the tail half upside down! . . . and don't dare ask what YASHANOOTBOT stands

for on Chas. Taylor's racer—it reflects on your character ! . . . " Where can I get a handbook ? " —(How many will now realise that pre-entry is essential to the Nationals, and only on the form obtained in the handbook) . . . . . " Someday Mr. Bourne will blow the pea right out of that team race controlling whistle ! " . . . " You stack that airplane and I'll sure stack you "—U.S.A.F. Crowe to his T.R. pilot ! . . . Note this, *all* speed models were hand started . . . Twinkle-toes Steward ran 150 ft. in 7 seconds flat for a pit stop. Should knock his weight down a bit ! . . . We saw a glider carry both towline *and* winch for the length of the field . . . we also saw loops assorted, intentional and unintentional, in *all* events, even in radio and team racing ! . . . " Oh yes, sir, all of those models disappearing backwards out of the field are radio controlled ! " . . . And once more, three cheers for the Royal Naval recovery service, the clubster volunteers on the gate, and the stalwarts who sat by the phone. Who remembered them at the end of the two days ?

RESULTS

THURSTON CUP

			aggregate
1.	J. O'Donnell	Whitefield	5 : 49
2.	J. Lumbie	Wayfarers	5 : 16
3.	E. Mason	Sevenoaks	5 : 00
4.	N. Neve	Brighton	4 : 26
5.	R. Law	West Middlesex	4 : 14
6.	P. Wyatt	R.A.F. Felixstowe	4 : 11

MODEL AIRCRAFT TROPHY

			aggregate
1.	J. O'Donnell	Whitefield	7 : 24
2.	R. Warring	Zombies	6 : 51
3.	M. Green	Men of Kent	5 : 30
4.	A. Bennett	Whitefield	4 : 34
5.	A. Meechan	Dublin Phoenix	
6.	P. Buskell	Surbiton	

GOLD TROPHY

			points
1.	A. Hewitt	South Birmingham	348
2.	P. Smith	Chingford	332
3.	A. Piscentini	Salisbury	241
4.	C. Plant	Stockton	205

EASTBOURNE TROPHY T/R(A)

			m.p.h.
1.	D. Edmonds	High Wycombe	10 miles at 43
2.	R. Tutte	Salisbury	
3.	N. Butcher	Croydon	

S.M.A.E. R/C TROPHY

			points
1.	C. Sallis	Cambridge	211
2.	O. Hemsley	Bushy Park	134
3.	S. Sutherland	West Essex	100
	W. Tickner	West Essex	100

GODALMING TROPHY T/R(B)

			m.p.h.
1.	K. Muscutt	West Essex	10 miles at 64
2.	R. Greenwood	Worthing	
3.	W. Morley	West Essex	

SIR JOHN SHELLEY CUP

			aggregate
1.	A. Brooks	Grange	8 : 44
2.	L. Barr	West Middlesex	7 : 47
3.	B. Wheeler	Birmingham	7 : 11
4.	A. Bennett	Whitefield	7 : 06
5.	W. Dallaway	Birmingham	6 : 43
6.	P. Buskell	Surbiton	5 : 40

			m.p.h.
SPEED I.	W. Dilly	Croydon	124 k.p.h. 79·6
SPEED II.	P. Wright	St. Albans	167 k.p.h. 103·5 (new record)
SPEED IV.	H. Timms	Harrow	176 k.p.h. 109·6

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(24) *Scotland's J. McMaster checks in at power control, while Naval Airman Peters directs recovery service.* (25) *Pete Smith, smoothest flier in the Gold with o/d model.* (26) *P. Cameron and Norm Butcher's ETA racer which is a regular finalist.* (27) *Butcher, Timms and Morley, each with 90 m.p.h. racers, dice it out.* (28) *Winning team, Taylor, Muscutt and Allen of W. Essex, with "Jack of Diamonds".* (29) *From Dublin, W. Redmond and Des. Woods, with the latter's A.P.S. Jaded Maid.* (30) *Hook Bros. in action at R/C event contest.*

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More on TORSION BAR Undercarriages

BY

F. BRIAN THOMAS

IN the AEROMODELLER of last February, I described a nose-wheel undercarriage utilising torsion-bar springing. I have used this nose-wheel in various forms for over a year, on heavy radio-controlled models, and have not yet succeeded in " bending " one of them, even after the heaviest of landings in rough ground.

For some months I have been experimenting with the torsion-bar principle as applied to the two-wheeled undercarriage, and have evolved an undercarriage which really solves all the problems. Even the heaviest landing fails to distort it.

It is equally suitable for small and large models. The photographs show the unit fitted to my ancient " Rudderbug ".

Fig. 1 shows the constructional details of the U.C., which is assembled on a plywood plate, firmly cemented to the under-surface of the longerons, or crutch.

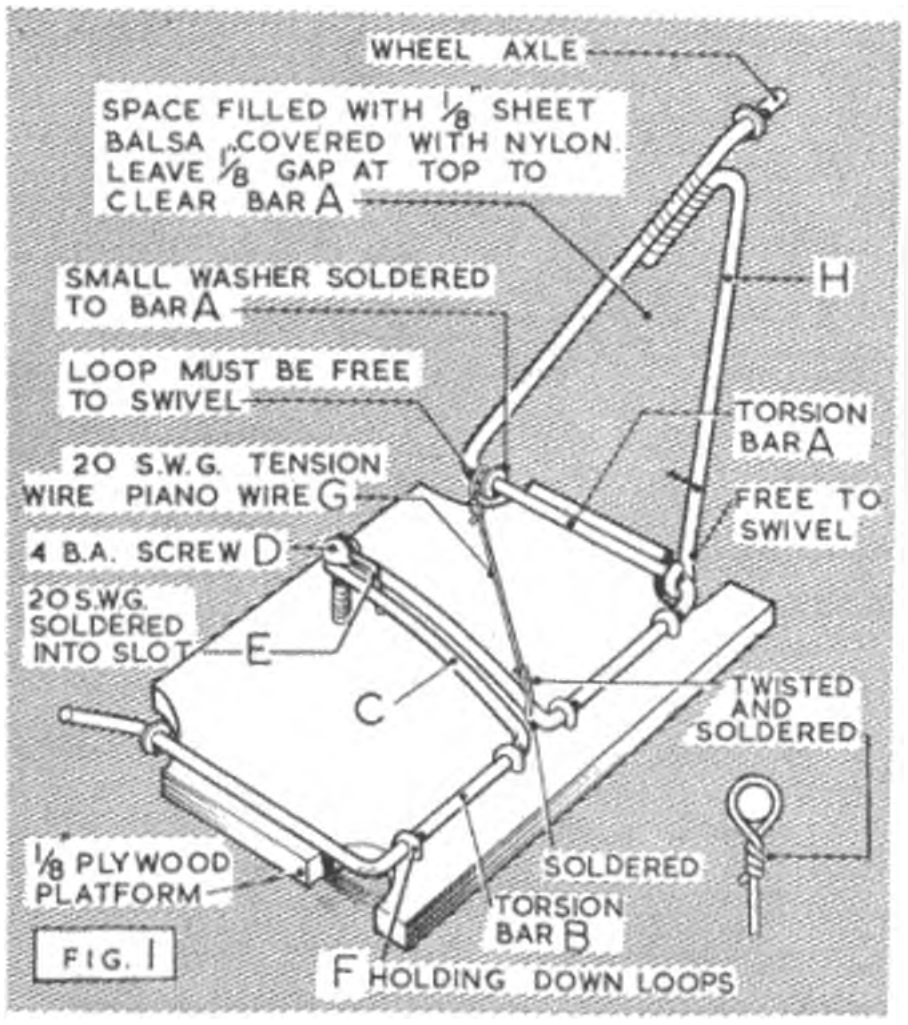


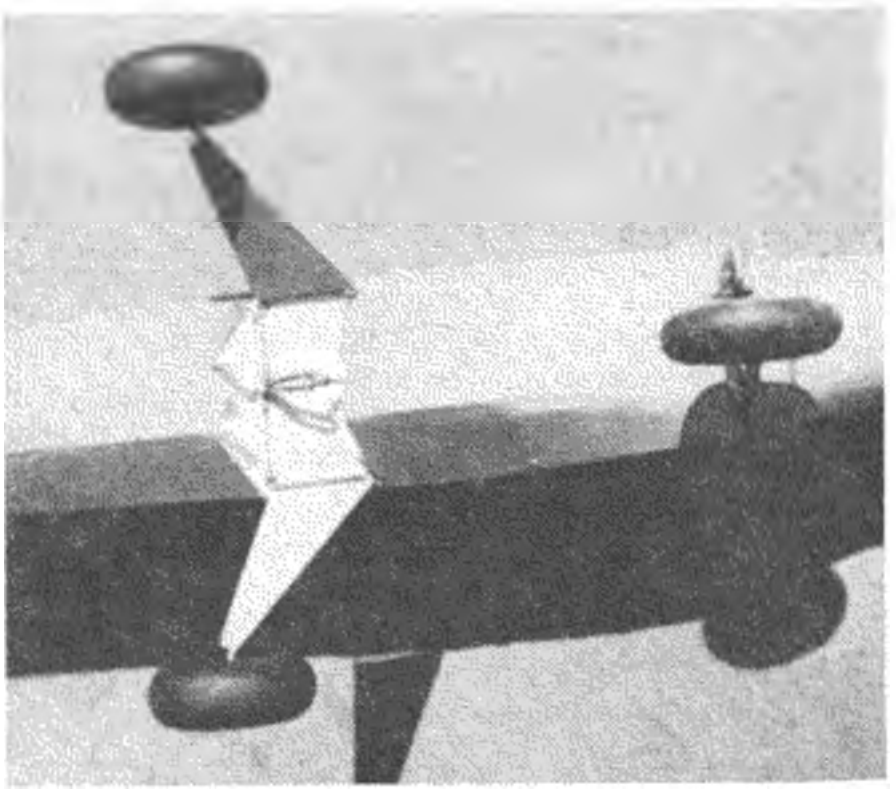
FIG. 1

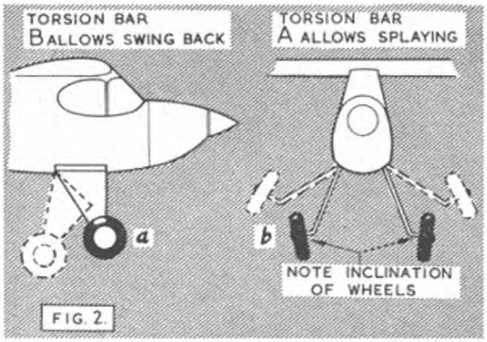
For a 4-6 lb. model, use ¼ in. wire for the main leg, which runs in one piece from axle to axle, as shown in the drawing. Both wheel axles must be inclined inwards as shown in Fig. 2 (b). When the model is completely assembled, the wheels should assume a vertical position under the weight of the aircraft. In flight, the wheels assume the position shown in Fig. 2 (b). This " splaying " action occurring in torsion bar " A ".

For a heavy landing, the whole undercarriage leg can swing back as shown in Fig. 2 (a). The swing-back is allowed by torsion bar " B ", which is pre-tensioned (or pre-torsioned) by tightening up milled-nut " I " on screw " D ".

As nut " I " is tightened, the screw " D " pulls " C " towards the plywood platform, thereby increasing the " pre-torsion " in torsion bar " B ". Tension wire " G " is firmly soldered to " C " as

View below, and heading, show installation on a Rudderbug.





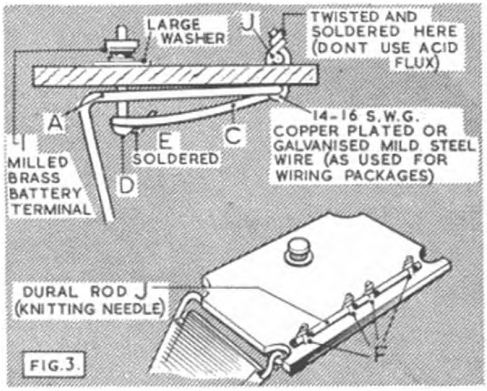
shown in Fig. 1. This wire is also twisted back on itself and soldered at each end. The subsidiary U.C. leg "H" is made of 16 s.w.g. spring-steel wire, formed into a loop where it encircles torsion bar "A", and must be free to swivel.

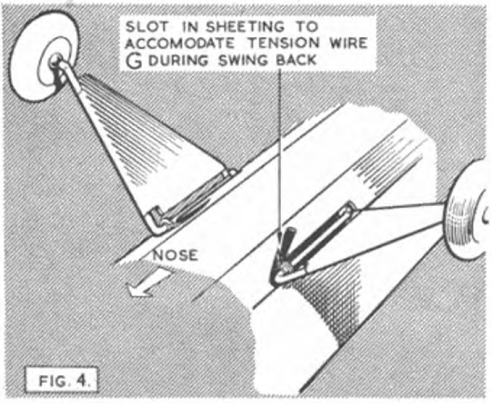
The method of anchoring this (and any other) undercarriages to a plywood platform on bulkhead is worth noting (Fig. 3). The method is simple, quick and very strong.

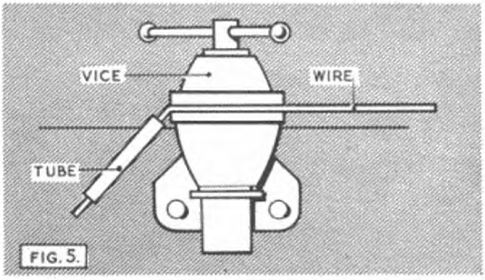
After fitting the U.C. to the model, the undersurface of the U.C. compartment should be sheeted in, leaving an "L" shaped gap, as shown in Fig. 4. The longitudinal limb of the "L" allows clearance for torsion bar "A" when swinging back. The shorter limb of the "L" accommodates tension wire "G" during swing back. Even when the U.C. swings back, the wheels maintain their correct track.

Fig. 5 is a tip to simplify wire bending; grip the wire in vice, and slip a piece of *strong* tubing over the wire. Grip the tube and bend as shown.

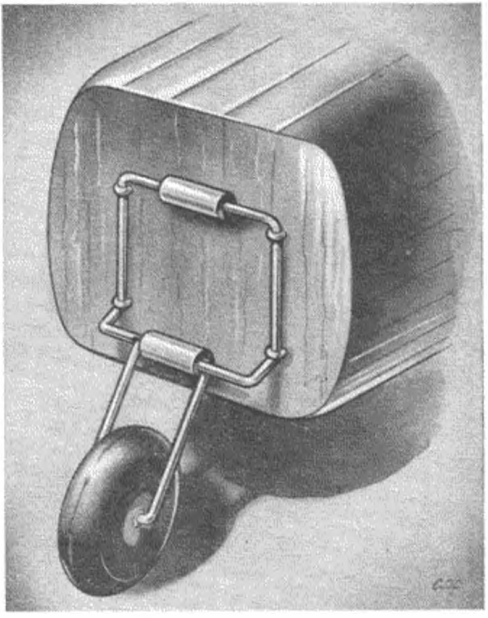
For nosewheels, the torsion bar arrangement described in February is still advised; but with one modification to the illustration we gave in that issue. At right the new form is shown, difference being in the distance of the main torsion 'box' from the bulkhead, which should be as close as possible, ¼ inch being sufficient for most leg sizes.

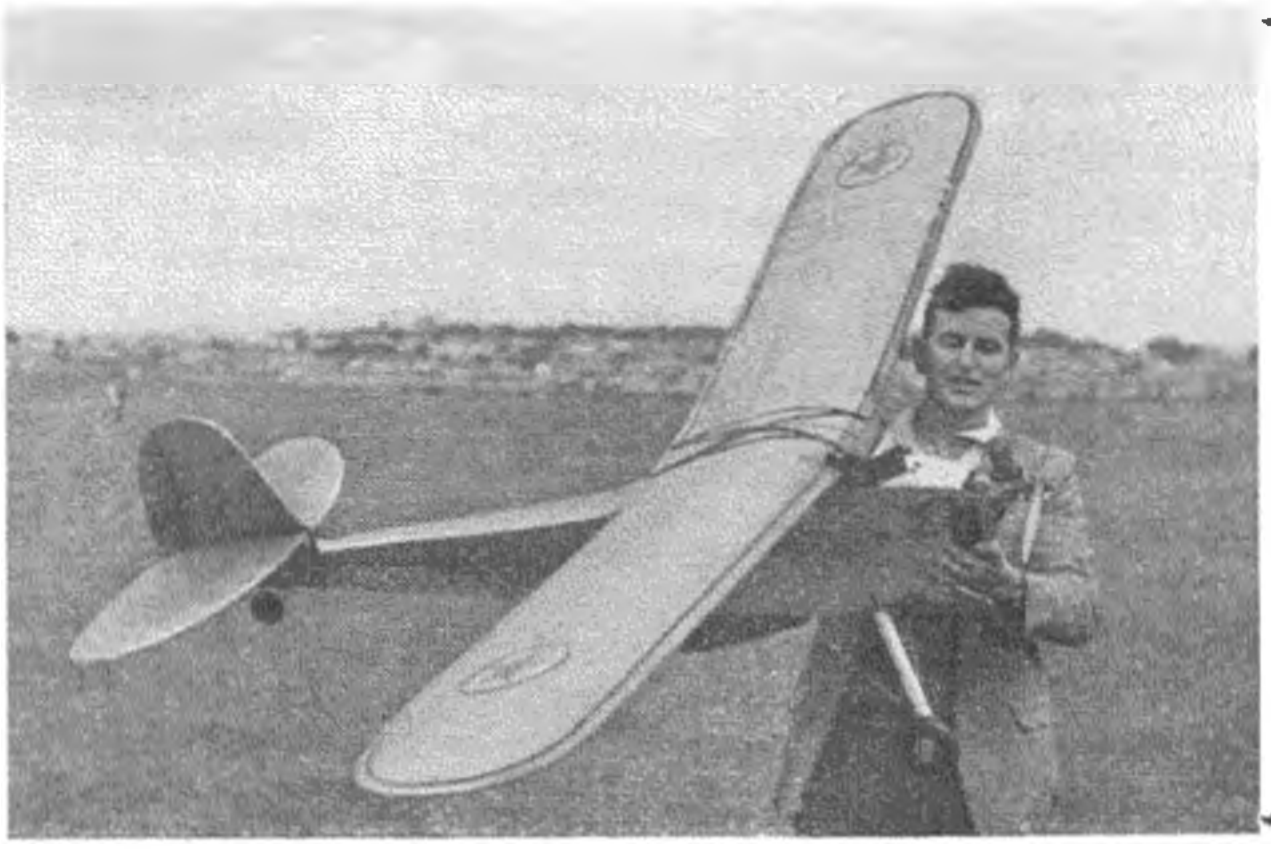






Below, new nosewheel arrangement, as on Rudderbug.





WORLD NEWS

Reg Cooper, Radio Control Champ. of Victoria, Australia, and his 14 year old model, which was Champion Power job way back in 1939. Now fitted with an Anderson Spitfire and radio, it still hauls a contest climb! Is this a record for longevity? Hallam, left to right: Tony Burg of Malta G.C., with his Philibuster racer. Walter Judd of Paddington, Australia, and his two racers, one a Vantage, and right, Aussie National Champ, King, with his famous "Pencil" design.

Australia

The Victorian State Championships for free-flight was a two-day affair in June, held near Melbourne, with power and rubber on the first day and radio and glider on the second. Imagine the chasing and running around National Champ. Alan King had to do, for he won all five events held on the first day! His three winning power jobs were all of his "Flying Pencil" design, using Elfin 1.49, McCoy .19, and Dooling .29 for the various classes. His Wakefield was used to win both the open and Wakefield events . . sounds as though his parents gave Alan the right surname . . . for a King he is, being Australian National Champion for two years running. On the second day, Reg Cooper flew his ancient 14-year-old job into first place for the radio contest and Kevin Denis placed highest out of a large entry of Thunderkings in open glider.

From Queensland we learn of a whole series of control-line demonstrations including stunt, team racing and combat, by the Newtown M.A.A. boys. They've been around to garden parties, fêtes, and the Queensland Industries Fair, spreading goodwill and collecting quite a packet of contributions for charities. Most of the trips have been made in Arthur Gorrie's old 1927 Chrysler loaded up with seven bods. and up to ten stunters. Good luck to them and may they never run out of fuel!

The New South Wales boys have found the general public less co-operative at the Balmoral Oval, as readers of the "Hangar Door" paragraph on page 582 will discover. However, we gather that their "banned" c/l Championships will take place in September at a more congenial spot.

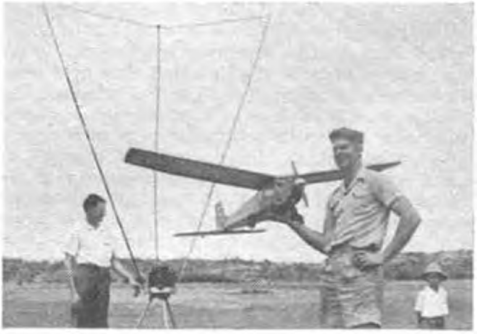
New Zealand

The South Island Champs. were held at Timaru,

and looking through the results we find figures that compare highly with our own. Triple max. times in free-flight power, ratio of 31 in Jetex, a total of 66 mins. 8 secs. registered in the two-hour scramble, and 24 mins. for three flights in glider . . . all add up to a very high standard of flying, and having looked at the N.Z. A/2 gliders sent here for proxies, we certainly take our hats off to the antipodeans! Imagine knocking up 66 mins. airborne time out of 120, that surely does take some doing.

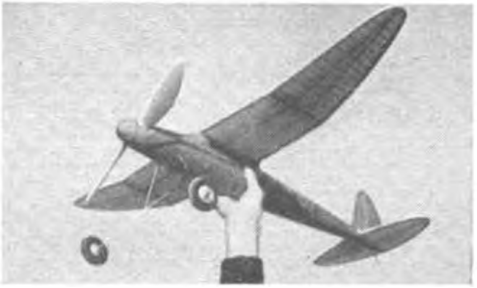
On North Island, Gisborne Clubsters have been showing the flag at local Agricultural Shows, and Hutt Valley lads have been electioneering new officers. Their regular news sheet poem includes the following verse :—

> After giving him a shake up,
> Jarvis finally put his Wake up,
> And I didn't even have a chance to duck.
> It bounced off his jalopy,
> Hit my neck and knocked me floppy—
> All he said was "Glad it didn't hurt the truck"!

