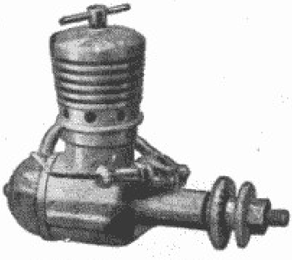
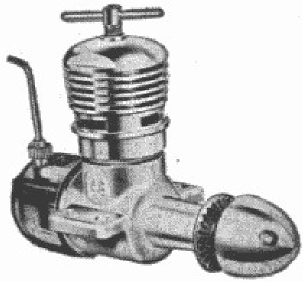


E.D. ·46 c.c. BABY
PRICE £2 . 15 . 0

E.D.s

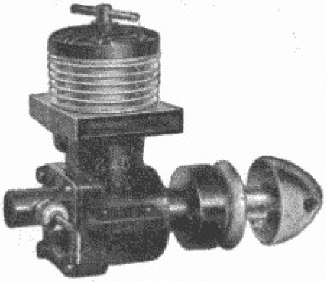


E.D. 1·46 c.c. DIESEL
PRICE £3 . 0 . 0

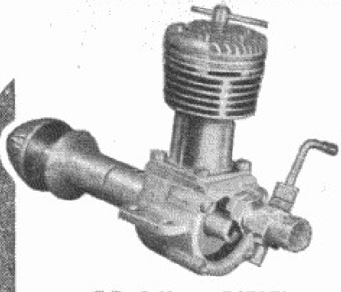
1953 PREDICTIONS

A preliminary survey reveals that the stars are well placed for the modelling world during 1953. The inclement weather of the earlier months will be marked by feverish activity at Kingston-on-Thames where an unprecedented quantity of E.D. diesels and modelling material will be despatched to all parts of the world in preparation for the coming season.

The E.D. diesel family—all of whom were born under the most favourable influences—is destined for further honours about the middle of the year and their efforts in the " internationals " will be rewarded with immense popularity both at home and abroad. The new " one-forty-six " in conjunction with much E.D. " radio-activity " will play a prominent part in these events, which will prove beyond doubt the vast superiority of the E.D. Radio Control Units. In conclusion we wish you a most happy and successful year and may the " stars " shine favourably on your modelling activities.



E.D. 2·46 c.c.
RACING ENGINE
£4 . 2 . 6



E.D. 3·46 c.c. DIESEL
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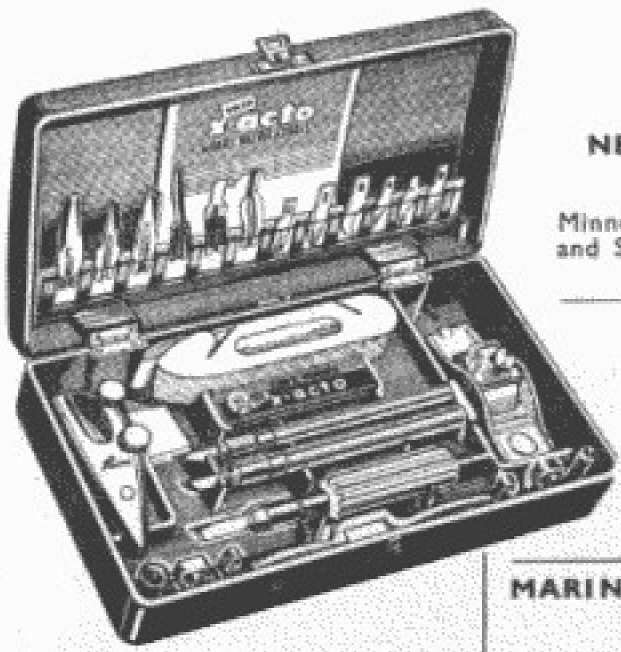

The X-ACTO "BURLINGTON TOOL CHEST". The ideal Xmas Gift to the modeller. A comprehensive kit of first rate tools in a magnificent moulded cabinet. It is equipped with the Nos. 1, 2 and 5 knives, with a large selecton of blades. In addition there are gouges, routers, punches and a balsa stripper, spokeshave and plane for finishing operations. All these plus a handy steel rule make the Burlington a workshop in itself. Price 84/-

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X-ACTO Balsa Wood Stripper	5/-
X-ACTO Model Plane ...	5/6
X-ACTO Sandpaper Block	3/6
X-ACTO Spokeshave ...	3/6

As contained in the "**BURLINGTON**" Tool Chest.

X-ACTO No. 1 Cutting Knife	3/-
No. 2 Knife and 1 blade ...	3/6
No. 5 Knife heavy duty ...	6/6
No. 51 Knife and 6 ass. blades	5/6
No. 52 Knife and 6 ass. blades	6/9
No. 77 Wood Carving Set ...	23/-
No. 78 Wood Carving Set ...	37/6
No. 82 Knife Set	30/-

Send for the **NEW COLOURED X-ACTO ILLUSTRATED PRICE LIST FREE.**

SPECIAL COMBINATION OFFER. The **NEW** Frog **VANDIVER MK. II** complete kit, plus Frog 150 **DIESEL ENGINE,** plus suitable **PROPELLER** all for 65/-

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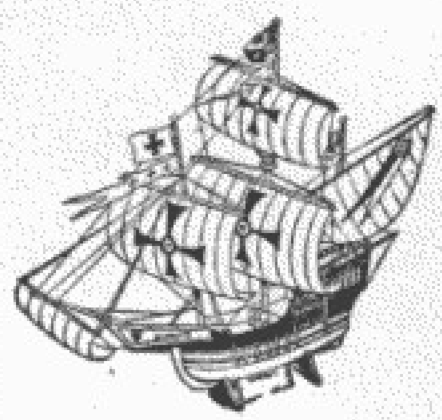
Wing span 12". Minnow, Scamp, Pup, Midge and Skippy, all at 3/6, postage 4d.

The "**WAVEMASTER**" Cabin Launch, 34" long, 11" beam, 4" free board, suitable for Radio Control, power 2·5 c.c. to 5 c.c. engines. All plywood parts ready cut out. Price of kit 72/10

MARINECRAFT GALLEON KITS



SANTA MARIA. Complete kit to make this famous old-time galleon. Price 49/6

Others in this range are :—

CUTTY SARK, 17" long...	44/-
GOLDEN HIND, 24" long	58/8
ARK ROYAL, 19" long ...	62/4

Beautifully coloured, exact in every detail, these magnificent galleons are supplied with step by step photographic charts which simplify construction.

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E.D. Bee 1 c.c.	35/-
Frog 500	50/-
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Elfin 1·49 c.c.	40/-
Elfin 2·49 c.c.	45/-
Amco 3·5 c.c.	50/-

Veron "**POLICE LAUNCH**", 26" long, for small diesel or electric motor. Price of kit 44/-

FULL RANGE OF VERON SOLID MODEL AIRCRAFT KITS IN STOCK, also **BATEMAN SOLIDS.** Postage on solids 6d. only.

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E.D. Mk. II 3-valve unit, comprising Transmitter and Receiver. Price complete **£18 . 10 . 0** Receiver **£11.10.0,** Transmitter **£7** E.D. Mk. III Miniature Radio Control unit. Price complete **£9 . 17 . 11** Transmitter **114/9,** Escapement **22/11,** Receiver **74/5** E.C.C. 951a Hard Valve Receiver, **87/6**

E.C.C.Relay	31/3
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Send for price lists of E.D. Radio Control Equipment—free

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Frog MINX, 30"	8/-
Skyleada FLEDGLING, 26"...	5/3
Sentinel	12/10
Rascal, 24"	6/8
K.K. Gypsy, 40½"	12/10
Senator, 32"	6/9
Ace, 30"	6/1
Contestor, 45"	28/8
Eaglet, 23"	5/6
Competitor, 32"	8/7

NEW KITS

K.K. Dolphin 30" Glider ...	4/11
K.K. SPITFIRE Flying scale...	3/8
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K.K. SWIFT Jetex 50 ...	3/8
Jetex "VOODOO" for 50	7/9
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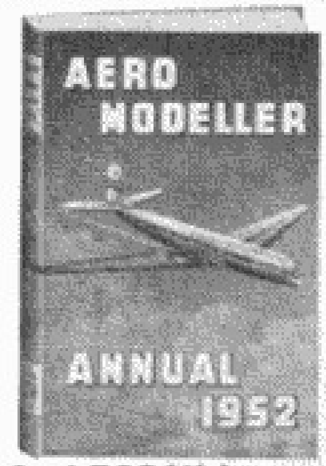

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Veron Panther, 41"	30/6
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Hornet, 20"	10/5
Auster, 27"	9/-
K.K. Pacer, 30"	18/4
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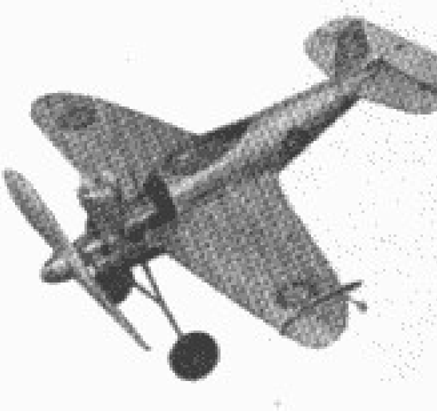

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Or with E.D. Bee Diesel Engine. Price **£5 . 5 . 0**

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Jetex 50	9/2
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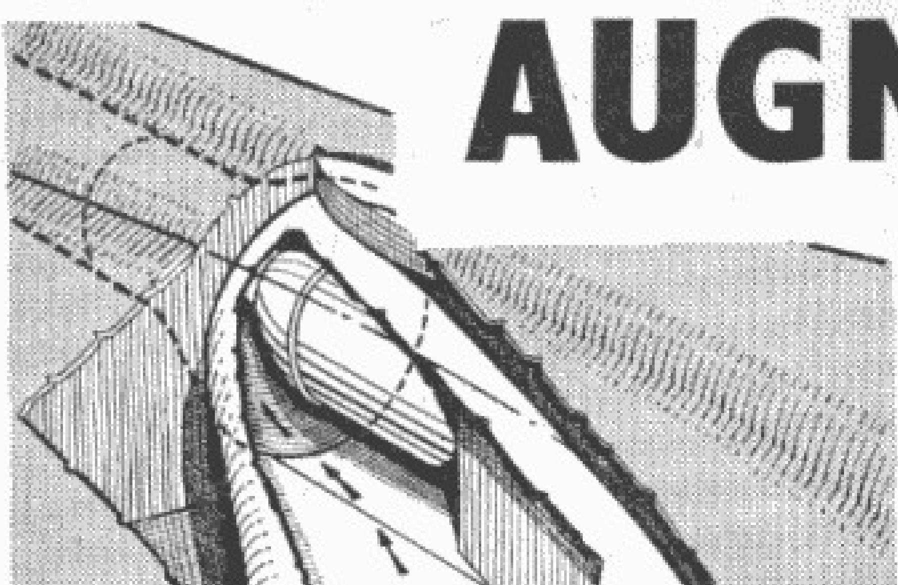
First flying scale model kit specifically designed for the

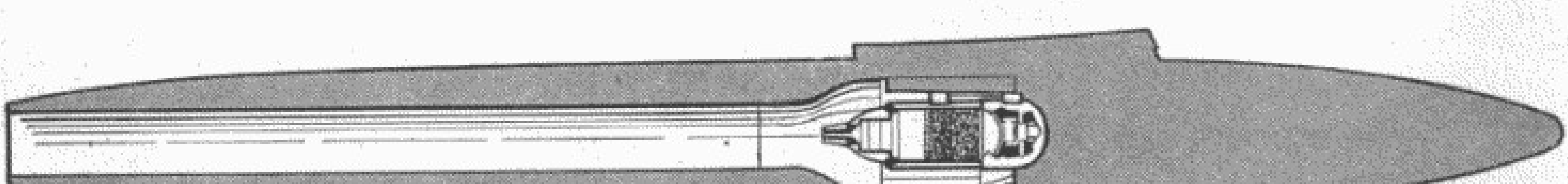
JETMASTER MOTOR WITH AUGMENTER TUBE



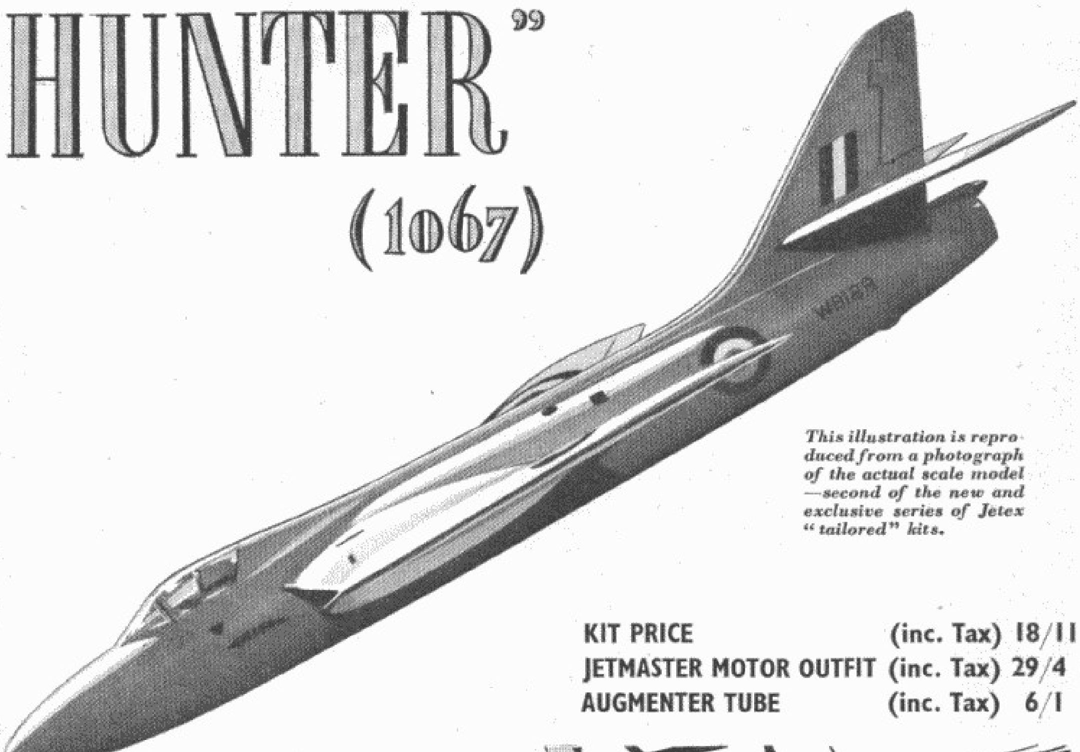
NOT only one but *three* major advances in jet model technology are embodied in the new Jetex Hawker Hunter! The Jetmaster motor is housed completely within the fuselage. Its lines are as sleek as the actual aircraft.

The new Augmenter Tube fitted to the motor gives *30% extra thrust!* It was designed, tested and proved in co-operation with jet experts and aerodynamicists.

The fuselage is "pre-formed." A complete Balsa "skin" pressed out in two halves: smooth and less prone to Parasite Drag. In short, the Jetex Hawker Hunter is a scale model of the real thing, both in looks and performance.



HUNTER" (1067)



This illustration is reproduced from a photograph of the actual scale model —second of the new and exclusive series of Jetex "tailored" kits.

KIT PRICE	(inc. Tax)	18/11
JETMASTER MOTOR OUTFIT	(inc. Tax)	29/4
AUGMENTER TUBE	(inc. Tax)	6/1

COMPLETE "TAILORED" KIT

The kit is designed not only for strength but for simplicity in building. The " pre-formed " fuselage is stronger—the absence of stringers makes assembly less tricky. A fully detailed plan and clear instructions take you step-by-step through the process. The kit also includes a moulded cabin, full insignia, tissue, cement and " push-in " nose and main wheels. All parts are accurately die-cut and ready for assembly. *Dimensions:* length, 25 ins.; wing span, 20 ins.; weight, complete with motor and tube, 4 ozs.

For more details see your Jetex Stockist! See him NOW and be first!

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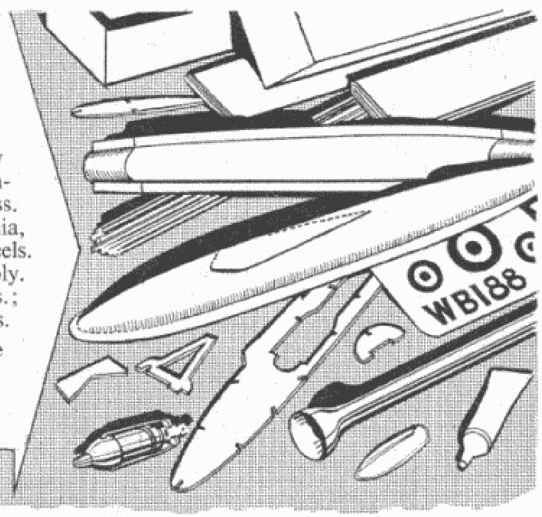

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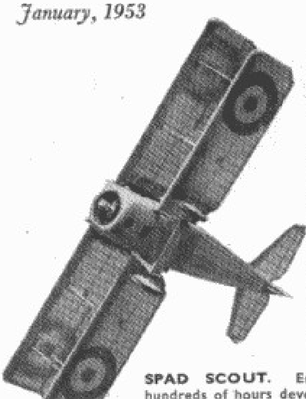
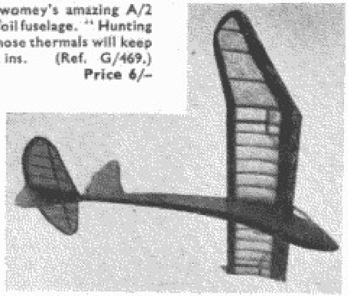
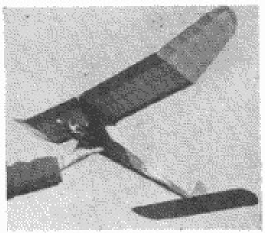


SNARK. Dick Twomey's amazing A/2 Sailplane with aerofoil fuselage. "Hunting the Snark" after those thermals will keep you busy. Span 63 ins. (Ref. G/469.) **Price 6/-**

These selected models from a range of over 500 Aircraft, Boats, Cars, etc., represent today's popular choice—there are lots of others in our lists.

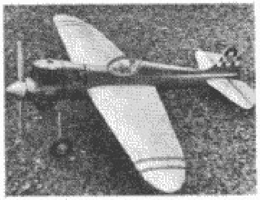


SPAD SCOUT. Enthusiast Laurie Bagley spent hundreds of hours developing this perfect scale '14–'18 fighter for 1 – 1½ c.c. motors. ⅛th scale. 38 ins. span. Features the well-known Belgian method of pendulum control, giving "duration type" stability to a scale design. A model to win that "Concours". (Ref. FSP/373.) **Price 5/6**

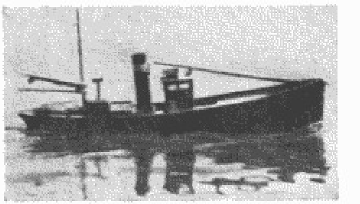


JADED MAID—A Champion model by ex-Champ N. G. Marcus! Contest power duration. 2·5 c.c. engine. Span 60 ins. Easy to build. (Ref. PET/427.) **Price 5/6**

SUPER SAINT. Ken Marsh has had a lot of winning flags with this Team Racer (Class B)—it can help you win, too! Engine 5 c.c. Span 29 ins. (Ref. CL/465.) **Price 4/-**



BILL BAILEY—FREELANCE TRAWLER. 27 ins. long, beam 6 ins., mainly of balsa/obechi, or electric motor. Ideal r/c project. Scale speed of approx. 3 m.p.h. with electric motor—faster with diesel. Just like the real thing. Suitable for novice. **Price 5/-**



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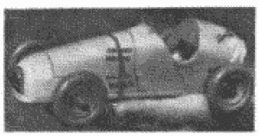
RECEIVER: Based on ultraudion oscillator as a super regenerative detector. XFGI valve used as relay in anode circuit to control selector. Weight 3½ ozs. Designed by F. C. Judd. **Price 2/6**
TRANSMITTER: 5 valve ultraudion oscillator, maximum input of 5 watts. Made from easily obtainable commercial parts. Designed by F. C. Judd. **Price 2/6**

NOVICES 50. A Ron Warring design using the latest ½ c.c. diesels for a tiny racing car—scale lines, all balsa body, project for a wet week-end. Full building instructions and plan. **Price 2/6**



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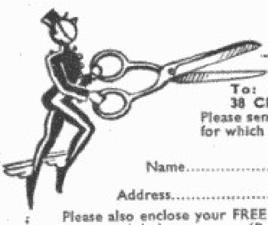

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Spook	1/6	+	4d.
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Cub, 20"	2/6	+	7d.
Cadet, 30"	4/0	+	11d.
Soarer Baby, 36"	5/0	+	1/1
Soarer Minor, 48"	8/0	+	1/9
Soarer Major, 60"	11/6	+	2/7
Invader, 40"	6/6	+	1/5
Minimoa, 50"	7/0	+	1/7
Chief, 64"	18/6	+	4/2

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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

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All Models ...	3/0	+	8d.

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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"	10/6	+	2/4
Pacer, 30"	15/0	+	3/4
Skystreak 26	9/6	+	2/1
Skystreak 40	10/6	+	2/4
Stunt Queen	21/0	+	4/8

MERCURY MODELS

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

MERCURY MODELS (cont.)

Rubber Powered Models			P.T.
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"	57/0	+	12/6
Monocoupe, 64"	57/0	+	12/6
Monocoupe, 40"	22/9	+	5/1
G.H.3. Skyjeep, 45"	28/6	+	6/1
D.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"	10/6	+	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
Fledgeling, 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
Philibuster	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			P.T.
Vespa, 30"	5/9	+	1/3
Diana, 36"	7/5	+	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	17/6	+	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"	18/5	+	4/1
Cirrus, 48"	21/0	+	4/6

Control Line Power			
Vanfire	24/2	+	5/4
Vantage	17/2	+	3/10

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ABC of Aeromodelling 5/0

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Tiger Moth	3/0	+	8d.

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Mills 0·75 c.c.	50/0	+	10/9
Mills 0·75 c.c., with cut-out	55/0	+	11/9
E.D. Bee 1 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.	55/0	+	13/9
Frog 150	40/6	+	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
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E.D. Mk. IV 3·46 c.c.	72/6	+	10/0
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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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ESTABLISHED 1935

AERO MODELLER

INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

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" Covers the World of Aeromodelling "

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Contents

Editorial and Advertisement Offices:
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A New Budget

AEROMODELLING has always been boosted as a cheap hobby, and there is no doubt that, in comparison with most other pursuits, the building and flying of model aircraft is one of the most economical relaxations in existence.

However, rising world costs must inevitably affect every item of living expenditure, whether it be for essentials or pleasurable sidelines, and the S.M.A.E. is yet another body that has at long last been forced to face up to the fact that a post-war economy cannot be conducted on the fruits of a pre-war subscription. For many years the Society has struggled along with no reserves of finance to back up any sudden emergency, and in consequence has, year in and year out, had to go cap-in-hand to its members (and other interested aeronautical groups) in an endeavour to finance such important obligations as participation in the International field, as well as costly items of domestic expenditure.

Following a substantial debit balance in 1951, stringent economies were practised throughout 1952, with the result that the Society's Treasurer was able to produce a much healthier balance sheet at the recent Annual General Meeting. Nevertheless, the considerable drain created by support of the various Championship events killed any hopes of a surplus income for the year, the one consolation being that the previous year's heavy debts had been avoided.

The remedy is obvious, for any form of collection or donation cannot be secure enough for proper budgeting. It is the predicted annual income from membership subscriptions that forms the backbone of any association's finances, and to this end Affiliation Fees have been voted in at the new annual rate of 8s. 8d. for senior members, and 4s. 4d. for juniors. This rather unwieldly figure naturally represents a payment equal to 2d. and 1d. per week respectively, a sum which we feel no right thinking member will object to. From the anticipated finance that should accrue from higher fees, it is hoped to be able to fully finance teams selected for International affairs, provide greater benefits for members at home, and be left with a reasonable surplus that will build up into a proper reserve for future contingencies.

Many interesting viewpoints were aired at the meeting, amongst which that put by a very keen competition flier found our strongest personal support. In full agreement that an increase in subscription was long overdue, the view tabled was that the ardent contest flier would stand to gain the greatest benefit, and therefore should reasonably be prepared to contribute a higher proportion of any additional fee than his less contest-minded—but nonetheless keen—sport flier contemporary, who enters few contests.

As is natural, opinions for and against both forms of subscriptions were tabled, though it is fair to report that the meeting unanimously agreed that some increase is required. It is on the question of how much such increase should be that opinion is divided, and at this stage we prefer to reserve judgment on the final decision.

We can only urge that aeromodellers give the matter serious and considered thought, for the Society can no longer attempt to continue on a shoestring budget, and must become a strong and financially sound group with the least possible delay. Remember, it's not even the cost of one cup of tea a week—surely not much of a sacrifice even in this land of ardent tea drinkers !

Cover Picture . . . .

Yo-Ho-Ho and a boat load of Swiss at the Hydromodel Nationals, Lucerne-Horw last July. The sight of Giovanni Ossola in bathing trunks and straw hat fair makes us shiver at the thought of a dip this cold December! Giovanni, who comes from Lugano, placed third, Fausto Ossola (LG IF) was sixth P. Schmitter of Thun (TU 18 I) second. A study of the various types of float they use would be worthwhile, in conjunction with part 1 of our new series on Hydro models on page 17.

Heard at the Hangar Doors

Olympics or Bust!

Whilst we have never, with intent, entered into print in direct opposition to our opposite numbers on "Model Aircraft", we feel that the time has come to reply to some remarks made in our contemporary in recent months, and at least provide equal publicity to our own views—to which our fellow Editor evidently takes such exception.

Being long enough in the tooth to have at least as much knowledge of British aeromodelling matters as our friend in "M.A.", plus a fairly good insight into S.M.A.E. affairs by virtue of long service in an official capacity, we feel competent to answer the charges levelled in a recent edition of our "dear enemy".

Readers will remember that some time ago we gave the opinion that International Championship affairs would be both simplified and improved if the various events were amalgamated into an annual "Olympics", the venue travelling from country to country on a balloted roster irrespective of which country proved the overall winner in any one year. In this way, a first-class meeting could be assured, and, what is even more important, the preparation of such a calendar would enable long-term planning for both contest organisation and team travel to be undertaken.

The F.A.I. have recently displayed a sympathetic attitude to a scheme on the lines suggested, and, coupled with the iminence of the Coronation in 1953, certain of the more progressive Council members—among whom we include ourselves—proposed that the S.M.A.E. could well give the lead by offering to commence the series in this country in Coronation Year.

This suggestion has immediately been pounced upon by our fellow Editor with the claim that this must "bankrupt" the Society, and full vent is given to his already well-known personal bias against the scheme. The parlous state of S.M.A.E. finance is as well-known to us as anybody, and equally well deprecated.

Great Britain has the obligation in 1953 of organising the Power Championships, and presumably could—and should—exercise its right to stage the Control-line Championships. It was with this in mind that we feel that the organisation could be expanded to embrace the remaining two Championship events, i.e. the Wakefield and A/2 Glider contests, and thus initiate the type of meeting that so many thinking modellers both here and overseas feel is the answer to the International aspect of the aeromodelling hobby.

Following the current practice of competing nations paying for basic team accommodation, etc., the picture is far different to that obtaining in 1949, when the S.M.A.E. entertained in full those competing for the Wakefield Trophy. Relieved of the major cost of such a meeting, i.e. feeding and sleeping the visitors, we are firmly of the opinion that the cost of contest organisation and incidental matters would be *less* than that incurred in sending four teams to four separate venues abroad, and would raise the prestige of the Society in the movement.

Our answer to the financial red herring is that adequate sponsorship would be forthcoming for the conduct of such an important meeting following an appeal to the S.B.A.C. or similar body. Response to such a request would be far more likely to succeed than the usual appeal to offset deficits incurred by attempting to support widely dispersed events.

Finally, in case less informed readers of our contemporary should be led to think that the Editor's opinions are necessarily that of the Council, we feel that the Editor should qualify his remarks at the earliest opportunity. The casual reader may be led to believe that his printed opinions are official by virtue of the statement that "Model Aircraft" is the "Official Journal" of the S.M.A.E., displayed so prominently on the title page of that magazine—though we note its disappearance from its once proud position on the front cover!

Authorised Spares

To remedy certain misgivings relative to a recent ruling regarding reserve models taken by International Team members to Championship meetings, the Council have made it clear that they do not insist on such reserve machines being of the same *identical* design as those with which team honours were won—however desirable that requirement may be—but do insist that such machines shall be *basically* the same.

Team Selection

A recent issue of our contemporary contains a well considered article on the thorny subject of the future selection of teams to represent Great Britain in the various International Championship events. Even though the author's identity is obviously that of one ranking for " board selection " by virtue of longstanding merit, the arguments put forward are none-the-less logical and fair.

We have in the past firmly supported the selection of British Teams by way of Eliminators and Trials, but have to admit that experience indicates that the best teams are not necessarily secured by that means, and one must temper the desire to " give the boys a chance " with a study of other systems that will at least ensure that a portion of the Teams are experienced enough to give a good account of themselves.

On the other hand, we are categorically against any form of full Team Selection that eliminates the also-ran having a chance of reaching the top honours his country can afford in our hobby. We therefore welcome—and fully support—the scheme outlined by the contributor, in which half the Team shall be nominated by reference to past and present performances, and the remainder made open to democratic appointment on the existing " fight-for-your-place " principle. (In this connection it should be made public that the S.M.A.E. is seeking a ruling from the F.A.I. that Championship teams shall be standardised at a maximum of four members, thus placing all types of event on the same basis, and keeping the most important aspect, cost, down to a reasonable minimum.)

Apologies in Order

Chief reaction to our paragraph entitled " Surprise at Dubendorf " (November 1952 issue) came from the Swiss Aero Club, organisers of the 1952 International Power Championships. Our allegation of " last minute action " by allowing five members per team was refuted, and evidence supplied that full information on this point was contained in the official invitation.

We apologise to our Swiss friends that this misinterpretation should have been made, but in extenuation would assure them and our readers that our views were expressed solely in the light of information in our hands when we went to press, for at no time has this official detail been made public to either the Press or the S.M.A.E. Council.

New Life for Old Motors

Those devotees of our popular classified advertisement section will have noted in recent issues that a new and much appreciated service has been introduced to aeromodelling. We refer of course to Reboring, a job which can only be undertaken with precise machinery and the technical " know-how " of an expert with considerable experience in the model field. So now the diesel, which depends so much upon its piston fit for good operation, can be re-juvenated and given a second chance in life.

One point we would impress upon our readers, is that this is no *exchange* service. Your *own* motor is attended to immediately upon arrival and in one case, is despatched back to your address within 36 hours. Unfortunately, this particular advert came under the " exchange " heading last month, an error which we hasten to correct.

Another International

Latest member to join the select group of proven all-rounders is A. J. (Tony) Brooks of the Grange M.A.C. gen-boys of the R.A.E. club at Farnborough. Obtaining his Class " A " Merit Certificate in April, 1951, his " B " followed in February 1952, and efforts for the coveted " C "-cum-International endorsement came as follows :—

Glider	24/2/52	3 : 13	3 : 05	3 : 52
Rubber	18/5/52	4 : 08	3 : 08	5 : 00
Power	15/10/52	3 : 45	4 : 10	4 : 15

This is the second International to be gained in 1952, and Brooks joins the select company of John Chinn (North Norfolk), Johnny Gorham (Ipswich), E. North (Halifax), Henry Tubbs (Leeds), and Des Willmott (Belfairs) in rounding out the clear half dozen Britishers entitled to this distinction.

That's Pete's—That was

The announcement in our last issue (" Three Golds "), with reference to the International class records granted to Pete Wright and Johnny O'Donnell, brought swift reaction when we received the October issue of the American " Model Aviation ", official journal of the Academy of Model Aeronautics.

Special F.A.I. record meetings have been staged in the States, and a total of twelve records were set, nine of which still await homologation. At the Plymouth International Meet held at Detroit, a special water tank was constructed for the especial purpose of attacking some of the speed records, and Dick Wilson of Lockport, N.Y., captured no less than four classes, subject to ratification by the F.A.I.

In addition to Wilson's efforts, the three orthodox speed classes were raised, and Pete Wright's figure of 165·708 k/hr. was put up to 180 k/hr. by Mark Brown of the U.S.A.F. The following list will interest all speed fans, the former record being shown in parenthesis :—

Class I	Mark Brown	180 k/hr.	Torp ·147 c.in.
(97·384 k/hr. Czechoslovakia)			
Class II	Mark Brown	217·256 k/hr.	Torp ·19 c.in.
(19·2240 k/hr. France)			
Class III	Mark Brown	248·846 k/hr.	McCoy ·60 c.in.
(231·632 k/hr. France)			
Cla s IV	Eugene Stiles	236·908 k/hr.	Dynajet
(231·632 k/hr. Czechoslovakia)			
FLYING WING			
Class I	R. R. Wilson	116·742 k/hr.	Elfin ·249 c.c.
(90 k/hr. U.S.A.)			
Class II	R. G. Lambert	165·899 k/hr.	Dooling 29 c.in.
(155·509 k/hr. U.S.A.)			
Class I ROW	R. R. Wilson	101·474 k/hr.	Elfin ·249 c.c.
(No former record)			
Class II ROW	R. R. Wilson	137·291 k/hr.	Fox ·29 c.in
(97·875 k/hr. Russia)			
Class III ROW	R. R. Wilson	135·799 k/hr.	Fox ·35 c.in.
(No former record)			

It is interesting to note that Dick Wilson used a British Elfin engine on two of his record attempts.

BORA GUNIC'S B.G.44.

The World's Outstanding A/2 Sailplane

ENTHUSIASM and originality of design have marked the progress of post-war Yugoslavia's model movement. It was therefore no surprise to those of us acquainted with this movement when Bora Gunic carried off top honours at the 1952 A/2 sailplane contest.

Gunic originally flew the familiar long-straked-fin models that we first saw at Eaton Bray when the Yugoslavs came over in 1950, eventually breaking away from this design trend with the B.G.43. This prototype, although the forerunner of the B.G.44. had a much shorter moment arm, consequently using a larger fin and tailplane. Wing section was N.A.C.A. 6409. The B.G.44. was incidentally only finished one month prior to the Graz contest.

Construction

It should hardly be necessary to say that this is not a beginner's model even though we have taken the liberty of slightly modifying the construction of the fuselage in order to simplify building.

The prototype used full ply formers, presumably jigged for building. These we have divided so that the fuselage can be built by the crutch method.

Commence by building the wings and centre section, and make sure that the two root ribs mate up exactly with the centre section. It is much easier to do this on the board rather than offering up the wings to the centre section when it is built into the fuselage.

With the wings complete apart from covering you can now start the fuselage. Take your choice as to whether you use ply or balsa formers; the latter facilitate building, and are just as strong for the purpose, they also cut easier. Pin down the $\frac{3}{16} \times \frac{1}{8}$ crutch and build the lower fuselage portion upside down on the plan. Add the ply keel and also the $\frac{1}{8} \times \frac{1}{8}$ balsa stringers. They have been omitted from the side view of the fuselage, but positions are shown on the formers and there is no doubt that they make planking easier at the nose, besides increasing the strength of the rear portion of the fuselage. Now plank the front portion with soft sheet to the line shown.

