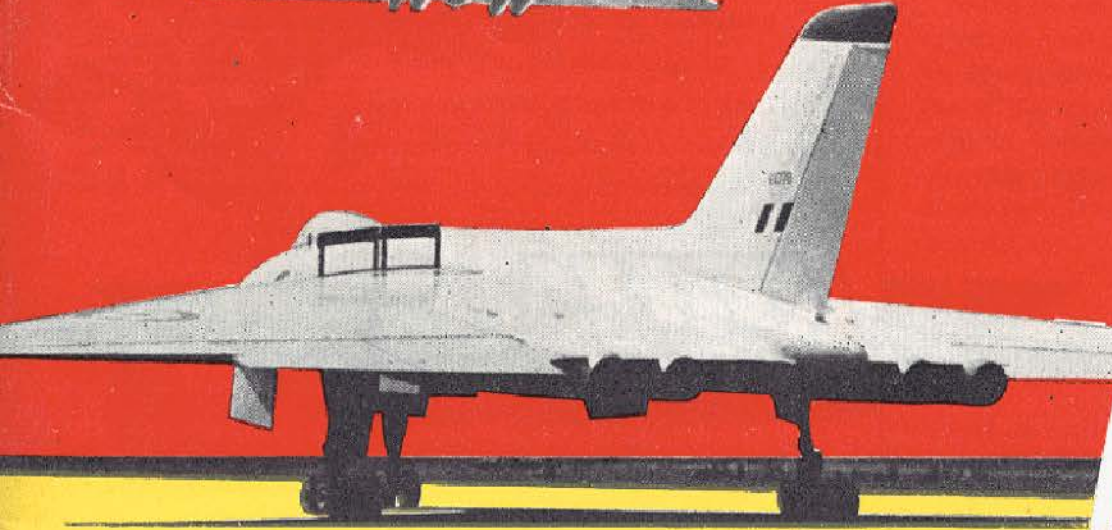


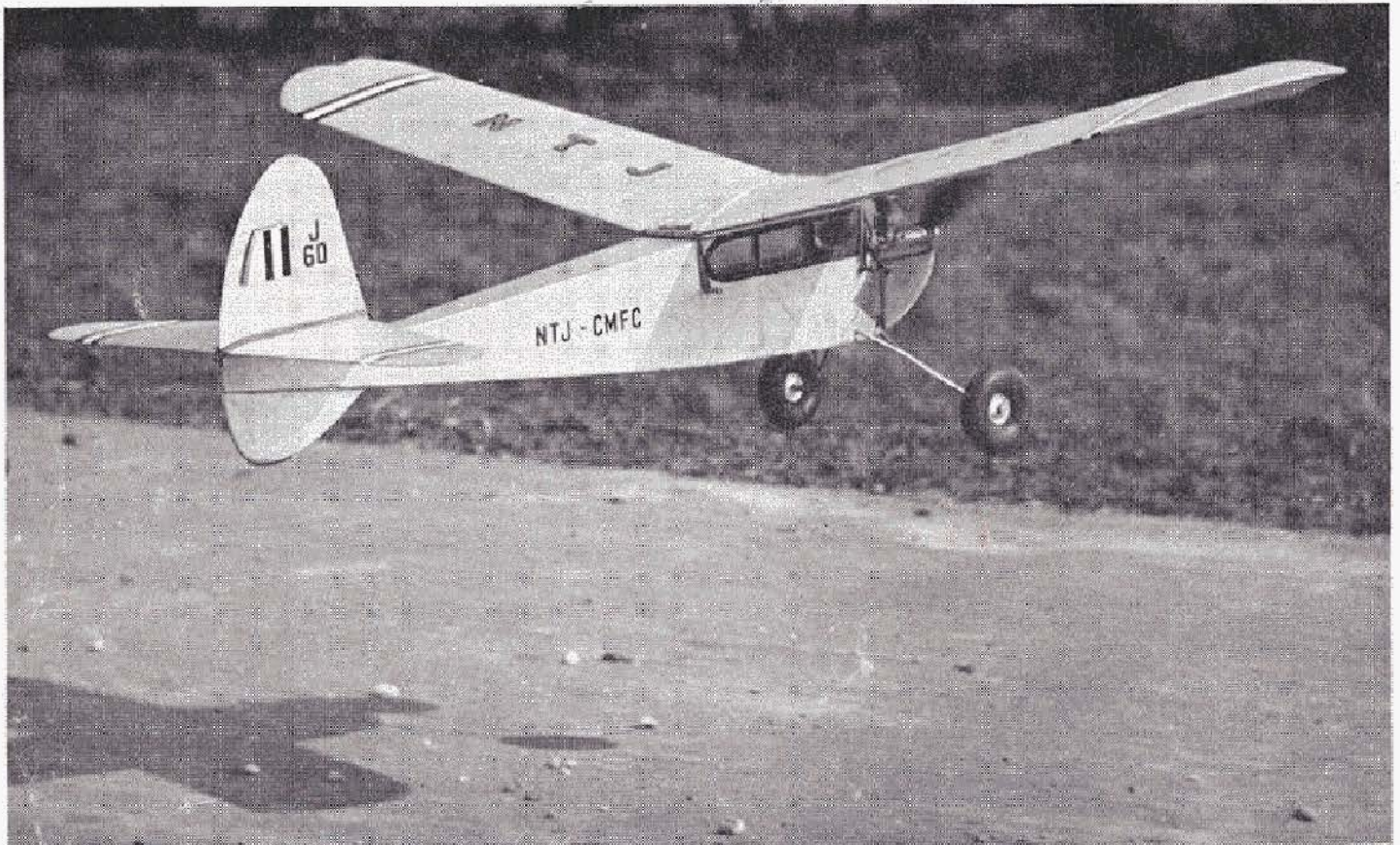
MODEL AIRCRAFT

1'6

SEPTEMBER
1958



**MODEL
AIRCRAFT
Exhibition
Number**



A veteran takes off

The Junior 60 shown in this photograph was three years old when the picture was taken, and had over 100 hours flying time to its credit !
It was built from a standard Keilkraft kit, and gives positive proof of the superiority of Keilkraft design and materials.

60" span JUNIOR 60
A large model that is quick and easy to build. Construction is stripped of all unnecessary trimmings, making this the perfect choice for those with limited building time.
The JUNIOR 60 is ideal for radio control, and has many R/C contest successes to its credit. It is suitable for engines from 2 to 6 c.c.

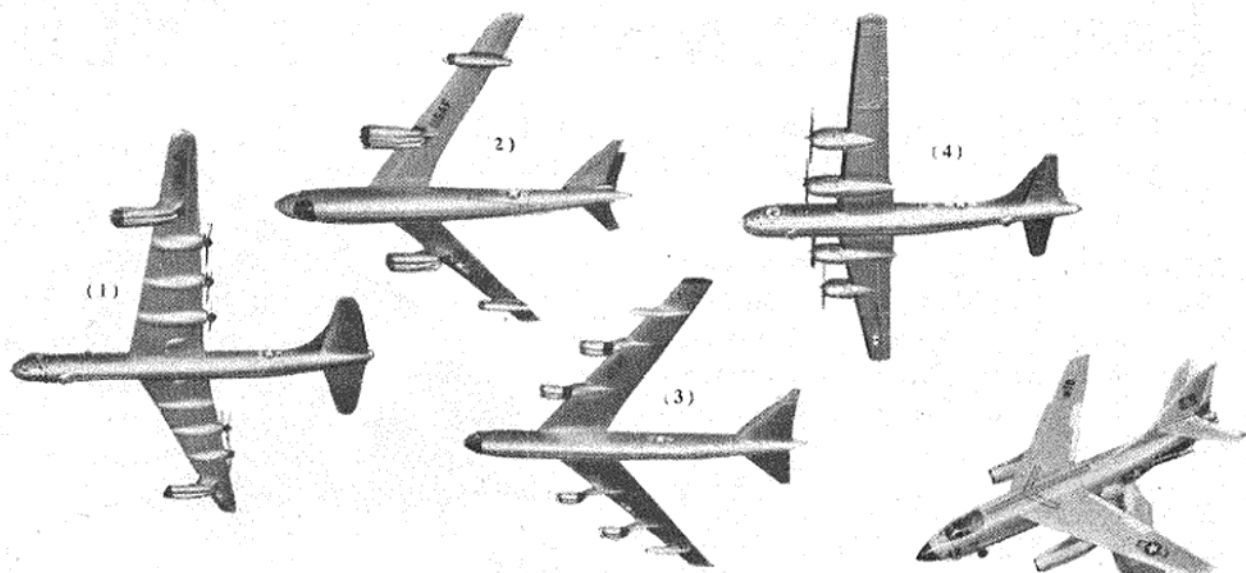
For models that FLY—buy KEILKRAFT

**BUY KEILKRAFT
AT YOUR LOCAL
MODEL SHOP**

If no model shop convenient, order direct from KEILKRAFT. Please add 6d. extra packing and postage.



Manufactured by E. KEIL & CO. LTD., WICKFORD, Essex Tel: Wickford 2316



BOMBERS!

add the new A3D Skywarrior
to your collection of models
built from Revell Authentic Kits

Here's the latest—the A3D Skywarrior, precision-scaled from official blueprints. She's fitted with a striking power that makes her the most powerful carrier based plane ever built. Carrying atomic weapons this powerful bomber can fly at 600 miles per hour over long distances. Revell's model has folding wings and tail, life-like pilot figures and clear nose canopy. And there are four more model bombers where this one came from — Revell Authentic Kits. You put them together from precision made plastic parts, with step-by-step instructions. There's even a swivel stand to display them in any attitude of flight. Build them. Collect them. With Revell Authentic Kits, they're as real as you can get.



MANUFACTURED IN GREAT BRITAIN

Got all of these?

- 1 Convair B-36
- 2 Stratojet B-47
- 3 Boeing B-52
- 4 Boeing B-29



Now!

See all the other superb models you can build. Ask your stockist, or send this coupon with 6d in stamps to get big 16-page Revell Collectors Catalogue. Packed with illustrations, real-life details about 61 different models: ships, planes, sports cars, trucks, guns and dozens of other models you can easily make from Revell Authentic Kits.

Name

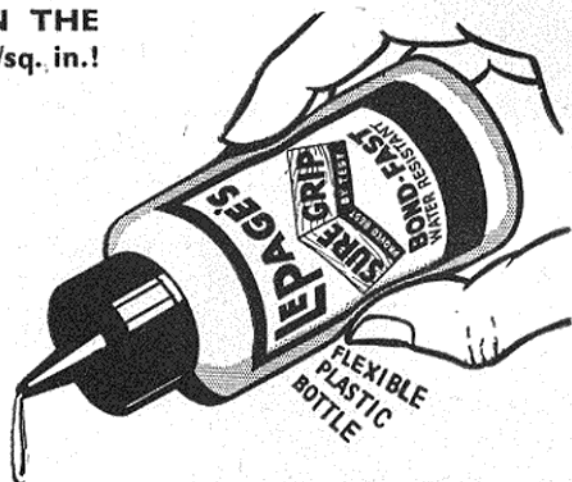
Address

REVELL (Great Britain) Ltd
Maidstone House, 25/27 Berners Street, London W1

LEPAGE'S P.V.A. WHITE GLUE

SUCCESSOR TO Balsa CEMENT IN THE
U.S.A. JOINT STRENGTH 3,000 lbs./sq. in.!

CAT. No.	PACK	CONSUMER PRICE
21	2 oz. Plastic Bottle	2/3 each
22	4 oz. Plastic Bottle	3/6 each
23	8 oz. Plastic Bottle	5/6 each
121	12 oz. Refill Bottle	6/6 each
122	20 oz. Refill Bottle	8/6 each
123	36 oz. Refill Bottle	15/6 each
124	1 gal. Plain Can	55/- each



NON-STICKY · QUICK SETTING · NON-INFLAMMABLE · NON-TOXIC
WATER RESISTANT · DRIES TRANSPARENT · MOULD, OIL AND PETROL PROOF

Obtainable from Lepage Ltd., Beckenham, Kent, and Henry J. Nicholls Ltd., 308, Holloway Rd., London, N.7

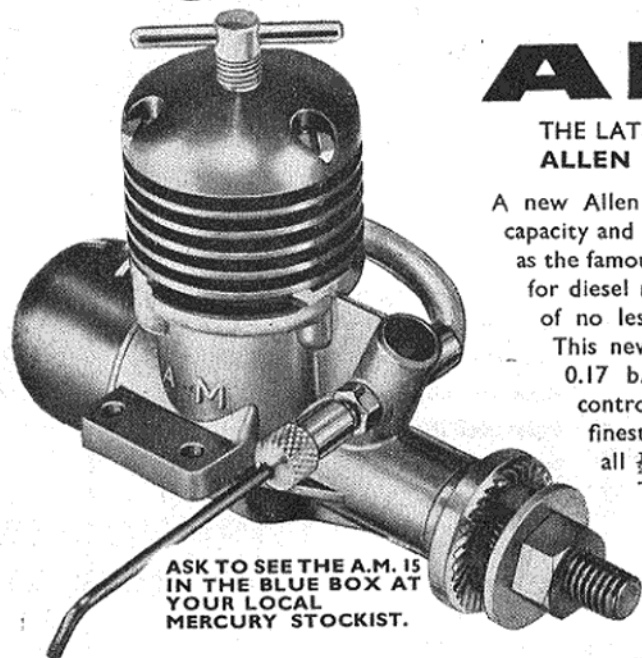
its UNEQUALLED

A.M. 15

THE LATEST ADDITION TO THE
ALLEN MERCURY RANGE

A new Allen Mercury Engine of 1.5 c.c. capacity and right up to the same standard as the famous A.M. 10 that set a new high for diesel motors with a specific output of no less than 120 b.h.p. per litre. This new motor gives approximately 0.17 b.h.p. at 14,000 r.p.m. For control-line and free-flight it is the finest motor in its class. Ideal for all 1/2A team racing.

This latest A.M. engine is a robust, easy-starting and powerful engine designed for long life with high output.



ASK TO SEE THE A.M. 15
IN THE BLUE BOX AT
YOUR LOCAL
MERCURY STOCKIST.

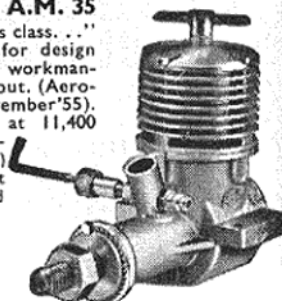
D. J. ALLEN ENGINEERING LIMITED

MANUFACTURERS OF ALLEN-MERCURY DIESEL ENGINES

28, ANGEL FACTORY COLONY, ANGEL RD., EDMONTON, N.18 Phone EDMONTON 6466

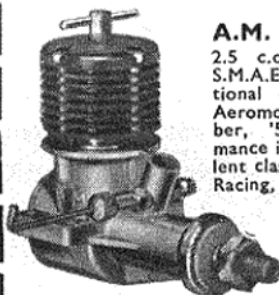
A.M. 35

"Excels in its class..."
Full marks for design and practical workmanship throughout. (Aeromodeller November '55). 0.26 b.h.p. at 11,400 r.p.m. (Aeromodeller test) Ideal for Stunt Combat and R/C 3.5 c.c.



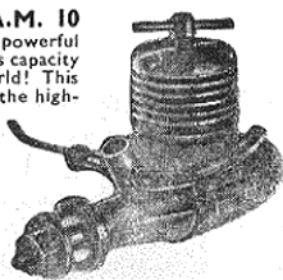
A.M. 25

2.5 c.c. Eligible for S.M.A.E. and International contests, says Aeromodeller (October, '54). "Performance is in the excellent class." For Team Racing, Stunt, Combat, F/F and R/C.



A.M. 10

The most powerful engine of its capacity in the world! This engine has the highest output of any 1 c.c. diesel in production to-day. In fact, its output exceeds that of most 1.5 c.c. engines.

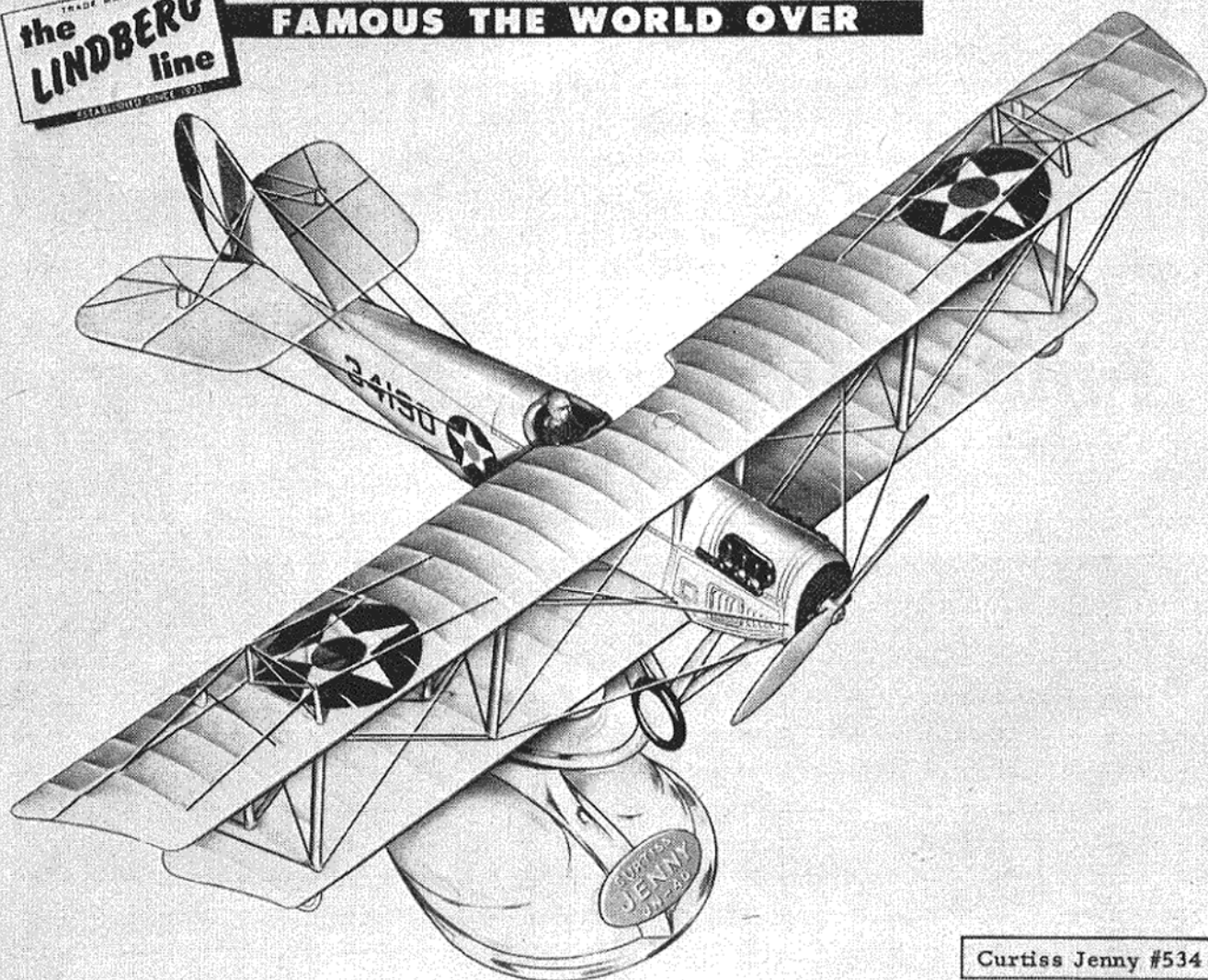


Distributed by H. J. NICHOLLS (WHOLESALE) LTD., 308 Holloway Road, London, N.7

THE CURTISS JENNY • A SUPERB MODEL

TRADE MARK REG.
the
LINDBERG
line
ESTABLISHED SINCE 1927

FAMOUS THE WORLD OVER



Curtiss Jenny #534

by . . . AMERICA'S most authentic **PLASTIC CONSTRUCTION KITS**

The Curtiss "Jenny" JN-4D Kit No. 534 was the most widely used type of training airplane of World War I. They were used in America, Canada, Great Britain and France. This airplane continued in service as a trainer after the war until 1927. Many were sold as war surplus and were used for barnstorming. Many manufacturers of private planes failed trying to make an inexpensive airplane for the public. They could not compete against the cheap price of a surplus "Jenny." This plane is blamed for the lack of development of private planes until they were condemned by the Government in 1927. The scale kit of this famous plane is authentically detailed and moulded to the unequalled Lindberg standard.