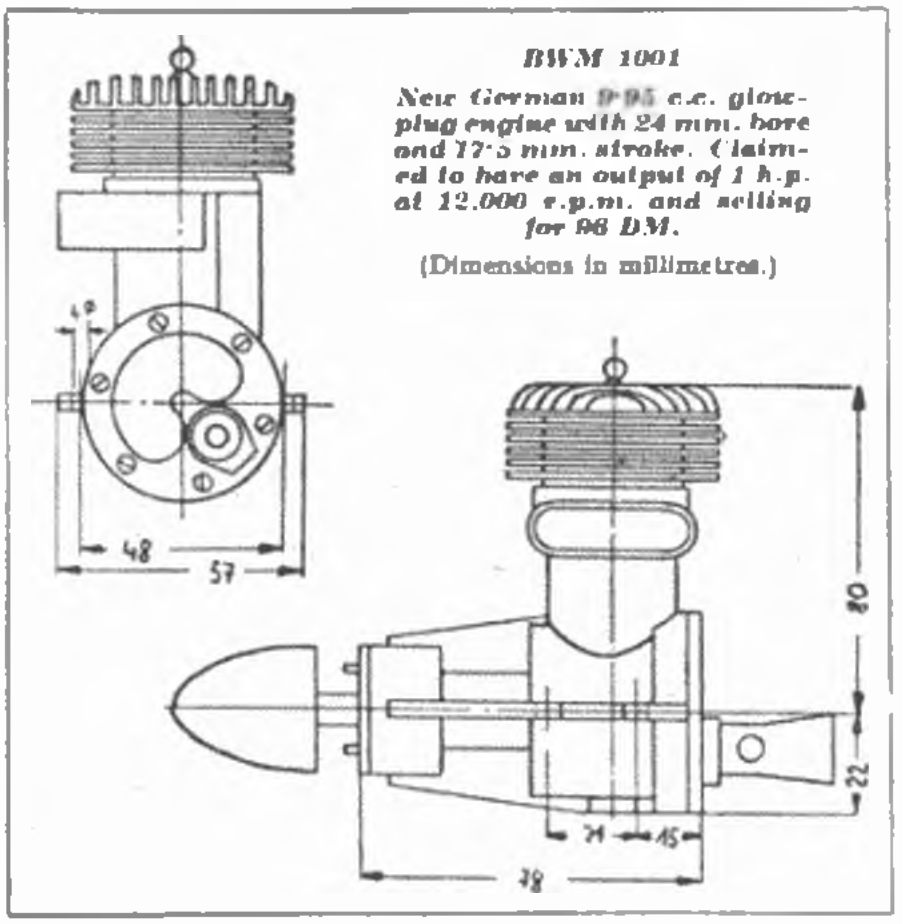


South Africa

Grahamstown boys paid a visit to P. Elizabeth for a control-line and free-flight shindig in which



***Left:** That man King again, with some of his trophies at the Australian Nats. **Above:** Outside club H.Q. at Bad Oeynhausen, Germany, are Pte. D. Woolgrove, Cpl. J. Rutter and Sgt. F. Sheppard. Next column, top to bottom: Mrs. Peggy Wells, wife of F/Sgt. Wells, stationed at Guterslah, Germany, holds her husband's A/2 "Slippery Sam." Next: Another wife co-operates, this time in far-away S. Africa, where Mrs. Peter Visser of Cape Town holds her husband's A.P.S. Archangel. Radio scene is also from S.A., showing Cliff Culverwell with Good Bros. Equipped Rudderbug. Frank Von Maltitz is at the transmitter. **Right:** From Bergen, Norway, comes this streamliner, the work of Olaf Anderson.*

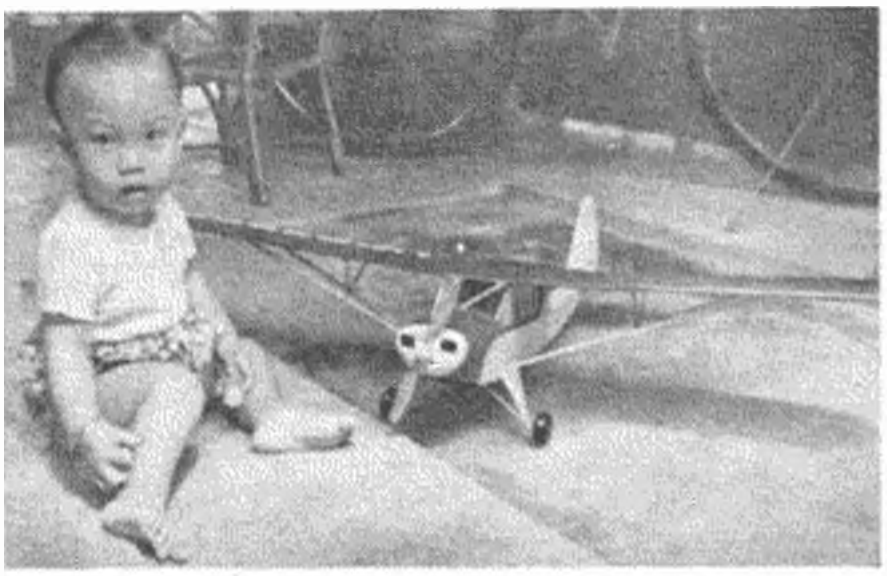


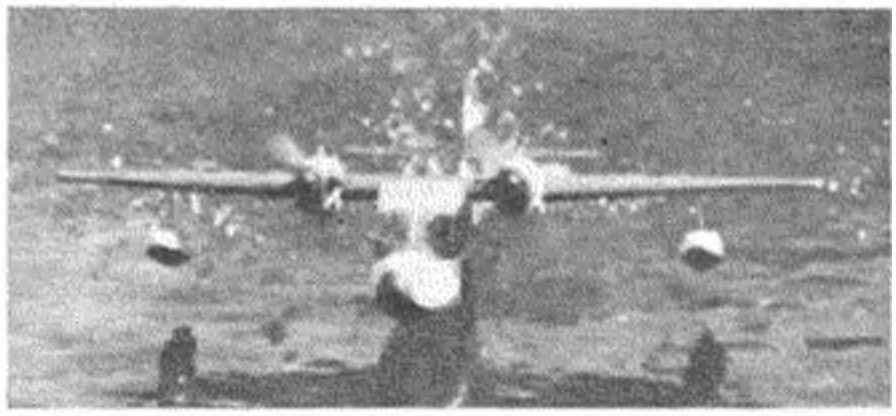
Jimmy Connacher (P.E.) got 138 m.p.h. from his Hot Canary, to claim a new S. African record. Big wing areas are favourite with the stunt boys, who are using 450 sq. ins. for Amco 3·5's and up to 420 sq. ins. for Elfin 2·40's . . . about the same feelings as the Australian fans, see the Calamity Jane plan on page 588.

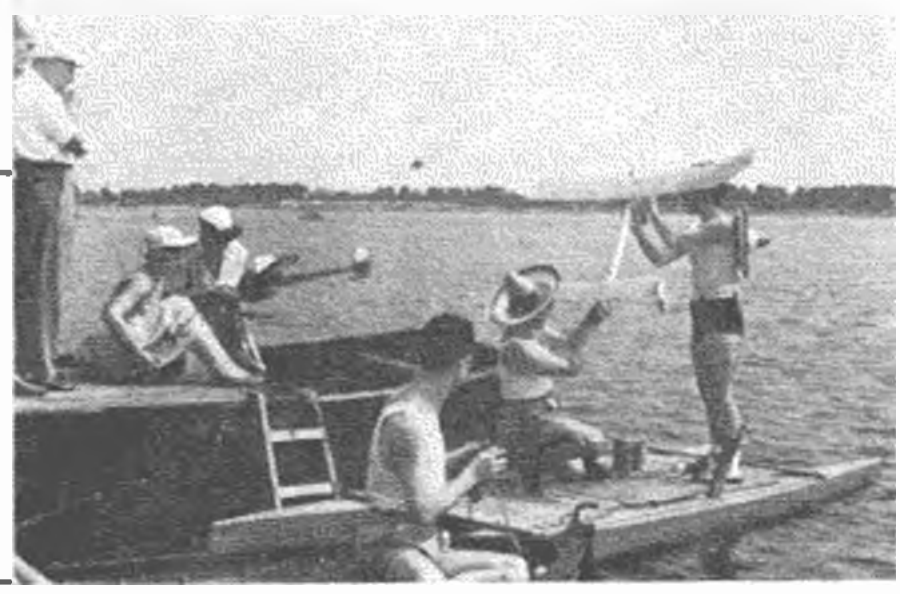
Incidentally, these boys have another name for Jetex, they call it Fag & Fizz ! !

Italy

The Nationals for Hydromodels (we should use that name) and the Coppa Ostali was held over, on, and in, the Idroscali of Milan. In the centre of the huge artificial lake a pontoon was anchored and power and rubber entries were released alongside a motor-boat. Thanks to Ing Frachetti, as usual, the meet was a rousing success, and the winning time of 8 mins. 34 secs. on a 16-second power run by Roberto Bacchi's F.A.I. class power job will be a new Italian record, though it still falls a long way short of Russian Vassiltchenko's 2 hr. 50 mins. world record established in July, 1950. Winners of the two classes each received a Cup, while a total of nearly £50 in prizes was distributed among the top men. No wonder the event is becoming increasingly popular among Italian modellers !







Next column, top to bottom : Ho Loon Shu, head clerk of a Malayan Tin Mine at Bidor, sent us this candid view of baby daughter about to have fun with his KK Piper Cruiser. Next three photos, show flight, take-off water and at rest on land views of a 39 in. span control-line Grumman Widgeon built by Per Axel Eliasson and Olle Ericsson at the request of Bertil Beckman in Stockholm, Sweden. Fitted with E.D. Bees, the model flies equally well over land or water and has so far logged more than 20 hours airborne time. Wings are covered with that beautiful Swedish ·4 mm. 3-ply. At bottom, scene at the Italian Hydro contest, where the competitor appears to be well attired for recovery.

Replies to Colonel Bowden

IN JULY, we gave the stand to our old friend Colonel Bowden, who had quite a lot to say about the standard of present-day contests, the type of model that is developing from the current trend and, most important, the impression we leave upon the public and general lack of official encouragement for the novice. So great was the response to our request for readers' comments on this subject, that we devoted the Editorial of the August issue to our readers' response, and we quoted several pertinent points from correspondence received.

This, it would appear, was not enough. Daily we collect viewpoints on Col. Bowden's article from the postbag, and from the large selection in which the pros. exceed the cons., we have elected to publish in full, two interesting letters which will do much to elucidate the points expressed by almost every correspondent on this subject.

We begin with a letter from Harry Stillings in the West Country, who, we hasten to assure readers, speaks with considerable authority on the subject, and has some interesting suggestions on displays and scale or semi-scale contests. Over to Harry :—

" I have read with great interest Col. Bowden's comments in your July issue, and find myself considerably in agreement with him. It seems to me that everything depends on the point of view from which one considers the matter. From the viewpoint of the general public, there can be no doubt whatsoever that power contests are extremely boring and largely incomprehensible, whereas stable and realistic flights by models which look as much like the " real thing " as possible, invariably create interest and (not infrequently) openly-expressed admiration.

" The layman can *understand* such model flying, as he quite naturally *expects* a ' model ' of anything to look and behave very much like the full-size machine, whether it is an aircraft, locomotive, motor-car, ship, boat or launch. On the other hand, his first sight of power contest flying must be, to say the least, rather bewildering, especially the appalling mortality rate ! The reason, of course, is that power contest models are not really ' models ' at all ! They are miniature flying machines specially designed for a specific purpose—to reach the highest altitude in the shortest time and to stay there as long as possible. Such machines must, therefore, differ considerably both in appearance and performance from the orthodox full-size aircraft, and even the most rabid contest-fiend would hardly dare to claim that the average power contest job is a ' thing of beauty ' !

" My Club recently staged a Model Flying Display for the general public, which drew a crowd of nearly 4,000, most of whom had probably never before witnessed such an event. Easily the best-received items were :—

(1) Flights by ' giant ' model gliders of 8 to 11-ft. span ;

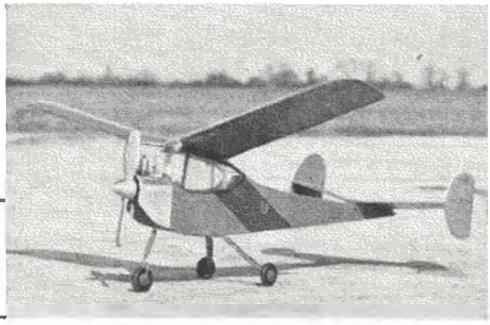
(2) A demonstration of R/C, with full control throughout a 15-minute flight, ending with a spot landing within 30 feet of the transmitter ;

(3) Parachute descents by a life-like dummy pilot from a slow-flying semi-scale model.

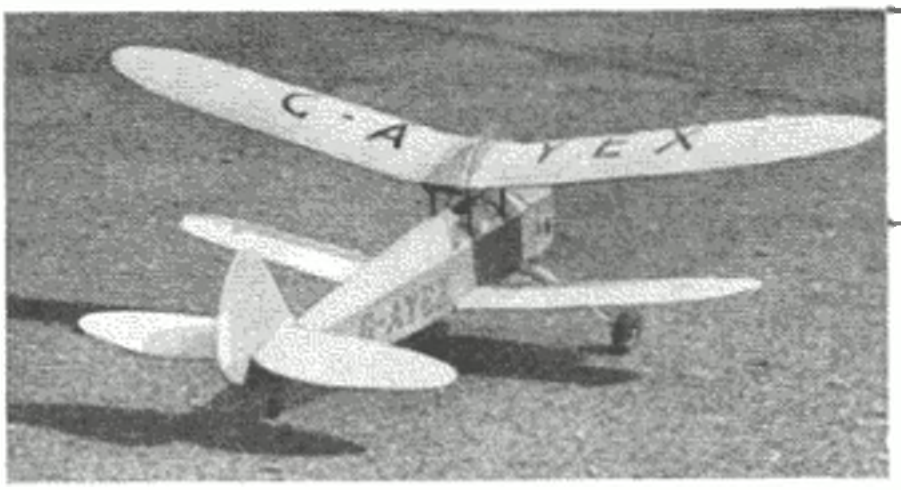
" Spectators were so very obviously bored and puzzled with the first round of a power contest that the remaining rounds were promptly and unceremoniously scrapped ! Rubber and glider contests met with a slightly better reception, but here again discretion dictated a cutting-short of the number of flights to avoid boring our audience. As a result of the experience gained from this first full-scale display, NO CONTESTS WHATSOEVER are included in the programme for the next show, which will be exclusively ' spectacle '. We, at least, are now convinced that this is essential if the main purpose is to *entertain* the public, and I recommend this maxim to fellow club secretaries arranging similar efforts.

" At one time I myself had no interest in contest-flying, and found it difficult to understand those who did. Now, having taken part in many contests (with widely-varying degrees of success !) I find it equally difficult to understand my previous lack of interest. This does not, however, alter the fact that contest-flying is for the keen, experienced aeromodeller only, and has little appeal for the general public.

" I believe the main reason for the lack of progress made in efforts to popularise scale and semi-scale contests is the difficulty of devising a reasonably simple and foolproof formula for contest-placing purposes. The deciding of contests on a purely duration basis is so easy and uncomplicated that



Winner of the last but one " Bowden " contest proper, which was held at Cranfield in conjunction with the 1949 Wakefield event, was this pert little 28 inch span design for the Mills ·75 by Geoff. Dunmore. Known as the " Wycern ", it is now one of the many sport flying designs available from A.P.S.



Winner of the last proper Bowden contest, in 1950, was this Biplane by Yeatley of Portsmouth. Seen here with tail up and on its way to making a perfect take-off for a realistic flight. Bipes took the honours from many monoplane competitors, first three places on this occasion being filled by models of this type.

it is inevitable that this method should be ' first choice ' for all other free-flight contests, but it would be wrong to place scale contests in the same category, as has usually been the case in the past.

"It seems to me that the only satisfactory method would be to award points for appearance, realistic take-off, stable flight and a good landing, with a minimum total time in the air of, say, 60 seconds, irrespective of engine-run. A jury of three suitably-qualified umpires would keep separate scores, which would then be averaged at the conclusion of the contest to decide final placings. The main goal should be realism throughout, and I feel sure that the fostering of such model flying would result in the hobby generally benefiting considerably in public interest and esteem. After all, even those aeromodellers whose aesthetic arteries have been hardened in the grim struggles of the contest field, will pause to admire a well-finished scale or semi-scale job in realistic and stable flight. And if *THEY* can be so impressed (if only momentarily !) there can be no doubt of the interest which would be shown by the layman.

"All the foregoing applies to power contest flying In the case of gliders their flight performance *must* be graceful and stable if they are to figure in contest results, whilst aerodynamic principles virtually *demand* a design which is pleasing to the eye. Rubber-driven models have their own appeal, with their silent (or nearly so !) power-on flight and slow-revving props.

" I am not advocating that power duration and ratio contests as we now know them should be discouraged or altered in any way, but that realistic models and stable flying should receive much greater encouragement than they receive at present. I am sure such a move would be widely welcomed by aeromodellers in general, and in particular by,

H. A. STILLINGS,
Hon. Sec., Exeter M.A.C."

A letter which has prompted much editorial thought, arrived from Tel-Aviv, where the Aero Club of Israel is very active in promoting aeromodelling by means of elementary glider designs, which are issued to juniors for instruction. N. Kadmon, Director of Training and Aeromodelling for the Aero Club of Israel, emphasises the true value of the hobby as a grounding for later " full-size " aviation careers, a fact which we all recognise, and which the last F.A.I. meeting resolved to bring to the attention of those concerned. In making his point, Mr. Kadmon favours education in aeromodelling, commencing logically with a glider, following up with further education, and then assuming that power flying will sort itself out.

This might work very well in Israel where the coming generation is instructed in classes, and youngsters work their way through a series of gliders and eventually graduate to full-size flight. But the structure of this country, and the British mode of life makes each aeromodeller an almost self-taught individualist, a factor we can neither alter nor obviate. Because we too, favour the glider as the best introduction to aeromodelling, N. Kadmon's letter is here in full ; its contents will certainly be interesting to all who are enthusiastic for the promotion of the hobby.

" Reading the July 1952 issue I came across the above article by an experienced and veteran aeromodeller who certainly knows his subject. Please do not think for a moment that I don't regard Col. Bowden as one of the world's foremost modellers, but I believe that not always does he survey a problem from all its angles. In order to make this point clear, may I remark that on reading Col. Bowden's very interesting book, ' The History of Model Aircraft ', I was rather struck by the fact that this book ought to have been named ' The History of Model Aircraft in Great Britain '. Short remarks on a few foreign models only accentuate this impression, though perhaps you, as Britons, will think otherwise.

"I have no access to any statistics on the relative number of glider and power models in your country, but Col. Bowden does not even mention the former type of model in his plea for stability and reliability, and he identifies ' aircraft ' with ' powered aircraft '.

" Am I wrong in believing that almost every beginner starts with a glider model ? This certainly is the case over here. It implies, that almost every modeller who comes to build a power model has at least *some* knowledge of modelling. If he cannot control his power model it must not be the fault of the design—his lack of elementary trimming knowledge, which is necessary for flying even the simplest type of model, may be to blame. ' Duration ' and ' Stability ' are almost synonymous on glider models (at least in free flight ; the position of a tow-hook may give a model both extra duration and instability on the tow, but move it half an inch forward and you often have a stable model at the cost of only very little loss of height).

" In short, I believe that the construction and flying of glider models ought to be encouraged much more than it seems to be at present. In its last

twelve issues (Aug. '51—July '52), excepting the March '52 issue which is not with me at the moment, the AEROMODELLER published 17 F/F power model plans, 7 C/L's (together 24 power models), 5 Jetex, 2 rubber and only 9 glider plans, of which but one was an elementary model—a chuck glider, while there were quite a few beginners' power model plans like Titch, for example.

"From the above remarks you might deduce that I am all against Col. Bowden's suggestions. Far from it!

"While I regard modelling as my favourite hobby and sport, I recognize the value of its other chief aspect, namely that of providing perhaps the best pre-flight, or rather "pre-full-size", training medium. And as such power modelling has its definite advantages: even the moderately successful power modeller must needs learn something about the theory and practice of I.C. engines, and he has to know more about aerodynamics and construction than the glider enthusiast. Power modelling must therefore be encouraged, too.

"The power modeller, having some previous knowledge of modelling, ought to know what he wants, and if he doesn't—do as Col. Bowden advises, and supply him with suitable plans. But first provide those glider kits or plans, plus instructions on how to proceed. Some firms (like Keil Kraft in their catalogue/handbook) adopt, for commercial reasons, the excellent procedure of presenting a whole range of models, from easy chuck glider to quite complicated C/L model, for the benefit of raw beginners. Testors in the U.S.A. (and perhaps others) improve on this idea: on the labels of their kits they advise the buyer which kit to buy next. If this advice is sound they are bound to do a service not only to their pockets but also to their clients—especially the young and inexperienced.

"To conclude: I believe that if building and flying the inexpensive and reliable glider is encouraged, and if there is appropriate 'follow-up' education, the problem of the power model will largely solve itself, and relatively little harm will come out of a relatively inexperienced power modeller flying a pylon."

N. KADMON,

Director of Training and Aeromodelling, The Aero Club of Israel Central Committee.

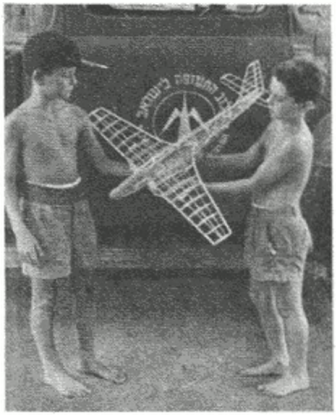
From other contributions on this subject, we extract the following pertinent points:—

"There are a great number of modellers who have no time for duration and all it means today. Sport flying is the backbone of aeromodelling . . . needs more encouragement than it gets . . . more power to Col. Bowden's elbow and thanking him for his outspoken comments"—T. LEATHERS, *Chairman, Workington & D.M.F.C.*

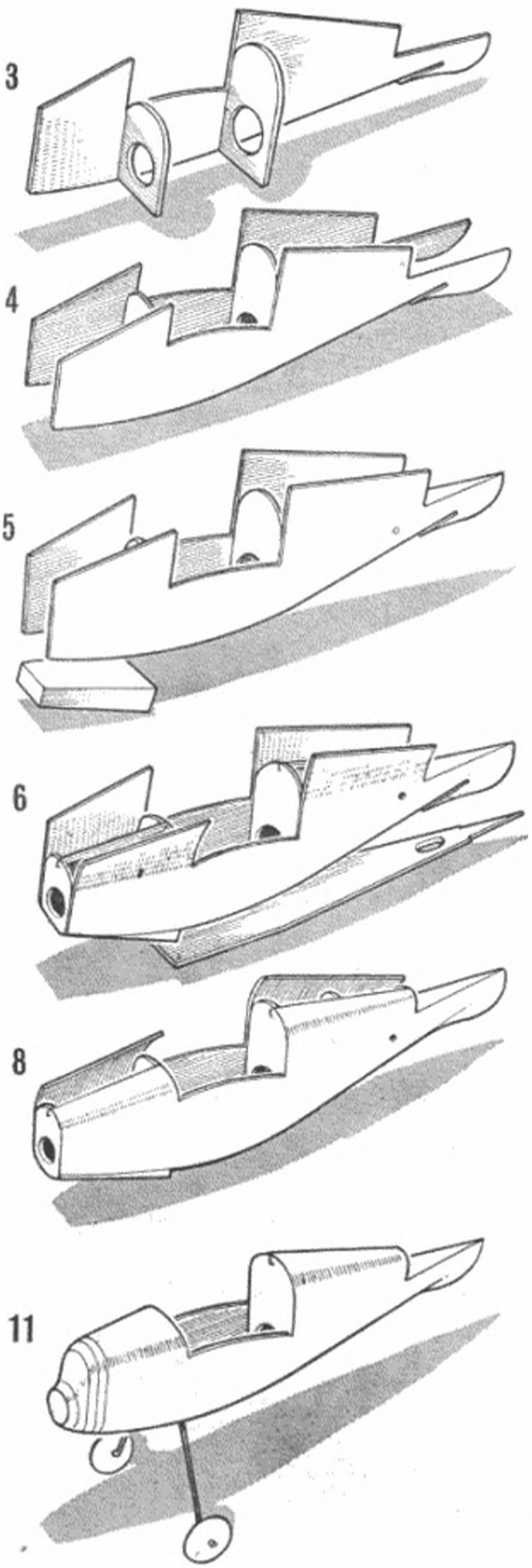
"Time after time, various people have said that only about 20 per cent. of the free flight modellers are competition minded, yet the 80 per cent. majority get no official encouragement . . ."—M. PARROT, Wolverton, Bucks.

"As I see it, the remedy is for designers and manufacturers to provide a number of designs and kits of the pot-bellied cabin type, and more magazine articles stressing the stable, soul satisfying flight obtained from a model designed on lines laid down by C. H. Grant. For over twelve years I have designed and built models of all types, but none gives me so much pleasure as my old "Bowden Contest" . . . has completed 500 flights, each one a sheer delight, and is still flying . . . More power to Col. Bowden and all that he stands for."—F. R. MALLETT, *Victoria Model Flying Group.*

"Just think what would happen if all the crashers had been properly trimmed and made long flights. The owners would chase them over the fields, breaking down hedges and damaging crops causing the farmers far more annoyance, and the position is already much too serious . . . The answer to this trouble is the Bowden type contest, whether rubber or power. What to suggest for gliders I don't know unless it is to use a d.t. to limit the flight . . . . Bowden contest encourages the type of model that can be taken to the field and flown all day, instead of searching the countryside most of the time and picking up the bits . . . no similar competitions in the calendar, means that same model cannot be used for more than the one event."—HOWARD BOYS, Rugby.



How they do it in Israel, as N. Kadmon intimates in his letter. Youngsters are supplied with material and set designs; they are encouraged to fly gliders, first in the model stage, and later, when in their teens, graduate to full-size work. In the photo at left, S. Brailstein launches his model in front of the Aero Club's Lanzer Kaufman TG4.



Build the RIGID

FULL-SIZE PLANS ARE OVER-

RUBBER MODEL SUITABLE FOR

THIS model was inspired by a little episode that took place on the perimeter of a team race circle. A small boy agog with excitement watching three flyers battle it out turned to his father and said : " Isn't it smashing Dad, can you make me one like those ? " Dad looked a bit embarrassed and mumbled something about the models being very expensive, and in any case he did not know how to make them. " Cor, I reckon I could make one ", said Junior. I moved away then, but I wondered what happened in the end. This job would have satisfied the little lad. It looks like a team racer, but costs three-and-a-half shillings instead of pounds. Also it can be made by a novice, either Junior or Dad. If you *are* a novice, go carefully, study the plan and instructions thoroughly and don't try to rush anything. To anyone who has made a model or two it is a couple of evenings work. The original was meant for " backyard " or " playing field " flying, but surprised everyone with its performance. It has made hundreds of flights and withstood quite a beating. The only time anything broke was when this year's winner of the Halfax Trophy flew it into the writer's car !

