

# ELECTRIC POWER

If your next model is going to be built from a plan, why not make it electric?

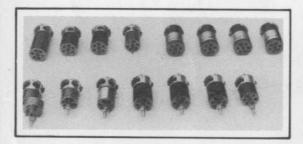
No flying field problems (nobody knows you're there). They're also very clean - you won't get moaned at for spilling oil on the carpet.

### But what about performance!

You can fly anything from a 100mph 'Club 20' Racer to a ¼ scale model and fully aerobatic Helicopters!



# Weston UK are Britain's leaders in Electric Power systems



From the basic Mark 3 Flt/Pack (Mabuchi RS 54.8 saft 1.2 cells, in flight switch charging lead, prop., etc.) to the fabulous Keller range of motors which are the best commercially available in the world.

Weston can design an electric power system specifically for your requirements.

PICTURED RIGHT ARE SOME OF THE WESTON DISPLAY MODELS, FROM FULLY AEROBATIC 54" AMPEATER CAPABLE OF PERFORMING EVERY AEROBATIC MANOEUVRE, THROUGH SCALE VAMPIRES TO VERY ECONOMICAL DARLEKS AND TRACERS.



ALL THIS IS MADE POSSIBLE BY MICEL CADMIUM CELLS AVAILABLE IN THE WORLD.

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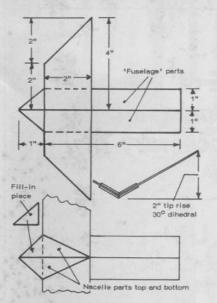
84/86 London Road • Teynham • Nr. Sittingbourne • Kent ME9 9QH



# SOLARBO



## SOME PEOPLE START WITH PAPER MODELS...



If you want to try your hand at balsa 'paper aeroplanes', here are basic proportions to follow. They can be scaled up or down.

Paper models as a quick and easy cut-and-try method to 'test' different shapes and proportions for flying. Really, that's a waste of time! Make a dozen paper darts or folded 'aeroplanes' and see how many do glide properly. Some will, some won't.

If you want to play it that way, try Balsa instead! Now you have 'paper aeroplanes' that really do fly — consistently. From 2" span size upwards, if you want to experiment. And a 24" span version in light balsa throughout could even accommodate 2-channel radio gear! Its wing loading, less radio, could be below 2 ounces per sq. ft. Who was it said "Balsa models fly better?". That's not just a sales slogan. It's true.

You've bought the R.M. Planbook, which means you are looking for R/C models to build from scratch. That certainly means you can save money, compared with building a kit. But it does put extra responsibilities on your shoulders — apart from having to cut all parts accurately to shape yourself. You have to be sure that the materials you use are right for the job. Particularly with balsa, which can be variable in quality.

Now that responsibility you can forget. Make sure that it's all Solarbo Balsa you use, then you will know the quality is right. That merely leaves you the job of selecting the right density and 'cut', either as specified on the plan or to your personal preference. We even help you with selecting 'cut' by producing special quarter-grain sheet marked 'Rib Stock'. And if you are fussy about weights, send a large SAE for a FREE set of our Data Sheets which are full of information on this subject.

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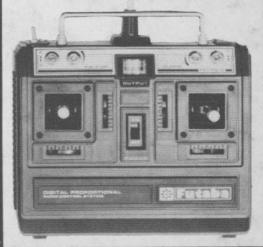


### **'BEST BUY'** if you PLAN AHEAD

Buyit now with only the number of servos you need for your present model. Add more servos later for future, more advanced models! (Nicad conversion recommended when using 3 or more servos).

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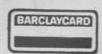
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AL TRINCHAM

and .19 to .35 engines using rudder and elevator or rudder, elevator and throttle. The kit contains pre-The Escort is a 54" trainer for 2 or 3 channel radio formed undercarriage, fuel tank, engine mount, cut balsa and ply parts so avoiding the tedious building from plans. Accessories include pretracing and cutting out which you have when horns, hinges, pushrods and clevises etc.

ESCORT 54" £18.95 Escort Foam Wing Version foam veneered wing

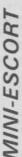
£19.95 **ESCORT FOAM 54"** 



and the nicely shaped fuselage can be achieved with thermal soarer for 2 channels. It has performed very formidable opponent. It is of built up construction hinges, horns, towhook, linkages, formed canopy ease. The kit comes complete with spruce spars, The Condor is a very elegant and highly efficient well in competitions and has proved to be a very and all parts pre-cut and numbered for ease of construction.



performance which will please the most discerning The Magician is a superb low wing aerobatic model with a style that is pleasantly different. It will fly on pilots. The kit comes complete with veneered foam a .35 engine very well and makes an ideal first low motormount, fuel tank, hinges, horns, wing fixing wing aeroplane. With a .40 engine the Magician really comes into it's own and gives a very good wings, foam turtle deck, pre-formed u/c wires, bolts, pre-cut ply and balsa parts etc.



available in a standard version for 3 channel radio superb Escort and is for .09 - .15 engines. It is and a aileron version for 4 channel radio. Both The 44" Mini-Escort is the baby brother to the versions have foam wings



Aileron £17.25 This is a 4 channel version of the popular Escort. It ESCORT G. 7 Std £14.95

£21.95

This is the larger version of the Tom Thumb and has surfaces etc. The Envoy is available with or without Aileron Envoy is a lively performer on a .25 engine This kit also has a ready made fuselage, veneered quickly and can be very aerobatic if desired. The trainer for someone who wants to get airbourne a 48" wing and is for .15 to .25 cu. ins. engines. ailerons. The standard version makes an ideal foam wings, dural undercarriage, pre-cut tail

Aileron £17.45 Std £16.45

£13.95 seen to be believed, it's quick. 3 channels is all you has been very well received. It has a 38" wing and need and you can go out and have a lot of fun. The The Quicky is the newest addition to the range and engine mount, tank, hinges, horns, undercarriage, with an O.S. 15 engine or similar it is very lively indeed. The rudder response is something to be kit comes complete with foam veneered wings, pre-cut ply and balsa parts.

The Simple Simon is ideal for the absolute beginner £11.95 or for the person who does not want to spend the earth on radio control flying. It is a 73" wingspan glider for 1 or 2 channel radio, very simple construction and very easy to fly.

performance that can be quite outstanding. It has a 36" foam veneered wings and a ready made balsa fuselage, yes ready made. This enables you to have elevator and pre-cut tail surfaces. Ideal motor is a the Tom Thumb flying in a very short time. Also supplied is a dural undercarriage, pre-joined This is an incredible little aeroplane with a Cox 049 Black Widow or similar.

JESTER

wingspan for .25 cu. ins. engines. It will fit into most wanted. The kit comes complete with foam wings, undercarriage, wing bandage, pushrods, hinges, nuts and bolts etc., detailed plan and instructions. The Jester is a easy to build Bi-Plane with a 38" experienced pilots something they have always foam deckings, engine mount, fuel tank, dural cars ready assembled and will give the most

£23.95

MAIL ORDER Please add £1.50 to all kits except Magician £1.75 for post and packing.

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- NEW PLUG-IN R.F. BOARDS FOR QUICK CHANGE OF FREQUENCY BAND. Only one multi-purpose transmitter for all bands
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All receivers are now 7 channel and are specially matched to the new Courier Special transmitter. Interchangeable crystals for instant frequency change.

### **SERVOS**

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### BATTERY PACK

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All systems come complete with transmitter, receiver, dual standard charger, servos, battery pack, one pair crystals, pennant clip and neck strap. All nicad systems.

☆ A COMPLETE SYSTEM - READY TO FLY!

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COURIER SPECIAL 4 complete system with 4 servos at £149.90 (inc. VAT) COURIER SPECIAL 5 complete system with 4 servos at £154.90 (inc. VAT) COURIER SPECIAL 7 complete system with 4 servos at £164.90 (inc. VAT)

Please state if required: Rate switches (factory fitted) £10; Buddy Box (factory fitted) £10; De-Luxe Charger £7.50; Mixers (user fitted) Flap mixer or Dual mixer at £15; Combi Switch (user fitted) £5.50. State throttle left or right.

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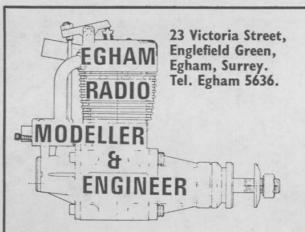
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### POWER MODEL ACCESSORIES

Engine Mounts, Spinners, Props, Fuel Pumps, Undercarriages, Pilots, Horns, Hinges, Links, Plugs, Snakes, Wing Bolts, Wheels, Tanks, Canopies, Cockpit details, Flight Boxes, Flight Panels, Fuel, Glowclips, etc.

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# RADIO MODELLER PLANBOOK

RADIO MODELLER PLANS SERVICE is as much a part of the radio control scene as RADIO MODELLER magazine and over the years we have used our Plans Service to bring to modellers the very best in model designs. Favourite subjects, scale, sports models, gliders and boats of all kinds, are part of the wide choice which the world renowned Radio Modeller Plans Service maintains. There is another benefit for radio modellers as Plans Service brings to modellers the kind of designs which no kit manufacturer could hope to turn into a viable commercial product. It is here that

Radio Modeller Plans Service plays a special role in service to the modeller, and one which is complimentary to the model kit market.

When recession bites, plans sales soar as modelling habits change to suit circumstances. Model flyers will always find a way to enjoy their chosen hobby and plans sales lead to demand for all the materials, hardware, paint—you name it—which helps our hobby industry through the lean period to better times. Choices, preferences, habits change—but the radio control hobby continues, of that we are certain.

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### How to order your plan . . .

For speedy service use the order form on page 65. The prices in this Planbook are letter coded and the key to the price coding may be found on page 13. Prices supersede all previous lists and include VAT.

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(in.) (cu. in.) Controls	% .61 REAM .60 REAM	REAM 32	.6120 REAM(F) 38	.1520 REAM 32	REAM 40	.19 .25 REAM 33	.61 REAM 43	.2961 EAM 38 .04909 RE (Mini) 39	.61 REAMIX) 43	.3045 REAM (X) 33 .40 .40 REAM 32	2 × .19 (R) EAM 39	% .61 REAM (X) 34	REAM 40 R (Mini) 39	.3540 REAM 38 .40 .40 REAM 41	REAMF RE (Mini)	.1519 REM	.60 REAM	REAM 43 REAM 42	.3549 REAM 37	.0915 R 37	.40 REAM 40	.20 RAM 41	.049 EA (Mini) 34	REAM 35	.2940 REAM (Mini) 33	.29 - 40 REAM 33	15 R(EM) 36	.20 REAM 41	.61 REAM Mini) 38	2940 REAM 35	2 x . 20 REAM 39	.4961 REAM (X) 42	.4561 RE (A) M 351926 REAM (Mini) 36
n.) (in.) (cu. in.) Controls	48 % .61 REAM 60 .60 REAM	.40 REAM 32	36 .1920 REAM(F) 38	54 .35 .40 REAM 32	.40 REAM 40	59 .61 REAM 42% .19 .25 REAM 33	66 .61 REAM 43	61 .2961 EAM 38 36 .04909 RE (Mini) 39	.61 REAMIX) 43	54 .3045 REAM (X) 33 52 .40 REAM 32	56 .40 REAM 40 60 2 x .19 (R) EAM 39	63% .61 REAM (X) 34	.40 REAM 40 .15 .19 R (Mini) 39	54 .3540 REAM 38 48 .40 REAM 41	66 % .4060 REAMF 36 .04909 RE (Mini)	46 .15 .19 REM 36 .1015 EA *	60 .60 REAM	.1519 REM 36 .4961 REAM 43 .61 REAM 42	56 .3549 REAM 37 40 43% .1920 REAM 40	43.% .0915 R 37 37 .1519 REAM (Mini) 41	60 .40 REAM 40 60 .61 REAM 42	39% .20 RAM 41 42 .1923 REAM (Mini) 33	31 .049 EA (Mini) 34	.1920 REAM 35	39 .29 - 40 REAM (Mini) 33 63 63 8 64 61 REAM	48 .29 . 40 REAM 33	.61 REAM 43 .0915 R(EM) 36	39 20 REAM 41 54 854 37	71 .61 REAM 36	52 .2940 REAM 35	62 2x.20 REAM 39	65 .49 .61 REAM (X) 42	RE (A) M 35 REAM (Mini) 36

Titan	15/5	40		DEAM	7 15		R M 188	LEEC SHICK STORY							
Tranquiliser	1524	189	28.40	RE (A) M	33.2	000	R.M.124		Span		Motor	-	Page	Price	Cat.
Trotter	1435	56%	.61	REAM	42	٥٥	R.M.24		(m.m.)	_	(class)	Controls	No.	0000	NO.
Unicorn	1810	71 1/4	.4961	REAM	39	O	R.M.139	English Electric Wren	2337	35	1	REMA		u (	N.M.234
Vertigo II	1397	99	.4060	REAM	43	0	R.M.11	Flapdoodle Ford Tri-Motor	1499	200	3 x "15"	REAM	26	ы c	R.M.192
Warrior	2032	80	.61	REAM (X)	843	0	R.M.59	Hushabve	1295	51	15.,	REM	99	0	R.M.165
Witch-Way	1372	<b>X</b>	.15	RE	8 :		H.M.49	James Wot	1829	72	1	REM	99	0	R.M.223
Zlinette	1854	/3	09.	HEAM	41		H.M.224	Mandrake	1803	71	"15" - "20"	. EAM	99	O	R.M.214
								Twin Pegasus	1270	20	2 x "15"		22	0	R.M.173
								Voltair	1168	46	15	EAM	299	0	R.M.180
								BOATS			Motor (cu. in.)				
SCALE POWER	01								Length (m.m.)	(in.)	or electric (class)	Controls	Page No.	Price	Cat. No.
	Span		Motor		Page	Price	Cat.	Acid Queen	705	27%	.3540	MW WW	62	80	R.M.152
	(m.m.)		(cu. in.)	Controls	No.		No.	Avon Fabric	1 1	3 1	2	-	62	0	1
Armar Gorrion	1906	125	.61	REAM	51.2	000	R.M.205	Caribbee	914	31 1/2	2 elect.	RW/W	223	80	R.M. 170
Avro 504K	1219	84	0281.	REAM	9		R.M.140	Dearns	635	25	08 - 20	RM	62	8	R.M.78
Bristol D - Scout	1372	8 28	5.9	REAM	45	) IL	R.M.161	Pegasus	635	25	.2029	RM	99	8	R.M.54
Bucker Jungmeister	1029	40 1/2	.2025	REAM	47	Е	R.M.217	Sizzler	269	23 1/2	.0920/elect	RM	83	8	R.M.206
Cessna Skyhawk Chilton DW1a	1880	84	8.8	REAM (FX)	64	ш 9	R.M.240	Witchwind	762	30	1	æ	83	8	R.M.231
Commonwealth Wirraway	1816	71%	.60	REAM (FX)	48										-
D.H. Gipsy Moth D.H. Tiger Moth	1143	45 47 %	*	REAM	44	0 ==	R.M.179	MISCELLANEOUS	SOOS						
Druine Turbulent	1232	48%	.1525	REAM		0 0	H.M.155		Length		Power	Equivalent		Price	Cat.
Eastbourne Monoplane Edgar Percival EP9	1778	70	. 61	REAMX	519	о ш	R.M.133			(in.)	System	Controls		Code	NO.
Fairey Fantome	1575	62	9.	REAM		9	R.M.229	Braking Devices for Gliders	100	1 0	- lo	Ma	5 69	<u>ت</u> د	R.M.185
Fairey Flycatcher	1473	82	19.	REAM	45	00	R.M.26	Flight Box	707	1 2	alect.	WIII I	3 19	4	R.M.218
Fokker D.VII	1511	59 1/2	.4961	REAM	45	) L	R.M.23	Floats	914	36	1.		19	8	R.M.17
Fokker Eindecker E1	1575	62	.3540	REM	4 :	0	R.M.158	Juggernaut	1676		1 to 3 elect	RM (X)	9 5	9	H.M.220
Gloster Gamecock Grumman Cougar	1943	76%	2 × .2025		515	90	R.M.225	Survey Vehicle (Amphipian)	533	21	3 elect	REMA	8	0 0	R.M.150
Halberstadt DII	1473	88	99.	REAM	45	ш	R.M.233	Tank Hunter		24 1/2	elect	RM	8	E	R.M.204
Hanriot Dupont H.D.1	1829	72	.61	REAM	44	<b>9</b> ш	R.M.95								-
Hawker Hurricane	1727	80	19:	REAM	649	ı O u	R.M.87	KEY							
Hurricane 50 in.	1270	26	.09 15	R (E)	48	.0	R.M.102								
Jodel D.9	1473	288	29 - ,40	REAM (EX)	90	00	R.M.106	mmmmmm	~~	3	mm	CONTROL CODE	CODE	3	m
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Percival Gull IV Mk.2	1829	72	2 x . 19	REAM (F)	48	-0	R.M.420	> PRICE CODE:		75; B	£2.25;	A £1.75; B £2.25; C £2.75; D £3.50; E £4.00;	D E3.	50; E	£4.00;
Percival Provost	1524	8:		REAM	25	u_ u	R.M.38	~	4	F. F.	FR 7K. H FR	FR 50 - 1 F7 50	7.50		
Piper Cub	1321	25	.61	REAM	25	. 9	R.M.99	Supposition			3		3	3	~~~
Republic Thunderbolt	1295	51	.2540	REAM	49	Q	R.M.211								
Sopwith Baby	1619	63%	19.	REAM	42	90	R.M.174						1	1	
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Supermarine Spitfire XII Supermarine Walrus	1746	68%	87.9.	REAM	\$ 8	ى د	R.M.164	Over£	Over £5.00 - Post free	t free		£3.51 — £6.50 — 85p	- 85р		
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# CHOOSING A PLAN



There's nothing like a statement of the so-called obvious to put a subject into perspective. So when we say that you should choose the R.M. plan which is suitable for both the equipment you own and your ability, we expect the knowledgeable to collapse in howls of laughter, while the general modeller will heave a quiet sigh of relief that we are dealing here with fundamentals and not expecting a fount of prior knowledge. A very high proportion of our postbag at Radio Modeller concerns plan queries, many of which indicate that equipment limitations and lack of experience had not been considered when initially choosing the plan.