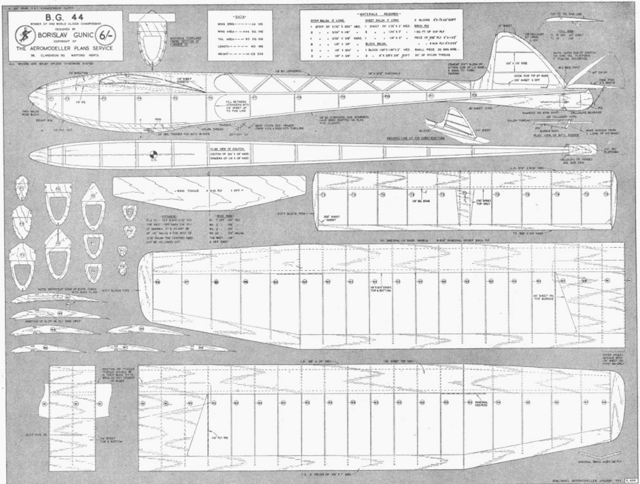
Remove the lower fuselage from the plan and build on the top section. Commence by cementing the top portions of F1 to F6 to their respective lower halves, add two false vertical spacers at F8 and F10 to support the $\frac{1}{8}$ square backbone whilst the diagonal spacers are cemented in position. These are removed at a later date. It will be found necessary to steam the backbone at the front end, also the two upper side stringers that position the angle of incidence of the centre section. Now sheet in between the crutch and these same stringers before glueing the centre section in position. Temporarily cut away the backbone between F3 and F6 and cement the centre section which is slotted to take F5 in position. Complete the planking of the upper portion of the fuselage, make sure that the rigging of the centre section is 100 per cent. accurate.

The underfin is best made from two layers of $\frac{1}{16}$ balsa either side of 1 mm. ply which should be fretted out with lightening holes as much as possible. If small keys of ply are left protruding from the " sandwich ", slots can then be cut in the under side of the fuselage for them to locate the underfin in position.

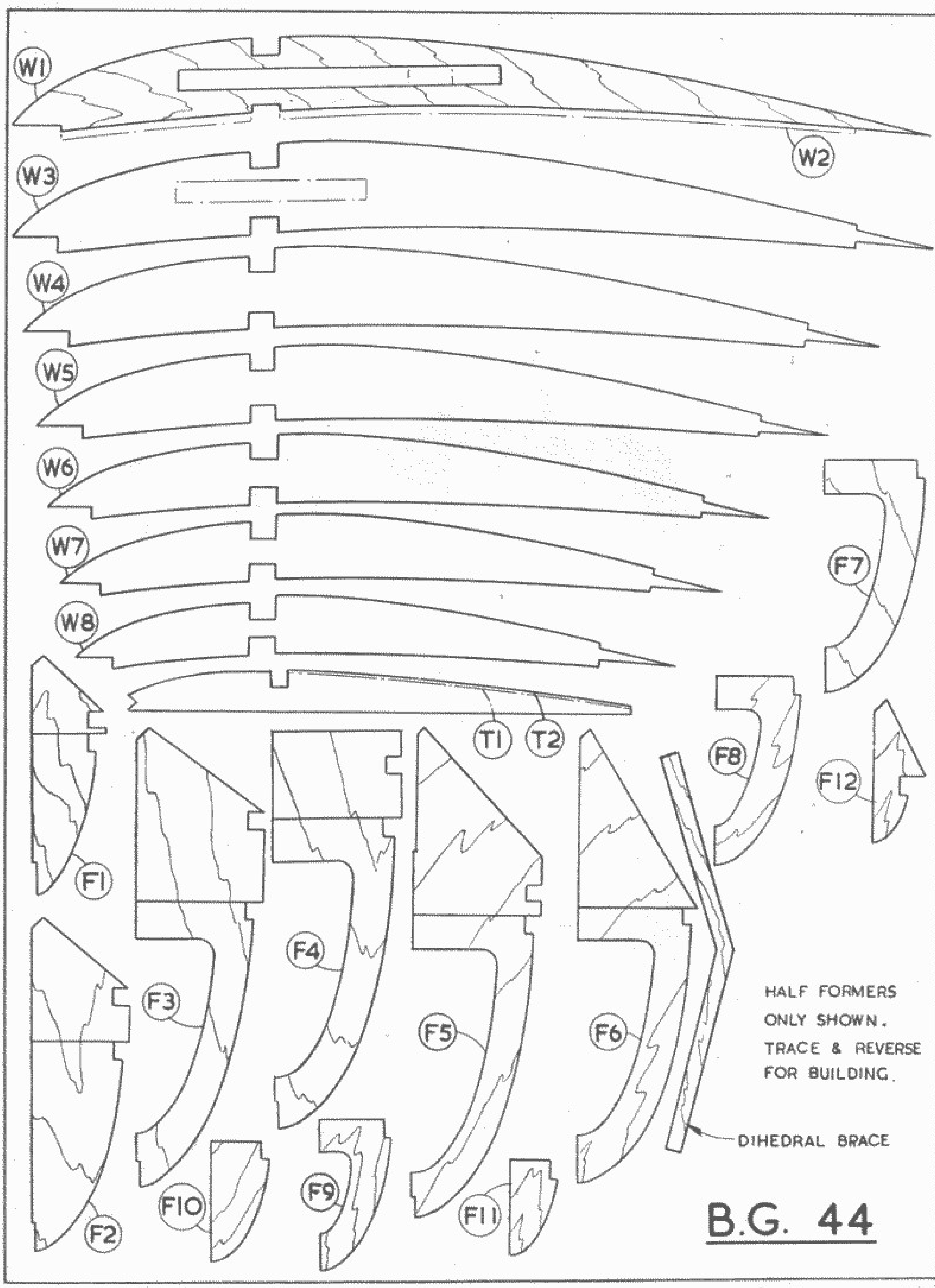
The original model used 3½ ozs. of ballast weight in the nose so that it might also be a good idea to use hardwood in place of balsa for the nose block.

According to the designer a first class finish, coupled with extremely accurate rigging were contributing factors to his success and these points should be borne in mind by those attempting this famous design.

A 1/5th scale plan is given opposite, together with full size formers and wing ribs overleaf for those who are prepared to scale up their own plans. Complete full size plans are available from the Aeromodeller Plans Service price 6/-.



THIS IS A 1/5th SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 6/- POST FREE FROM THE AEROMODELLER PLANS SERVICE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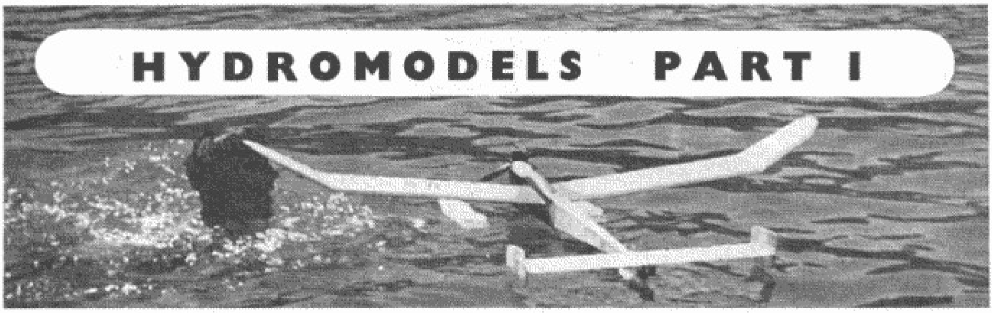


Only his head bobbing above water level, can be seen of Lüscher as he swims to retrieve his entry in the Swiss National contest for "Wasserflug-modelle" . . . a very pleasant prospect in the lake of Lucerne during the month of July.

THAT the flying of model waterplanes is growing more and more popular is indisputable ; letters coming in from all quarters of the globe indicate that modellers in every country are finding out just how much fun hydro flying can be. As yet, few regular contests are held—the exceptions being the U.S., Swiss and Italian Nationals—and most of the news reaching us comes from lone hands who have the facilities nearby or individual clubmen who have found the fascination of this type of flying earlier than their clubfellows.

" Fascination " is not too strong a word. Essentially, all modellers fly for fun, even the die-hard contest fans, and the scope offered by this relatively unexplored field of modelling holds attraction for every type of builder. If you are tired of the usual cross-country running entailed by the normal duration contest, well, the present performance of floatplanes needs improving. If you are interested in tricky design propositions, a flying boat gives you something you can really get your teeth into. If you like to combine other pleasures with your flying, or take the family along, an afternoon on the river or lakeside makes a much more pleasant outing than the usual sitting under a hedge in the largest, barest field you can find. For those living near the sea—think of all those level, treeless miles ! And the pleasure and gratification given by one perfect take-off is a thousand per cent. of that obtainable from the usual heave-and-run.

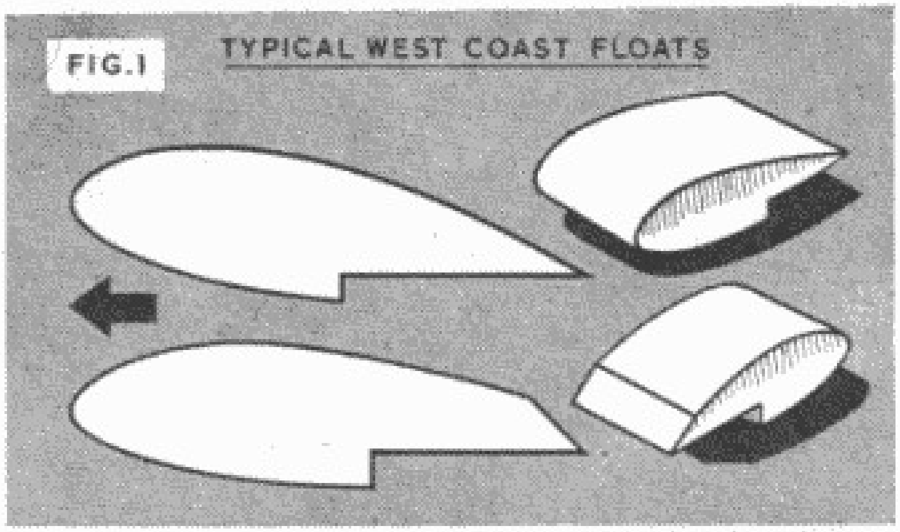
The enormous potential of water flying will be realised by those who witnessed the eager crowds round the floatplane tank at the 1952 All-Herts Rally. This was the largest power floatplane event yet held in this country, and the St. Albans club are to be congratulated on their initiative and enterprise. Despite their valiant efforts, the difficulty of providing a large enough sheet of water in the middle of an aerodrome, plus a complete absence of wind, largely upset this particular contest. With a light breeze or a completely full tank, the 11 ft. × 17 ft. tarpaulin (1,000 gallons) used would have been ample, but in the virtually flat calm prevailing on the day, model after model struck the three or four inches of freeboard above the surface of the water. However, great oaks from little acorns grow, and it is safe to predict that this type of contest has a definite future.

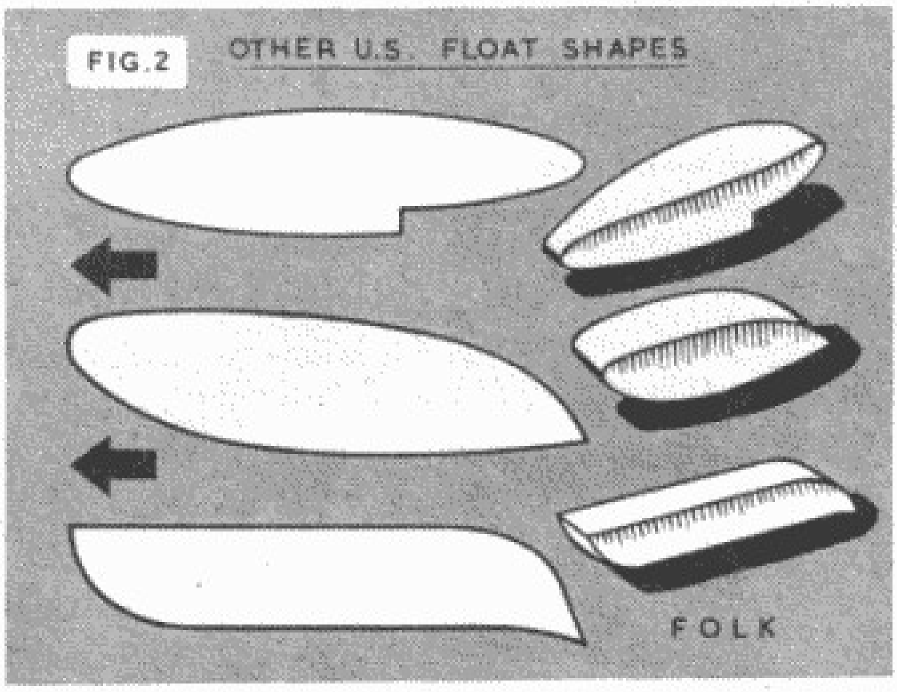
Reviewing the position as it stands today, world trends appear to fall into three clear categories : (i) the pure contest power floatplane, which universally uses a single front float and twin rear floats, (ii) the power sport job, using either twin front and single rear floats or twin pontoons, (iii) rubber models, which are fitted almost exclusively with the two front and one rear layout. Less popular because of greater difficulties are (iv) flying boats, and (v) scale models. In these last two groups lie the greatest possibilities, because of the tremendous swing to scale, and because—well, what modeller has not at some time day-dreamed about building a flying boat ?

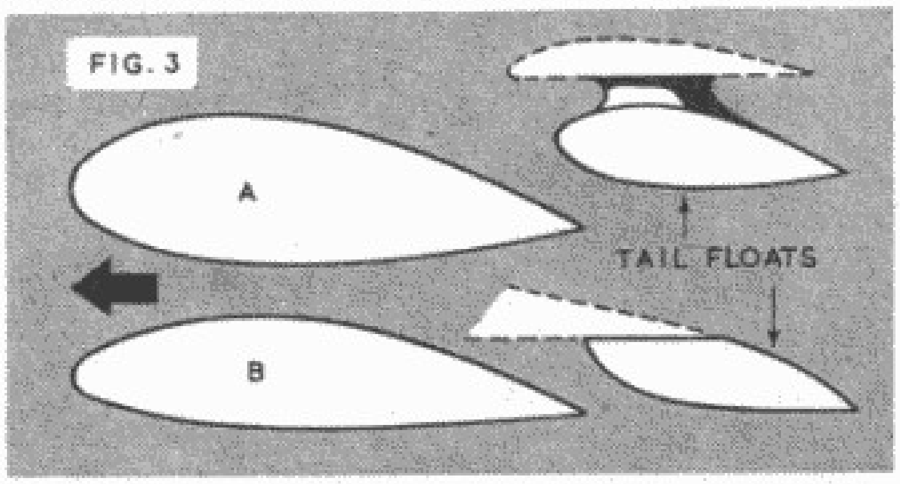
Contest Floatplanes

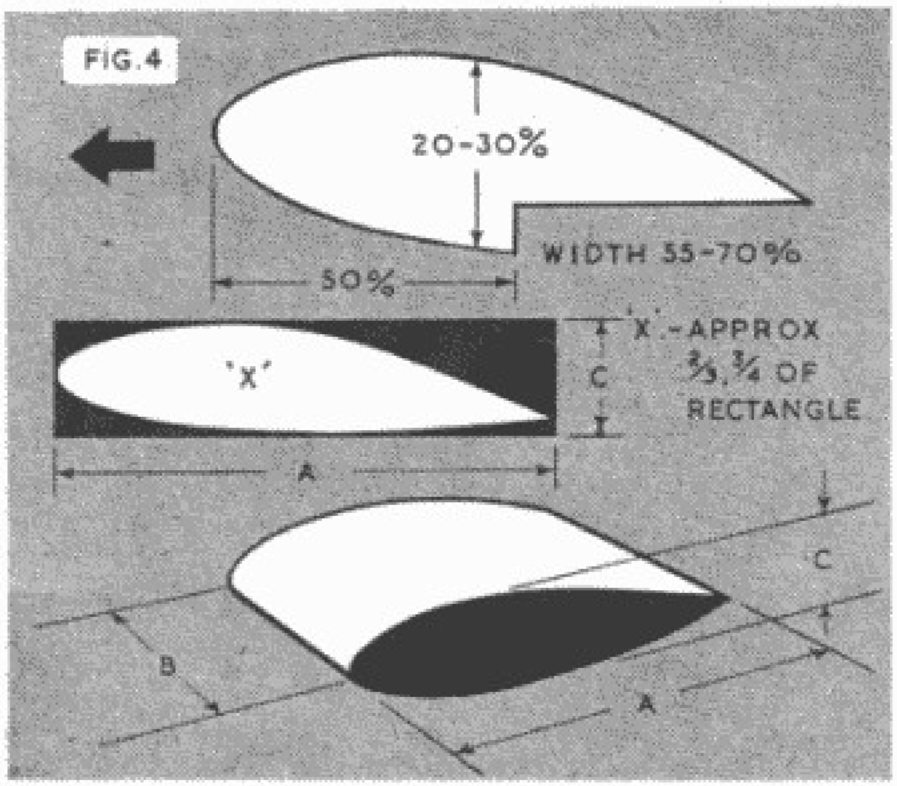
America is probably as far ahead as any country in the actual contest flying of waterplanes, since such events have been featured for some years in the U.S. Nationals. A tremendous increase in popularity has been apparent in this sphere in the last few years, and many clubs throughout the States, notably on the West Coast, make a waterplane event a feature of their contest calendars. European activities are more scattered, but groups of enthusiasts are found in most countries. Little really organised water flying has taken place in Britain, except in respect of rubber models in the old Lady Shelley days. However, enough British and European data is available to draw interesting comparisons with current American models.

Basically, the differences are traceable to the type of landplane flying favoured on each side of the Atlantic. It is generally conceded that the average American model aims for a very fast climb and sacrifices some of the glide in its effort to reach thermal regions in as short a time as possible. European weather has led to the development of









models which aim primarily for the glide and are content with a reasonably fast climb; the total duration of either type is little different under good conditions, but the European model has the edge in bad weather. These characteristics have been carried over to waterplanes, so that American float design is directed towards the quickest possible take-off, while on this side the effect of the floats on the glide is considered more important. The differences in the two schools then boil down to type of aerofoil, power-loading, and float design.

Virtually any high-performance landplane can be adapted to a contest floatplane. The side area of the single front float is usually cancelled out by the rear floats, and, in fact, flight with floats is frequently much more stable than without, although the glide is apt to suffer. The big drawback occurs if the model alights on water. As it glides in, the front float touches down long before the stabilisers, and since its width is normally less than 10 per cent. of the span, and even this is supported on a fluid medium, toppling is almost certain. However, this type of model is not as a rule expected to return to water, most flying taking place from small pools or the downwind side of rivers or lakes. Nosing over due to high initial drag of the float on take-off is prevented by placing the front float well ahead of the C.G., in line with or even ahead of the airscrew. Veering on take-off is not a serious problem with this layout, since the model is airborne after very little run.

For fast take-offs good acceleration is required, which means an aerodynamically clean model, a fine pitch prop, and a low power loading. The normal American (West Coast) model is a standard pylon layout with the flat-bottomed type of airfoil favoured over there. A very large model float is usually employed, and steps are almost universal; the float usually projects well in front of the airscrew. Power is generally glowplug, and is very high compared with our ideas—one kit model with an excellent, safe performance, is equivalent to an Elfin 1·49 in a 7½ oz. 36-in. model. Float shapes are shown in Fig. 1. Bob Linn of Los Angeles, tells us that the front float is usually set at the same angle of incidence as the wing, and that a useful tip is to press the model down in the water a little so that it tends to bob out on release. Our experience is that a greater angle of incidence—about 10°—is advisable, since the models must

Fig. 4 Float Dimensions (inches)

Model weight in ozs.	Front (1) A	B	C	Rear (2) A	B	C
8	6	3½	1¼	3	1½	1
10	7	4	1¼	4	1½	1
12	7½	4	1½	4½	1⅝	1⅜
16	8½	4½	1⅝	4½	2	1¼
20	9	5	1⅞	5	2	1⅜
24	9½	5½	1¾	5½	2	1⅜

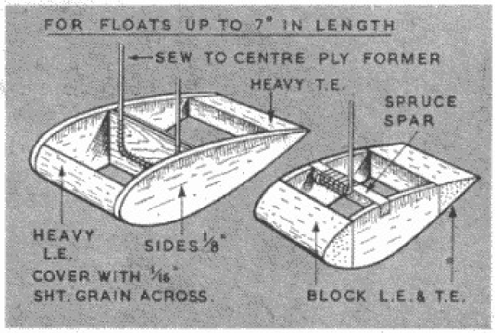
take off from a position of rest and, without bobbing out of the water, a small angle of incidence may easily cause a nose-over. Many of the All-Herts entrants could have done with a little more incidence on the floats.

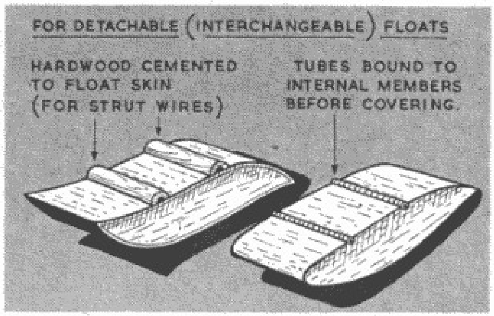
In central and eastern parts of the U.S.A. more diverse float shapes are seen (Fig. 2) and the stepless sea-sled is in use, particularly on small models. Twin front floats, rare on the West Coast, are more common elsewhere, and narrower floats seem to be a general rule. An interesting shape is that developed by Folk—basically a bear-claw, it has a sharp undercamber at the rear. This has something of the effect of an undercambered airfoil (increased angle of attack without proportionate drag increase) but is probably most useful in preventing porpoising. A model which does not reach hump speed (*i.e.*, at which planing commences) quickly may commence to pitch madly as it careers across the water; once this starts, a successful take-off is unlikely. Hooking the float (or hooking the step in a stepped float) reduces the chances of the pitching occurring.

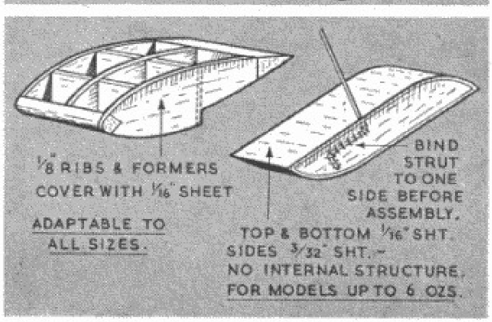
The European trend at present seems to be towards the bi-convex, nearly symmetrical float, set at about 9°–12°. The take-off with the type of float shown in Fig. 3a is noticeably prolonged, but the effect on the glide is considerably less. One model in our experience, ratioing 8 and getting airborne in four feet with a stepped float, now runs for twelve feet and ratios 11 with the raindrop profile. Next developments are to give a larger planing surface by using a shallower float of the same volume (38) and, if this shows no improvement, to try the effect of turbulators in various positions. With the existing slightly longer take-off run, a little more care must be taken to line the front float up accurately; the rear floats rise out of the water immediately upon release and so are not critical. Some Continental modellers use diamond and other cross-sections for floats fitted to light models, presumably to reduce drag in the air; hydrodynamically it would appear that these floats have no particular advantage—they may even be a drawback.

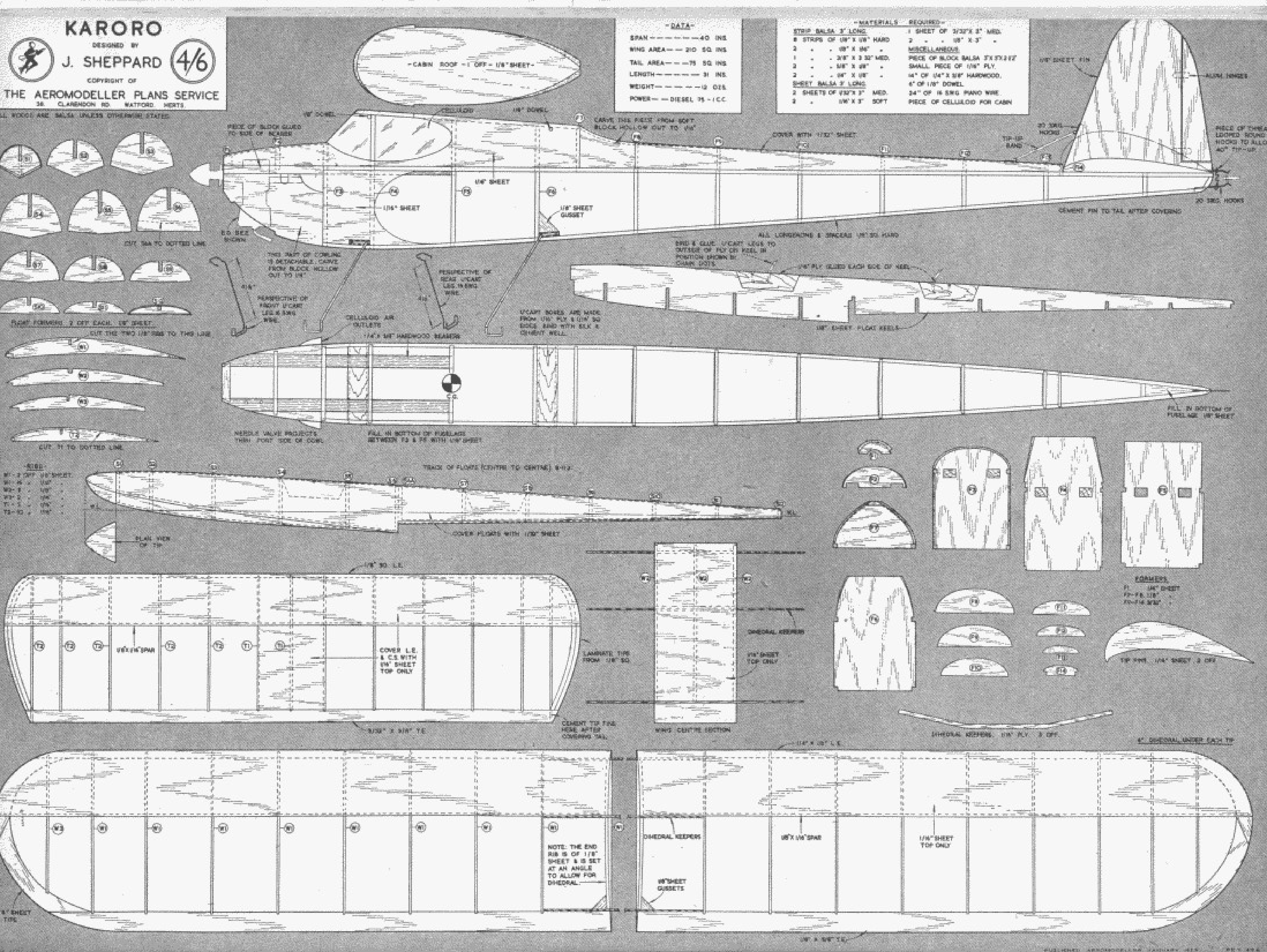
In using the one-front two-rear layout, the following points should be borne in mind: (i) Rear flats are not very important provided that they adequately support the tail of the model, are of reasonably streamlined shape, and are firmly affixed (either to the tailplane direct or to stiff "stems" or sub-rudders). Table tennis balls are excellent for small jobs, especially as their very light weight makes up for any lack of perfect streamlining; (ii) The L.E. of the front float should be above water when at rest for best results; (iii) The front float mounting should be rigid enough to prevent the float from twisting or whipping, but springy enough to avoid damage on landing; (iv) The float L.E. should be no further back than in line with the airscrew.

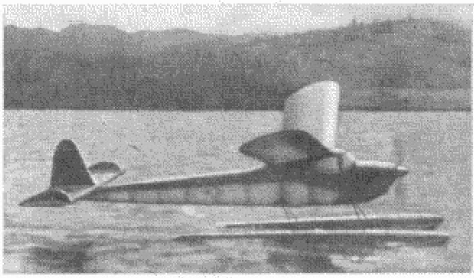
Float volume can easily be calculated—1 lb. of water occupies 28·8 cu. ins. approximately, so that a 16 oz. model with 28·8 cu. ins. of float volume would be neutrally buoyant (as far as the floats go). For reasonable efficiency on the water, about twice this figure (*i.e.*, 3·6 cu. ins. per oz.) is desirable, when, of course, half the floats are immersed at rest. Three cu. ins. is the minimum for reliable performance, and four cu. ins. is not too much, particularly for initial attempts or experimental float forms. 70–75 per cent. of this volume should go into the front float, the remainder being split between the tail "pods". Typical float sizes are given in Fig. 4; these figures may be used with confidence. A few standard construction layouts are shown below. Float building will be covered fully in a later article, but the sketches here are self-explanatory, and all that needs to be said is that the whole of each float must be covered with tissue and given two coats of dope and two of banana oil. (*To be continued*)








KARORO
DESIGNED BY
J. SHEPPARD
4/6
COPYRIGHT OF
THE AEROMODELLER PLANS SERVICE
38, CLARENDON RD. WATFORD, HERTS.
ALL WOODS ARE BALSA UNLESS OTHERWISE STATED.
-DATA-
SPAN ——————40 INS.
WING AREA——210 SQ. INS.
TAIL AREA———75 SQ. INS.
LENGTH——————31 INS.
WEIGHT——————12 OZS.
POWER——DIESEL .75 - I C.C.
-MATERIALS REQUIRED-
STRIP BALSA 3' LONG.
8 STRIPS OF 1/8" X 1/8" HARD
2 " " 1/8" X 1/4" "
1 " " 3/8" X 3/32" MED.
2 " " 1/8" X 1/8" "
2 " " 1/4" X 1/8" "
SHEET BALSA 3' LONG.
2 SHEETS OF 1/32" X 3" MED.
2 " 1/16" X 3" SOFT
1 SHEET OF 3/32" X 3" MED.
2 " " 1/8" X 3" "
MISCELLANEOUS.
PIECE OF BLOCK BALSA 3" X 3" X 2 1/2"
SMALL PIECE OF 1/16" PLY.
14" OF 1/4" X 3/8" HARDWOOD.
6" OF 1/8" DOWEL.
24" OF 16 S.W.G. PIANO WIRE.
PIECE OF CELLULOID FOR CABIN
-CABIN ROOF - 1 OFF - 1/8" SHEET-
CELLULOID
1/8" DOWEL
CARVE THIS PIECE FROM SOFT BLOCK HOLLOW OUT TO 1/16"
COVER WITH 1/32" SHEET
1/8" SHEET FIN
ALUM. HINGES
TIP-UP BAND
20 S.W.G. HOOKS
CEMENT FIN TO TAIL AFTER COVERING
PIECE OF BLOCK GLUED TO SIDE OF BEARER
1/8" SHEET
1/16" SHEET
1/8" SHEET GUSSET
E.D. BEE SHOWN
ALL LONGERONS & SPACERS 1/8" SQ. HARD
THIS PART OF COWLING IS DETACHABLE. CARVE FROM BLOCK HOLLOW OUT TO 1/8"
CUT S4A TO DOTTED LINE
PERSPECTIVE OF FRONT U/CART LEG 16 S.W.G. WIRE
PERSPECTIVE OF REAR U/CART LEG 16 S.W.G. WIRE
BIND & GLUE U/CART LEGS TO OUTSIDE OF PLY ON KEEL IN POSITION SHOWN BY CHAIN DOTS
1/16" PLY GLUED EACH SIDE OF KEEL
1/8" SHEET FLOAT KEELS
U/CART BOXES ARE MADE FROM 1/16" PLY & 1/16" SQ. SIDES. BIND WITH SILK & CEMENT WELL.
CELLULOID AIR OUTLETS
1/4" X 3/8" HARDWOOD BEARERS
FLOAT FORMERS 2 OFF EACH 1/8" SHEET
CUT THE TWO 1/8" RIBS TO THIS LINE
C.G.
FILL IN BOTTOM OF FUSELAGE 1/8" SHEET
NEEDLE VALVE PROJECTS THRU PORT SIDE OF COWL
FILL IN BOTTOM OF FUSELAGE BETWEEN F3 & F6 WITH 1/16" SHEET
CUT T1 TO DOTTED LINE
-RIBS-
TRACK OF FLOATS (CENTRE TO CENTRE) 8-1/2"
COVER FLOATS WITH 1/32" SHEET
PLAN VIEW OF TIP
1/8" SQ. L.E.
1/8" X 1/16" SPAR
COVER L.E. & C.S. WITH 1/16" SHEET TOP ONLY
LAMINATE TIPS FROM 1/8" SQ.
CEMENT TIP THIS NOSE AFTER COVERING TAIL
3/32" X 3/8" T.E.
WING CENTRE SECTION
DIHEDRAL KEEPERS
1/16" SHEET TOP ONLY
FORMERS
F1 1/4" SHEET
F2-F8 1/8" "
F9-F14 3/32" "
TIP FINS 1/4" SHEET 2 OFF
DIHEDRAL KEEPERS 1/16" PLY 3 OFF
4" DIHEDRAL UNDER EACH TIP
1/4" X 1/8" L.E.
1/8" X 1/16" SPAR
1/16" SHEET TOP ONLY
NOTE: THE END RIB IS OF 1/8" SHEET & IS SET AT AN ANGLE TO ALLOW FOR DIHEDRAL.
1/8" SHEET GUSSETS
1/8" X 3/8" T.E.



KARORO

A 40 ins. FLOATPLANE FROM NEW ZEALAND

By John Sheppard

New Zealand farmer's son . . . country member N.Z.M.A.A. . . . interested in all kinds of model flying . . . holder N.Z. Waterplane (rubber) record.

KARORO is the Maori word for a Seagull, and since this little cabin floatplane originates from "down under" in New Zealand, it is a very appropriate term for a model that can alight and take off as gracefully as its namesake. Designed in 1950 so that John Sheppard could take advantage of nearby lakeside flying sites, the Karoro flew straight "off the drawing board"—the only adjustment required for perfect flight being an occasional twist of the E.D. Bee's compression vernier! First flights were made with hand launch, then an off water take off check was made. At the end of a beautiful 20 yard run, Karoro "unstuck" and made her customary left-hand climb and smooth glide back to water level. The flexible plastic 8 × 4 in. propeller was changed for a wooden equivalent, with the result that take-off was shortened considerably.

Long tail moment is a characteristic of this simple model which makes for a very high degree of stability—even if your interest is not inclined toward a floatplane, a land version would provide you with a smart sport model of the easy to build, easy to fly variety. Average duration using a 20 seconds power run with the Bee diesel is in the region of 1 : 20 for the floatplane.

Construction

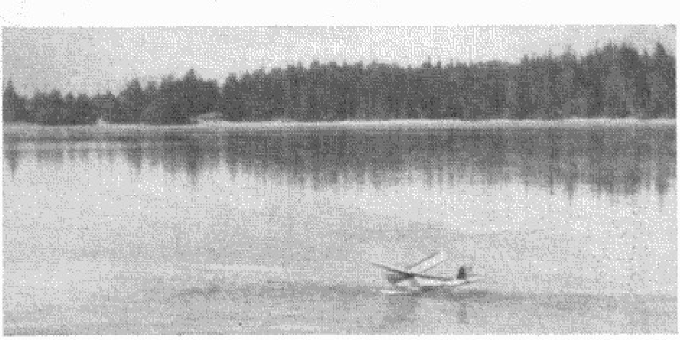
Begin with the **fuselage** by pinning down two straight lengths of ⅛ square longeron material and joining with spacers from F8 station rearwards. Make two sides, remove from board after marking positions for F3, F6. Pin sides upside down over plan view, add spacers from F8 rearwards, remove from board and fit F3, 4, 5, 6. Attach cabin roof, soft block, and F7, 14. Fit engine bearers and F1 and 2. Undercart boxes, gussets and d/t hook are fitted before sheeting top half and front sides with 1/16th. Celluloid screen is next, then wing dowels and engine cowling block. Sheet **fin** has portion cut out and hinged for trimming and d/t hooks added before sanding smooth and prepared with sanding sealer. **Tailplane** and **wing** construction is straightforward, leading edge sheet covering is best applied whilst the components are still pinned to the building board. Make the wing in three panels, joined by dihedral keepers and then when wing is in one piece, pin each panel in turn onto board for sheeting . . . don't forget the tailplane **tip fins.**

The **floats** are made by half lapping the bulkheads over the keel then covering the bottom aft of the step with 1/32nd sheet, and forward of the step with 1/16th. Ply strengtheners are cemented on each side of the keel at the undercart points and the float tops covered with 1/32nd. Add the nose blocks, then when thoroughly dry, sand the whole down smooth and cut through top sheeting at undercart points, push wire saddles over keel and ply facings, add plenty of cement and seal the gaps with scrap balsa. An alternative is to bind the legs in place before sheeting. Sanding sealer is best applied liberally as a protective.