Stage-by-Stage Construction

1 Obtain the following materials :

$\frac{1}{16}$" × 3" × 36" balsa for wing, tail, fin and formers. $\frac{1}{32}$" × 3" × 36" balsa for fuselage patterns. $\frac{1}{4}$" × 3" × 6" soft balsa for nose parts. 5" airscrew or 5" × $\frac{1}{2}$" × $\frac{1}{2}$" block. 12" 20 s.w.g. wire for shaft and undercarriage. 2, 20 s.w.g. bushes for prop and noseblock. Washers and 2 oz. dope. Small tube cement. 2 yds. $\frac{1}{4}$" flat rubber.

2 Cut out two fuselage sides and mark on positions of formers, left and right sides. Add rear peg reinforcement. Cut out formers F2 and F6.

3 (Illustrated.) Cement former F2 and F6 to right hand side using set square to make sure they are true.

4 (Illustrated.) Smear flat portion of left hand side formers with cement and add other side.

5 (Illustrated.) Add piece X to lower front and cement tail together, including edges of underfin all the way round. (Pin or clip while drying.)

6 (Illustrated.) Add formers F1, F7, F8 and stringers on top of formers and cement up fuselage bottom.

MIDGET

By VIC DUBERY

LEAF FOR THIS ALL-BALSA R.T.P. OR OUTDOOR FLYING

7 Dampen outside of fuselage side piece along top where it is to be curved.

8 (Illustrated.) After a few minutes wood will curve over and fit tightly. Prise it up a little and cement along stringers and curve of formers.

9 Trim surplus wood along outer edges of formers and centre of stringers. Be careful here.

10 Repeat process for other side, trimming before cementing.

11 (Illustrated.) Cement on nose pieces, and carve to shape to include spinner line and carve away X to smooth into fuselage line. Add undercarriage with plenty of cement in slot.

12 (Illustrated.) Cut two wing panels from $\frac{1}{16}$" sheet and dampen the top of each (left and right) from $\frac{1}{4}$" from the leading edge to $1\frac{1}{4}$" from the trailing edge. Give a light coat of dope in a similar strip on the undersides.

13 (Illustrated.) Wood will curve to an airfoil section. Now prop up both halves, leading edges facing on the edge of the table so that the tip rise is $1\frac{1}{2}$" and chamfer roots with sandpaper block held vertical.

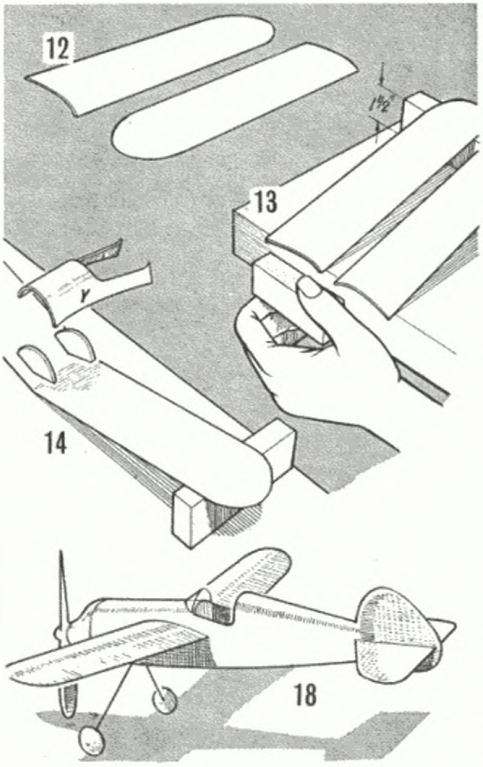
14 (Illustrated.) Prop up wings similarly, bringing together and cementing centre. Add formers F3, F4 and F5, and when dry, piece Y, which is also dampened on top.

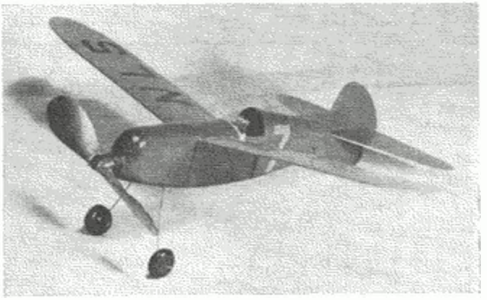
15 Celluloid windscreen and if desired a carved "pilot" can be added to cockpit and this complete unit is cemented, or held by rubber bands in position on fuselage.

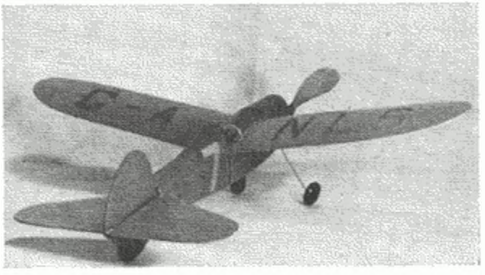
16 Cut fin and tailplane from $\frac{1}{16}$" sheet and cement on platform at rear, making sure all is square and fin is straight. Add dorsal fin on top of fuselage.

17 Assemble airscrew on noseblock and make up a four strand motor, lubricate and install, using $\frac{1}{16}$" round bamboo or hardwood peg.

18 (Illustrated.) Model should be sanded carefully rounding off leading and trailing edges, and dope using 3 drops castor oil in 2 ozs., to protect wood. Original was also painted with red dope on fuselage and silver wings, and flies up to 45 secs. on full winds (500). If model is painted or turns out heavier than $1\frac{1}{2}$ ozs., or you wish to do stunts, make up motor into 6 strands.







A.B.C. & D FROM 1/4" SHEET

PLUG

ACTUAL OUTLINE OF FUSELAGE

WINDSCREEN

F1

F2

F8

1/32" SHEET FUSELAGE SIDES. 2 OFF.

POSITION OF 'X' BEFORE CARVING

A

B

C

D

POSITION OF UNDERCART.

PIECE X UNDER NOSE. 1/4" SHEET.

SLOT FOR UNDERCART

C.G.

1/32" SHEET FUSEL

1/32" SHEET CENTRE SECTION

PROP BLANK 5"X 5/8"X 5/8"

OUTLINE OF WING 1/16" SHEET.

WINDSCREEN

SMALL SCREW FOR F'WHEEL CATCH

A

PLUG

20 S.W.G.

F3

F4

F5

FULL

20 S.

FIRM

C

D

F1

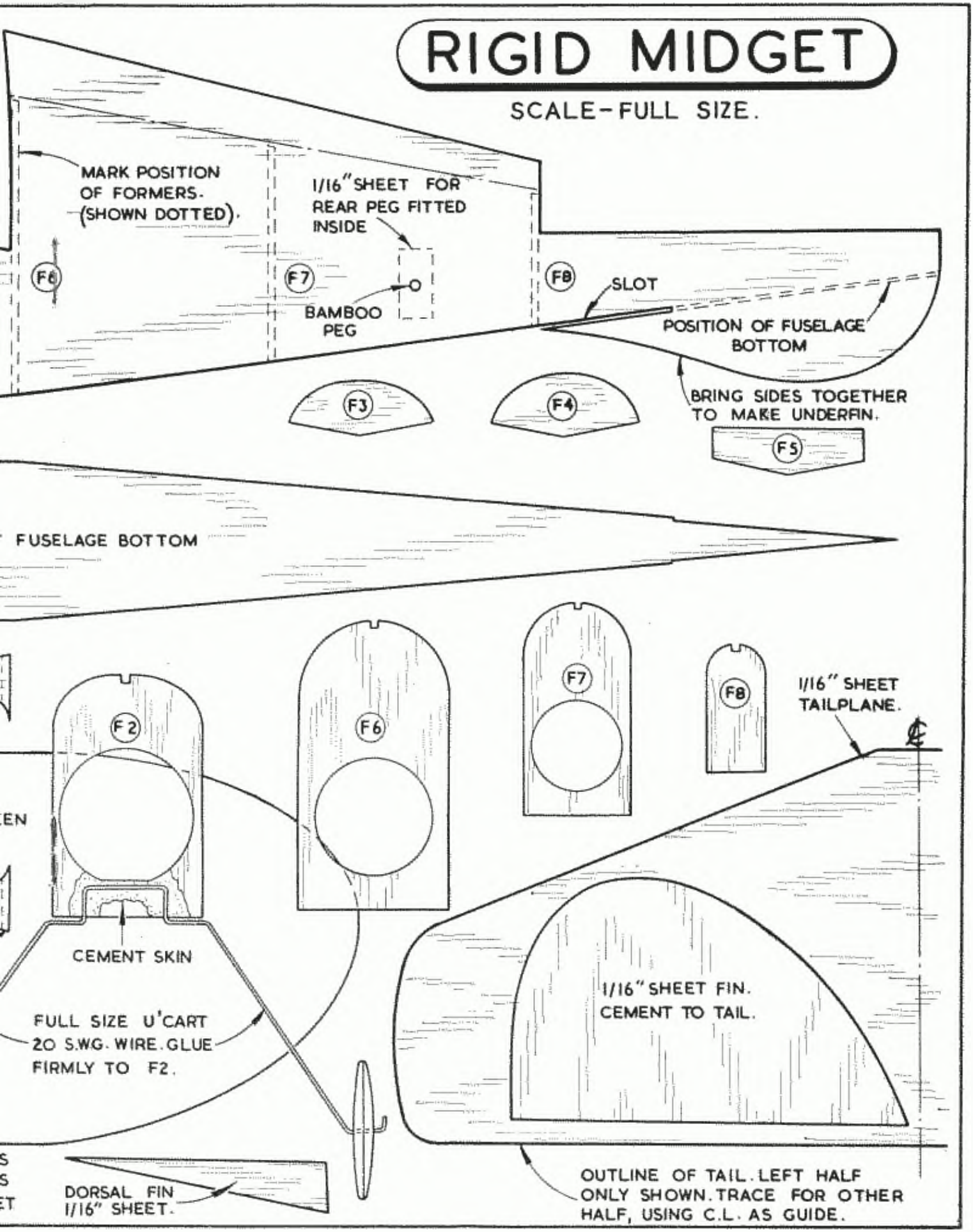
B

1" WHEELS 2 LAYERS 1/16" SHEET

ALL FORMERS F1 – F8 FROM 1/16" SHEET

RIGID MIDGET

SCALE - FULL SIZE.



RADIO CONTROL NOTES

The "AEROMODELLER" RECEIVER

By HOWARD BOYS

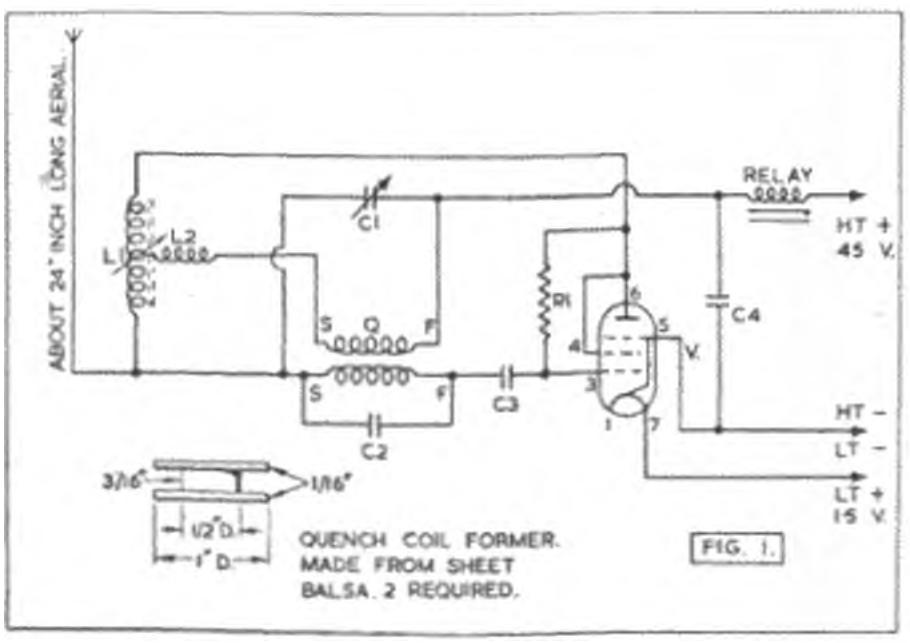
Messrs. Benham and Pearson of the Chesterfield M.E. & Radio Society check up their equipment, fitted in a 6 ft. span scale Waco Hadrian glider. Wing is semi-geodetic.

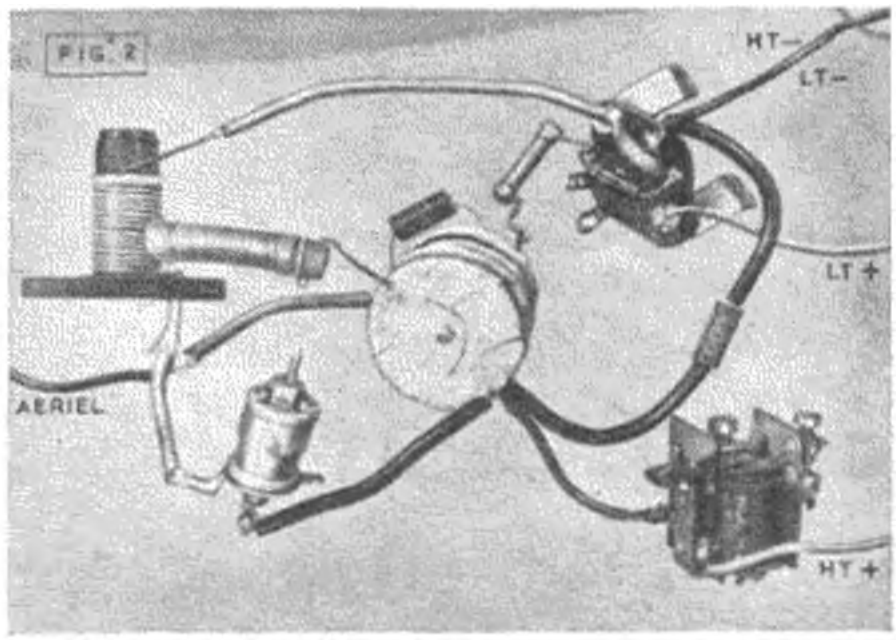
CREDIT for this receiver is shared by a number of people. First Doug. Bolton of Nottingham sent along the basic circuit. Next Mr. Brown of Liverpool had trouble with a home made set and asked for help. When adjusted, this receiver gave a current change of about 1 m.a. right up to the limit of its range, thereby acting much like a thyratron type. Mr. Cox of Alton then sent along details of how he got most remarkable results by fitting a variable condenser between H.T. pos. and the aerial. Using 60 volts H.T. this fitting raised the anode current from 1·5 m.a. to 4 and this dropped again to 1·5 on receipt of signal, and was maintained up to the limit of range. What this limit was he did not discover because he stopped walking after ¾ mile from his 4 5 watt input transmitter. A clubmate brought along his first attempt at radio construction for the writer to test and this was adjusted to give a current drop of ·8 m.a. as above. Sid Miller of Luton, who had had communication concerning the circuit reported similar results with a dust iron core tuned coil, without any tuning capacity.

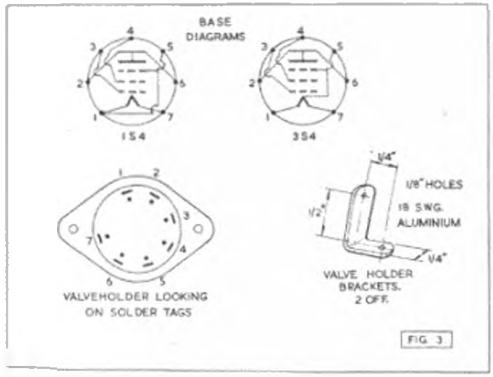
A receiver that would give a current change from around 2 m.a. to around 1 m.a. with a hard valve, right up to the limit of its range with a sensitivity that seemed equal to any other single valve receiver ought not to be kept for a select few.

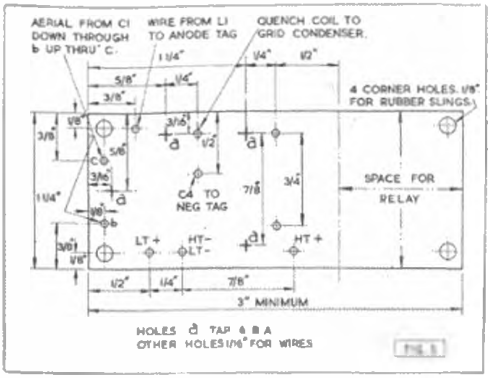
The writer set about a few experiments on his own, so that details could be made available to readers in general. A receiver was built and wired up so that either a 1S4 or 3S4 valve could be plugged in, only half the filament of the 3S4 being used. Sensitivity was the same with either valve but current change was from 1·8 m.a. to ·8 m.a. with the 1S4 and 1·5 to ·8 m.a. with the 3S4. The theoretical circuit is given in Fig. 1 and Fig. 2 shows the various components wired up to help those who have difficulty in following the theoretical circuit. Fig. 3 shows the valve base diagrams and the numbering of the tags on the valve holder, corresponding with Fig. 1, also the angle bracket used for mounting the valve holder at right angles to the panel. Here are details of the other components.

The tuning coil L1 consists of 14 turns of 23 s.w.g. enamelled copper wire on a ¾ inch Aladdin former, tapped at the centre. The best way to make this is to fasten the starting end through a hole in the base, wind on 7 turns, twist a loop about ¼ in. diameter and then wind on the other 7 turns, holding the end with a rubber band. Now









fasten a piece of thread to the base and wind on between each turn of wire to space them neatly, and bind round the top to hold the finishing end of the wire. A smear of balsa cement will help to keep things fixed. To save space the base of the former can be cut down and two new holes drilled to take fixing screws. The core should be screwed in with a piece of thin rubber band alongside to prevent it vibrating out.

For the quench coils Q, two balsa bobbins are required as shown in Fig. 1. Each of these is wound with 750 turns of 38 s.w.g. enamelled copper wire. This is quite easily done with a hand drill as used for winding rubber models. The one used by the writer was fixed up with an old cyclometer to count the turns, and has been in use for nearly 20 years. The bobbin is put on a 6 BA screw with a large paxolin or similar stiff washer each side. The starting end of the wire is pushed through a hole in the side of the bobbin, made with a needle, and held by clamping up the washers with a nut. The screw is then put in the drill chuck, the handle of the drill being clamped in a vice. The turns are wound on roughly like cotton on a reel, and the finishing end pulled into the end grain of one side of the bobbin. It will be most convenient if the start and finish are on the same side of the bobbin, but the two bobbins started on opposite sides, with the winding in the same direction. The coils will have to be mounted with both windings going the same way, and connected up with the start and finish as marked S and F in Fig. 1. The set up for winding quench coils is shown in Fig. 4. The wire is too thin to leave hanging about, so a thicker piece should be soldered on and anchored to the former with balsa cement. On the grid coil the ·003 condenser can be used as can be seen on the smaller receiver in Fig. 7. The coil wires are soldered to the condenser wires about half an inch from the waxed part, the thin wire and joint being cemented down. Avoid getting the iron too near these condensers as the wax melts at a very low temperature.

L2 is the radio frequency choke, and is made by winding 70 turns of 38 s.w.g. double silk, or cotton covered wire on ¼ in. outside diameter fuel tubing. A piece of thicker wire about 20 s.w.g. is pushed through each end sideways to give the choke more support. C1 is a 0-7 pf. Phillips concentric or Beehive trimmer. C2 is ·003 mfd. 150 volt Hunts miniature fixed condenser, and C4 is ·01 mfd. of the same type. C3 is 100 pf. ceramic tubular. R1 is 3·3 megohms. Valve holder is paxolin type, and is fixed with two small aluminium angle brackets. The figures in Fig. 1 refer to the pin numbers for a 1S4 or 3S4 valve using half the filament. If it is desired to use a 3S4 with all the filament in use, and thereby make it operate just like a 1S4, valve pins 1 and 7 are joined together. Any good quality relay can be used that will pull on at 1 m.a. The aerial is a piece of flex about two feet long. The panel is ⅛ in. thick paxolin, and the size depends on the relay used. Fig. 5 shows a suitable panel with holes, except for the relay. If a miniature relay of the half ounce type is used, a 3 in. long panel will be big enough. The small one in the photos Figs. 6 and 7 is an early type used by E.D and E.C.C. and is one of the best types so far tried, but does not seem to be made now. Larger relays will of course need a larger panel. The four holes shown tapped 6 BA are for holding the tuning coil and the valve holder, but can be plain holes for screws and nuts. The larger relay shown is the ex-gov. Sigma sometimes known as SCR 522, and the panel required for this is 1¾ × 3¼ in. This was the second receiver built, the first being then rebuilt to the smaller one.


FIG. 4

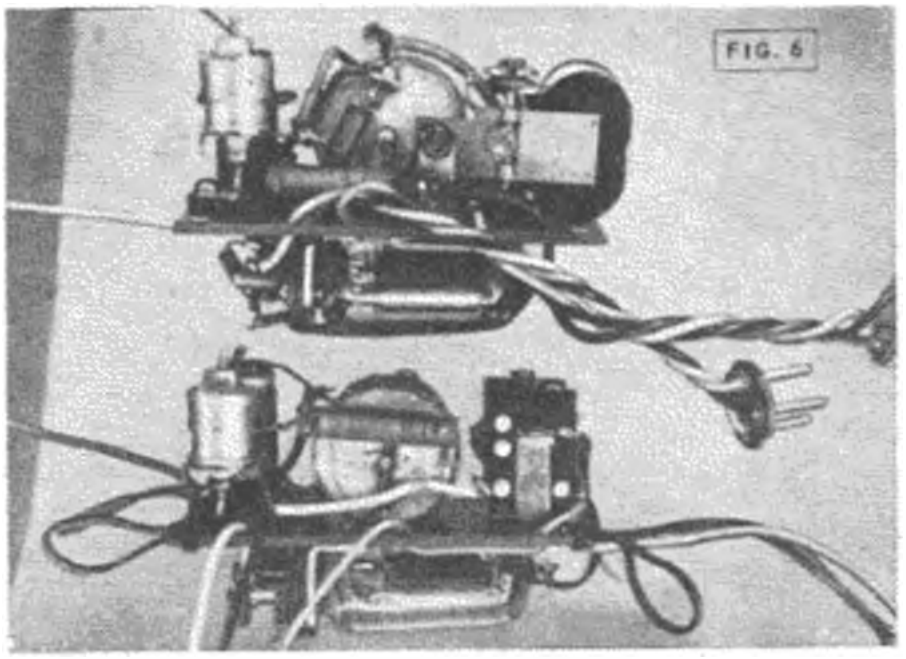


FIG. 6

Assembly

Valveholder, relay and coil can be fixed but not the quench coil at first. This should be put on loosely with a piece of dowel through the middle of both coils, so that they can be slid towards or away from each other. All components can be wired up according to the diagrams, the neg. valve tag being the only difficult one. This should be made first, the condenser lead and L.T. both at the same time. Note that in the small receiver, the top and bottom connections to the tuning coil have been reversed compared with the photo Fig. 2, and the coil has been pushed to the top of the former. This makes for shorter wiring. In this receiver the grid resistor is connected from grid to anode instead of the usual lead between relay and quench coil. This was done accidentally at first, and as results did not appear to suffer, and it made for easier wiring it was left. If the receiver is made on the small panel shown, the coil former will need to be re-drilled to match the diagonal pair of holes marked *a*. When fixing the former a solder tag should be put under the screw in the centre to which is soldered the Phillips trimmer. The battery leads should be thin flex, yellow for L.T. pos. red for H.T. pos. and black for the common negative, and are taken through the panel from the top through the marked holes to the valve holder for L.T. and relay for H.T. pos. Similar holes should be made for the wires to the relay contacts, in a convenient position. The aerial is also taken through holes and this prevents the wires from being pulled off.

The receiver can be put on a stand and connected up to the batteries, with a 0-5 m.a. meter between H.T. pos. and relay. The condenser C1 should be unscrewed, and the quench coils close together. With the transmitter switched on, screw the coil core in and out until a slight movement of the meter needle occurs. Screw up C1 with transmitter off to the point where the current goes up with a jump. This is the sensitive spot of the receiver, and further screwing will stop it working. Separating the quench coils will raise the anode current both with and without signal, the current change also increasing, but tuning and condenser setting will need to be checked with each alteration to the quench coils. By this means, and using a 1S4 valve a current change of 2·4 m.a. down to 1 m.a. was obtained. These adjustments are best carried out with a weak signal from the transmitter, such as using it with no aerial and at a distance. It needs someone to switch on and off when desired, or an automatic switch. A transmitter with much reduced H.T. can also be used. In the writer's case the receiver was adjusted to give a current change of 1·5 m.a. down to ·8 m.a. using a 3S4 or 1·8 m.a. down to ·8 m.a. with a 1S4, the 3S4 to be the valve normally used. This was because the main idea of this receiver is that it can be run economically.