Let us, then, start at the very beginning, with the simplest single function equipment configuration controlling rudder only. To expect to fly a scale model such as the *Spitfire* (R.M.64) or the *Hiperbipe* (R.M. 197) with this is unrealistic, but the 50in. *Hurricane* (R.M.102) is perfectly practical, as this was originally designed for single function control. However, whether it is advisable to select the latter model depends on one's experience, as skill in both building and trimming is required.

If this is to be your first ever r/c model, then we urge you to go for something easier than a scale design. A simple-to-build and simple-to-repair model, with built-in stability, is what is required. *Trotter* (R.M.40) or *Radar* (R.M.81) fill the bill. Then, when you have mastered the basic facts of trimming and control, you can move on to the 'hot' single function designs, such as the *Weekender* (R.M.4), *Gremlin* (R.M.14) or *Minuteman* (R.M.52). These models will really have you on your toes controlling them, so that you are ready for the scale type.

The first refinement of single function is to add motor control, which not only widens the scope of possible manoeuvres and flying fun, but adds greatly to safety, and many of the models mentioned are suitable for this. Also there are other models which are more advanced in concept, such as *Banker* (R.M.20) which uses aileron control, or *Pushover* (R.M.74) which utilises a pusher engine. If you prefer an even more novel concept, the *Flying Banjo* (R.M.10) or *Convictor* (R.M.69) are simple to build, strong and will cause endless comment.

So far we have only mentioned power models, but gliders can be very satisfying to fly and have increased in popularity dramatically over the past few years. If you have easy access to a slope or ridge, then you really must try slope soaring. The R.M. plans range is rich in glider designs for all types of control from the single function *Slinky* (R.M.28) to highly aerobatic competitive designs like *Diablo* (R.M.171). For flat flying, there are the thermal soarers such as *Drifter* (R.M.92), *Halcyon* (R.M.118) and *Taskmaster* (R.M. 146).

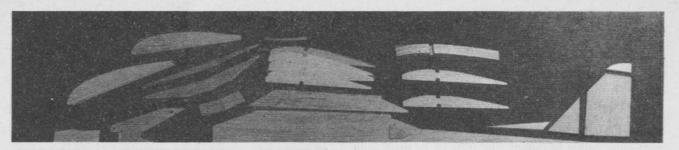
Moving on from single function control we come to 'multi' and immediately have the paradox that, while it is impossible to fly many of our highly sophisticated designs with single function, we can fly the very simple one-servo designs with modern multi-function equipment using more than one control. If price is no barrier we always recommend that one buys a three-or four-function outfit at the outset, even if, initially, one can only afford one or two servos. (Detailed advice on this aspect of starting in r/c is contained in our publication, the Radio Control Guide). Intermediate designs normally have rudder/elevator control plus, possibly, throttle. There are many ideal beginners' designs suitable for two servo control, such as Karousel (R.M.115), or there are much more advanced designs such as Ole Tiger (R.M.122) which is small and fast.

This leads us to the so called 'full house' models where one has control over all the primary command functions—rudder/elevator/aileron/motor, but having such a comprehensive radio control outfit is no guarantee that you can start straight off with an aerobatic model. You still have to learn to fly, and this can be done either by installing part of the equipment in a small, simple, easy-to-fly model, as we have already suggested, or one can start straight off with a full house trainer. *Big Wig* (R.M.50) fills the bill perfectly or, if you prefer a model with a smaller motor, the *R.G.5* (R.M. 45). The larger model, however, is the best sort of trainer.

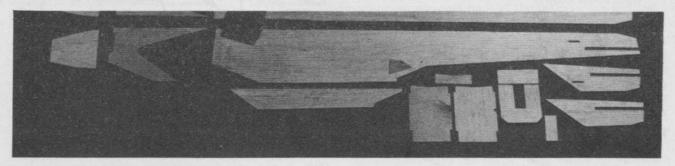
Having progressed beyond the learning stage, then the choice of models is endless. Aerobatic designs by leading designers and contest flyers—*Twister* (R.M.24), *Moonglow* (R.M.33), *Clipper* 111 (R.M.70), *Titan* (R.M.196)—all offer different solutions to the problem of perfect pattern flying. Scale designs, which give hours of building pleasure, yet are practical to fly—*Fokker D.V.11* (R.M.23), Percival *Provost* (R.M.38), *Me.109* (R.M.73), *Pitts Special* (R.M.99), Hawker *Demon* (R.M.182)—and many others—all proven, workable designs, some with international contest credits.

If your choice lies with something more unorthodox, then how about the 363 Delta or the Dactyl flying wing? This latter, despite its unique layout and design, is easy to build and one of the nicest flying models we know. It also makes a perfect trainer because of its extremely docile handling characteristics.

Finally, of course, there are yet more sophisticated gliders than those already mentioned—such as B.K.B.1. The list is literally endless, because each month in Radio Modeller new plans appear and full details of plans added since this book was published are regularly given in the magazine. Until the next Planbook appears, keep up to date with Radio Modeller each month—not only for the plans, but for the exclusive features and articles on power, scale, slope and thermal soaring, engines, design, news, views and comment, as well as the latest new-product information and reviews.



# **HOW TO BUILD FROM A PLAN**



Surely the ultimate ambition of every aeromodeller is to design and build his own models entirely from scratch. However, being practical people, most of us realise our limitations in this respect (aided by the spectre of smashed equipment perhaps??) and opt instead for a proven design. This being so, the obvious choice is a kit model, but kits, having to be designed for realistic total sales, cannot be as adventurous in range and choice of designs as plans. Then, again, if one has been modelling for a while, one rapidly acquires a rummage box of useful parts, which are often duplicated in a kit, so buying a plan puts these to good use.

### Preparation

We must assume that you have all the normal tools—building board, balsa knives, drills, files, pliers, fine saws and so forth—that are the stock-in-trade of any modeller, therefore the only 'non-standard' items needed will be carbon paper and thin oil. These may seem strange 'tools,' but they are essential for building from a plan. In a kit, one normally has all the formers, ribs and so on, either pre-cut or printed on the wood. When building solely from a plan, these must be transferred from the plan to the wood, and what better to use than ordinary typists' carbon paper?

It is quite normal, with plans, only to show one half of a wing and, therefore, to build the other half, it is necessary to use the reverse (i.e. back) of the plan. One can, of course, trace the half off onto tracing paper, but it is easier to run thin oil (3-in-1 or even paraffin) onto the back of the plan. This makes the plan translucent, so that the printing on the other side becomes clearly visible.

This system has a dual-purpose in that it also prevents parts which are being built on the plan, from sticking to the paper. If, however, one does not wish to use the oil method, then it is advisable to cover the drawing with greaseproof paper or polythene sheet to prevent unwanted adhesion.

### How much wood?

At one time it was common to publish a 'list of materials' with each plan. However, we found this caused more confusion to the beginner (to say nothing of his poor modelshop keeper) than help. While models are generally designed to make the most economic use of standard wood sizes, the construction seldom calls for complete sheets or strips. Therefore, although the model only needs 171 in. ×21 in. of 18 in. balsa, the shopkeeper sells only  $36 \times 3 \times \frac{1}{16}$  in. sheets. When one has built a couple of models, however, the scrap-box, although it may not have a 17% in. piece of in. sheet, will certainly have quite a few smaller pieces and, as 17% in. may well only refer to the total length required for several parts, the smaller pieces will obviously do. We found that, grasping the materials list in their hands, people were rushing out to buy material of standard sizes, and hence greater in quantity than needed and, in any case, extra to their needs, because they already had much that was necessary in the scrap box !

Now, however, you will have paused to select suitable wood from that on hand. A further pause for thought, while compiling your 'buying' list will, you will find, save you from buying too much, insufficient, or wood of the wrong grade. For example, a model which can have fuselage sides cut from the same piece of say  $36 \times 4 \times \frac{1}{16}$  in. sheet, obviously represents an economy over cutting the sides from two sheets of 3in. wide wood and wasting the 1in. edge. However, it is an economy only if the sheet is of the same density right across. Balsa can be very variable and, if the sheet is soft along one edge and hard along the other (as is not infrequently the case), then the two sides in our example will be structurally unbalanced, and the economy a false one. Therefore, take care in buying your balsa, and select it taking due regard to the density stipulated on the plan.

Actually 'density' sounds much too scientific a word

and, in practice, the wood called for is stated as being 'soft,' 'medium' or 'hard.' These are, of course, loose definitions but, for all practical purposes, they can be defined as:—

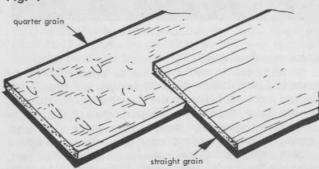
Soft—the wood will compress and indent easily between the fingers.

Medium—difficult to indent with the fingers, but will mark easily with the finger nail.

Hard—impossible to indent, and difficult to mark with the nail. (Incidentally the 'fingernail test is one to try on your own wood—not on the pieces you don't want in the shop!)

The other terms commonly used are 'straight' and 'quarter' grained. Fig. 1 shows each type and they are very easy to identify. In use, straight grained wood is essential for any job where a curve is to be formed, and quarter grained where stiffness both along and with the grain (e.g. wing ribs, formers, etc.) is required. In addition most plans will show the direction of the grain on sheeted areas (unless it is unimportant) and this must be

Fig. 1



followed. Everyone, when covering the centre-section with sheet on his first model, seems to try to glue the wood in place with the grain across the width of the wing, with most unsatisfactory results. The correct method is to cut the sheets into strips of the correct width, and butt join the pieces so that on the finished job, the grain runs spanwise.

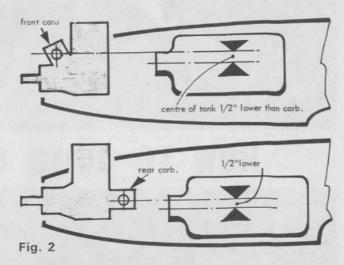
It is certainly cheapest to cut strip wood from sheet using a straight-edge and a balsa knife. This way one will ensure a consistent grading of the strip, but it is normally only possible to cut accurate strip from sheet up to  $\frac{3}{16}$  in. thick by this method. Beyond this thickness, the knife will tend to 'wander' and follow the grain of the wood.

Often a plan will specify shaped leading and trailing edge sections. A wide selection of these is obtainable from model shops and will save you a lot of time, to say nothing of cleaning up the resultant mess of sawdust and shavings, if they are carved from the solid.

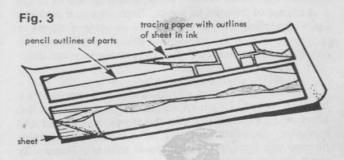
Two final points. If, for any reason, during building, you are unable to use the thickness of wood specified, always substitute a thicker wood of lighter (softer) grade, never a thinner wood of heavier (harder) grade. Often, on plans, hardwood is specified—engine bearers, dihedral braces and so on—never substitute balsa for this.

### **Engine mounting**

Often one owns a motor of a different make from that specified on the plan. Obviously you will not want to



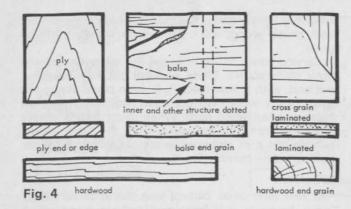
buy a new engine, so one must make slight modifications to the model, to ensure that the relative engine/tank position is correct. Broadly, the centre line of the tank should coincide with the spraybar of the motor (Fig. 2) and, to achieve this, it may be necessary to raise or lower the bearers or alter the tank cut outs in formers and so on. A tolerance of  $\frac{1}{2}$ - $\frac{3}{4}$ in. with the tank centre lower than the spraybar is normally acceptable on 6-10oz. tank sizes, and pro rata for smaller ones, but the tank must not be higher than specified, or the engine will 'flood' on the ground and make starting difficult.



Measuring the wood

The easiest way to calculate how much balsa you will need is the 'overlay' method. Take a piece of tracing paper over 36in. long and about 8in. wide. With a ball point pen draw rectangles to represent a 4in. and a 3in. sheet of wood. Lay the paper over the plan and start tracing on the various parts, using a soft pencil. Turn the paper round, upside down or back to front until you have filled its outlines without overlapping or missing any part or component—see Fig. 3. Tick off on the plan as you go, and use a separate sheet for each thickness and grade of balsa. In many cases it is only necessary to make a few sketch lines to find that a tail, for example, needs two sheets.

Don't rush things too much, however. A common error, when trying to fit many parts onto one sheet, is to overlook the specified grain direction, and remember that this applies to plywood parts as well, for ply is usually stiffer in the direction of the outer grain.



Observe the grain-simulation patterns on the plans (as in Fig. 4) and follow these meticulously.

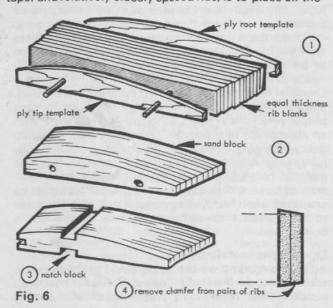
### Wing ribs

Some plans show all the rib shapes, some have one basic rib with a few variations (Fig. 5) and some give root and tip rib templates of a tapered wing and specify 'sandwich method.' This often puzzles newcomers. The system is to cut a series of roughly graduated rectangles or 'blanks', each larger than the approximate size of the rib to be made from it. These are then pinned together with the appropriate template at each end,



Fig. 5

and the stack cut and sandpapered to form a tapered aerofoil shape. Slots for spars, etc., are cut while the ribs are so joined. Two sets are made, one for each half of the wing—and don't forget to make them in pairs! Now the individual ribs are paired together, and the chamfer on the edge lightly sanded off. An alternative method, but only to be used if the wing has a fairly fine taper and relatively closely spaced ribs, is to place all the



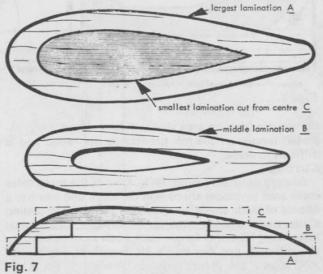
ribs (i.e. for both wing-halves) in one stack, pairing them off and removing the chamfer on the larger of the pair to match the smaller. (Fig. 6).

Some economy can be effected in cutting the blanks by taking the sum of the ribs of the mean wing-section and dividing it into the number of sheets required. Before the mind boggles, let us take an example. Suppose the root is  $1\times 8$  in. and the tip is  $\frac{1}{2}\times 6$  in. the mean rib (mid-span from root to tip) will be  $\frac{3}{4}\times 7$  in. Now, 20 such pieces will cut from a  $3\times 36$  in. sheet, but so would some larger and some smaller sizes in inverse ratios, so the rib-sheet buying list can now be smaller than it would be if all the blanks were laid out to suit the largest (root) size.

### Block

Block, or thick (½ in. and over) sheet, for fuselage tops, cowlings, wing tips and so on, should be of the softest material, even if it is to be hollowed out. This saves time, as it does not have to be carved so thin to keep the weight down, and is far easier to work. If additional or local strength is required, then the wood can be 'skinned' with epoxy-resin with or without glass matting added, as appropriate.

Some parts may be made more easily and more cheaply by laminating them from several layers of say



‡in. sheet. A three-layer 'block' may be made by cutting the centre out of the largest piece, interposing a second hollowed layer, and using the otherwise waste centre from the first layer as the top cap. (Fig. 7).

### Transferring

There are two methods of transferring the shapes on the plan to the wood. The traditional (and still probably the best method) is to use carbon paper. Fix this to the wood with pieces of adhesive tape and position the wood under the plan, sliding it about and referring to the edges, until it is in a position to be cut with the minimum of wastage. A ball-point pen run lightly over the outline (if pressed too hard it will indent the wood) will transfer the part to the balsa. If you are marking a part—a fuselage side, for example—which will have other parts glued to it, then mark the position of these parts—formers in our example—while marking the outline.