Cover the entire job with lightweight Modelspan, give two coats of dope to fuselage, wings and tail, three coats to the floats, followed by one of banana oil or similar non-shrinking waterproofing finish. Very little trimming will be necessary, perhaps an eighth inch movement at the trim tab t.e. and slight motor offset at the very most.

. . . and don't forget the d/t fuse, over water lift is by no means uncommon!!

Full size copies of the ¼ scale plan opposite are available 4/6 post free through A.P.S.



Peaceful N.Z. lakeside scene as Karoro comes in on a 'landing'.

The Dart Kitten

AN INCH TO THE FOOT SCALE MODEL OF AN ULTRA-LIGHT SINGLE SEATER FOR SMALL MOTORS OF ·5 TO ·87 cc.

By John Lamble

SEEING an article on the Dart " Kitten " in the October, 1950 AEROMODELLER, John Lamble was beset with a violent attack of " scaleitis ", impelling him to build something other than his usual functional machines.

Scaled at 1 inch to 1 foot, for his old 1947 Amco ·87 c.c., the Kitten makes up into a sweet little machine of 32 inch span with a very lively performance. Any of the new 0·5 c.c. engines should be satisfactory, also the Mills ·75; but don't try anything bigger than ·87 c.c.

Incidentally the model was made entirely out of the contents of a scrap box and it is suggested that you do the same. As a guide, medium balsa was used throughout.

In any case, here's the list of materials :—

One sheet 1/32" × 3" × 6"
One sheet 1/16" × 3" × 18"
One sheet 1/8" × 3" × 24"
Two pieces 1/16" × 1/16" × 36"
One piece 1/16" × 1/8" × 36"
Five pieces 1/8" × 1/8" × 36"
16 and 20 s.w.g. wire, 1/8" Dowel,
Celluloid, Tissue, Bearers and one 1/2" × 3" × 4" soft block.

CONSTRUCTION

Wings and Tailplane. These are quite conventional. The only point to remember is to make sure the undercarriage legs are *firmly* bound into place on the lower mainspar.

Fuselage. Assemble the two basic side frames, *over the* plan, omitting 1/8 in. sheet wing seating and formers, F1, F2 and F7, for the moment. These two sides are placed upside down on the plan view and are joined together with 1/8 in. × 1/16 spacers and trued up by the formers F1, F2 and F7, which are now inserted. Add the other spacers as indicated on the plan and also the 1/8" × 1/8"

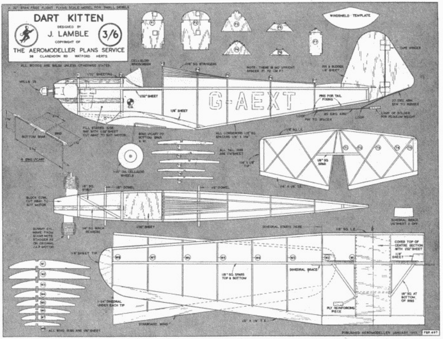
Prototype was built for less than 3s. 6d. and was completed in less than a week of evenings. Without doubt, this is the simplest scale model yet.

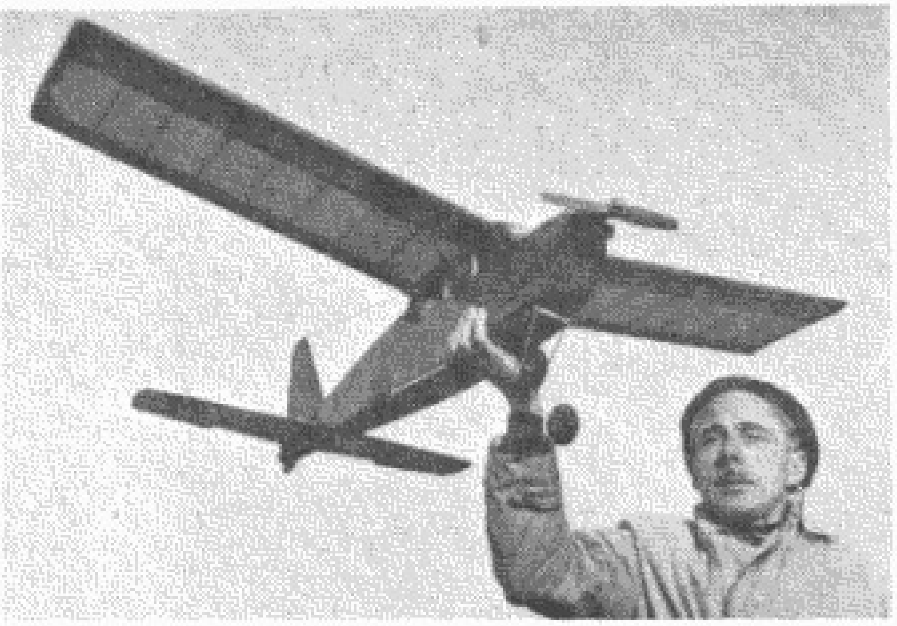
at F3 and the trailing edge station, plus the ⅛ in. sheet wing seating, double cementing the joints here. Add the diagonal bracing between F1 and F2, making sure that the fuselage is true at this stage. This bracing will ensure that the sharp bends of the longerons at this point do not distort the rest of the fuselage. Remove from the plan and add the upper formers F4 to 10. Fit the engine bearers, double cementing all their joints. Sheet the nose with 1/32 in. sheet, trimming off the cockpit shape carefully afterwards. Add the 1/16 in. square stringers aft of the cockpit. Sheet in the cockpit with 1/32, noting that this is fixed to the underside of the longerons. Cut out the windshield, using the template, and cement in position. Add ⅛ dowels for wing fixing and pins for tail fixing. Fit your motor and then carve and fit the cowling blocks forward of F.1. Hinge the rudder to the main fin with linen hinges. Sew the pendulum actuator arm to the rudder. Make up the pendulum weight on the end of 4 ins. of 20 gauge wire and from the rear, push through the loop on the actuator arm. Bend a loop on the front end of the pendulum arm and clip over the head of a pin pushed through the ⅛ in. × 1/16 in. spacer at the bottom of F7. Cover the whole model in heavyweight Modelspan and give two coats of clear dope. The original had a red fuselage with silver markings and silver flying surfaces with red lettering.

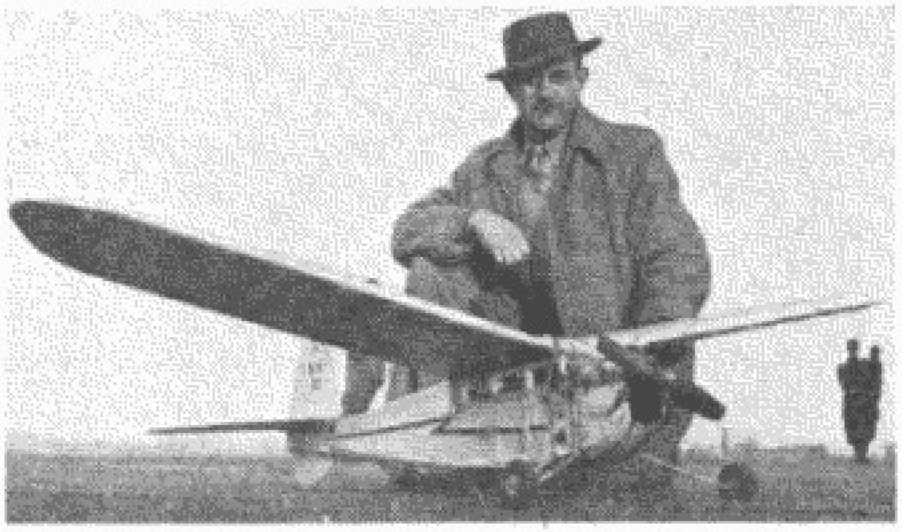
Flying. Test glide first and ensure that there is no tendency to stall. Little can be learnt from further test glides so embark on low power tests and watch what happens. Adjust the tailplane incidence to increase or decrease the rate of climb and bend the actuator arm to alter the amount of turn. Try for a gentle left turn as gyroscopic effect makes right turn hazardous. Once the model is roughly trimmed, try various tailplane incidence and rudder settings and you will find that on full power the Kitten is capable of all sorts of entertaining semi-aerobatics.

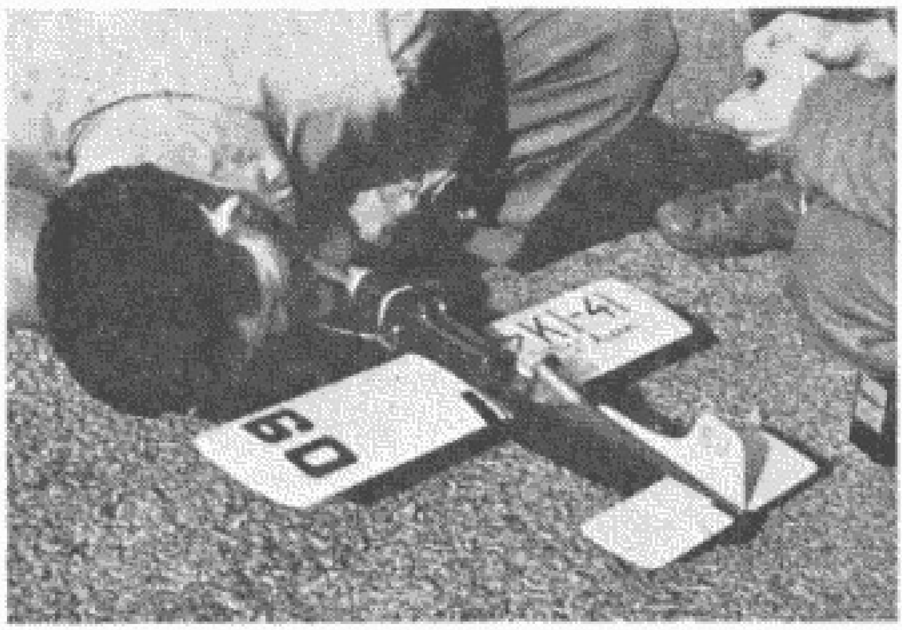
John Lamble's favourite, with 1/32 positive and rather too much left turn, is a straight, fast steepening climb to about 20 ft. slow left turn developing into a power dive. But with the auto rudder gradually getting the upper-hand the Kitten pulls out at about 3 feet up to assume a steady climbing circle.

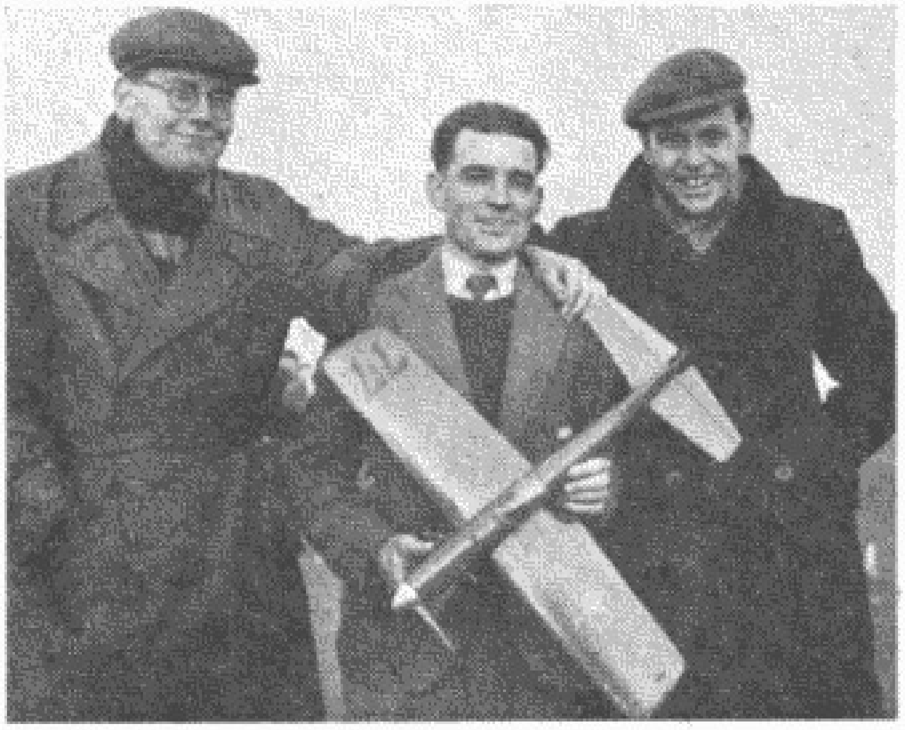
Sounds dangerous? Well why worry, such a small model can do itself little harm if put together with plenty of cement in the first place, and believe us, there's never a dull moment.











Last of the 1952

REPORTED BY

THIS year's Davies (T/R), Ripmax (R/C) and S.M.A.E. C/L speed contests were held at Fairlop on October 12th. The weather was fine with only a light breeze, but a sharp nip in the air served to remind us that this was indeed the end of yet another contest season. However, we found little difficulty in keeping our circulation going, since the simultaneous running of the three contests prevented us lingering very long in any one place.

Davies

The Davies—the culminating T/R events of the '52 season, for " A " and " B " trophies donated by Ian Davies. S.M.A.E. Competition Secretary S. D. Taylor told us that no less than 30 teams from 11 of the areas entered this year. It took several hours to get through the eliminations and it was getting dark when the finals were at last flown off. This year Charles Taylor flew a " Stoo " Steward model to win the " A " event while to make certain of keeping West Essex in the C/L picture, class " B " fell to Ken Muscutt's model. The times for the two races were only one second apart—10 minutes 37 seconds for Class " A " and 10 minutes 36 seconds for Class " B ".

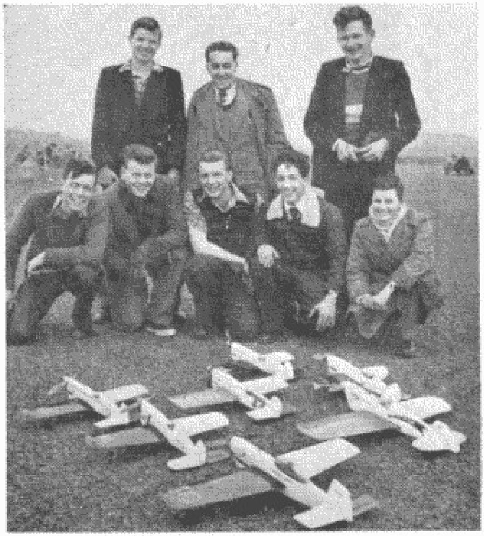
Wandering around the " pits ", we saw many nice looking racers most of them of a good semi-scale appearance. The South Bristol boys entered seven inverted motor models—four of them being based on club members Terry Smith's neat 22 in. span E.D. 2·46 powered low-wing. All S/Bristol models feature a distinctive colour scheme of blue and white—which we found particularly attractive. Johnny Jones was there—with a new version of his " scramble " design. Still powered with that same Hurricane 24, this model is basically the same (wing area 125 sq. in. and weight 16 oz.) except that the fuselage has literally been " turned upside down " to give an inverted motor and low wing position. " It starts easier, flies better and looks nicer," says Johnny.

Pete Wright flew his business-like ETA 29 powered " Wrangler ". Superb model this—he flew it in speed as well and did over a 100 m.p.h. Easily the most beautiful team racer seen at the contest was Ron Checksfield's shoulder-wing design. Surfaces were elliptical and the fuselage was split down the middle in the fashion of a speed job. Powerplant was a reworked ETA 29—mounted inverted. A big 28 in., 25 ounce model, it has recorded 101 m.p.h. and does 35 laps to a tank of fuel.

Left: Top to bottom, Sid Allen of West Essex, the radio man of the year, with his Ripmax winner, a straight dihedralled version of his regular design. Next, C. G. Sallis of Cambridge, who placed 2nd with his Junior 60. At the Davies TR. Class B contest, Pete Wright primes the ETA 29 in his over-100 Wrangler racer. Bottom. The Sorcerer team from Croydon, Ron Martin, Pete Cameron and entrant, Norman Butcher.

Contests at Fairlop

BILL DEAN



Keen team race fans from South Bristol turned up in force with this nice looking bunch of seven blue and white models.

Speed

Speed was in the charge of Dick Taylor and attracted 24 entries—the fastest model being Ray Gibbs (E. London) well known "Crescendo", which turned in 138·9 m.p.h. in Class 6. This original spans 15½ in., weighs 26 ounces and features a magnesium lower fuselage shell. An outsize in spinners is fitted and the top of the Checksfield motor is exposed. This motor must be one of the best (if not *the* best) 10 c.c. flying in Britain at present. Built round a McCoy 60 Crankcase, it weighs just 13 ounces. The same model/engine combination put up 149 m.p.h. at the '52 Namur contest, and not the B.R.E. as previously stated. (The latter is completely Checksfield and is even more powerful).

Garry Peek of Chelmsford made up the next fastest winning time of 115·9 m.p.h.—in Class 4—with his Dooling 29 "Meteor". His model sported a very neat finish, had a totally enclosed motor, slightly tapered surfaces and a full tailplane span elevator. Other speed classes fell to R. Tuthill of Enfield (Class 1—76·09 m.p.h.—Elfin 1·49) Don Powell of East London (Class 2—91·7 m.p.h.—Elfin 2·49) and J. Watson of Lewisham (Class 3—82·8 m.p.h.—Amco 3·5).

Ripmax

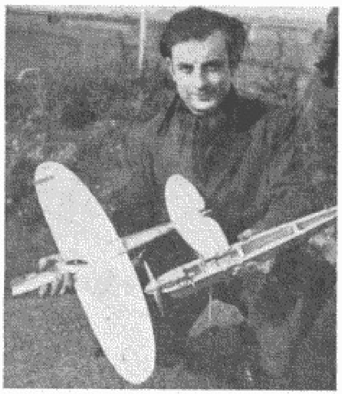
Sid Allen of West Essex walked off with the trophy again this year (336 points)—his spot landing being about 27 yards on both flights. His original design slabsider cabin job was powered by an uncowled Elfin 2·49 and featured a tricycle u/c (front leg torsion sprung). All up weight was 3 lbs. 8 ozs. and the radio was the hard valve type.

Second place went to C. G. Sallis of Cambridge (284 points) who flew the same E.D. 2·46 powered "Junior 60" with which he won at this year's Nationals. His first spot landing was 16 yards, which put him well in the running for first place, but the next touchdown was 50 yards from the appointed spot and Sid Allen was able to heave a big sigh of relief. Anyway, a big hand to Mr. C. G. S. for his Nationals win and this second place.

Tommy Ives (C.M.) also did well—being only eight points behind (276) for third place.

Seventeen pre-entries were received for the Ripmax, eleven of them actually flew and only the first seven scored any points. Johnny Gorham entered an E.D. 2·46 powered "Super Brigadier" which he had made (including radio) in 10 days.

Below: Left to right, Garry Peek of Chelmsford with ETA 29 and Dooling 29 powered speed entries. One on right is Class 4 winner at 115·9 m.p.h. Centre: Johnny Jones and his latest version of Scramble . . . still uses same Hurricane 24, now inverted. Model weighs 16 oz. Right, 35 laps at over 100 is fact, not fiction with Ron Checksfield's beautiful racer. Engine is a Fred Carter reworked ETA.



BRITISH NATIONAL MODEL AIRCRAFT RECORDS

as at 31st October, 1952

OUTDOOR

RUBBER DRIVEN

Monoplane	BOXALL, F. H.	(Brighton)	15/5/49	35 : 00
Biplane	YOUNG, J. O.	(Harrow)	9/6/40	31 : 05
Wakefield	BOXALL, F. H.	(Brighton)	15/5/49	35 : 00
Canard	HARRISON, G. H.	(Hull Pegasus)	23/3/52	6 : 12
Scale	MARCUS, N. G.	(Croydon)	18/8/46	5 : 22
Tailless	WOOLLS, G. A. T.	(Bristol and West)	4/5/52	2 : 00
Helicopter	TANGNEY, J. F.	(U.S.A. and Croydon)	2/7/50	2 : 44
Rotorplane	CROW, S. R.	(Blackheath)	23/3/36	: 39·5
Floatplane	PARHAM, R. T.	(Worcester)	27/7/47	8 : 55
Flying Boat	PARKER, R. A.	(K. Nomads)	24/8/52	1 : 05

SAILPLANE

Tow Launch	BEST, F.	(Leeds)	20/6/48	63 : 46
Hand Launch	CAMPBELL-KELLY, G.	(Sutton Coldfield)	29/7/51	24 : 30
Tailless T.L.	LUCAS, A. R.	(Port Talbot)	21/8/50	22 : 33
Tailless H.L.	WILDE, H. F.	(Chester)	4/9/49	3 : 17
Nordic T.L.	WHITTALL, L.	(Birmingham)	2/7/50	29 : 51
Nordic H.L.	CAMPBELL-KELLY, G.	(Sutton Coldfield)	29/7/51	24 : 30

POWER DRIVEN

A (0–2·5 c.c.)	SPRINGHAM, H. E.	(Saffron Walden)	12/6/49	25 : 01
B (over 2·5–5 c.c.)	DALLAWAY, W. E.	(Birmingham)	17/4/49	20 : 28
C (over 5–15 c.c.)	GASTER, M.	(C/Member)	15/7/51	10 : 44
Tailless	POILE, W.	(C/Member)	23/8/50	2 : 10
Scale	TINKER, W. T.	(Ewell)	1/1/50	1 : 37
Floatplane	STAINER, J. R.	(Canterbury)	14/8/49	2 : 59
Flying Boat	GREGORY, N.	(Harrow)	18/10/47	2 : 09

CONTROL-LINE SPEED

Class I	SCOTT, R.	(St. Helens)	9/7/50	80·00 m.p.h.
Class II	COLES, A. V.	(Bristol and West)	18/8/51	99·41 ,,
Class III	HALL, J.	(Chingford)	24/8/52	107·00 ,,
Class IV	WRIGHT, L. P.	(St. Albans)	14/7/51	124·54 ,,
Class V	SHAW, C. A.	(Zombies)	19/6/49	118·42 ,,
Class VI	GUEST, F.	(C/Member)	14/7/51	133·10 ,,
Class VII (Jet)	STOVOLD, R. V.	(Guildford)	25/9/49	133·33 ,,

OUTDOOR—LIGHTWEIGHT

RUBBER DRIVEN

Monoplane	BARNACLE, N. A.	(Leamington)	14/10/51	17 : 55
Biplane	O'DONNELL, J.	(Whitefield)	18/5/52	6 : 46
Canard	HARRISON, G. H.	(Hull Pegasus)	28/9/52	1 : 47
Scale	DUBERY, V. R.	(Leeds)	14/7/51	1 : 11
Floatplane	TAYLOR, P. T.	(Thames Valley)	24/8/52	5 : 15
Flying Boat	RAINER, M.	(North Kent)	28/6/47	1 : 09

SAILPLANE

Tow Launch	HUNT, P.	(Bury St. Edmunds)	25/5/52	32 : 10
Hand Launch	GATES, G. K.	(Southern Cross)	16/2/52	8 : 45
Tailless T.L.	COULING, N. F.	(Sevenoaks)	3/6/51	22 : 22
Tailless H.L.	DONALD, K.	(Southern Cross)	23/5/52	3 : 29
Canard, T.L.	CAPLE, G.	(R.A.F., M.A.A.)	7/9/52	22 : 11

POWER DRIVEN

Class A	ARCHER, W.	(Cheadle)	2/7/50	31 : 05
Class C	WARD, R. A.	(Croydon)	25/6/50	5 : 33
Tailless	GATES, M. M.	(non member)	28/1/51	2 : 47

INDOOR

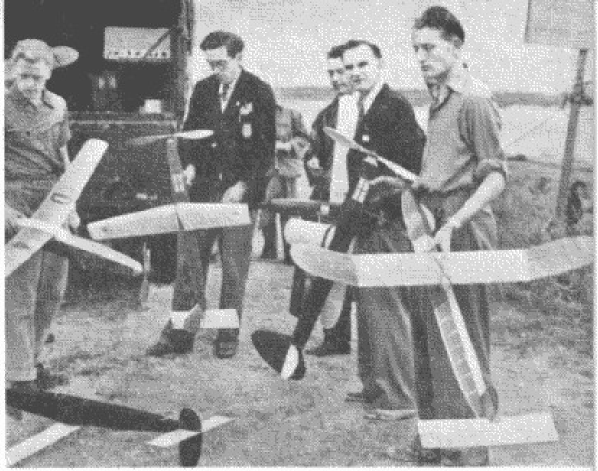
FREE FLIGHT

Stick—H.L.	COPLAND, R.	(Northern Heights)	22/1/37	18 : 52
Stick—R.O.G.	MACKENZIE, R.	(Blackheath)		8 : 42
Fuselage—H.L.	PARHAM, R. T.	(Worcester)	18/8/51	7 : 15
Fuselage—R.O.G.	do.	do.	do.	7 : 30
Tailless—H.L.	do.	do.	do.	2 : 59
Tailless—R.O.G.	do.	do.	do.	2 : 28
Helicopter	do.	do.	do.	2 : 09
Rotorplane	MAWBY, L.	(Ealing)		: 32·2

ROUND-THE-POLE

Class A	MUXLOW, E. C.	(Sheffield)	10/12/48	6 : 05
Class B	PARHAM, R. T.	(Worcester)	20/3/48	4 : 26
Speed	JOLLEY, T. A.	(Warrington)	19/2/50	42·83 m.p.h

Private Enterprise Wins F.N.A. CUP!



Dykstra (Holland) extreme left and four of the British team models at the check point. Warring and Brockman flew geared models.

On Sunday, October 5th, the 1952 Wakefield Contest was held all over again (in miniature) at Latina Airport on the outskirts of Rome, the contest being for the F.N.A. Cup, organised this year by the Aero Club D'Italia. It was won by the British team and so for the first time since 1948 a major International " Rubber " Trophy returns to these shores.

Five nations contested the 1952 event. France was represented by the top three of her " Swedish " team. Germany and Italy, both with full teams of six, had four and three " Swedish team " members, respectively; Holland, three out of a five-man team. The British team consisted of Bob Copland, Ron Warring, Don Brockman, Ian Dowsett and Roy Yeabsley, with Harry Brook (Zombies) as team manager. All five flying members being experienced in International contest work the team was reckoned a reasonably strong one, even if " selected " on the basis of working down a list of " possibles " who were willing to pay their own fare to Rome!

The continuing overcast sky restricted thermal activity to a very great extent. Wind direction was changing all the time. Models drifted one way after taking off, then, as they got higher, took another course at right angles to the other. Yet there were few really *strong* thermals around. One German model, out of trim on the glide, was held in one for a " maximum " and one Italian model almost went out of sight upwards, but for the most part it was moderate lift in scattered patches—good enough for another thirty to sixty seconds duration on a well trimmed model.

Taking stock at the end of Round 1, out of twenty-five flights, seven had been maximums and over half of all the flights had been over four minutes. But Great Britain were already out on top with a flight average of 252·8 secs. (thanks to maximums by Warring and Brockman and near-maximums by Copland and Yeabsley), followed closely by Italy and then France.

The expected hot thermal weather did not materialise for the second round. Brockman's model, in fact, took off in a downpour, boring its way up into a most ominous-looking sky and disappearing from sight a full minute before the D/T came into operation.

To the British eyes, conditions for Round 3 were pretty good. The Italians thought it windy, but the drift was certainly not more than about eight m.p.h. The wind, too, was steady and not gusty. Nobody returned a maximum on this round. The all-out effort made by the British team nearly met with disaster in this vital round. Bob Copland, probably flying better than he has done for years got in a very nice unworried last flight which certainly looked " higher and farther " than 262·9 secs. Ron Warring had near-maximum turns on his geared motors and a Dutch model which took off some twenty seconds behind and landed half a minute before, had an official 274 secs. against Ron's 248 secs. The lost seconds looked like being serious, but fortunately Roy Yeabsley came through in grand style on his last flight and revived British hopes.

The Wakefield strength of Italy is undoubtedly very high and as far as individual performances are concerned, an Italian, new to International contest work, topped the field. He was the only modeller to achieve a maximum in both Round 1 and Round 2 and nearly made it a " treble ", but conditions just were not that helpful on the third round. His machine, a simple, return-gear job with the gears horizontally disposed (and thus the motors side-by-side), using a medium diameter pitch propeller, a steep, fast climb to a considerable altitude belied the appearance of a " geared " model. Bob Copland placed second in the individual list with his new (1953) streamliner—rather longer than his original models of this type and with a 19 in. diameter featherer.

TEAM

		Flight Av. Secs.
1.	Great Britain	218·12
2.	Italy	212·8
3.	France	200·8
4.	Holland	153·11
5.	Germany	146·09

INDIVIDUAL

			Sec., agg.
1.	Cargnelutti	Italy	856·8
2.	R. Copland	G.B.	813·9
3.	G. Dykstra	Holland	811·9
4.	R. Warring	G.B.	766·2
5.	J. Morriset	France	728·8

BRITISH TEAM PERFORMANCE

R. Copland	281·8	269·2	262·9	813·9 agg.
R. H. Warring	300·0	218·2	248·0	766·2 agg.
R. Yeabsley	286·0	114·1	256·4	656·5 agg.
D. Brockman	300·0	241·9	4·0	545·9 agg.
I. Dowsett	96·3	197·0	196·0	489·3 agg.

Below left. Cargnelutti with the model he flew to a 14 min. aggregate (left) and his reserve model, Right. (Left to right) Don Brockman (12th), Ian Dowsett (16th), Bob Copland (2nd), Roy Yeabsley (10th), Cargnelutti of Italy (1st) and Ron Warring (4th).

Readers' Letters

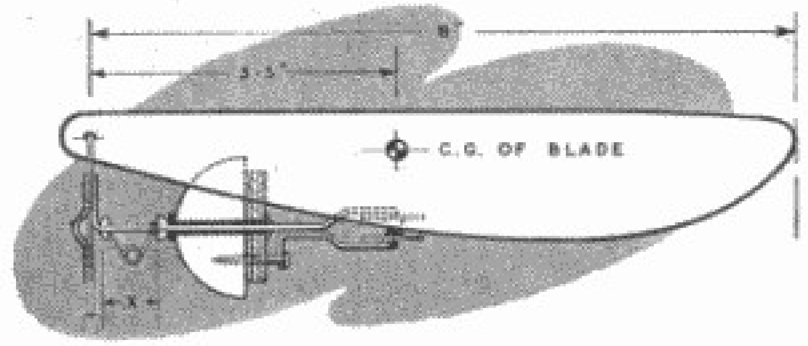
Folding Prop. Balance

DEAR SIR,

Following Peter Gasson's article on rubber model propellers in the August issue of the AEROMODELLER, I would like to point out something I have been dying to point out for some time now before somebody else notices it ! This is that a folding propeller does not *necessarily* have to unbalance the model, provide the tensioner spring is made to shift the propeller forward through only a matter of $\frac{3}{4}$ in. or so.

Taking the case of a typical Wakefield propeller, we might have :

Weight of propeller :	0·6 oz.
Weight of shaft and bobbins :	0·25 in.
Weight of rubber motor :	4·5 oz.



Let the distance the shaft is moved forward by the tensioner spring be x in. Then change in moment about C.G. of plane due to folding of propeller

$$=0{\cdot}6\times3{\cdot}5=2{\cdot}1 \text{ in.—ozs.}$$

This should be balanced by the forward motion of propeller, shaft and bobbin as a unit, including the forward shift of the rubber motor.

$$i.e.\ 2{\cdot}1=(0{\cdot}6+0{\cdot}25)x+\frac{4{\cdot}5}{2}x.$$

$$\therefore x=0{\cdot}677 \text{ in.}$$

Hence if the spring allows a movement of the propeller of $\frac{5}{8}$ in., the model will have the same balance on the glide as during the climb. The shaft starts its forward movement only towards the very end of the power run, so that there is no trouble in this respect.

Durban. R. ROSSOUW.

"Limited" Rubber Models

DEAR SIR,

It seems that anyone with any commonsense now agrees that a lower maximum—and therefore a reduced performance—is essential for the continuation of the contest side of aeromodelling. Glider and Power suggestions to this end do not cause trouble, but there is resistance to the idea of restricting rubber model performance.

The idea of 5 flights of 3 minutes certainly would produce a consistent model, but would also require as good a cross-country runner as 3 flights of 5 minutes, although the model would not go so far. Three flights of 3 minutes, plus any number of 5-minute fly-offs, would still pose distance problems, though for fewer people.

The best idea is to have a model that has difficulty—without thermal assistance—in reaching the desired maximum, and retain the three flight rule. This can only be done by restricting rubber weight. The only objection (apart from some purely selfish ones) is that this would lead to processing difficulties, and would kill the "open" contest.

Now there has never been an "open" contest since rules for motor run, towline length and flight maximum were imposed ! (*The processing of a "limited rubber model" is no more complicated and requires less staff than tow-line checking.*)

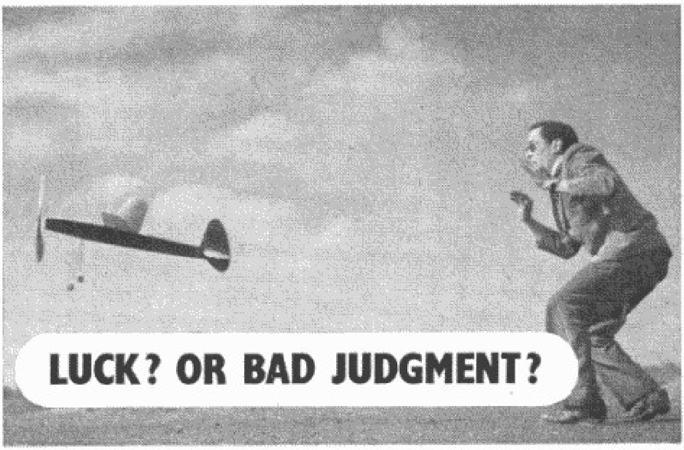
Suppose we have a rule that limits rubber to $\frac{1}{3}$ total weight. This would enable a $2\frac{1}{2}$-minute maximum to be practical ($\frac{1}{2}$ rubber requires a 4-minute max., $\frac{2}{3}$ rubber a 6-minute max.). Processing would be as follows :—

1. Flyer reports to control to make entry (or confirm pre-entry) with model complete, but minus rubber.
2. Recorder weighs it and records the weight on the back of the flight card, divides by two, and adds this on. The model when checked prior to flight *must not exceed* this last figure.
3. Flyer returns to "base", installs rubber and whenever he reports for a flight, the model is checked on the scales against the figure on the flight card.