There is a possibility that screwing up C1 will not make the current rise, though touching it with the finger will do so. In this case a small condenser of 5 pf. can be soldered in parallel with C1, that is, it is connected to the same quench coil wires as C1.

When the quench coils have been adjusted for spacing, slips of balsa should be glued between them, and they are then fixed to the panel with thread through the pair of holes just in front of the valveholder.

This completes the receiver but final adjustments will have to be made when it has been installed in the model. Note that for this installation a variable resistance is not required in the H.T. lead. Total weight of this receiver with valve and light-weight relay is only 2¼ ounces.

Some beginners are sure to wonder what transmitters are suitable, well! nearly all. All those described in these notes so far, and Mr. Dews, Cossor, Flight Control, E.C.C. and E.D.

This receiver has been checked for range from the Aeromodeller No. 1 Transmitter and at half a mile it still gave a current change of ·7 m.a. using a 3S4 valve with only half filament connected up. A little further away there was no change. The transmitter used was not particularly efficient, and is the sort of thing any beginner might construct.

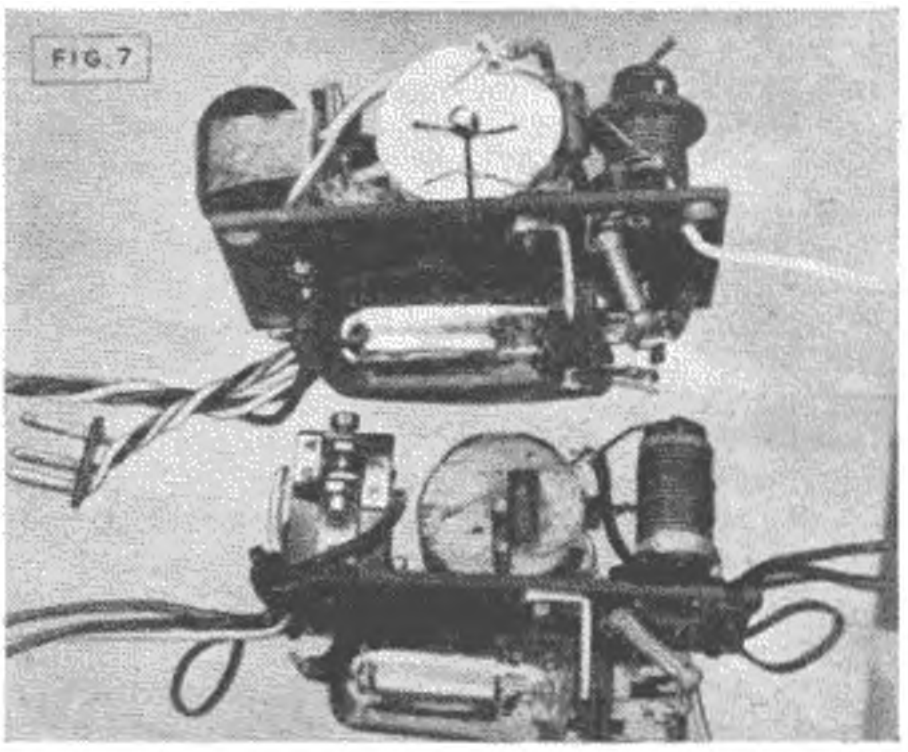


FIG. 7

ESPECIALLY FOR THE BEGINNER

PART XXX

BY VIC SMEED

Design Procedure

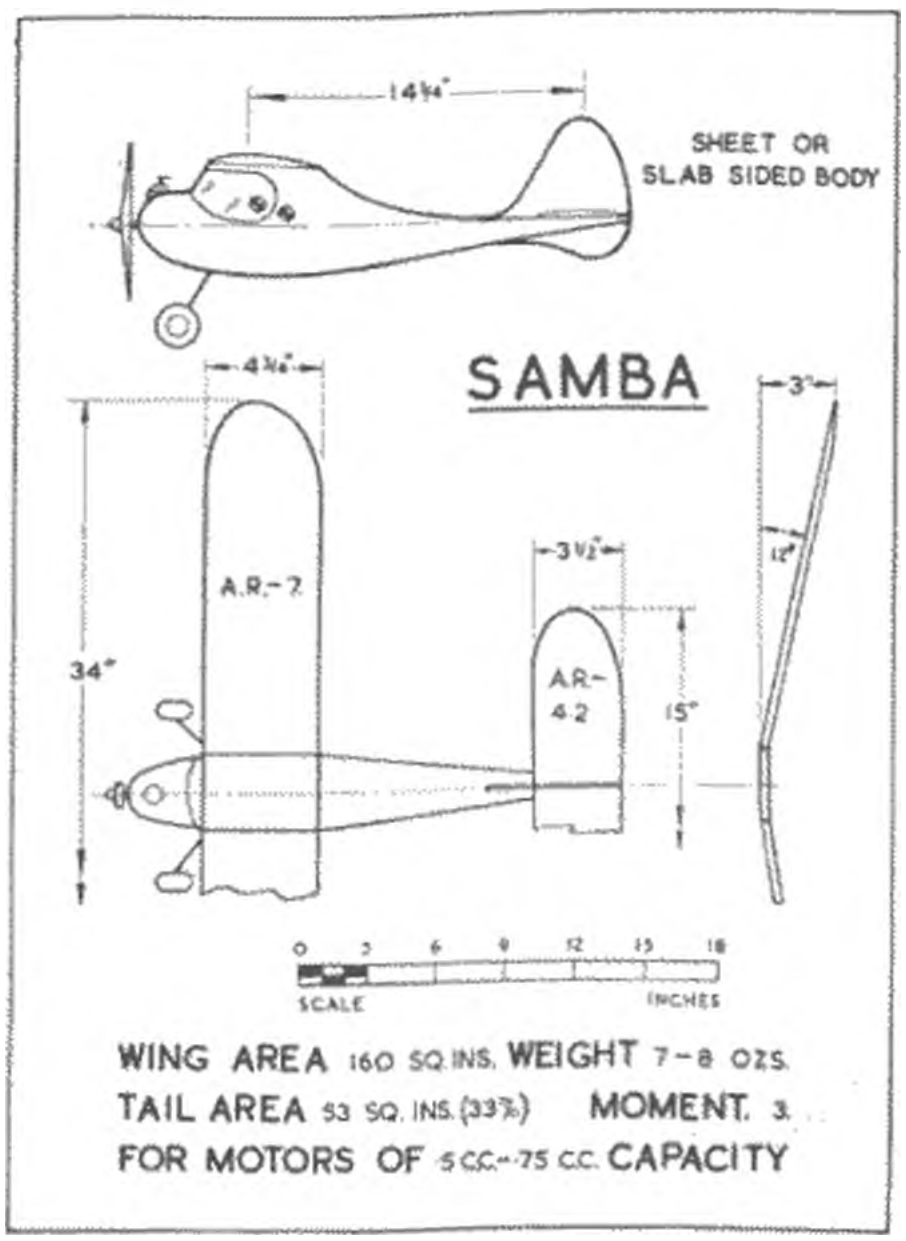
1¼ times enlarged Popsie by Derek Isleff of Winchester has an E.D. 2·46 c.c. and is 58" span.

THE only feature of a design about which there is any doubt is usually where the C.G. will come in the finished model; this can be reduced to where the engine must be placed to ensure that the C.G. comes where we want it. It is possible to work this out mathematically, but it is a painful business, involving calculation of the cubic content of balsa, tissue, etc., and the individual C.G. of each part of the aeroplane. Many experienced designers "guesstimate" the weight and C.G. of the various components from past models, which also involves maths.; others say that if one is going to guesstimate at all, one big try stands as much chance of being reasonably accurate as the accumulated errors of several smaller shots. Accuracy in this case depends upon experience; however, an average model can be trimmed to fly safely with the C.G. an inch from where it should be, even without resorting to ballast, so there is no cause for alarm.

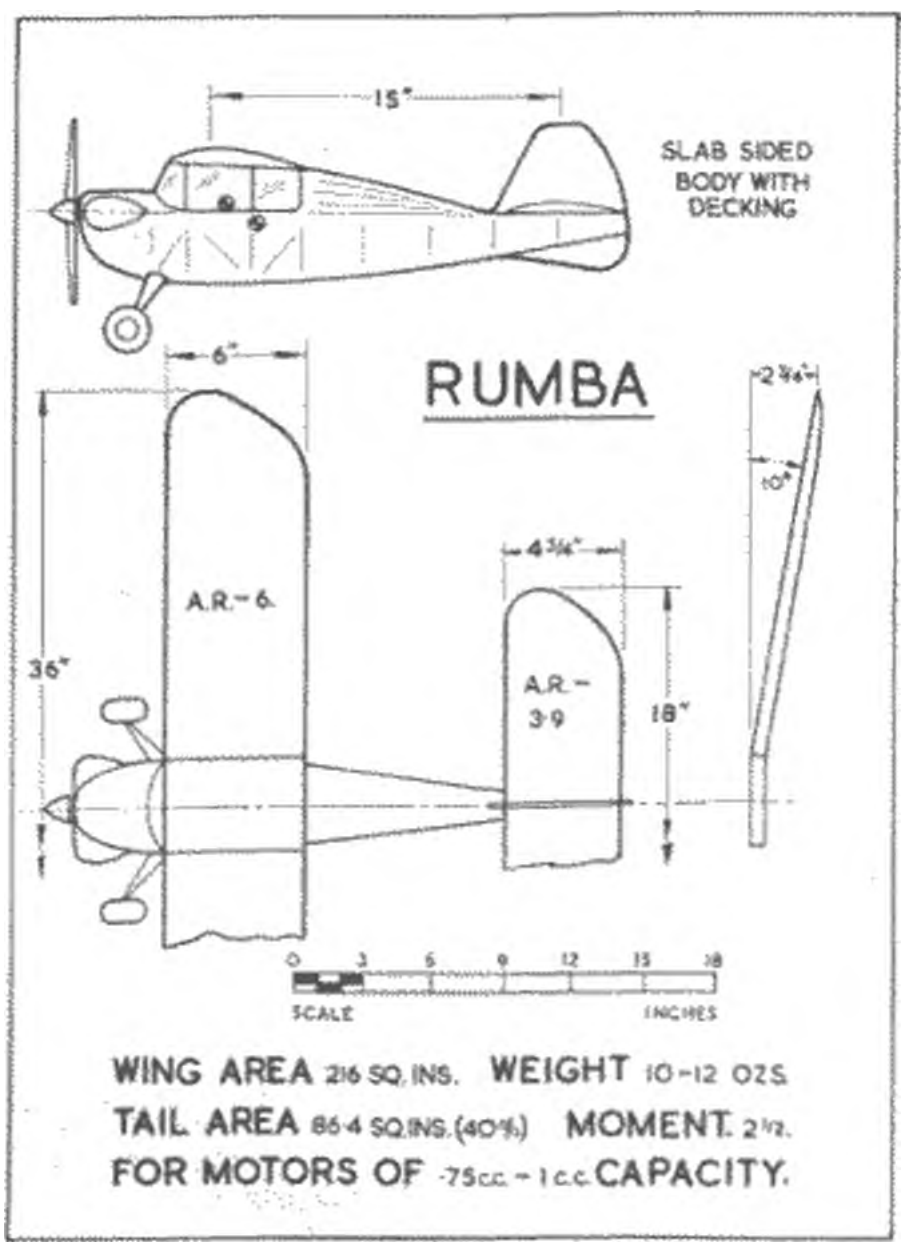
The first requirement is to mark in the desired C.G., which will depend largely on the aerofoil and area of the tailplane. A symmetrical or flat plate non-lifting tail will need the C.G. at about one third of the wing chord back from the L.E.: a large similar tail or a lifting tail of normal area requires the model to balance at approximately mid-chord; a large lifting tail usually has the C.G. at about 60–70 per cent. chord—all these for average moments. Long fuselages need the C.G. a little further back, short *vice versa*. The length of the nose will therefore depend to a large extent upon the tailplane, but also on the weight of the structure (*i.e.*, a heavily built body and/or tailplane will need a correspondingly longer nose) and on the weight of the motor. Motors of similar power or capacity vary tremendously in weight (we can think of two equally powerful ones weighing 3½ ozs. and 9 ozs.!) so that altogether it is impossible to lay down hard and fast rules for determining motor placing. The best that can be said is that the distance from the wing L.E. to the centre line of the cylinder is normally not less than half the wing chord nor more than three-quarters of the chord. A good scheme is to find a model on similar lines to your own (back numbers are useful here) and compare your idea of a nose length with that of the proved machine. Alternatively, build the model and slide the motor up and down the bearers until the balance is about right, allowing a slight bit for completing the nose. Our own model has an average lifting tail and moment, and may be expected to balance at mid-chord. The fuselage structure aft is reasonably light, and we are using a full cowl, so we will place the motor one half chord in front of the leading edge.

Once having placed the motor, draw in its rough outline and that of the propeller. The fuselage outline can now be filled in and attention turned to the undercarriage. For the conventional two-wheeler the single-wire leg is hard to beat, especially for small models. It is simpler, lighter, and stronger to bind the undercart in, although, since this may bring transportation problems, a plug-in box type is quite satisfactory. Larger models may need a two-wire leg, in which case plug-in tubes can be used. The essential thing is that the legs should be able to spring outwards and, if possible, backwards, since the undercart takes most of the landing load. For this reason, too, its attachment to the fuselage should be such as to transmit the landing shocks through the whole of the structure, which means a strong basic attachment point and plenty of bracing. Two wheel landing gears should be placed with the wheels no further back than halfway between the wing L.E. and the airscrew, for reasonable safety in landing (Fig. 1). The rake of the legs is not particularly critical provided that there is adequate strength and stiffness, but the general "set" of the undercarriage greatly affects the appearance of the finished model (Fig. 2). Track (distance between wheel centres) is normally about one fifth of the span. The tail support can be a wire or bamboo skid, a small wheel, or the base of the underfin. All of these must be firmly attached.

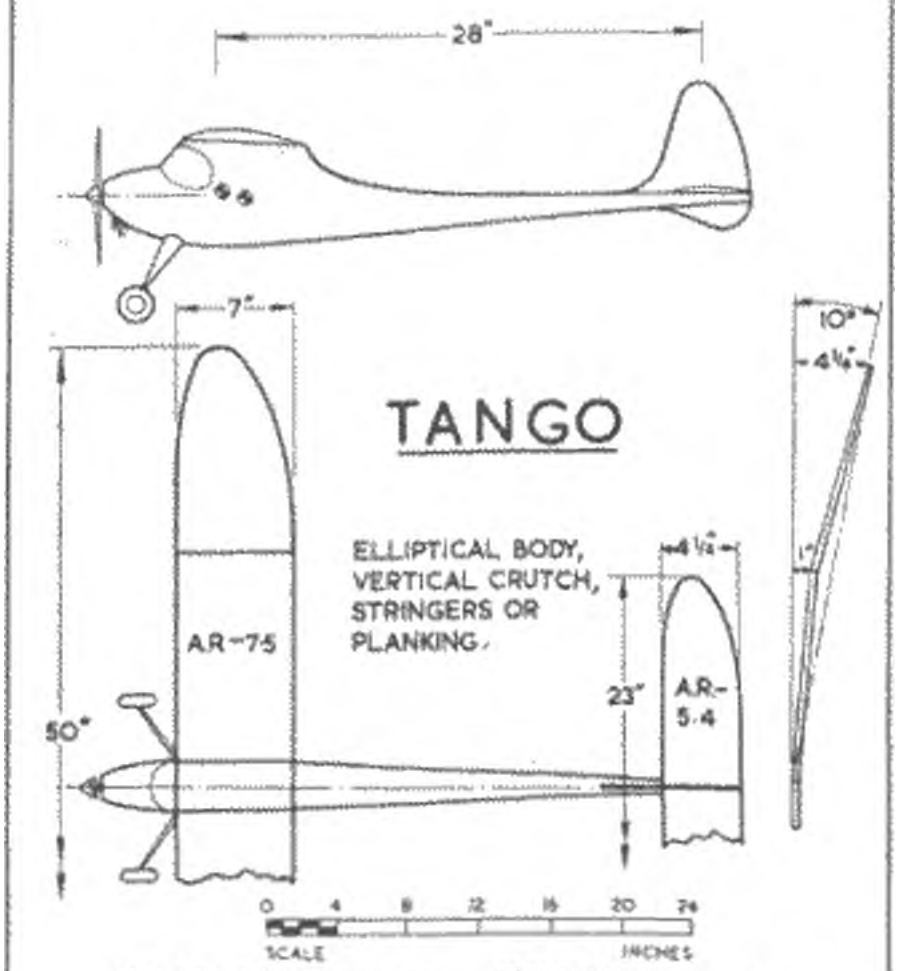
Tricycle gears are usually a trifle heavier, which often outweighs the ground stability advantages and modern appearance of this form of undercarriage. It makes a refreshing change, however, and our model will use one since contest performance is not the aim. The main wheels should be



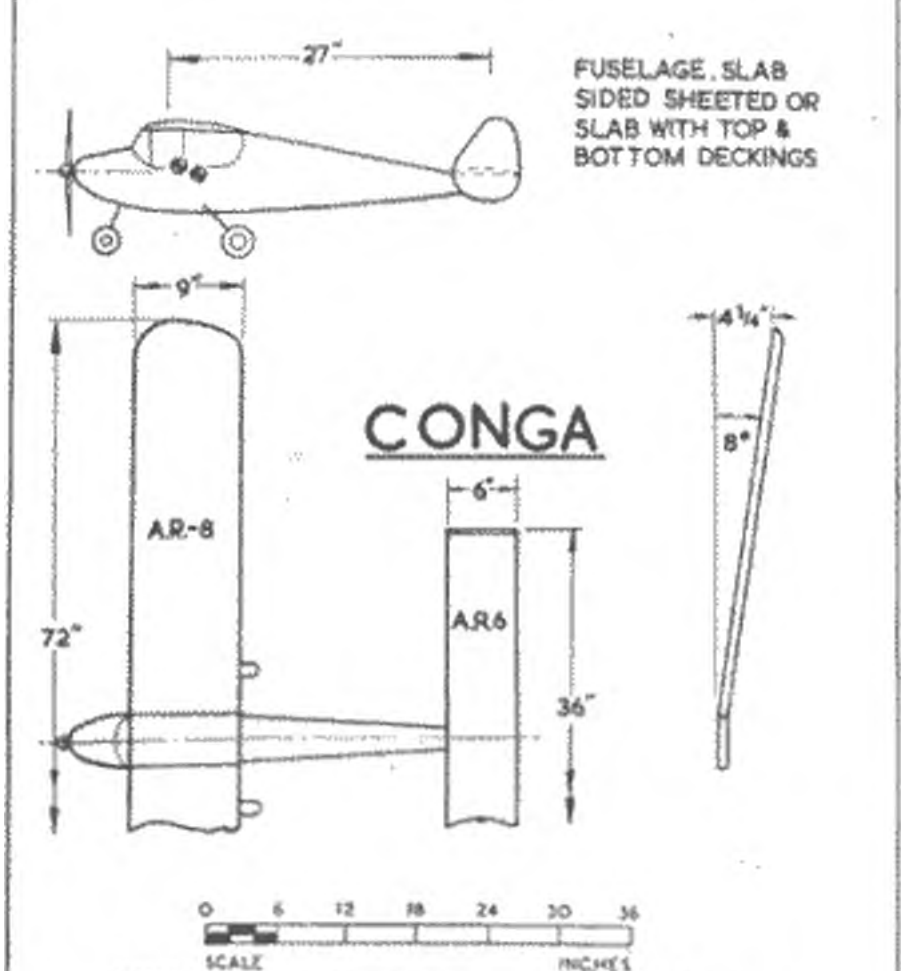
WING AREA 160 SQ.INS. WEIGHT 7-8 OZS.
TAIL AREA 53 SQ. INS.(33%) MOMENT. 3.
FOR MOTORS OF .5 C.C.-.75 C.C. CAPACITY



WING AREA 216 SQ. INS. WEIGHT 10-12 OZS.
TAIL AREA 86·4 SQ.INS.(40%) MOMENT. 2½.
FOR MOTORS OF .75 C.C. - 1 C.C. CAPACITY.



WING AREA 350 SQ.INS. WEIGHT 16-20 OZS.
TAIL AREA 98 SQ.INS.(28%) MOMENT. 4
FOR MOTORS OF 1·3 - 2 C.C. CAPACITY



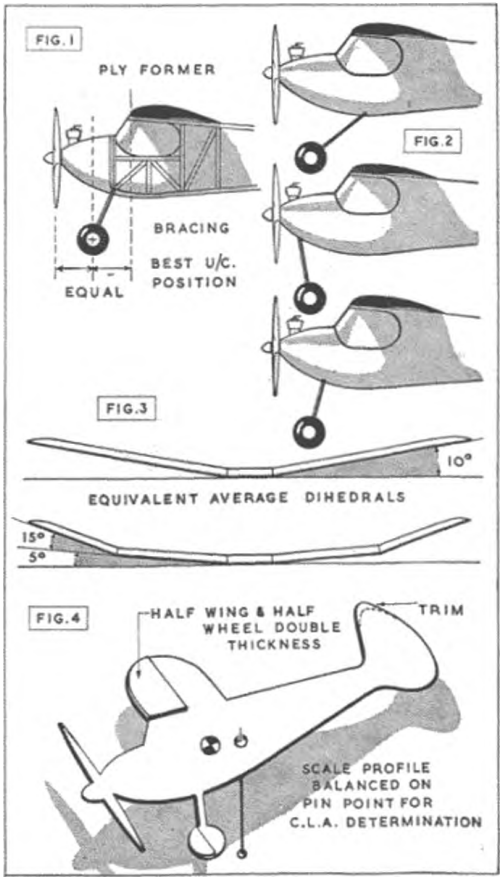
WING AREA 650 SQ.INS. WEIGHT:
TAIL AREA 216 SQ.INS(33⅓) SPORT 36-40 OZS.
RADIO 56-64 OZS.
FOR MOTORS OF 2·5-3·5 C.C. CAPACITY

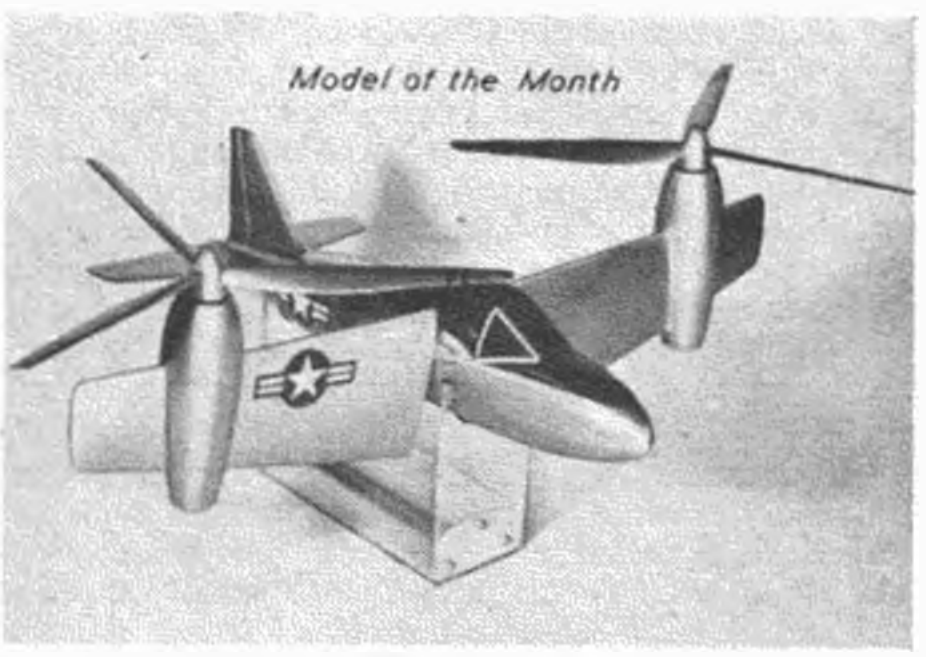
set slightly behind the C.G.—a half to one inch is an empirical guide—and should retain the characteristics of the more usual two-wheel undercarriage. The nose-wheel takes the brunt of the landings and must be stoutly mounted ; a solid rubber tyre is preferable to an airwheel in this position. Tracking is more critical with a nose-wheel, and tests should be made on a smooth surface to see that the model runs straight. The front leg must be free from any tendency to twist, for which reason double-wire legs are favoured.