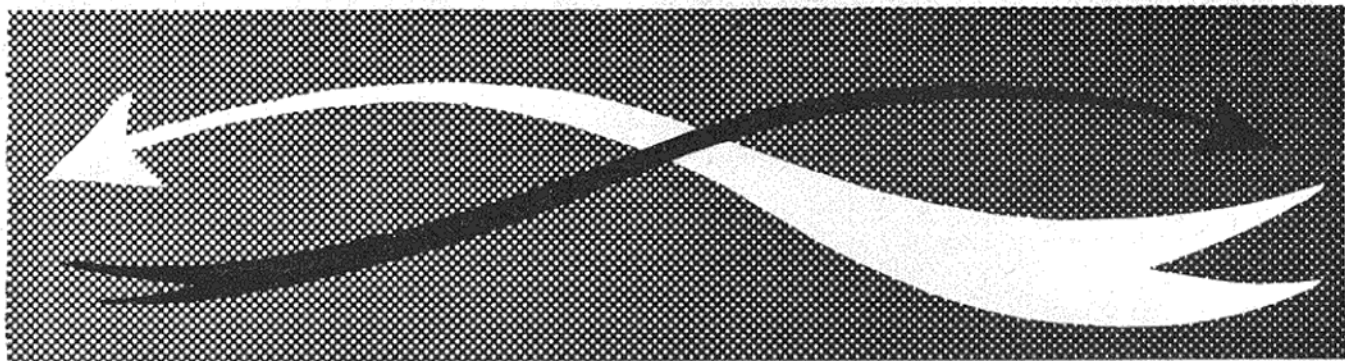
Price 12/- NOW IN THE SHOPS

Modellers—Remember there's no Substitute for Lindberg Authentic Kits
AVAILABLE THROUGH ALL LEADING HOBBY AND TOY SHOPS

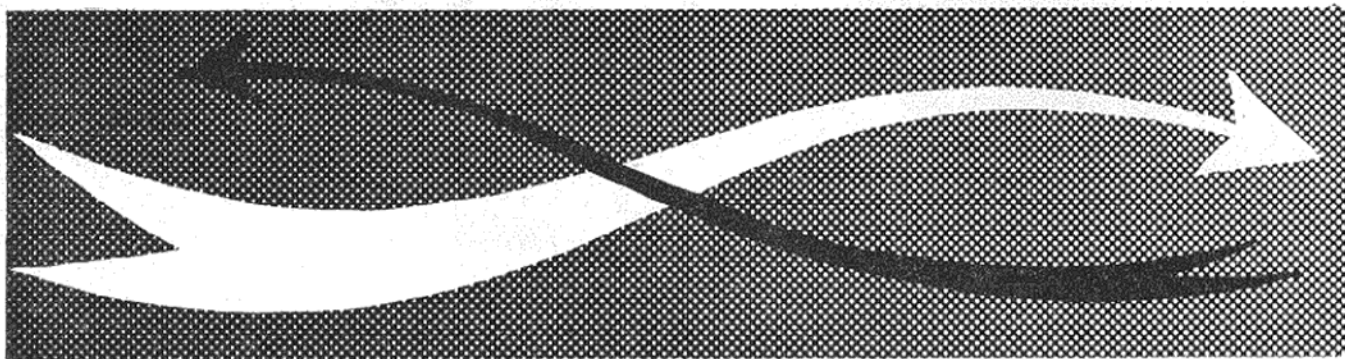
Manufactured under licence by:

MODEL TOYS LTD. 11 Golborne Road, London, W.10

Please mention MODEL AIRCRAFT in your reply to Advertisers



Find your future at Fairey



AVIATION above all industries is the one that lives on new ideas. If you have ideas, and the educational standard to back them, Fairey Aviation may well have a place for you. There are opportunities for Trade and Student Apprenticeships which are the gateway to high qualifications and an assured career in aviation.

Write to Apprentice Department of The Fairey Aviation Company for details and advice on a career with Fairey.

THE FAIREY AVIATION COMPANY LTD
HAYES · MIDDLESEX
ENGLAND · AUSTRALIA · CANADA

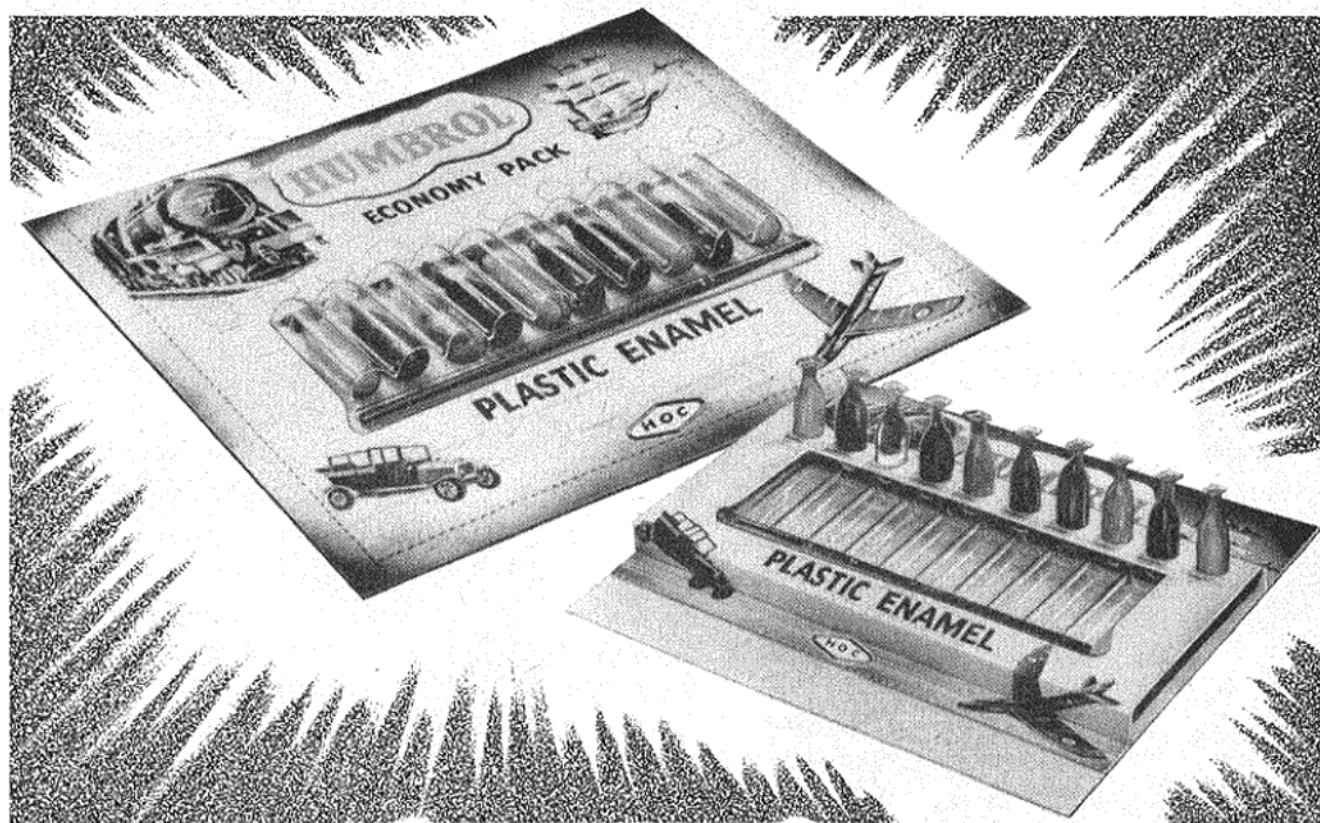
★
NAVAL AIRCRAFT · HELICOPTERS
GUIDED WEAPONS · HYDRAULICS

FAIREY

ELECTRONICS · PLASTICS
PRECISION CASTINGS · RESEARCH

★

Introducing a **NEW** HUMBROL Plastic Enamel PAINTING KIT



Here's what you've been waiting for—a new money saving painting kit, attractively packed and very moderately priced. It easily erects into a 3-D stand, holding the containers and mixing palettes ready for use. The NEW HUMBROL PLASTIC ENAMEL PAINTING KIT contains the following, to give a better finish to your models: eight plastic containers of Humbrol Art Oil Enamel (including gold and aluminium), one of thinners and one of flattening agent; brush; mixing palettes; colour guides and mixing instructions. The finest painting kit on sale today.

ONLY 3/- COMPLETE

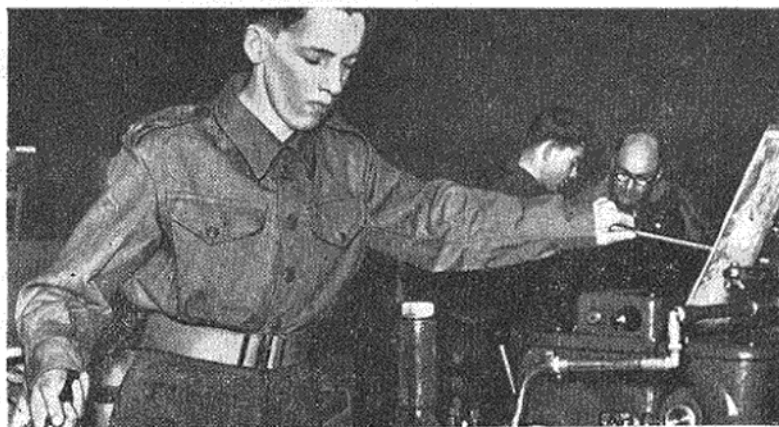
See the full range of HOC products on Stand Nos. 208-210 at the International Handicrafts Do-it-Yourself Exhibition, Empire Hall, Olympia. September 4th-20th.



The Humber Oil Company Ltd.
MARFLEET HULL ENGLAND

LEAVING SCHOOL?

HERE'S AN EXCITING CHANCE!



NOTHING DULL ABOUT LEARNING A TRADE IN THE NEW ARMY

You can get out and about and lead a real man's life if you join one of the Army Apprentices Schools. It's the best start to a fine career. You get a first-class technical training, in most cases recognized by the T.U.C., for any one of forty different trades—and training, board and lodging are all free. You're earning while you learn, and you get a whole eight weeks' paid holiday every year. On top of that, it's an exciting out-of-door life with plenty of sport among a fine bunch of people your own age. And you know that afterwards there's a key technical job waiting for you in the New Army.

**IF YOU'RE 14½—16½
SEND OFF THIS
COUPON NOW!**

TO THE WAR OFFICE (MP6), LONDON, S.W.1.

Please send me details of Army Apprentices School training and conditions of entry.

NAME

ADDRESS

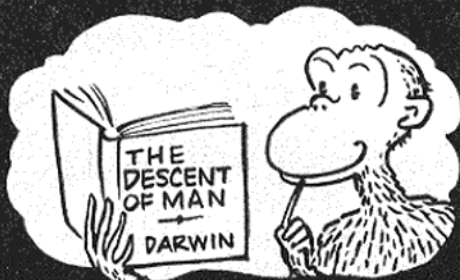
AGE

Applications for the Entry Examinations must be in by Sept. 16th, 1958

AA 1/MAC

NEST AND EGGS OF THE FLUB-FLUB BIRD.

EGG LAYING PLACES A SEVERE STRAIN ON THE CONSTITUTION
OF THIS BIRD, WHICH FACT ACCOUNTS FOR ITS EXTREME RARITY
SO FAR AS IS KNOWN, NO FLUB-FLUB BIRD EXISTS—
ONLY EGGS!



SOLARBO LTD • COMMERCE WAY • LANCING • SUSSEX

Telephone LANCING 2866-7
Telegrams SOLARBO WORTHING



DIRECTORS: A.V. PATTERSON A.M.I.C.E. & L. FULLER M.N.F.E.M.S.

A very interesting subject to me has always been the evolution of species. It was Darwin who first propounded theories as to the development of all living things to suit their environmental conditions but within the last hundred years a great deal of further knowledge has been acquired.

You will probably know that a whale isn't a fish but a mammal which has developed along lines which enables it to live in the sea. Or perhaps the appropriate way of putting it is, as we all started in the sea, that the whale went back to the sea not perhaps thinking much of the rest of us on dry land.

You may, therefore, imagine my excitement to find in our Works, the other day, something which is undoubtedly the greatest contribution to this subject in the post-war era.

I am sorry that I can give very little information about it at present as we, ourselves, are very much in the dark. Until we find the actual bird there is very little we can say about it except that quite clearly it must be peculiar to this Works which alone can give the right conditions for its development.

Even its name can only be provisional. As you know, every fresh creature in a species has to have its name linked to that species and until we find the bird this is impossible. Personally I feel sure that no bird no eggs or, shall I say, no eggs no bird, and as the eggs have been found there must be a bird.

All I can do is to show you a photograph of the nest and an inscription by an unknown hand just as we found it in the Works.

Whoever gave it its provisional name knows more than we do, but he too, like the bird, cannot be found.

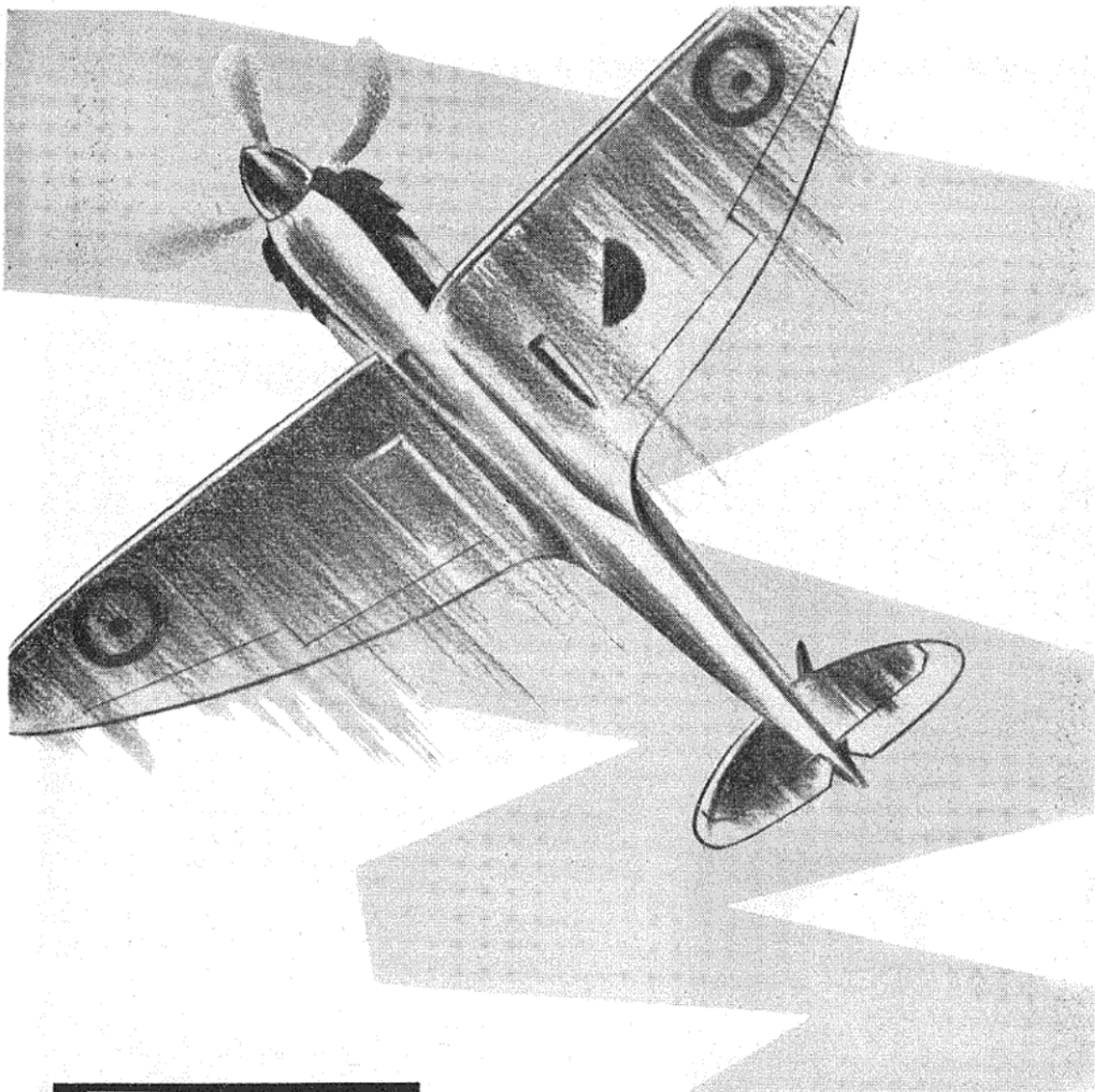
Alfred Patterson

SORRY,
NO
BALSA
TIP
THIS
MONTH



THE BEST BALSA
YOU CAN BUY
COMES FROM
SOLARBO
LIMITED
COMMERCE WAY
LANCING
SUSSEX

Phone: LANCING 2866-7-8

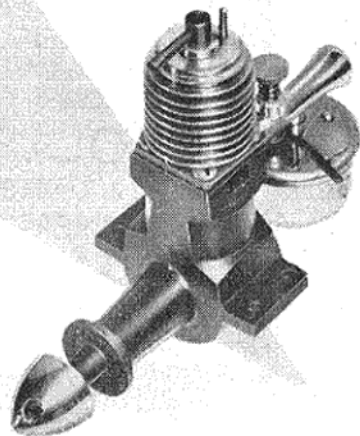


for safety

We all know of the extensive safety tests imposed on full-size aircraft . . . but how many model 'planes have crashed merely through engine failure at a critical moment ! If you have spent time and effort building a good model, you deserve to treat yourself to a reliable engine. It will safeguard the 'plane and allow you to enjoy carefree flying.