What could be simpler ? One final thought—apart from being practical for "open" contests with a $2\frac{1}{2}$–3-minute maximum, this system could easily replace *all* the rules in the Wakefield. This would leave more scope than the present single aspect of making lighter and lighter airframes. It would create greater popularity (the Wakefield Cup was supposed to be for *popular* competition !) than the present prospect of short-lived 6 oz. motors at 7/–, in equally short-lived airframes.

Leeds. V. R. DUBERY.

(The system outlined above seems simple and practical, but its adaptation to the Wakefield contest is doubtful. The main reason for drafting the present size specification was to allow a model that would be easily transportable over the long distances encumbant with International events, and the rules are so well known nowadays that it would take a long time to alter them. An easier solution might be to raise the minimum weight of a Wakefield model to 9 ounces, with motor limited to 3 ounces, which would bring such machines into line with others under the rule proposed in Dubery's letter. We stress, however, whatever is done to the International class, it will take two years to be properly understood and adopted.—EDITOR.)

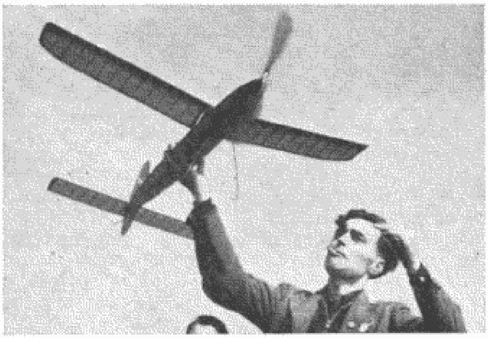


LUCK? OR BAD JUDGMENT?

IF we are to believe the evidence of years, then luck is still far and away the biggest factor governing the results of any free flight competition. During the past few years there have been several moves to reduce the luck element. Instituting the five minute maximum was one; permitting the use of reserve models in certain cases was another. Add to that the fact that performance has gone on increasing, and that mythical "luck element" should have decreased. Some of the top contest fliers in each class achieve an amazing degree of consistency—time and time again their name appears in the top end of the list—but, if merit were the governing factor, then more "top" names would consistently win competitions.

However, once we accept the luck element as part and parcel of contest aeromodelling it is just as important to avoid blaming every failure onto bad luck. A broken motor, or a model stalling or spinning in after take off may be "bad luck", but that type of "bad luck" is more often than not "bad management". In other words, there are two sides to this luck question. The one is concerned with mechanical failures, the aggravating little things than can go wrong, such as a motor refusing to start, a freewheel clutch slipping, or trim adjustment getting just a little bit off. The competent contest flyer sets about eliminating all these possible failures, as far as the human element can actually go. It could be safely said that, in any important contest, he can then rely on at least half of his opponents beating themselves by *inviting* bad luck.

The other part of "luck" you can have little or no control over, in plain language, the weather conditions prevailing at the time of flight. Contrary to popular opinion, it is doubtful that *anyone* can tell for sure when to fly and get favourable conditions. Sometimes signs are obvious that lift is around—other models going away in a thermal, for example, but a delay of a few minutes may well bring about a reversal of vertical airflow and the model starts its flight in a downdraught.



The subject of downdraughts has received quite a lot of attention during the past two or three years. Some people may still argue that it is the model which changes trim to produce a bad flight. This may be true in some cases, but in most downdraughts can, it seems, fairly take the blame. After all, what goes up must come down again, and that applies to air just as much as models. During the hours of daylight it is quite logical to assume that air can have a vertical velocity—both upwards and downwards, but not both at the same place at the same time! Usually "up" is followed by "down", the latter almost invariably being less violent and more widespread.

"No well trimmed model can be as inconsistent as that," is a remark which has been made at the conclusion of many a contest. If there is no apparent change in the model, and each flight pattern follows the one before it, why can flight times vary so considerably?

We decided to delve further and analyse some typical contest records, and chose one of each of the three flight classes and analysed performances over a season of a particular model or particular design in the hands of the same flyer. The flyers we chose mainly as being experienced men, in the top bracket of their class over the past three years, who will at least have learnt to eliminate the "bad management" element as far as possible; and partly because each is quite well known to us. We therefore know their models, the way they fly them and how they normally perform.

Heading shows Ron Warring's geared Voodoo/Zombie after a snappy take-off. At left is Johnny Gorham with his well-known "Ghost" Wakefield. His '52 power model was a Lil Aud with increased root chord and tapering wing.

We start with the first geared Wakefield Ron Warring produced. Actually this was a "Voodoo" adapted for gears, using standard "Zombie" wings and (geodetic) tail unit. The model was completed in July, 1951, trimmed the same month and the trim has never been altered since, nor has anything else on the model been altered. In point of fact it was not even test flown as a check between most of the contests entered. Only the motors have been changed for others of identical power and weight.

The performance history of this model in competitions is summarised in Fig. 1. Ron Warring estimates that this is a 4 : 20 model in "still" air; its overall contest average is just a little short of four minutes. During its life of four major contests it has flown three "maximums", obviously the result of thermal assistance. But now comes the remarkable fact that, sandwiched between two maximums on the same day (Weston Cup) comes a 2 : 17 flight. The model was not changed, not even the motors, in repeating a maximum on the third flight. On this day, without doubt, two flights were made with thermal assistance and one in a downdraught.

Altogether, of twelve contest flights made, three have been thermal flights and three badly affected by downdraughts. To compensate for "mild" thermal lift on one 4 : 45 flight, comes a little bit of "down" to produce a 3 : 33 flight on another occasion. The individual totals are quite consistent; in this case, at least, the luck element seems to balance out fifty-fifty. The trouble is when the bad breaks come all together, and at the wrong time! On the law of averages, however, this should work both ways—really bad luck on one occasion should give an extra supply of good luck on another. Perhaps we could quote J. O'Donnell as typifying this, 23 seconds aggregate in one competition, and a treble maximum in a later event!

For the power model we have chosen to analyse John Gorham's contest results over the past year. He has not had a particularly successful year, but finished with an actual flight average of 2 : 53 over six contests. In "still" conditions this model

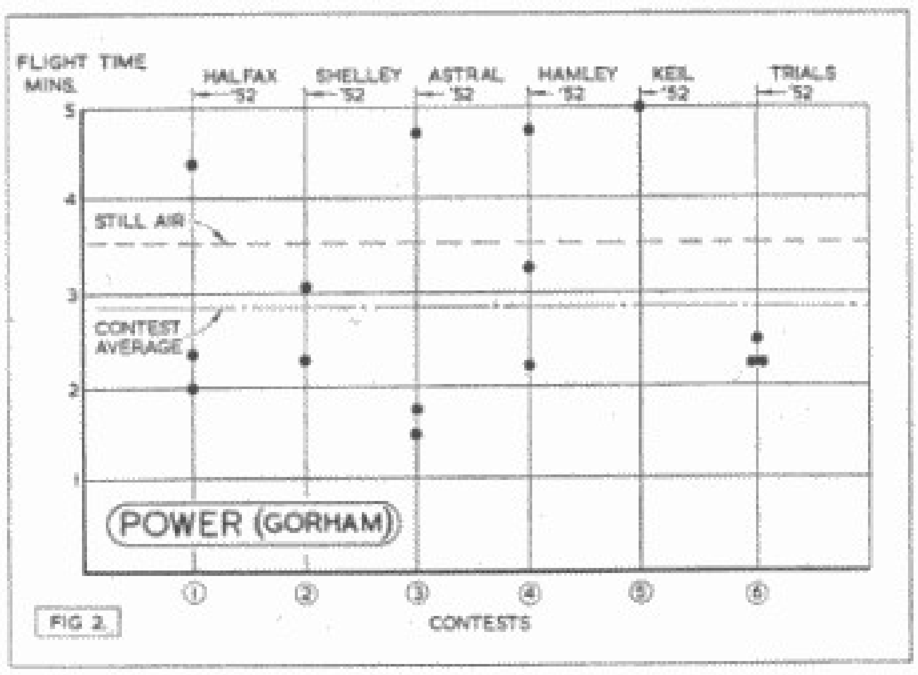


FIG 2.

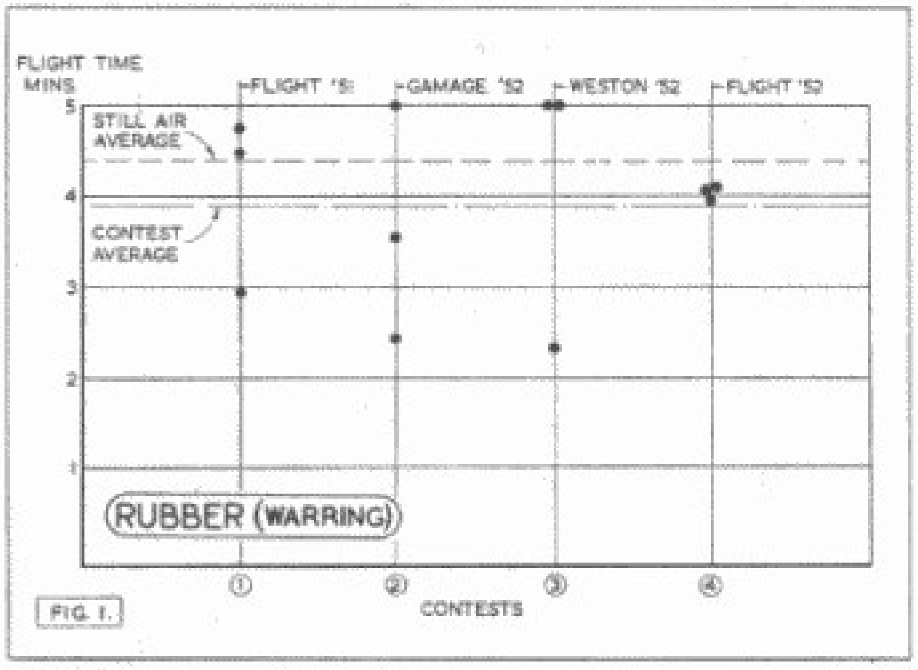


FIG. 1.

would work out pretty close to the four-minute-average mark; to be consistent with the rubber figures, however, we will assume a "still air" figure of 3 : 20. The graph of Fig. 2 shows how his actual contest times have been spotted above and below this figure. In fact these flight times are most inconsistent—far more so than one would logically expect from such an experienced flyer.

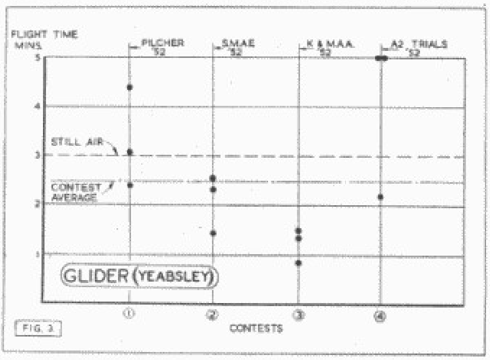
Poor times at the Trials can largely be ruled out, for weather conditions were pretty shocking. Again at the Nationals a high turbulent wind and poor visibility at times did nothing to help the flight times. But for the remaining contests, four flights seem pretty obviously affected by bad conditions, whilst another three have had some definite assistance. Put down one of the failures to the human element, which cannot be infallible, and again we are back to a fifty-fifty ratio, as far as conditions are concerned. We have the additional fact that power model times seem far more inconsistent than Wakefield times, indicating, it would seem, that power duration flying *is* more affected by weather conditions.

Finally, for gliders our choice is Roy Yeabsley, if only for the fact that he topped the glider averages in 1950, but has slipped from the top badly during the past two years. Yeabsley is still an outstanding glider flyer, his models appear as good as the next man's, and Roy himself probably practices as much as anyone else where it counts most—on the flying field.

His 1952 overall contest average of 2 : 33 is not a true representation of the ability of this model. In any case, two of the contests concerned were flown in shocking weather. In one he had to use a spare model, but this does not necessarily alter the value of the analysis. The model flown by a top class contest flyer, spare or not, should be good. If we had to fix a "datum" figure for this design, 3 : 00 would be a fair "still air" time. The only occasion it got near that was in the second flight in the Pilcher. All the others are well above or well below. Ratio of "bad luck" to "good luck" ("up" and "down" draughts) in this case is 5 : 3, ignoring the "K. & M.A.A." results.

On this basis Roy can justifiably claim to have had an unlucky year. But this article is concerned with an analysis of " luck " and " performance ", not really with individuals. The individual does, however, flavour the argument, coming as he does from the top rank of glider flyers.

The inference is that gliders, even more than power models, are very dependent on " luck " or air conditions for a top class performance. Put in another way, the lower the nominal " still air " duration of the model, the more inconsistent its overall performance as a contest model will be. Poor air conditions (on average one per thermal flight) can halve the normal still air duration. The " five minute Wakefield " unaccountably does 2 : 30. The four minute power model suddenly returns a 2 : 00 flight. The unfortunate 3 : 30 glider struggles home with a 1 : 45 second flight.



Roy Yeabsley and his '52 World Championship Class glider which bears many alterations from his previous " Revenge " A/2. Note the short nose moment, slim fuselage with side-strakes and upright fin.

The true " five minute model " in all conditions, will have to have a still air performance in the region of ten minutes. Then most flights will be largely a matter of how long the timekeepers can keep it in sight. But if we *could* produce a ten minute model, of course, we should virtually eliminate that uncontrollable " luck" element.

VIEWPOINT ON THE UNDERSLUNG FIN

HAVE you ever had this experience with a glider? You have just towed up your glider in an important competition. After about 1½–2 minutes, your model is circling gracefully in a thermal all ready for a " max."—then it happens! The model stalls slightly, then spirals down from about 300 feet and hits the ground like a small bomb, or if it hits tarmac, you can just write it off.

If this has happened to you, you have probably tried to find out what happened. You thought of warps, too much turn or even gremlins. This trouble of spiralling in is a problem; the writer has piled up a number of models due to it. Roy Yeabsley has had trouble with it and it has even happened to Byrd's model on his last flight in Austria.

The writer and club member J. Wheatley have finally pinned it on to one thing—the underslung fin. All the models which have spiralled in have had underslung fins or nearly all their fin area on the underneath.

This is due to a theory by Ron Warring which states " an underslung fin is very satisfactory as long as the nose of the machine is kept pointing upwards. It is not so good in a turn with the nose pointing down, especially if the machine is slipping inwards at the same time ".

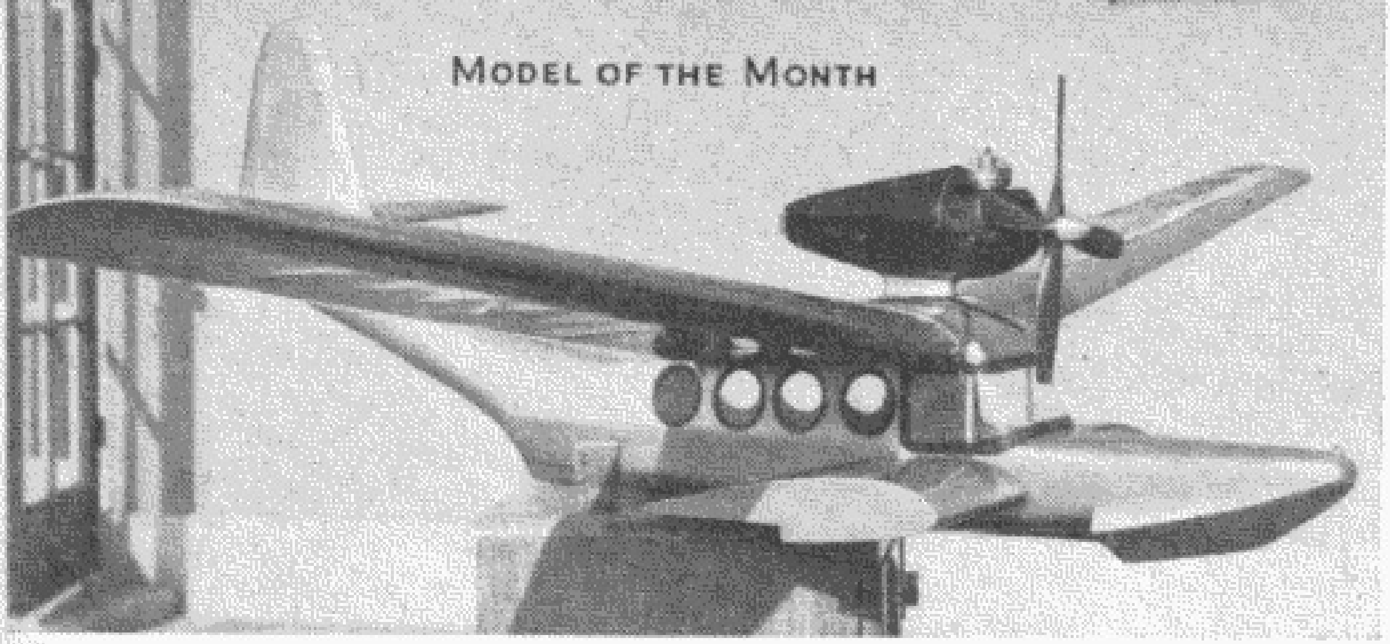
Every time a model had spiralled in after 1½–2 minutes, it had been in a thermal. Thus the turn had tightened up and the model would gradually be slipping inwards.

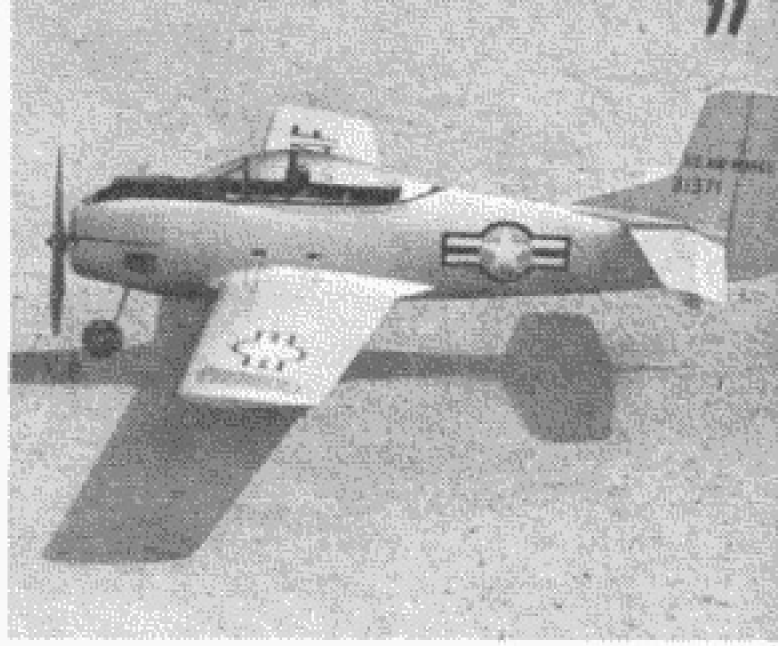
I do not condemn the underslung fin as being dangerous; it is perfect for towing up, but if your model (which has an underslung fin) hasn't spiralled in yet, then you're still on the waiting list.

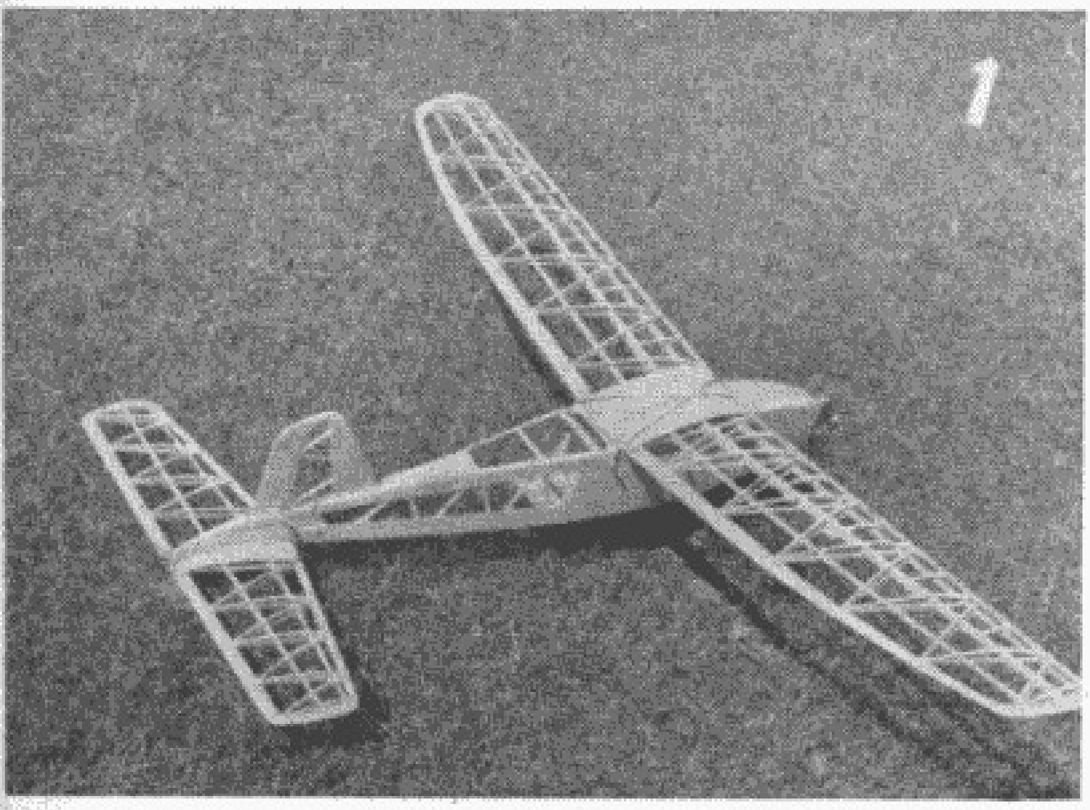
The result of not using an underslung fin—we have not yet spiralled a model in. Maybe we haven't found any of those big " bumps " lately. Please note, however, that if your model spirals down just after release, don't blame me, that was your bad trimming, not mine!

Seriously, however, I would like to predict that within two years' time underslung fins will be exceptional. If I am right, I will be acclaimed as an aeromodelling national hero. If not, all the glider flyers will wave little underslung fins on the end of a long stick under my nose! D. H. MITTON

Take a look at Roy Yeabsley's 1952 design—ED.



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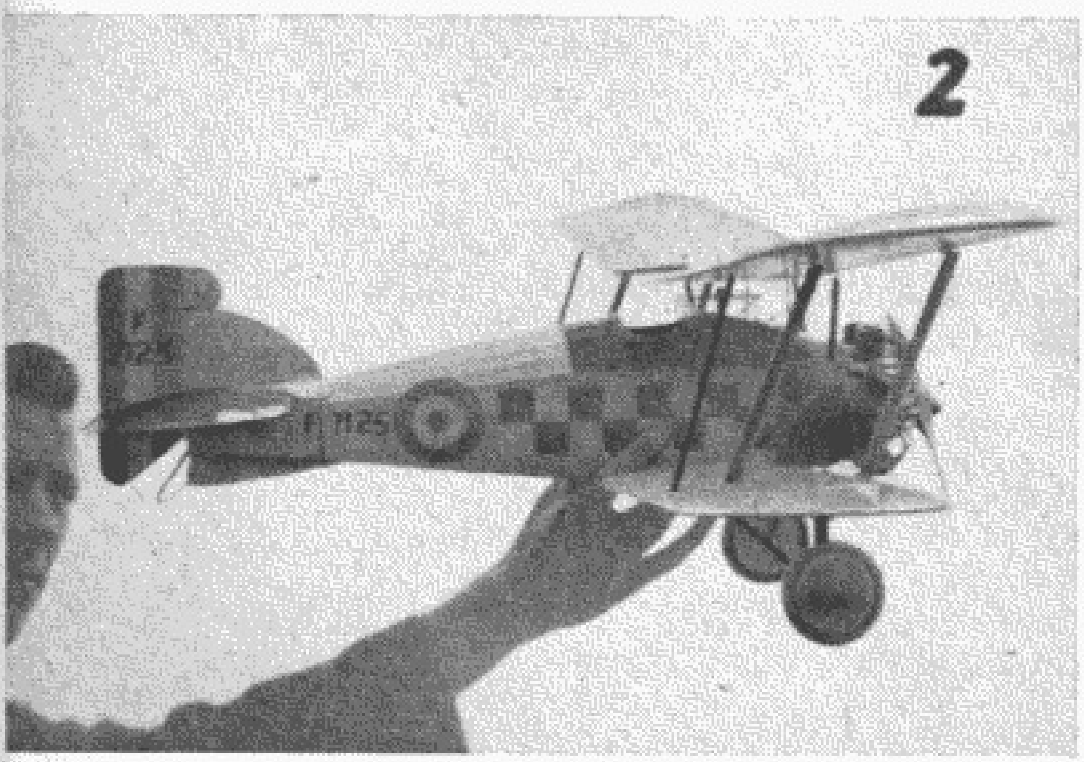
★ MODEL

A BEAUTIFULLY constructed A.P.S. Mermaid flying boat takes the honours as "Model of the month", and it is the result of 3½ month's spare time on the part of A. M. Langston of Purley. He made the job for his Yulon 49 engine whilst stationed in Japan, and in fact, the entire construction is of "Kiri" wood, the hard and brittle Jap equivalent of our balsa. All silk covered, the Mermaid weighs 5½ pounds. Uncovered, but just the same a very interesting subject, is the radio controlled model in No. **1**, which hails from G. J. Rae of Gt. Malvern who gave us the "Snorky" design. This one has an Elfin 1·49, and Mr. Rae's own radio and intergear. Span is 51 ins., area 375 sq. ins. and construction of the type used in all of his designs. Spirals, wingovers, rolls and inverted pull-outs from diving "S" turns can be done to order by this "Demon".

In **2**, C. A. Wheatland has enlisted his brother to pose with the Gloster Gamecock built from A.P.S. plans. The Wheatland Bros. of Watford have quite a stable of scale free-flighters and have powered this one with an Elfin 1·8. Strange thing is that although the prototype had pendulum elevators, this Gamecock has a "rigid" tail unit and flies beautifully.

How big can a model be? In the Southern Cross club, they obviously believe in building 'em as large as the contest rules allow, even when it comes to flying wings! In picture **3**, Bill Gravett is to be seen with his 17 ft. 8 ins. tip-to-tip tailless job which has an area of just over sixteen sq. ft. Quite a different kind of flying wing appears in the next photo, number **4**, which is in reality a jet powered Delta. W. Ball of Blackpool has built a series of these designs, some of them radio controlled, and often powered by a rocket unit of his own design. The one we see here is a 48 in. span Delta of nearly 500 sq. ins. Two Jetex 350's fitted with thrust augmenters bring the total weight to 12 ounces. Root chord thickness is no less than 6 ins.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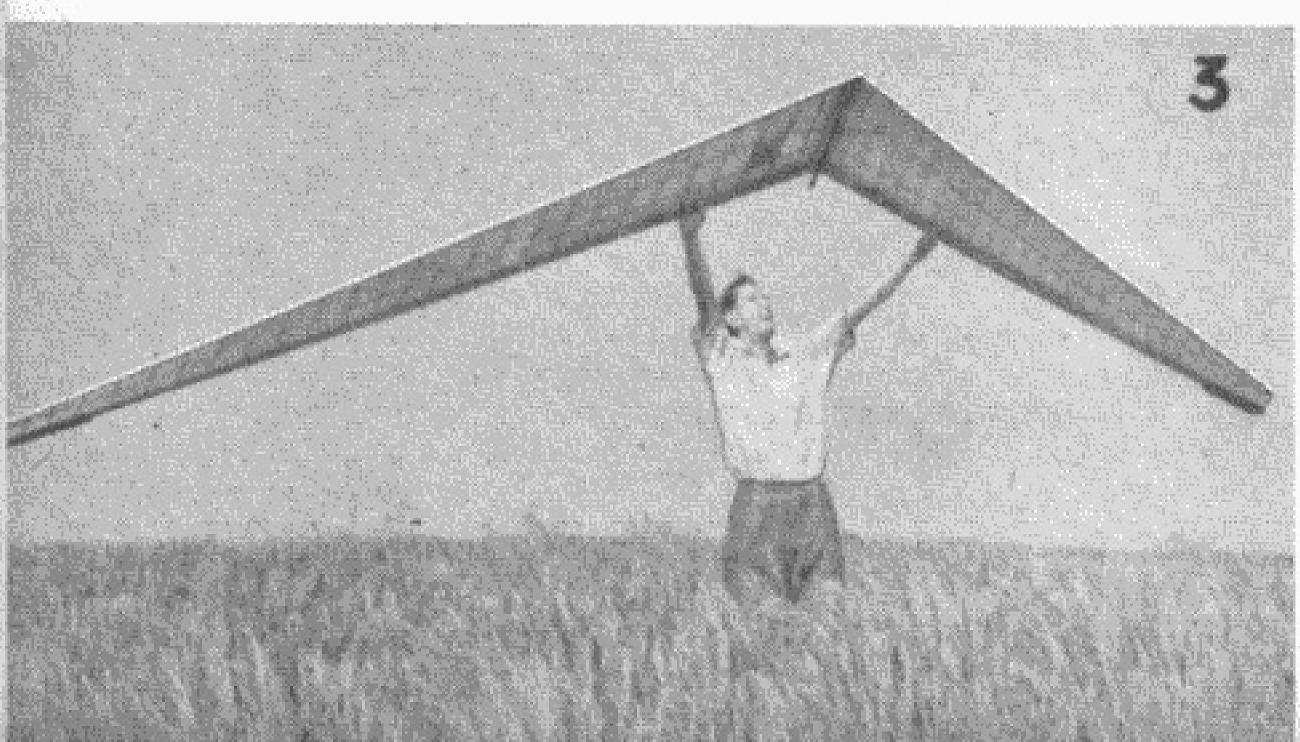
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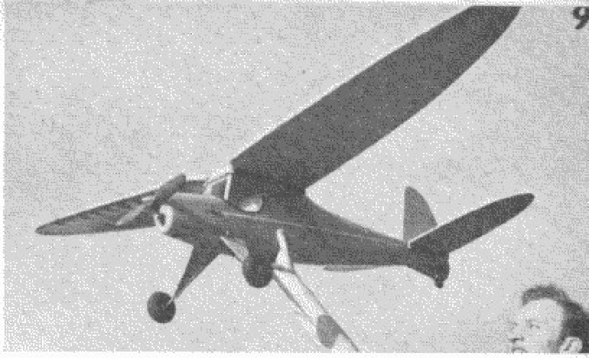


NEWS ★

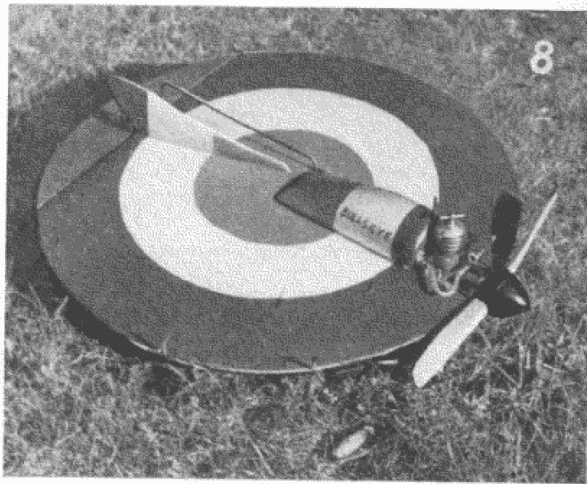
The framework of a scale Vought SBU-1 which appears in No. **5**, is the work of Cpl. McHard of Delanne Tandem fame. Already an exhibition winner, the Vought won the Jesse Woollard Trophy at Sheffield in April '52 as the best model aircraft in the show, and since we have seen photos of the finished job, we can vouch that the exterior is every bit as good as the internals seen here. Fitted with pendulum ailerons, the model is 32 ins. span and has an Allbon Dart diesel for power, a double size version of the same aircraft also exists: but with radio control . . . should be worth seeing!

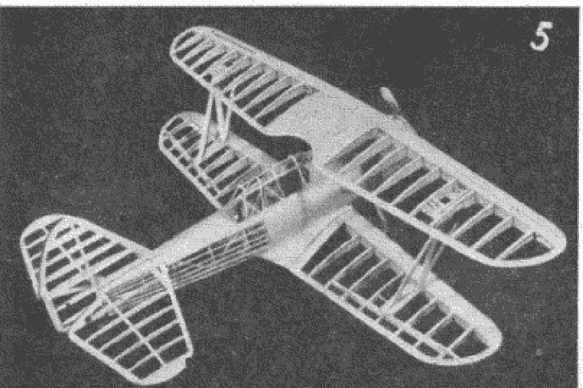
Next, a rubber job **6**, built by Maurice Rainford of Shelmersdale, Lancs, from a standard Mercury Mentor Kit. Nice photography with your Contax III Mr. Rainford. Proof of what can be done with the modest Brownie is seen in **7**, where R. Johnson's crashed Grumman Avenger scale controliner lies on a Lancashire beach, quite an air of realism isn't there? Moving upwards to our next **8**, brace yourself, for this is no flying saucer, but an aviating R.A.F. roundel . . . a new slant on a popular idea by S. Stubbs of Leighton Buzzard who uses a Frog 150.

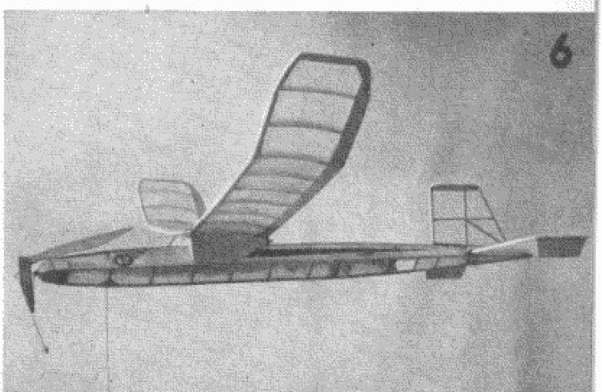
A really beautiful A.P.S. Phoenix **9**, by Vic Marsh of Gillingham, finished in dark blue and silver doped silk covering has been expertly photographed by fellow clubman H. Bernthal who reports "flies slow and most realistic with a floating glide and very long taxying run on landing. Takes off nicely, too."

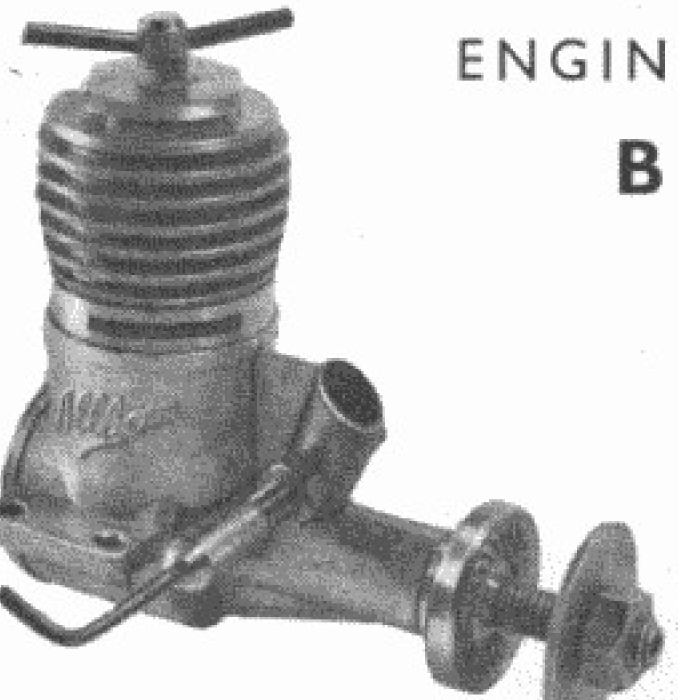
Two E.D. 3·46's and a Frog 250 go to power the Junkers 52, 3/m you see in No. **10** . . . and hold onto your seat, this is enough to haul the model around no less than five consecutive loops! Congrats. to Mr. Walling of Gloucester for achieving the seemingly impossible!