All that remains of the basic design outline is the dihedral/fin area relationship. For this type of model there seems little to choose between any of the standard di- or poly-hedral wing shapes ; the matter can be left to individual taste. About 10 degrees is average for straight dihedral (*see* Fig. 3), and 8 degrees is the absolute minimum for a first design—if initial designs show a common fault, it is insufficient dihedral, so err on the other side for safety. Ten degrees is equivalent to a 1 in. rise in every 6 in., so that a 36 in. wing will have 3 in. rise at each tip. Since our own model will not be high-powered, 9 degrees will be used, in conjunction with a 12 per cent. fin, which latter will be as large as is safe. This will bring the C.L.A. fairly well back and give good weathercock stability without (we hope !) too much danger of spiral dives. The best practical way of determining fin area is to cut from stiff paper a true scale profile of the fuselage, including the projected side view of the wing, undercarriage, etc. Add about half the wing and wheel with a touch of paste, to allow for the side interference of the " hidden " wing and wheel, and leave more fin on than will be required. Mark the desired C.G. and balance the silhouette horizontally on the point of a pin (Fig. 4). The balance point will be the C.L.A., and the fin may be trimmed away until the C.L.A. is where wanted, *i.e.*, just behind and below the C.G. Scale up the resulting fin to full-size and Robert should be your avuncular relative ! However, a fin of from 10–12 per cent. will not normally prove dangerous on an average sport model, provided that it is kept fairly " square ", *i.e.*, that its height does not greatly exceed its breadth, and that at least a fifth of its area is below the thrust line. The actual shape is not critical (except on high performance jobs) and many designers " sign " their models with the fin shape ; examples are De Havilland and Bristol.

Detail design—that is, the actual construction—has been ably dealt with in the " Airframe Construction " series which has been running concurrently with these articles. It cannot be too strongly emphasised, though, that your first o.d. should be *simple*—keep the tricky work for the next attempt. The aim should be quick, easy construction and repair, with maximum strength. If you're not sure of your motor, don't cowl it as completely as we have done, and if you don't see any point in tricycle undercarriages or curved deckings, leave 'em alone. The experience and confidence gained from one's own design will make the second so much easier that having less worries you will automatically go in more for appearance.

The accompanying four outline designs are all outcomes of the foregoing procedure, and indicate that the process does not necessarily result in a standardised model. Any of these lay-outs would prove an average-flying model, though inefficient propellers would be advisable with the higher-powered motors suggested for each, to render trimming easier. " Samba " is a typical cheeky-looking small model which uses a fair fin area to offset its 12 degrees of dihedral. " Rumba ", a chunky, short-coupled job with apple-cheeks and a noticeably large tailplane, offers comparison with the slim and quite elegant " Tango " which, built with an elliptical fuselage and small tail, would prove rather advanced in construction and is therefore more suited to a second design attempt. " Conga " is a larger model which would be quite useful for radio control if suitably designed structurally. Any builder who cares to scale up any of these lay-outs, or who wishes to undertake an original design but is still in trouble, is invited to send any queries along and we will do our best to sort them out.



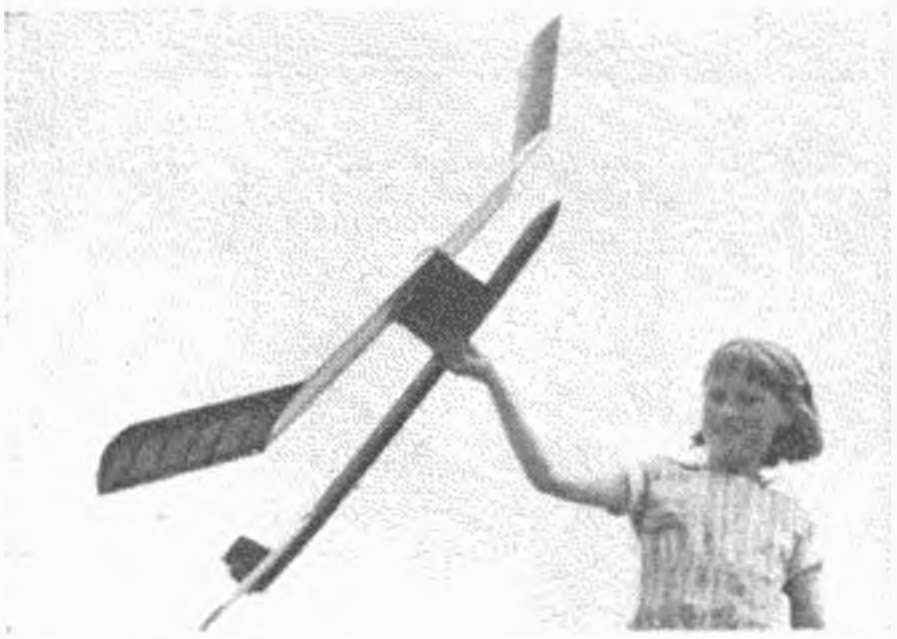


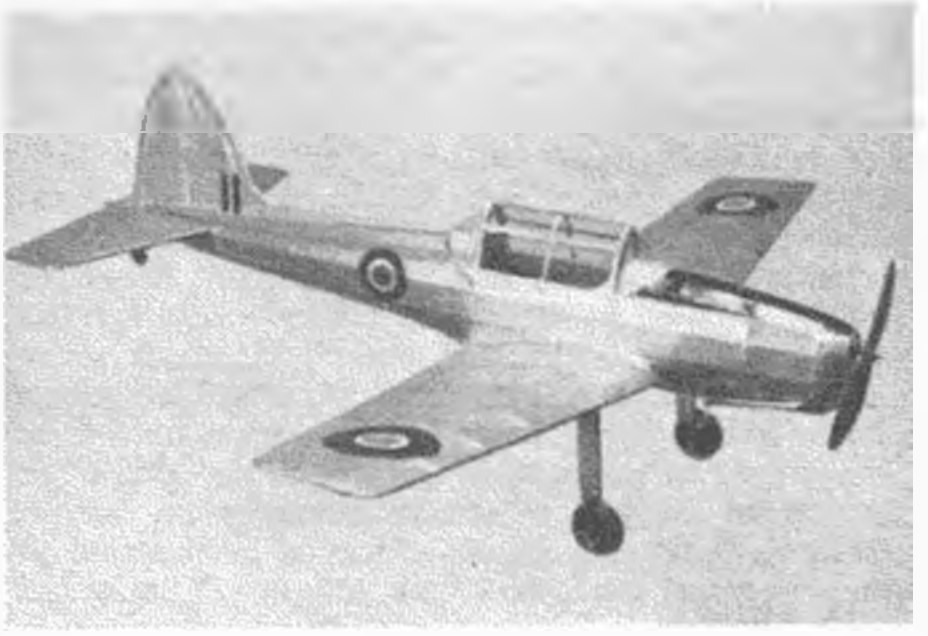
★ MODEL NEWS ★

NOVELTY, yet useful purpose, gained the "Model of the Month" title for the Convertiplane seen above, right. This is a pre-development scale model of an idea conceived by J. Oliver Black in the U.S.A. The ability to take off or land vertically by pivoting both wing and engines, yet fly at very high airspeeds when wings are normally disposed, are performance characteristics hitherto undeveloped in full-size flight. Note the large airscrews—would you, as a modeller, say it would work? Top left is another ambitious project that is all-British and out to gain a World Record for the old country. At present, the open duration figure of 5 hrs 10 mins. is held by Russia; but that popular model-shop proprietor Ed (Shadow) Rogers, from Weybridge, intends to better this by a good margin. Two reliable E.D. Mk. IV's and two pints of fuel in the main tank will provide power for at least a couple of hours, and after that thermals will have to play their part. If they don't, wing tanks for a six-hour run will be fitted. Radar, full-size following aircraft and Met. are organised to chase the 10 footer.

Left is Jim (Hot-Rock) Hedges, that crazy S. African speed flier who flits around the world, and currently belongs to Southampton Club. Model is his Hornet 19 powered 13-inch span effort—it's bound to fly, with those muscles whipping it around!

Bottom left, the youngest competitor to reach the A/2 finals is caught by Bob Woodhouse's camera with her model. Wendy Bennett, only 11 years old, can show the old 'uns a thing or three when it comes to





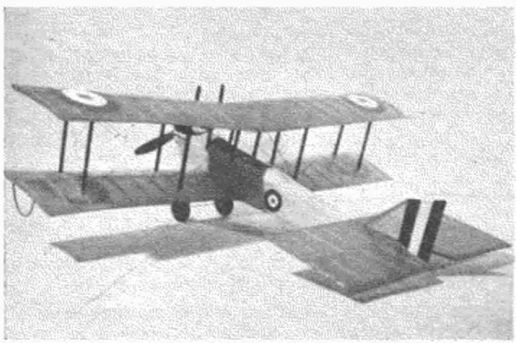
towing up a glider ; she placed 8th in the K. & M.A.A. this year, and looks like ousting the boys in future! The Chipmunk neatly portraited in the next picture is the work of Phil (Gilhchopper) Guilmant, and just goes to show what can be done with one of those excellent little Keil Kraft 3/8d. kits.

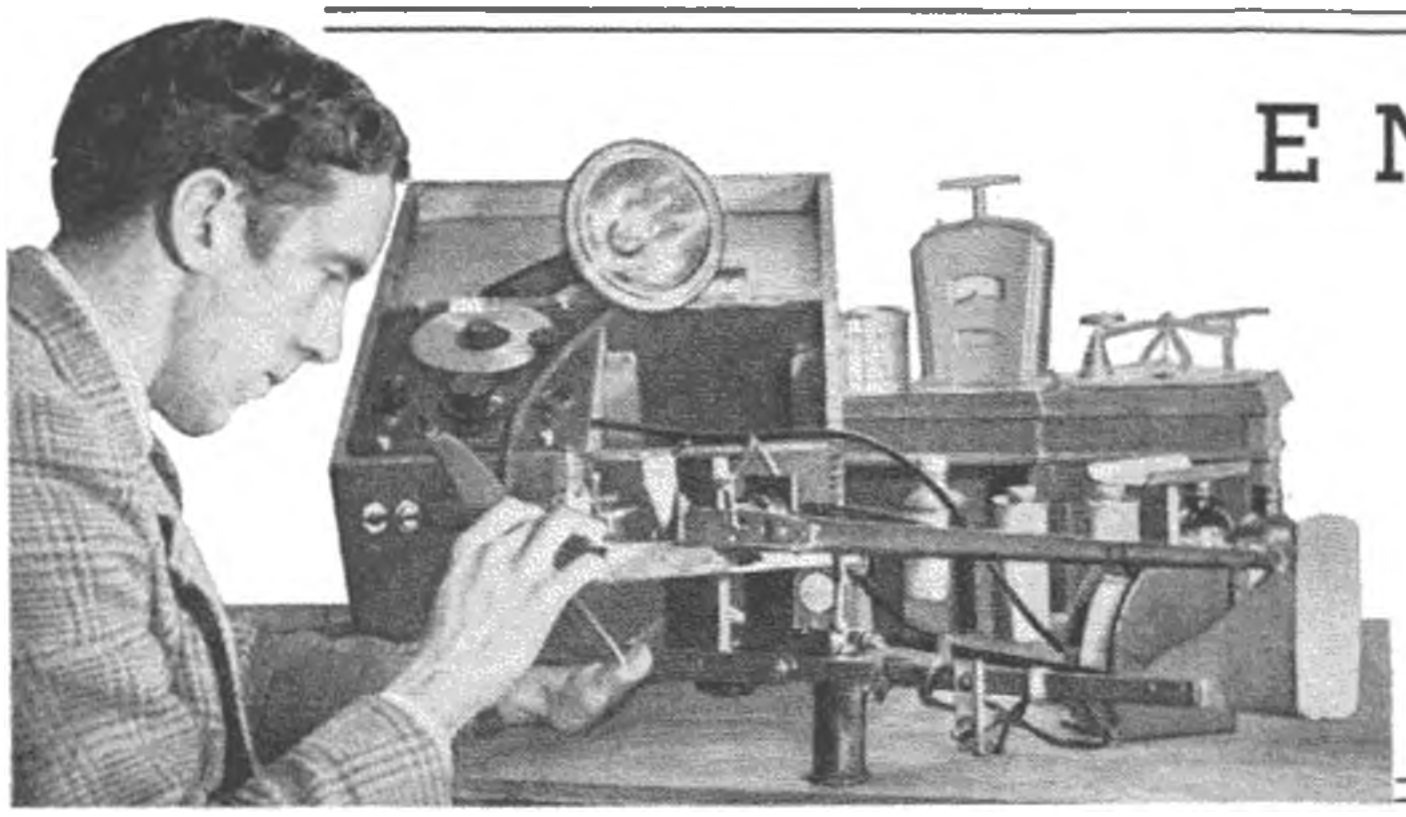
Another scale model, this time a De Havilland 4(?), fitted with an O.K. Cub by builder Alec Burns of Ontario, Canada, is seen at bottom. Weighing but a scant four ounces, complete with engine, this 30-in. span free-flighter is Jap tissue covered and coloured blue and yellow. To its right is an extra long toothpick from W. Middlesex, the result of purchasing an an 8-ft. length of 1-in. sq. pine for a fuselage! Span is 9 ft. and tail area 25 per cent.

Beautiful Class B Team Racer at right is known as the Rivetter. Covered in silk and lavishly decorated by builder G. J. (Snorky) Rae of Malvern, the model has an ETA 29 motor, and, if as fast as it looks, should do well in races.

Top right are two other well-finished controliners, both the product of Battersea's Jim Rough, and both are models of Grumman fighters. The Tigercat has two Frog 500's, and the single-engined Bearcat, a K & B. Torpedo 29.

And so to our last photo for this month, the contest-winning solid model to 1/36 scale of the Henschel 162 by Cpl. McHard. With retracting undercart and sliding hood to reveal its detailed cockpit, no wonder it placed first in the R.A.F. Flying Training Command exhibition, and at the Sheffield Society of Modellers show earlier this year.





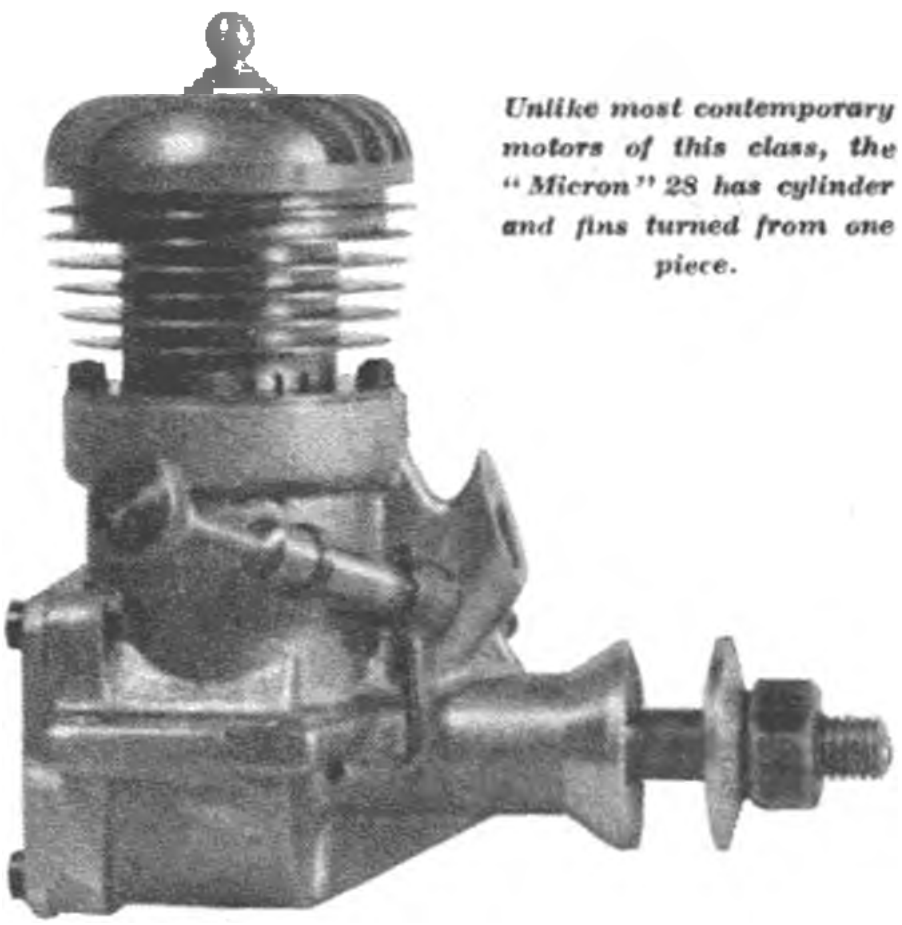
ENGINE

NUMBER THREE OF THE NEW SERIES

by

RON WARRING

A CHUNKY, rugged engine, the new Micron 5 c.c. glow plug motor belies its appearance in many ways. Accustomed as we are to the high standard of external finish on almost all current British production motors—and even more so in the case of American motors—the rough sand cast crankcase unit of the Micron gives the impression of excessive weight and lack of proper finishing. There are other strange features, too. Full 360 degree exhaust porting is provided by a series of holes in the cylinder wall, so small in diameter as to make one doubt their efficiency. The fuel intake tube, assembled on the same side as the needle valve is strange to British eyes and again of very small diameter, whilst even the French glow plug seems wrong with its plain, upright pillar connecting to the centre electrode.



Unlike most contemporary motors of this class, the "Micron" 28 has cylinder and fins turned from one piece.

During the running in period, however, it soon became evident that the Micron "28" is a very sound, fast engine indeed. The makers claim a power of 0·33 Force de Cheval (C.V.) at 9,000 r.p.m., equivalent to roughly 0·325 brake horse power (one C.V. equals ·9863 h.p.), but on test peak power was obtained in the region of 11,000 r.p.m. The engine was quite consistent in running at all speeds from about 7,000 r.p.m. up, and was quite happy at the higher speeds. Approximately forty-five minutes actual running was given during the breaking in period, after which torque and r.p.m. figures were obtained at various speeds.

Difficult Priming

Usually the easiest way to start a large glow plug engine is to prime generously through the exhaust port, leaving the needle valve at the running setting, and let the initial rich mixture clear itself as the engine settles down to steady running. Priming in this way was not possible with the Micron due to the small size of the exhaust, but starting was just about as easy as with any engine handled. Two or three choked turns with the finger blocking the air intake, a sharp flick and the engine was away. This held good even when hand starting with a tiny 7 in. diameter propeller.

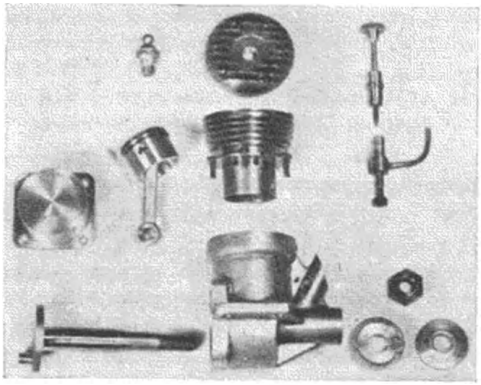
The Micron does have two disconcerting habits, however. Flicking over with the engine well primed, excess fuel is likely to be projected forwards violently from the intake. Also when it starts it is just as happy running backwards as forwards (*i.e.*, clockwise instead of anti-clockwise), and about the only clue with the engine clamped down is that the exhaust streams forwards through the propeller disc. Most glow motors will run backwards as well as forwards, but this is the first one handled which did so readily when flicked over in the usual manner for normal running.

Apart from this starting gave no trouble at all. After a test run the engine was stopped to change

ANALYSIS

The MOTEURS "MICRON" 28

A ringed glowplug motor of novel design and construction from one of the largest engine manufacturers on the continent

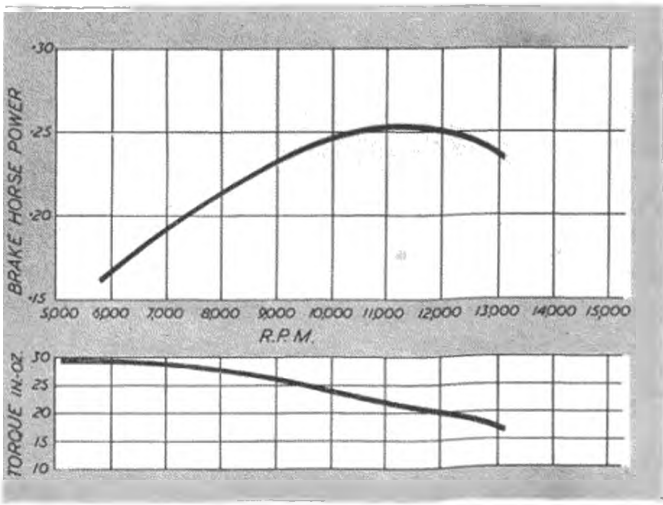


Taken apart, the Micron 28 reveals several interesting features. The light alloy piston has thick walls and is fitted with two rings. Transfer passage is arranged all round the cylinder, the gases pass through the ring of holes visible below the lowest fin. Exhaust holes are much smaller. Needle valve is of the semi-remote type. Cylinder head is anodic red.

the propeller. One or two choke turns, a sharp flick and it was away again. It was also quite flexible on the needle valve control, one turn in either direction making very little difference to the running characteristics.

Easy to Control

The needle valve itself, rugged in size and angled back away from the propeller disc, was also pleasant and easy to handle. A large milled knob on the end of the needle assembly gave positive finger control. The needle itself was a fairly tight fit in its housing tube and, even without the split tube lock, showed no signs of vibrating loose when the engine was running. The long fuel pipe extending from the same side of the spray bar assembly also proved to be a good, practical idea, enabling the minimum length of fuel tubing to be connected to the tank. The fuel tubing required, incidentally, was the same diameter as that normally used on a 1 c.c. diesel. The only thing wrong with this connecting pipe was that, as fitted, it got in the way of the motor bearers and had to be bent to a quite different shape to clear them. It would have been better had this tube curved backwards above the mounting lugs, instead of beneath them.



Micron 28

Displacement : 5 c.c. (0·30 cu. in.).
Bore : 19 mm. (·748 in.).
Stroke : 17 mm. (·668 in.).
Bore Stroke Ratio : 1·12.
Bare Weight : 6 ozs. (less tank and propeller).
Mounting : Beam. (Upright, inverted or sidewinder).

MATERIAL SPECIFICATION

Crankcase : Sand cast light alloy.
Cylinder : Steel, turned from solid.
Piston : Light alloy, turned from bar (with steel rings).

Manufacturers : Moteurs Micron, 14, Avenue Jean Aicard, Paris XI.
Price : 6,000 francs (approximately £6).

All the test running, incidentally, had to be conducted on a British K.L.G. " Miniglow " plug. The French glow plug quickly burnt out when using a 2-volt accumulator as the starting battery. We did not think to check the instruction sheet until afterwards when, as far as our knowledge of technical French will go, it was discovered that a 1·5 volt battery is recommended and that if a 2 volt accumulator is used, leads up to 3 metres long should be used to provide additional resistance.

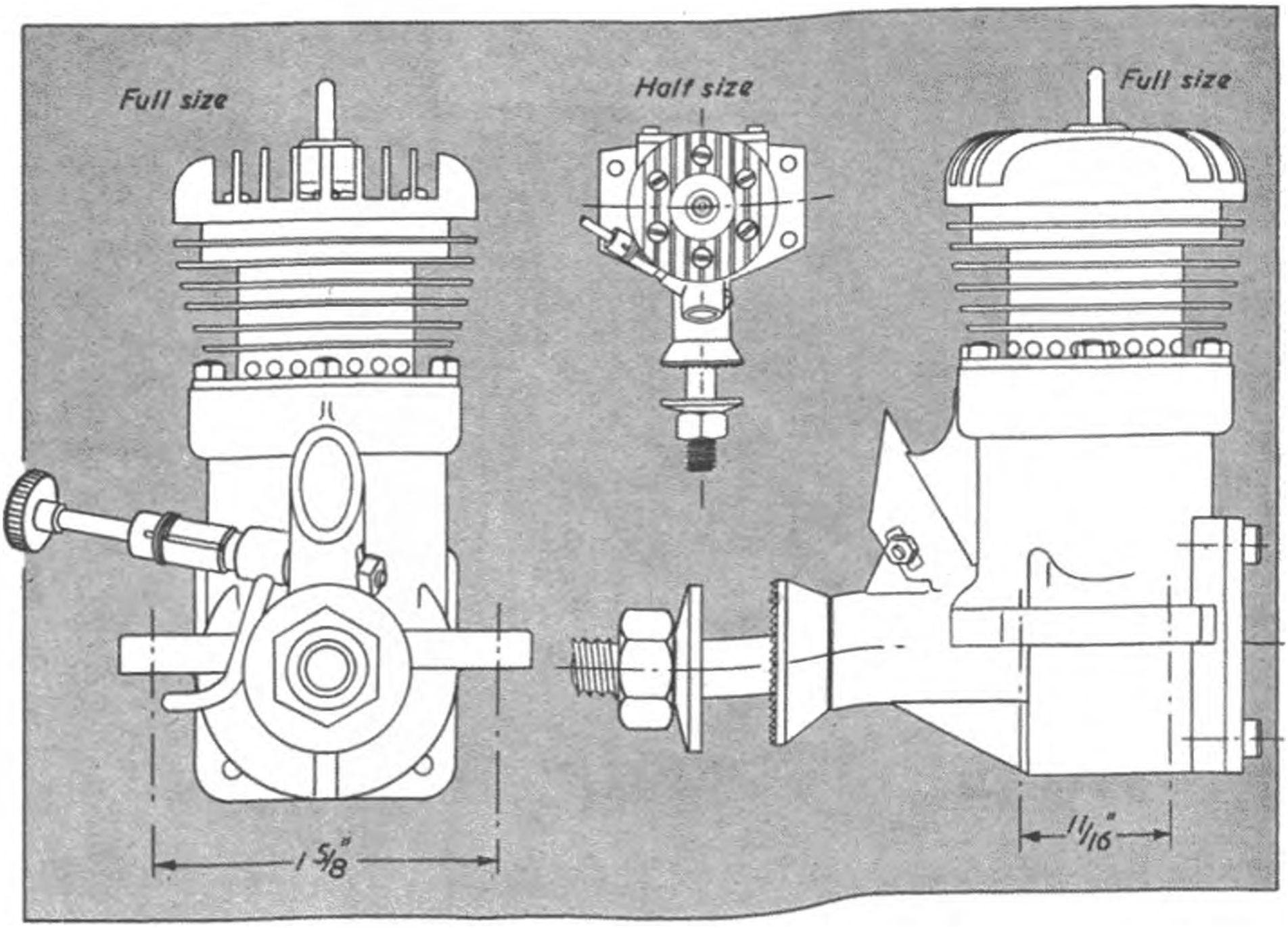
Having established by running tests that all our fears of the engine being underported were groundless we were then left with very little else to criticise apart from the general unprepossessing appearance. The Micron started with pleasing ease, ran steadily and smoothly with a variety of different propellers and undoubtedly had the power and speed to compare with most contemporary motors of its size. Like a good many other 5 c.c. glow motors, however, it did suffer badly from vibration at certain speeds, pointing to the fact that the piston assembly was on the heavy side and unbalanced. We are sure that more could be done to minimise vibration on large engines, even if they are designed for maximum strength of the moving parts. The general tendency is to make the piston far heavier than it need be and then hope that an asymmetric crank web will balance things out. It seldom does.