The other method is to position the wood as before,

but without carbon paper, and prick through the plan with a blunt pin—a panel-pin being quite suitable. Where one is marking out parts with long straight runs this method is very quick, because only the corners need be marked, these then being joined with a straightedge. With curves and intricate shapes, however, the pinmarks need to be so close, to ensure accuracy, that it is quicker to use carbon paper.

Marking

The positions of formers and other parts, especially on soft sheet, should never be marked with a ball pen or hard pencil. These will make grooves in the wood and, on an outer surface, they may not be noticed until after the model is finished but, believe us, you will then be reminded of your folly every time you see the light reflecting from your beautifully painted model! A fine felt-tip pen will not damage the surface grain, but

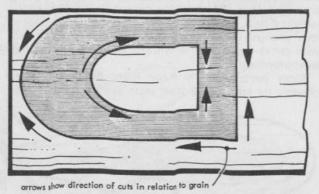
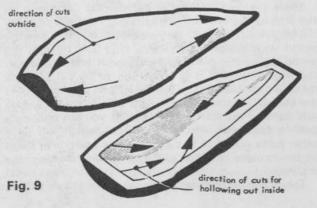


Fig. 8

do not use it on an area that will be seen on the completed model, as the ink penetrates the wood and is difficult to erase.

### Cutting

Always use a very sharp knife. One of the many balsa tools sold by model shops will be ideal, and one has a choice of blade shape for specialist work. When cutting sheet, use a straight-edge for all straight cuts, a metal ruler being ideal. For longer cuts, such as stripping from sheet wood, one can buy a 3ft. length of, say  $\frac{3}{4} \times \frac{1}{8}$  in. mild steel at any decent toolshop. A width of  $\frac{3}{4}$  in. is, we suggest, the minimum to allow adequate finger grip, without the risk of the finger tips projecting over the edge and being cut down to size along with the balsa! When cutting curves, cut away from the grain (Fig. 8) to avoid splitting the wood and, in all cases, it is better to



make two lighter cuts rather than one heavy one, which, with harder wood, will often tend to wander with the grain.

Carving block is often eased by using one of the razor blade planes. These are very good for roughing out and, with a new blade, will even plane across the grain of the wood. We use them extensively for both balsa and hardwood parts. When using a knife always cut away from you and away from the grain on the outside of a part, and towards the grain direction when cutting inside curves—Fig. 9.

### Adhesives

At one time balsa cement was the *only* adhesive. Today, however, it is being replaced more and more, for much of the construction. When we are building a model we always use cement for butt joints and for any joint that will need to be sandpapered smooth. To get the best adhesion, one should first smooth a layer of cement over the parts to be joined, allow it to dry, and then apply a further layer and bring the parts together. This is known as 'pre-coating.'

P.V.A., or 'white glue,' has many advantages over cement in that it 'fills' bad joints better and always retains a slight degree of flexibility, which will prevent cracking at flex stressed points, such as fuselage/tailplane junctions; it is relatively slow drying (this can be greatly accelerated by applying heat) so that one can coverlarge sheeted areas before the glue 'goes off'; it is fuelproof, but susceptible to water (so is not really suitable for boats), and it will peel off the fingers leaving them clean. Woodworking type P.V.A. should not be used for joints which will have to be rubbed down, however, because it just flexes when being sandpapered, and the wood is rubbed away from either side, leaving an unsightly ridge.

Then, there are the epoxy glues. These should be used for high stress joints such as engine bearers and bulkheads, installing servo rails, etc. At one time these glues were an overnight setting job, but the introduction of the '5 minute' types has revolutionised many modelling techniques. They usually comprise two tubes, and begin to set as soon as quantities are mixed

ogether.

Finally, there are the cyanoacrylate adhesives. These are ideal for detail work, or for fixing small parts (such as on a scale model) and for where an 'instant' joint needs to be made. These adhesives work by forming a chemical bond between the two surfaces to be joined, and rely on surface contact and air exclusion to work properly—so they won't fill gaps—unless used with an appropriate filler powder. Cyanoacrylates come into their own when bonding dissimilar materials. The joint made is very strong, usually stronger than the material being joined, and the adhesive forms a permanent bond within a few seconds. Great care must be exercised when handling cyanoacrylates, as it is possible to bond one's skin—either to itself or to whatever is being glued.

### Equipment installation

There is nothing we can usefully add to the excellent advice given in the Radio Control Guide on choosing, installing and maintaining proportional radio control equipment.

# First steps to Slope Soaring

By TONY BAKER

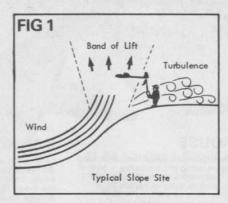
The Best Place to Fly

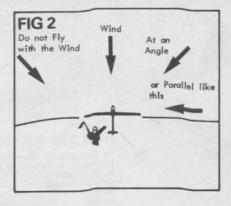
When you start off in this hobby, there are certain things you learn as you progress, like where, and where not to fly! There are basic rules you must observe when you get to a new slope, as the shape and angle of the slope will affect your models performance. (Fig. 1) shows a typical situation i.e. 45 degree angle slope, good band of lift, wind straight in (very important) with curl-over and turbulence just beginning to appear behind the pilot. (Fig. 2) shows the launch procedure straight into the wind, do not fly with the wind coming in at an angle or parallel to the slope (you'd be surprised how many do. Once away from the slope run the ridge left to right, turning out from the slope each time, and not into the hill! (Fig. 3).

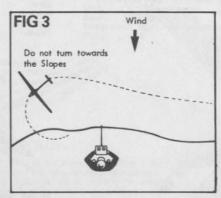
(Fig. 4) This has been mentioned in this column recently — when there is just about enough slope lift to maintain altitude, by gently pushing out from the slope it is usually possible to pick up a thermal rising from the valley and

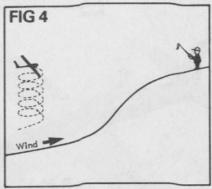
ride it quite a way up.

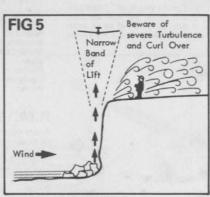
(Fig. 5) With reference to the smooth air to be found when flying anywhere near the sea coast. Quite a few people are now experiencing this but if you are not aware of some of the problems, then study this little diagram before you attempt to fly from a vertical cliff, otherwise this can be quite dramatic simply because the air coming off the sea hits the cliff and rises vertically giving an extremely narrow band of lift with excessive curl-over. In fact, on 'a sheer drop, for example, somewhere like 'Beachey Head' or the 'White Cliff' at Portland, Dorset, when you go towards the edge to launch, the wind appears to be blowing from the other direction. Getting the model away under these conditions can be sometimes dramatic. Remember to push out through the turbulence and do not be afraid of the model being

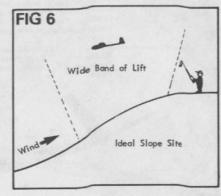












bounced around; if it's a reasonably built model the airframe should be able to take it! One tip — do not venture too far out from the band of lift or you will find yourself sinking into the sea!! Remember—thermals do not rise off the sea.

(Fig. 6) This shows the ideal slope site.

### Practise — Practise

I know that you must keep reading about super looking high performance models that are described in such a way that they perhaps seem to be totally out of your reach, either financially, or because of your lack of experience with this type of machine, or even both! Well, take heart, as everyone has to start somewhere, and no matter how long you may have been flying you can never know it

as the also, development has hotted up during the past few years, there is so much to keep abreast of, so no matter who you are - you never stop learning. If, however, you want to get the hang of it, flying some of the exotic machines that get all the publicity then you must practise, so turn up at your local slope every week-end throughout the year and fly for at least an hour and a half, its rather like playing the piano - you must practise until it just becomes second nature to you!

The one thing that you never stop learning is the landing. Aim to land carefully each time, try a few dummy runs first (over-shoots) then, when you feel it is positioned correctly, gently place it on the spot! Well, that's the theory

anyway.

# GLIDERS - Slope Soaring



### R.M.90 SOAR-JET

Looking like an experimental high speed research aircraft, 5 Jan Jet has an inspiring performance and is specially suitable for high winds. The crisp control response is achieved with elevons and the model features knock-off wings to avoid 'heavy landing' damage. Creates great interest on the slopes wherever it is flown.

Size: 72 in. wingspan.

Two function (rotary servos). G. S. Jones. Radio:

Designer: Price:



Three models in one — what more could you want? Trio's plan shows three alternative wing forms to fit the one standard fuselage. The model by virtue of this, can be used as an intermediate model, an aileron trainer and for aerobatics — the choice is usual. is yours!

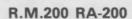
61½, 61, and 57¾ in. wingspan. Two or three function. Graham Freestone.

Designer:

R.M.198 SKYBIRD

Developed from the well-known Probe design, this model has a performance to satisfy the most demanding. Its wing loading of around 9½ oz. sq. ft. assures it of a truly sparkling aerobatic performance from the slope in winds from light to very strong. Skybird's thin section wing is equipped with inset allerons.

72 in. span. Three function. B. Barfoot. Designer: Price:



Looking for all the world like a sleek power model, this slope soarer combines the best of both worlds — good looks and exciting performance. Designed for aileron/elevator control, but with plenty of room to fit rudder control, RA-200 is a smooth flyer with pleasant handling characteristics that will delight the slope

74 in. wingspan. Two-three function. R. Andrew. Size: Radio: Designer:

Price:

### R.M.183 VEDETTE

A very neat little model this, with attractive lines and designed to be flown off the slope or tow line. Vedette has a 'V' tail which operates in 'ruddervator' mode. Designed with ease of construction in mind, this model is an ideal choice for those who

construction in mind, this mode is an ideal choic want a convenient sized, but versatile, aeroplane.

Size: 72 in. wingspan.

Radio: Two to three function.

Designer: George Stringwell.

Price: C



### R.M.138 PEDRO

If you feel that you're ready for your first fully aerobatic slope soarer, then Pedro could help you out. This model is quick to build and sweet to fly and has strip ailerons on its sturdy 49 ½ in.

wings. Radio: Three function. Stan Yeo. Designer: Price:



# GLIDERS - Slope Soaring



The elevators and flaps are coupled on this model to give excellent control response, and the machine can be flown for fun or used as a pylon racer. With its 'V' tail giving the design a rakish appeal, V2 also makes a splendid alieron trainer.

Size: 70 in. wingspan.

Radio: Two function.

Designer: Price: John Fletcher.

### R.M.203 ZEUS MK.II

Superbly elegant from nose to tail, this model will delight you with its smooth flying performance and rakish lines. Coupled ailerons and rudder ensure clean turns, while the all moving tailplane is again, very smooth in action. This model is just as much at home off the slope or the flat—a really versatile good looking model. looking model.

88 in. wingspan. Two function. Size; Radio: Designer: Price: Mike Smart.



### Here's a smart looking soarer!

### R.M.212 CELESTE

Elegant and scalish yet with a conventional sports model's construction, Celeste rewards its builder with a model that can scrape lift yet penetrate a 20 m.p.h. breeze. The spoilers are commercial items and can allow Celeste to drop safely into the smallest of landing areas.

Size: 97½ in. span.

Radio: Three functions on tailplane, rudder and spoliers.

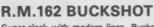
Brian Peckham.

Designer: Price:

### R.M.178 JUBILEE

Jubilee has ultra-slim lines and makes an ideal sports/aerobatic slope soarer to have fun with. The model's distinctive 'V' tail works in elevator mode and its high aspect-radio wing incorporates strip ailerons. This model suits a wide range of wind speeds, so it could save you taking two to the slope.

68 in. wingspan. Two function. J. Hancock. Size: Radio: Designer:



Super-sleek with modern lines, Buckshot represents all that is exciting about aerobatic slope soarers. The model's design incorporates large inset ailerons for smooth, instant control response in a wide range of wind speeds and has a flying repertoire that is

difficult to equal.

Size: 74 in. wingspan.

Radio: Three function. Size: P. Buckingham. Designer: Price:





556

### R.M.76 AVENGER

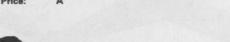
Combine the thrill of a jet and the skill of slope soaring with Avenger. This jet-like soarer has an Eppler 374 wing section to provide the lift, and an all moving 'T' tail for elevator control. Really thrilling to fly, and it's all in one-piece for simplicity.

Size: 49 ½ in. wingspan.

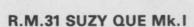
Radio: Two function on ailerons and elevator.

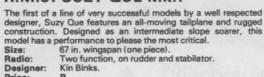
Bill Grupdy.

Designer: Price: Bill Grundy.









Designer: Price:

### R.M.28 SLINKY II

A super-elegant high aspect-ratio soarer which has the facility for a power pod to be fitted. The wing is in two pieces for ease of transportation and features a tongue and box fixing. Fly it from the slope, or have some fun from a flat field with the .049 motor in place.

15055

Size:

61 in. wingspan. .049 (optional) radial mount type. Up to two function. B. Winter. B Motor:

Radio:

Designer:





### R.M.157 PECKER

A slim winged beauty that gives its builder real reward for his efforts, in the form of a different looking model which has a sparkling performance, Elevon controls are used on Peck's deltoid wing and the model has the added advantage of being easy to build.

Size: 52% in. wingspan.

Radio: Two function using elevons.

52% in. wingspan. Two function using elevons. K. Thomas.

Designer: Price:

### R.M.75 SUZY-SCOOT

This model will really go through the book with ease due to its 'flaperon' control system. The flaperons are also a great asset in 'stretching' the model's inverted performance. Heave it off the slope and indulge in some scorching aerobatic flights.

Size: 56 in. wingspan.

Radio: Four function.

Designer: Ken Binks.

# GLIDERS - Slope Soaring

### **R.M.98 UNIQUE MONIQUE**

A 'quickie' model, intended for slope soaring, that's really tough and features a wire leading edge for landing on rough terrain. The construction is all sheet, which ensures that this one can take the

punishment dished out to it. Size: 72 in. wingspan. Two function.
Joe Dible. Radio: Designer: Price:



R.M.47 SOARCERER

Super simple

and super fun!

Our best selling soarer plan and an absolute 'classic' in its field. Soarcerer will fly in winds from the fightest waft to a healthy 45 m.p.h. — you really could not want any more from a sports slope soarer. Add to this the fact that it will roll, spin, fly inverted and more on two functions; and that the plan shows an alleron conversion, then you have just about the most perfect all-round model it is possible to design.

52 in. wingspan. Two or three function. Radio: Dave Hughes.

Designer: Price:

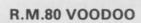


### R.M.91 HOT PANTS

A top-notch contest aerobatic slope soarer that really whistles along. Hot Pants has strip ailerons and a fully symmetrical wing, to give a rewarding flight potential in a wide variety of wind speeds.

60 in. wingspan. Three function. Phil Greeno. Radio: Designer:

DINELO



Very different and very exciting — that's Voodoo — and capable of breathtaking flights on two functions. This model can be flown in almost any wind strength at the slope, from almost zero to nearly gale force — and what's more it's quick to build.

Size:

69 ½ in. wingspan.

Radio: Two function.

Designer: Arthur Searl.



A swept back leading edge and rakish lines give this aerobatic slope soarer an appeal all its own. Capable of really fine performances, Diablo's low wing profile looks absolutely superb in the air.

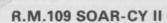
54 in. wingspan. Two to three function. C. Smith. Size: Radio: Designer: Price:

### R.M.32 MIXTRAL II

If you want to learn to soar off the slope with a model that is slow and gives you time to think, or just fly for fun with one that lets you relax, then here it is. Mixtral has a two piece wing with an off-centre join married to an orthodox balso fuselage. Ideal for beginners.

97 in. wingspan. (Two piece option) Two function on rudder and elevator. Radio:

Designer: Price: Dave Hughes.



Tired of flying rudder/elevator and need an aileron trainer? You could not do better than choose this design, which is very easy to build and gives the option of two or three function control. A good 'intermediate' slope soarer.

Size: 51 in. wingspan.

Two or three function. Stan Yeo. Radio:

Designer: Price:

### R.M.83 VIXEN

Strip ailerons and a "V" tail working in elevator mode, provide the control for this aerobatic slope soarer. The model is equally at home as a slope pylon racer and features a tough fuselage to absorb the knocks.

63 in. wingspan. Two function. Pat Thody. Size: Radio: Designer:

### R.M.97 BOLAS

A thin wing, strip ailerons and an all-moving tail, add up to a model that has a penetrating pylon racing performance, which is matched only by its aerobatic potential. Bolas is capable of top class results in the right hands.

Size: 72 in. wingspan.

Radio: Three function.

Designer: Bob Faulkner.

### R.M.119 GOLDEN EAGLE

If you want to soar like the birds then Golden Eagle is the obvious choice, full plumage colours are given on the plan and this fascinating model has been mistaken for the real thing in flight! A sports model that is very different and a guaranteed conversation piece.

Size:

63 in. wingspan. Two function on ailerons and elevator.