You are safe with a Mills in other ways as well. These engines are built to last. You will save expense from the day you buy one and find it the cheapest engine you have ever had.

P.75 without cut-out 59/8
S.75 with fuel cut-out 65/7
I.3 with fuel cut-out 89/5
Prices include Purchase Tax



MILLS BROS (MODEL ENGINEERS) LTD., 143 Goldsworth Road, Woking, Surrey.

It pays to say you saw it in MODEL AIRCRAFT



Managing Editor
E. F. H. COSH

Editor
R. WESSON

Assistant Editor
N. J. BUTCHER

Consulting Editor
A. F. HOULBERG,
M.B.E., A.F.R.Ae.S.

Advertisement Manager
A. R. MILLER



SEPTEMBER 1958

Vol. 17

No. 207

CONTENTS

Special Features

AT THE EXHIBITION	287
THE TRIALS	289
HALBERSTADT SCOUTS	291
WHO'LL FLY A BOAT?	294
NORTHERN HEIGHTS GALA DAY	296
YOUR FIRST FLIGHT	298
ROVING REPORT	302
CRANFIELD TRIALS	306
LATEST ENGINE NEWS	308

Regular Features

HERE AND THERE	285
ENGINE TESTS	
The A-M 15	292
TOPICAL TWISTS	297
AVIATION NEWSPAGE	304
OVER THE COUNTER	312
LETTERS	313
CLUBS	314

Plans

BOEING F4B-4	300
PETREL	310



The official Journal of the
SOCIETY OF MODEL
AERONAUTICAL
ENGINEERS



Published on the 20th of each
month prior to date of issue by
PERCIVAL MARSHALL & CO. LTD.
19-20 NOEL ST., LONDON, W.1.
Telephone: GERrard 8811

Annual Subscription 22s.
post paid. (U.S.A. and
Canada \$3.)



M.A. Exhibition open for business

ORGANISING an exhibition of any type is never an easy accomplishment and when the subject is model aircraft then the headaches come fast and furious! But we felt that such an exhibition was long overdue in view of the continual growth of the model aircraft movement in the thirteen years since the end of the war. And it may be as well to point out here that this expansion has not been confined to this country alone, but includes such distant places as Australia, Russia and Japan, to mention but three. In fact, in practically every country in the world people are building and flying model aircraft, and obtaining a great deal of pleasure and satisfaction from a hobby that has a tremendously wide scope.

It was the latter that proved to be the chief stumbling block when it came to presenting an exhibition for model aircraft enthusiasts and at the same time attempt to attract newcomers to the hobby. However, we were pleasantly surprised at the immense enthusiasm for such an exhibition and our task was eased

considerably by the interest shown towards the project by fellow enthusiasts, and their help and advice so freely given. Just how well we have succeeded will be difficult to ascertain until after the exhibition has closed, but we can say that this is only the first of what we hope is going to be an annual event for modellers.

WORLD CHAMPS. RESULTS

WAKEFIELD

Individual

1. B. Baker, Australia
2. S. Zurad, Poland
3. R. Johansson, Sweden

Team

1. Hungary
2. Italy
3. Great Britain

POWER

Individual

1. E. Frigyes, Hungary
2. V. Hajek, Czechoslovakia
3. B. Baker, Australia

Team

1. Hungary
2. Czechoslovakia
3. Great Britain



A.T.C. MODEL COMPETITION

THIS year the finals of the A.T.C. Model Competition were again held at R.A.F., Kenley, and there were some familiar faces among the cadets who had won their way through the wing eliminators.

Cdt. Sgt. Harris, who had been the outright winner for the last two years, again entered a beautifully built model, but this year he was beaten to the premier award by Cdt. Cooke, with a *Sea Otter* (M.A. Plan No. 153, see photograph above). This model was not only a first class example of workmanship but it also, contrary to all predictions, had a most excellent and realistic flight performance.

The general standard of workmanship of all the models entered showed a marked improvement over the previous two years, and if the improvement continues at the present rate then these lads will provide a real challenge at any open event.

THE SHAPE OF THINGS TO COME?

MODEL rockets and missiles, it seems, have arrived—for better or worse. The chances are that you, sober readers, will now be heaving a sigh of despair at the incorrigibility of modern youth—rock'n'roll, string ties—and now this. In which case, let us assure you that this development is not so ominous as it sounds.

In the U.S.A., model rocketry is at present proceeding along two separate lines. First there are the "student rocketeer" groups, such as the Reaction Research Society, the Pacific Rocket Society and the Rocket Research Institute Inc. This latter body is currently striving to co-ordinate activity among all experimenters in order to promote training programmes and properly supervised experimentation. Such guidance is undoubtedly needed to avoid accidents and the possibility of an official ban on amateur rocketry.

The types of rockets used by these groups are mostly of metal construction and use both solid (mostly) and liquid fuels. They are quite large—6 ft. to 10 ft. long and may reach 500 m.p.h. and 5,000 ft. altitude derived from a thrust of several hundred pounds. Recovery is by parachute. These missiles are fired from remote "proving grounds" equipped with protective bunkers or block houses—an essential precaution where launching ramp explosions are not uncommon.

The second, and more recent, line of development is strictly commercial and aims at bringing model missiles to the attention of model aircraft enthusiasts. The models are of a much more modest type and can be

regarded as a development of the British Jetex "Space-Ship" and "Jetnik" rocket models, the main difference being that they take off from rest under their own power.

A typical example is the 13 in. long scale *Aerobee-Hi* kit being made by a new firm called Model Missiles Inc., of Denver, Colorado. The heart of this model is the expendable "Rock-a-Chute" motor. This unit is 2½ in. long, 1/16 in. dia. and weighs but ½ oz. It is loaded with a powdered fuel charge, in three layers, which performs three separate functions. The first section provides a brief, powerful, propulsive thrust period (16 oz. for 1½ sec.) which blasts the model into flight from a 3-ft. vertical launching rod. The second filling then takes over, acting merely as a delaying fuse while the model is coasting and decelerating. The final layer of the charge, coming into action when the model is approximately at the zenith of its flight, blows off the nose cap and ejects a polythene parachute.

The *Aerobee-Hi* model missile is claimed to reach altitudes as high as 1,000 ft. and maximum velocities approaching 300 f.p.s. It is of simple construction, using a rolled paper tube body, balsa fins and a hardwood nose. The motor fits into a metal mount at the tail end and the parachute is attached via a shock cord of strip rubber. Replacement Rock-a-Chute motors cost \$2.50 for six, or approximately 3s. each, so flying your own missiles is not exactly cheap at the moment. No doubt, in due course, however, it will be possible to produce them more cheaply.

Next Month . . .

JUST a few of the top line features in next month's issue of MODEL AIRCRAFT on sale September 20th . . . famous American stunt flier George Aldrich on "How to Win Stunt Contests"; full report and photographs of the World Championships for Power and Wakefield models, held at Cranfield; detailed plans and building instructions for a free flight Piper Super Cub designed by P. M. H. Lewis—these are just a few of the "forthcoming attractions" so place an order for the October issue now!



Every picture tells a story and just how sad this one is, is reflected on the faces of Jim Baguley and Laurie Barr. The state of the window in Laurie's shooting brake will give a hint of what it is all about, but in case you are a bit slow off the mark—the scene is the Trials: a power model has just ploughed through the window and Jim's and Laurie's models were stacked (and pranged!) inside. Nuff said!

At the MODEL AIRCRAFT EXHIBITION



WELCOME to the Model Aircraft Exhibition! If you are here in person then may we point out a few items of especial interest. On the other hand, if you are thinking about coming, well the exhibition is open from 11 a.m. to 9 p.m. daily (except Sunday) until August 30th, and we hope these pages will make up your mind for you to come—you'll be made very welcome. Lastly, for those of our readers who will definitely be unable to pop in and see us, then this brief write up will have to suffice to satisfy your curiosity about all the good things you are missing until the full report appears in our next issue.

The obvious place to start our tour is at the MODEL AIRCRAFT stand (No. 24). Here you can meet members of the editorial staff who will be pleased to discuss any technical problems you may have—also from time to time throughout the exhibition our regular contributors will be in attendance, so who knows, you may be lucky and arrive at the right time to meet the designer of your favourite model. The biggest attraction among the "static" exhibits on the stand will be Peter

Chinn's collection of over 100 engines, which cover the history of model engines from the earliest day, up to the present time.

No doubt by this time the persistent noise of a diesel from the lower end of the hall will be a powerful "draw" and investigation will lead you to the flying area, where continuous demonstrations of remote C/L flying from a "cockpit" outside the circle are taking place. This type of flying is comparatively rare in this country and is by no means as easy as it looks; in fact we literally had to learn to fly C/L all over again. However, it's quite a thrill and if you have a model of not more than 24 in. wingspan with a $1\frac{1}{2}$ c.c. or smaller motor, then bring it along and we will be pleased to let you have a go—at your own risk!

Alternating with the C/L will be demonstrations of tethered F/F models, the models climbing free on a ring sliding on a wire stretched taut from floor to ceiling.

Right by the flying area is the vintage enthusiast's dream of Valhalla—a real life S.E.5, and for many this will be the first opportunity they will have had to examine one of

these historical aircraft at really close quarters.

Also at the lower end of the hall is the Popular Flying Association exhibit. This is of particular interest to modellers for it is the "do it yourself" branch of full-size aviation, and thus most closely akin to modellers' own efforts. P.F.A. members actually build their own aircraft, and the methods used are not all that far removed from standard model practice although, of course, the building must be a more co-operative affair than with modelling. On the stand will be parts of aircraft in various stages of completion and these may well inspire some of you to go in for building in a big way! Coming back up the hall we come to the R.A.F. stand where the main attraction will be a full size Canberra cockpit, and as an object lesson in how flying has become more complex in 40 years, just compare this with the S.E.5!

We are by now at the British Gliding Association Stand and judging by the number of modellers we



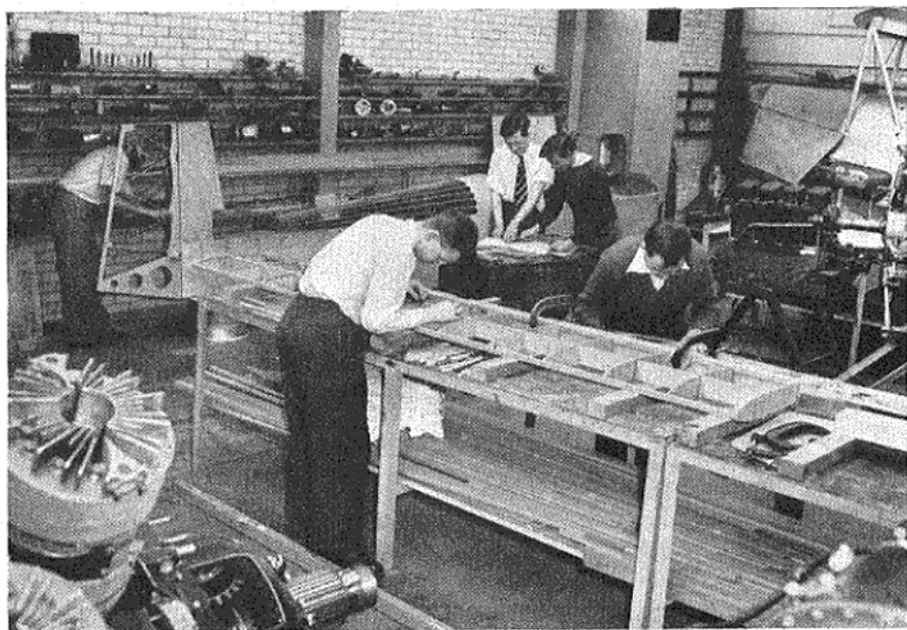
The artist's original model of the design for the British Model Aircraft Industries stand, built to a scale of $\frac{1}{2}'' = 1'$. This in itself was quite a masterpiece, the models, kit boxes, etc., being well reproduced by means of scrap balsa and paper.

know who spend weekends at this fascinating sport, to say nothing of those well known as model fliers, who have become equally famous as glider pilots/instructors, this exhibit also should hold a special appeal. Featured on the stand will be the fuselage of a *Sedbergh T21B* built by boys of the Leighton Park School, Reading, and also the wing of an *Olympia* sailplane.

MODEL AIRCRAFT plans are so popular that rather than try and crowd a quart into a pint pot by featuring these on our editorial stand, they have been given a stand of their own, which will be equipped with one of the latest Nig printing machines. It will, therefore, be possible for you, having selected a design from our vast range, to have it printed while you wait—surely a unique service.

Facing the main entrance to the hall is the Society of Model Aeronautical Engineers' exhibit. The S.M.A.E. controls model flying in Great Britain and, just to pick out one of many services they provide for modellers, they also have an insurance scheme to protect model fliers against third party claims. So why not have a chat with the official there and find out just how joining the Society can help you?

So far we have not mentioned the trade exhibits, but they are here in profusion—in fact it is safe to say that here is the most comprehensive display of model goods that could ever be shown under one roof. The British Model Aircraft Industries stand organised by the Federation of Model Aeronautical Manufacturers and Wholesalers is one of the largest



Members of the Popular Flying Association hard at work on a *Druine Turbulent*.

Photo Shell B.P.

in the show and contains a representative collection of the best the industry can offer: everything from a chuck glider to a radio model, a fuel valve to a complete engine—just take your pick.

Of course, you will probably want to purchase some of the exciting things you have seen and all you have to do is call on either of the two retail model shop stands who will be pleased to assist you. Messrs. Hobbies with their large chain of shops will need no introduction to readers and they have stand No. 23. On stand No. 25 will be Sheen Models, and many modellers who visit galas will

have seen their excellent mobile model shop. This experience will stand them in good stead when it comes to providing the many out of the ordinary gadgets that most of you expect to find at a show like this, and which many local shops never seem to have heard of.

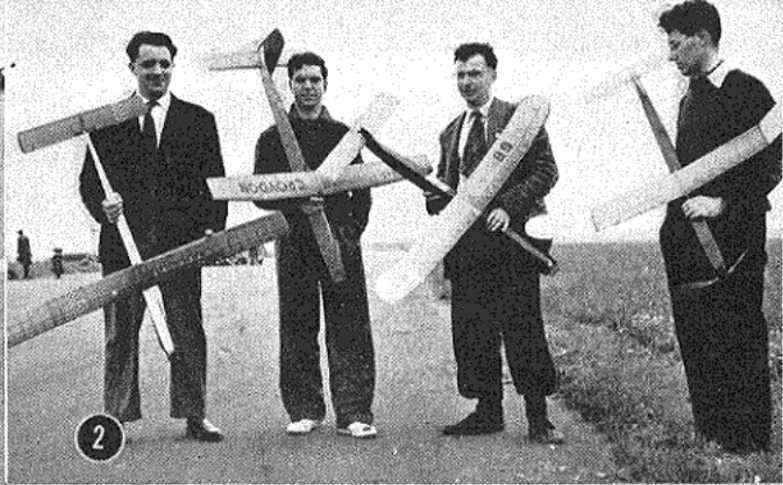
Lastly, we must mention the exhibition entries. Most of these models are the last word in perfection and thus provoke feelings of envy, but some must, inevitably, fall below this standard and often make you feel that you could do better. Well, if you can and have not entered a model this year, there will be another show in 1959 and we look forward to welcoming you again—not as a visitor but as a participant.

Boys of the Leighton Park School, Reading, constructed this *T21B*, the fuselage of which is featured on the British Gliding Association stand.



News Flash!

On Stand No. 33 you will be able to see World Champion Bond Baker's model together with the Wakefield Cup, which he won at the World Championships held at Cranfield earlier this month.



The Trials—Has the new system paid off?

THE selection of teams to represent Great Britain in the Power and Wakefield Championships this year departed from previous practice inasmuch as there were two Trials instead of the usual one. In the past, the opinion has often been expressed that this country's approach to World Championship team selection was just a little too easy-going, at least compared with the majority of Continental countries, and possibly this was so.

At least, by splitting the Trials into two contests, "class" has told in the final results, which were the aggregate times for the two meetings, and neither the Power nor Wakefield teams contained any "unknowns." Of course, by the time these notes appear the World Championships will have been won and lost on the runways of Cranfield Aerodrome, but we have included this page more from an "interest" angle than for any reasons of topicality.

The second Trials for both Power and Wakefield, like the first, were held at R.A.F. station Hemswell, in Lincolnshire, over the week-end July 5th-6th. Oddly enough there was no rain that weekend and the weather was almost identical for both the Saturday and Sunday—dull, with fairly low cloud and a rather chilly wind.

Over the two-day period the standard of flying was good, in fact, very good, and although the Power and Wakefield fliers who were near the top in the first Trials were all holding their own, the actual team placings were not determined until the final rounds. Both Ron Draper, first in the Wakefield, and Arthur Collinson, top Power man, maintained their leads gained in the first Trials—quite an achievement considering the opposition they had to face—Draper by 14 seconds and Collinson by 2 seconds.

Obviously, this method of team selection has provided more consistent results, and it was interesting to see how far this consistency was maintained under World Championship conditions, Great Britain gaining 3rd place in the team classification in both Power and Wakefield.