And so to round off, in No. **11**, we have Don Deeley's scale North American T/28 with enclosed Elfin 1·49 and an outsize in cockpit hoods. Back next month with more news and views.









ENGINE ANALYSIS No. 6 (New Series)

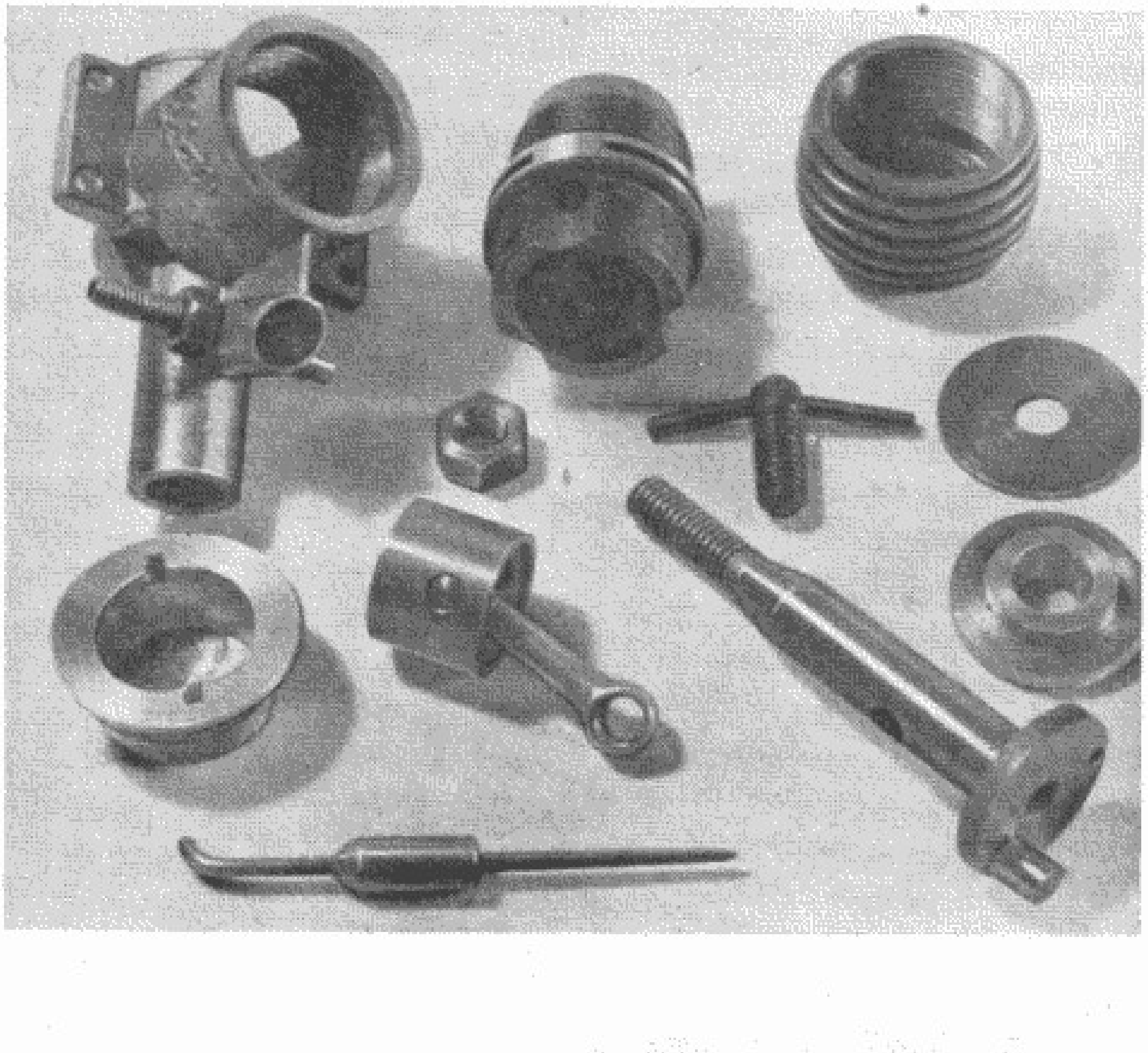
By Ron Warring

THE MARK II ALLBON JAVELIN

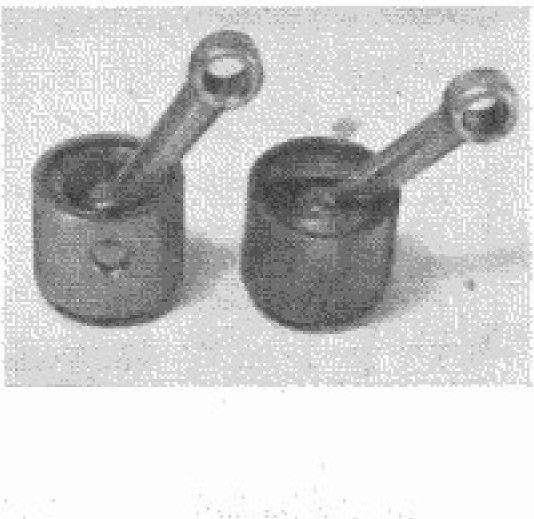
EXTERNALLY the new **Allbon Javelin** differs little from its predecessor of the same name. About the only notable difference in appearance is the revised compression adjustment (tommy bar) which is now double-arm instead of single, making for easier finger operation. Compression adjustment, in fact, is one of the most pleasing points with the Javelin. On the example tested the fit of the contra piston was just right—not so tight as to make adjustment difficult, nor did it tend to "freeze" as the engine warmed up; and not too loose as to permit leakage of gases from the combustion head and consequent loss of power.

Internally the most obvious differences are the construction of the piston and cylinder liner. The original piston was fitted with an internal dural gudgeon pin carrier secured by means of a countersunk screw through the top of the piston. The gudgeon pin itself was thus completely enclosed within the walls of the piston. It was possible for this screw to come loose which produced somewhat startling noises. In the new model the piston is an integral turning from Meehanite drilled to take a floating gudgeon pin which is maintained in position by the cylinder walls.

The cylinder liner of nickel chrome steel retains



Above, difference in bypass ports is obvious, the new Mk. II liner is on the right. Below, the pistons of the new (right) and old are compared, showing the revised gudgeon pin bearing. At left: the Mk. II engine in pieces. Note complete absence of set screws.



the original 360 degree exhaust porting, but is radically changed in relation to the transfer porting. On the Mk. I engine the three ports were grooved down the inside of the liner walls whereas on the new model they are external to the liner, *i.e.*, between the liner and the upper portion of the crankcase, access into the cylinder being gained by circular orifices cut at an angle through the liner wall. The overall height of this new version is also greater, thus dispensing with the copper washer between the liner and the cylinder head as used on the original.

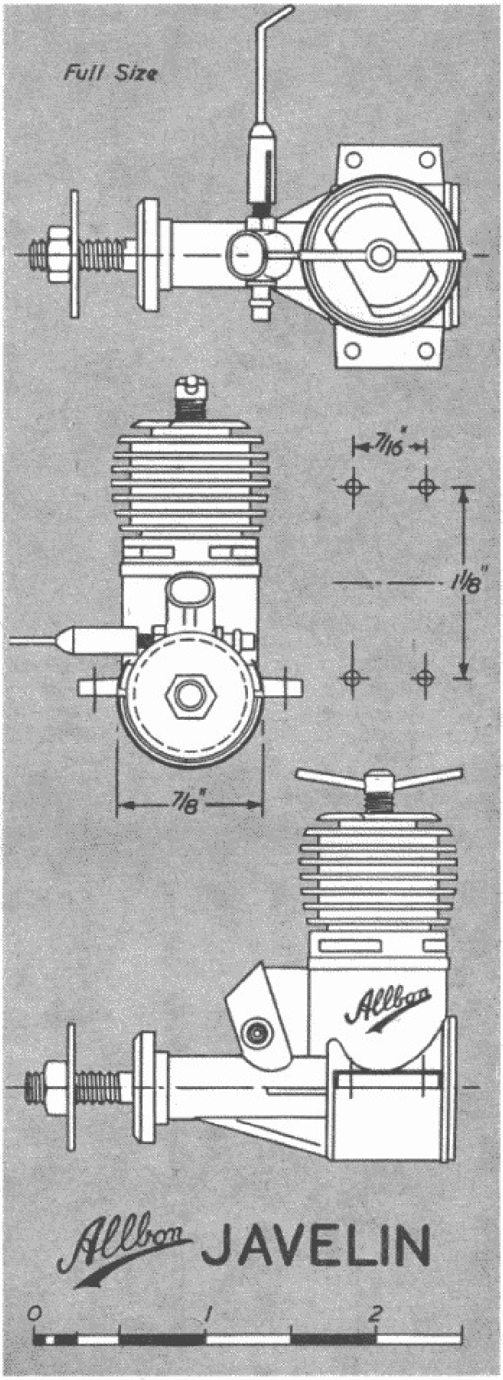
On normal size propellers and normal operating speeds, two or three choked turns, followed by a quick flick almost invariably produced a start from either cold or hot. It is not easy to prime through the exhaust, nor is this necessary. The Javelin seemed to like a reasonable amount of fuel in the cylinder for starting so that when it burst into life it was running rich and throwing surplus fuel out of the exhaust. After a few seconds it settled down to steady running. Best starting technique was to increase compression beyond the normal running position and then decrease to increase speed once the engine was running, needle valve being left alone.

Both controls were delightfully insensitive. The engine would keep running over a complete half turn difference in compression setting, making it quite easy to find the best running position. Similarly with the needle valve control. The needle valve could be opened up quite an appreciable amount to richen the mixture without the engine stopping. Closing down the needle valve did, however, starve it out in less than half a turn. If anything, the engine seemed happiest running slightly on the rich side.

The excellent positioning and "feel" of the compression control has already been mentioned. The needle valve control, however, suffers from a fault common on most engines of this size. It is too near the propeller disc for comfort. Engine designers seem confirmed in the idea that aero-modellers' fingers are "disposable" items. Had the needle valve control been angled back, the Javelin would have been just that little bit more comfortable to adjust. Fortunately, however, once the best needle valve setting has been established there is little need to touch this control again, except for fine adjustment at high speeds.

The Javelin impressed by most steady, consistent running at all speeds. It was given a running-in period of approximately one hour before the torque tests were made. When the engine was completely dissembled after the tests it was apparent that some further running-in would not have been amiss. The piston-cylinder fit at this stage was excellent and the one hour plus running time had produced a highly polished finish on all moving and mating surfaces.

The crankshaft bearing is worthy of some comment. This is simply drilled and reamed to size in



Propeller Dia.	×	Pitch	R.P.M.
10	×	6	4,550
10	×	4	6,150
9	×	6	5,200
9	×	5	6,600
9	×	4	7,250
8	×	6	6,800
8	×	5	7,800
8	×	4	9,550
7	×	7	5,900
7	×	5	10,150
7	×	4	10,550
6	×	4	11,950
6	×	3	12,450
5	×	5	11,850
*7	×	5	11,650

* Non standard propeller.

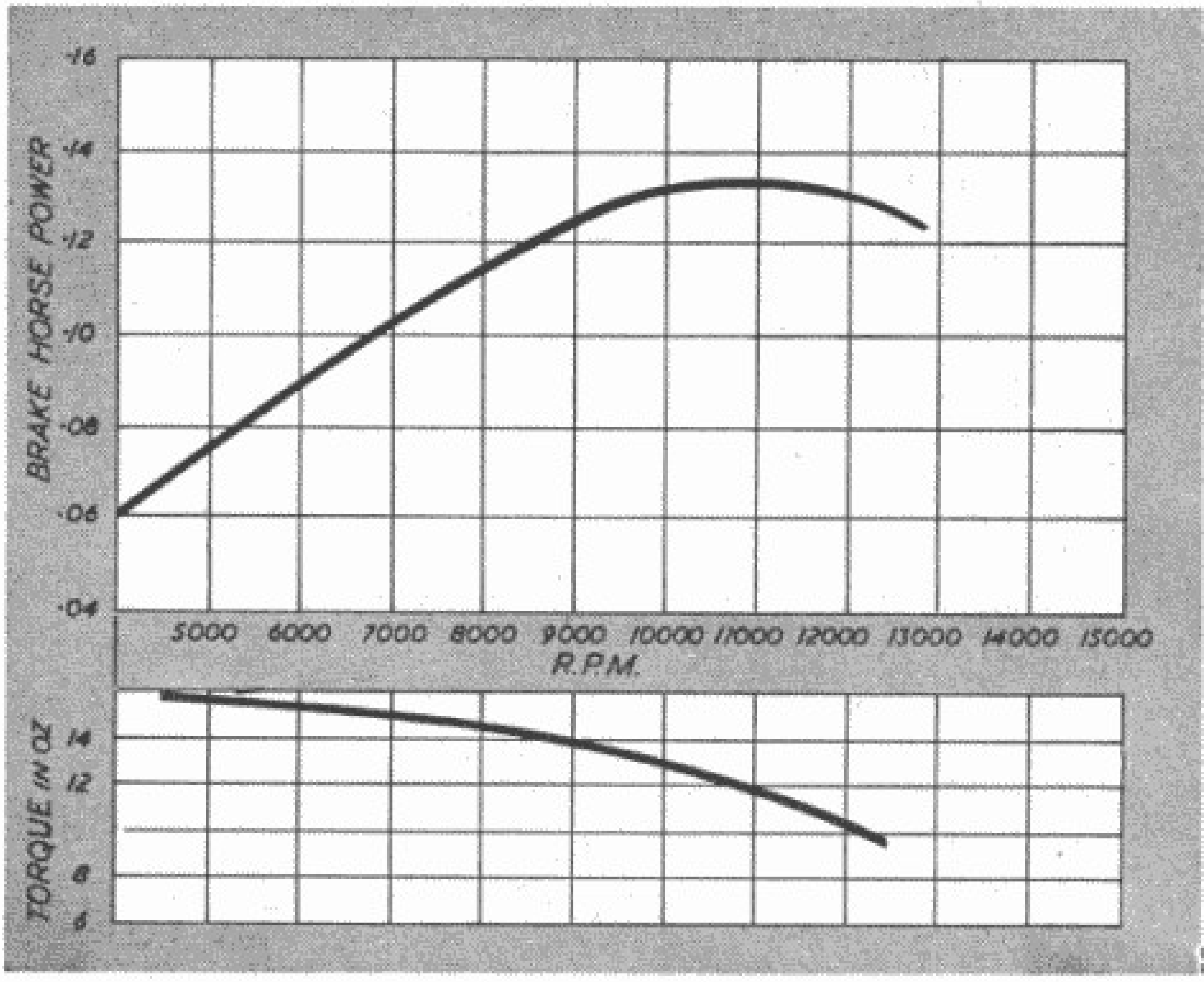
the crankcase casting itself and is truly a beautiful fit for the heat-treated alloy steel crankshaft. The bearing material, however, is relatively soft and easily scored. There is the possibility of considerable damage being done to it by grit or even dust entering via the front. The Javelin, therefore, would undoubtedly benefit from being kept clean and should the crankshaft get dug into the ground in a crash landing, make sure that all dirt is washed off thoroughly before attempting to run again. A plain bearing in itself is no disadvantage, but maltreatment can result in early wear. The bearing is sensibly long so that normal wear is not likely to produce a sloppy fit or compression leakage during the normal lifetime of the engine, provided it is operated with reasonable care.

Every part of the Javelin is beautifully made. There is no evidence of sloppy or hurried workmanship anywhere. It is, truly, a precision engineered job. Power output is also extremely good and considerably up on that of the original model reported in " Engine Analysis No. 25 " in the July 1950 issue of the AEROMODELLER. Like the earlier engine, however, the power curve peaks at around 11,000–12,000 r.p.m., beyond which brake horse power falls off appreciably.

In running the tests at high speeds with small diameter propellers, hand starting proved very difficult. Flicking over with a five inch diameter propeller produced little more than uncouth language as the motor " splat " once each time and rapped the fingers smartly with the second propeller blade ! Assisted starting had to be used for most of these high speed runs. The Javelin was quite happy about holding high speed running once started, but seemed to need rather more urge than could be given by a finger start to spin the propeller over fast enough initially. Since the majority of these speeds concerned, however, were beyond the power " peak " such a failing is mainly of academic interest.

All told, our impression of the Javelin was most favourable. It is certainly the sort of lightweight, compact engine to appeal to both sport and contest flyers, and test performance would appear to endorse its potentialities in the latter field.

Performance figures for the Javelin are summarised by the graph, in the usual way, whilst r.p.m. figures on the family of test props are given in the table. Fuel used for the propeller tests was Mercury No. 8—not, perhaps, the best fuel for the Javelin where absolute maximum performance is required. The main reason for using an " etherless " fuel was that it is so convenient. The majority of engine operators are more concerned with convenience than sheer performance and a " one-bottle " fuel is certainly best in this respect.



ALLBON JAVELIN II

Displacement : 1·49 c.c. (0·091 cu. in.).

Bore : 0·525 in.

Stroke : 0·420 in.

Bore/Stroke ratio : 1·25.

Bare weight : $2\frac{1}{4}$ ounces (less tank and propeller).

Mounting : beam, $\frac{7}{16}$ in. × $1\frac{1}{8}$ in.

Material Specification

Crankcase : aluminium alloy.

Crankcase bearing : plain.

Cylinder : Nickel Chrome Steel.

Cylinder casing (integral head) : Aluminium alloy.

Piston : Meehanite.

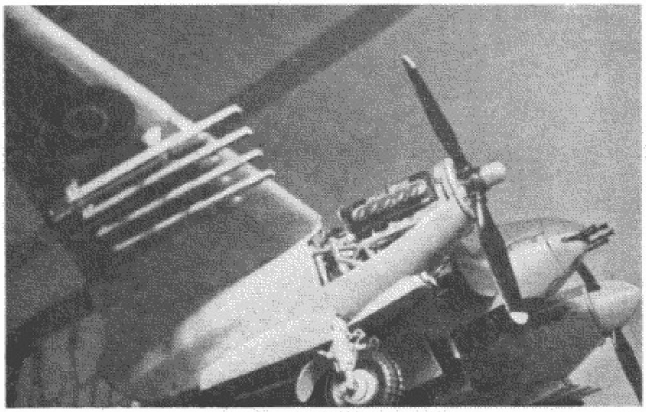
Contra piston : Meehanite.

Connecting rod : Duralumin.

Manufacturers

Davies-Charlton & Co.
13, Rainhall Road, Barnoldswick, via Colne, Lancs.

Retail price : £3. 8s. 3d. (including purchase tax).



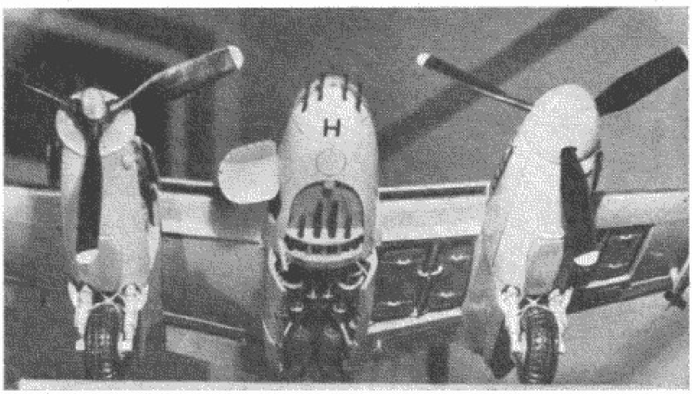
A superb non-flying scale D.H. Mosquito

By R. LIVERMORE

These three views help to illustrate the many hundreds of hours that have gone into the model. At right, the complete job is seen with all cowlings buttoned up. Views above, and below, show but a part of the many intricacies that are revealed when doors are opened and cowlings removed. Cockpit details are perfect and all controls work.

ONCE in a while, a model will catch our eye with extraordinary fascination, and send us into raptures over either good workmanship, beautiful flying, or an admirable combination of both. Such a model is the De Havilland Mosquito FB. Mk. 6 by R. Livermore of Bromley, which we noted recently at the Model Engineer Exhibition. Granted that this is no flying model, a shortcoming that all will excuse when we reveal more details ; this is a solid " par excellence ", and yet in a way it is not a " solid " at all. Interior details are reproduced exactly as on the real aircraft. Bulkheads, ribs, spars, controls, even the double top ply skin to the wings, the armament and lighting details are there in miniature, many of these intricacies being hidden for all time inside the fuselage which itself was made in two halves on a master mould, just like the De Havilland production line.

As an R.A.F. pilot, Mr. Livermore has had plenty of opportunity to ensure absolute accuracy in his model. It started out as a " Mossie " Mk. 2 way back in 1943. Then came a Service career, and a great many trips abroad, some of them in ferrying real FB. Mk. 6's to New Zealand and Yugoslavia. Construction continued as and when it was possible, with the result that in the eight years it took to complete, the model developed into an FB. Mk. 6 in Coastal Command colours.



Scale is 1/16 full size, giving a span of near to 42 ins. and a length of 32 ins. Quite understandably, the weight is no less than 4½ pounds. The retractable undercarriage is fully sprung, and wheels are fitted with ball-races for free running.

Congratulations, Mr. Livermore, for a perfect example of the " non-flying scale model ".

ARMCHAIR AERONAUTICS

A review of new books of aeronautical interest

By OWEN G. THETFORD

To Suit the Pocket

The A.B.C. of Military Aircraft, by John W. R. Taylor (Ian Allan Ltd., 2s. 6d.), 76 pages. Illustrated.

John Taylor is to be congratulated on this little handbook. It is well produced on art paper, has well-chosen photographs and concise, accurate information on some 90 types of aircraft in service with the R.A.F., Royal Navy, U.S.A.F., U.S. Navy, R.C.A.F., and various prototypes. Types represented are those based in, or frequent visitors to, the United Kingdom. Later A.B.C. books will deal with aircraft based in Europe, Russia and U.S.A. The series has made a good start and is to be recommended to all collectors of aviation data.

Thus Spake Seversky

Air Power: Key to Survival, by Alexander P. de Seversky. (Herbert Jenkins, 21s.), 314 pages. Illustrated.

Russian born Alexander de Seversky is no armchair strategist. His position as the world's most penetrating thinker on the problems of air power is backed by his practical experience as a military pilot, test pilot, designer and consultant. To quote only two examples—his conviction that a long-range escort fighter was essential gave the Allies the P-47 Thunderbolt, and the arguments advanced in his earlier work, **Victory Through Air Power,** are known to have exercised a decisive influence on the strategic planning of the D-Day landings.

Only a true inter-hemispherical air strategy, Seversky avers, can preserve the peace or win a war. Only by reducing the land and sea forces to ancillary roles can we devote the productive capacity we need to build up air power of sufficient weight to be truly decisive. For this reason, Seversky is sharply critical of current military trends which, under pressure from the older Services, demand that our resources be split three ways in land, sea and air forces. Numerous examples are cited from the Second World War to show the fallacy of the "island hopping", "amphibious operations" and "task force" dogmas.

Many critics have seen in Korea a refutation of the air power thesis. Seversky will have none of this. He points to the political bars on all-out strategic bombing of the enemy's industrial resources, absent in a war of larger dimensions.

Highlight of this fascinating book for many readers will be the chapters on the atom bomb and the author's visits to Hiroshima and Negasaki. Few men are better qualified to give a sober balanced judgment on this topic and his conclusions are illuminating, not to say surprising, especially to those whose beliefs may be based on a reading of John Hersey's Pelican book, **Hiroshima.**

Got Your Binoculars?

The Air League Aircraft Recognition Manual, by C. H. Gibbs-Smith (Putnam & Co. Ltd., 10s. 6d.) 241 pages. Illustrated.

This is a book about the technique of spotting aircraft considered purely as shapes in the sky and, as such, has considerable value as a textbook for those concerned with aircraft recognition as a defence exercise. It is, perhaps, less interesting to the aircraft enthusiast concerned with the evolution of aircraft types, their history and background. The page format, too, restricts the size of the silhouettes and photographs and lowers the visual appeal considerably.

Nevertheless the manual includes some 180 types of military and civil aircraft of all nations. Most of the aircraft are illustrated with photographs and silhouettes, some with photographs alone. Data is restricted to overall dimensions and, where known, the top speed.

Behind the Iron Curtain

Military Aircraft of the U.S.S.R., by Charles W. Cain and Denys J. Voaden (Herbert Jenkins, 3s. 6d.), 72 pages. Illustrated.

The co-authors of this compact and vital little handbook are well-known and indefatigable researchers on the subject of Russian aircraft and the present work is the most comprehensive and almost certainly the most authentic treatise so far published.

Of particular value to the aeromodeller will be the full-page silhouettes of all the leading Soviet aircraft by Swedish artist Bjorn Karlstrom. The notorious MIG-15 jet fighter is the subject of a particularly detailed cut-away drawing in the centre spread. Some 26 types are dealt with in detail and there is also an appendix of lesser-known types, both old and new.

From Nine-acks to Libs

Pioneer Pilot, by William Armstrong (Blandford Press, 15s.), 267 pages. Illustrated.

Now that economics, graphs and " break-even payloads " have become the keynote, and very rightly so, of modern airlines, it is refreshing to read this first-hand account of the pioneering days of Imperial Airways by one of its inter-war pilots. The author learned to fly with the R.F.C. in 1917 and afterwards flew with No. 110 Squadron on day bombing operations over Germany, first on D.H.9's and later on D.H.9A's. With the Armistice, he flew the mail route to Cologne and then joined the London-Paris service in 1919—the first civil airline in the world.

Reading the chapters on Imperial Airways, one marvels at the tenacity of the early airlines, the struggle against odds, the D.H.34's bogged in mud, the three-engined Argosies with engine failure, primitive radio and navigational hazards.

With the four-engined Hannibal in 1931 came increased reliability in the air but due to the large wing area, virtual uncontrollability on the ground in a high wind. The same applied to the Short Scylla and Syrinx biplanes, described by the author as the " two ugly sisters ".

Pioneer Pilot is alive with incident and anecdote, humour and adventure, particularly in account of V.I.P. flights undertaken during the last war. One of them was a trip to Russia in a Liberator with President Benes of Czechoslovakia.

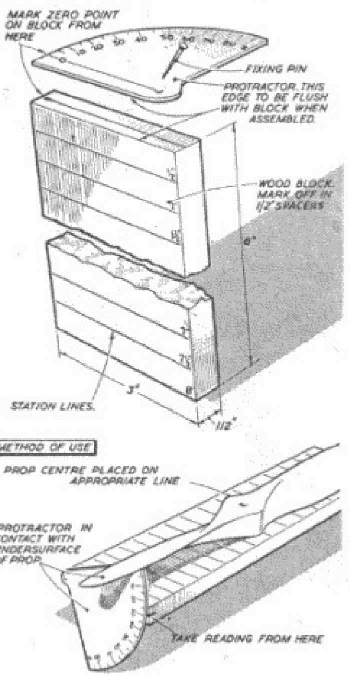
William Armstrong has done a fine job in paying tribute to the pioneering days of British Civil aviation and its rise to the triumphs of the Comet.

One-upmanship at the Airport

The Airport Visitor, by N. J. Freeman and G. D. H. Linton (Penman Enterprises Ltd., 2s.), 56 pages. Illustrated.

Stephen Potter's amusing little books explaining the art of being " one-up " on the next man in a variety of pursuits from rock climbing to book-reviewing have a useful companion in this, albeit serious, handbook to airlines, airports and air-liners. It is the perfect guide for any visitor to the public enclosure of a British Airport. Well illustrated with photographs, maps, diagrams and inimitable Wren cartoons, it contains a wealth of information on current airliners, their registrations and fleet names, airline companies and their routes and insignia. Helicopters are not forgotten and there is a useful account of radar and radio aids to be seen at airports.

Speedy Pitch Checker



AN easy means to discovering whether that 6 inch pitch prop you've bought *really is* a 6 inch pitch, and also an easy way of ensuring that your own home-carved props are correct, is possible if this little gadget is used. Suggested by J. Speedy of Grahamstown, S. Africa, the pitch checker consists of a piece of board, ½ × 3 × 8 ins. (balsa would do), and an ordinary school type celluloid protractor. Mark the board with parallel lines ½ inch apart along the top surface, and also mark a line parallel to the top but along one end. Then put a pin through the protractor at intersection of base and vertical lines, and you are ready to start. Let's assume you have a commercial prop, 9 ins. diameter and advertised as 4 ins. pitch. Place the prop centre over the line 4 ins. from the protractor, and arrange both prop and protractor so that blade angle can be read. If it's 9°, the prop is correct; if it is 11° the pitch is 5 ins. The table below gives angles for each blade station per inch of radius.

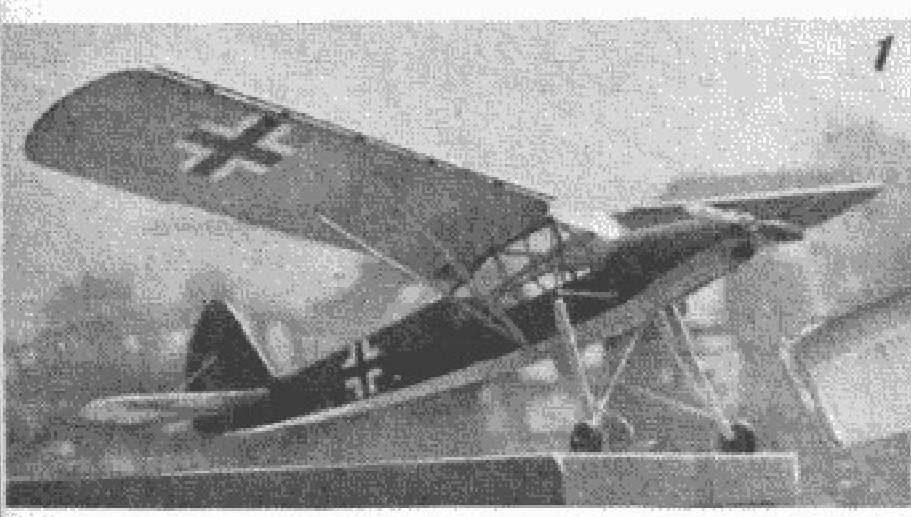
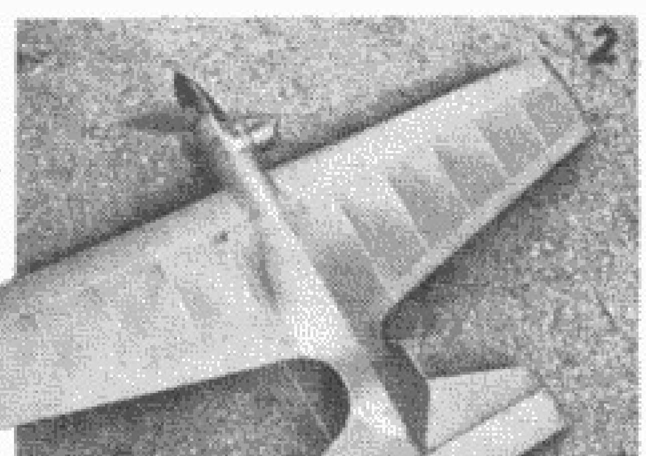
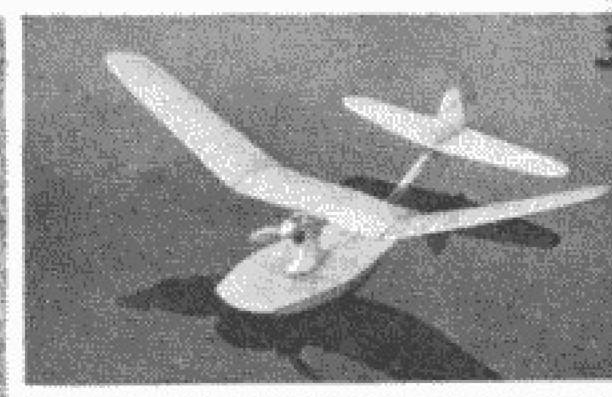
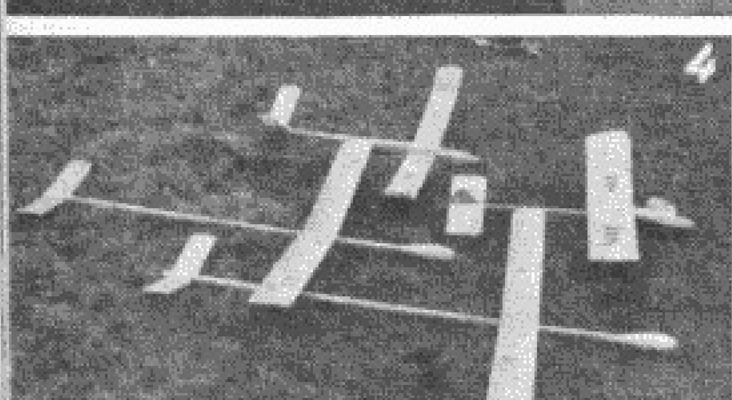
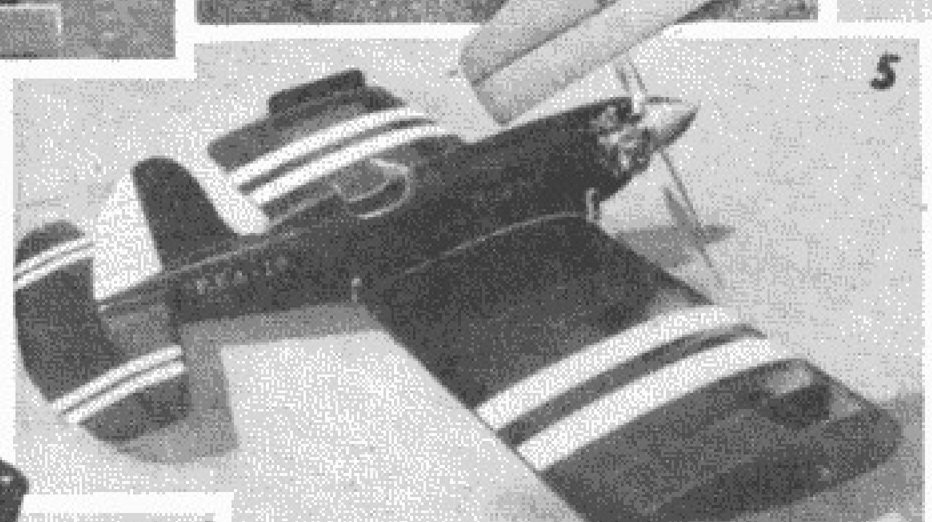
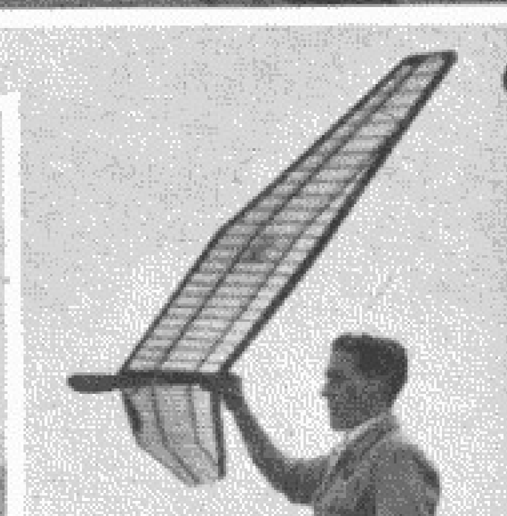
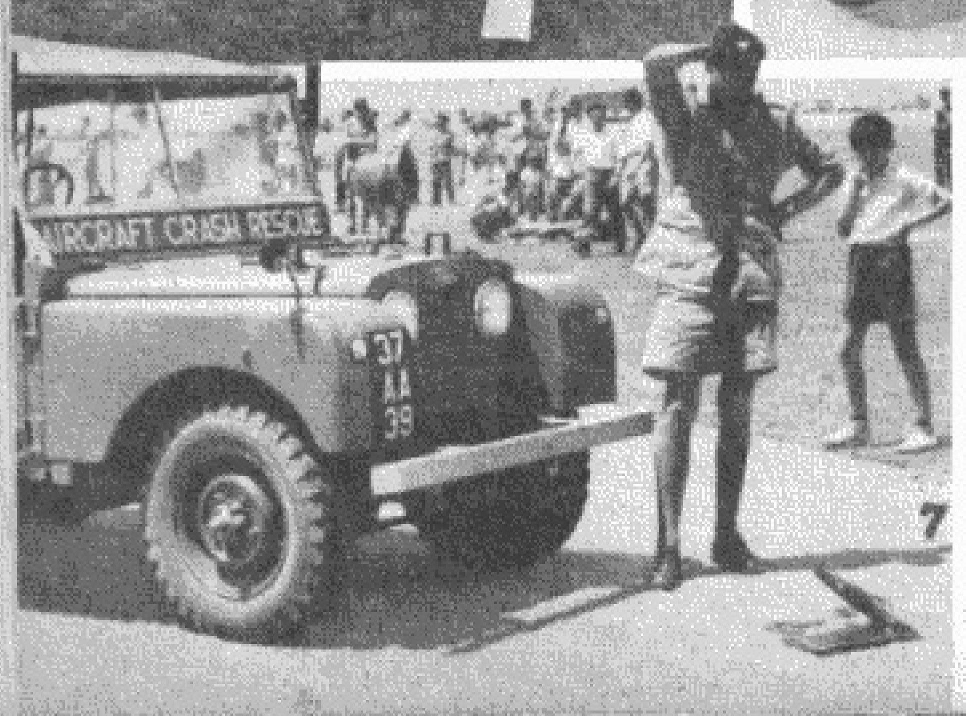
	Radius from prop. centre in inches						
Pitch (ins.)	7	6	5	4	3	2	1
12 ins.	15°	18°	21°	25°	33°	44°	61°
10 ,,	12°	14°	18°	22°	30°	34°	58°
9 ,,	11°	13°	16°	20°	26°	36°	54°
8 ,,	10°	12°	14°	18°	22°	32°	52°
7 ,,	9°	11°	12°	16°	20°	29°	47°
6 ,,	8°	9°	11°	13°	18°	26°	44°
5 ,,	6°	8°	9°	11°	15°	22°	38°
4 ,,	5°	6°	7°	9°	12°	18°	32°
3 ,,	4°	4½°	5°	7°	9°	13°	25°