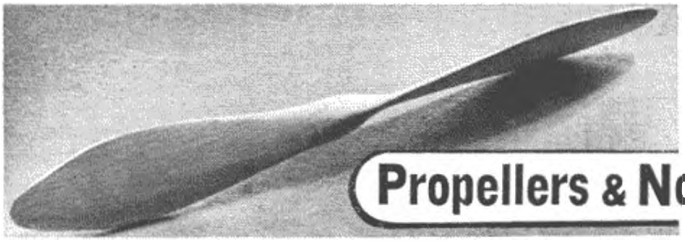
Propeller sizes recommended by the makers of the Micron are 10 in. dia. by 6 in. pitch for free flight ; and 8 x 10 in. or 8 x 12 in. for control line, the latter for stunt. These are consistent with an *operating* r.p.m. of around 9,000, which is the figure given by the makers for peak power, but the tests carried out with this particular example showed peak performance to be achieved at higher r.p.m. values. The use of a plain methanol-castor oil mixture (70 : 30 ratio) as recommended may somewhat modify r.p.m. figures (ten to twenty per cent. less), but Mercury No. 7 certainly appeared to suit the Micron very well. Actual r.p.m. figures achieved on test with various standard propellers are summarised in the table.

PROPELLER TEST DATA
Fuel used : Mercury No. 7 (no additions).

Propeller Dia.	Push	Type	R.P.M.
7	4	Wood*	12,150
7	6	Wood*	11,650
8	3	Wood*	12,200
8	5	Wood*	10,900
8	6†	Plastic	11,350
8	8	Wood*	9,750
9	3	Wood*	11,250
9	5	Wood*	9,900
9	6	Wood*	9,200
10	4	Wood*	10,450
10	7	Wood*	6,900

* Constant geometric pitch. † Nominal.





AIRFRAME CONSTRUCTION

PART EIGHT

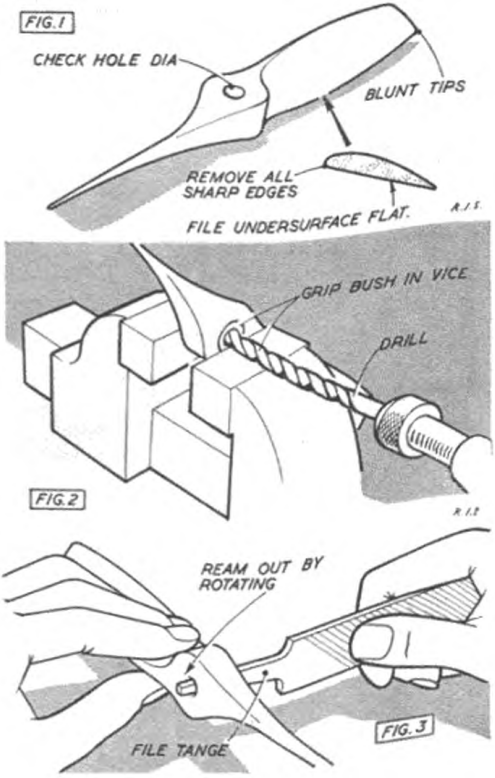
Propellers & Nose assemblies

FOR the purpose of construction we can consider propellers as being of two entirely different types—propellers for rubber models and propellers for power models. They serve the same purpose—to convert the turning power or torque of the power plant (rubber motor or miniature engine) into useful thrust—but, as a generalisation, power model propellers are usually purchased ready made and simply attached to the front of the motor; whilst rubber model propellers are carved from block, may be feathering, folding or free-wheeling, and usually require quite an amount of additional work in mounting in place to complete the nose assembly.

However, we cannot just dismiss power model propellers with the advice "buy one from your local model shop". There are quite a lot of useful points to remember even in the purchase of "finished" propellers. Right at the start, for example, there is usually the choice between a wooden or a plastic propeller in most of the popular sizes. Which is best for the job?

Great Britain has led the world in the wide-spread adoption of plastic propellers for power models. Some of the first plastic propellers produced were American (Snafu) but, whilst of excellent aerodynamic shape, these were costly and, with their thin blades, dangerous to handle and also rather too prone to break. The first British plastic propellers were crude by comparison with thick blade sections, poor efficiency, but tougher. The modern British plastic propeller overcomes these early faults without sacrifice of strength and the certain amount of flexibility afforded by the use of plastic minimises the risk of breakage. Plastic propellers do break, but this is now a comparatively rare occurrence when the model is trimmed. With a high-performance wood propeller, however, it is quite common to break one or two on landing in completing just three contest flights. Thus the plastic propeller offers a considerable economy in the long run at the price of a slight loss in efficiency. This loss cannot be serious for many contest fliers use plastic propellers. But there are others who persist in the use of wooden propellers for contest work for peak performance and accept breakages as a normal happening. In other words they usually go prepared with three or four spare propellers whereas the flier using the plastic propeller generally carries just one spare.

For sport flying, then everything seems in favour of the plastic propeller. This is particularly true with the smaller sizes of motors. In fact with diesels up to about 2·5 c.c. the plastic propeller is, perhaps, the better all-round propeller in any case, the slightly greater weight providing a flywheel action which seems beneficial to running. In the half-c.c. class, for example, the E.D. and Frog plastic propellers, to quote two typical commercial products, are probably as good aerodynamically as wooden propellers, particularly if the backs of the blades are filed flat. The one basic disadvantage is that the range of plastic propeller sizes is more limited on account of the high initial cost of dies.



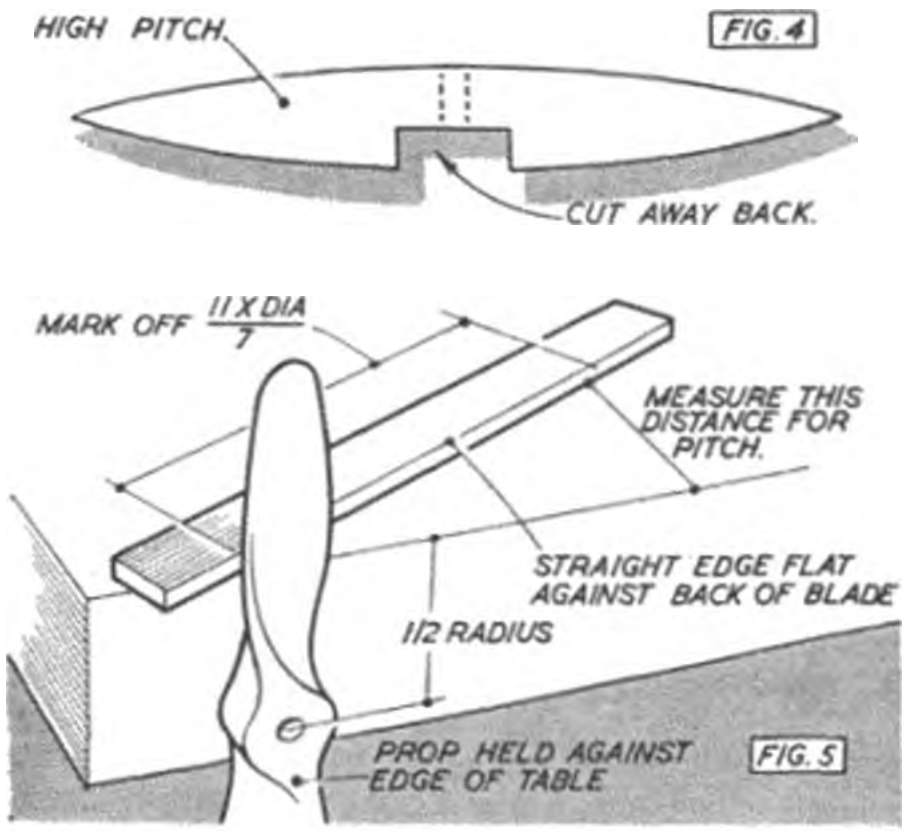


FIG. 4

FIG. 5

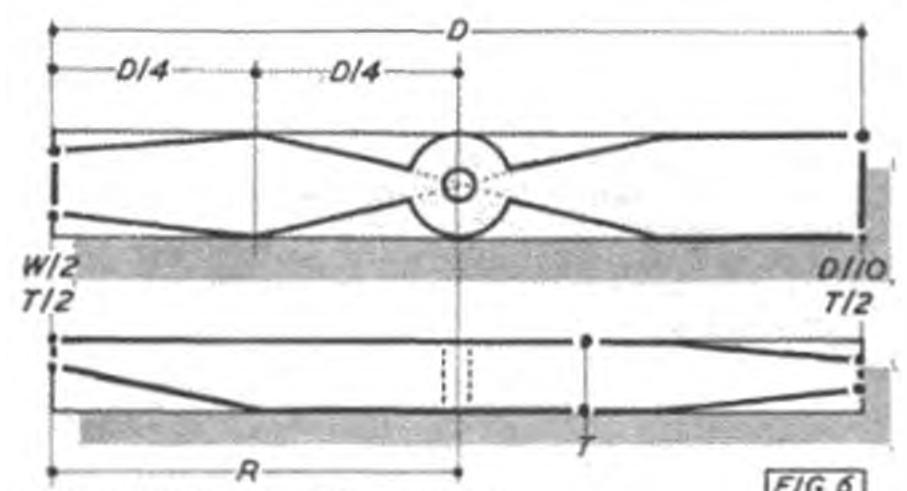


FIG. 6

ALTERNATIVE LAYOUTS SHOWN

This is particularly true of pitches. There are few plastic propellers available with a low pitch and, for free flight duration, many fliers prefer to use a propeller with a low pitch : diameter ratio. Plastic propellers do lend themselves to re-setting to a new pitch angle by heating and twisting, but this is not entirely satisfactory.

If you decide on a plastic propeller, then almost invariably the bought article will require a certain amount of finishing. Since these are moulded in split dies the edges of the propeller are usually quite sharp, often with a knife-edge " flash " of surplus material. All the edges need rounding off carefully with sandpaper, otherwise there is a considerable risk of badly cut fingers when operating the motor.

In many cases, too, you may have to drill out the centre hole to a new size to fit the motor shaft. This is easy enough if the propeller is unbushed, but with the type where a metal bushing is cast in with the plastic material this bush often tends to turn if drilled into with an oversize drill. You then end up with your new hole drilled only part way through and the whole bush loose in the plastic. One way of overcoming this is to clamp the propeller in a vice as shown in Fig. 2. before drilling, where the vice is actually tightened down on the edge of the metal bushing.

With a wooden propeller, of course, drilling out an oversize hole is quite easy—if you have a drill of the correct size. Unfortunately some motors call for a clearance hole in excess of ¼ in. diameter (the usual maximum size of drill which an ordinary hand drill can accommodate). You can do the job properly by buying a special drill or reamer to fit your drill brace, or use a file tang to enlarge the hole as in Fig. 3.

If you are using a high pitch propeller, as on a control line speed model you may find that the propeller hub is too thick to go on the shaft and allow the prop. nut to be screwed on. In this case the simplest solution is usually to cut back the hub of the propeller, as in Fig. 4. The cut-out portion should be on the back of the propeller, as indicated. This will result in less loss of strength than a cut-out made in the front of the hub, with normal propeller shapes.

One feature that many modellers might like to check on any type of commercial propeller is the actual pitch. There is a tendency for different manufacturers to define pitch by different standards so that a 4 in. pitch propeller, say, of one make may have quite a different actual geometric pitch to another make of 4 in. pitch propeller. Thus it is difficult to get a true comparison relying on manufacturers' figures.

The best standard to adopt in checking is to measure the actual geometric pitch at one half the blade radius and this can be done quite simply. Mark the mid position of one blade *e.g.*, 2½ in. from the hub on a 10 in. diameter propeller. Now hold the propeller flat against the edge of a table so that this mid point comes just level with the table top. Lay a straight edge (*e.g.*, a length of sheet balsa) flat against the back of the blade at this point. This will then give the blade angle at this point. Mark off a distance equal to 11 × diameter /7 along this straight edge and from this point measure the actual pitch of the propeller *perpendicular to the straight edge* to the table edge.

Another quick check on pitch is to assume that the propellers are of standard proportion where the width of the block from which they are cut (or the projected blade width in the case of plastic propellers) is 10 per cent. of the diameter. This holds true for the popular duration layout typical of wooden propellers. The pitch is then simply related to the *thickness* of the propeller at the widest point of the blade, which in most cases is the same as the thickness of the propeller at the hub. A typical propeller blank of this type is shown in Fig. 6 and appropriate pitch figures are summarised in Table 1. This blank layout, incidentally, is a good one to use for free flight propellers, if you want to carve them yourself. For sport flying and control line stunt work a slightly wider blade (often of curved outline) 12·5 per cent. diameter is sometimes preferred. For speed propellers a blade width of 7·5 per cent. of the diameter is recommended. The figures in Table 1 do not, of course, apply to these propellers.

To conclude the discussion on power model propellers brief reference will be made to the folding type. These are now rarely used but were in favour some five or six years ago when wooden propellers were the rule for duration work. Rather than any drag saving, the main virtue of a folding propeller is that it is more crashproof than a fixed wooden propeller. In fact, many of these folding propellers were made with stiff hinges so that they did not actually fold on the glide but only if the blade struck some object in landing. They need very careful construction as there is considerable strain on the hinge pins. Such propellers went out of vogue with the virtual disappearance of the spark ignition motor and are now rarely seen. Typical constructional details are summarised in Fig. 7.

Rubber Model Propellers

The rubber model propeller is a somewhat different article. Invariably it is of larger diameter and pitch than its power model counterpart, designed to produce thrust at much lower rotational speeds and, equally invariably, it is carved from balsa to reduce weight to a minimum. From time to time modellers have used rubber propellers carved from light "hardwoods", but this is the exception rather than the rule.

Carving a satisfactory balsa propeller demands a certain knack which practice alone can bring. A limited range of commercial rubber model propellers are available—some fully finished and some partly finished which may be the ideal answer to the less experienced modeller. These, however, are relatively expensive for they have to be hand carved and consequently labour charges are high. Carving your own propellers is certainly cheaper. Almost every contest flier, too, will tell you that for his special purpose he can produce a far better product than a standard commercial type. Certain contest rules insist that the entrant does, in fact, make the whole of his machine, including propeller. All the evidence points to the fact that the man who wants to fly rubber models must learn to carve his own propellers.

Most rubber props are carved from solid block, irrespective of the size or type. In all cases the procedure is similar, starting with a rectangular block of the right overall dimensions, cutting out to blank shape and then carving edge to edge.

TABLE I.

Pitch (in.)	Propeller Thickness (*)	
3	.19895	(3/16)
4	.2548	(¼)
5	.31625	(5/16)
6	.3819	(⅜)
7	.44535	(7/16)
8	.5092	
9	.57285	
10	.6365	
11	.70015	
12	.76380	

* Proportions as in Fig. 6.
[Fractions in brackets are approximate.]

Rather than a wordy description the complete process is summarised, step-by-step, in Fig. 8.

The carving stages are relatively simple up to the third stage, simply calling for accurate carpentry. When the actual carving itself is started, however, most of the rest of the work is finished by eye. The best guide to a beginner is an actual finished propeller carved by an experienced

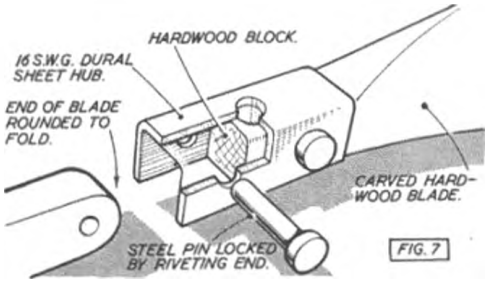


FIG. 7

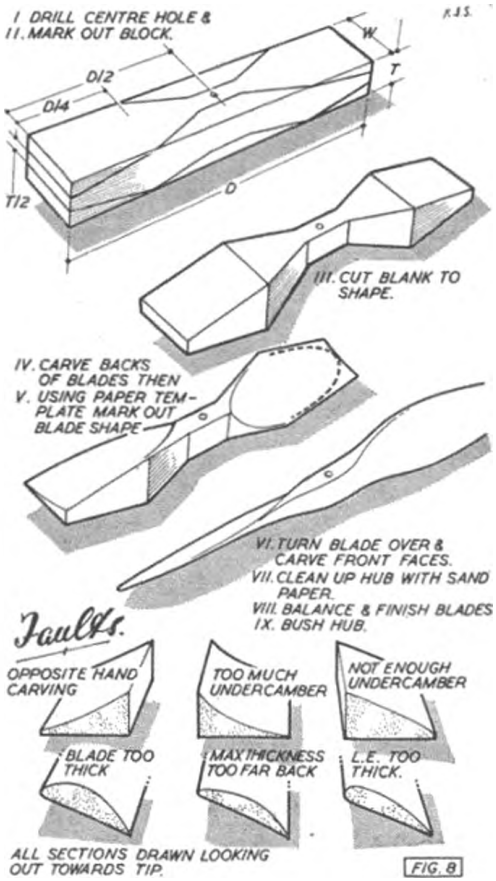


FIG. 8

modeller. Borrow one, if possible, to act as a visual guide—or study closely the propellers carved by experts next time you get to a flying meeting.

Note that the stages in carving a propeller are as follows :—

(i) Drill centre hole through hub.
(ii) Mark out the block.
(iii) Cut to squared blank shape.
(iv) Carve the undersurface of each blade, edge to edge. The blank shape prepared will then give the required pitch angle change from root to tip. Finish each underside equally with slight undercamber carved in.
(v) Mark out and cut to blade shape.
(vi) Carve the two upper surfaces.
(vii) Clean up and finish hub.
(viii) Balance propeller and finish blades.
(ix) Bush the propeller hub.

A variety of possible faults are also listed in Fig. 8. For a start, make sure that you carve the right way—a " right hand " triangle looking from hub to tip, not the other way round. Otherwise you will produce a propeller which will have to be wound up backwards to normal practice and rotate clockwise instead of anti-clockwise. Main objection to a clockwise rotating propeller is that anti-clockwise winding is unnatural for a right-handed person and also tends to unscrew the chuck of a winder.

Another possible fault is carving too much, or too little undercamber in the back surface of the blades. It is better to have too little rather than too much undercamber. Only experience and practice will tell you which is right. The point where most beginners go wrong, however, is in the shape of the finished blade section (when the front surface carving is completed). Maximum thickness of this section should be well forward—between 35 and 25 per cent. of the blade width from the leading edge. The resulting section, too, should be quite thin with a fairly sharp leading edge. Many Wakefield fliers carve their propellers so thin that you can see through the blades near the tip when held up to the light. Towards the hub, of course, the blade progressively increases, for strength.

Single blade propellers are carved in a similar manner from block. Here the job is somewhat simpler for you do not have to match the two blades. At the same time careful shaping of the single blade is just as important.

In spite of carving propellers down to extremes of light weight, many contest fliers go through a whole season without breaking a propeller. A lot of the strength of a light propeller depends on the initial choice of wood for the block. For the normal freewheeling type with two blades, fairly hard, but not too heavy wood is selected. An 18 in. block (2 × 1¼ in.) for a typical Wakefield propeller should weigh about 8 ozs. The finished propeller would then weigh about ¼ to ⅜ oz., certainly not more. Folding and feathering type propellers are proportionately lighter.

There has been a recent trend to carve the blades of even two-bladed freewheeling propellers separately and then mount them in a cylindrical hub, which may be a rolled paper tube or length of laminated plastic tube. Such individual blades can be carved from sheet balsa rather than block, with a consequent economy in both time and material. The same principle can, of course, be extended to single-blade folding propellers.

In carving a propeller blade from sheet we are simply eliminating waste wood by using a propeller blank which is plotted along a diagonal of the normal squared block—Fig. 9. To get the required pitch angle change from root to tip we simply mark on the actual position of the leading and trailing edges on the edges of the sheet and carve to these lines. The only pre-shaping required of the sheet blank is cutting to plan shape.

For all practical purposes the leading and trailing edges lines on the edges of the sheet blank can be drawn straight, as indicated in Fig. 10. The step-by-step stages in finishing are then shown. Make sure that you properly identify the back and front of the blade before carving as it is easy, with this method, to start carving the wrong way round. Once you have got the hang of carving propeller blades from sheet, however, you will appreciate the great saving in both time and money. The trickiest part is then assembling the completed blades in a suitable hub. A simple system is shown in Fig. 11. In the case of a rolled paper tube the centre of the hub is filled with a disc of hard balsa to support the bush. With a laminated plastic

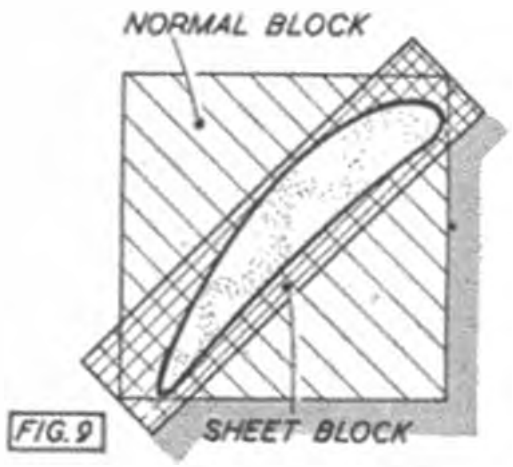


FIG. 9

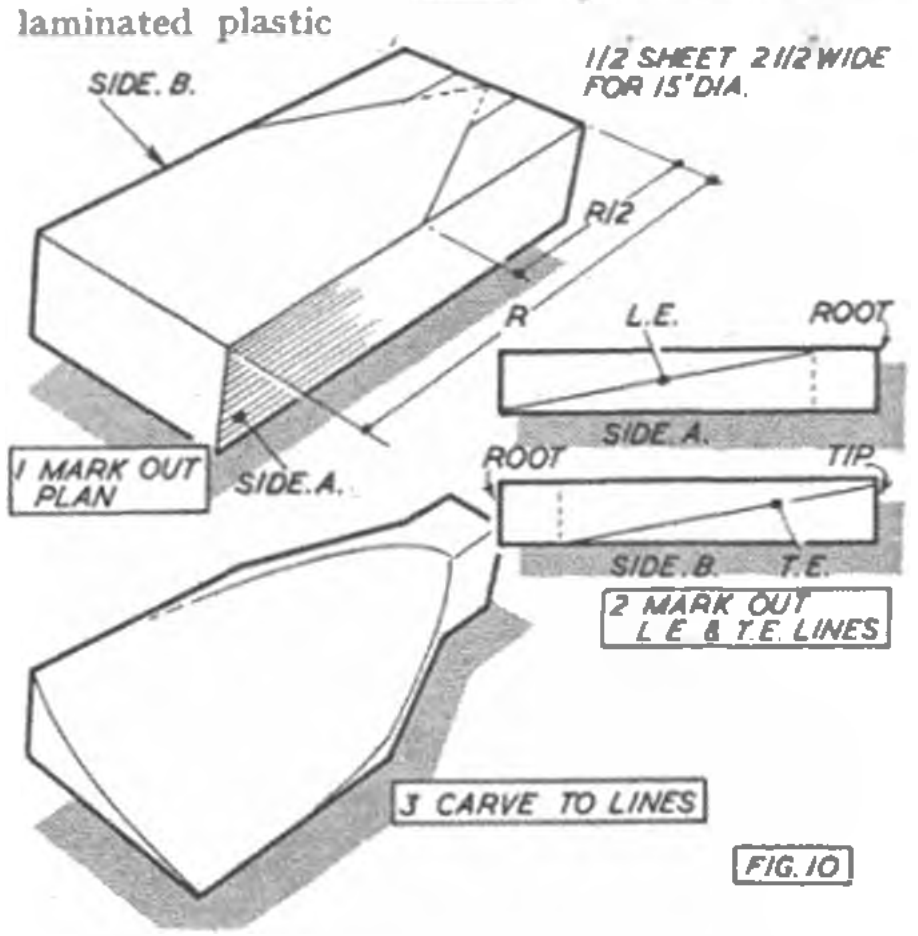
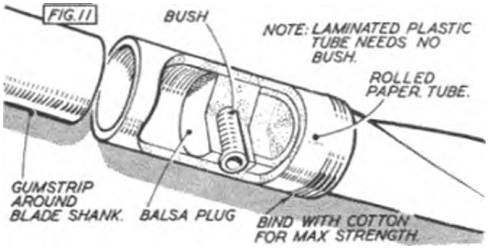
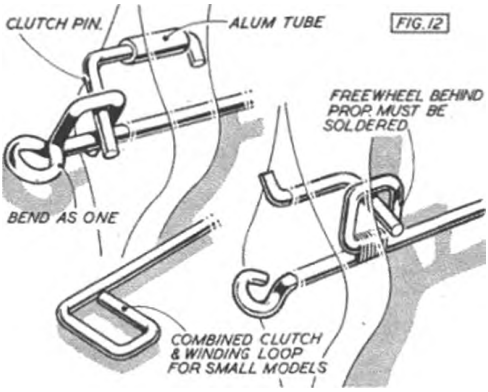


FIG. 10





hub neither the balsa filling or a metal bush is necessary. Once assembled in the hub the blades can be set to the required pitch angle, making sure that each is equal and should then be pinned in place.