RESULTS

POWER			WAKEFIELD		
1. A. R. Collinson	.. Baildon ..	.. 29.44	1. R. Draper ..	.. Coventry ..	.. 28.32
2. K. Glynn	.. Surbiton ..	.. 29.42	2. J. Palmer ..	.. Croydon ..	.. 28.18
3. V. Jays	.. Surbiton ..	.. 29.21	3. J. O'Donnell	.. Whitefield ..	.. 28.12
4. J. Bickerstaffe	.. Rugby ..	.. 28.14	4. G. J. LeFever	.. S. Essex ..	.. 28.11

CAPTIONS

1. The Power team, left to right, Arthur Collinson, Ken Glynn, Vic Jays, and John Bickerstaffe.

2. Great Britain's Wakefield team, left to right, Ron Draper, John Palmer, John O'Donnell and Geof LeFever.

3. Draper proved (if any proof was needed) what a fine all-round modeller he is by heading Wakefield Trials while still World Champ in Power.

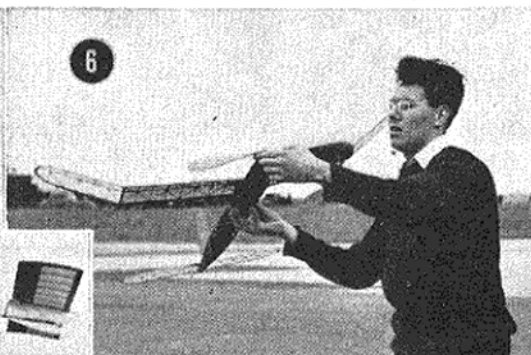
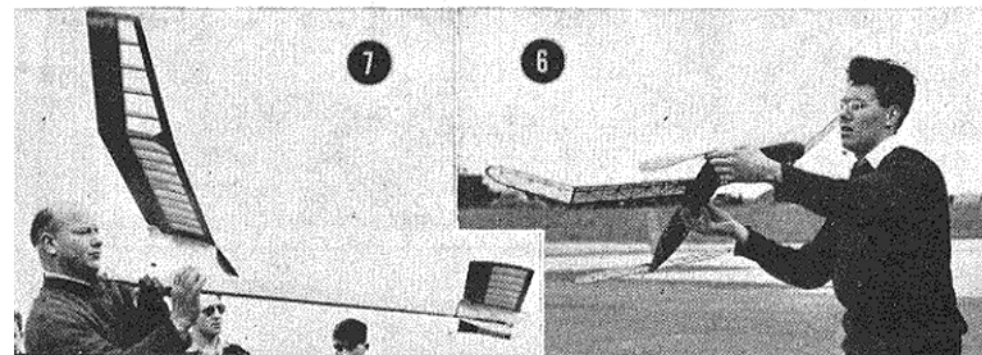
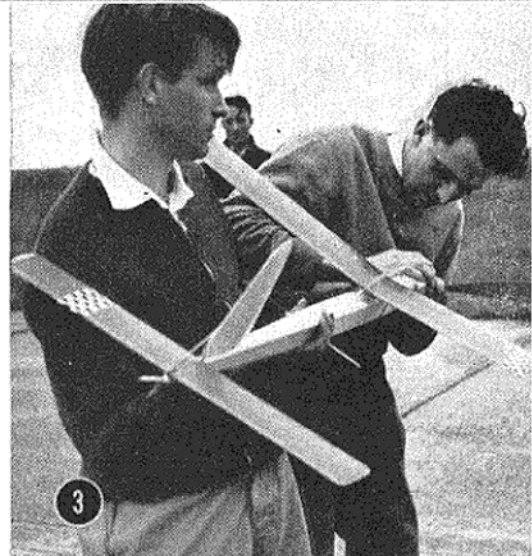
4. Two Surbiton club members made the Power team—Ken Glynn and Vic Jays—here

the former makes an adjustment to his Oliver Tiger.

5. John Palmer of Croydon fits the noseblock on his 2-year-old model prior to his 3rd round flight.

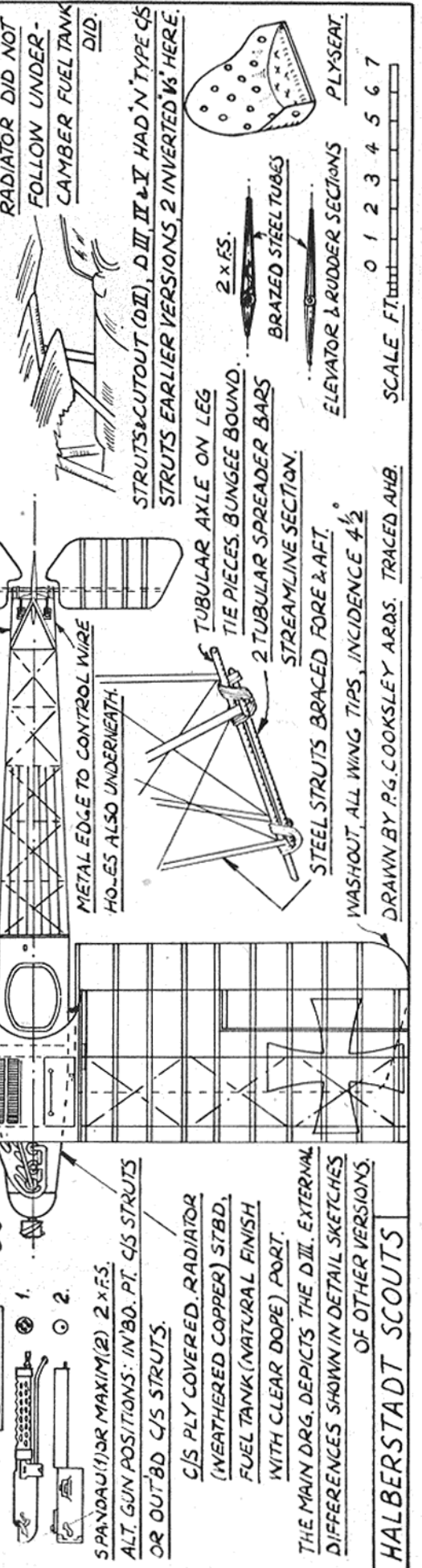
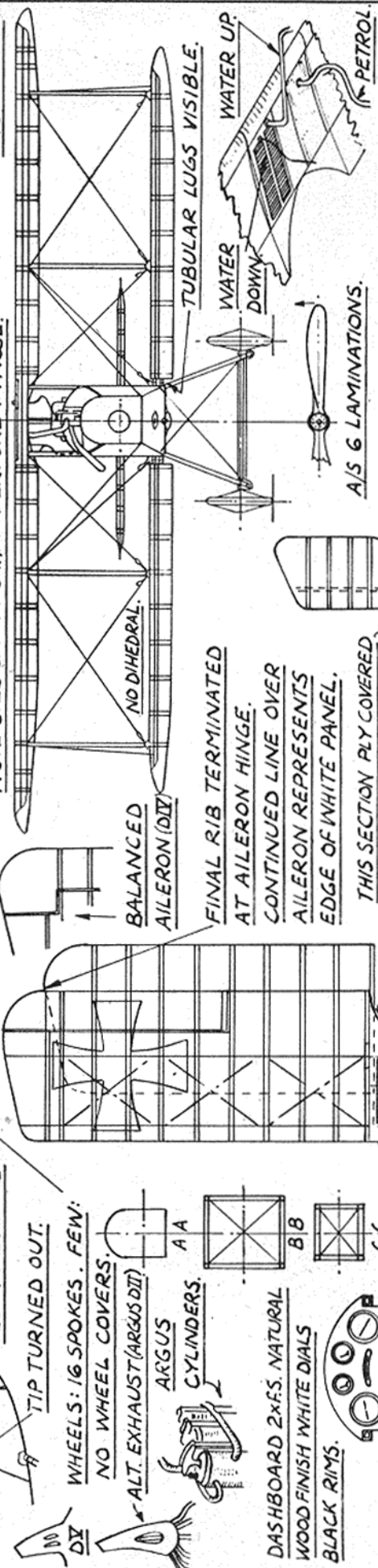
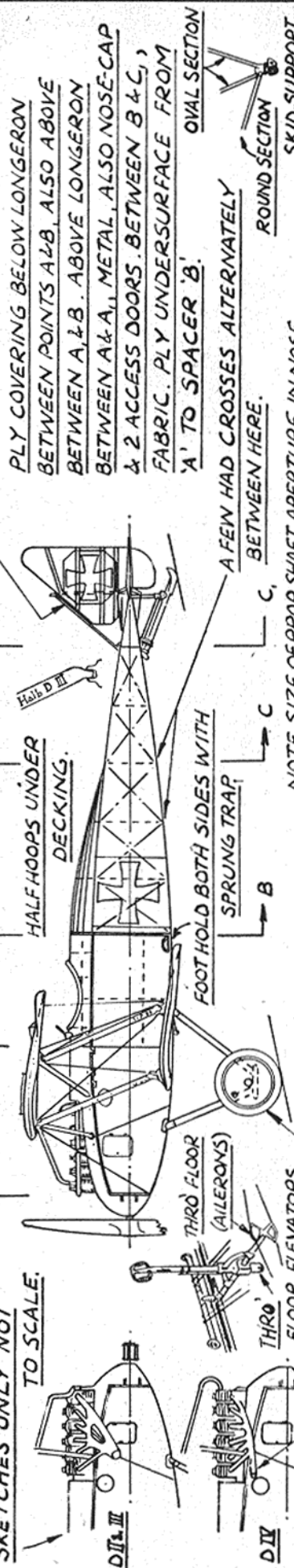
6. Geof LeFever flew a model basically the same as that flown in 1956 World Champs in Sweden.

7. John Bickerstaffe checks alignment on his Oliver Tiger-powered model. On this flight his motor run was 14.9/10 sec.—how closer can you get!



SMA 83

NOSES STB'D SIDE SKETCHES ONLY NOT TO SCALE.



HALBERSTADT SCOUTS

At the
**MODEL
 AIRCRAFT**
 Exhibition

How to build a solid scale model of the Halberstadt

Scout—as entered in the M.A.

Exhibition by **PETER COOKSLEY**

THE advent of the Halberstadt Scout gradually reversed the German's dwindling aerial ascendancy in World War I and the type came to be regarded with respect by allied pilots. It was one of the earliest German biplanes to carry a synchronised gun, and Oswald Boelke, a noted German pilot, received one on June 21st, 1916. It is his particular machine that is represented by my model.

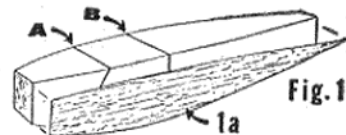
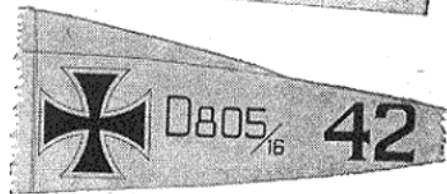
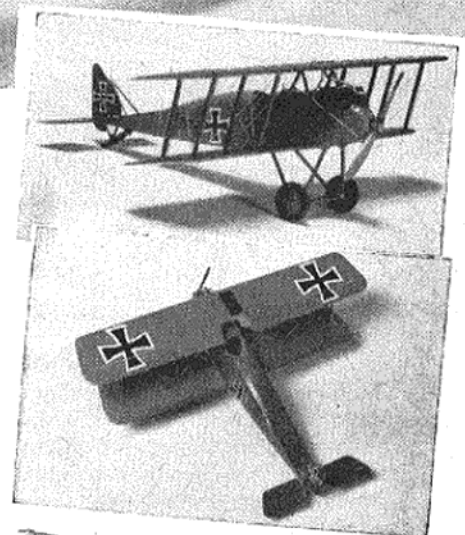
General Finish: The majority of early Halberstadts were clear doped all over with natural finish on the cowling and varnished ply. Many had the crosses on white rectangular panels, that on the rudder having its corners angled off, a feature seemingly peculiar to this type.

A few were a very pale blue all over, later versions being camouflaged green and brown above and sky blue below.

Some of the clear finished machines had the whole of the forward section to the first spacer aft of the cockpit slate grey, as well as the extreme end of the fuselage; others were similarly finished chocolate brown. One such (a DIII) had a large red "V" just forward of the fuselage cross.

Contrary to popular belief, Oswald Boelke's DII appears to have been scarlet all over—a point here revealed for the first time anywhere—the markings are shown in the accompanying diagram. The crosses in all locations were similar, without a white panel, while in common with other machines of this type the metal struts were protected with grey dope, as were the blades of the airscrew.

The loan of material by Peter L. Gray used in the preparation of parts of this article is acknowledged with gratitude.



How to make the Halberstadt

1. Select a piece of whitewood 6 in. x 1 in. x $\frac{3}{4}$ in. and cut to plan view minus 1 mm. each side. Cut the block all round at lines A and B, i.e., rear centre-section strut to main spar and first spacer aft of cockpit. Use a fine saw and leave sufficient wood to hold firm until stage 2 is complete (Fig. 1).

2. Cut two sides from 1mm. ply and cement into place, but do not cement at cockpit area; when dry carve to profile shape.

3. Complete cuts with fretsaw and press out resultant block.

4. Fit cockpit floor, interior details and cover top with veneer. Cut out cockpit opening after this is dry.

5. Cut and file unit from fibre or $\frac{1}{16}$ in. plastic sheet.

6. Make up tail-plane bracket from wire and brass, drill elevators and fit.

7. Similarly form skid support and rudder struts and solder.

("Model Aircraft," Nov., 1957.)

8. Cut wings $\frac{1}{8}$ in. spruce taking out under camber with a suitably shaped piece of broken glass. Divide lower wings and insert wire roots located in fuselage holes.

9. Bend washout in steam from kettle.

10. Cut and file up eight inter-plane and c/s struts from oval wire.

11. Flatten 16 g. brass tube and bend up and solder u/c.

12. Carve a/s, cut rebate in c/s for radiator and drill all holes.

13. Turn up wheels from close grained hardwood or plastic. (Mine were done in a drill chuck with a wood chisel and glass paper.)

14. Grain fill all parts and smooth off.

15. Add wing ribs from paper strips, the unwanted edges being cut away after fixing with clear dope; those on tail by poster

paint in draughtsman's pen. ("Model Aircraft," Feb., 1956.)

16. Make up engine and gun from plastic rod or dowel.

17. Form corrugated radiator by wrapping aluminium foil round a suitably milled tool handle.

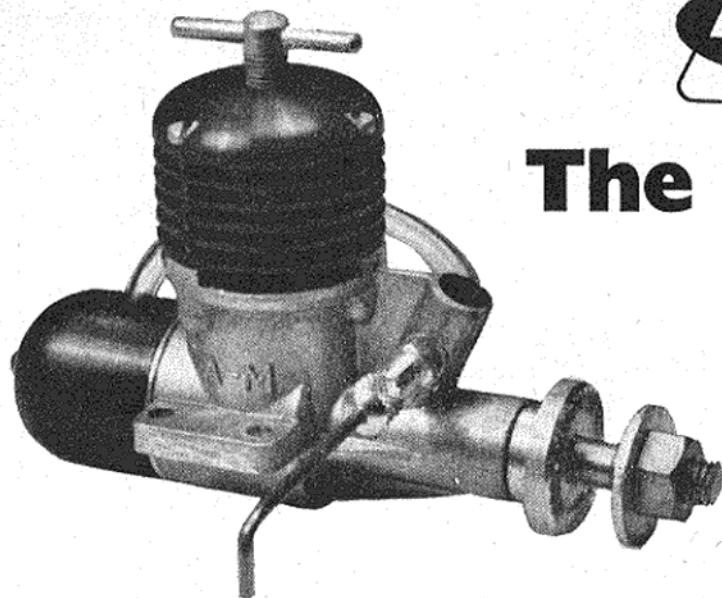
18. Make frames from similar material for 17 and control wire holes. Two smooth pieces simulate petrol tank, with wire added.

19. Dope all components (spraying gives the best finish).

20. Assemble and brace with synthetic thread. Secure this in upper strut holes and pull taut through lower wing, finishing each off with a minute tissue patch.

21. Cut aileron control horns from sheet brass and drive into wood; add wires passing right through pin holes.

22. Make windscreen; add pipes, etc., from soft brass wire.



The Allen-Mercury A-M 15

1.5 c.c. diesel

“... at the top of the tree as far as 1.5 c.c. engine performance is concerned.”

ONE of the most impressive model diesels, as regards power output, that has yet appeared on the world market is the 1 c.c. Allen-Mercury “10.” When one of these engines was tested for this series (July 1956 issue) it delivered an output of no less than 0.118 b.h.p.

This is the highest performance yet realised with a 1 c.c. engine. Equal to a specific output of 0.118 b.h.p./litre, it is also the highest ever recorded for a plain bearing diesel and is one of the highest performances yet reached by a model diesel irrespective of type.

In its external dimensions and weight, the A-M “10” resembles many motors of the 1.5 c.c. class

and some of its performance almost certainly stems from the added rigidity and better internal cooling of the extra material thicknesses involved.

It is no accident that the “10” is to all outward appearances a 1.5 class motor for it was, in fact, based on a prototype which now appears, in its production version, as the new A-M “15.” Both 1 c.c. and 1.5 c.c. engines were developed concurrently and when production was begun more than two years ago, it was merely a matter of deciding which capacity should be offered first. The “10” got the vote and it was, presumably, due to its tremendous success and the resulting demand, that we have had to wait so long for the “15.”

Apart from the colour of the cylinder barrel and tank (green in the case of the “10” and blue for the “15”), there is only the slightly greater diameter between the fins of the “15” cylinder barrel, to outwardly identify the two.

Internally, it is the cylinder, piston and con-rod that distinguish the “15” from the “10.” The lower assemblies, comprising crankcase and crankshaft, are identical and, in fact, interchangeable. The stroke is the same for both engines and the extra capacity of the “15” is gained by an increase of 0.094 in. (according to two units measured) on the bore.