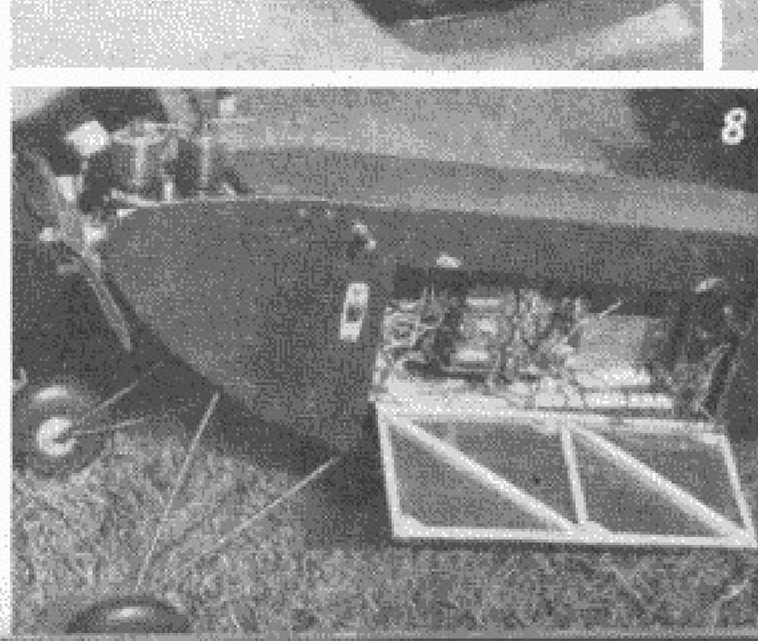
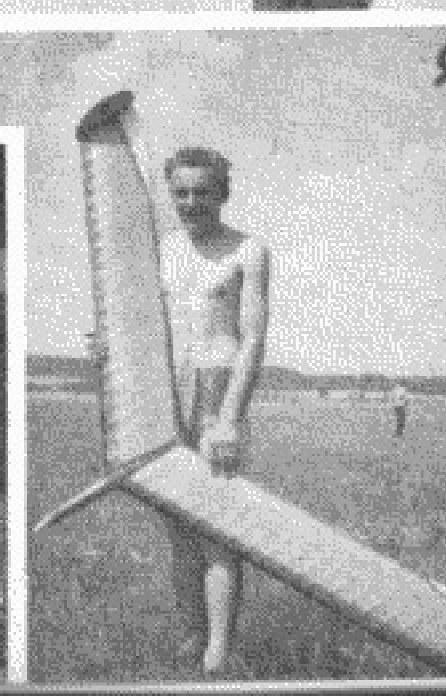
World News

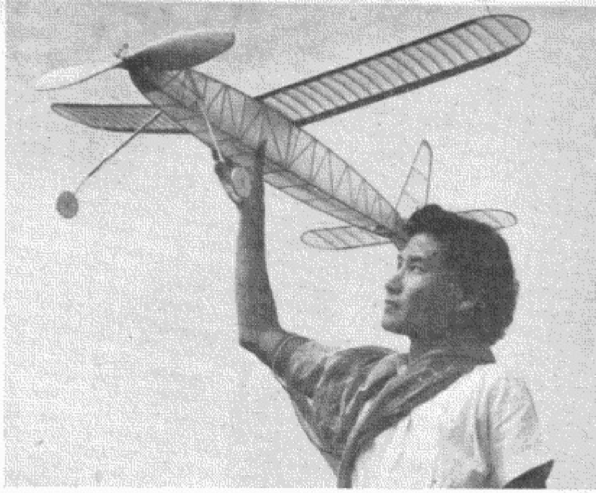
MODELLERS the world over, have sent us news and photos of their activities in response to our recent open invitation, and we are very pleased to present this assortment to put you in touch with the latest from all continents. Don't forget that the invitation still stands and if you want to put your corner of the globe on the aeromodelling map, just send us your latest gen—and photos, glossy, please!

Starting our round trip this month, we have the surprising news from Ben Dutton in Yucatan, land of the ancient Indians, **MEXICO,** that the air is so humid in those parts, that nearly all dope dries with blushing streaks. Not to be outdone, the locals have found a " bright gum " which dissolves in alcohol and is applied french polish style to get rid of the offending white marks and also impart a

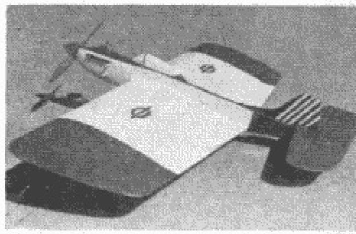
At the 5th Australian Nationals, free flight power competitors pose before the windsock. Bottom right model was lost on the first flight of the day.

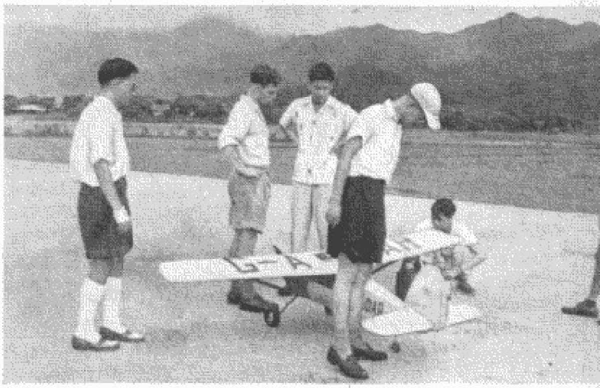








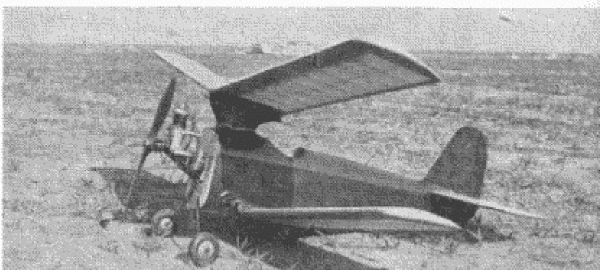





Agnes Choy of Singapore A.S. *and her Wakefield at the All-Malayan contests. Right: From* Hong Kong *comes this "Killer" combat fighter, 39 in. span, Forster 29 designed by Vincent Wong. Also by Wong is A.P.S. Vulcan below, fitted with E.D. Mk. I Radio and O.K.60. At bottom, enlarged A.P.S. Sporty Bipe and tiny Bebe Jodel from '51 A/M Annual come from Bob Linn, Los Angeles,* U.S.A.







high gloss finish. Sounds like shellac to us . . . well worth a try in this land of liquid sunshine. The Mexicans are control line fans, and talking of bellcranks, we learn from **HOLLAND** that at Schiphol airport, Hagedoorn recently clocked 120 m.p.h. with a Veenhoven 5 c.c. speed model, sounds like we shall be having stiff competition at the next World's Champs.

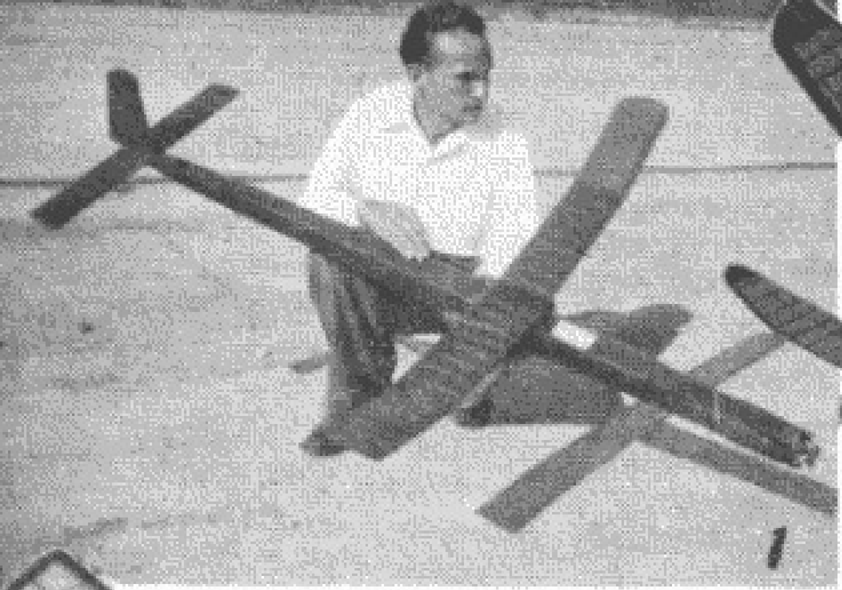
News reaches us through club sheets, letters, postcards and even on odd scraps of tear-off tissue that should be kept on a roll. From S. Africa we get the "Flypaper" with their local news, and when another copy floated in, we thought the boys out there had been extra industrious and made it a weekly. But this one we found was different . . . it comes from the **U.S.A.** ($2 a year from 1031 Pond St., Bristol, Penn.) and from it we learn that the '53 U.S. Nationals might be held in their area at Willow Grove field, Pennsylvania. Other gen from the 'States concerns the Screaming Demon's of Long Island Champs meet where a 13 year old, Peter McLaughlin made the experts bow their heads when he won ½A "gas" and, highest time of day, both for Junior and Senior classes.

First attempt at holding the Nationals as a *decentralised* event in **CANADA** gave gratifying results by allowing more bods to enter without travel difficulties . . . a good idea that might well be adopted in other vast countries. We hear that at Toronto, George Swank and Harold de Bolt who had travelled over the border from Buffalo, gave a radio controlled dog fight demonstration with McNab Citizenship "Livewires" that was truly impressive, though they were beaten in the radio event by a Mr. Pepino with an even more aerobatic model.

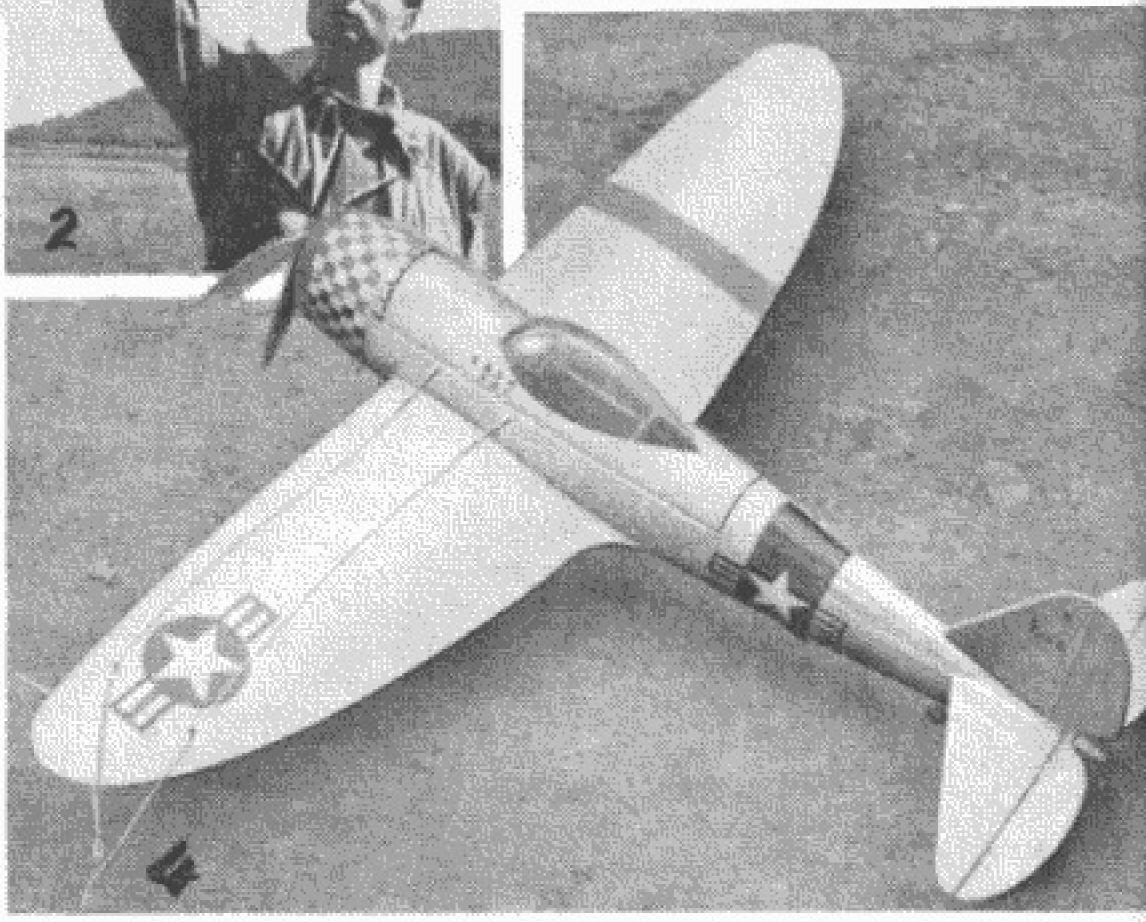
Over to bandit land, and to Kuala Lumpur in **MALAYA,** where the Selangor M.A.C. held their 4th Annual All-Malayan contests, under the distinguished Patronage of His Highness, The Sultan of Selangor. R.A.F. boys stationed at Seletar took no less than 154 models with them, and from their ranks, L.A.C. Norman Frere collected both stunt and class A team race trophies. A radio dem. by two other models from the same club provided a highlight, and their faultless display indicates that in spite of their low numbers and supply difficulties, modellers in Malaya are bang up to date. Congrats go to organisers and champion club at Selangor.

CZECHOSLOVAKIAN Nats were held in August last and we gather that 310 modellers attended. From a report we read that 174·5 m.p.h.

Opposite: 1. From **U.S.A.** ***Wasp ·040 scale Fieseler Storch also has rubber motor, used to hold firewall in place, by Dick Querman. 2. Jan Thylen of Stockholm,*** **Sweden** ***has several neat ideas for streamlining his Elfin 1·49 stunter. 3. ·099 Arden Flying Boat by J. Towkens of Eindhoven,*** **Holland.** ***4.*** **Swiss** ***toothpick A/2s from Frauenfeld. 5.*** **Australian** ***kit stunter, "Super-Skylark" built by Prince Frankum, Ararat, Victoria, has Frog 500. 6.*** **Swiss** ***tailless from Wintherthur. 7. Wrong kind of crash, thinks Mike Partington of R.A.F.*** **Ismailia.** ***8. Twin diesel on*** **New Zealand** ***radio job, and relay-less rx, see report. 9.*** **Czech** ***tailless winner. F. Kratina and "Sova II" design.***



1. At Phesantekraal drome, Cape Town, Pete Visser has his Bilgri designed "Duster" Wakefield, does 3 m. on 600 turns, will do better. 2. K. D. Horn of Unterluebbe, Germany and A/2. Ring device is for auto-rudder. 3. Frog 45 on floats by H. P. D. Dimmock in S. Rhodesia. Floats are 22½ in. long, celluloid bottomed. Landing is better than with "sled" type. 4. R. L. Peart's silk covered P.47 from Mexico. 5. Sonny Lee of Kuala Lumpur and what looks like a "Rapier" with Amco 3·5.



(280 k.p.h.) was achieved by F. Svatos' jet model, just before the actual contest ; but since the model was " broken to pieces ", the terrific speed was not repeated for a record. Tailless are popular here, see the photo which shows their favourite design (No. 9, Page 40). A/2 sailplanes have been introduced in the CSR, so we may yet see a Czech team at the '53 World Glider Championships. By the way, we still have addresses for Czech pen-pals.

Across the Mediterranean to Barce in **CYRENAICA** M.E.L.F. where the Royal Scots Greys are stationed and a flourishing group of modellers are partaking in balsa butchery in spite of the isolation. Benghazi is over sixty miles away, and Derna a hundred, so it would appear that there's plenty of room for model flying in those parts. Seriously though, this (The Greys M.A.C.) is the kind of club that is completely dependent on the Mail Order House model supplier, and boy ! . . . . do they appreciate the quick service they get from AEROMODELLER advertisers.

Farther afield, as far as we can go in fact, to **NEW ZEALAND** from whence, once more, Frank Bethwaite gives us the latest news. Radio is the theme, and on one two-day flying session with Les Wright and pals we learn that Les's equipment which includes a three valve relay-less receiver giving large current change and special escapement, gave faultless performance with long flights of up to 30 mins. Interesting too, is the 1946 Pepperill twin cylinder diesel used to power the job, and which can be controlled down to idling by the radio.

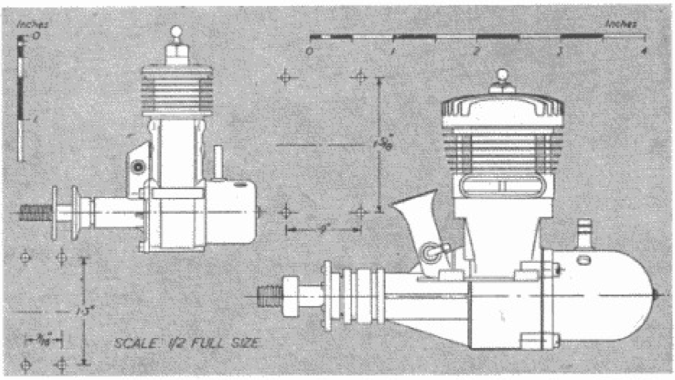
Another N.Z. r/c development is Doug Foster's proportional control equipment which has passed first flying tests successfully.

Motors from Japan

Returning to the U.K. after serving on H.M.S. Glory in Korean waters, Lieutenant D. A. McNaughton, R.N. has given us some gen in aeromodelling activities in Japan and also gave us a first opportunity of studying Japanese Glow plug motors. Whilst general accessories, props, wheels etc., were sold on a par with the price we pay in Britain, motors are remarkably cheap. For example, the two motors he was kind enough to loan us for examination, cost the equivalent of 22/– and 28/– each.

The smaller of the two motors (MAMIYA) has a nominal bore and stroke of 0·5 in. giving an actual displacement of 0·103 cu. in. or roughly 1·7 c.c. It proved particularly docile to handle, starting readily in spite of apparent lack of compression and running quite smoothly under various loads with the needle valve control proving reasonably insensitive. No full scale tests were attempted but a few torque and speed readings were made. These appeared to be about ten to fifteen per cent. down on those figures which would be expected from a good British 1·5 c.c. diesel.

The method of assembly of the MAMIYA was also quite interesting. The cylinder is of steel fitted into a light alloy cylinder jacket, integral with the crankcase casting, Ohlsson style. Like



the Ohlsson, too, the cylinder appears to be held in place by two spot welds. Piston-cylinder fit was tight and the rubbing surfaces well finished, but a slight tightening up at the top of the stroke was noticed, despite the fact that the cylinder diameter is relieved slightly in the space forming the combustion chamber. A separate light alloy head is attached with four screws. The front crankcase assembly is detachable and also held in place with screws. The crankshaft bearing is bushed, the main shaft diameter being quite generous for a motor of this size.

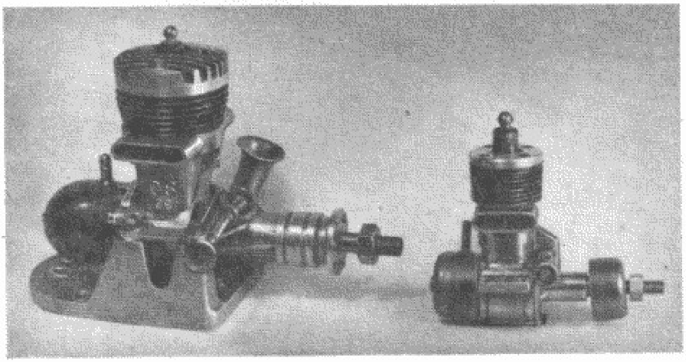
The second motor (OS 29) we assumed to be a 5 c.c. job, although it looked bigger (measured displacement ·272 cu. ins.). Despite the fact that it has crankshaft induction it looked a racing motor of the *Dooling* breed. As it turned out it was a fast, extremely powerful motor with a surprisingly high performance. It would probably give any of our current production "29's" a good run for their money. One most pleasing feature is the ease with which it could be started from cold. After a generous prime, with the needle valve in the running position, it started first flick every time. Sometimes it faded after the first burst, however, which could be cured by starting with the needle valve open an extra turn or two and then closing down after five or ten seconds running. It certainly impressed by the ease with which it swung quite large diameter propellers and was remarkably free from vibration.

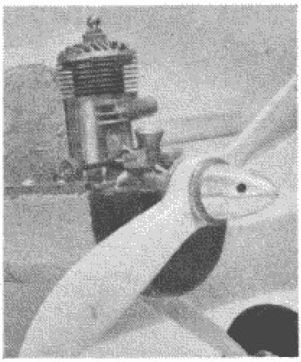
The whole assembly of this engine is based around a most intricate pressure die casting forming the crankcase, crankshaft bearing housing, intake tube, mounting lugs and cylinder jacket with stub exhausts at the top. Quite a remarkable piece of casting, in fact, with the only machining operations involved being reaming or drilling for the bronze crankshaft bearing and cutting two parallel grooves on the front of the crankshaft housing which may, or may not, be provision for the fitting of a contact breaker unit for spark ignition. The method of incorporating the lugs is most intricate and, even with the supporting webs, somewhat doubtful as regards their ultimate strength under impact loads.

The steel cylinder has a large dural head, two screws (and two screws only) passing through the head and cylinder to hold the assembly to the crankcase unit. A further two screws complete the fastening down of the head to the cylinder. The cylinder fits in a rather loose fashion in the crankcase-cylinder jacket casting and relies on the fixing screws for alignment. In view of the obvious power of the engine, this again appeared a rather doubtful point. The head itself was solid enough and some of this weight could usefully have been employed elsewhere.

Summarising we can best "rate" these two Japanese motors by saying that customers would not regard them with disfavour were they available on the European market.

Jap motors below are the O.S. 29, a 5 c.c. radial ported job which comes complete with test stand for 28/- (in Japan only), the Mamiya 1·7 c.c. (22/-!) and at right, the Hope 19, fitted into a K.K. Pacer. Latter weighs 5¼ oz. and maintains 11,000 r.p.m with 7¾×6 in. prop.





RADIO CONTROL NOTES

By HOWARD BOYS

Roger Clark puts every effort into launching Sid Allen's (West Essex) winning model at Fairlop for the "Aeromodeller" Trophy on June 1st last year. Sid also won the Taplin and Ripmax Trophies with the same model, which now has straight dihedral.

ALL the centralised contests held last year were spoilt by strong wind, and a large number of crashes resulted from trying to trim models to penetrate such winds. The usual scheme is to put less negative incidence on the tailplane, or less positive on the wings, or both. While this does give an increase in flying speed, there is also a loss in manœuvrability. The model will lose more height on a turn and be slower pulling out of a dive. Mr. E. C. Sills of Cranfield says he always maintains that the correct way is to put a weight in the nose, and from aerodynamic considerations this does seem best. While this would increase the flying speed, it seems less likely to spoil the manœuvrability. Such a scheme should be satisfactory for flying a course, as required by the first part of the "Aeromodeller" and S.M.A.E. contests, but for the second part, and the Taplin, the only solution seems to be a large high speed model which would also be better for the first part. This type of model is then not so much fun in fairly calm weather. Another trouble is the increase of wind speed with increase of height. At Fairlop, Sid Allen's model went quite well up to the first pylon, but after rounding the second had climbed to where the wind speed was equal to the flying speed. At Gosport the increase in wind speed seemed worse. A number of models got round the first pylon but were unable to complete the turn round the second. One model that climbed rapidly was unable to get to the first pylon; the higher it climbed, the slower was its progress, until it began to be carried backwards. Reporters of that meeting say they have seen better flying in windier conditions, but the writer believes they were misled by the lower wind speed at ground level. This seemed to mislead everyone. At Cranfield there was a stream of air that lifted models unexpectedly. It was most noticeable when Sid Allen was bringing his model in to land and looked as though it would drop right on the spot. It hit this stream and was held up so much that it landed 40 or 50 yards up wind. There was no means of knowing that such a stream existed to upset the landing. One of the most notable things has been the way Sid Allen seems to enjoy flying in a wind, making a number of flights before the contest at Gosport and Cranfield.

One of the most interesting outfits was that of Mr. Sills. The transmitter has a 6J5 crystal oscillator on 9 mc/s., an EF50 tripler, and CV63 output. A 6SN7 is wired as a multivibrator with a relay in one anode, and can be switched in to automatically key the transmitter at about two second intervals for single handed tuning and checking. The receiver was a slug tuned flip-flop oscillator using a 3A5 valve, the relay current rising from ·2 ma. to 3 or 4 ma., with signal. The panel was fastened to two strips of sponge rubber fixed to the bottom of the fuselage of a "Sparky". On a test flight before the contest this model was just about holding its own against the wind at an altitude of about 600 feet. Unfortunately a slight mishap on launching prevented the model making a contest flight.

Engine Control

Pte. Woolgrove, writing from B.A.O.R., sends suggestions for some gadgetry for providing engine control. This gives fast or slow for certain positions of the actuator. A two-position actuator is used with a spring contact that makes when the rudder is held over to one side or the other, rather like the current saving switch on some actuators. This contact is used to energise the choke actuator to pull the choke away from the engine induction pipe, and give full engine speed while the rudder is held over. Pte. Woolgrove says the engine reacts to the signal more quickly than the rudder does to turn it, and the engine can be held on for a few seconds before a turn starts. The writer thinks this last statement will not always hold good; it depends on the position of the rudder for one thing. These schemes for actuators are shown in Fig. 1.

Large Current Change

Some people like a fairly large current change in their receiver, and Figs. 2 and 3 are circuits sent

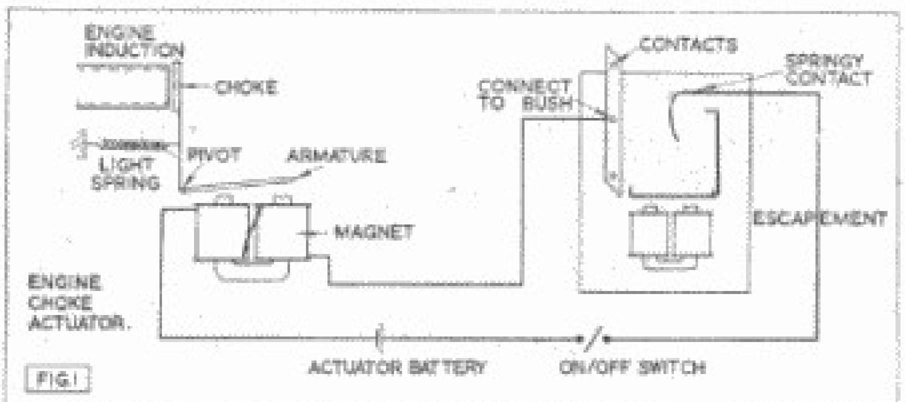


FIG. 1

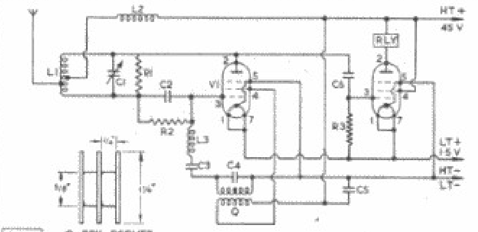


FIG. 2

by readers. Fig. 2 comes from Mr. Brown of Liverpool, and gives a standing current of 10 ma. dropping to 5 ma. on signal. Here are the component values. C1, 3–30 pf. trimmer. C2, 100 pf. C3, 100 pf. C4, ·002 mfd. C5, ·1 mfd. C6, 300 pf. R1, 22,000 ohms. R2, 1 megohm. R3, 2 megohms. V1 and V2, DL92 or 3S4. L1, 9 turns 12 s.w.g. 1¼-in. dia. stretched to 1½ ins. long. L2 and L3, 34 s.w.g. enamelled, wound on ¼-in. dowel, 1 in. long. Q, 350 turns 34 s.w.g. enamelled in each slot.

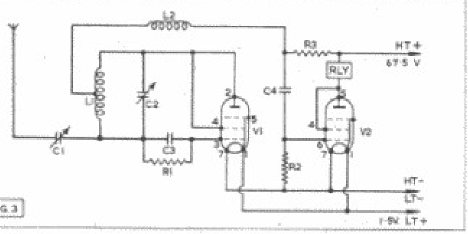


FIG. 3

When connected up, if one way round does not work try the other way. Fig. 3 comes from Mr. Morgan of Cawbridge, Glam., who says it saves the bother of two H.T. batteries as used in the Bolton No. 2. It is only ¾ ozs. heavier than the conventional single valver and a current rise of several milliamps. is obtained. Here again are the component values. C1 and C2, 3–30 pf. trimmers. C3, 100 pf. C4, ·01 mfd. R1, 2 megohms. R2, 5,000 ohms. R3, 8,000 ohms. L1, 9 turns 18 s.w.g. ⅞ in. dia. spaced to 1¼ ins. long. L2, 70 turns 38 s.w.g. double silk or cotton covered on ¼ in. dia. former. V1, 1S4. V2, 1S5.

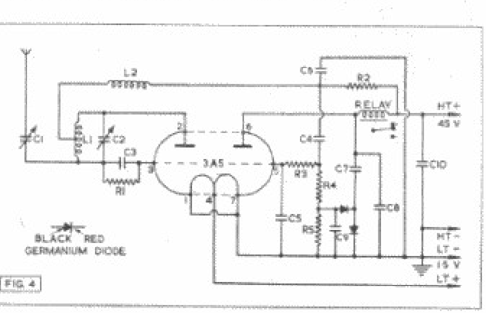


FIG. 4

The next circuit, Fig. 4, comes from Mr. Sinfield of Luton, and gives a current change of 2 ma. with a sensitivity much in excess of any normal single valve receiver. It is different from any other receiver published previously in these notes in that it requires an audio tone for its operation. It is called a Three/One because it has one valve that operates with the function of three. The 3A5 valve (or DCC90) used has the equivalent of two

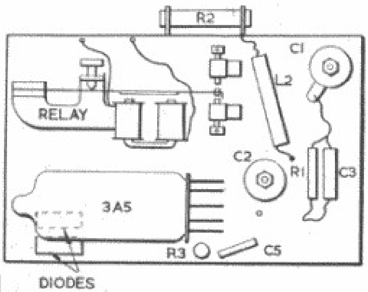


FIG. 5

valves in one glass bulb. The first half is used as an ordinary super-regenerative detector of the self quench type. The quench is filtered out and the signal applied to the grid of the second half, and is amplified. The relay with the ·002 mfd. condenser tunes the circuit to about 1,000 cycles per second so that only this audio signal receives

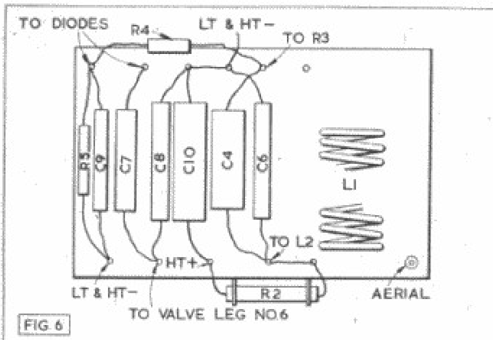


FIG. 6

full amplification. This is then rectified by the two germanium diodes and applied as a bias to the second grid, causing a drop in anode current. The extra components in this receiver will not make it much heavier than the usual single valver, since no quench coils are required. Here then is the list of components, and diagrams of the layout are given in Figs. 5, 6, and 7. C1 and C2, 3–30 pf. trimmers of Phillips concentric type. C3, 100 pf. C4 and C7, ·01 mfd. C5, 200 pf. C6, ·005 mfd.

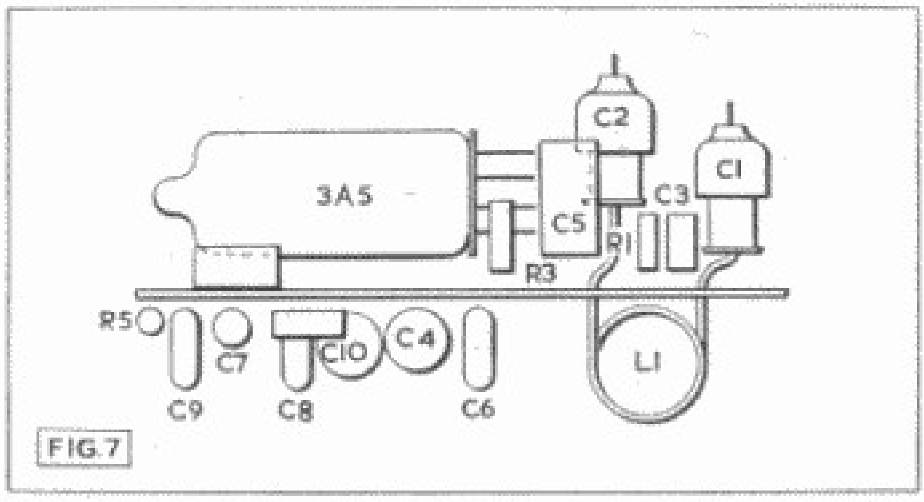


FIG.7

C8, ·002 mfd. C9, ·005 mfd. C10, ·1 mfd. R1, 3·3 megohms. R3, 270,000 ohms. R4 and R5, 1·5 megohms. R2, about 47,000 ohms but best value is found by trial. L1, 11 turns 16 s.w.g. copper wire, ¾ in. mean diameter, length 1⅜ ins. Germanium diodes are Sylvania 1N34, B.T.H. CG1C, or G.E.C. GEX45. Relay is the Siemens high speed of 3,400 ohms total resistance.