### R.M.128 KEMA '73

E- BHITA This pod-and-boom slope soarer is capable of scintilating aerobatic flights in a wide range of wind speeds, Kema '73 cannot fail to please the slope afficiendo.

66 in. wingspan. Three function. Size Radio: Keith Humber

Designer:

R.M.132 PROBE

This design has all the attractiveness of a butterfly-tailed model and is simple to build, due to its straightforward construction. For sport aerobatics or pylon racing it's ideal, being steered by strip ailerons while the V-tail operates only in elevator mode.

60 in. wingspan. Two function. Bryan Barfoot. Size: Designer:



### R.M.215 POLTERGEIST

Swift and silent she may be, but there's nothing insubstantial about Poltergeist. The thin-sectioned wings are carved from solid  $\frac{1}{2}$  in. balsa (suitable balsa densities are given on the plan) while the fuselage is a carved box. Two sets of wings are shown — a 50 in. pair for slope use and a 73 in. set for quieter days or thermal soaring.

Size: 50 or 73 in. span. Two function. Radio: Designer: Price: John E. Foster.



### R.M.116 SLOPE SWALLOW

A nice big economical slope soarer that the beginner will feel quite happy with. Construction is tough and rugged, but simple, and the design features an extended wing for light winds, details of this being shown on the plan. This model could get you off to a

good start in this branch of the hobby. Size: 72 in. or 108 in. wingspan. Radio:

Designer: Price: D



### GLIDERS - Thermal Soaring



### R.M.118 HALCYON

Streamlined and ultra-light, Halcyon features weight-saving construction in its airframe. The model has an especially low sink rate in calm conditions, so is ideal for thermal hunting on those hot summer days. This big model has an all moving fin and a wing loading of approximately 5½ oz./sq. ft.

Size: 110½ in, wingspan, loading approx. 5½ oz./sq. ft.

Radio: Two function. Designer: Price:

### **R.M.146 TASKMASTER**

If you don't think there's much that can be done with model glider design then look again! Taskmaster is a low wing thermal soarer with smooth purposeful lines and a distinctive all moving 'V' tail. This model is capable of a good 'orthodox' performance whilst looking a little out of the ordinary.

130 in. wingspan. Two function. Size: Designer: Rob Street.

### R.M.51 TRI-TRI

Tri-Tri's Pimenoff type undercambered wing section and high aspect-ratio polyhedral wing, give it a truly floaty and efficient performance. Catch those thermals off the tow-line with this model, which slots neatly into the :1005' class. Size: 57% in span

(two-piece wing).
Radio: Two function. Designer: D. Dyer. Price: C

### **R.M.88 MONTEREY**

One of our best selling plans — and it's not difficult to see why — sheer elegance from nose to tail and with a performance to match. Fly it off the slope in light winds, or by towline from the flat, and don't forget that Monterey suits the '100S' class.

Size: 100 in. wingspan.

Radio: Two function on rudder and elevator.

Designer: R Boucher.

Designer: R. Boucher.

### R.M.65 ASCENDER

Get up amongst the lift from a tow-line or hi-start launch with Ascender. This neat general purpose thermal soarer has a two-piece wing, a long moment arm, and a quick-to-build fuselage — a well tested and proven design, with a 7½ oz./sq. ft. wing loading. 86 in. wingspan; 647 sq. in. area, loading approx.

7½ oz./sq. ft. Two function. Dave Hughes. Radio: Designer:



Relax and fly for fun with this simple thermal soarer, which has a flat bottomed wing section for simplicity and ease of construction. The wing is in two halves for transportation with the minimum of fuss, and the model is capable of a truly delightful performance.

112 in. wingspan. Two function. Size: Radio: Designer: Roy Salter.

### R.M. 130 CHERUB - D

Lots of wing area on Cherub D's elegant airframe ensures that once you've found the lift the model will hold it. This smooth flying thermal soarer has an optional r/c tow release shown on the plan, and an all moving 'T' tail just the job if you like 'em big.
Size: 147 ½ in. wingspan (two-piece).
Radio: Two function (+ 1 for tow release, optional).

Brian Payne.

Designer: Price:

### R.M.136 HATCHETT

How's this for something different to fly from the flat? Hatchet features novel split rudder airbrakes for slowing up the landing, and a wing that detaches in three pieces for ease of transportation. You could even use it for '100S' contests. Size: 97 in. wingspan (three pieces).

Radio: Three function.

Martin Garnett.

Designer: Price:

### RM.222 EARLY RISER

Here's a truly elegant R/C Sailplane designed specifically for the popular 100S thermal soaring. V-tail design features entirely conventional construction techniques which should be within the capabilities of most modellers with a modicum of experience. Two-piece wing.

99½ in. span. 2 function. Peter Sainsbury. Size: Radio: Designer:

RM Jan. '80

### R.M.103 BRAVO

Three models of flying are encapsulated in this one design, fly it off the slope, from the flat, or power it with an .09 size motor and have some power-assisted fun. A simple and practical model, designed just to be enjoyed.

58 in. wingspan. .09 glow or 1.5 cc diesel. Two function. Size: Motor:

Radio:

lan Barret. Designer: Price:

### R.M.187 HARMATTAN

A rolled ply fuselage and one-piece wing are but two features of this interesting model. Harmattan slots nicely into the '100S' class with its 93 in. wingspan. The model's all moving 'T' tail ensures smooth responsive control for hunting those thermals.

Size:

93 in. wingspan.

Two to three function, C. Morgan. Radio: Designer:

Price: C

### R.M.92 DRIFTER

A large model that possesses truly consistent flight characteristics. Drifter employs a Gottingen 392 wing section to give penetration in windy weather without sacrificing efficiency, while provision is made in the design for removeable ballast. Its 8 oz./sq. ft. wing loading

assures this thermal soarer will catch those thermals and produce the desired flight times.

Size: 120 in. wingspan, loading approx. 8 oz./sq. ft.

Radio: Two function.

Designer: John Fletcher. Price:

# **SCALE GLIDERS**

### R.M.208 MINIMOA

Possibly the best-known name in full-size gliding, brought to life with this beautiful 10 ft. span 'builder's model'. Easy to fly in a variety of windspeeds, this is a model that any soaring enthusiast would be proud to own. An unseen advantage is the number of controls required; only rudder and elevator.

Size: 120 in. span (1/5.6 scale).

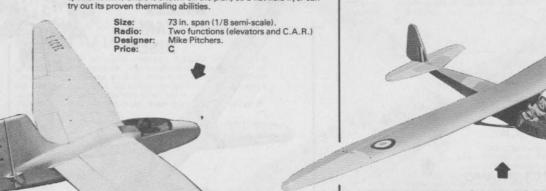
Radio: Two function.

Designer: Rob Banks

Designer: Bob Banks.

### R.M.210 FAUVEL AV-22s

Strange shapes in the sky! This attractive design started as an experiment before building a true-scale version, but proved so much fun to fly that we are proud to present it in its initial form. A special towline bridle is shown on the plan, so a flat field flyer can try out its proven thermaling abilities.



### R.M.167 SLINGSBY T21B SEDBERGH

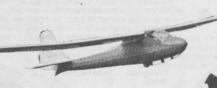
The prototype has 'modelling' type construction and so makes an ideal choice for a scale model. To 1/6th scale this one is every inch a winner and features scale fidelity, coupled with a satisfying flight performance off the slope—an all time favourite with modellers everywhere.

Size: 109 in. wingspan.

Three to four function. M. Morritt. Radio:

Designer: Price:

### SLINGSBY GLIDERS



### R.M.176 SLINGSBY SKYLARK 111B

Epitomising clean and crisp full-size sailplane design, Skylark is crammed with detail and working features. The model has working aileron servo tabs and airbrakes, and is 1/5th scale. To transport this scale beauty the wing breaks down into three pieces, once assembled it looks delightful as its high performance enables you to soar out in front of your favourite ridge or hill.

Size: 143 in. wingspan.

Radio: Three to four function.

Mike Trew.

### R.M.104 SLINGSBY CAPSTAN

A near-scale model of one of the world's best loved gliders, which, depending on the slope it is to be flown from, will fly in winds of 10-20 m.p.h. Construction is uncomplicated and the model possesses all the prototype's good looks in the air.

Size:

Radio: Designer:





### R.M.141 RFD-2

Believe it or not this is a scale design, the prototype looking very much like a model! RFD-2 is a large lightweight model, simple to build, with a stable flight pattern. Designed to be tow-launched, this design brings scale gliders within almost everyone's reach.

Size: 144 in. wingspan.

Radio: Two function.

Designer: Price: Roy Salter

### R.A.F. TRAINING GLIDERS

### R.M.125 SLINGSBY T31

How many full size glider pilots had their first flight in this aircraft? Our model is not intended for the beginner, but is capable of a captivating performance off the slope and really looks the part in the air. The model incorporates spoilers and is of only moderately complicated construction, despite being a

scale model. Emulate the full size boys and have a go at this one Size: 104 in. wingspan (two-piece). Four function. Phil Scaife. Radio: Designer: Price:

### R.M.189 BKB I

The prototype for this scale model was a Canadian experimental design which first flew in 1959 and this design captures the atmosphere of the original exactly. Control is by elevons and rudder/brakes on this tailless model's wing tips. A very rewarding project to build, which is capable of a very fine performance off the slope—if you want a scale model that is different then this is it. Specially moulded canopies are available for this model price £1.50 each, carriage paid if ordered with the plan, otherwise plus 44p p. & p.

Size: Radio: 95½ in. wingspan. Four function. Designer: Nick Cook. Price:



### **R.M.147 SLINGSBY DART**

This sleek, good looking design is a near scale model of one of Slingsby's most attractive soarers — the 17R. The model is intended to be flown from the slope and has ailerons fitted to

hat elegant wing. A beautiful model of a beautiful prototype.

Size: 117% in. wingspan.

Radio: Three function.

Designer: John Cheeseman.

Price: D



### R.M.201 SLINGSBY SWALLOW

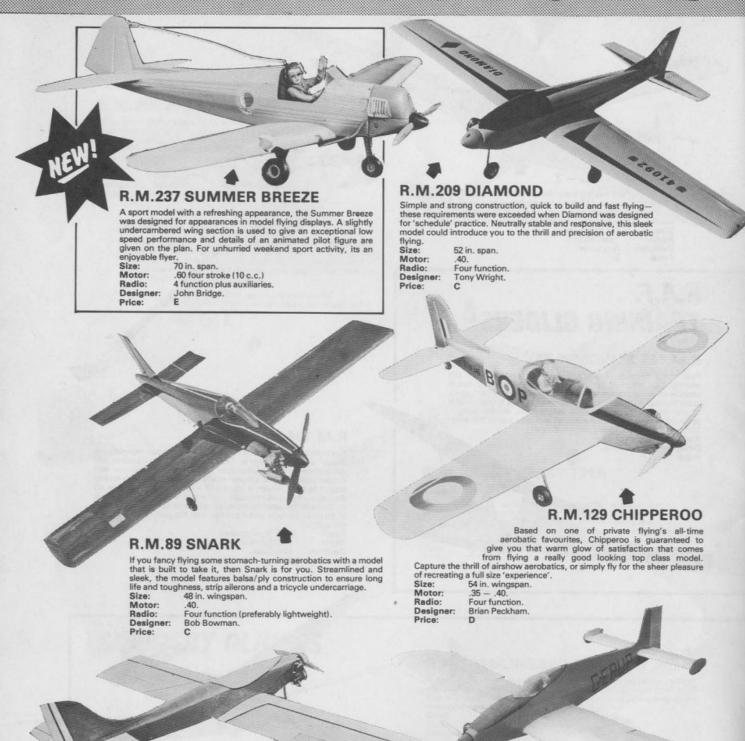
The prototype of this aircraft was designed as a cheap, easy to repair machine for club use without losing out on performance. Our model captures the elegant lines of the prototype exactly and has a captivating performance from the slope. The swallow is fitted with airbrakes to slow up those approaches and is sure to draw admiring glances wherever it is flown.

Size: 103 in. wingspan.

Radio: Four function.

Radio: Designer: Four function. Mike Trew. G

# SPORTS POWER MODELS



### **R.M.107 ANTARES**

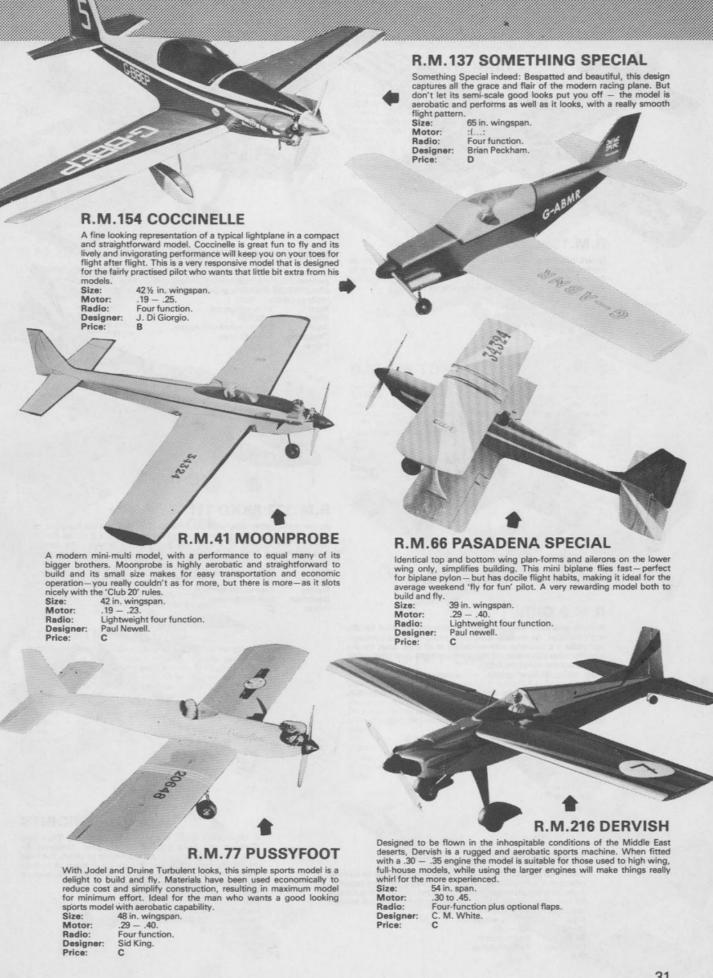
If you've got a .40 and you want a model that is quick to build, but is capable of top class performance, then Antares is for you. The model features large inset ailerons for positive, smooth, control and instant response. The aggressive looks of this one belie its easy-to-fly capability.

Size: 54 in. wingspan.
Motor: .40.
Radio: Four function.
Designer: J. Patterson.
Price: C

### **R.M.191 G-ERUP**

Down with the flaps, open the throttle and this STOL model goes up like a lift! And those power-on land-on-a-sixpence touchdowns are a sight to behold. The designer has studied the techniques of 'short takeoff and landing' aircraft and has come up with a model whose performance will amaze and delight you. It's aerobatic too!

amaze and delight you. It's aerobatic too!
Size: 66 ½ in. wingspan.
Motor: .40 – .60.
Radio: Five function.
Designer: N. Warner.
Price: E



# SPORTS POWER MODELS



Smart looks and clean lines make this one of the most popular models of its size in the range, Blue Jay is a one piece model for maximum simplicity and has 300 sq. in. of wing area. A neat little design that will not fail to please. Suitable for Club 20.

Size:

39 in. wingspan.

Motor:

.15 — .20.

Radio:
Four function.

Prian Peckham.

Radio: Designer: Brian Peckham.



R.M.122 OLE TIGER

Small and sweet—but swift, that's Ole Tiger, a truly zestful performance with outstanding turning ability. This one is very cheap to build and operate and, with a 'hot' .049 or .051, you can really go places — fast!

Size: 31 in. wingspan.

.049. Lightweight two function. Radio:

Designer: Price: N. Mattingley.





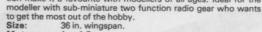


An aerobatic pattern ship with a difference. The designer has managed to break away from the traditional appearance and produce a model that is realistic, but capable of a very fine performance indeed. The design features retracts for those 'wheels up' climb-outs, and strip ailerons for zippy response

Size: Motor: 63% in. wingspan. .61.

R.M.172 EKKO 111

Four to five function Radio: Designer: Price: Hoh Fang-chiun C



1 - 1.5 c.c. Lightweight two function on rudder and elevator. Motor:

A dinky little bipe with an appealing appearance, ideal for the sport modeller. Its strutless wings and straightforward construc-tion make it a favourite with modellers of all ages. Ideal for the

D. G. Thomas

R.M.9 GIGI

Designer:



### R.M.94 PELAGO

One of our most attractive designs and guaranteed to be admired One of our most attractive designs and guaranteed to be admired wherever it is flown. The model captures the looks and appeal of many private light aircraft and flies really smoothly, being suitable for low wing training. Open the throttle and Pelago will perform consistent aerobatics in the right hands.

Size: 63½ in. wingspan.

Motor: .49 — .61.

Radio: Four function.

Designer: Terry Melleney.