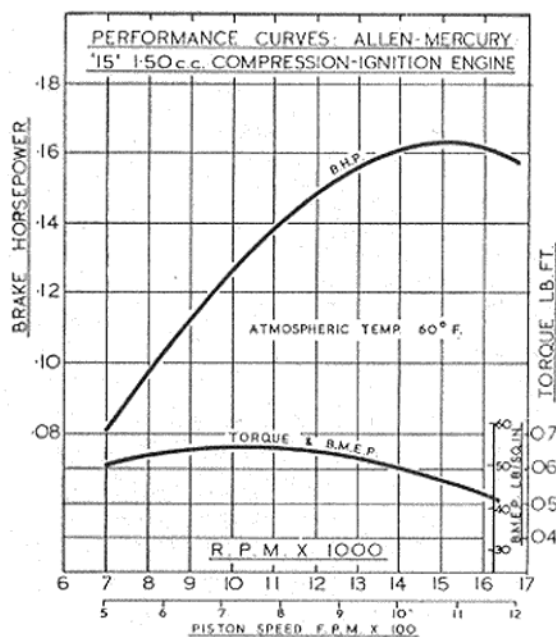
It is true to say that the “15” is, in effect, a bored out “10.” Cylinder liners are basically similar and even have the same port areas and give the same timing. However, the upper part of the liner of the “15” is turned to a larger outside diameter so that a wall thickness still exceeding 0.050 is maintained. Other modifications include a heavier gudgeon-pin ($\frac{3}{8}$ in. instead of $\frac{1}{8}$ in.) and, of course, a new con-rod to accommodate this.

It must be admitted that, having regard to the limited extent to which the “15” differs from the “10,” one would have been prepared to accept a relatively modest improvement in performance, perhaps no more than 25 per cent, which would have still been sufficient to place the “15” well up among the leaders of the 1.5 c.c. class. In actual fact, our test “15” responded to the extent of some 38 per cent., raising the b.h.p. to a figure which is one of the highest yet achieved by any 1.5 c.c. motor and which more than equals the outputs of the best Continental ball-bearing 1.5 diesels, that have been claiming some attention recently.

On the construction side, the A-M “15” exhibits the same high standard of internal fits and finishes as the “10.” Both these engines are, of course, quite modestly priced and it is satisfying to see that most of the money has been spent where it matters most and will contribute to performance and durability.

Specification

Type: Single-cylinder, air-cooled,



reverse-flow scavenged two-stroke cycle, compression ignition. Shaft type rotary-valve induction. No sub-piston supplementary air induction.

Bore: 0.521 in. Stroke: 0.430 in.
Swept Volume: 0.0917 cu. in. = 1.502 c.c.

Stroke/Bore Ratio: 0.825 : 1.

Weight: 3.1 oz. including tank.

General Structural Data

Pressure diecast crankcase and main bearing housing in LAC.112A alloy. Crankshaft of S.14 steel, hardened, with disc-web and running direct in crankcase material. Splined shaft end for prop driver. Meehanite cylinder liner, flanged at exhaust port level and clamped to crankcase via cylinder barrel and three long screws. Cylinder barrel of duralumin. Meehanite piston with full-floating gudgeon pin. Connecting-rod machined from forged dural bar. Spraybar type needle-valve assembly. Beam mounting lugs.

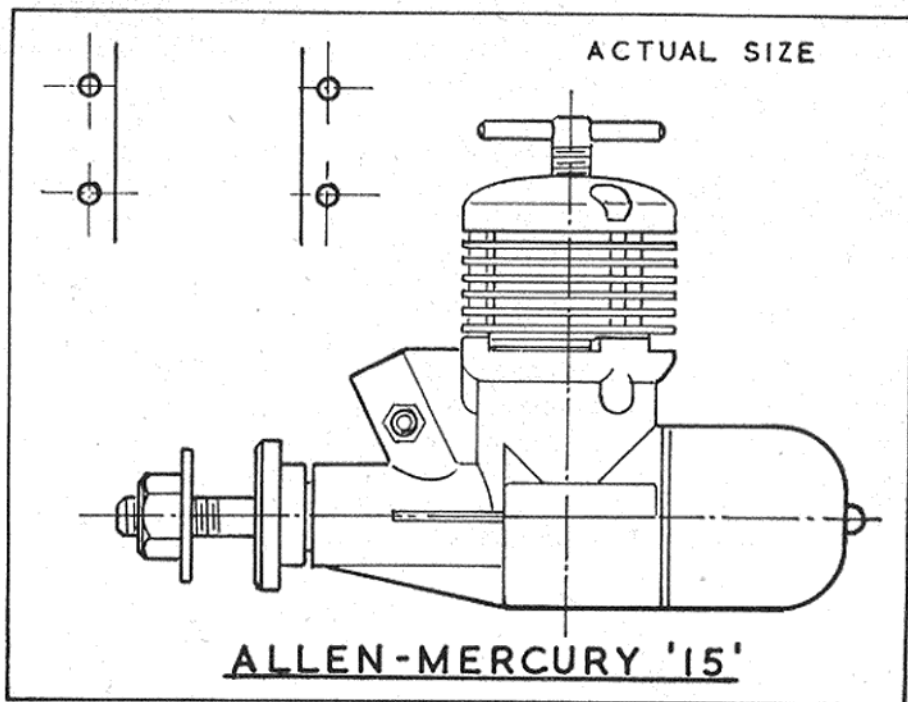
Test Engine Data

Running time prior to test: 2 hours.
Fuel used: Mercury No. 8.

Performance

Where the "15" scores mostly over the "10" is in its power/weight ratio for, with nearly 40 per cent. more power, it is practically the same weight. In some countries (West Germany and Japan, for example) there are special F/F contest classes for engines not exceeding 1 c.c., and, of course, there is also the 1 c.c. class PAA-Load model. For such contests the "10" has proved ideal. The "15" will also have much to offer in classes where engine capacities are limited to 1.5 c.c. For open power work, it is worth noting that the "15" is up to 25 per cent. lighter in weight than the Continental ball-bearing 1.5s of near-similar performance, added to which it is quickly interchangeable with the "10" for double class contest use with a single model, where appropriate.

The handling characteristics of the "15" are very similar to those of the "10" and, therefore, are generally good. An initial start from cold was quickly achieved after choking the intake and starting remained easy on all prop sizes, only becoming a little more tricky when the diameter was reduced below 7 in. There was then the common tendency to "bite"—i.e. for the prop to snap round and rap the



finger—but since these small sizes correspond to loads allowing r.p.m., in the air, in excess of the b.h.p. peaking speed, this is, in any case, relatively unimportant.

The controls were excellent. Needle valve sensitivity was just about right, the only complaint with the test engine being that the needle tended to float about a little at high speeds, but this was quickly cured by squeezing up the thimble slightly. The compression adjustment was also responsive yet not critical and it was particularly pleasing to find that the contra piston remained firm in the bore, yet without any tendency to stick, irrespective of engine temperature—and the engine does run very hot.

As regards test performance, the curves speak for themselves. Maximum torque was achieved at around 10,000 r.p.m. and although b.m.e.p. was a little below that of the "10," it was still well above average for

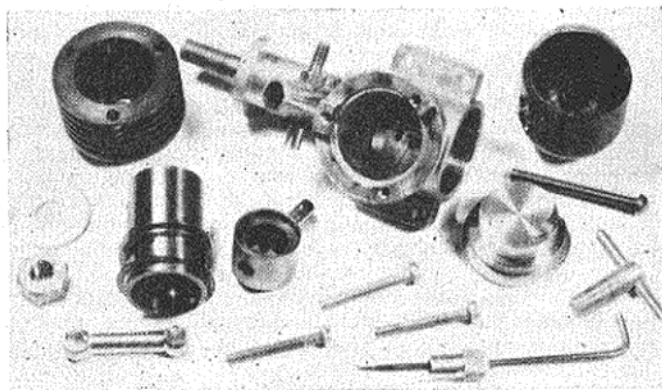
engines of this class. Below about 9,000 r.p.m. there was a considerable power loss as the engine warmed up (a drop in torque to the order of 10-15 per cent. was apparent between "cold" and "hot" readings) but beyond 10,000 r.p.m. the tendency disappeared and was entirely absent above 12,000 r.p.m.—a normal tendency with diesels of this type. As regards ultimate power, a maximum output of 0.163 b.h.p. at slightly over 15,000 r.p.m. was achieved and this, needless to say, places the A-M "15" at the top of the tree as far as 1.5 c.c. engine performance is concerned.

In all, the A-M "15" is a most worthy companion model to the "10," and "10" users will agree that it is scarcely possible to say fairer than that.

Power/Weight Ratio (as tested): 0.84 b.h.p./lb.

Specific Output (as tested): 108 h.p./litre.

An "exploded" view showing the works of the A-M 15





Who'll Fly

A BOAT?

The C. H. Roberts Cup is awarded each year by the North Kent Nomads club for rubber powered flying-boats, but it is possible that to many aeromodellers this contest is unknown. The specification called for is simple and offers plenty of scope for experiment in this largely unexplored facet of our hobby.

The models should be of scale appearance with at least 150 sq. in. of wing area, a wing loading of 1 oz. for every 50 sq. in. used and be capable of surviving a two-minute floatation test. The longest official time for a flying-boat of this type is 69 sec., but there is a challenge to a model aircraft designer in the conditions under which these machines operate. The likelihood of thermals over water is poor and, therefore, all the altitude gained by a 'boat has to be paid for in power and cunning. In the hope of stimulating interest among experimentally minded modellers, **W. TINKER** discusses the pros and cons of successful layouts and gives practical hints for those who would like to try their hand at something different.

MODEL flying-boats are rare, but, at the moment, the rubber powered variety is split into two distinct species; the favourite twin motor layout used almost exclusively for a number of years, and the single motor pusher arrangement recently developed by the Portsmouth and Epsom clubs.

Fig. 1 shows the type of model flown by the C. H. Roberts cup winner, A. D. Hall, so successfully over the past few years, and similar style 'boats hold both British records for their class. The attitude of the aircraft during take-off permits the minimum clearance and maximum airscrew diameter possible. Because of the high power available, take-off is short and snappy with no torque problems, although the winding technique necessary with twins sets up a difficulty possibly worse than torque.

Being forced to wind one motor at a time, it is inevitable that the twin will finish up with unequal torque. The turning moment produced is magnified by the offset thrust line and this has to be trimmed out. It is obvious, then, that the two motors should be placed as close together as the airscrews will permit,

and, to keep the thrust-line low to obviate "digging-in," just high enough to clear the water by about $\frac{1}{2}$ in. So many factors have some effect on the torque produced by a rubber motor, that it is unlikely that the flight pattern of a twin will remain constant, and in addition a large proportion of the flying surfaces is rendered less efficient due to the slipstream.

With the idea of eliminating the disadvantage of the twin, the single-motored 'boat was brought into being. It has succeeded in this, inasmuch as the flying surfaces operate in smooth air, winding is no more elaborate than with a normal rubber job and utilisation of the full length of the hull for the motor means a potentially longer motor-run. But—it has several disadvantages of its own! The power available is smaller and the increase in the number of turns is lost by the relatively small propeller. With this type, around $1\frac{1}{2}$ in. clearance is needed for the prop. The thrustline must be kept low and this means a smaller diameter than that used on a normal model of similar size. (See fig. 2).

Trimming presents no difficulty and will remain fairly constant. Even torque, surprisingly, does not seriously hamper take-off. In dead calm conditions there is a tendency to curve until planing speed is reached, but this can be counteracted quite simply by heading the aircraft to one side of the required path. A favourable breeze shortens the run considerably, with a corresponding decrease in torque trouble.

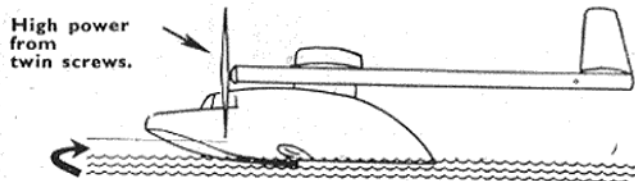
There is nothing *difficult* in flying boats and they may be tackled by anyone with a modicum of experience of rubber models, while there is unlimited opportunity for incorporating one's own ideas. For example, the writer believes that the generally accepted vee hull is not the best to use for a quick take-off. Orthodox vee, flat-bottomed and inverted vee or concave hulls have been used, and the concave hull gave the best

results in calm water. The Italians tried the concave hull on one of their big flying-boats and abandoned it, probably because it was not acceptable for passenger comfort, this overriding any improvement in take-off distance. A model is quite capable of absorbing any shocks likely to be imposed by normal take-off and alighting, so what does it matter if it ricochets off a wave? If it bounces off the first wave it is airborne quicker than if it cuts its way through it, losing momentum and lift simultaneously. It is recommended that the concave section is blended into a flat step, as continuing the section right through may delay the take-off by forming a venturi as the centre of the step clears the water, giving rise to a reduced pressure under the hull instead of the desired increase.

The normal vee hull wastes power by dividing the water and throwing it aside, whereas the concave hull funnels this potential energy down towards the step forcing the model into the air (Fig. 3). Remember to keep the c.g. slightly aft of the step and that the pusher types require a longer nose. Behind the step the hull is best kept flat and on twins may be shaped to a point, but on pushers it is advisable to finish at a straight transom-like stern about half the beam measurement in width. This combats any desire for the stern to sink into the water as the model changes its angle of attack. A coat or two of a silicone floor polish will give a waterproof and water-repellent shine to the hull bottom, almost eliminating the drag of surface tension.

Drag is the enemy of all aircraft, and the two biggest drag producers on a flying-boat are the airscrews and the stabilisers, i.e. floats or sponsons. For sport-flying, free-wheeling or feathering

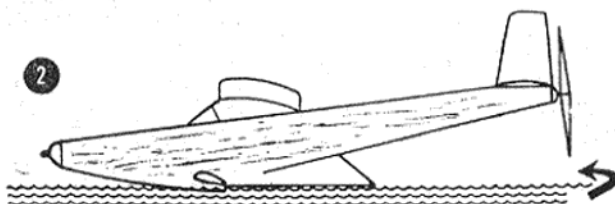
TWIN MOTOR LAYOUT



High power from twin screws.

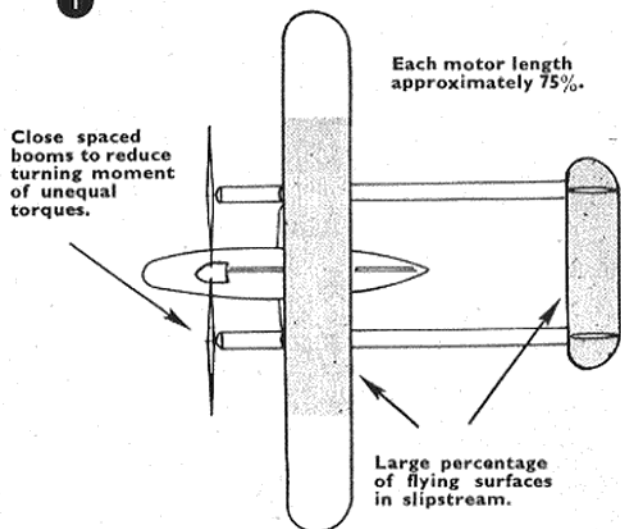
Small clearance needed.

SINGLE MOTOR LAYOUT



Approximately 1 1/2 in. clearance required.

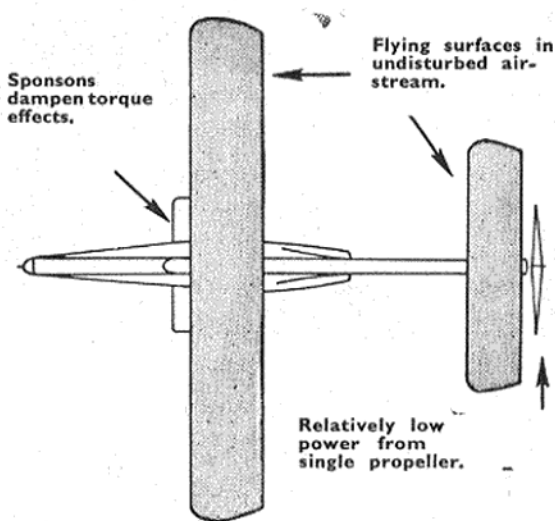
1



Close spaced booms to reduce turning moment of unequal torques.

Each motor length approximately 75%.

Large percentage of flying surfaces in slipstream.



Sponsons dampen torque effects.

Flying surfaces in undisturbed airstream.

Relatively low power from single propeller.

props are acceptable, but where pure duration is the aim folding types are essential for both twins and pushers. Positive stop and folding mechanisms must be incorporated to ensure no change of glide trim, particularly on the pusher layout.

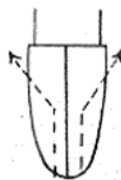
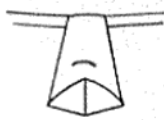
Some form of stabilising force is necessary for adequate stability on the water. Scale type floats are extremely prone to damage and unless used close inboard are dangerous during take-off by causing the model to swing. Twins may successfully use tip floats *only* if they are mounted well clear of the water and only come into use when the model tilts over on its side (Fig. 4).

Sponsons are much more reliable and rigid, but although they may lift, they contribute quite a lot of drag. A sponson 9 to 10 in. span with a 2 in. chord should be sufficient for a 3 ft. model, set at 5 deg. on twins and at least 8 deg. on single motor types. A flying-boat must be capable of looking after itself should it alight back on the water—and all the entries for the Roberts Cup last year did just that!

We hope your interest has now been sufficiently aroused to have a go at this fascinating branch of flying, but even if you haven't time to build a model, come along to the G. H. Roberts Cup contest which is on September 28th (an S.A.E. to R. Bareham, 742, Rochester Way, Sidcup Kent, will bring you full details), then we can all swap ideas at Danson Park.

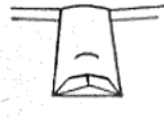
HULL DESIGN

Convex hull.



Water deflected outwards.

Concave hull.



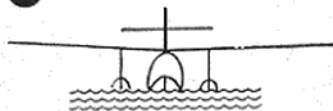
3



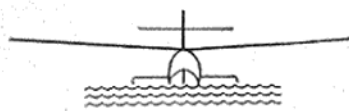
Water funnelled inwards towards step.

STABILISERS

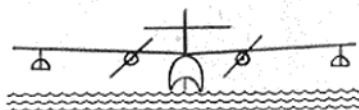
4



Inboard floats.