To find the best value for R2, a pair of high resistance headphones are connected across the relay coils and the audio note tuned in with no aerial. Find the highest value of resistance with which a hiss can be heard, and then fit one somewhat less to allow for falling H.T. volts. Attach a good length aerial and adjust aerial trimmer for maximum sensitivity, check tuning, and adjust aerial trimmer to slightly less than critical capacity for best stability. It is recommended that all parts are stuck down to the paxolin base with wax, such as that from an old condenser.

Modulated Transmitter

Up to the present, no modulated transmitter has been described in these notes, and as one is now required for the 3/1 receiver we have obtained Mr. Sinfield's own circuit (see Fig. 8). This transmitter will suit all receivers in the 27 mc/s. band and it can be used with or without modulation. The radio frequency oscillator is the valve V2 with its tuned circuits, and this is a very stable and efficient type. It is known as tuned grid-tuned anode oscillator. The input is 4·5 watts out of the total of 5 which we are allowed. A metal screen is used between L2, L3, and L4, L5, L6, to prevent any interaction. C3 and C5 have to be tuned together to give the best output at the right frequency, and while this is rather finicky the results are well worth while. During this

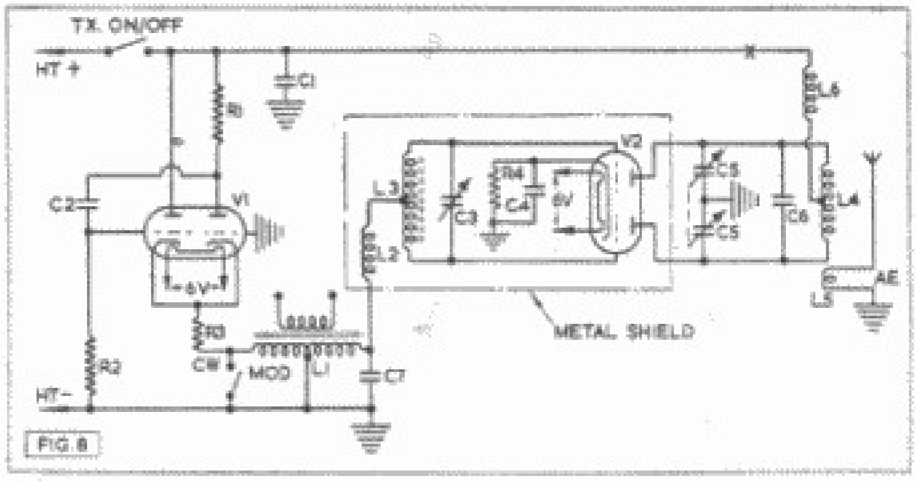


FIG.8

process a 6·3 volt ·3 amp. bulb should be connected across the ends AE of the coil L5. V1 is the modulator, the frequency being governed by the values of C2 and R2. Different values could be switched in here to suit different receivers and could no doubt be arranged to suit a reed type receiver. There is also a strong possibility that it could be used satisfactorily to pulse the transmitter at fairly high speed to give neutral with the two-control system described in the last " Notes ".

While referring to modulated transmitters and receivers, the writer would like to mention that he thinks this Sinfield transmitter could be used with the AEROMODELLER hard valve receiver to work a reed unit with no extra valves, that is a one valve receiver. The writer is short of time for trying this at present, so if anyone else tries, will they please send along results.

Here are the circuit values for Fig. 8. R1, 50,000 ohms, 1 watt. R2, 100,000 ohms, 1/2 watt. R3, 1,000 ohms, 1/2 watt. R4, 250 ohms., 1 watt. C1, 2 mfd. paper. C2, ·001 mfd. mica. C3, 3–30 pf. Phillips trimmer. C4, ·1 mfd. C5, 50–50 pf. miniature twin gang. C6, 10 pf. mica. C7, ·002 mfd. mica. V1, 6SN7. V2, 6J6 or ECC91. L1, push-pull output transformer (secondary not used). L2 and L6, 34 s.w.g. enamelled, close wound on ¼ in. dia. former to a length of 1 in. L3, 11 turns 22 s.w.g. tinned copper, ½ in. dia.

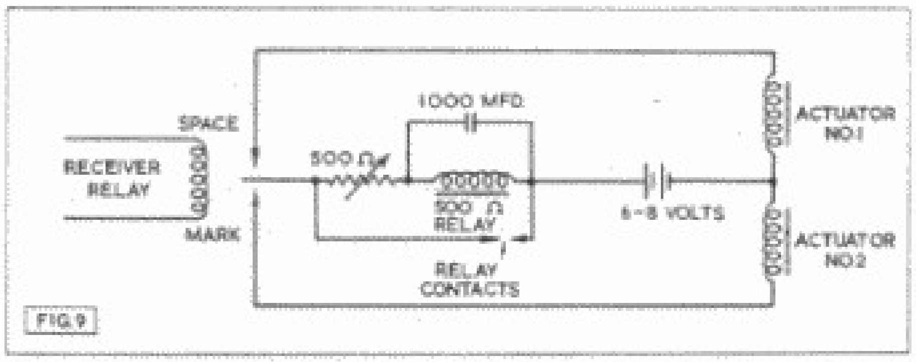


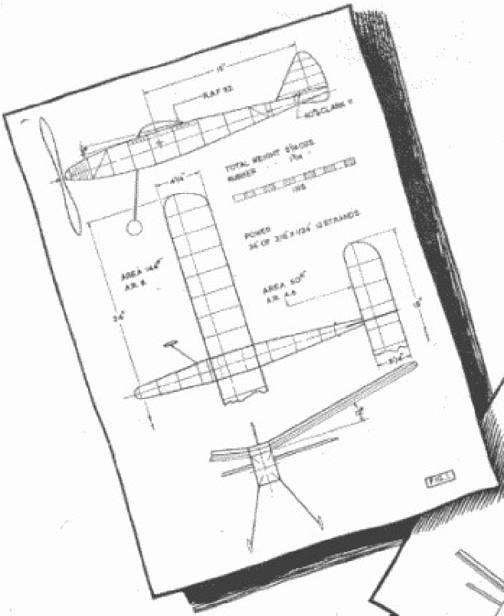
FIG.9

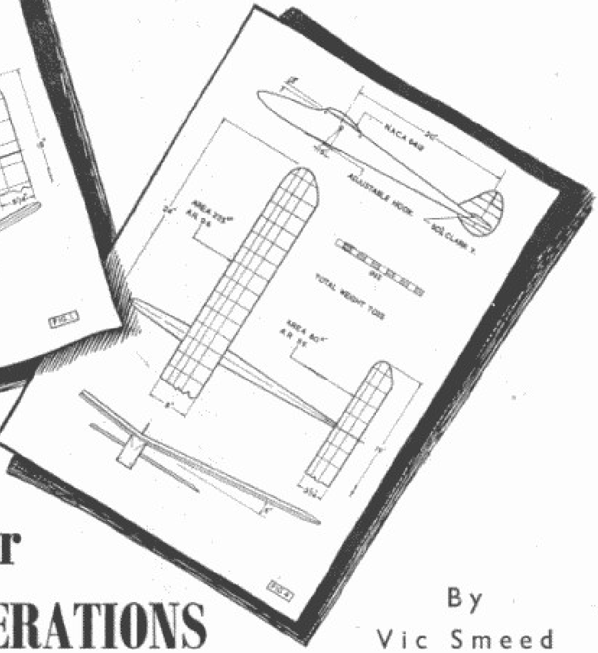
Aladdin former with dust iron core, stretched to ¾ in. long, tapped at the centre. L4, 14 turns 20 s.w.g. tinned copper ⅝ in. dia. former, winding spaced to 1½ ins. long, centre tapped. L5, 2 turns 20 s.w.g. PVC covered ⅞ in. dia. close to one end of L4. It should be spaced slightly further from L4 than that which gives greatest output to ensure stability with various aerial conditions.

H.T. voltage required is 150 and the current at point X, Fig. 8, is 30 milliamps. This can be supplied by an ex-government vibrator pack or motor generator operating from a 6 volt accumulator, also ex-government, which can be used also to supply the heater current for the valves. One side of the 6 volts and the H.T. negative are earthed.

Just after sending the last lot of notes, Mr. Mahoney sent along a simplified scheme to replace his Fig. 3. This is shown in Fig. 9. With the transmitter pulsed at 10 or more times per second the 500 ohm relay remains open. A quarter second mark or space will close this relay, shorting itself and the 500 ohm resistance, so applying full voltage to the appropriate actuator.

Especially for the Beginner Part 33





Rubber & Glider DESIGN CONSIDERATIONS

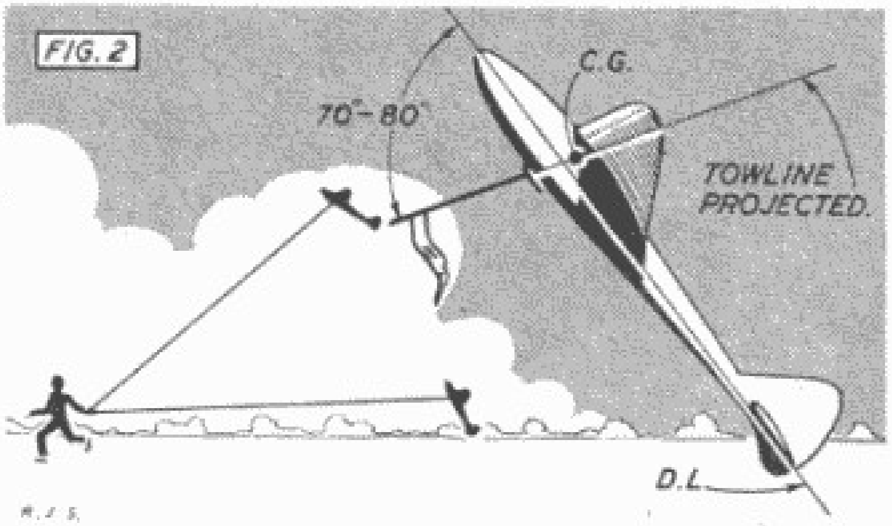
By Vic Smeed

THE simplified procedure for designing cabin power models given earlier in this series may be applied to virtually any conventional model, except that in most cases it doesn't go far enough. In other words, it is a basic procedure only, and further detail is required to apply it to other than cabin power jobs. Since many readers are interested in rubber and sailplane design, we propose to examine the extra detail required for these types of models.

Rubber Design

The essential differences between rubber and diesel power are, of course, the length of the rubber motor and the size of the airscrew needed to convert the power available into thrust. The heaviest single item is again the motor, but, instead of being concentrated in one place, this weight must of necessity extend over some distance, which will affect the longitudinal and directional stability of the model due to inertia. The fuselage must also do more than act as a platform to relate wing, tail and motor; it must be designed to accommodate the rubber and to withstand the compression and torsional loads created by it. With a relatively limited power output, weight saving becomes more important, and the effects of the high torque produced through the relatively huge propeller have to be considered if a safe and stable flying machine is to result.

The sequence of design and a guide to average figures, etc., can then be resolved into (*a*) *Appearance, type, size, etc.*—Little comment is needed here, but for a first attempt at design a simple slab-sider or cabin model is recommended, not smaller than 120 sq. ins. wing area (i.e. 30 in.–36 in. span); we would say that 150 sq. ins. is best. A wing that can be moved a fraction fore and aft is very useful, and alteration of wing and tail incidence is desirable. (*b*) *Aspect ratio.*—This is usually higher than on power models, 8 being about average, the reason being that a short span requires correspondingly more dihedral to control torque. Chord and span are ascertained from desired area in the normal way, (*c*) *Aerofoil*—again a question of personal taste, but generally slightly undercambered sections are employed. R.A.F. 32, NACA 4612, and Joukowski

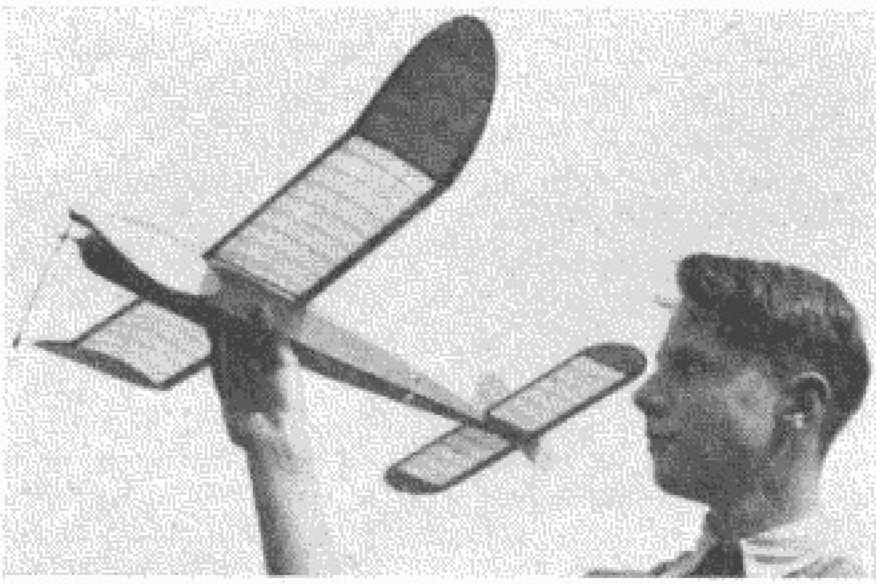


are three top-notchers ; thin turbulent-flow sections are very popular for light models, and Clark Y can still hold its own in this as well as other fields. 3° incidence is average. (*d*) *Tailplane area and moment* depart from power rules in that few rubber models nowadays use less than 33%, due to the pitching moment arising from the rubber motor, and it is usual to use a tail moment (wing C.P. to tail C.P.) of at least 3. A 35% tailplane with a moment of $3\frac{1}{2}$ wing chords is a safe general rule. 40% and 50% tails, not uncommon, introduce trimming problems. (*e*) *Cross-sectional size of body* normally works out at approximately 1/20–1/24 of the wing area, a figure which allows adequate rubber clearance and complies with most rules. The figure arrived at should be disposed so that the body width is roughly 50%–60% of the height. Example—a 150 sq. in. wing, body cross-section therefore about 7·5 sq. ins., size $3\frac{1}{4} \times 2\frac{1}{4}$ in. (*f*) *C.Q. location* is rather simpler with rubber models, experience showing that the desired C.G. normally falls approximately one inch ahead of the C.G. of the rubber motor.

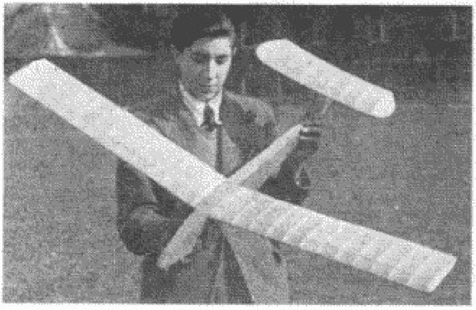
To lay out the fuselage the following procedure may be employed : (i) Draw in verticals across datum line to indicate wing and tail positions, using the moment already decided ; (ii) Locate motor peg slightly in front of tailplane, i.e., $1\frac{1}{2}$–$2\frac{1}{2}$ in.; (iii) Measure from rear peg to a point 1 in. behind C.P. of wing (one-third chord approximately) and measure the same distance forward of this point. This gives the position of the front rubber hook, and the airscrew bearing will be up to 2 in. in front of this. The overall length of the fuselage is thus automatically obtained, and we have in effect positioned the total C.G. roughly below the wing C.P. Slight movement of the wing (probably forward) during trimming will assure the correct relationship. (*g*) *Construction* is fairly standardised and the average medium-weight model as recommended could use, for a 36 in. span, (i) wing, $\frac{1}{8}$ or 3/16 sq. L.E. spar $\frac{1}{8} \times \frac{1}{4}$ or $3/32 \times \frac{3}{8}$; T.E. $\frac{3}{8} \times \frac{1}{8}$; 1/16 ribs at 2 in. intervals ; (ii) tail and fin $\frac{1}{8}$ sq. l.e., 3/32 to 3/16 spar, $3/32 \times \frac{1}{4}$ t.e., 1/16 ribs at 2 in. ; (iii) fuselage $\frac{1}{8}$ sq. longerons and spacers, 2–$2\frac{1}{2}$ in. stations, 1/16 sheet fill at nose, etc. For other details refer to successful models of similar lay-out and back articles of " Airframe Construction ". (*h*) *Size and type of airscrew.* Rubber model prop diameters average out at approximately 1/12 wing area (i.e., about 1/3 span at average aspect ratios). Many builders with little experience prefer to buy airscrews, but those who wish to carve their own should use a block $\frac{1}{8}$ diameter wide and 1/12 thick, which will give a medium pitch prop suited to this type of model. A free-wheeler is suggested as being easier to handle for a first attempt. (*i*) *The undercarriage* can be a simple fixed gear using single-wire legs, or bamboo plug-in legs—it is largely a matter of taste, and there are many excellent types to choose from. Position is safest half-way between C.G. and airscrew and length enough to clear the airscrew in the horizontal position, allowing $\frac{1}{2}$ in. for spread.

Dihedral (*j*) is normally confined to the straightforward type or simple polyhedral, and rather more is used than in power design. 12° is a safe minimum for average high-wing models ; less can be used, but it is not advisable with a first design attempt. (*k*) *Fin areas* of from 10%–15% of the wing area are necessary to keep the C.L.A. back, due to the long nose and increased dihedral, and the fin should be fairly "square", i.e., not too tall and narrow, as a help towards spiral stability. A trim tab of about 10% of the fin is customary. (*l*) *The motor* should be made up by weight (5 yds. $\frac{1}{4} \times 1/24$ =1 oz. is a criterion) and should be equivalent to half the weight of the completed model less rubber (i.e., $\frac{1}{3}$ total flying weight) for normal sport flying. Length of the motor when made up should be roughly half as long again as the distance between the hooks—shorter rather than longer is awkward —this length will give the number of strands and the size rubber making up most conveniently should be used. Example—desired rubber weight 2 ozs., motor length 30 in. 10 yds. $\frac{1}{4} \times 1/24$ or 13 yds $3/16 \times 1/24$ would do, which means 12 strands 30 in. long of $\frac{1}{4}$ or 16 strands 29 in. long of 3/16. The latter is the easier motor to handle, especially if tensioning is to be employed, and is therefore to be recommended.

A typical model based on the foregoing figures is shown in Fig. 1.



R. Coles, then aged 14, designed and built this rubber job which was awarded a " Highly Commended " certificate at the 1951 Model Engineer Exhibition. Data: 32 ins. span, 5 ins. chord, 24 ins. long, area 144 sq. ins., weight $2\frac{1}{4}$ ozs. Mr. Coles is a member of the West Middlesex Club.



John Birnie, aged 17, designed and built this glider which has been exhibited in the local model shop window. Data: 51 ins. span, 5¾ ins. chord, area 290 sq. ins., weight 7 ozs.

Sailplanes

A good many people ask, "What's the difference between a sailplane and a glider?" The general answer to this is that a sailplane is capable of soaring flight (i.e., is able to remain at or rise above the point of release, using air currents) while a glider is not. In the full-size world this is reduced to sinking speeds—if more than 3 ft. per sec. the machine is a glider, though since upcurrents of 30 f.p.s. are quite frequent, and 300 f.p.s. not unknown, it is actually possible to soar almost anything. A sailplane model is the most efficient type of model aircraft, since with no internal motors of any sort to complicate shape or stability problems, streamlining can be taken to a maximum and safety margins reduced to a minimum. The number of maximums recorded in sailplane contests far exceed any other types, and give ample proof of the superior all-round efficiency of these models.

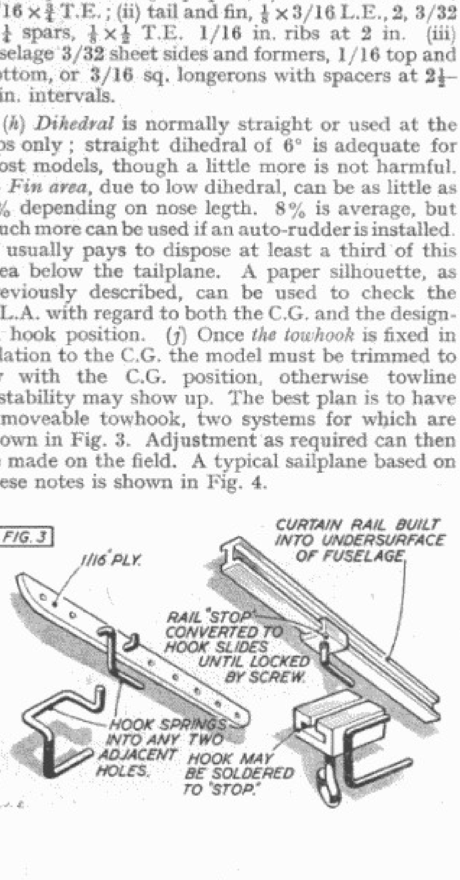
The stickiest design factor is the production of a model which will be directionally stable on the tow but which will not fly off in a straight line when released. A safe towing model will "weathercock" about its towhook and the perfect design would have its towhook actually coinciding with the the C.G. However, if one can estimate reasonably accurately the average angle of the model's D.L. to the towline, a hook can be so placed that a continuation of the towline would pass through the C.G. (see Fig. 2) and this hook position will be the optimum for any conditions. The actual design can then be as for a normally directionally stable model.

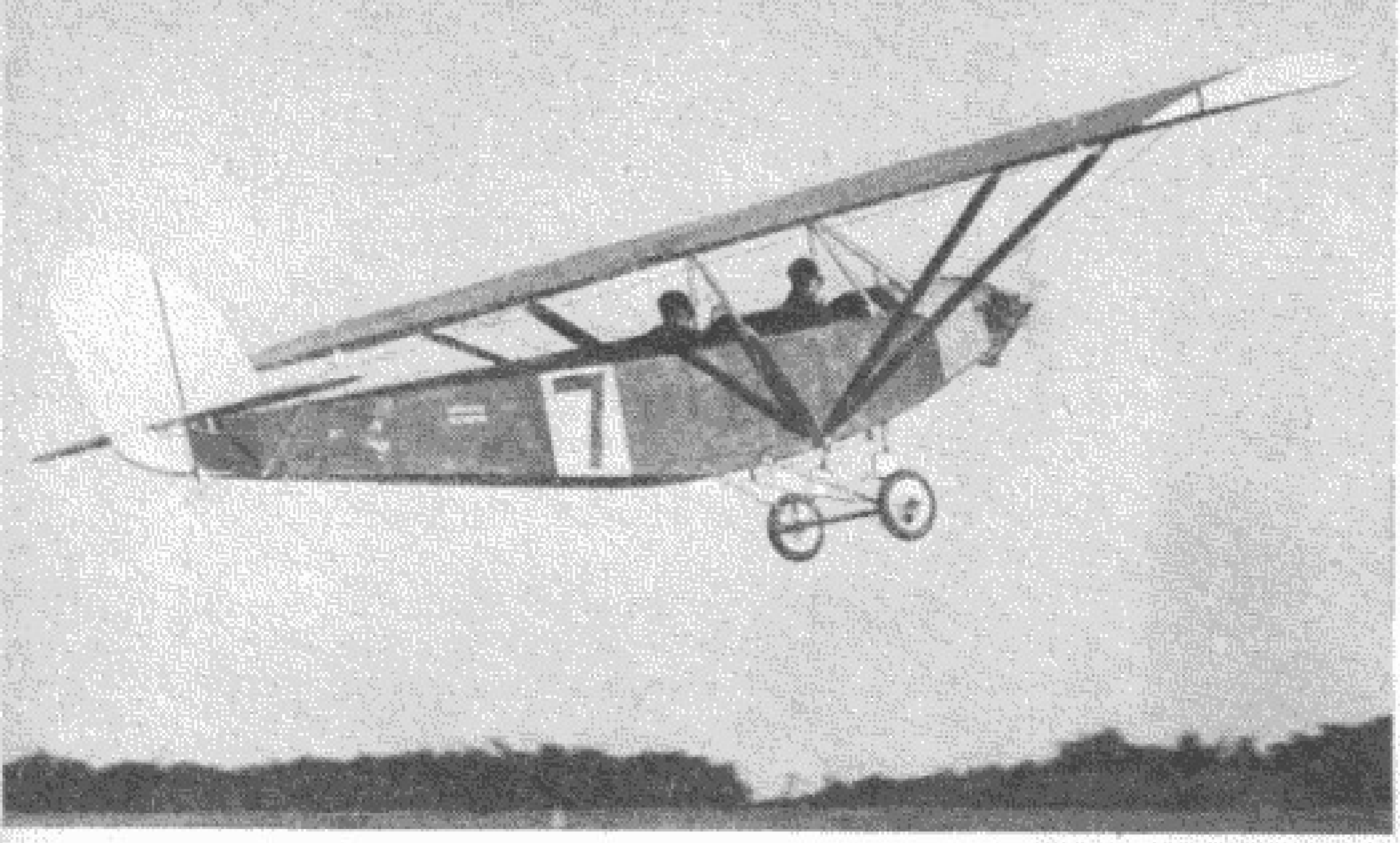
Procedure, as before, is (*a*) *Type, size, etc.* Again, a simple lay-out is best—slab or sheet sides, constant chord wing, and so forth. Our personal view is that it is most difficult to design a sailplane of under 200 sq. ins. wing area which is easy to handle on the towline, and in fact, we'd go so far as to say that a first design would stand twice as much chance of success if the model was in the neighbourhood of 48–50 in. span. (*b*) *Aspect ratio* is normally rather higher on sailplanes, 8 being regarded as quite low, though advisable for smaller jobs. It is inefficient to use chords of much below 5 in. as a general rule. (*c*) *Aerofoils* are usually of the turbulent flow group, since drag is relatively unimportant provided L/D is high; however, normal undercambered aerofoils give good results, and many excellent designs have used flat-undersurfaced sections. 4°–5° is usable with bird sections, 3° with others.

(*d*) *Tailplane area and moment.* Frequently used are 20% tails at a moment of 4 chords, 25%–33% at 3–4 chords moment are less likely to introduce trimming complications. (*e*) *Nose length* is not important since ballast is invariably used to bring the C.G. to the desired position. A length of half the tail moment gives a nicely-balanced look to the model. (*f*) *Fuselage* cross-sectional area is not critical, but reasonable area with a depth/width ratio of 2 or more is recommended. Fuselage shape is a matter of taste, but simplicity and ease of repair should be borne in mind. (*g*) *Construction* is no problem except that a tremendous strain is put upon the wings when towing up in a wind, and they must accordingly be designed for maximum strength in this respect. A 48 in. medium-weight sailplane could use, for example, (i) wing, L.E. 3/16 sq., 3 hard $\frac{1}{8} \times \frac{1}{4}$ spars, 1/16 in. ribs at 2 in., 3/16 × $\frac{3}{4}$ T.E.; (ii) tail and fin, $\frac{1}{8} \times$ 3/16 L.E., 2, 3/32 × $\frac{1}{4}$ spars, $\frac{1}{8} \times \frac{1}{2}$ T.E. 1/16 in. ribs at 2 in. (iii) fuselage 3/32 sheet sides and formers, 1/16 top and bottom, or 3/16 sq. longerons with spacers at 2½–3 in. intervals.

(*h*) *Dihedral* is normally straight or used at the tips only; straight dihedral of 6° is adequate for most models, though a little more is not harmful. (*i*) *Fin area,* due to low dihedral, can be as little as 5% depending on nose legth. 8% is average, but much more can be used if an auto-rudder is installed. It usually pays to dispose at least a third of this area below the tailplane. A paper silhouette, as previously described, can be used to check the C.L.A. with regard to both the C.G. and the designed hook position. (*j*) Once *the towhook* is fixed in relation to the C.G. the model must be trimmed to fly with the C.G. position, otherwise towline instability may show up. The best plan is to have a moveable towhook, two systems for which are shown in Fig. 3. Adjustment as required can then be made on the field. A typical sailplane based on these notes is shown in Fig. 4.

FIG. 3





AIRCRAFT DESCRIBED

NUMBER 53

By G. A. CULL

The Supermarine Sparrow

PRIOR to 1924 the name of Supermarine had usually meant a sea-going aircraft of some sort, but in this year the firm's young designer saw his first pure landplane fly. This was the same R. J. Mitchell who was destined to design the most famous landplane of all time—the immortal Spitfire.

Named the Sparrow, this early design was built to compete in the Air Ministry's 1924 competition at Lympne for dual two-seat light machines. A whole family of light (ultra-light by today's standards) were produced for this contest and all were typified by their simplicity and low power aimed at low cost. The biplane wings of the Sparrow I were its most interesting point, the lower wing employing a thicker section than the conventionally thin top wing which had the greater span and area. Both wings had full-span aileron-cum-flaps which could be drooped to vary the camber of these large folding wings, which resulted in a wing loading just short of 3½ lbs. per sq. ft. !

Capt. H. C. Biard flew the Sparrow I in the contest and all went well until the worst of luck knocked it out of the eliminating trials. A connecting rod smashed through the crankcase of the three-cylinder 36 h.p. Blackburne Thrush engine, but despite frantic work in fitting a spare engine, time expired before the Sparrow was flying again.

1926 saw the "Daily Mail" light aeroplane competition, also at Lympne, and the Sparrow was again entered, although it was now a research aeroplane. Mitchell wished to make full scale comparative tests on wing sections, and so the '24 Sparrow was modified to take a single parasol wing of Clark Y section. The tail unit and fuselage stayed unchanged apart from the fitting of the reliable 36 h.p. Bristol Cherub III flat-twin engine which drove a Fairey Reed metal propeller. The registration, G–EBJP applied to both Mks.

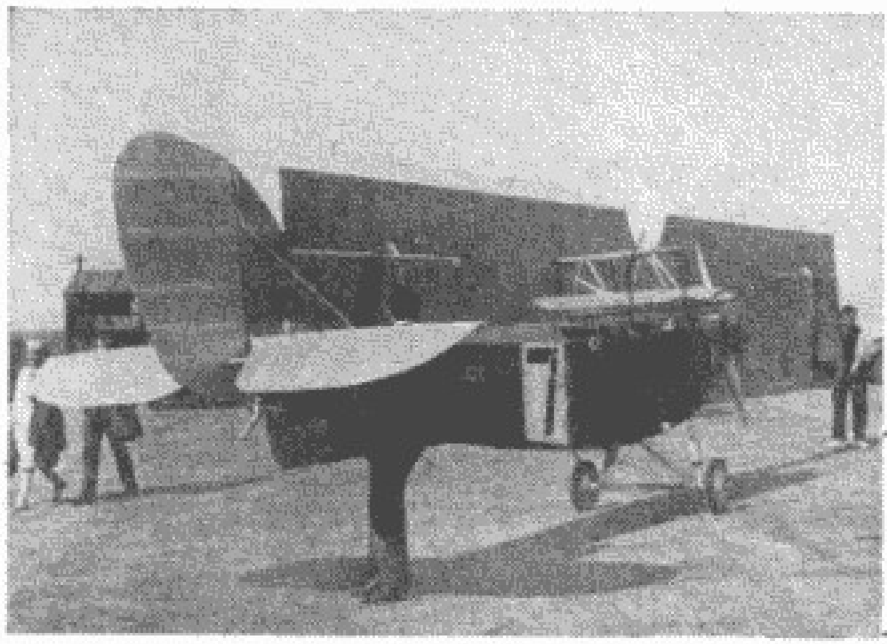
Again, Biard flew the Sparrow II, as it was now known, and was last to take-off in the actual contest. The wind swung round 90° just before take-off and the Sparrow, not being built for speed, made heavy going in the freshening head-wind. Biard found that he could not maintain the minimum permissible 50 m.p.h. and so turned back. He took off later, but retired at Beachy Head and burst a tyre in a forced landing. The next day he flew back to Lympne, having removed the remaining good tyre to even things up !

Subsequently the Sparrow II was fitted with three other wings of R.A.F. 30, SA.12 and T.64 sections, these all being of exactly the same size and area as the Clark Y wing. None of these four wings had dihedral and that with the SA.12 proved to be superior for stability and rate of climb. A wealth of aerodynamic information was gained on the Sparrow II, which may be regarded as a similarly effective though much simpler ancestor of today's highly specialised research aircraft.

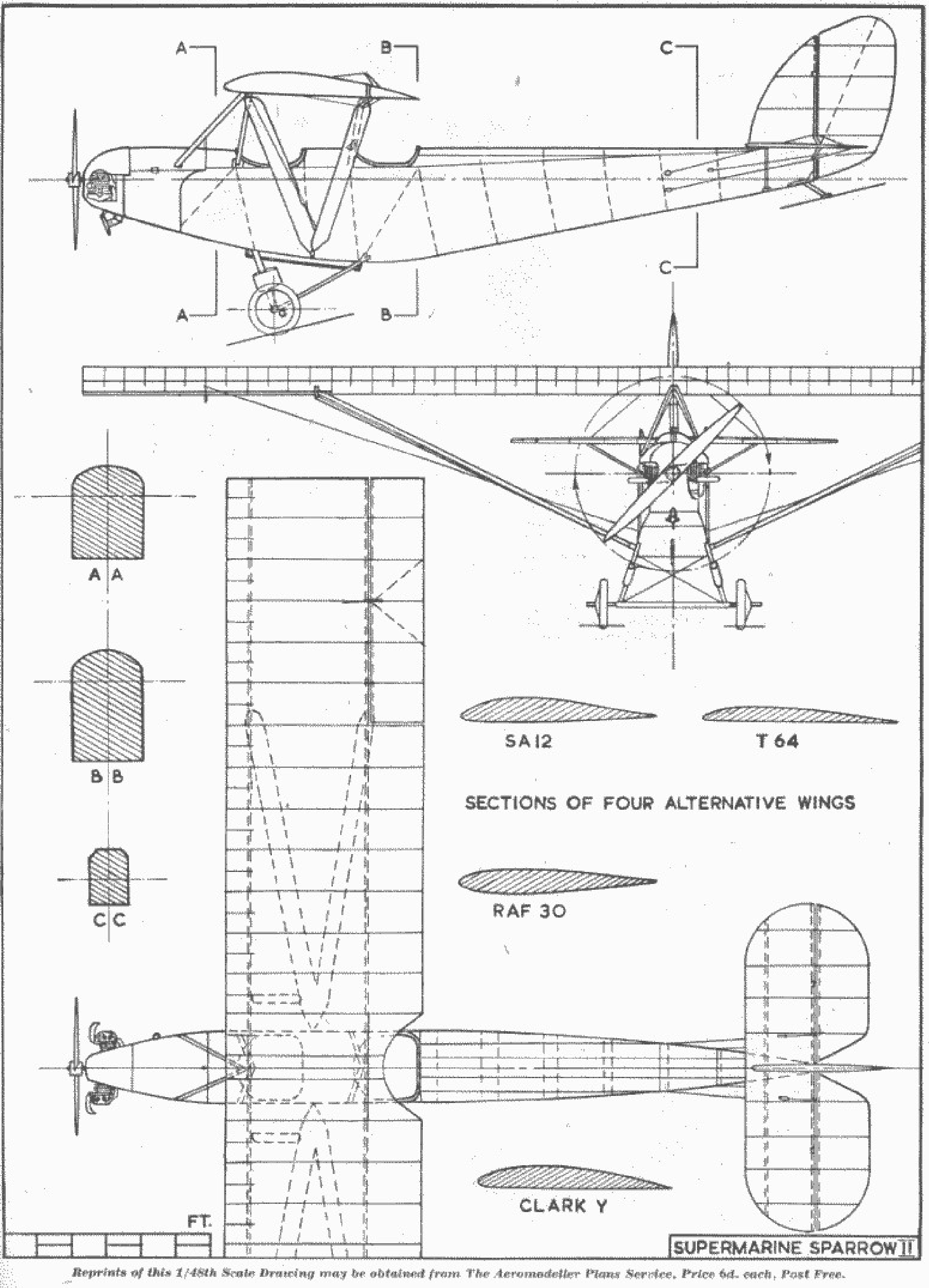
Colour: Mks. I and II, dark blue fuselage and struts with aluminium doped wings and tail surfaces. Cowlings were aluminium and Mk. I had longerons picked out in aluminium dope. Competition Nos. (Mk. I, 9, and Mk. II, 7) in black under both wing tips with top of figure at L.E. and in black on white panel on fuselage sides.