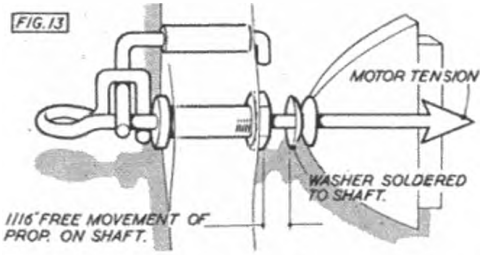
Free-Wheeler's

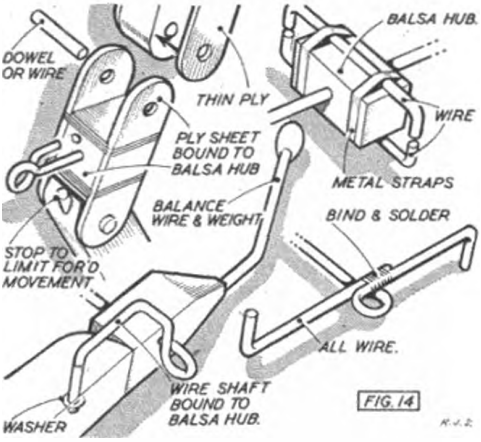
Typical freewheeling propeller assemblies are then detailed in Fig. 12. There are many more, but these are a few which have given consistent, trouble-free results in the past. Wherever possible it is advisable to avoid soldering on stressed parts —the freewheel clutch, for example. Soldered joints have a habit of parting up at the most awkward moments. It is just as easy to bend the freewheel loop integral with the shaft. The winding loop should be a close fit on the hook in the winder to prevent climbing.

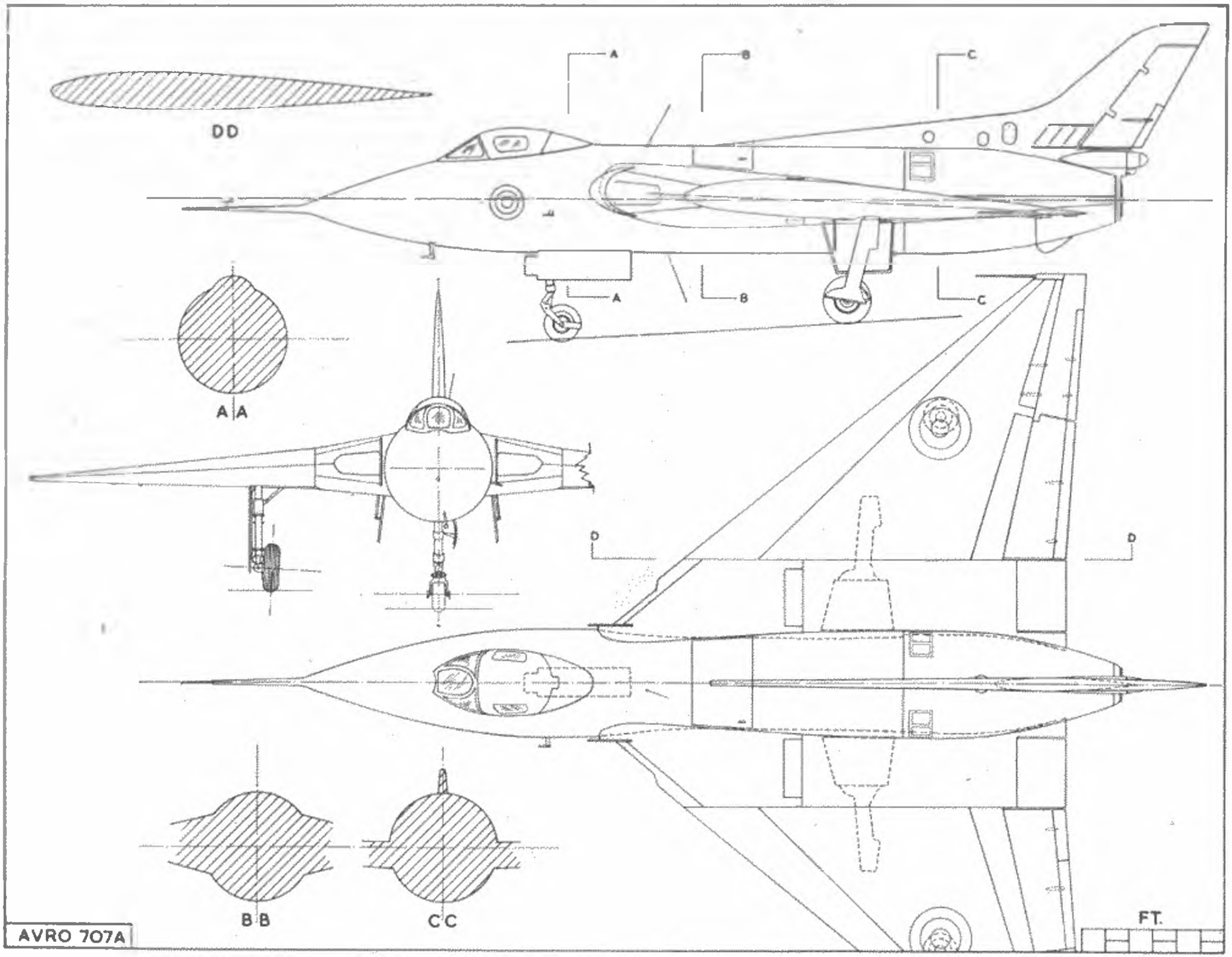
Strictly speaking a freewheeling propeller should have a fixed washer mounted behind it so that when the motor is unwound (but still in slight tension, to keep it taut in the fuselage) the propeller is free to freewheel without binding. But unless a really good soldering job is done on this fixed washer it is best omitted. If the joint fails under the tension of the fully wound motor the washer will slip along the shaft and even lock the propeller to the shaft. A couple of turns of fuse wire soldered in front of the washer makes for a stronger joint. Bear in mind, however, that the greater the " overhang " of the propeller assembly the more likely the shaft will be bent in a rough landing. A bent shaft is often very difficult to straighten out again.

Some folding propeller assemblies are shown in Fig. 14. Here one of the main requirements is a stoutly anchored stop to tension the motor and lock the propeller in the correct position for folding. For the stop a long woodscrew is usually best, preferably screwing through two layers of thin ply incorporated in the noseblock. For maximum strength the stop should be as close to the back of the noseblock as possible. For the stopping on the shaft, again avoid soldered joints. Bend this integral with the shaft and bind with a rubber band or fuse wire for rigidity once the motor is in place. Stop and stop pin take quite a beating when a motor of Wakefield size is employed.

Summarising, it may be said that the nose assembly is one of the most important parts of the model, as far as detail design is concerned. Everything should be positive, foolproof and as simple as possible. Make sure that nothing can be assembled wrongly-- shape the plug-in portion of the noseblock so that it will only fit the right way round, for example—and check periodically. Make do with the minimum of parts necessary to do a satisfactory job of work and put your best into their construction. A fully wound motor is a bundle of potential destruction, as will be amply demonstrated if anything goes wrong at the nose end of the model !



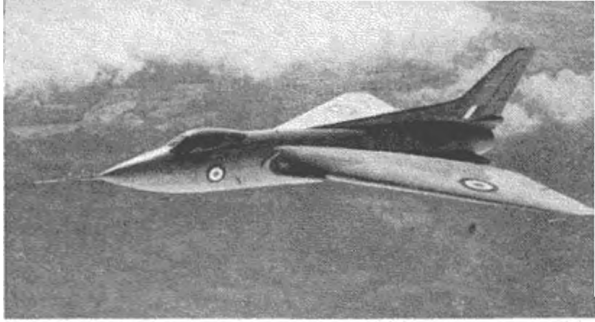


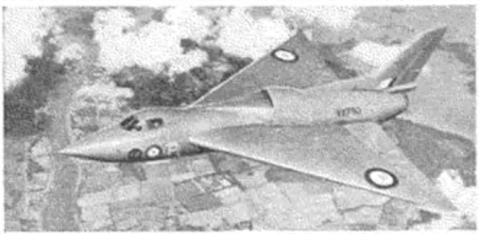


REPRINTS OF THIS 1/48TH SCALE DRAWING MAY BE OBTAINED FROM THE AEROMODELLER PLANS SERVICE, PRICE 6d. EACH, POST FREE

AEROPLANES IN OUTLINE — No. 5.
BY G. A. CULL

The AVRO 707's





THE Delta, so named because of the likeness of its wing shape to that of the triangular Greek letter " D ", or delta, was born of the need for still higher speeds and originated in Germany nine years ago. The delta's characteristics suit it better than any other type to flight at and above the speed of sound and its advantages, mostly aerodynamic, are too numerous to mention individually.

The Avro 707 was the first British Delta and flew to Farnborough for static exhibition at the '49 show. Produced for research into the delta wing, this silver doped prototype was numbered VX 784 but had a short life before crashing at Blackbushe.

Next came the 707B, which was ready for the '50 S.B.A.C. Show, and a photograph of this occasion appeared in the Feb., 1951, AEROMODELLER. A new curved cockpit hood and longer nose were evident but the R.R. Derwent engine remained. Various modifications were made in the next year, most noticeable being the enlarged dorsal air intake. The ground angle was increased by fitting a lengthened Hawker P1052 nosewheel strut, but the main legs stayed unchanged. In this form the 707B gave a lively performance at the '51 S.B.A.C. Show and was aerobatted with great zest by W/C Falk who also demonstrated two types of landing. In the first, the 707B, which is for low speed research, is brought in at a startling angle and stopped by wheel brakes once the nosewheel is down. Greater deceleration is seen when the tail parachute is ejected from beneath the rudder while holding off in a normal attitude. When taxying speed is reached the 'chute is released but remains streamed clear of the runway up to this point. This 'chute would be of use for spin recovery as delta controls would be unable to correct a spin, but as this cannot occur unintentionally this is of no concern. The airbrakes on both wing surfaces are used for both landings.

The 707A was ready to fly at midsummer '51, and has since been engaged on high speed research for which much airframe redesign work has been done. Unlike the 707B, the Derwent of the 707A has wing intakes with boundary layer fences and a consequently thickened root section. With increased span the new wing has three control surfaces, whereas the 707B has normal ailerons outboard and elevators inboard. The 707A has narrower controls with an extra trimming flap at the root for dive recovery acting as extra elevator area. Both carry much camera recorded test instrumentation and are amassing a wealth of information which has already proved of use in the Gloster GA 5 fighter. Both the 707A and B are docile machines and neither are pressurised as yet.

Colour. 707B is high gloss medium blue all over with usual roundels and fin flash. Serial VX790 in glossy black on rear fuselage and in 2 ft. high letters in slightly swept back line between undersurface roundels. Hawker Siddely insignia in yellow on black disc forward of nose roundel. Prototype " P " aft of roundel. 707A is bright orange all over with usual roundels and flash. Serial WD280 in glossy black on rear fuselage and in 2 ft. high letters in straight line between undersurface roundels. Air intakes are matt black. Avro badge on fins of both machines.

Construction. All metal stressed skin including controls which are manually operated. Hydraulically retracting tricycle under-carriage.

Specification. 707B : Span 33 ft. Length 41 ft. Height 11 ft. 9 ins. 707A : Span 34 ft. 2 ins. Length 42 ft. 9 ins. Height 11 ft. 7 ins.

Top : The Avro 707A. Yaw meters are fitted on nose and port tip pitot heads. Below it is the 707B with the enlarged type of intake. (Avro photograph by Paul Cullens.)

At left : The ill-fated 707, showing original intake and cockpit canopy. Below : The 707B landing at Dunsfold with braking parachute and air brakes extended. (Photos courtesy of "FLIGHT".)

A YEAR or two back, I endeavoured to find some of the answers on force arrangement and trim as they affect high performance ratio models, the tests were described briefly in the February, 1951 AEROMODELLER. Several models of a series have since been developed, based on the lessons learned there, and the model here depicted is the end result of this particular project. It represents an unusual approach to the problem in that it is designed to fly in one particular flight pattern. I doubt if it could be forced to vary it much, with safety. But in its own groove, it is stable and consistent, and as efficient as can be hoped for.

It was found that as really low power loadings were approached—down to 50 ozs. per h.p. and below—two dominant factors emerged. The first was that dynamic forces (turn by rudder, roll by warp, etc.) increasing this effectiveness as the square of the speed, rapidly tended toward the dangerous, even as a method of control. Secondly, with the revs. obtainable from a high performance motor, gyroscopic force grew to be a significant factor.

The model offered here deals with these effects in this way. No wing warp or rudder turn is tolerated at any stage—in particular all vertical surfaces are locked dead straight throughout the flight. Glide turn is to the right, by tilting the stabiliser a few degrees right tip high—this tilt has no turn effect at speed of course. Power turn is to the left by intercepting the lower, left-going swirl of the prop-wash with a lower forward fin. The wing is mounted low, such that the upper, right-going, swirl does not have much to act on—hence the net effect is to drive the nose left, even with straight thrust. Given this left turn under power, gyro force alone is then sufficient to force the nose up, into the vertical spiral desired. Small variation of side-thrust thereafter determines how closely the model will approach the axis of the helix on its way up. Near-straight thrust will quite definitely give a pure vertical climb, with the fuselage rolling only; while a little more left thrust will send the model along a helix with the fuselage inclines some 15 to 20 degrees from the axis and hence both turning and rolling slightly as it goes up.

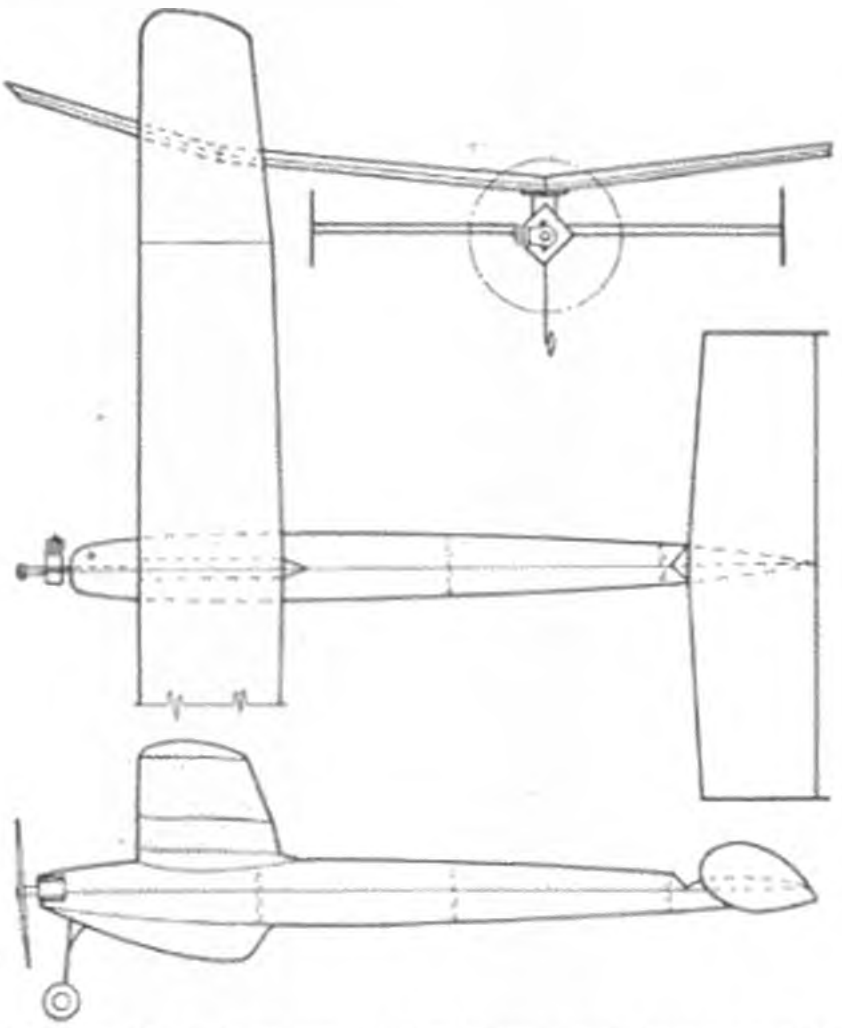
An interesting point is the flight path of a large, heavy ish model such as this immediately after the launch. A hand launch straight ahead, wings level, will result in an "oblique" climb, with the axis of the helix inclined about 50 to 60 degrees from the horizontal, and pointed away over the left shoulder. Conversely, a fairly steep right bank on launching will result in a vertical climb directly overhead regardless of wind.

Structurally, this particular project is interesting as all surfaces are 1/16 in. sheet, supported by outline ribs only, and without spars of any sort. It has been entirely satisfactory, but not outstanding in any respect at all. Next model will revert to more usual structure—if only because it is possible to repair the inevitable knocks neatly when working with ribs and spars.

I cannot quote fin-timed still air ratios—there just hasn't been the still air at the right times. Performance is really high, however. Two major contests have been entered gaining 1st in Auckland area (Waikato Champs.) and 3rd at the Nationals.

Should there be anyone interested enough to try this layout, I append the "vital statistics".

Power:	ETA 29.
Propeller:	"Tru-cut" (balanced, thinned) 10 x 4 ins.
Weight:	32 ozs.
Wing:	N.A.C.A. 4612 (not 6412) at +2·75°*
Stabiliser:	9% Clark "Y" at −0·6°*
	* measured tangent to lower surface.
c.g.:	75% M.A.C.
Thrust:	Down 5·0°.
	Side 8·0° left.



Fuselage; ¼" sq. longerons, 1/16" sheet covering, Braces spaced 1½"; ¼" sq. back to T.E. then ¼" × ⅜", then ¼" × 1/16" to tail. Very hard ¼" sheet, grain vertical, let into nose with ⅜" × ¼" motor bearers glued and sewn on to it. Wing saddle ⅛" sheet, fairing 1/16" sheet. Lower fin ¼" sheet.

Wings and slab 1/16" sheet, ¼" × ¼" top and bottom rib outlines spaced 1½".

Plan is to scale 1/20th.

SCOTTISH PAGE

APART from its general funds the **WEST OF SCOTLAND AREA S.M.A.E.** has a travel and prizes fund, and the lads from the various clubs certainly have the right ideas on how to supply the necessary bawbees to supplement them. Raffles and similar methods of cash extortion are frustrated by padlocked sporrans, but a good control line flying demonstration makes even the thriftiest of Scots give lavishly. Taking the business right to the customer, the boys are following up their successful show at Glasgow White City Stadium by organising a series of demonstrations at the Clyde coastal holiday resorts, cash raising being done either by direct business negotiations with town councils, or by getting permission for a whip round collection.

The latter was the order of the day for the first of the series, held at Ardrossan's South Beach, where the very co-operative Council had specially roped off an area of putting green standard grass. Perfect weather ensured an army of holiday making and local spectators, as members of Prestwich, Irvine, S.A.S. Glasgow and the Barnstormers model aero clubs burned pints of diesel and glo-juice in an afternoon's flying fun. The session included all sorts of C/L stunts, dodges and team racing. One caper which caused a mild sensation was Barnstormer Ian Cochrane's Class A Team Racer, fitted with an ejector seat. Ian's practice was to throw the racer into a wing over and yank the third line release at the top; this shot the pilot clear to float away dangling from a neat little red silk parachute.

During one of these 'chute drops Ian and yours truly had rather a harassing experience, which got great laughs from the crowd. I was stooging around an old A racer, and somehow got tangled up with Ian's release line, which was lying discarded, another half dozen laps and Ian was thoroughly enmeshed. However, we got out of it O.K. with no crashes either, but decided Houdini acts and C/L flying don't mix.

There were quite a few crashes in the show which the crowd seemed to like very much! The big Glasgow "Rowell 60" powered stunter ploughed in rather severely, when flying loads sheared off a wing. Before this Eric Perry had been putting on a fine display of stunt flying with it.

The **SCOTTISH AEROMODELLER'S ASSOCIATION** "Caledonia Shield" contest was held at Balado airfield on the 6th July. I was unfortunately unable to be present at this competition, but have it reported that the Dundee club collared the trophy, with Glasgow M.A.C. a close second. It's a club team affair with contests for power, rubber and C/L stunt.

While talking about Balado, apologies are due for the last minute switch of the Scottish U.K. trophy eliminators to Lanark. This was mainly due to grassland on the Balado field being recently let to farmers, who object to model flying thereon. While talking about Lanark, the West of Scotland Area Gala Day was held here July 27th, with comps. for Power, Glider, Rubber and a team race. The weather wasn't too kind for this, it being quite breezy with intermittent cloudbursts; quite a few lost models at the end of the day.

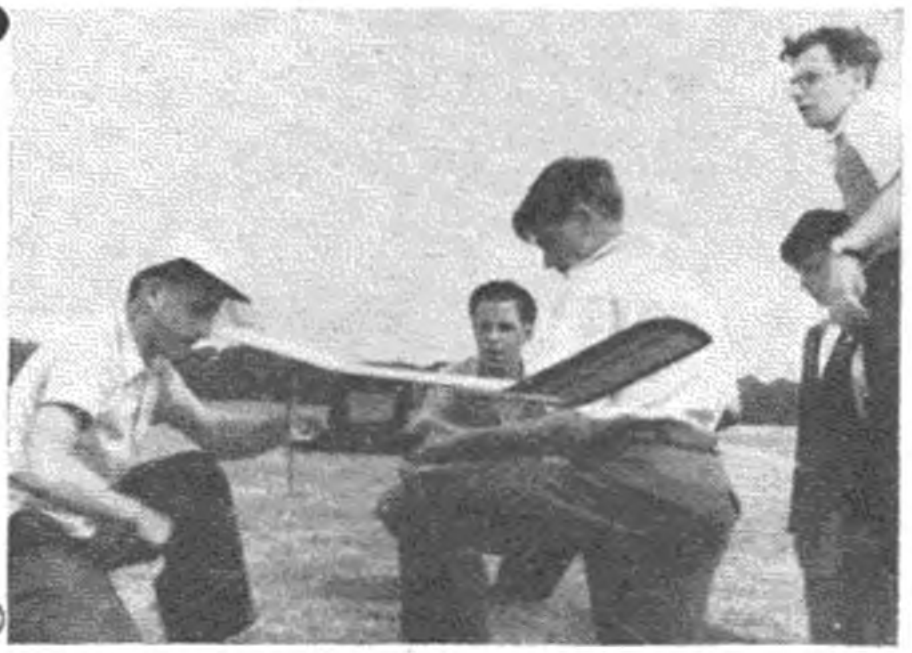
In the Power event, Kilmarnock M.A.C. power exponent Ian Gilroy took first place, his Elfin 2·49 pylon job clocking a total of 5 mins. 30 secs. Bill Chrystall, Glasgow Barnstormers, was second, and Dave McConnell, Ayr M.A.C., third. Brian Harris, Prestwick M.A.C., was top man in the gliding, his "Norseman" A/2 getting an aggregate of 7 mins. 27 secs. Jim Nicol, of Lanark M.F.C., got second, and yours truly staggered into third place. In the rubber, Glasgow M.A.C. took first two places, Pete Kimantos winning with 4 mins. 41·5 secs., Robin Taylor was second and Bill Shanks, Lanark, third. The Glasgow Barnstormers won the class A team race, but a stunt comp. also scheduled fizzled out through lack of support.