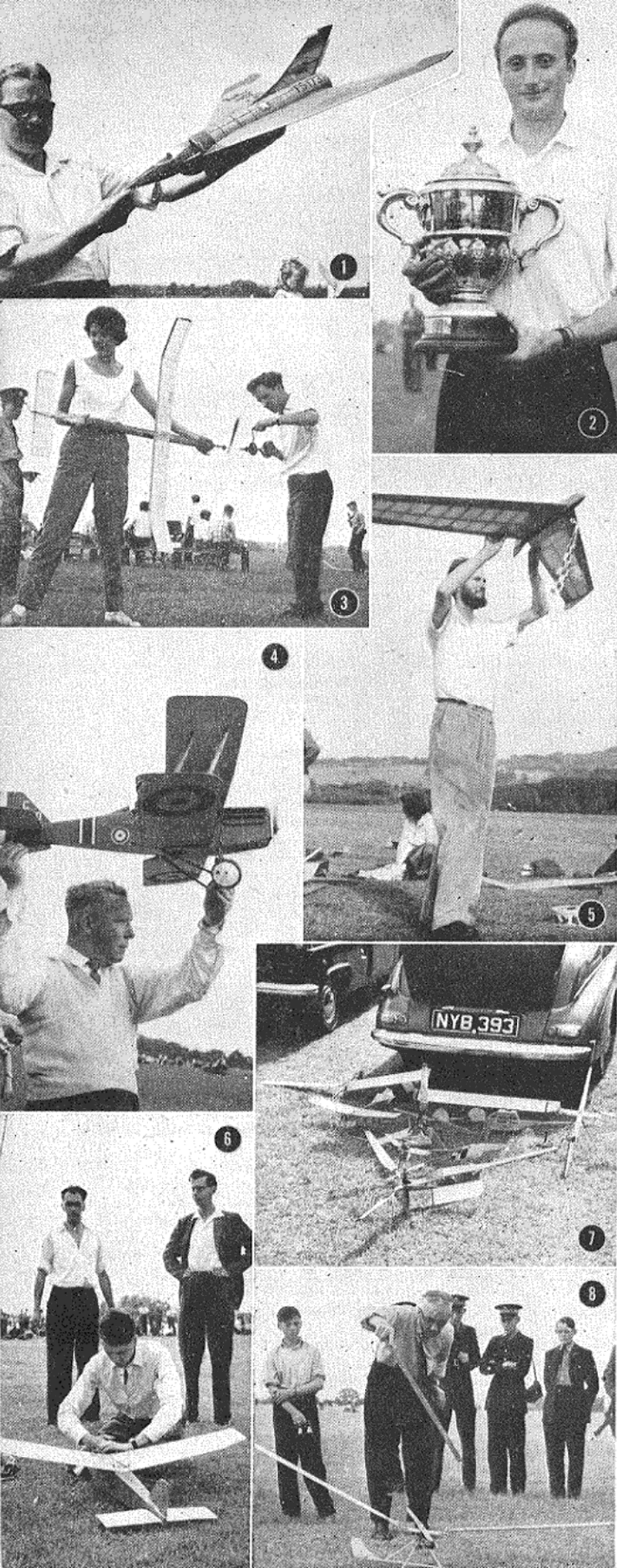
Sponsons.



High mounted tip floats on twins only.



Outriggered floats.



NORTHERN HEIGHTS GALA

Held at R.A.F. Halton

WELL, the N'Heights boys have done it again, by producing, after days of indifferent weather, a gala day that was perfect for flying—hot with little or no wind. This enabled fliers to pursue their usual course of setting up camp in scattered spots on the 'drome and laying out their models for all to see and admire.

The contests pursued their usual course—combat dragging on long after the official prize-giving—but the Northern Heights Gala is the one event of the year where contests are incidental to the day's enjoyment. Most modellers just go there for a spot of good "fun flying" and this endows the whole event with a nostalgic air of the "good old days" which is, in fact, what makes us look forward to it each year.

CAPTIONS TO PHOTOGRAPHS

1. Veron designer Phil Smith displays his latest ducted fan design. Named "Deltaceptor," it is powered with an A-M 10 and weighs 14 oz.
2. This year the Queen's Cup, here displayed by winner R. Norris, is for A/2 gliders.
3. E. Wiggins, who was a member of last year's A/2 team, winds his rubber entry assisted by his wife.
4. H. T. Jackson "sports flew" this beautiful replica of an S.E.5.
5. Pete Holland of Apsley launches clubmate D. Hawenden's tailless glider.
6. J. H. Davies prepares his R/C entry. Contest must be easiest ever—all models have to do is fly for approximately 2 minutes and spot land.
7. This array of fascinating unorthodoxy belongs to F. W. Boreham who is shown in photo 8 launching, with the aid of his "launching stick," his Allbon Merlin powered helicopter.

RESULTS

The Queen Elizabeth Cup—A/2 Gliders			
1. R. Norris	Surbiton	1,013 points	
2. S. Hinds	Reading	1,006 points	
3. R. Amor	E. Essex	881 points	
Flight Cup—Open Glider			
1. B. Tofield	Watford	8 : 00 + 9 : 10	
2. G. Fuller	St. Albans	8 : 00 + 7 : 20	
3. S. A. Wade	C.M.	8 : 00 + 2 : 25	
Fairey Cup—Open Rubber			
1. R. Lennox	Birmingham	8 : 00 + 5 : 15	
2. R. Burwood	—	8 : 00 + 3 : 55	
3. E. Barnacle	Leamington	8 : 00 + 3 : 44	
De Havilland Trophy—Open Power			
1. G. Fuller	St. Albans	8 : 00 + 4 : 10	
2. K. Glynn	Surbiton	8 : 00 + 1 : 43	
3. R. Gough	Enfield	8 : 00 + 1 : 25	
Thurston Helicopter Trophy			
1. C. M. Ingram	Southampton	564 points	
2. D. Poole	Birmingham	517 points	
3. G. Clark	—	290 points	
R.A.F. Flying Review Cup—Radio Control			
1. J. Fox	Hatfield	22 ft.	
2. D. A. Grocott	—	45 ft.	
3. A. McDonald	—	87 ft.	
Keil Combat Cup			
1. L. Burbridge	Kenton		
2. R. Hickman	Kenton		
Concour D'Elegance			
Section 1. Power Driven Models			
Mr. Amesbury	Radio Controlled Aircraft		
Section 2. General Flying Models			
Mr. Manuel	Radio Controlled Glider		
Section 3. Flying Scale Models			
Mr. McHard	Gloster Gladiator		
Section 4. Unorthodox Models			
Mr. Reed	X.V.2		
Section 5. Solid Scale Models			
no entries			
Aeromodeller Challenge Trophy—Gala Champion			
G. Fuller	St. Albans		

TOPICAL TWISTS

by
PYLONIUS

Red Rag Bull

We are reminded that modellers abroad enjoy reading about their favourite hobby just as much as we. In America the eager modeller flicks frantically through his model mag in the hope that this month, at least, he will find half a page or so of model gen squeezed between the Cadet Space Gun adverts and the latest lowdown on the new 5,000 m.p.h. rocket plane. Across the world, his eastern counterpart flicks just as frantically for an item or two between the cartoons of western modellers jumping on crashed sputniks and stories of young Ivan winning the Battle of Britain.

It is a source of pride that much of the meaty modelling matter digested abroad is either begged, borrowed or stolen, from the august pages of this model journal. Obviously, the articles have to be modified in translation to accord with ideological sentiment. For instance, in some countries "Free Flight" could not possibly be referred to as such. "Model operating in state owned skies, by permission of the Bureau of Air Security" has a better chance of meeting with official approval. But, at least it's comforting to know that our friends abroad are just as genned up on the colour of von Richthofen's socks as we are.



What I would like to know is what sort of intimate stuff our foreign friends print in their club reports. No doubt this space is strictly reserved for new records and open confessions from deviationists. Perhaps it might be a plea for mercy from some thoughtless type who flew his model to the right, or again, an abject confession from a traitorous soul who won a contest with a western engine, asking that the timekeepers be also punished for so obviously falsifying the results.

Home Front

The battle for the model mags. still rages in all its fury. And now, into the field of veteran and super-sonic combatants, infiltrate a few of the old home model guard to deliver a feeble fusilade from their ancient blunderbusses. But the Fireside Fusiliers, deeply entrenched in TV armchairs, and screened behind a strategic barrier of plastic models, hardly notice the disturbance. For them a more crucial and immediate battle commands their attention—"Gun Law."

One of the militant old timers, veteran of many a historic flying field sortie, clings stubbornly to the quaint old worldly notion that a model journal should have a picture of a toy aeroplane on its cover—one of those old-fashioned toys which, legend tells us, our wild forefathers gamed within the local parks. Now, any up-to-date armchair modeller knows that Model means Fullsize, or plastic replica of same, and would be aghast at the thought of an adult model journal featuring a toy aeroplane on its cover.

Another rampaging old timer recalls the stirring days of 1/16th balsa and test gliding over long grass. Angrily he demands to know what has happened to all this worthy pre-poly material. We could timidly point out that it is still used in kits (1/16th sq. balsa, that is, not long grass, although sometimes it would take an expert to tell the difference) for main wing spars,



engine bearers and other suchlike unessential parts.

Long grass, on the other hand, seems to have gone completely out of fashion. All we know is that the older modellers used to simply revel in the stuff, and were never happier than when wading waist deep through the wild prairie. Now, of course, crew cut airfields are the order of the day, with a crop that's even shorter than a radio test flight. What has happened to all the long, wavy stuff, goodness knows. The last time I saw any was when I looked out of my back window. But this, as far as I know, is the only cultivated patch in existence, and quite unsuitable for test flying, owing to the presence of certain vigilant neighbours.

Come to think of it, Chobham Common used to boast quite a healthy crop of test glide grass back in the days before every modeller became an expert. This might still be waving about in useless abundance had not some canny contest types realised what thundering good home made thermals could be made out of this highly combustible material.

But to what unimaginable use the odd patch of overgrown esparto is put to nowadays—and sophisticated friends tell me it still has its uses—it is certainly not test flying. The few remaining flying types are much too expert to indulge in that sort of childish nonsense. For instance, not even by a longer stretch of imagination than his rubber motor, could you imagine the fabulous O. Winnall test gliding a model. To keep up his contest winning performance he just could not allow the grass to grow under his feet.

Although, no doubt, the modern modeller thinks it high time that the old timers were put out to grass, the old timers themselves are equally derisive of the plastic kit. When they refer to people who dabble in this sort of nursery ornamentation as solid modellers, they are not referring to the density of the model structure, but to the density between the ears.

And so the battle goes on, with the vintage types advancing on a broad, multi engine front against the futuristic, Dan Dare hordes, and any other page hogging adversaries.

Units of Time

At the moment there seems to be a grand revival of pre-war kits. Stockists are now searching their back shelves for ancient relics which the modellers of the day were too discriminating to buy.

The significance of this is that the only real advance made in acromodelling over the years is in engine size. In the space of ten years, engines have shrunk by at least 2 c.c.s. On these calculations I estimate that a suitable engine to fly a pre-war model in the year A.D. 2000, would be of the order of minus 2 c.c.s. So small would such an engine be that it would comfortably fit on a pinhead—and what is more, be so efficient that it could be operated by one. Which, by the year A.D. 2000, might be just as well.



N.U.T.S.

It seems to me that, in the recently published list of abbreviations for beginners, the explanations were far too advanced. Something simpler and more understandable to the novice is called for:

- A/2 A sort of kite which breaks off its string and floats down, or up. Down if flown in a competition, and up if just for fun.
- d/t A gadget to fix to an A/2 to bring it down if it goes up.
- R/C Model for advanced modellers—usually flown by beginners.
- F/F R/C model flown by beginner.
- C/L Centrifugal Lunacy.
- T/R Mass Centrifugal Lunacy.
- O.D. Your own design.
- J.O.D. Designer of your own design.
- T.T. Topical Twists or Tiny Tots.
- Ed The bloke who has to put up with you ingorant lot.



Your First Flight

can make or break your career as a modeller. **LEN RANSON** has therefore compiled the following hints to assist you to make your start in modelling a complete success

to the line of flight. See that you have accurately introduced this angle into your model. This is important, as it is the angle at which the wing will function most efficiently.

Now look at the tailplane. This will either be set flush to the line of flight, or have the front edge tilted slightly downwards. Normally, the wing and tailplane angles are built into the resting points on the fuselage, and should be true if the model is accurately built. However, it may be found that some slight distortion has occurred in the building, and the insertion of slivers of packing may be required to obtain the correct settings.

With the flying surfaces rigged as per plan, the next step is to determine the c.g., or point of balance, position. This is usually located about a third of the way along the profile or chord of the wing, and on most plans the position is indicated by the sign \oplus . To balance the model at this point rest the wing on the tips of the fingers, and then add ballast, if and as required, to the nose and tail. The best form of ballast is lead shot embedded in plasticine, which can be inserted in small amounts inside the fuselage. On some rubber powered models the wing can be moved backwards and forwards along the fuselage. This gives a very fine degree of c.g. adjustment, but on most engine powered models the wing is fixed.

At this stage the fore and aft trim of the model should be well enough arranged for initial test gliding to be carried out. But, before attempting this, some preliminary attention

WHETHER you are the earnest type of beginner, with ambitions of one day winning the Wakefield Cup, or just a "fly-for-fun" novice, your immediate problem will be the same—getting that first model to fly.

Let us imagine that, for your first attempt, you have had the good sense to choose a design of modest price and straightforward construction; that you haven't saddled yourself with a 6 ft. span radio job or some "expert only" scale model, and that you are capable of making a good workmanlike job of the construction. And let us also suppose that you haven't the least clue on flying the finished article.

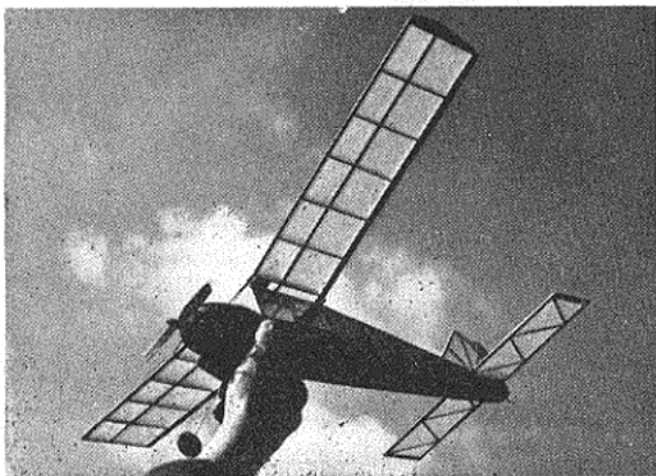
Having thus established that you are a reasonably capable sort of beginner, there is no reason why your first model shouldn't show some reward for the patient hours spent at the workbench. But be warned; models are tricky things to fly, even for the expert. Your tour of patience doesn't end with the last

lick of dope; there is still a lot more concentrated effort required to get the model safely airborne.

The first demand on your over-taxed patience is a complete check of the finished model for correct alignment and balance. A model, operating in a three-dimensional medium, is a highly sensitive instrument, requiring the utmost precision of trim and adjustment. Even the slightest error can have the most disastrous results. But while the hazards are many, they can be largely eliminated by careful attention to detail.

The first thing is to compare the model with the plan. Are there any discrepancies? Is the wing dihedral correct? Are the flying surfaces free from warps? Is the fin in correct alignment?

Having checked over all the obvious features, study the side view plan of the model for wing incidence. It will be noticed that the front edge of the wing is angled slightly upwards; that is, raised several degrees



Although power models are not ideal for the absolute beginner, if you have set your heart on one, then the type shown left is ideal. Below is a slightly more difficult but very pleasing design, the M.K. "Sportster," available as M.A. plan No. 239.



should be given to the thrust assembly. Whether your model is engine or rubber powered, the thrust line must be angled or offset in such a way that the excess thrust, which tends to make the model loop, is smoothed out, and the torque action of the propeller, which will try to twist the model into a sharp descending bank to the left, is suitably counteracted. To kill the looping tendency we use downthrust by angling the engine or noseblock slightly towards the ground, and, for our anti-torque measure, we offset the engine or noseblock slightly to the right.

This thrust offset is necessary as our model is primarily a glider, and must function as such when the power flight ceases. The object, therefore, is to match the power flight to that



This sort of thing can be avoided with careful trimming.

of the glide, and this can only be done by adjusting the thrustline in such a way that the desired glide pattern remains unaffected. Be sure, then, that your engine unit or noseblock will allow of such adjustment on the flying field.

Just one more word about thrust. If your power is a diesel engine, see that you have given it a thorough work-out on the bench, so that you can operate it easily and at varying speeds. Also make sure that it comes within the range of engines recommended for the model. In the case of a rubber model, ensure that the tensioning spring is operating satisfactorily; retaining sufficient turns to hold the motor taut on the glide.

Now select a nice, wide open space, free of obstructions—if you are lucky—and try a few hand launches over soft ground. After you have got the feel of the model—that is, launching it at its correct flying speed—you can proceed to make any necessary adjustments. If the model dives steeply, either add ballast to the tail or insert a slight amount of packing under the back end of the

tailplane. If, on the other hand, it stalls, add ballast to the nose. It is not advisable to pack up the front edge of the tailplane, as this can have an adverse effect on stability.

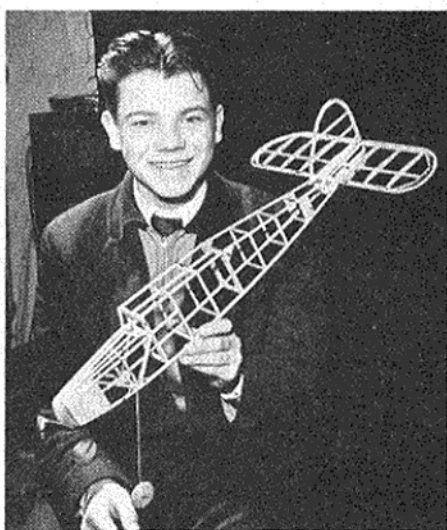
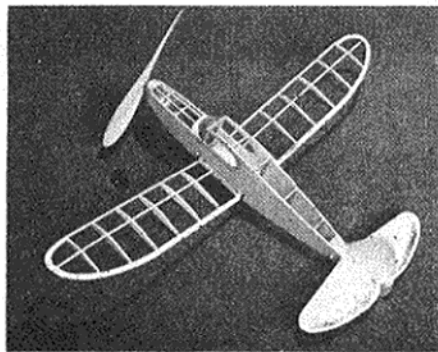
When you are satisfied that the glide is reasonably flat, with just a slight nosing down tendency as a safety factor, observe the way the model turns. A very shallow turn to the right is all that is required, and it is hoped for the purpose of directional trim you have provided the fin with a hinged rudder tab. Movement of the whole fin is often too drastic.

Now comes the moment of truth with that first critical power flight. Get the engine well warmed up, and check that nothing is vibrating loose. Throttle well back, but not so far that the engine will die on the launch, and heave gently into wind. On a rubber model about a hundred turns should suffice for the first flight.