Construction: Fuselage had spruce longerons with ply covering. Decking of fabric covered stringers. Wooden wings had two spindled spars with built-up ribs and nose-ribs. Tail unit had aluminium tube outline with spruce spars and built-up ribs. Struts of steel tube on both versions, faired with spruce on Mk. II. Undercarriage was bungee sprung.

Specification Mk. II: Span: 34 ft. (Mk. I 33 ft. 4 ins.). Length: 23 ft. 10ns. (Mk. I 23 ft. 6 ins.). Height: 7 ft. 5 ins. Wing area: 188 sq. ft. (Mk. I total, 256 sq. ft. Upper 173, lower 83 sq. ft.) Wing loading: 5·2 lbs. per sq. ft. Empty weight: 572 lbs. Loaded weight: 963 lbs. Maximum timed speed and minimum indicated air speed: Clark Y: 63·1, 30 m.p.h.; R.A.F. 30, 65, 33 m.p.h.; SA.12: 64, 32 m.p.h.; T.64: 63, 31 m.p.h. Average rate of climb to 1,000 ft in 4 mins. 41 secs., to 5,000 ft. in 33 mins. 42 secs.

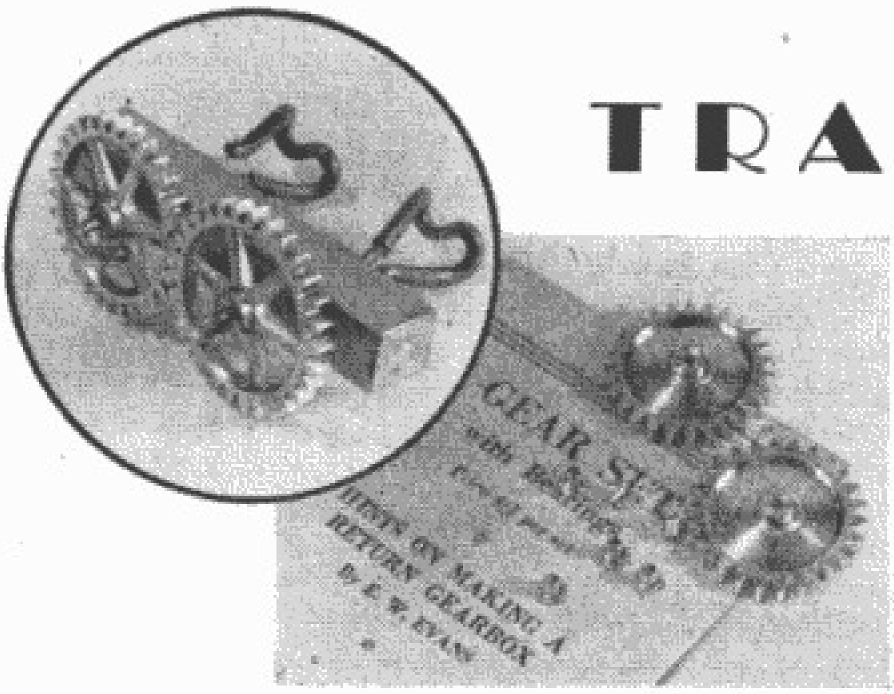


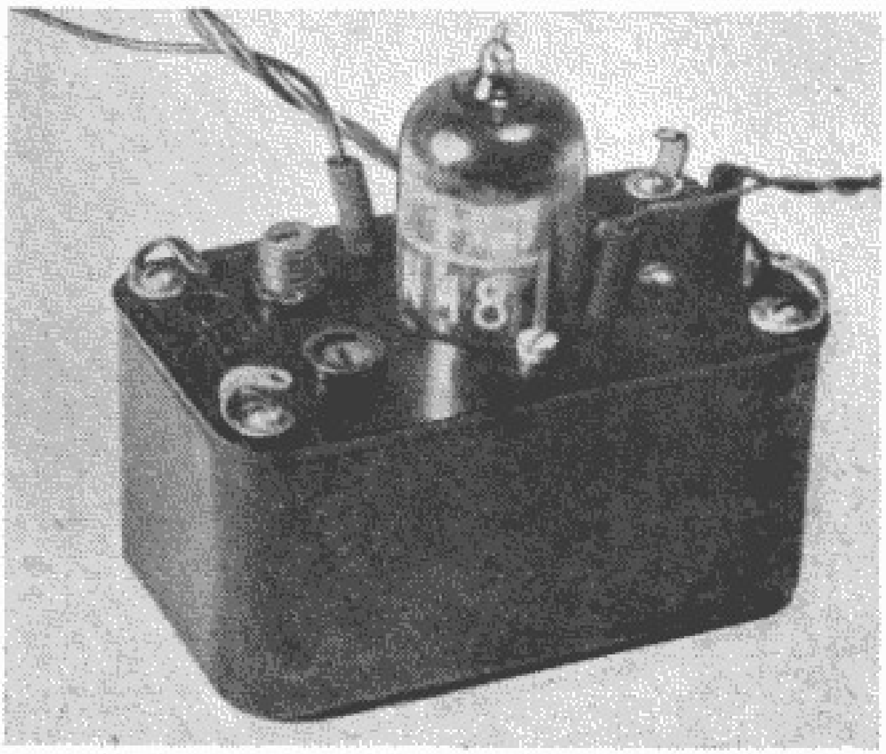
Heading: Cheap flying in 1926, the Sparrow airborne at Lympne with two-up on a mere 36 h.p. At left: The 1926 competition rules stipulated that entries should pass through a field gate. Stowed for this, the wing is held against the fuselage side and jury struts hold the centre section struts in place. (Photos. by courtesy of "FLIGHT")



Reprints of this 1/48th Scale Drawing may be obtained from The Aeromodeller Plans Service, Price 6d. each, Post Free.

TRADE NOTES





GEAR SET.—Super Model Aircraft Supplies, 220, Wellingborough Road, Northampton. Price 4s. 3d.

Wakefield—and other—enthusiasts will welcome the opportunity to purchase a set of precision cut gear wheels and accessories by E. W. (Ted) Evans.

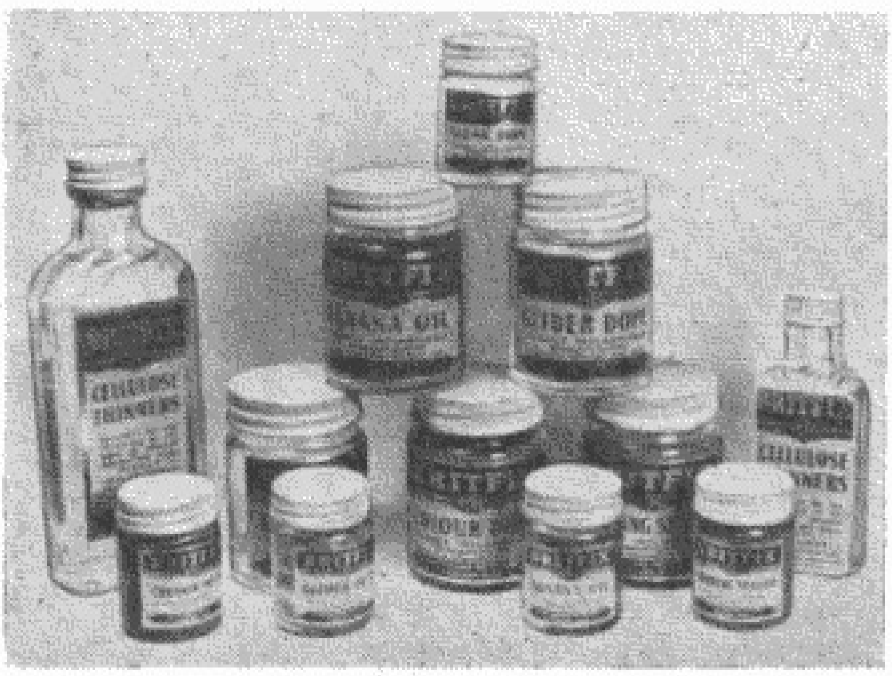
The set comprises two super-light wheels embodying a tapered web, and an extended bearing making for true running, plus six " eyelet " bearings that ensure the easy and true construction of a return-type gearbox, now in almost universal use. In addition a well detailed leaflet gives ample instructions on the use and correct application of the component parts.

Robust teeth take care of the maximum load, and also reduce wear and friction to a minimum, and at the modest price of 4s. 3d. this set forms one of the best buys on the present day market.

" BRITFIX " DOPES.—Manufacturers : Humber Oil Co., Ltd., Marfleet, Hull, Yorks.

The name " Britfix " is synonymous with one of the finest balsa cements yet produced and there is no doubt that the new range of dopes they have recently introduced are to the same high standard.

Shown in the photograph are samples of ½ oz. and 2 oz. jars tested by our modelling staff, all of which were found most satisfactory. At 8d. and 1s. 6d. they can also be said to be reasonably priced. We know the tiny ½ oz. jars will prove an economic boon to the average modeller, who frequently wants a small quantity of a particular colour, and begrudges paying out for a 2 oz. jar, which so often, is relegated three-quarters-full to the workshop shelf. Coloured dopes are available in the following colours :—black, white, red, maroon, green, dark blue, light blue, yellow, cream, grey, orange, silver and gold. Also available in the same sized jars, i.e., ½ oz., 2 oz., ¼ pt., ½ pt., 1 pt., 1 qt., are Clear Dope, Banana Oil, Glider Dope and Sanding Sealer, these in the larger sizes being slightly cheaper than the coloured dopes. We liked too the sensible approach to thinners which are available in 1 oz. to 8 oz. bottles, not jars, and then pint and quart tins.



E.C.C. " TELE-COMMANDER " 951A RECEIVER.—Manufacturers :—Messrs. Electronic Control Components Ltd., 48, Swinbrook Road, London, W.10. 2 ins. long × 1½ ins. wide × 1¼ ins. deep (valve projects 1 in. above case making total depth 2¼ ins.), weight 2¼ ozs. Price £4. 7s. 6d. inc. P.T.

C. G. Sallis won the 1952 S.M.A.E. Radio Control Trophy at the Nationals with this Receiver, and like many other well-known radio fliers, can vouch for its reliability. An opinion your reviewer humbly endorses.

The familiar black plastic case that protected the earlier E.C.C. receivers from dust and damage has been used to good effect, and as can be seen from the photograph, the two tuning controls, the relay adjustment screw, and the valve project from the top of the case. Common sense should be used in the mounting of this receiver, and by far the best method is to attach the case firmly to a sorbo rubber pad cemented to the " floor " of the fuselage.

The set arrives with detailed instructions, a two-pin socket, a three-pin socket, and all the necessary wire. We found the instructions and wiring diagrams practical and explicit, but felt that actual type numbers of suitable batteries could well have been given to make things absolutely clear to the inexperienced. The desired voltages for the set are of course given and we echo the manufacturer's recommendations that the H/T voltage for general use should be between 60 and 72 volts. Even at 60 volts the standing current is 2·8 ma dropping to ·4 ma on signal, with the relay coming in at 2·2 ma and dropping out at 1·8 ma. The battery link-up we use, and like, is three B 123's in series giving 67½ volts H/T, and for the L/T either a D18 or D19, with their convenient two pin socket tops and long life.

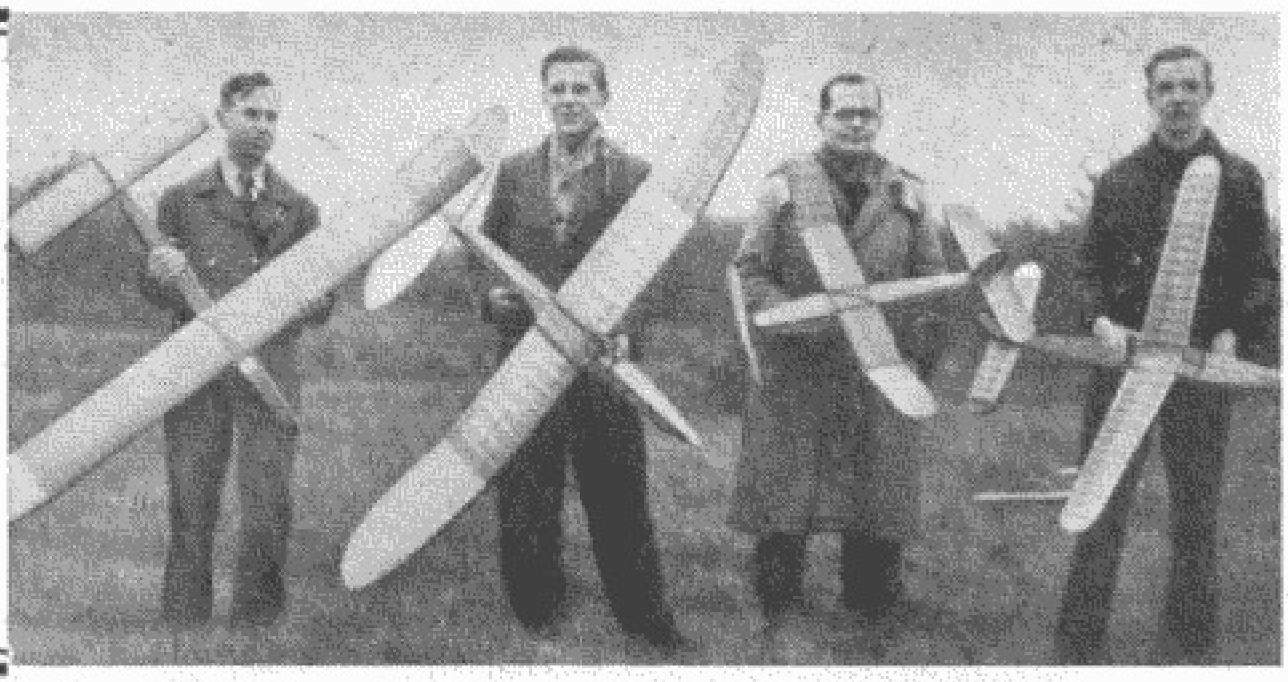
SCOTTISH PAGE

A GUID New Year tae ane an' a'—and here to start it off is a report from **KIRKCALDY M.A.C.,** on that club's major activities throughout last season. Minute Secretary J. Pryde takes the stand. " There has been a general lull in competition flying this season, due to either lack of transport or cancelled competitions, and at present most activities are centred around C/L models. Juniors are well represented in the C/L field, but the main item of interest is Jock Wright's four-engined semi-scale airliner. This is powered by E.D. 2·46 Racers, and is the tenth of his four-engined variety. The model flies on 60 foot lines, spans five feet and has an all up weight of 52 ozs. When flying in the park, this model is always the attraction, as it is very impressive, flying in the region of the 70's. He has looped this one, as he has done with his previous model, and Jock remarks that these models are a treat to handle, and are very steady. We are under the impression that this is the first time a four-engined model has been looped ; have we a right to this claim ? Jock has always spoken of a four-engined F/F model, and I feel that he is thinking of five engines, and that he has delta wings on his mind. Although without flying ground or club premises at the moment, we always find time for a get-together in the Beveridge Park. The free flight fiends have been out of the picture due to lack of flying space, but it is hoped that by next season this will be remedied."

The **WEST OF SCOTLAND AREA** team racers had some degree of success at the "Davies Trophy" team racing at Fairlop, area com. secretary Bill Meechan flying Bob Murdoch's Class A job into third place. Bob's model is a resouped Mercury Mk. II design, E.D. 2·46 powered, and has top placings in most of the Scottish team race circles. Bill sneaks an odd ten minutes from running the area contests to fly the model, and with Bob as mechanic they make **GLASGOW M.A.C.** hard to beat at team racing. **STIRLING M.F.C.** held their annual control line rally on 19th October at Queen Victoria School Playing Fields, Doublane, by kind permission of the Commanding Officer there. The Scottish Aeromodellers' Association National Stunt Contest was held concurrently with the Stirling rally programme, which included open stunt, A and B racing and a speciality C/L contest. Jim Clark, Glasgow M.A.C., was judged winner of the S.A.A. stunt with his O.D. model. Bob Murdoch, Glasgow, again second, with a modified and brilliantly coloured Mercury Monitor. Pete Russell, Stirling, was third with a brand new E.D. Racer powered model, of his own design. In the Stirling M.F.C. open stunt, results were much the same, with a slight reshuffle. Clark, brother Ian this time, was first for G.M.A.C., with Pete Russell second and Bob Murdoch third. Ron Fraser of Kirkcaldy M.A.C. had an interesting stunt bipe, with a 10 c.c. G.P. racing "Conqueror" mounted in the snoot. Originally intended for model car racing, the engine required a special prop driving hub, which Ron brewed himself. Running up the motor on the ground, the noise fairly shook the place, but unfortunately the model developed feed trouble in the air and was unable to show its paces. Class A and B team racing used the Le Mans start, incorporating an approximate fifty yard sprint for pilots and crewmen. Dave Duncan's entry won the Class A race for Glasgow with Ian Clark flying the model, the Murdoch-Meechan combine coming in second. In the B team race Bill Meechan flew Bob Murdoch's Amco. 3·5 diesel job into first place, against Eta 29 and K. & B. Torpedo hot rods. Some careless flying in this event led to all the 'planes ploughing in, except the Lanark entry, which emerged unscathed. Bob Murdoch's short pit stops won the race though. A novelty contest for spectacular appeal produced some good fun in spite of deteriorating weather conditions. The Clark brothers Ian and Jim won this by flying their stunt jobs through the book at the same time in the same circuit. How these boys get away with this is a bit of a mystery, but they can certainly entertain the spectators. Jock Wright, Kirkcaldy M.A.C., was second with his four E.D. Racer airliner, but unfortunately was handicapped by damage sustained after a crash earlier in the day's activities. Over and out 'til next month—Mac.

Jock Wright of Kirkcaldy M.A.C. is a "Multi" man, specialising in four - engined scale and semi-scale control - line models. This one happens to be his tenth! Fire foot span and weighing 56 ozs. it has four E.D. 2·46's and has actually looped.

CLUB NEWS



Hayes and D.M.A.C. winners of the London Area Challenge Cup (presented by "Aeromodeller" 1943) after the final round in which they defeated Croydon. Left to right, J. Marshall, W. Callender, F. Brench and G. Over.

FAR be it from us to tell folk how to do their duty, but the dearth of club reports this month seems to indicate that P.R.O's, etc., are taking more than one deep breath now that the contest season is over for a few weeks! I trust this "happy release" will not last too long, and that indignant club members will immediately jump on the necks of those hard writing officials who have chosen to air the exploits of their fellows, and see that we get a good spate of news for next time.

It passes our understanding that modellers will fly and lose quite valuable models, and then not care to collect them when notified in these columns that their treasured possession has been located! Some time back we published word from E. Shillito of 63, Langdale Drive, Wakefield, to the effect that a power model, lost at his club's 1951 Open Day had been returned to the fold. To date, owner of said wanderer has not claimed his property, and I suggest that if he has not done so by the end of the year, model and engine are flogged to the benefit of club funds.

Ireland

The **MODEL AERONAUTICS COUNCIL OF IRELAND** are to conduct an Irish Open Control Line Championships on Saturday, April 11th next, with events for Stunt, Speed, Team Race and Combat. The show will be staged in College Park, right in the centre of the city, and only two minutes' walk from Jury's Hotel—of which we have blessed memories! I assume the meet is open to all, though the title of "Irish Open" can be taken two ways—but is probably a normal Irishism!!

London Area

Whether from financial or flying field reasons is not clear, but a full scale amalgamation has taken place recently, the Satyrs M.F.C. and Lewisham & D.M.A.C. now being combined with the **BLACKHEATH M.F.C.** under the latter title. Many old stalwarts are returning to the fold, and a hefty junior element augers well for the future.

The old established meeting for the "Bill White Memorial Cup" will take place at Epsom Downs (Tattenham Corner) on Sunday, 11th January. This meeting will include a Glider Gala, with both comps. open to all, general rules to apply. Pre-entry is requested, and all correspondence should be forwarded to the Hon. Sec., A. Dorset, 73, Barriedale, New Cross, S.E.14.

BUSHY PARK M.F.C. recently held a comp. for juniors, with seniors doing all the chasing! Strangely enough, the weather held good, and everyone returned home with their models in one piece. Team race section travelled to Cambridge and took second place honours.

The annual Glider Gala of the **SURBITON D.M.F.C.** was held on Epsom Downs last October, being blessed (for a change) with bright sunshine and a very light breeze. Surprisingly enough, only 80 entries were received in contrast with the usual 250, and it is problematical whether it will be possible to run the event next year. Des Yeabsley of Croydon claimed first place with a total of 14 : 45, followed by Tony Brooks (Grange), 13 : 12, and D. Woods (St. Albans) with 13 : 09. Top junior was an unattached youngster by name O. Lake, whose total of 9 : 10 was very creditable. Croydon once again won the Team event. If finances are low, club spirits are not, for they have just completed their most successful season to date, the year being nicely rounded off when E. Berks and Pete Buskell won the Glider and Power championships at Cranfield.

HAYES & D.M.A.C. are pleased as punch to have knocked Croydon out of the final in the L.A. Challenge Cup at last. In an away duel, Hayes racked up 30 : 59 for eleven flights, to Croydon's 29 : 43 for twelve. The Hayes team, which has not been changed for two seasons, consisted of G. Over and F. Brench in rubber, and W. Callender and Josh Marshall in glider. Much repair work was carried out by both teams, as most flights finished up either on roofs or in trees, and the last flights might have been improved by carrying navigation lights!

In spite of low times in the M.E. Cup, **CROYDON & D.M.A.C.** managed to hold off the Whitefield challenge and won the Plugge Cup as champion club for the fifth time in six years! As this success has occurred since the introduction of area-centralised contests, there may be a clue somewhere! According to the report, the Croydon team had nowt but bad luck when meeting Hayes, as described above. Broken models cut much of the flying time, and though a moral victory is claimed, Hayes took the hardware home—and that's what counts on the record books!

North Western Area

Garth Evans of the **CHEADLE & D.M.A.S.** has had a good run lately, winning the Area Championships with 1st in glider, 11 : 24, and 5th in rubber with two

flights only. Evans was flying his 12-ft. span "Conquest", and we are told that conditions were so grim that even some Whitefield models were kept in their boxes! Must have been bad. In the Area "new rules" comp. on November 2nd, Garth was top again in both rubber and glider, with Anderton and Faulkner filling 3rd and 4th rubber placings. Hot lightweight rubber jobs are superseding Wakefields in open contests, with Wakefield features of design and power ratio being followed. Prop runs vary on the various designs, Faulkner and Evans using 10-12 strands, whilst Anderton has a 14 in. prop spinning steadily for 2 minutes with 1,300 turns. Latest club bind is National Service, with four already in blue, and Evans due next.

WHITEFIELD M.A.C. has just completed a most successful 1952 season, which included winning four National Contests (Keil, K. & M.A.A., Thurston and Model Aircraft trophies), plus both the Senior and Junior Championships. Two Area meetings have been supported in the last few weeks, both suffering from bad weather, and the inevitable end of season lack of support. J. O'Donnell won the rubber event at the Area Champs. with 7 : 24, despite no third flight through being treed on his second. In glider, R. Askew aggregated 7 minutes to place 3rd with a stick Nordic that had spent four months in the back garden of an empty house, following a flyaway in June! Best in power was Dekka Bennet's 4th place with a single flight of 3 : 34 o.o.s. and lost. The meeting on November 2nd to try out the new rules was flown in continuous rain, where good club placings were secured, though Nordics did not like the conditions. In power, engine run max. of 10 seconds, E. Horwich won with an agg. of 7 : 04, including the only max. (3 min.) of the meeting. Most interesting was perhaps the rubber event, in which Johnny O'D. placed 2nd with a model in which structure weight was more than twice that of the motor. Actually a diamond Wakefield with 5·4 oz. structure and 2·7 oz. motor (including 1·9 oz. ballast!), the amount of rubber seemed adequate for a 3 minute maximum.

The **SHARTSON D.M.S.** is settling down to a winter building programme, with some members threatening to have two models ready for next season! Honour of building the largest model goes to E. Helliwell, whose "Thunderking" now awaits test flights—if he can find a field big enough. Members attended the Woodford and Sherburn Rallies with no outstanding success, though Helliwell lost his "Satu" after 22 minutes. The flight—a new club record—was made from a 50-ft. line.

South Eastern Area

Published menu for the **SOUTHERN CROSS A.C.** forthcoming dinner makes quite a change from the usual report! Tell you later what it really tasted like. October 5th, date for the club Nordic Shield contest, brought a fine, sunny day with only a slight breeze—and thermals!! Flying began early, and by afternoon flight times were getting quite lengthy. Graham Gates broke the four-year-old club glider record, and Keith Donald added the club A/2 figure to his belt. Bill Gravett added the Shield to his collection of pots. Despite a strong wind at a later meeting, Gravett was again successful in the power class. However, in spite of determined efforts by others, G. K. Gates is the club champ. for 1952, only four making the necessary 15 flights to qualify.

Midland Area

Following a club questionnaire, the **WALSALL M.A.C.** has embarked on a winter programme which includes lectures on design, r.t.p. sessions, quizzes, and engine starting comps., this to extend to March 26th, on which night a concours event is anticipated. A few stalwarts still put up Sunday performances on Bentley Common, and tell the laggards all about it on the following Thursday club night! A fine new trophy has been acquired for scale models, and feverish activity of rubber and engine powered Austers, Aeroncas and so on is expected.

WOLVES M.A.C. is one group which welcomes the suggested new contest proposals, having a small flying field, and anticipate that such rules will give more incentive to take part in decentralised comps. Indoor flying is progressing favourably, with chuck gliders dominating the field. For the not-so-expert, nomination contests are held, and are a great success.

Southern Area

Lurid press accounts of "Flying Saucers over Thorney Island" caused many a smile to flicker over weather-worn faces in the **PORTSMOUTH & D.M.A.C.** recently. The happy phrase occurred in the local write-up of the club's Southern Counties Rally—held on the windiest Sunday in September! As was to be expected, the wind dropped completely once the final official stop-watch had been clicked, and some first class scale flying was seen during the evening. Portsmouth received their traditional hiding from the Southampton lads in the annual Hobart Trophy. R.T.P. flying has been started up again, mainly due to the activities of comp. sec. Fred Body. Many of the younger members want a speed class to be introduced, but the old-timers recall with pleasure those glorious r.t.p. comps. of a lazier, quieter yester-year!

Winners of the Cambridge Team Race Rally, reported last month are, left to right, Pete Cameron and Norman Butcher of Croydon, Pete Wright and clubmate from St. Albans and Ed. Bennett, Croydon.

R. H. Dunkley of Skegness about to relieve himself of his modified Helles Belle at Butlin's Rally, Skegness on Sept. 21st. It would appear to have been a windy day!

WINCHESTER M.A.S. were lucky with the day selected for the club Sailplane Trophy, when times were generally good, and two records broken—and two models lost. Peter Ivory started off with 3 : 01, but times were upped throughout the day and Bill Childs did over 7 minutes. The latter chap won the Society's championship for the third year in succession, being just two points up on the second placer, Ron Lewis.

Western Area

The non-Bristol clubs in the Area have decided that the Bristol chaps shall form the Area Committee, and deal with all relevant business, keeping the rest informed. This might be a good scheme, but hardly smacks of proper Area conduct. Let's hope we hear of no charges of everything being arranged for one or two clubs! An area contest day is being organised at Lulsgate on January 18th, catering for all F/F and C/L classes except speed and radio. Lack of competition interest is deprecated, the only real success being South Bristol's win in the Model Engineer Cup with a total of 46 plus.

DEVIZES M.A.C. visited the Bath Control-line Rally in strength, but report their utter disgust with the flying ground which made it impossible to get speed models and team racers airborne. For this reason, the only success was "Gadget" Gibbs' speed of 147 m.p.h. in the 10 c.c. class. Attendance from the local clubs was poor, and results on the whole were disappointing. For the benefit of all Western Area clubmen the Devizes group will be staging a Controlline Rally on the 18th January, and the notices are being distributed with ground location, etc. The meeting will embrace all classes of speed, stunt and team racing, and jets may be flown on payment of a special insurance fee.

Despite bad weather and dark evenings, **BRISTOL & WEST M.A.C.** have got in quite a lot of flying, especially by new members. Don Stirling is building a free-flight "Canberra" with twin ducted fans. Will this be the first twin ?

South Midland Area

LUTON club wound up the '52 season with the Hinks Trophy (power precision), winner being junior member P. Mitchell. This comp. also decided the fate of the Lutonia Cup for the club championship, and F. Chapman consolidated his position by placing 4th in the Hinks. First winter comp. for open gliders took place on November 9th, line length being 150 ft., and only two flights. Most models disappeared from sight in the drizzle around the 1½ minute mark. However, winner E. C. Clark towed his model dead overhead, where it stayed in the sight of timekeepers for long enough to give him the event. B. Manders again won the Bristol Cup at the M.E. Exhibition.

Well, I am not exactly suffering from "Typist's Twitch" after this little lot, and here's hoping that the usual crop of New Year resolutions will bring a better post during the next few weeks. Adios.

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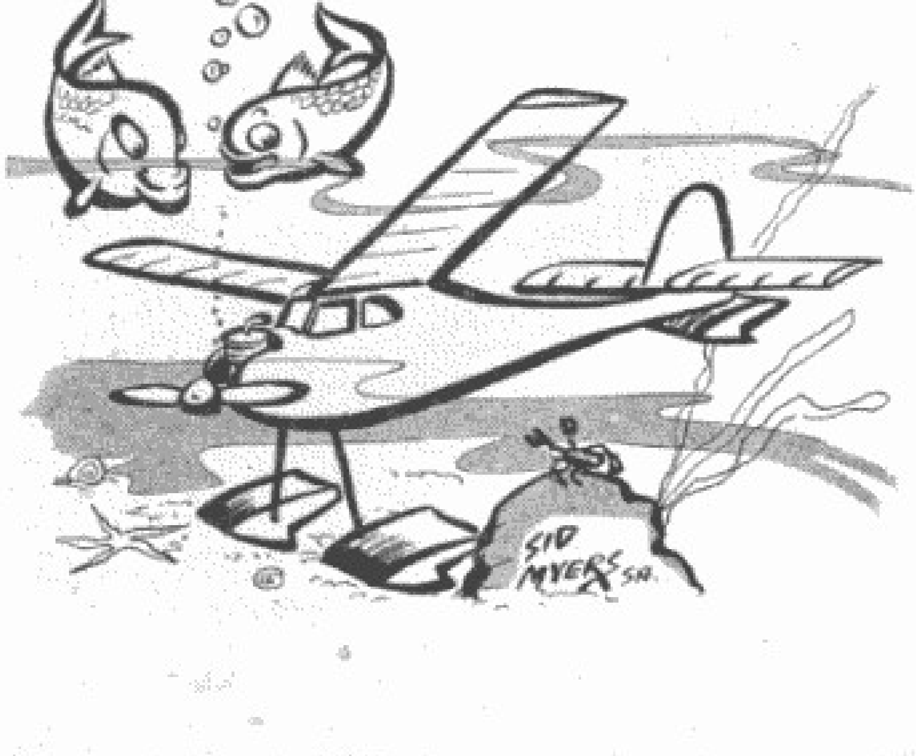
BARNARD CASTLE Y.M.C.A. M.A.C.
G. O. Soloman, 4, Cleveland Road, Barnard Castle, Co. Durham.
CHOBHAM CHASERS M.A.C.
E. E. U. Rogers, 56, High Street, Weybridge, Surrey.
SHARTSON M.A.C.
D. Cook, 63, Stancliffe Road, Shartson, Wythenshawe, Manchester.

SECRETARIAL CHANGES

AINTREE M.A.C.
P. Monaghan, 16, Adair Road, Larkhill, Liverpool 13.
ST. QUINTIN M.A.C.
M. Roberts, 2, C. Site, Stanton St. Quintin, Chippenham, Wilts.
TORQUAY M.A.C.
I. P. Fisher, 157, Westhill Road, Torquay.
COLCHESTER M.F.C.
R. Kilshaw, 16, Priory Street, Colchester.
READING & D.M.A.C.
D. W. Stenning, 23, Matlock Road, Caversham, Reading.
GOSPORT & D.M.F.C.
E. Thomas, 18, Mill Lane, Gosport, Hants.
ARDINGLEY COLLEGE M.M.S.
K. R. Woodford, Lea House, Ardingley College, Ardingley Sussex.
HARLINGTON M.A.C.
D. Dix, "Northolme", Westoning Road, Harlington Beds.
CHESTERFIELD & D.M.E. & R.S.
E. Marsden, 13, Valley Crescent, Spital, Chesterfield.
WALSALL M.A.C.
H. Mitchell, 2, Faraday Road, Gipsy Lane Estate, Walsall Staffs.

This fella isn't following the Hydromodel feature on page 17



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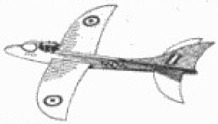

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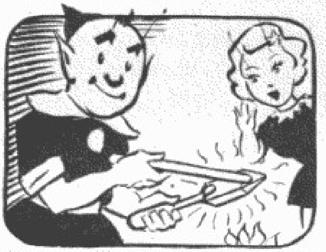

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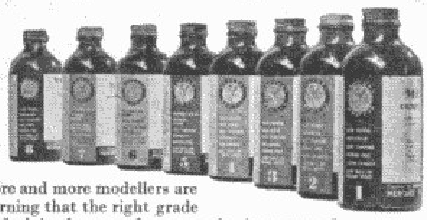

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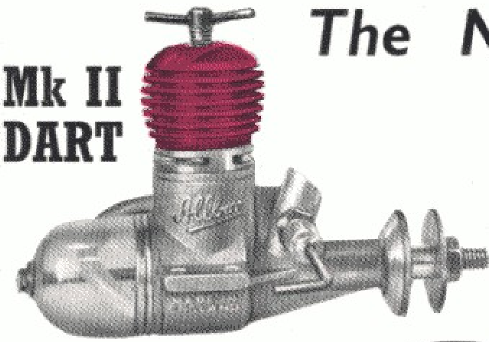

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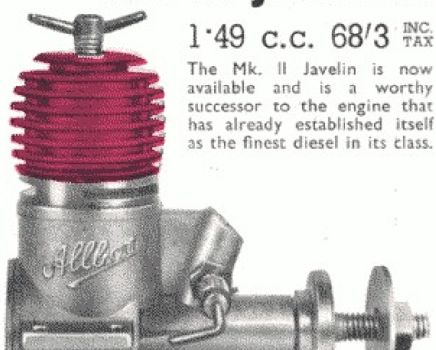

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