Designer:

A bit worried about flying your first biplane? Then stop worrying and build yourself an Acrobits. Designed for biplane training, but with a performance to satisfy the most critical. Acrobits offers you the choice of foam or built-up wings. With ailerons on the bottom wings only, the model is easy to build and fly, and sure to please.

Size: 48% in. wingspan. Motor. .61. Four function. J. Worden.

R.M.159 ACROBITS

G-AIJW

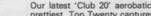




Things really start popping for builders of the Crackerjack! With the .40 opened up the model is fast and manoeuvrable, but even a 'dead-stick' landing is safe, with positive control able to be maintained all the way down those long, flat approaches.

Size: 52 in. span.

Motor: .40. Four function. Radio: Designer: Brian Peckham. Price:



Our latest 'Club 20' aerobatic design and certainly one of the prettiest. Top Twenty captures the grace and elegance of many bigger designs — and their flight characteristics tool Fully aerobatic and quite happy in fairly windy weather, this one can really be thrown around the sky, or flown smoothly and gently; whichever you decide to do, Top Twenty will do it — admirably

42 in, wingspan. Motor:

R.M.188 TOP TWENTY

R.M.194 SWITCHBACK

50 in. wingspan. .40. Four function. B. Peckham.

Motor: Radio: Designer:

This delightful model epitomises all that is special about the modern high performance aerobatic biplane, from that aggressive nose cowl all the way to the large and effective rudder. This is a model that is designed to be flown for all it's worth, with ailerons on both wings, the rolls are really snappy, while the rest of its characteristics leave nothing to be desired.

Four function. B. Peckham. Radio: Designer: Price:



A racy looking mini-sport model this, that has the added advantage of suiting 'Club 20' rules. Build it quick and fly it fast; for four functions it's aerobatic, compact, economical, pretty to

look at and good honest fun. 38 in. wingspan. .19 — .20 inverted. Four function. Size: Motor: Radio: Designer: Malcolm Kinnear

### R.M.5 STRINGALONG

Charmingly attractive, this appealing biplane fills the bill for anyone wanting a docile model with a flexible performance. Stringalong will fly on rudder and elevator, but it obviously has a more sparkling performance with three or four function. The model features a two wheel undercarriage and alierons on the bottom wing only. What's more it's compact enough to fit in the boot of a biggish car in one piece.

Size: 54 in. wingspan; 920 sq. in area.

Motor: .45 — .61.

Radio: Three or four function.

Designer: Frank Knowles.

Designer: Frank Knowles.

Price:

Well proven constructional techniques and futuristic lines, combine in Sky Chief to produce an exciting model with a dependable performance. Ground handling is aided by a steerable tail wheel and the model features strip ailerons. Designed for the sports/aerobatic pilot, who likes something just a bit different, Sky Chief is a thoroughly pleasant model to build and fix

R.M.131 SKY CHIEF

and fly. 52 in. wingspan. .29 — .40. Four function. Size: Motor: Radio: Peter Holland. Designer:



# SPORTS POWER MODELS

### **R.M.115 KAROUSEL**

A classic little model combining simplicity, toughness, and a good flight performance. Construction is traditional and strong, while the model's appearance has a pert prettiness all its own. Learn to fly on it moder's appearance has a pert prettiness all its own. I or learn to relax with it — it's difficult to beat for either. Size:

49 in wingspan.

15 — 19 glow or 2.5 — 4 c.c. diesel. Radio:

Three function.

Designer: Hoh Fang-chiun.

### R.M.121 SWEE' PEA

Bridge that gap between training and flying the schedule with Swee' Pea. A dependable little model that possesses all the characteristics needed for intermediate training. Once you've mastered the techniques, then this delightful model can be used to just fly for fun on those long summer evenings.

45½ in. wingspan. .19 — .25. Four function lightweight. Motor:

Radio: Designer: M. A. Kinnear.

Price:



### For aerobatic training

### **R.M.110 SANDPIPER**

So you want a sports model that will teach you to fly aerobatics? Then this is it, Sandpiper gives you a choice of wingspan (71 in. or 54 in.) on a model that is equally at home as a simple sport model, or an aerobatic trainer. Its rakish looks are achieved with a parallel sided fuselage and clever design. The model has strip allerons and is fitted with a really stable trievels undervarians.

with a really stable tricycle undercarriage.

Size: 71 in. or 54 in. wingspan.

Motor: .61.

Four function. Keith Pennell. Radio: Designer:

### R.M.81 RADAR

For a rudder-only introduction to the hobby, this is one of the safest models to start with. Radar's docile and benevolent flying characteristics make it ideal for the beginner. Construction is traditional and simple too.

Size: 53 in. wingspan.

.09 — .15. Single or lightweight two function. Radio:

Designer: Derek Courtney.



### R.M.190 ARROW

All the appeal and fascination of the delta winged aircraft that have fired modellers' imaginations, has been encapsulated in this extraordinarily fine design. Arrow will delight you with its crisp and precise flights time after time and is a definite head-turner on the flying fields.

Size: 34 in. wingspan.

Motor: 19-20.

These function.

Three function. P. Bosak. Designer:

Price:





Will Snoopy defeat the Red Barron? Well, with the help of Archie he might. Ideal for nonsense WWI dogfights, the model can be built as British or German and has an endearing flight performance. Upper and lower wings are identical and the model has allerons on the lower wing only, plus a steerable tail wheel to aid ground handling. Wonderful fun to fly and often mistaken for a scale model.

Size: 50 in. wingspan.

Motor: .29 – .40.

Radio: Three or four function.

Designer: Peter Holland.

Peter Holland.

D

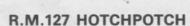


### R.M.46 HOPFUL

This sensible, pugnacious looking cabin design has been produced to cater for a variety of tastes. As a trainer it is equally happy on one, two or three-function gear. As a sports model it possesses a gratifying degree of control response. A very good all-round model.

46 in. wingspan. .15 — .19. Single to three function propo. Size: Motor: Radio:

Designer: Price: D. H. Hopkins.



A lively and exhilerating performance can be expected from this small, but rewarding model. Hand launch it and watch it climb away, ready to receive your every command and act on it—instantly! Compact enough to fit in the boot in one piece, yet big enough to give many rewarding flights. Great fun to fly and not difficult to build.

Size: Motor:

36 in. wingspan. .10 — .15 (without throttle). Two function.

Radio: Ken Murgatroyd. Designer:

Price:

Size: Motor:

Radio: Designer:

Price:



With its spacious and chunky fuselage nestling beneath a parasol wing how can this forgiving trainer fail to please? Although an ideal introduction to the hobby, Roulet is also ideal for just plain fun flying by the more experienced using the bigger motor option. This is a model with which it is possible to just relax and enjoy — easy to build too!

### R.M.85 MARICARDO

It may look like a racer but it performs like an advanced trainer and, although designed for four functions, can be flown quite happily on three. Maricardo features strip ailerons on its 56 in. wingspan and is a well tried and proven design.

Size: Radio: 56 in. wingspan. .35 — .49. Four function

Designer:

C. A. de Felice

GREATER



### **R.M.124 TRANQUILISER**

Tranquiliser almost has an 'automatic pilot' designed in. Her flight characteristics are exemplary, being virtually stall-proof and, if left alone, quite happy almost to fly herself. All this adds up to one of the finest trainers and sport models in the R.M. range. Open the throttle and none of these qualities disappear — aerobatics are added! An almost perfect all round model.

60 in. wingspan. Size:

Motor: Radio:

29 — 40.

Four function or three function on elevator, motor and rudder

or aileron. Peter Holland. Designer:

Price:



No it's not a multi-function model - it only requires a single servo, but it does possess an aerobatic performance in the right hands. With its jet-like looks and strong construction, Minuteman can really scorch along and provide hours of entertainment.

43 1/2 in. wingspan.

Motor:

.09 – .15. Single or subminiature two function. Dave Appleyard. Radio: Designer:



R.M.42 ROULET II

54 in. wingspan. .19 — .40. Two or three function.

Hoh Fang-chiun.



# SPORTS POWER MODELS



### R.M.40 TROTTER

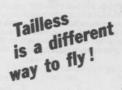
There's bags of room inside this design's cavernous fuselage, so you won't have any installation problems. Stable enough for rudder only control, this trainer/sports model can be equipped with up to 3-function radio. Trotter is ruggedly built and will give you some satisfying flying sessions in all sorts of weather conditions.

46 in. wingspan. Size: Motor:

Radio:

.09 – .19. Single to three function propo. R. Trimby. Designer:

Price:



### R.M.48 DACTYL

This model is reminiscent of some of the experimental aircraft of the 'thirties and, despite its attractive,' but unconventional, appearance, is stable and very easy to fly—you could almost train on it! Cleverly designed to be really economic on materials, Dactyl is also as easy to handle on the ground as in the air due to its wife track. its wide track, tricycle undercart.

, dicycle undercart.
61 in. wingspan.
.29 — .61 (reversible, or pusher prop).
Three function.
Dennis Bryant. Size:

Radio:



### R.M.49 WITCH-WAY

Looking very like one of the little parasol lightplanes of the 'thirties, Witch-Way combines sport performance with scale appeal. With two function gear this model will give you many of the rewards of a scale type but with none of the headaches.

54 in. wingspan. Size: 15.

Two or lightweight three function. (Prototype designed for pulse proportional).

J. Cordery.

Designer: Price:



large, slow-flying trainer that will give you the maximum amount of time to think. Flaps may be fitted if desired, to give you even more time, and slow down those smooth 'greaser' landings on its well sprung trike undercart.

80 in. wingspan.

Motor: .61.

Radio: Four or five function.

Designer: L. S. Wigdor.

### R.M.72 FUN TIGER

For the popular 'middle size' engine, Fun Tiger will suit everyone from the sport flyer to the more advanced pilot. The model features inset ailerons and a straight tracking tricycle undercarriage. From a well known designer this plan has much to recommend it.

54 in. wingspan. .35 – .40. Four function. D. R. Hutson. Motor:

Radio: Designer: Price:



R.M.108 ¼ SHOESTRING



#### R.M.10 FLYING BANJO

Just to prove anything will fly — and fly well too! The Banjo is built entirely of balsa sheet and has a tough interlocking bearer/fuselage front end. Baffle the U.F.O. observers and have yourself some fun with this unique model.

26 in. diameter .15 — .19. Single function Ken Merryfield. Motor: Radio: Designer: Price:



So you don't want your first 'full house' trainer to look like a shoe-box? R.G.5 fills the bill as a trainer and has a captivating streamlined look about it. Its semi-symmetrical wing section gives it a wide performance envelope and ensures a good basis for progressing to

Size: 60 in. wingspan. Motor: Radio: .35. Four function. Designer: Roy G. Geall. Price:

Published Aug. '69

#### R.M.186 SNOW GOOSE

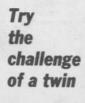
What about this then! The best of everything in one model, Snow Goose provides the thrill of twin engined flight, coupled with the mystique of the flying boat. The model has an inverted 'V' hull for good directional control on the water and an all-moving tailplane for smooth control in the air. Guaranteed to amaze your friends and bring forth ooh's of admiration.

Size: 62 in. wingspan.

Motor: 2 × .20.

Radio: Four function

Four function C. Marsh. Radio: Designer:



#### R.M.30 DOUBLE MAX

Two motors are better than one they say — so why not try it? This attractive scalish twin makes everyone look twice and, in the right hands, is capable of mild aerobatics. Have double the fun with this sport twin and amaze yourself with its performance. This model will also serve as a useful introduction to those wanting to graduate to twin-engined scale models.

60 in. wingspan; 570 sq. in. area. Two .19's. Three or four function. G. W. Dodwell. Size: Motors: Radio: Designer: Price:



#### **R.M.55 DAS GHOSTEN FLUGBOOT**

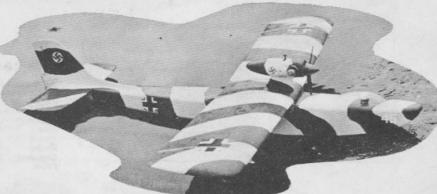
Das machinen ist nach fur de finger-poken or der futten-putten, das machinen ist fur haffing fun! Strictly for enjoy-ment with endearing flight characteristics, Flugboot ensures maximum enjoyment. Fly it off water or hand launch it and land on grass, this fun model is light in weight and docile in

flight. Size:

Motor:

36 in. wingspan.
.049 — .09 radial mounting.
Designed for pulse proportional, but will fly on single to two function propo.
D. Walton.

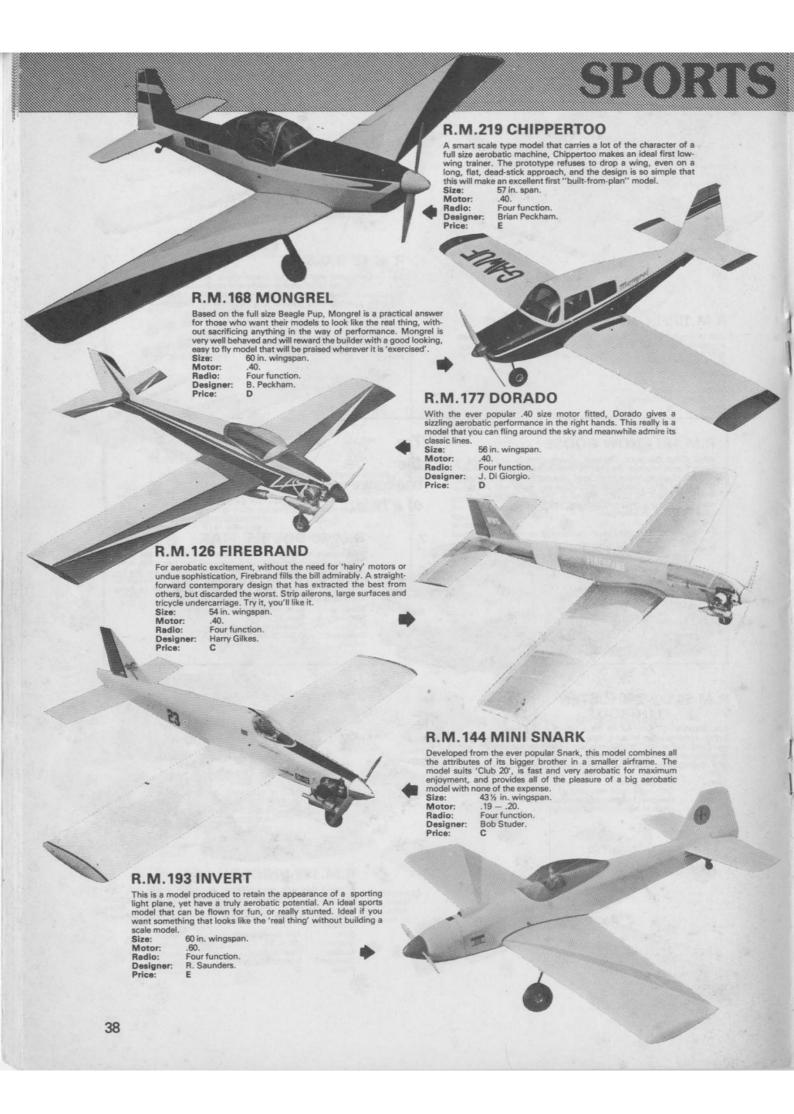
Designer: Price:



#### R.M. 139 UNICORN

A model that suits three different categories equally well, as a trainer, a sports model or for aerobatics. The Unicorn features fast construction and viceless, but responsive, flight characteristics. It could well save you building three different models!

71 % in. wingspan. .49 — .61. Four function. Norman McFarland. Size: Motor: Radio: Designer: Price:









# SCALE MODELS



#### R.M.101 MORANE SAULNIER 'N'

How would you fancy wafting around the sky with a scale model that almost flies itself? Certainly one of the prettiest aircraft to come out of the First World War, our model of the Morane captures the lines of tailplane and is just the job for those who want an attractive model with no vices and built-in satisfaction.

Motor:

56 in. wingspan. .29 — .40 Three function on rudder, elevator and motor. Radio:

Arthur Searl. Designer:

Price:



#### R.M.149 NIEUPORT 17 SCOUT

The real thing may have been built of wood, linen, wire and string, but ours is all sheet balsa for strength and ease of construction. Simple to build and very rugged, the Nieuport is a sports scale model that looks the part in the air, but doesn't have to be treated with 'kid gloves' like some of its more fragile

Size: 48 1/2 in. wingspan. .35 — .40. Four function. Eric Robinson. Motor: Designer:

**R.M.174 SOPWITH BABY** 

authentic character.
Size: 63% in. wingspan.

.61.

Four function. B. Downham.

Motor:

Radio:

Designer:

This highly detailed model is a delight to watch in the air and equally

This highly detailed model is a delight to watch in the air and equal impressive when viewed close to. Equipped with a take off dolly, the floats cause no problems when getting off the ground and ensure a smooth landing on grass with their large surface area. The Baby flies slowly and is very stable, even being able to be flown on rudder and elevator only! A really superb model, with plenty of scale detail and



#### **R.M.140 BLACKBURN 1912** MONOPLANE

One of the first aircraft ever to fly in Britain and therefore a real pioneer. Our model is sedate and slow, making an ideal model with which to learn scale flying anmd, while not suitable for gusty weather, its performance matches its looks in the air-totally endearing.