At this point anything may happen. Test gliding by hand gives only a very rough idea of the trim, and not until the model has gained enough height to get into its glide pattern can we get down to the finer points of trimming. Remember, our first aim—to obtain a good flat glide in a sweeping right-hand circle, and we can now only proceed by trial and error. As a guide, however, the following list covers most of the trimming problems encountered:

- Stall under power: Add downthrust. If required amount is excessive, or ineffective, add ballast to nose.
- Dive under power: Reduce downthrust, and, if this does not cure, add ballast to tail or pack up trailing edge of tailplane.
- Banks sharply to left under power: Add right sidethrust, and adjust rudder if necessary.

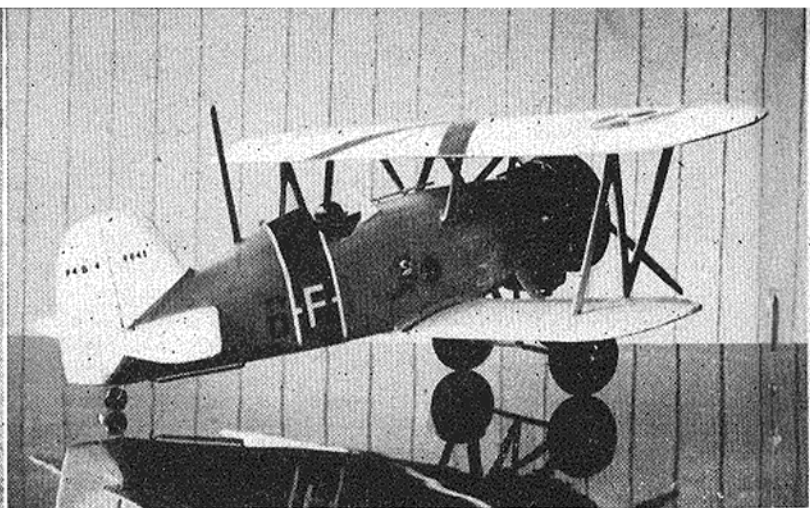
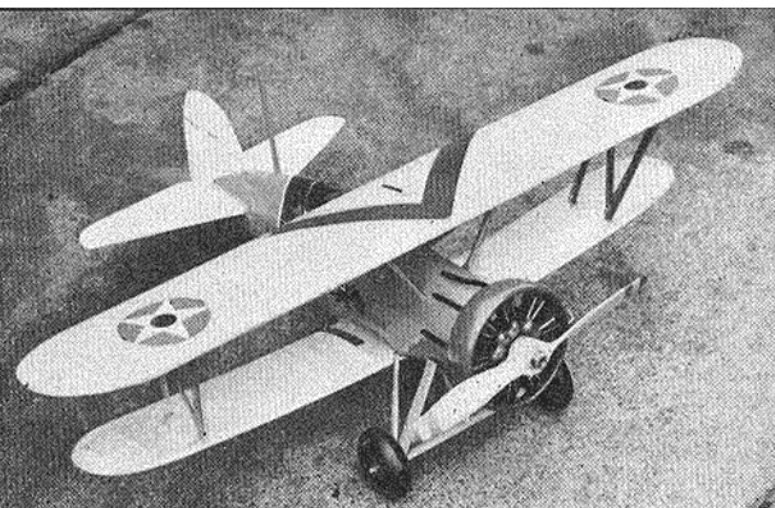
Low wing models are not usually recommended for beginners, but when the construction and layout is as simple as this then they make an interesting change.



This youngster is off to a good start with this simple design which will give him many hours of flying fun.

- Banks sharply to right under power: Decrease sidethrust, and, again, adjust rudder if necessary.
- Model flies well under power but stalls on glide: Add ballast to nose, and compensate power flight by decreasing downthrust.
- Model flies well under power but dives on glide: Add ballast to tail or pack up trailing edge of tailplane. Compensate power flight by increasing downthrust.
- Model flies well under power but banks tightly to right on glide: Adjust by left rudder, and compensate power flight by right sidethrust.
- Model flies well under power but banks tightly to the left on glide: Adjust by right rudder, and compensate power flight by reducing sidethrust.
- Model glides well but stalls under power: Add downthrust.
- Model glides well but dives under power: Reduce downthrust.
- Model glides well but banks sharply to right under power: Reduce sidethrust.
- Model glides well but banks sharply to the left under power: Increase right sidethrust.

While the above list does not pretend to give a complete answer to the problems of trimming, as a knowledge of aerodynamics is necessary for more expert adjustment, it should give the beginner some idea how he might obtain a reasonable performance from his first model. Always provided, of course, that the model has been carefully built, strictly to plan, with no fancy ideas added to "improve" its looks.



The BOEING F4B-4

A colourful replica of a famous U.S. Navy fighter designed for control-line flying by **W. I. BARRETT**

THE Boeing F4B-4 is one of America's most famous biplanes, and is an ideal prototype for a small C/L model. For those who like decorating their models in various colours, this one needs some beating. The colour schemes used by the U.S. Navy and U.S. Marines on their Boeings give ample scope to the dope dauber! The general Navy scheme can be seen in the photographs of the model. The wings are generally silver, with the top surface of the upper wing chrome yellow. Fuselage, struts and undercarriage are light grey, and the tail surfaces white. The cowl, formation "V" and fuselage band are red. Lettering is in black.

The construction of the model should present no difficulty to the average modeller, so if you are ready to go, make a start with the engine bearers and front formers. With the engine bolted in position, the formers can be cemented to the bearers, then when this unit has dried, bind the undercarriage in place, and add the bellcrank assembly.

Next cut out the keels and add the remaining fuselage formers, positioning the fuel tank between formers "E" and "F." This will form an ideal platform for the dummy pilot.

The tailplane and elevator assembly must then be added and linked up to the bellcrank. With the fin and rudder cemented over the tailplane, the model is ready for planking. Do not forget to mark the wing strut positions when the planking reaches former "K."

After sanding the fuselage, the dummy engine and cowling can be added. On the original model, the cylinders were produced by turning a piece of suitable dowel in a chuck and marking the fins with a 20 t.p.i. chaser. The grooves were later deepened with a fine razor saw. If this method is beyond the builder, an alternative method is to wrap cotton round the dowel to represent the fins. Push rods are made from pins.

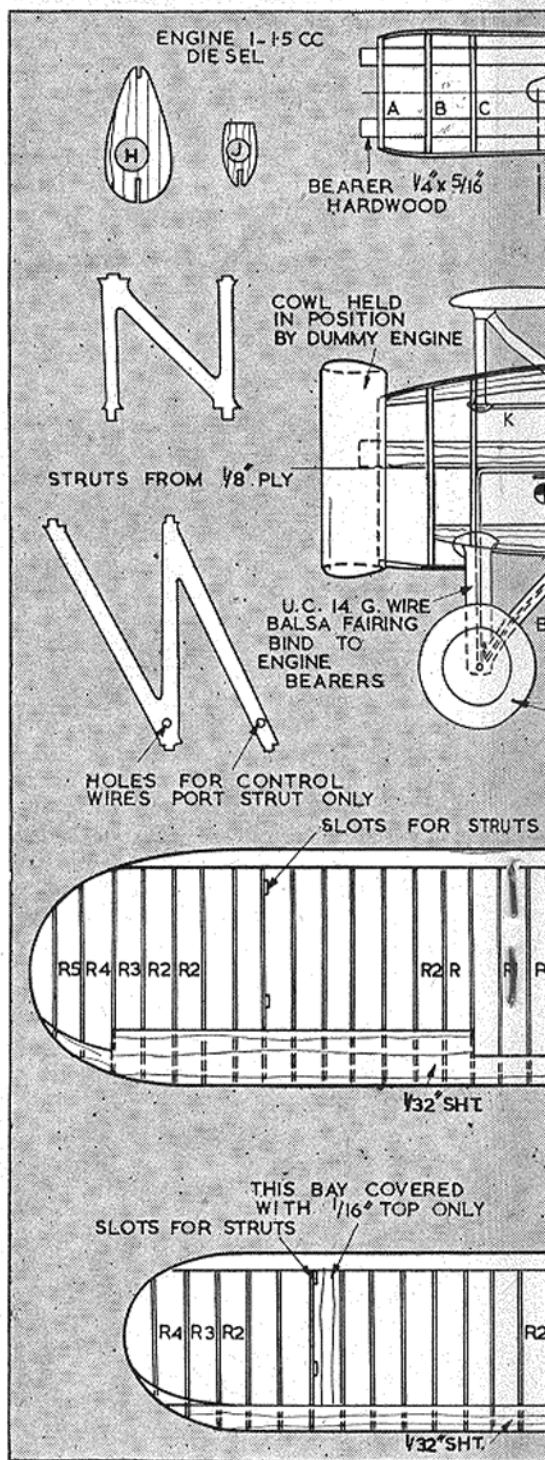
The wings are of simple construction. After cutting out the sheet base, the ribs are added, together with the leading and trailing edges. Cover with lightweight Modelspan and dope.

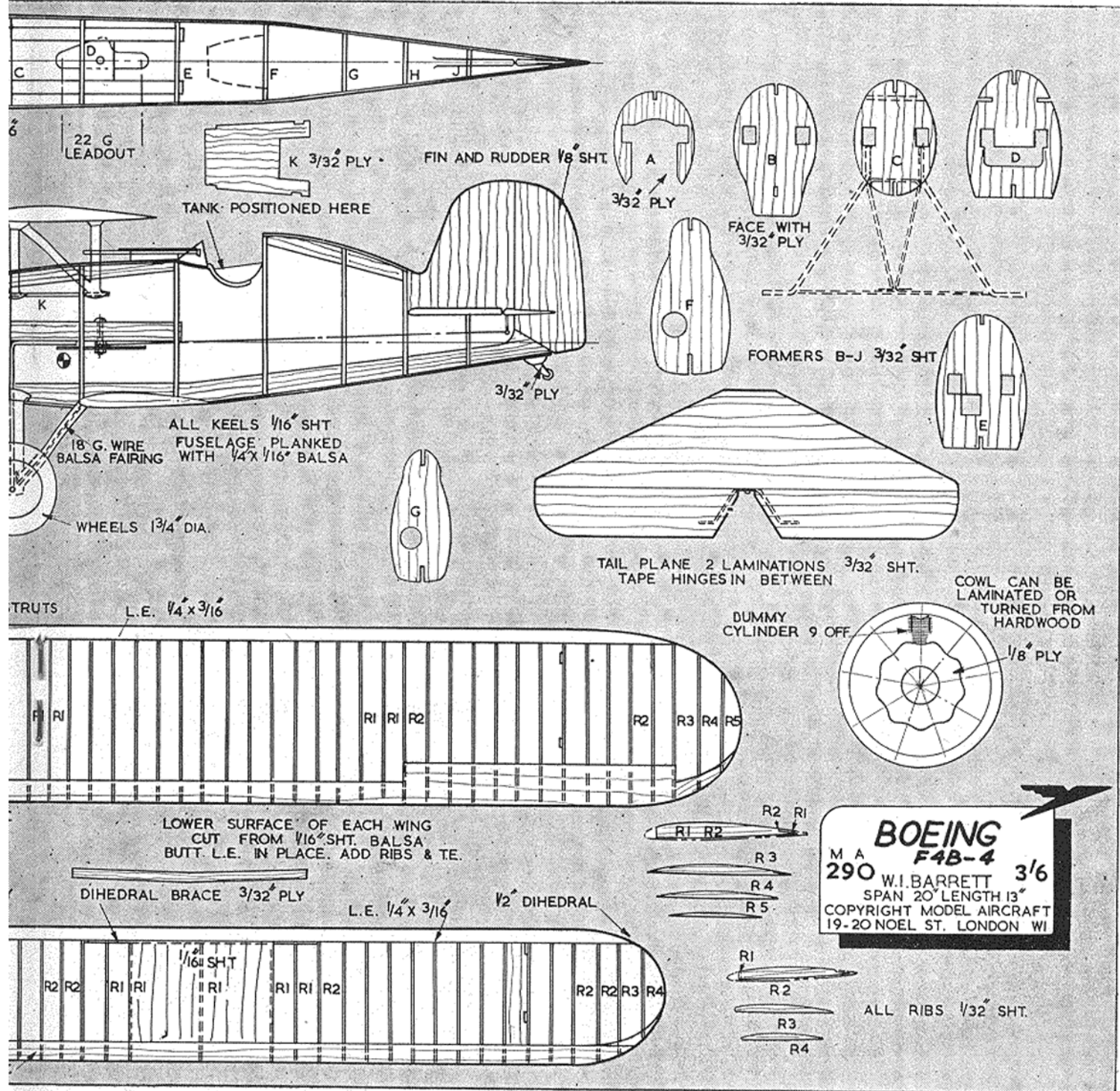
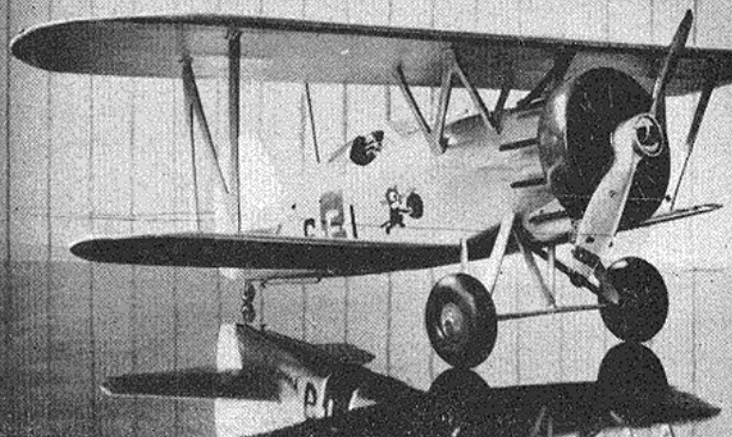
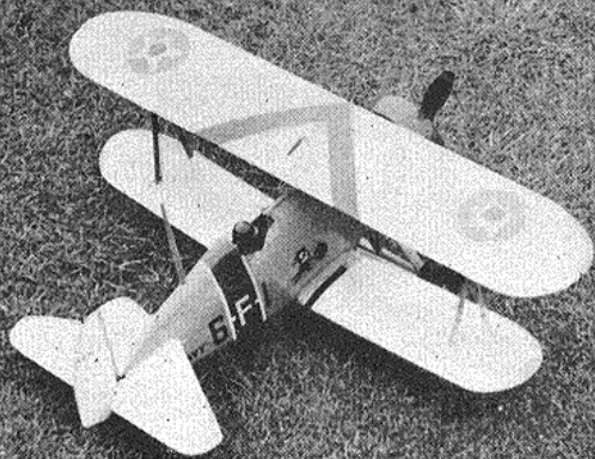
The model should be painted before the assembly of the wings to the fuselage, as this simplifies matters considerably.

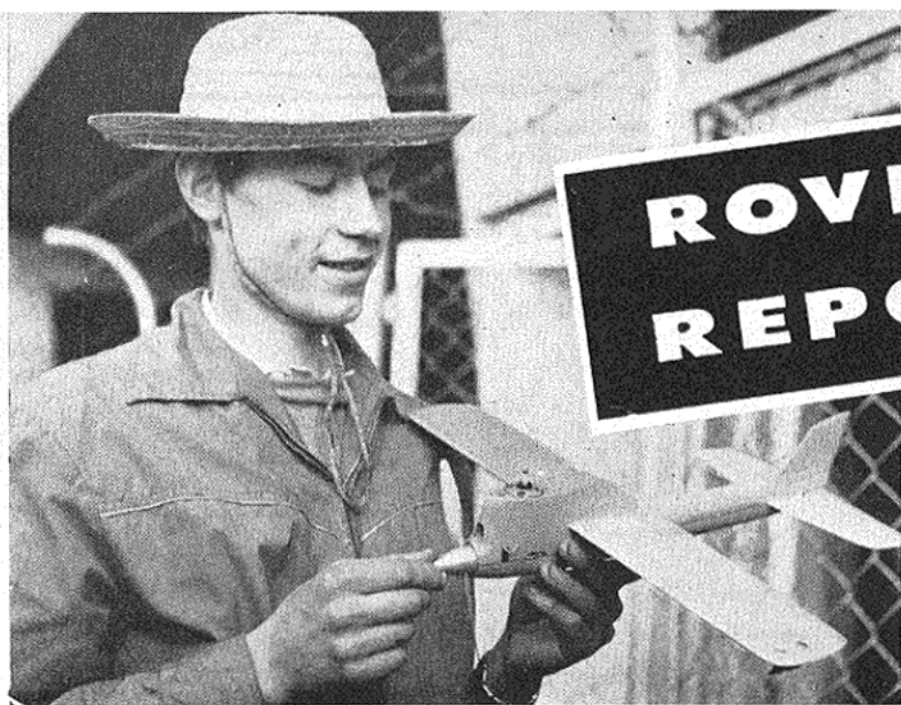
With the model finally assembled, check the c.g. The model should balance on the front line. This is important, as the model is so short that much c.g. variation can be fatal.

For flying, pick a good smooth surface. On release, hold on up elevator to prevent nosing over, but watch for the acceleration. The model fairly leaps off the ground, and the controls must be brought to neutral immediately.

FULL SIZE WORKING DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT 19-20, NOEL STREET, LONDON, W.1, 3s. 6d. POST FREE







ROVING REPORT

Brings
you up
to date

on the latest world
model news

AMERICAN progress in multi-channel R/C has so claimed everyone's attention, that we are apt to forget that there is still ten times as much activity in single channel, in the U.S., as in multi. Similarly, excitement over the latest ten-channel simultaneous control radio equipment tends to overshadow the remarkable progress that has been made at the other end of the scale.

In particular, we are thinking about a new high-quality, ultra-lightweight, single-channel tone receiver that needs no HT or LT batteries and operates solely from the 3-volt actuator battery. This is the RT1-3V receiver from the C.G. Electronics Corporation, an all-transistor set weighing but 2 oz. complete in its little case which measures only 2 3/8 in. x 1 1/2 in. x 1 in.

Even more remarkable is a further C.G. development: a self-contained receiver/escapement unit, the RX-1, which just about reduces airborne radio gear, weight and installation details to the absolute minimum. The RX-1 comprises an all-transistor receiver circuit that contains no relay, a Bonner

self-neutralising rudder escapement, battery tray and switch. Thus, all wiring is contained within the unit, the only exception—if it can be considered as such—being the aerial. All that is necessary is to connect up a rudder linkage, hook on the escapement rubber and slip in two pencils and, presto, you are, as they say, in business.