To finish up here's one for the book of "From the mouths of babes——" Two small girls observing a model with a side wound motor, E.D. Racer exhaust stack projecting through cowling. Says one damsel confidentially to the other, "Ye've got tae pit a penny in that wan tae make it go".

Mac.

Bob Burns of Stewarton, famed Ayrshire aeromodeller, timekeeps in style at a recent event north of the Border. Despite severe physical handicaps, Robbie, like the famous bard whose name he bears, has done trojan work for Scotland.

CLUB NEWS



At the Nationals, where recovery played as important a part as duration, the closely knit Whitefield club were very successful. Here, E. Horwich is about to start, D. Wrigley has lit the fuse, A. D. Bennett steadies the model, and Rubber and Glider winner, J. O'Donnell prepares to run.

WELL, yet another "Nats." has come and gone, and it is to be hoped that sufficient gen will now have been gathered for the production of a new—and we anticipate more reasonable—roster of venues for this most important annual fixture in the British aeromodelling calendar. It is obvious from past experience that to hold such a fixture away from heavily populated centres is to ensure only a small entry, and surely the purpose of the Nationals is to attract as many modellers as possible to one grand annual feast of flying.

We hear rumours of a three-year roster in future, for it is only too evident that the majority of follows just will not travel long distances to compete against the recognised experts who make such meetings their particular beanfeast. Coupled with that is the unfortunate fact that, whatever steps the Council take to make the Nats. a top-class meeting, the Clerk of the Weather always does his worst for us—at least that is the experience to date. Held originally at Whitsun, the run of bad weather brought about a change to the August Bank Holiday in an effort to secure better conditions, but still the S.M.A.E. have been unlucky. York, Swansea, and now Gosport, have all produced conditions far from ideal for aeromodelling activities, and we eagerly look forward to the day when this event will bask in bright sunshine—and no wind!

The occupier of 20, Five Elms Road, Dagenham, Essex, asks us to report the finding of a 50 in. span glider; black fuselage, white wings, and a blue and silver transfer with C.M.F.C. on each wing tip. You don't deserve to get it back whoever you are, but please relieve the finder of his responsibilities.

Ireland

Owing to lack of support, the International Contests which were to have taken place last August had to be cancelled. However, the 12th Irish Nationals, held at Baldonnel as usual, was a two-day affair extended to include events for the neglected glider and c/l enthusiasts. The first day saw the two classes fighting it out under almost ideal conditions, models being lost in maximum flights until it remained for Denis Browne of the Drimnagh A.M. to win by virtue of getting in three flights. The sole English competitor, G. Jackson, of Littleover, had the hard luck to lose his model on its second flight, and had to be content with second place. The control-line event was poorly supported with only ten starters, but on the whole the standard of flying was good, the only manœuvres omitted being square loops. J. J. Carroll of the Dublin club had a clear win over his clubmate R. Deale.

Next day saw the Wakefield and Power competitors marooned in a hangar by torrential rain, but after a two-hour postponement, the Wakefields got under way in a high wind. Many models met disaster on take-off, including Jackson who was flying a model similar to that used by Royle in the Trials. Alex Gordon of Phoenix persevered to collect a terrific o.o.s. flight in the second round, which brought him the honour of being the first Irishman to win the Irish Wakefield event. Thompson of Dublin, flying his "Zendick" into 3rd place behind Des Woods demonstrated a power-like climb with much flapping of loose strands of rubber.

The Power event was held between—and during—three torrential downpours, thunder and lightning making an impressive background to the screaming of engines. Sammy Wells of Dublin, flying an Amco 3·5 version of "Pizonia" made three very consistent flights to win the magnificent "Aer Rianta Trophy", Des Woods collecting a further 2nd place. The number of competitors this year—120—was a record. Full results:—

Glider	Browne, D.	Drimnagh A.M.	10 : 48·6
	Jackson, G.	Littleover	9 : 35·4
	Carroll, J. J.	Dublin M.E.	9 : 31
	Woods, D.	Phoenix A.M.C.	8 : 51
	Fitzpatrick, G.	Drimnagh A.M.	8 : 48
	Elder, S.	Drimnagh A.M.	8 : 38
C/L Stunt	Carroll, J. J.	Dublin M.E.	482 pts.
	Deale, R.	Dublin M.E.	415 "
	Bellew, J.	Drogheda M.F.C.	385 "
	Thompson, J.	Dublin M.E.	349 "
	Deale, R.	Dublin M.E.	191 "
	Short, T.	Shankill M.F.C.	153 "
Wakefield	Gordon, A.	Phoenix A.M.C.	7 : 28
	Woods, D.	Phoenix A.M.C.	6 : 32
	Thompson, J.	Dublin M.E.	5 : 05
	Fitzpatrick, G.	Phoenix A.M.C.	4 : 45
	Osbourn, N.	Belfast M.F.C.	4 : 27
	Meehan, R.	Phoenix A.M.C.	4 : 14
Power	Wells, S.	Dublin M.F.C.	4 : 52·2
	Woods, D.	Phoenix A.M.C.	4 : 23
	Browne, D.	Drimnagh A.M.	4 : 18
	McDonnell, F.	Belfast M.F.C.	3 : 57
	Fitzgerald, T.	Phoenix A.M.C.	3 : 38
	McMillen, J.	Belfast M.F.C.	3 : 32

North Eastern Area

A regular fixture nowadays, the "North-East Coast Model Aircraft Competitions" were held on the Town Moor, Newcastle-on-Tyne, on Sunday, August 10th. Competitors came from a wide area, the event being brightened this year by a contingent from Scotland in the form of members from the Hawick M.A.C. who cheerfully made the journey to participate. Weather was fair, but a strong wind at the start took time to calm down. George Robledo of Newcastle United will

present the prizes at a later date. Results :—

Rubber	**Stoker, T.**	**Newcastle**	**5 : 34**
	Pollard, R.	Tynemouth	4 : 17
	Fairless, S.	Newcastle	4 : 07
Glider	**Peacock, N. G.**	**Tynemouth**	**5 : 43**
	Mole, K.	Tynemouth	4 : 2
	Armstrong, W. J. A.	Hawick	4 : 20
Power	**Mole, K.**	**Tynemouth**	**3 : 49**
	Stores, W.	Sunderland	3 : 40
	Henderson, J. D.	Sunderland	2 : 02
C/L Stunt	**Stoker, T.**	**Newcastle**	**175 pts.**
	Mole, K.	Tynemouth	122 "
	Kelly, P.	Blaydon	119 "
Concours	**Mole, K.**	**Tynemouth**	

The **TYNEMOUTH M.A.C.** report is naturally mostly about the aforementioned meeting, and the organisers are congratulated on putting on such a good show. The really good attendance makes them wonder why all these competitors could not get to Area events !

Midland Area

Apparently the Birmingham clubs have partly succeeded in their long, uphill tussle with the Corporation, and some fields are now available for the use of aeromodellers on certain days and times during the week. It is to be hoped the users will appreciate the great amount of work put into obtaining these facilities, and will not prang the scheme before it has had time to get settled ! Entry for the Area contests held at Long Marston (satelite to Pershore) was not up to standard, but some good times were set up, sufficient to win the " Women's Challenge Cup " for Mrs. Averill of Solihull, her clubmate Mrs. Lloyd placing second. Might have been better had these two ladies flown for the club in the " Farrow Shield " contest, in which the club placed second on National results to Croydon ! S. Sprason's total of 13 : 17 placed him second in the individual times, Keith Miller of Croydon securing a treble maximum. Hardwick of Wolves scored a third round ratio of 25 to secure 3rd place in the National " Jetex " Challenge Cup.

SOUTH BIRMINGHAM M.F.C. successes have been somewhat limited this season, due probably to the lack of flying space. (The more able of the club members can almost sketch from memory the quickest way up any of the many trees on the edge of the field !) Alan Hewitt has bought a Corgi to supplement his Norton—maybe its easier to chase a model when you can lift your bike over the fence. Interest in Jetex has not been exactly exciting, but following flights witnessed at Long Marston, this may see a quick change. Any modellers visiting Birmingham are very welcome either at Allen's Cross Sports Ground, Northfield, or on Fridays at Turves Green Schools.

The **SOLIHULL M.F.C.** is naturally full of their successes at the Area meeting, their Farrow exploits being all the more meritorious owing to the fact that half the team suffered damage from broken motors, and large scale repairs had to be made. Unfortunately, the Lloyd family will soon be leaving the club, much to the members' sorrow.

Team racing is on the up-and-up in the **FORESTERS M.F.C.**, their latest success being at the Walsall Rally, where both classes went to the " Robin Hoods ". Doug. Bolton and Jim Weston won the Class " A " with their lightweight Elfin 2·49 job, but Mike Crawforth's model was wrecked when in a winning position when some " oaf " attempted a wing-over on take-off. However, he had better luck in the Class " B " finals, when he won a thrilling fight with Bolton. In fact it was nearly a case of the Hare and the Tortoise due to atmospheric conditions affecting the Eta's touchy throttle, and, with 60 laps to go Doug. had only 4 laps to complete when his lines fouled the prop. during an engine-on landing. With the Bolton team frantically unwinding yards of line, the Eta suddenly decided to go places, and " Hiawatha " covered the last 60 laps in about as many seconds, giving the poor lap-counter severe " Wimbledon neck ".

London Area

Trouble still dogs the Area in its efforts to get various Fairlop users to play the game, and take their share of responsibilities, especially the financial onus. Less than half the clubs in the Area are included in the present Agreement, and it is obvious that some clubs are using the aerodrome without sharing the financial burden involved. To them, we can only say—play the game you cads, and pile in with the rest. You are generally the first to shout if facilities are lost !

BUSHY PARK M.F.C. recently gave a c/l demonstration at the B.O.A.C. sports day held at Heston Airport. A few crack-ups were experienced, but the show went down well with the spectators, particularly the streamer cutting.

Thanks to K. Miller hitting the 15-minute jackpot with his rubber job in the Farrow Shield, and M/s Pitcher, North and R. Yeabsley ably supporting with time of 13 : 06, 12 : 43 and 9 : 23 respectively, **CROYDON & D.M.A.C.** won " The Thing " with a total aggregate of 50 : 12, thus strengthening their leading position in the Plugge Cup. Although at the Nationals in force, few members could be provoked into flying free flight—the smell of the sea put them off ! Stuart Davies had a bash with his glider, and Ed. Bennett pranged his rubber model—and his dreams of the Caton Trophy. J. Blount D.T'd his power model into the Solent ! In the C/Line circles, M. Dilly (affectionately known as Daffy), won the Class I speed at 79·7 m.p.h. with a 1·49 Elfin, and came 3rd in Class II with over 90 m.p.h. The Butcher-Cameron team-race crew were dogged with bad luck, their lines breaking when leading the Class " A " by over 20 laps. They also reached the " B " finals, but a flat accumulator made them non-starters.

R. J. Tuthill of the **ENFIELD & D.M.A.C.** has set up a new club speed record in Class I with a speed of 81 m.p.h., his model being a modified " Midge " using an Elfin 1·49. At Langley for the Northern Heights Gala, the same chap was out of luck in the Class " A " team race because of overheating, the club sec. probably suffering from the same complaint when his towline broke twice when launching his " Quickie ".

1952 CONTEST CALENDAR

Sept. 21st **Butlin's Contests.** All classes. (Filey, Skegness, Ayr and Pwllheli.)

21st **Southern Counties Rally.** (R.A.F. Thorney Island.)

28th { **FROG SENIOR CUP.** Power. (Area.)
MODEL ENGINEER CUP. Glider. (Area.)
South Midland Area Rally. (R.A.F. Halton.)

Oct. 5th—**Roberts Flying Boat Cup** (Danson Park Lake, Welling, Kent.)

Oct. 11th { Centralised.
DAVIES TROPHY. A and B Team Race.
RIPMAX TROPHY. Radio Control.
C/L SPEED. All Speed Classes.

Clubs are invited to send in details of Special Galas or Open Days for inclusion in this regular Calendar.

Mrs. Holt of Upton Park placed fourth in this year's Women's Cup with a total of 11 : 15, including two maximums. With the same glider, Mrs. Holt was second last season.

North Western Area

The **WALLASEY M.A.C.** were unlucky in choosing July 20th as the date for the club rubber and glider comps. The original venue of Tilstock had to be changed at the last minute to Affetside, Bolton, owing to an outbreak of foot-and-mouth disease in the Whitchurch area. Rain, wind and a heavy mist persisted most of the day, making the prospect of flying miserable to say the least. It was eventually decided to abandon the contests, and hold them at the next Area do, but they were somewhat cheered when a break in the weather allowed Ted Punford and Ray Alexander to win the team race organised by the Merseyside group in Leverhulme Park, Bolton.

Hard luck on the **BLACKPOOL & FYLDE M.A.S.** who have been turned off Stanley Park Aerodrome temporarily owing to the advent of the 1953 Royal Show, which means no flying until after December 1953.

Many **WHITEFIELD M.A.C.** hopes were dashed when the results of the Wakefield Contest at Norkopping were known, J. O'Donnell making a below-par showing to place 15th in the contest, and 3rd in the British Team. Flights of 3 : 10, 3 : 50 and 2 : 42 were hardly a true indication of the model's performance. The club did well at the Area meeting on July 20th, considering the conditions. The team total of 40 : 18 in the Farrow placed them 4th in the collated results, those scoring being Bennett, Wrigley, Ashton and J. O'D. Unlucky were G. Lamb and Bob Woodhouse who lost their Wakefields o.o.s. into cloud after just over the minute mark ! Several members attended the Nats. at Gosport where Johnny O'D. secured both the "Thurston" and "Model Aircraft" trophies. (See Nationals Report on page 500.) All told, the members lost two Wakefields and one power model, all thought to be in the sea ! A. D. Bennett now has four 4th places this season— plus winning the "Keil Trophy".

Southern Area

July 5th was a good day for Area clubs, the "Hamley Trophy" being won by Tony Upfold of Headley, flying a "Mallard". 2nd and 3rd places were filled by Jimmy John (Grange) flying a slightly modified Frog 150 T-Bar, and Tony Brooks (Grange) flying his usual Ohlsson 23 ship. The Area Rally on July 20th brought a good entry in all classes. D. Gordon (Southampton) led the Area Jetex results with a 22·6 aggregate ratio, and a guest from Scotland, Charles Christie (Bucksburn) won the rubber event. R. Thwaites of Portsmouth took glider honours with a total of 12 : 05, closely followed by N. Hudson of Gosport with a total of 11 : 50.

At the Area meeting at Andover, **GRANGE M.A.C.** succeeded in winning the Area Cup for the champion club scoring 239 points, nearly 100 ahead of Headley M.A.C. who placed second. Several of the club camped at Gosport for the Nationals, where Tony Brooks won the Sir John Shelley Cup.

South Eastern Area

"Scadog", official news-sheet of the Area, naturally confines most of its remarks this month to the Nats., but it beats me how its paragraph of brickbats can be justified in view of the fact that this Area was supposed to be working in conjunction with the Southern Area in organising the event ! Lack of public conveniences and P.A. is surely one of their responsibilities, and to try to pass this one on now as somebody elses pigeon smacks of a very large bushel of sour grapes !

Considering its small membership, the **MEN OF KENT A.M.** has had a fair amount of success in the competition field. Mike Green won the "Bill White Cup", and placed 3rd in the "Model Aircraft Trophy", and along with H. Brodie qualified for the Wakefield Trials. Accent this year has been on Wakefields, with many younger members working on A/2's.

South Midland Area

Heavy rainstorms plagued the **HATFIELD M.A.C.** Open Guider contest, turning the event into a knobbly knees affair, with members parading around with soaking trousers rolled up to the knee ! The contest provided a very close finish between the winner, P. Nicholas with 11 : 25, and junior J. Steele with 11 : 22. B. Carpenter placed third with 9 : 13 For their own event, the junior members had the usual English summer weather—high winds, etc. D. Brown collected the cup, his younger brother placing second. Steele unfortunately lost his model on its first flight, but still managed third place.

LUTON & D.M.A.S. have run off a spate of comps. recently, Trev Clark winning the Chuck Glider event with a modified "Bicep Builder" (January A.M.), following up this success with a win in the C/L stunt affair for the "Goodwin Trophy". As was expected, J. Symonds won the scale cup with his "Swordfish". Owing to the crop situation, the committee has decided to run all free-flight events during the winter months, therefore such events as can be expected to be contained within the field boundaries will occupy summer activities.

East Anglian Area

Conditions for the Area Gala Day at Debden on July 20th were excellent except for a fair wind. As an experiment a 3½ minute maximum was put on all free flight, with a 15-second engine run for power, and 150 ft. line for gliders. It is interesting to note that

only one competitor secured a double maximum mainly due to lack of thermals. Results were :—

Glider	**Healy, Miss P. R.**	**Belfairs**	**7 : 00**
	Longstaffe, A.	Belfairs	4 : 31
	King, M. A.	Belfairs	4 : 18
Rubber	**Gorham, J.**	**Ipswich**	**6 : 05**
	Willmott, D.	Belfairs	5 : 00
	Walker, J.	Belfairs	4 : 09
Power	**Wyatt, P.**	**Ipswich**	**6 : 13**
	Gorham, J.	Ipswich	5 : 35
	Willmott, D.	Belfairs	4 : 13
Scale	**Dean, K.**	**Brentwood**	**117 pts.**
	Landymore, R.	Brentwood	82 "
	Pickett, J.	Brentwood	79 "

Willmott of Belfairs was the Rally Champion, and his club beat Ipswich by 14 points to become Champion Club. In the S.M.A.E. contests which were run concurrently with the above, Miss Healy once again excelled herself with her A/2, and her aggregate of 11 : 01 in the " Women's Challenge Cup " placed her 5th in the National results. D. Liscombe, flying an interesting Jetex 200 featuring a floating aileron tab aggregated a ratio of 34·1 to gain second place in the main results.

Northern Area

The Area is able to field a formidable list of experts for the forthcoming British Championships meeting to be held at Cranfield, though it is something of a surprise to find Henry Tubbs in the power rather than the Wakefield section! One gathers from the " capricious captions " in the current news-sheet that a certain Yorkshire Cockney is now responsible for the production of this monthly (?) list of gen.

News has been rather scarce from the **AMPLEFORTH COLLEGE M.A.C.** since the elder Twomey passed on to " civilian " life, and we trust that the near departure of younger brother B. J. will not mean any serious decline in this enthusiastic school group. Power models have been most popular with the boys this year, which is a change from the usual glider spate that comes from this part of the world. However, the secretary's A/2 " Waratah " turned in some good flights of 4·6 minutes before being lost after an attempt on the club record, which he succeeded in raising to 7½ minutes.

And so to this month's Tall Story, which comes from W. Stanley of Hitchin. Flying with his old club, the Peterborough M.A.C., he entered a Frog powered, back-staggered biplane in a precision contest, said model being notorious for aerobatic flight and frequent repair work. Being semi-scale, with a cowled engine, registration letters, etc., the model scored well in the preliminary examination. Take-off was good, power flight ditto, no erratic engine running, and when the motor cut the model went into a nice glide, all according to Hoyle. Then—something went wrong! Either something shifted, or a rubber band snapped, but the model spun in and crashed—smack in the centre of the Bull!!! Only points lost—on approach and landing!

The CLUBMAN.

SECRETARIAL CHANGES

AMPLEFORTH COLLEGE M.A.C.
P. Lumsden, St. Bede's House, Ampleforth College, York.
ILFORD & D.M.A.C.
P. Wesson, 101, York Road, Ilford, Essex.
WEST MIDDLESEX M.F.C.
A. Rodaway, 13a, Dryden Avenue, Hanwell, W.7.
SUTTON COLDFIELD M.A.C.
E. Plows, 21, Clarence Gardens, Four Oaks, Sutton Coldfield.
GODALMING & D.M.F.C.
C. S. West, 72, Furze Lane, Farncombe, Surrey.

S.M.A.E.
Contest Results

FLIGHT CUP

1.	Cooke, A.	Henley	14 : 15
2.	Gorham, J.	Ipswich	12 : 42
3.	Atkinson, R.	Ipswich	12 : 24
4.	Royle, J.	Littleover	12 : 13
	Bennett, A.	Whitefield	
6.	Warring, R. H.	Zombies	12 : 04
7.	Palmer, J.	Croydon	11 : 17
8.	Marcus, N. G.	Croydon	10 : 06
9.	Rutter, K.	Leeds	10 : 02
10.	Blount, J.	Croydon	9 : 37
11.	Firth, R.	York	9 : 34
12.	Bennet, E.	Croydon	9 : 28

(47 entries)

" C.M.A." CUP

1.	Lamb, B.	York	13 : 19
2.	Painter, D.	Henley	13 : 10
3.	Morgand, B.	Streatham	13 : 00
4.	Lefever, G.	West Essex	12 : 51
5.	Standing, R.	Croydon	12 : 43
6.	Marsh, C.	Ilford	12 : 38
7.	Cooke, A.	Henley	12 : 32
8.	North, R. J.	Croydon	12 : 19
9.	Bagnall, A.	Whitefield	12 : 15
10.	Ferrar, G.	Northern Hts.	11 : 59
11.	Pearce, F.	By-Pass	11 : 47
12.	Gravett, E.	Southern Cross	11 : 46

(73 entries)

HAMLEY TROPHY

1.	Upfold, E.	Headley	24 : 47*
2.	John, E.	Grange	22 : 25*
3.	Brooks, A.	Grange	18 : 28*
4.	Perkins, G.	Croydon	12 : 32
5.	Bishop, M.	Solihull	12 : 10
6.	Gorham, J.	Ipswich	10 : 16
7.	Williams, R.	Swansea	10 : 04
8.	Lucas, I.	Brighton	9 : 33
9.	Blount, J.	Croydon	9 : 29
10.	Dilly, M.	Croydon	8 : 41
11.	Lanfranchi, S.	Bradford	8 : 35
12.	Bickerstaffe J.	Accrington	8 : 25

(* after 4th flight. 32 entries)

" JETEX " CHALLENGE CUP

1.	Allaker, P.	Surbiton	45.3 ratio
2.	Luscombe, D.	Cambridge	34.1
3.	Hardwick, P.	Wolves	31.0
4.	Ransom, L.	West Essex	29.6
5.	Amor, R.	Ilford	24.2
6.	Cope, H. A.	Barking	23.9
7.	Jays, V.	C Member	23.8
8.	Gordon, E.	Southampton	23.1
9.	Dallaway, W.	Birmingham	22.4
10.	Judge, A.	C Member	21.0
11.	Stobart, W.	Northampton	20.0
12.	O'Donnell, H.	Whitefield	19.4

(34 entries)

WOMEN'S CHALLENGE CUP

1.	Averill, Mrs. R.	Solihull	13 : 55
2.	Lloyd, Mrs.	Solihull	13 : 36
3.	Clayton, Miss M.	West Yorks	12 : 22
4.	Holt, Mrs.	Upton	11 : 15
5.	Healey, Miss P.	Belfairs	11 : 01
6.	Owen, Mrs.	Thames Valley	8 : 47
7.	Copley, Miss M.	Halifax	6 : 50
8.	Edwards, Mrs.	Grimsby	6 : 13
9.	Mortiboys, Miss	Small Heath	5 : 53
10.	Bennett, Mrs.	Whitefield	5 : 42
11.	Marshall, Mrs. S.	Boston	5 : 16
12.	Stringer, Mrs. S.	Huddersfield	4 : 11

(22 entries)

FARROW SHIELD

1.	Croydon D.M.A.C.	50 : 12
2.	Solihull M.A.C.	44 : 21
3.	Northampton M.A.C.	40 : 20
4.	Whitefield M.A.C.	40 : 18
5.	Coventry D.M.A.C.	38 : 29
6.	Cheadle M.A.S.	35 : 18

FROG JUNIOR CUP

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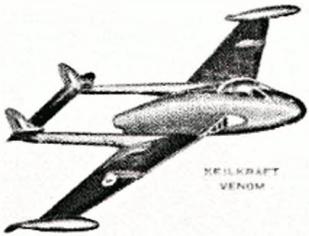

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