55 % in. wingspan. Size:

Motor: Radio: .35. Three function Designer: B. Bundock.

#### **R.M.95 HANRIOT DUPONT** HD.1

A little known prototype, but an absolutely fantastic model. A good deal of work is needed to construct this scale beauty, but it's well worth it as, when completed, you will possess one of the most accurate and attractive models it is possible to own. The HDJ. is a slow, stable flier, which is another point in its favour; a rewarding model to both build and fly.

Size: 72 in. wingspan (2½ in. scale).

Motor:

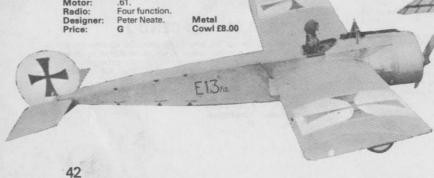


Now you can build a flying scale replica of the aircraft that turned the R.F.C's observation planes into 'Fokker-Fodder'. This delightful model has an all-moving tailplane and fin (as did the original) and light, but tough, construction. This has to be a design that epitomises the the first war as much as the Spitfire does the second; the model is a delight to fly and

ne Spittire does the second; to a guaranteed crowd puller.
Size: 62 in. wingspan.
Motor: .35 — .40.
Radio: Three function. Size: Motor: Radio: A. Searl.

Designer:

D



#### R.M.23 FOKKER D.VII

One of the best known fighting scout aircraft of WW1 both respected and feared by allied pilots, is captured in this almost unbeatable design. The model is a superb flyer and suitable as a first scale subject. To 1/6th scale this model won for its designer the British Nationais and many other scale events, yet can be built with confidence by anyone wanting to take the step from sport to scale modelling. modelling.

Size:

59½ in. wingspan (one sixth scale). .49 — .61. Four function. Norman Butcher. Motor: Radio: Designer:



A model for those who like to keep it simple. The Eastbourne is ideal for owners of small engines and miniature gear who want to recreate those far off pioneering days. Although easy to build, this model is intended for the fairly accomplished pilot and has a sparkling performance.

Power: .049 - .051

41 in. wingspan.
Two or three function (miniature). Radio:

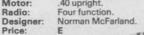
Stennard. Designer:

#### R.M. 117 ANSALDO SVA5

A chunky and interesting scale model that has one of the most dazzlingly refreshing colour schemes imaginable. At 1/8th scale the model is compact enough to be easily transported, but large enough to allow for plenty of scale detail. Ansaldo has ailerons on the top wing only, which simplifies construction and an upright motor to avoid starting difficulties; a truly colourful and charming model.

Size: 44 1/2 in. wingspan, top ailerons.

.40 upright. Four function Motor: Radio: Designer: Norman McFarland.





#### R.M.26 FAIREY FLYCATCHER

This splendid model of one of the long line of famous Fairey designs looks ultra-realistic in the air, despite having small deviations from scale. A big model with plenty of area, the Flycatcher is slow flying and will stand up to plenty of use which, once built, it's bound to get.

Size: 58 in. wingspan.

Motor: Powerful .61.

Radio: Four function. Brian Taylor. Designer:



Seen enough of Fokkers and yet more Fokkers? Then how about Geoff Bolam's contest winning stand-off scale model of the vastly under-exposed Halberstadt D.II fighting scout? One of the easiest scale models to build and fly, its appeal is enhanced by a variety of simple and colourful camouflage styles.

Size: 58 in. span.

Motor: .60.

Four function. Geoff Bolam. Designer:



#### R.M.161 BRISTOL TYPE 'D' SCOUT

Although not a class 1 design, this model really looks the part—even at close range. Practical construction and clever design combine to produce a model ideal for everyday flying, without losing any scale appeal whatsoever. How about a few dogfights with the Fokker or some lazy aerobatics over the field?

Size:

54 in. wingspan.

Motor:

.61. Four function. Radio: Designer: D. Womersley

Price:





#### **FAIREY FANTOME**

Finely detailed 1/6th scale model of one of the world's most elegant biplane aircraft.

Design feature rib for rib, stringer for stringer scale airframe structure. Great for those who like elegant airobatic biplanes. Don't under power it.

Size: 62 in. span. Motor: 10 c.c. (.61 cu. in.). Radio: 4 function. Designer: Wally Nield. Price:

R.M. Aug. '80

# The GORDON WHITEHEAD R/C Scale Collect

aircraft. Size: Motor:

Radio: Designer: Price:

#### R.M.199 AVRO 504K

Possibly the best loved trainer ever in service, the Avro 504 also enjoyed a long and successful career in the hands of many private operators. Our model is capable of executing the manouevres of the full size aircraft in a very realistic manner. A beautifully nostalgic model that cannot fail to please.

Size:

Radio:

Designer: Price:

48 in. span. .19 – .20. Three-four function. Gordon Whitehead.



#### R.M.134 FLY-BABY

This semi-scale model is designed to have fun with an yet retain an authentic appearance, Fly-Baby has light construction and this enables its .10 — .15 motor to give the model a pleasing and versatile performance. All the fun of scale modelling with none of the usual worries. the usual worries.

51 in wingspan. .10 — .15. Four function. Gordon Whitehead. Size: Motor:

Radio: Designer:

Price:



Probably the best known and loved trainer aircraft of all time! At last a really practical Tiger Moth for the smaller engines, designed bythe most experienced 'Club 20' scale enthusiast going. Two flying prototypes have proven our "Tiggie's" flying qualities, and few scale modellers can resist the appeal of this truly classic aircraft

R.M.213 D.H. TIGER MOTH

47 ¼ in. span. 20.

Four function.
Gordon Whitehead.

#### **R.M.145 GLOSTER GAMECOCK**

Capture the thrills and majesty of the classic era of the biplane fighter, with this magnificent example of the modeller's art. Ample wing area and clever design ensures this model of a really fine flight performance and the design gives you the opportunity to add a wealth of scale detail to this extremely colourful protections.

prototype.

59 1/2 in. wingspan.

Size: Motor: .61.

Four function.
Gordon Whitehead. Radio: Designer:

Price:



84 in. span. .60 four-stroke (10 c.c.) Four function. Dennis Tapsfield. Size: Motor: Radio: Designer: Price:

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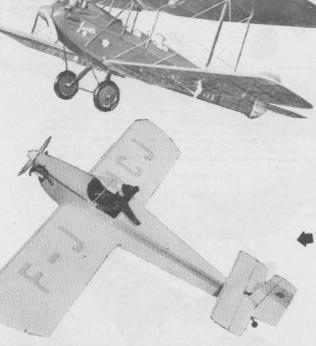
#### **R.M.182 HAWKER DEMON**

Considered by many to represent the zenith of the biplane fighter, the Demon also makes a most attractive model. Designed for the popular .20 size engine, this scale design could give you hours of pleasure in the construction and the flying. Its bright colour scheme and attractive outline make this a sure fire winner with scale enthusiasts everywhere.

Size: 46 ½ in. wingspan.

Motor: 20.

Four function. Gordon Whitehead. Radio: Designer: Price:



#### **R.M.217 BUCKER JUNGMEISTER**

One of the best known names in full size aerobatics, the Jungmeister has been lusted after by enthusiasts since its introduction in 1934. Now modellers can enjoy the thrills associated with classical aerobatics, and with a .25 engine installed RM.s model 'Young Champion' can go through contortions undreamed of in the 'thirties and 'forties.

Size: 40 % in. span.

.20 – .25. Four function. Motor: Radio: Designer: Gordon Whitehead. Price:

#### R.M.228 MILES SPARROWHAWK

Fine 1/8th scale model of the famous between-the-wars British racing aircraft is a picture of racing elegance in a car-boot size to suit the 'Club 20' scale concept. Plans show full constructional details for the tricky bits like cowl and wheel trousers which can be built without recourse to the complication of glass fibre.

Size: 42 in. span (1/8th scale).

Motor: 20 cu. in. (3.5 c.c.)

Radio: 4 function.

Designer: Brian Peckham.

Price:

R.M. July '80



#### R.M.179 D.H. GYPSY MOTH

The one that got private flying off the ground in no uncertain terms! This super model is easy to build from the excellently detailed plan and has docile flight characteristics, making it perfectly suitable for the 'sport' pilot. Details are given on the plan for the Gypsy or Cirrus engined versions and there are, of currs planty of colour schames to choose from why not build course, plenty of colour schemes to choose from-why not build

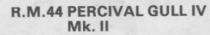
Amy Johnson's 'Jason'?
Size: 45 in. wingspan. .15 — .20. Four function. Gordon Whitehead. Motor: Radio: Designer: Price:

#### **R.M. 155 DRUINE TURBULENT**

A wonderful little model that cannot fail to please, with its aerobatic, but docile, flight capability. Many full size Turbulents have been home built and the aircraft has always been popular with modellers, its pert appearance having a very special attraction. The model features wing slots, so you can slow it right down without any ill effects, fly it for fun, this is a model that will give hour after hour of pleasurable flying.

48 ½ in. wingspan. .15 — .25. Four function. Size: Motor: Radio: Gordon Whitehead. Designer:

# SCALE MODELS



Aircraft of this kind used to be frequent visitors to the many flying clubs up and down the country before the Second World War. You can recreate those far off days by building and flying this really practical scale model, eminently suitable for sport flying, it really looks the part in the air.

72 in. wingspan (scale 2 in. to 1 ft.). Size:

.61. Four function Radio: Designer: Dennis Bryant. Price:

#### **R.M.164 SUPERMARINE** WALRUS

The sight of a Walrus lumbering towards him made many a ditched pilot's heart soar and the aircraft is held in great affection by many. Our model of this distictive aeroplane is to 1/8th scale and a superb subject to build and fly. The design calls for a reverse rotation engine, but a pusher prop can be fitted by altering the thrustlines. Folding wings as per the full size, the ability to fly off land or water, plus a practical amount of detail, make this a popular and enduring

Size: Motor:

68% in. wingspan. .61 (reverse rotation or pusher).

Four function. D. Gray. Designer:



#### R.M.238 COMMONWEALTH WIRRAWAY

Finely detailed scale model of Australian W.W.II attack aircraft designed by one of Britain's leading scale experts. Drawings feature a host of informative details which make the set an instruction reference for scale modelling for those not

interested in making this particular model.

Size: 71½ in. span.

Motor: .61 cu. in. (10 c.c.)

Radio: 4 — 6 functions.

Designer: David Vaughan.

#### **R.M.184 SUPERMARINE** SPITFIRE XII

This model of one of the most attractive Spitfire marks looks totally convincing in flight. Its 'wheels up' appearance lending it an air of authenticity—the model is designed for hand launches and belly landings—though an undercarriage could be fitted if desired. This design is 'the tops' for a compact scale model suitable for small field flying, a popular design that is difficult to

equal. Size:

42 1/2 in. wingspan.

Motor:

.29. Three function. Radio: M. Kinnear

Designer: Price:

#### **R.M.102 HAWKER HURRICANE** (50 in.)

For the owners of one or two function sub-miniature gear, this design represents a way of building a model usually only reserved for the owners of four function equipment. With many crash resistant features and all the character of the original built in, this design represents really excellent value for money.

50 in. wingspan.

.09 — .15. Up to two function lightweight propo. Radio:

Designer: Price: Stan Cole.

D



Representing almost the pinnacle of twin engined fighter development, the Whirlwind has a sleek and forceful appearance that will appeal to many. Designed as a near scale sport twin, with enough scale detail to be practical but still provide plenty of atmosphere, this is a very fine model indeed. A strong centre section nacelle unit with an interlocking structure holds the two .30 motors required in place, and assures a tough model.

65 in. wingspan. Two similar .30's. Size: Motors:

Radio: Four function.

Designers: Dave Cronin and Ed. Hollandby.

#### R.M.73 MESSERSCHMITT 109e

Next to the Spitfire this has to be an all-time favourite with radio modellers everywhere. A magnificent model that fully captures the original's looks—both on the ground and in the air—this is a top class design. Re-enact those dogfights over your flying field and enjoy the thrill of an air 'battle' with none of the risks.

Size: 61 in, wingspan. .61.

Motor:

Four function. Radio: Designer: Brian Taylor. Price: G

G/F Cowl: Cockpit: Metal Spinner: £5.00



of that Merlin engine!
Size: 64½ in. wingspan (1% in. scale).

Four function.

Brian Taylor.

.61.

Motor:

Radio:

Designer:

aircraft of all time. The model has a dependable performance and looks extremely realistic in the air—all that's missing is the sound

G/F Cowl:

Cockpit: Metal Spinner:

£2.15



A very-near-to-scale model that captures well the bulky lines of the Republic P-47D, the famous 'Jug'. A sidewinder engine installation and rugged construction gives a reliable model attractive to the sport scale modeller and the display flyer

51 in. span. Size: Motor .25 — .40. Four function. Radio: Designer: Eric Robinson.

#### R.M.166 JUNKERS Ju88

The drone of those two engines and that menacing silouhette could only mean one thing—unless you knew it was a model of course! The Ju88 has practical, straightforward construction and, for the more experienced is an absolute joy to fly; with retracts fitted it's difficult to tell from the real thing in the air, even though it is such a practical scale model. Promise yourself you'll build this one—you won't be disappointed.

Size: 72 in. wingspan.

Motors: 2 × .30.

Four to five function.

Radio: Designer: Roy Scott.

Price:



#### **R.M.87 HAWKER HURRICANE** (68 in.)

A perfect mate for the Messerschmitt and Spitfire, the Hurricane has always been a popular choice with modellers. The lines and character of this well loved aircraft are faithfully reproduced in this outstanding model. This design's flying ability is well proven and the plan is clear and easy to follow.

Size: 68 in. wingspan.

Motor: Radio: .61. Four function. Designer: Price: Brian Taylor.

G/F Cowl: £2.25 Cockpit: £2.15 Metal Spinner: £5.00



# SCALE MODELS

#### **R.M.84 PIPER CUB**

Many examples of this enduring aircraft are still in use today. The R.M. Piper Cub has one attribute that may not be immediately obvious—if you want to start radio modelling then you can use this beautiful scale model as a trainer; this design's classic layout suits itself to the purpose admirably. Slow flying and with docile characteristics this is definitely a model not to be nervous of.

Size: 71 in. wingspan.

Motor: 29 – 35 G/F Cowl: £2.25

.29 — .35. Four function. J. A. Drake. Motor: Radio: Designer:

G/F Cowl: Cockpit:

#### R.M.106 JODEL D9

As the prototype almost looks like a model anyway, this one is an obvious choice to re-create in miniature form. Construction of this endearing subject is simple and straightforward which, for a scale model, can't be bad, can it?

58 in. wingspan. .29 — .40. Four function. Radio: Keith Humber C Price:



#### R.M.221 STOLPE STARLET

A really attractive 'home-built', the Stolpe Starlet makes a %-scaler for .60 engines. The swept parasol wing makes the model stable in the air, while landings become almost dreamlike, touching down on the stalky, wide track undercart. The struttery has easily constructed fixing points and the fuselage is essentially an open framework box with sheeted top deckings.

75 in. span. .40 — .60. Four function. Size: Radio: R. Hodsdon. Designer: Price:



Cunningly propelled by a conventional tractor airscrew in the nose, this delightful stand-off scale model is one of the Soviet Union's early jet fighters, is great fun to build and fly. Built almost exclusively in sheet balsa, this is a tough model with a rewarding

performance. 33 in. wingspan. Size: .19 — .20. Three function. P. Bosak. Motor: Designer:





#### **R.M.153 CESSNA HAWK**

Near scale and designed for sport flying, this one has bags of extra features. Working flaps and an optional parachute drop give this stable flyer more appeal than the average scale model, while its short take-off and landing capability has to be experienced. Plenty of interesting colour schemes exist for this aircraft and many can be seen at flying clubs for those seeking exact scale detail G/F Cowl: £2.25

Size: 74 in. wingspan.

.60. Power:

Radio: Designer: Four to six function. Arthur Warner.

Price:



A model crop duster that actually dusts! The EP9 is a near scale model that will amaze and delight you with its ability to lay a trail of chalk or flour dust on those long, low cropdusting passages. A straightforward model of an interesting prototype with lots of

'extra' appeal. Size: 70 in. wingspan. Motor:

.61. Five function. Radio: Designer: Price: Bob Morrison.

#### R.M. 181 WHITTMAN TAILWIND

If you want a model that doesn't need a shoe-horn to get the gear in, then this is for you. The full size aircraft looks like a model, which reduces the difficulties one sometimes encounters in the design of scale models and makes Tailwind quite easy to build. Capable of a very pleasant performance, Tailwind is an unusual model that guarantees plenty of enjoyment to its builder.

54 in. wingspan. .35 – .40. Four function. S. Pollack. D Size: Motor: Radio: Designer:

Price:





A 1/6th sport scale model of the elegant American twin provides adequate wing area, engines close to fuselage to minimise assymetric power problems, engines well forward of wing to maintain correct balance, straightforward construction. Engine nacelles large enough to enclose up right engine with another.

76½ in. span. 2 off .20 — .25 cu. in. (3.5 to 4.1 cc.) Denis Tapsfield Motors:

Designer: Price:

R.M. April '80

#### R.M.143 LITTLE TOOT

A quarter scale model of one of the most outstanding 'home-built' aerobatic biplanes ever. Full of atmosphere and featuring all that is addictive about scale modelling, Little Toot will reward you with a plane that is difficult to beat for looks or performance. The model incorporates allerons on the lower wing only, a wealth of scale detail and will make the builder proud to be a radio modeller.

Size: Radio:

Motor:

Price:

57 in. wingspan. Four function. .61.

Designer: Dennis Tapsfield.

G/F Cowl: Metal Spinner: £5.00 G/F Wheel

Parts: Wing Cabane £4.50 Strut ass'y: £5.00



#### **R.M.205 ARMAR GARRION**

A one quarter scale beauty of an Argentinian home-built aircraft. This attractive model is straightforward to build and extremely pleasant to fly. The prototype's proportions make it an ideal subject for a model and the designer has captured the solid, dependable looks of the original exactly, just the thing for the modeller who wants a tough scale model that isn't a monster to

Size: Radio:

75 in. wingspan. Four function. .61 cu. in. Dennis Tapsfield.

Power: Designer: Price:

G/F Cowl: £3.00

# SCALE MODELS



#### R.M.38 PERCIVAL PROVOST

Many a service pilot's first taste of the air was in one of these delightful aircraft and our model is no less delightful. This is a beautifully accurate scale model, which can be fitted with flaps to further improve its already good performance. The Provost has an outstanding contest record, winning both National and International events, and cannot be too highly recommended.

60 in. wingspan (scale 1.7 in./ft.).

Four, or five function if working flaps used. Radio:

Designer: Price:

#### R.M.197 SORREL HIPERBIPE

One of the most exciting aerobatic light planes ever designed, the Hiperbipe makes just as exciting a model. The model incorporates flaperons to enhance its truly aerobatic performance and a steerable tailwheel to aid the ground handling. With a fuselage as cavernous as Hiperbipe's you won't have any problems finding room for the gear either! A very attractive and unusual model that is sure to attract attention and admiring

glances. Size: Power: .60.

Radio: Designer:

Four-five function.
P. Moore



#### R.M.227 MiG - 15

Here's a sports scale ducted fan model that can do without those expensive commercial fan units. The plans show full details for a tailor made fan developed by Marcus Norman. Model features basic rolled tube fuselage construction, all-flying tailplane and take-off dolly. The performance is a real crowd-stopper.

Size:

40 — .45 cu. in. (6.5 — 7.5 c.c.) 4 function. Marcus Norman. Motor: Radio:

Designer:

R.M.120 PARTENAVIA P.68 VICTOR

Smooth and sleek from nose to tail and just like the real thing. The victor employs simple bent sheet balsa skin construction and solid sheet tail surfaces. The plan gives the builder the option of fitting flaps to the model. This beautiful, slow flying, class 2 scale model is a delight to behold and has a reliable and predictable flight pattern.

Size: Motors:

79 in. wingspan. Two similar .19's. Four or five function. Radio:

Designer: Arthur Searl.

Price:





#### R.M.99 PITTS SPECIAL

A one-quarter scale replica of probably the most sprightly aerobatic biplane ever, the prototype having won countless competitions and been used by many display teams. This superbly accurate model can be built with two or, for really twinkling manouvres, four ailerons. The plans are highly detailed and have all the information necessary to build a model that looks good and will thrill pilots and spectators alike with its 'barn-storming' performance. storming' performance.

52 in. wingspan. .61.

Four function. Radio: Norman McFarland.

Designer: Price:

G/F Cowl: £4.50 Metal Spinner: £5.00 G/F Wheel Spats: £4.00 Cabane strut ass'y: £5.00

R.M. June '80

Brian Taylor, one of the most experienced modellers in the field of scale competition, discusses a few of the problems



RETRACTING UNDERCARRIAGES, although once thought to be impracticable for "heavy" scale models, are now in general use in competition circles and many sport scale modellers would not now consider using a fixed undercarriage where, on a scale model, it should retract. Yet it seems but a short while ago that it was possible to win National Scale Competitions flying a W.W.II fighter i.e. Spitfire,

Hurricane etc. with fixed U/C.

I do, however, feel that it is not bad advice to say that if you are building your first scale model to consider a fixed U/C for training and maybe build a second wing with retracts when you are confident of your landing ability. It is not unusual for a modeller, who has been landing trainers perfectly well, to go to pieces when at the controls of a scale model. At times forgetting to flare out and diving it into the runway or alternatively, afraid of ever letting it touch the tarmac, trying to land it three feet up with the inevitable vertical drop.

However, let's assume you've decided on fitting a retractable undercarriage, a common question is "how do I strengthen the wing?" The simple answer to that question is, the same as you would for a fixed undercarriage. The fact that the undercarriage retracts does not mean that the wing must be unusually strong. A fixed undercarriage would be on a hard wood bearer and the ribs carrying the bearer would be locally reinforced with ply doublers. The retract unit is mounted on either a 1/4 in plywood plate or, as I prefer, a pair of 3/8in sq. hardwood bearers and to strengthen the ribs carrying these I usually find that a 1/16in ply doubler is sufficient. I have used 1/8in plywood on occasion, depending on the circumstances. It may be necessary to carry out other reinforcing where the ribs are cut away for the wheel-well but beware of overdoing the strengthening and so building up too much weight.

I have not mentioned veneered foam core wings as I have never used them. I know that this method of construction has its uses for simple wings if one doesn't like building but I feel that, in the case of a relatively complicated wing, with retract and flap systems to be installed, foam can be more trouble than it is worth. But maybe I'm just biased and perhaps someone will write an article to show me where I am

wrong.

The first model to which I fitted a successful retracting undercarriage was the Kawanishi "George". It's a pity that Japanese aircraft are not more popular

because their undercarriages seem to have been designed with the R/C scale modeller in mind. As well as "George", have a look at "Tony", "Oscar", "Frank", "Zero", "Jack", "Tojo" and other Japanese aircraft. They all have nice simple systems with the legs straight down and retracting in line with each other; so no awkward angles are involved to put either the wheel wells, or the units, just where the spars should be, and most have relatively small wheels.

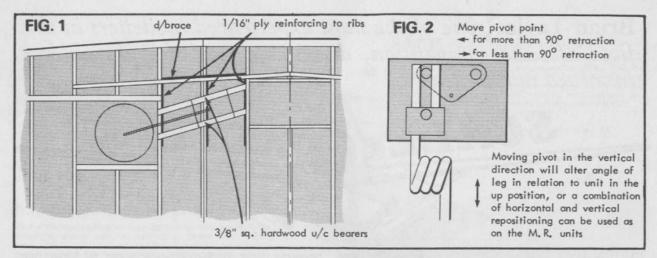
#### Angled installations

Let's have a look at an angled installation. I'm not going into a lengthy discussion about pintle angles etc., that's all a bit too technical for me and it has been discussed many times before; in particular I remember that Roy Yates has covered it very well in his Scale Topics. Suffice to say here that if you set up the angles as per the full size aircraft from a scale drawing with the units angled in the wing so that the legs are forward when down and back when up and the axles in line (or you will have rather a lot of toe-in or out depending on the way they retract!) then the wheels will lie correctly in the wells. I know that at first it does take some believing but to prove it to yourself, just bend up a small length of wire and twiddle it in your fingers!

Often the main problem with the angled installation is finding somewhere convenient to put the main wing spar. On models we seem to require proportionately a lot more room to install a retracting undercarriage than is necessary on the full size aircraft. Fig. 1. shows the basic arrangement that I used on my Spitfire 1A. On the full size aircraft the main spar goes from tip to tip in a

Below; the author's P-40 flies past with all wheels and doors tucked





straight line, but on the model it is necessary to find space for the undercarriage bearers, linkages and servo, so I stepped the spar forward in that area as shown. This is just one example, there are of course several variations of angled installations such as the legs retracting inwards as on the Tempest or the units being forward of the main spar, but hopefully, this will give you an idea of how to set about solving your own particular problem.

The first retract units that I used successfully (on the "George" as mentioned earlier) were the K.D.H., of German manufacture. These are all-metal apart from nylon bushes. I used the same type again on my Fulmar and Spitfire 1A. The Spitfire lasted for six years and during that time the only attention given to the retract units was to adjust the linkage twice. The only problem I have had with these units is the small amount of movement on the linkage necessary to unlock them, one has to make sure that the servo arm movement is slightly more than the arm movement on the unit, not less, to ensure that it is securely locked.

#### Retraction angle variations

Nearly all commercial retract units retract through 90 degrees but more often than not on scale models either more or less than this is required. This is usually because of the dihedral, but not always. Take for instance the Tempest which has a flat centre section into which the wheels retract; one could therefore be forgiven for thinking at first that 90 degree retraction is required, but not so. Viewed from the front the legs angle out slightly and so a little more than 90 degrees is in fact necessary. Of course, if one is not seeking absolute accuracy and simply want to get those wheels up then one could have the legs straight down; it is surprising, however, how the lack of this slight angle completely spoils the sit of the aircraft on the ground.

Fig. 2 shows how it is possible to modify the K.D.H. units by altering the position of one of the pivot points to give more or less than 90 degrees, about 31/2 degrees in each direction is the maximum variation possible. I've altered the units several times in this way but it does require making up new mounting plates.

One retract system which is not restricted to a 90 degree retraction angle is produced by Mick Reeves Models. The units are basically the same as K.D.H. in operation but feature variable retraction angle by providing an adjustable pivot point.

#### "Twisting" systems

The Japanese made their full size aircraft retract systems easy for us to model but the Americans, whose aircraft are much more popular, appeared to go out of their way to be difficult. I am, of course, thinking of those horrible twisting systems which they used in abundance i.e. Corsair, P-40 and Hellcat. These are the better known examples but the P-36, Skyraider, Vought SB2U and Vultee Vengeance also spring to mind. For some reason the Germans also used similar systems on the Ju 88, Me 210 and 410.

There are now several of these twisting units on the market but I have only had experience of one of them. Originally my P-40 Kittyhawk was fitted with units made by a friend of mine (a steam locomotive modeller) but when, after considerable use, one of these became damaged, Fred Coulson handed me a set of his to try. These have now been in use for a season and have worked well. However, with twisting units, I think that you need to be even surer of your landings for rough usage strains the twisting as well as the retracting mechanism.

All servo operated units are spring assisted and with the spring properly adjusted a good retract servo can easily cope with 4in wheels on 6in legs. A retract servo is needed not just for the extra power but also to give a more realistic operating speed.

#### Undercarriage doors

I have used several of my own design retract systems, for my Fw 190, Tempest, P-61 nose leg and Mosquito (at the moment waiting to be test flown) all based on the folding arm principle. I have found the installation of operating U/C doors can require much more head scratching, fiddling and use of phrases like

'oh bother", than the actual retracts.

It is not sufficient to have doors dangling free in the down position and held up by the undercarriage legs or wheels. Firstly the doors will be blown about and may foul the wheel as it retracts and, secondly, any very slight variation in the position of the leg or wheel in the well, due for instance to any slight bending of the leg which is bound to happen in use, will result in the door hanging partially down in flight. On my Fulmar I had a system where the doors were held steady in the down position but were held up by the wheels and I was continually adjusting them.

The doors need to be held independently of the legs in both the down and up positions. Servo operation is the most positive either by radio or by micro switches triggered by the undercarriage leg. Fig. 3. shows a simple system that I've used successfully, it is based on that used on many full size aircraft, in particular I've noticed it on some Japanese types. The door is pushed up and down by the wheel but is held both in the up and down positions by an over centre spring. Fig. 3. shows, in fact, the Tempest inner doors but the same idea can be adapted for different arrangements. In my Black Widow there are five of these mechanisms! one for each main wheel door and one at the back of the nose wheel well operating both doors.

#### Competition thoughts

Of course, with the present system of Super Scale static judging one gains no extra marks for complexity, so the maximum obtainable is the same for a three leg retracting undercarriage as for a two leg fixed undercarriage, but, your chances of losing marks are obviously greater the greater the complexity. The same applies for every other part of the aircraft, for instance a type with two or three "glass houses" can only be awarded the same maximum mark as a model with a simple single open cockpit. But for retracting undercarriages you do get as bonus a percentage of your flying marks; however, if you don't do a particularly good flight that bonus is not worth much and the percentage is the same for three (or more) retracting legs as for one. Would you believe that this system was devised to encourage complex models!!? But I digress and we don't build scale models just for competitions do we?

We must not forget retracting tailwheels. I've built three of these, again using the folding arm principle to retract them but there are now commercial units on the market that one may be able to use. Some tailwheels have doors too! The tailwheel doors on all of the full size aircraft that I've been able to scrutinise are linked to the leg and this is the most positive way of doing it on

the model. Because the leg pivots in a different plane than the doors it is necessary to have tiny universal joints at both ends of the linking arms. Try to find a subject without doors!

#### Emergency landings

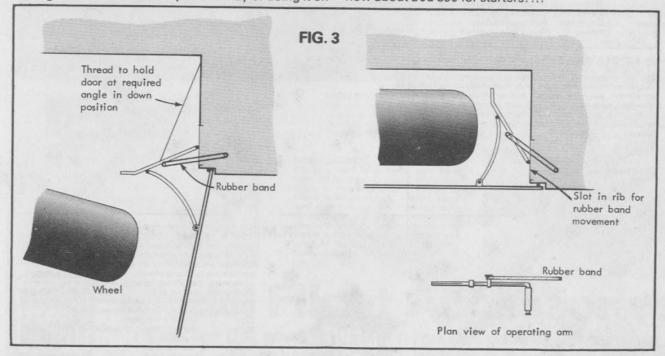
Finally, some advice on carrying out emergency landings with models fitted with retracts. When you are reading this the advice will no doubt seem obvious but when suddenly faced with an emergency on the flying field and without time to think, the best thing to do may

not spring to mind.

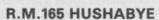
On several occasions when I've been flying my Fw 190 the engine has suddenly stopped with the model in such a position that I've been unable to get it back to the runway. On one or two of these occasions, I have heard by-standers say "put your wheels down" — but this is just what not to do. If you were carrying out a forced landing with a full size aircraft in rough country, you would not put the undercarriage down, but would belly land the aircraft. The undercarriage will simply serve to trip and somersault the model. The bottom of the huge radial cowl on the Fw 190 is the lowest part of the aircraft and so makes it ideal for belly landing, admittedly other types with radiators etc. under are not quite so suitable but nevertheless, superficial damage to these parts is preferable to damage to the undercarriage and possible structural damage to the airframe.

The other type of emergency that I have experience of is finding one undercarriage leg dangling in flight due to a linkage failure. In these circumstances do not land the model on the grass. Because of the hanging leg the model will come to a sudden halt (unless you have a cricket pitch type surface), probably resulting in breakage. Far better to put the one good leg down and land on it and a wing tip on the runway. The noise sounds horrible but with any luck, you will only have a scraped wing tip to repair.

I hope I've encouraged you to have a go at retracts, how about a Ju 390 for starters?!!!



# ELECTRIC POW



Explore the quiet realms of electric flight with this model. Hushabye is designed for the popular '15' size electrics and this smart little cabin job is capable of intermediate aerobatics.

Size: 51 in. wingspan.

Motor: Radio: '.15' size. Three function. Designer: J. Fletcher.

#### R.M.223 JAMES WOT

An electric power aircraft for the masses. No tricky stuff invoked to achieve a good flight performance — just weight conscious, yet reasonably sturdy airframe structure and Eppler 385 wing section.

72 in. span.
Graupner Electroprop and propellor used in prototype.
2 – 3 function. Size: Motor: Radio:

Designer: Price: Robin James D

#### R.M.214 MANDRAKE

The 'powered glider' configuration of the original Yak-built high altitude reconnaissance plane lends itself ideally to duplication as an electric powered model. Slightly stretched from scale, Mandrake suits many .15 to .20 size motors, or could even be fitted with a 'conventional'. 15. Fuselage construction is unusual but simple, and now "U2" can have your own 'spy-plane'.
Size: 71 in. span.
Motor: 15—20 electric.
Radio: Three functions on ailerons, all-moving tail and

Designer: J. Collins.

#### R.M. 180 VOLTAIR

Capable of every aerobatic manoeuvre except those requiring rudder, Voltair has a truly sparkling performance on its electric motor. This model features tough but light construction to withstand the high stress manoeuvres, and strip allerons. Hand launch it, fly it around and then come in for a smooth belly landing — you won't get any complaints about the noise either!

46 in. wingspan. '.15' size. Size: Three function. Radio: J. Slade. Price:

# R.M.192 FORD TRI-MOTOR

Faithful workhorse of many airlines in the 'thirties, the 'Tin Goose' has been captured for posterity by the designer of this charming model. An ingenious switching arrangement, shown on the plan, ensures its three electric motors deliver just the right power for the flight pattern required. A lovely model that will reward the builder with many satisfying flights.

Size: 59 in wingspan.

59 in. wingspan. 3 × '.15'. Four function. Size: Motors: Radio: Designer: D. Tapsfield.

#### R.M.235 FLAPDOODLE

A really fast and aerobatic electric flight model featuring an interesting fully symmetrical and flapped thin wing—the flaps are coupled to an all moving tailplane. Other controls are outboard ailerons, rudder and motor switch. It has many drag saving features, is intended for use with small servos and an eight cell 1.2 nicad pack driving a standard Mabuchi RS54 or similar motor. It demonstrates that low priced electric flight can be exciting.

Size: 50½ inch wingspan.

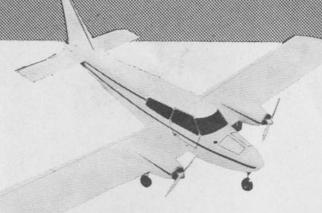
Motor: Mabuchi RS54 or similar up to M.F.A.20 or similar.

or similar. Four function. Peter Holland. Radio:

Designer: Price:



R.M. Feb. '80



#### **R.M.173 TWIN PEGASUS**

A really practical stand-off scale twin with none of the usual problems of asymmetric thrust, etc. Whisper skywards with Twin Pegasus which is easy to build and has the potential for some aerobatics, before you touch down for a smooth landing on its tricycle undercarriage.

50 in. wingspan. 2 × '.15' size. Four function. D. Tapsfield. Motors: Radio: Designer: Price:



#### R.M.234 **ENGLISH ELECTRIC** WREN

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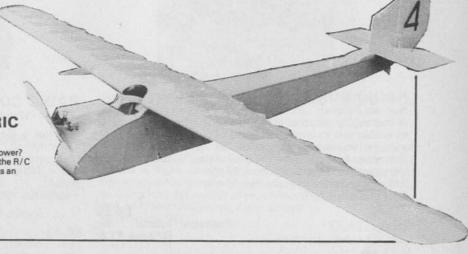
92 in. span. Graupner Electroprop. Motor:

Radio:

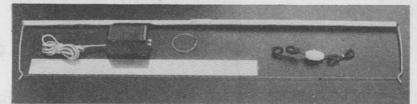
4 function. Jeremy Collins. Designer:

Price:



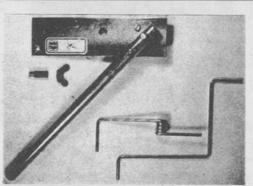


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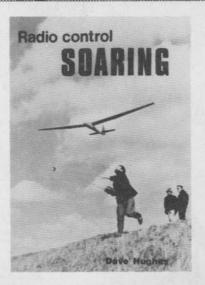
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A thoroughly practical guide to all the information needed to enable you to choose the type of radio equipment most suited to your needs and pocket. Shows how to select the best make for you which will initiate you, successfully, into the pleasures of remote control flying. 210 x 140 mm. 250 pages. Limp covers. First Published 1976

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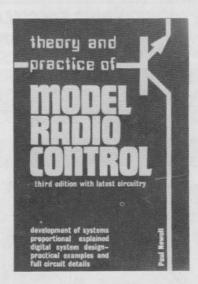


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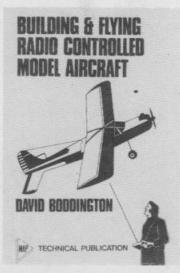
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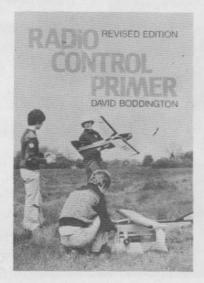
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A perfect introduction for the radio control novice filled with advice on models, equipment installation, first flights, engine operation, training for aerobatics, servo maintenance; in fact a book which anticipates all the problems likely to arise with one's first radio-controlled model. Includes dimensioned details of special sports design 'Pronto' plus many other D. B. plans for popular models. Tells how to choose the model, install the control gear, cover and finish it, make first flights. Field equipment and accessories have special mention, and the basics of radio control are explained. A 'must' for every new buyer of a proportional outfit.

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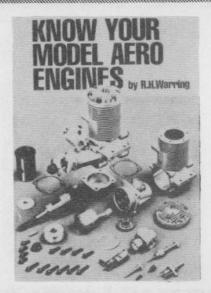
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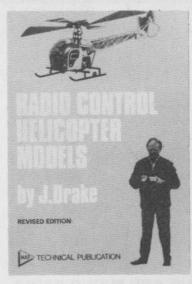
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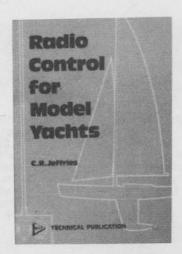
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# LAND VEHICLES



#### R.M.68 D.U.K.W.

This model will keep you and your family amused for hours, on the pond or virtually any solid terrain; use it indoors or out, in fair weather or foul. The design is based on the American vehicle of the same name and is easily constructed of ply and balsa. The model uses standard model aircraft airwheels and a simple electric motor

19 in. long. Motor: Electric. Two function. E. F. Amiss. Radio: Designer:

## **R.M.150 SURVEY VEHICLE**

Scaled from a full-size vehicle, this model has an appeal all its own. Using Meccano parts for the transmission, the vehicle is fully amphibious and has an excellent performance from its three electric motors on land or water. This really is something quite different both to operate and build.

21 in. long. Three electric D.C. types. Four function. Size: Motors: Radio: Malcolm Saunders. Designer: Price:

#### R.M.220 JUGGERNAUT

Price:

Start Truckin' with RM's fantastic free-style artic! Construction is primarily balsa and ply, and a minimum of two functions provides control for throttle and steering. Optional operating windscreen wipers, lights and tail-lift are shown on the plan, while a builder's imagination could add horn and possibly decoupling of the trailer. A flatbed trailer is shown on the two sheet plan, and the wheels are commercially available.

About 5 ft. 6 in. Siza: Decaperm Special or similar.
Two function minimum. Radio: Neil Holden.

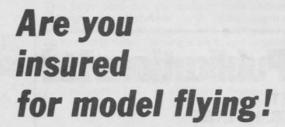
Designer:



#### **R.M.204 TANK HUNTER**

A tremendously rugged freelance tank, based on the WWII Jagdpanther Self Propelled Gun. This model will cope with all sorts of surfaces and gradients, and still comes back for more. Construction is of wood and the model utilises Meccano components for the tracks and gearbox. A fascinating model with lots of extra appeal, guaranteed to keep the operator captivated for hours.

241/2 in. long. Size: Two function D. Fulton. Radio: Designer:



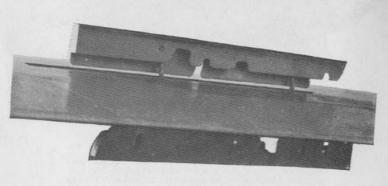
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# **MISCELLANEOUS**



#### **R.M. 185 BRAKING DEVICES FOR GLIDERS**



For precise landings on restricted slope sites spoilers are essential and this detailed drawing shows a set for the R.M.32 Mistral although they can, of course, be adapted for other soarers. The hinge and linkage geometry is clearly shown on the drawing.

Designers: F. and I. Smith.

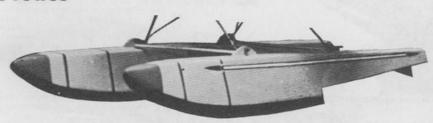
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Five types of scale air-brake, with associated linkages, are shown on this explicit plan. Slow those big soarers up with these very desirable devices and, if you're contemplating building a scale soarer, then this plan could give you the information you require about its brakes—information which is often difficult to obtain.

Designer: Mike Trew.

Price: C

#### **Floats**



#### **R.M.17 FLOATS**

Extend your model's performance and fly it off water! R.M.s floats will support a model of up to about 8 lbs. so, for all the thrill of a floatplane operation, just fit your favourite powr model with a set of these.

About 36 in. long. John Crampton. Designer:

#### Flight box -

#### R.M.218 FLIGHT BOX

Compact, complete and easy-to-build, the plan for this flight box includes details of an electronic flight panel and a built-in fuel tank using commercially available clunk tank fittings.

Designer:

A. G. Barber.

Price:

A







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### BOATS



If you want a 'flattie', but don't want a fibreglass hull, then Pegasus is for you. This is a fast boat that has ply skin construction with a balsa fairing, which is an economic way of producing a potentially very competitive boat.

Size: 25 in. length (l.o.a.).

Motor: Up to .29 marine.

Radio: Two function.

Designer: R. W. Jones.

Price:



#### R.M.78 DEANNA

Typical of many of the river craft seen on places like the Norfolk Broads and the upper reaches of the Thames, Deanna is a pretty little boat with much to recommend it. For those relaxing Sundays at the pond it can't be beaten.

Size: Motor:

25 in. l.o.a. 1.5 to 3.5 cc marine.

Single (with small motor), or two function. H. B. Harris. Radio:

Designer: Price:



#### R.M.86 CHEZ WHEN

A near scale yacht based on the full size 'Silhouette' by H. B. Tucker, A.R.I.N.A. The model has well proven traditional construction featuring ply skins and is big enough to accept almost any radio equipment, yet will go into the boot of a car fully rigged. The plan has details of a novel self powered winch which gives proportional sheeting, activated by a separate

servo. Size: Radio:

36 in. l.o.a. One or two function. R.M. Staff.

Designer: Price:

#### **R.M.71 AVON SPORTBOAT**

How about this, then! A one-fifth scale inflatable boat designed to accept a .15 size outboard. Construction is different and not one for beginners.

30 in. I.o.a. .15 outboard. Motor: Two function. Chris Stoss. Radio: Designer: Price:



#### R.M.152 ACID QUEEN

A really high performance functional racing boat of all ply construction. This boat is a practical design which features modern lines and tough construction—ideal for scorching

around the boating lake.

Size: 27% in. long. Power: Radio: .35 - .40 marine. Two function. Roger Brown Designer: PRICE:



#### R.M.170 CARIBBEE

Simple construction methods and twin electric motors, make this attractive cruiser suitable for those who like their boat modelling without headaches. Caribbee has authentic lines and is an ideal model as an introduction to the world of model

boats. Size: Motors:

31 ½ l.o.a. 2 electric.

Radio: Designer: One or two function. S. Canning.

Price:

#### R.M.231 WITCHWIND

A truly simple introduction to the satisfying hobby of R/C Yachting. Witchwind is designed to operate without use of an expensive sailwinch, to sail efficiently with only rudder steering control. Add to this the simplest possible balsa hull construction and we have the ideal medium for sampling the delights of R/C Yachting without investment of vast amounts of time and

money. Size: I.o.a. 30 in. Radio: 2 function. Designer: Vic Smeed.

R.M. Oct. '80



#### R.M.206 SIZZLER

A really hot little number this! Powered with either an i.c. engine or one of the powerful electrics, this little boat lives up to its name on the water. A less powerful motor can, of course, be used for those who prefer their boating to be more relaxing. Of uncomplicated construction, this neat craft is sure to give many hours of delight at the boating lake.

Size: 23 % in. length.

Radio: Two function.

Power: 15, 30, or simple electric, .09 — .20 cu. in.

Designer: David Thomas.

Price: B



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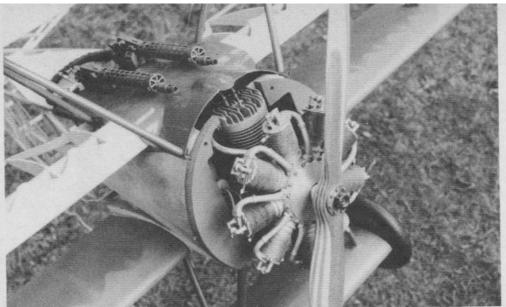
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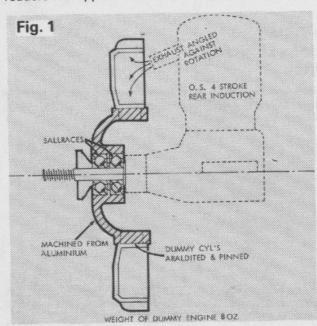
# Making a DUMMY ROTARY Engine

By ROY YATES

Whilst attending a West Drayton Club night recently I met a fairly recent newcomer to R/C scale who was in attendance with his first scale model. The airframe was completed apart from covering and the builder explained to the meeting the way in which he had attempted to simulate the prototype's Rotary engine. Needless to say, I was intrigued, my thoughts immediately going back to an article in my June 1971 'Scale Topics' column which expounded theory with sketches on this very subject.

John Day, the builder of the particular model, a Fokker Dr1 triplane built from the V.K. kit, had unknowingly rekindled my interest — so with John's permission, I went along and photographed his model for the benefit of our readers. Although a kit, he has modified it in certain areas, particularly at the nose, to accommodate the O.S. four stroke engine to be used and, of course, to facilitate the fitting of the rotating dummy engine.

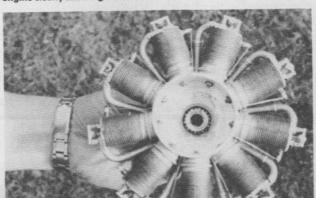
Reproduced in sketch form (Fig. 1) is John's arrangement, which differs slightly from my suggested scheme way back in '71. Rather ingenious really, as readers will appreciate. As can be seen by the sketch,



the dummy engine runs on two ballraces which in turn are a slide fit on the engine crankshaft. By virtue of being directly coupled to the revs of the engine the crankshaft tends to drive the dummy engine round with it at a slower speed depending on friction of the ballrace assemblies. The rather ingenious part is that to prevent the dummy engine catching up with the engine revs, John has directed the exhaust of the O.S. four stroke back at the inside of the dummy cylinders to act as a brake. So far, the set up has been bench run and has proven to be very effective. When revs increase as the throttle is opened, exhaust pressure increases, checking the pick up in the dummy engine r.p.m. In order to fit this into the model's nose, the original engine bulkhead has been cut out in the centre and an extra engine bulkhead fitted, approximately 11/2in further back. Naturally the exhaust from the engine will be swirling around inside this area, so to allow the escape of gases John has fitted a mesh panel to the bottom of the fuselage at the undercarriage position.

Other modifications made during construction have been in the cockpit area to include more cockpit detail and aid servo and linkage accessability. At the time of writing the model has not been test flown, John being quite adamant that he will be on the controls when that day arrives. He confessed to me that he is rather concerned about the torque effect which the dummy engine will, in all probability produce, also the hazard of tipping the model onto its nose, consequently risking damage to the engine and assembly. My thoughts lean towards a gyroscopic effect that the whirling engine may cause thereby making changes in model direction sluggish — particularly in one direction. Whatever the results, there's one thing for sure, John's model will be simulating the prototype much more than other VK Dr. 1. owners who have a fixed dummy engine, not only from an appearance viewpoint, but a flight handling one as well. Good luck John, with your cooperation I'll keep our readers posted. More anon.

Top of page, John Day's Fokker Dr1 and below, the rear of the dummy engine clearly showing the ballrace.



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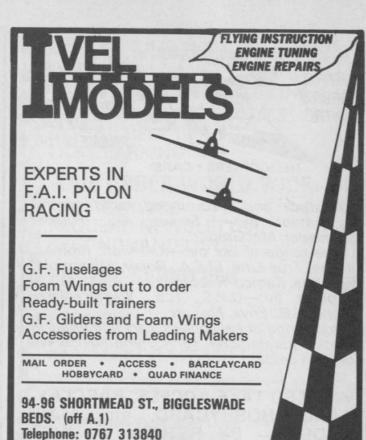


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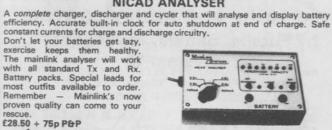


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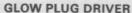


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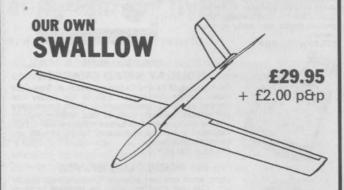
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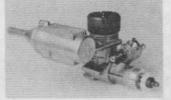
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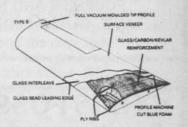
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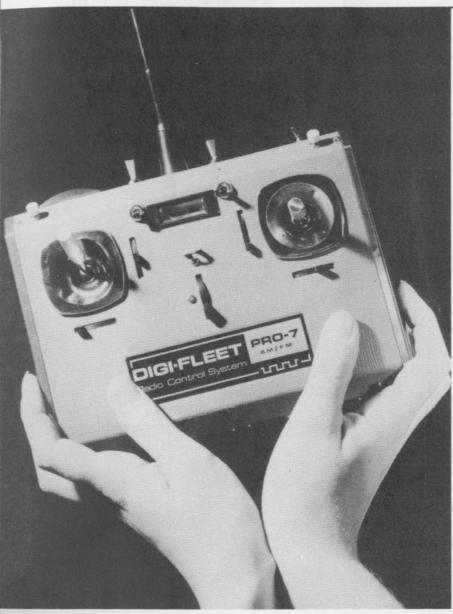
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