This year's Polish Championships for Wakefield, Power and A/2 were a three-day meeting held in June at Krosno. In the Wakefield event, on the first day, two well-known Polish modellers, S. Zurad of Wroclaw and W. Niestoj of Warsaw took the first two places with 830 and 804 sec., respectively. Third was another Warsaw entrant, T. Kosowski, with 779.

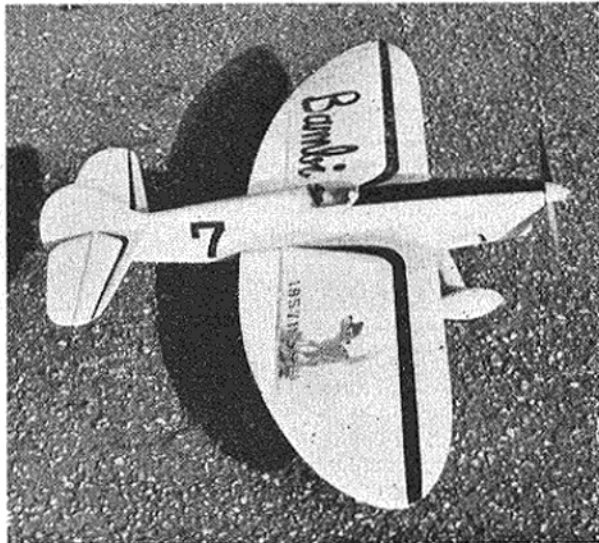
The weather during this event had been fine and sunny but the next day, for the

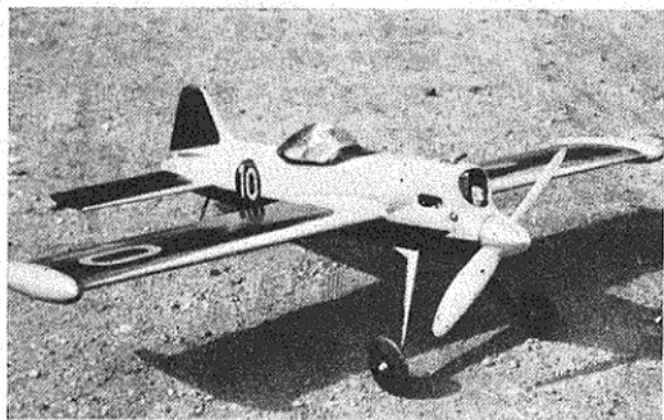
power contest, it was dull and showery. Despite this, M.A.'s Polish correspondent, Wieslaw Schier of Warsaw, put up the highest time of the meeting, only two seconds short of a perfect five-flight 900-sec. maximum, which, incidentally was nearly 3 1/2 min. ahead of second place winner, T. Pelczorski of Krosno, who had a score of 693. K. Giralski of Warsaw was third with 688 sec.

The first round of the A/2 began in the evening of the second day during calm weather, with average flight times of around 2 1/2 min., but these conditions gave way to strong winds on the third day when the final rounds were run off. The winner proved to be A. Sulisz of Warsaw, flying a turbulator-equipped model with a total time of 739 sec. Second and third were R. Fidela of Lodz and M. Krzyzon of Zielona Gora with 673 and 644 respectively.

In the power event (to the new 1958 rules of course) most of the 26 competing models were of the usual pylon layout, but there were some exceptions. Most notable of these was winner Schier's current design which is a high-thrustline job employing a coarse downthrust

Left: Polish Wakefield, 1958 pattern. One of several that featured a long fuselage configuration. Centre: Wieslaw Schier and Antoni Sulisz, winners respectively of the power and A/2 events at the Polish Nationals. Right: A beautiful model, superbly finished. Japanese stunt expert H. Takshara's O.S. Max-35 powered "Bambi". Heading: Jouni Valo won the Helsinki Chrysler-Plymouth speed contest. Engine is Super-Tigre G.20.





Top left: A new rule team racer. Well-known Czech C/L modeller Emil Brauner built this 22-oz. model, which clocks around the 6 min. mark for the 10 km. The ubiquitous Oliver supplies the urge. Right: This very fine Grumman F3F scale control-liner was built by S. Imura, Japan, and is powered by an O.S. Max-35 motor.

angle, with tail carried high and forward side area concentrated in an inverted pylon and nacelle below the fuselage. This design owes its origin to strictly theoretical considerations and was developed through several prototypes. Its characteristics are a flat, high-speed climb which takes the model to a much above average height.

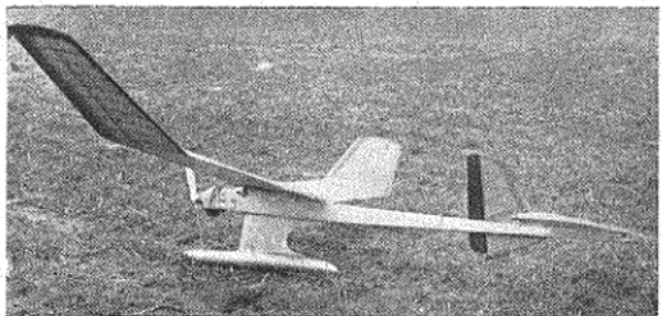
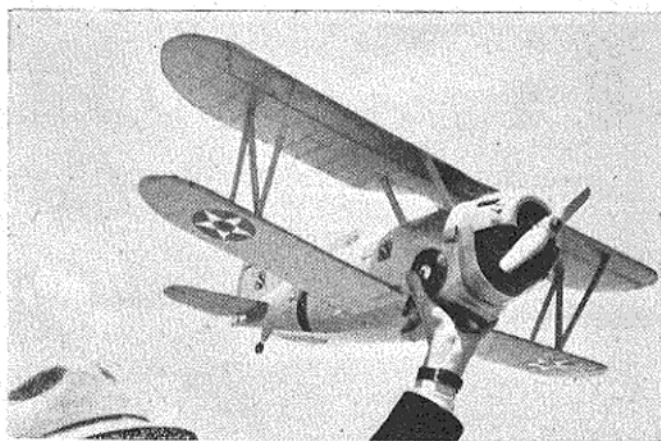
Another unconventional power job was that of Stanislaw Gorski. This had a pod-and-boom type fuselage made of aluminium alloy, the pod section being very neatly formed and riveted to enclose the engine crankcase and provide an abbreviated streamlined mount for the wing. Incidentally, Gorski is the designer of the Polish made 2.5 c.c. Jaskolka-2 diesel, which was widely used at the meeting.

* * *

Every year the Plymouth Motor Division of the American Chrysler Corporation sponsors one of its Plymouth International events in Finland. This year's contest was more than usually interesting because two of the C/L events, the F.A.I. 2.5 c.c. speed and F.A.I. team race, were to the new 1958 rules calling for much bigger models.

Obviously, one cannot draw conclusions from the results of one meeting, but if the speeds reached at Helsinki are any indication of future performances, it does seem as though team-racer speeds will not be substantially reduced under the new rules. The team of Heikki Savolainen and Jarmo Jaaskelainen, for example, flew an Oliver Tiger powered model which, allegedly, reaches 95-100 m.p.h. in the air, for a lappage of 34-35 and flies a 10-km. race on 15.92 metre x 10 thou. lines in 5 min. 20 sec. to 5 min. 40 sec., "without unduly hurried pit stops." The prop size, found best after considerable experiment, is 7 x 9. The model, incidentally, had just won the semi-final at Helsinki when the photograph was taken, but was eliminated in the final when two other models collided and hooked up its lines.

Right: A unique high thrustline model by Wieslaw Schier. Schier won the F.A.I. power event at Polish Nationals with a total time of 14:58.



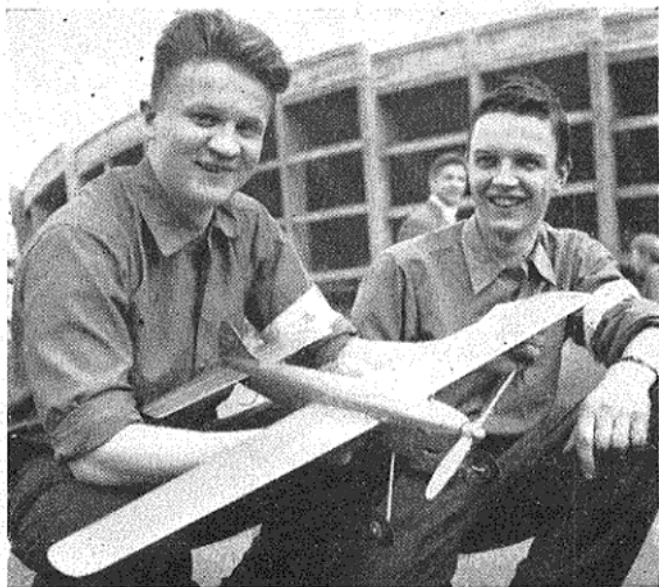
Writing from Australia, Arthur Gorrie, P.R.O. of the Model Aeronautical Association of Queensland and secretary of the Newtown M.A.A., sends us news of the 1958 Queensland Championships which reads like good advertising copy for O.S. Max engines.

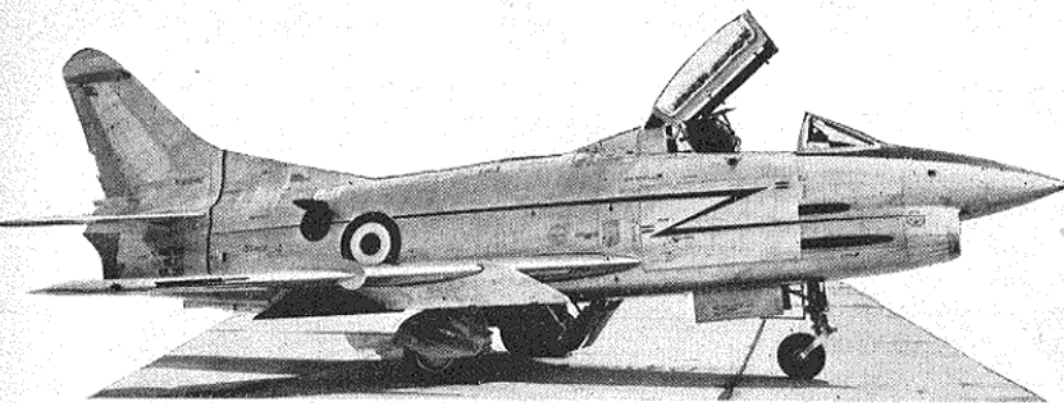
Mike Ware, who holds the Australian Class C team race record with a Max-35, won the Class C team race and also took second place in the combat event and third in stunt, all with Max 35s. In stunt, it was, in fact 1, 2, 3 for Max engines in both the senior and junior events. Marc Fraser took first place in the senior event with a Max 29, followed by Max Newnham (of multi-engine scale fame) in second place with a Max 35. First, second and third in

junior stunt were Don Martinez, R. Edgerton and R. Cogzell, all flying Max 35 powered models.

Newtown M.A.A. members, incidentally, took ten first places at the Championships and Gorrie's "Mi-T" props gained six firsts and five second places. Arthur Gorrie concludes: "I'd like to blow the trumpet for Mills Bros.", and goes on to tell us how his record-holding power-scramble Mills 1.3 has been lost four times (once for two months) has dived into a river and has been loaned out and still survives to win power scrambles. "Mills," Gorrie rightly says, "is recognised as one of the most reliable starting motors and I have no hesitation in recommending Mills to any beginner. . . ."

Another new rule F.A.I. team racer from Finland, built by Heikki Savolainen (left) and flown by Jarmo Jaaskelainen. Oliver Tiger powered and alleged to do better than 95 m.p.h., despite large area.





MODEL AIRCRAFT'S U.S. camera-sleuth Bob Archer.

AVIATION NEWSPAGE

by J. W. R. Taylor

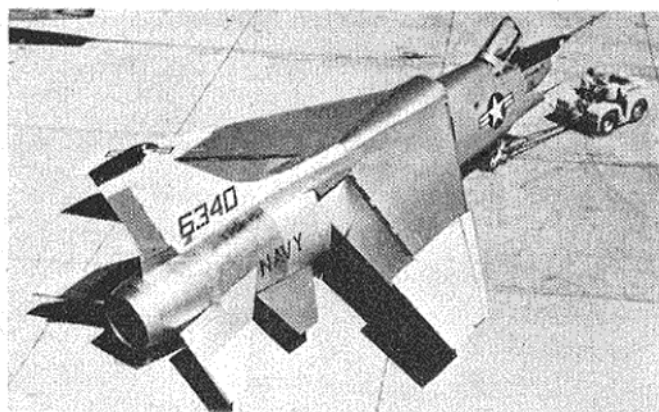
NATO CHOICE for a lightweight ground-attack fighter for service up to 1961 is the Fiat G.91, and 27 pre-production machines are already rolling off the assembly line at Turin. They will be followed by an initial series of about 150 aircraft for the French, German and Italian air forces.

Basically, the G.91 is a conventional all-metal 37 deg. sweptwing single-seater, powered by a 4,850 lb. thrust Bristol Orpheus 3 turbojet which gives it a level speed of 668 m.p.h. at sea level and supersonic dive performance at height. Span is 27 ft. 10½ in., length 34 ft. 1½ in. and all-up weight without external load is 10,360 lb.

Normal fixed armament consists of four 0.50 in. machine-guns mounted on

fuselage side panels that swing down for servicing, but these can be replaced by 20 or 30 mm. cannon. Underwing loads can comprise two 500 lb. bombs, clusters of three or six air-to-ground rockets, napalm, or honeycomb packs of 30 air-to-air rockets. With full load, the G.91 will unstick from grass in well under 1,000 yd. (Photo above.)

SOMETHING OLD . . . but still going strong, is the Grumman F8F-1 (below) believed to be the only civil-registered (N7247C) *Bearcat*. Converted for sky-writing by Aero Ad, it has been painted in a similar orange and white sunray colour scheme to the famous Grumman *Gulfhawk* since this photo was taken at Torrance, California, by



Left: Bags of lift as exemplified by the F8U-3 *Crusader III*.

Lower left: Lockheed's speedy *JetStar*, a ten-seater for high-powered executives.

Lower right: A real aeroplane with a fan up front, believed to be the last of the civil Grumman "Bearcats." M.A. Plan No. 214 is all you need to build a super detail C/L model of this famous fighter.

. . . **SOMETHING NEW**, photographed by Bob at Edwards Air Force Base on a recent "open day," was Lockheed's elegant little twin-Orpheus ten-passenger *JetStar*, newly-bedecked with two 700-gallon leading-edge slipper tanks. Bolt-on-able in about two hours, the tanks extend the *JetStar's* range by over 1,000 miles.

CURIOUSER AND CURIOUSER grows the shape of Chance Vought's *Crusader* as designers strive to get the last ounce of stretch out of its highly-advanced airframe. Latest version, illustrated below is the F8U-3 *Crusader III*, introducing a new swept-forward air intake and a pair of movable ventral fins which extend horizontally in low-speed flight and are turned downward at nearly 90 deg. to give added stability at the Mach 2+ speeds made possible by a 26,000 lb. thrust afterburning P. & W. J75.

The unique two-position variable-incidence wing now has a flap-blowing system to supplement the large leading-edge and trailing-edge flaps, ensuring docile carrier landings. All-weather navigation and fire-control electronics ensure the effectiveness of the armament of Sparrow III missiles.

Most surprising features of the *Crusader III* are its endurance of over three hours on internal fuel and its fantastic automatic flight control system.

To climb to altitude from a carrier, the pilot can push a "Mach hold" button and ascend at a desired rate and angle quite automatically. To cruise he can engage an "Altitude hold" button. To fly towards a selected point he pushes a button which will hold his heading. To change his heading he can dial a "Heading select indicator." To orbit over any point, he can also use push-buttons and the aircraft will do the rest.

An "anticipatory G limiter" prevents manoeuvres which would place too great a stress on the aircraft, and a "roll rate limiter" ensures that the *Crusader III* cannot encounter deviations which would lead to loss of control. Other safety features prevent over-travel of control mechanisms or malfunctions in circuits, and provide corrective action.

The F8U-3 spans 39 ft. 11½ in., is 58 ft. 8½ in. long and 16 ft. 4½ in. high.





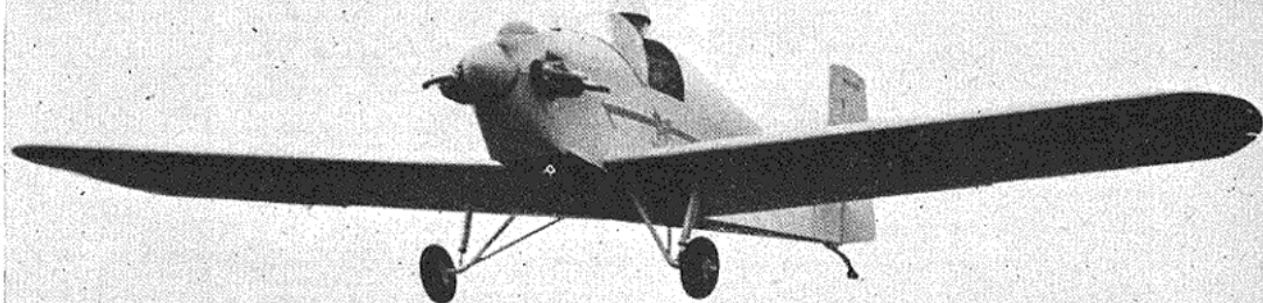
**AVIATION
NEWSPAGE**

**Plane of
the month**

The Druine **TURBULENT**

At the
**MODEL
AIRCRAFT**
Exhibition

SEE A TURBULENT
ON STAND NO. 28



TALK to anyone who has flown a *Turbulent* and the chances are that you'll find the conversation hard to swallow. "Real flying . . . Junior *Spitfire* . . . 85 m.p.h. and 40 miles to the gallon, old boy . . ." and a lot more in the same strain, sounds like an ideal rather than an accomplished fact. Yet fact it is, in an aeroplane that any good modeller could build himself for £500 and which can be bought off the shelf in Britain for around £1,200.

That this should be so is due to the imagination and genius of a young Frenchman named Roger Druine, who learned to fly at the time when would-be pilots all over the world, with more enthusiasm than cash, were trying in vain to get airborne in Henri Mignet's repulsive *Flying Flea*. Only 16 years old, he showed such outstanding capabilities that the French authorities passed special legislation enabling him to hold a pilot's licence before the official minimum age, and within another year he had designed and built his first aeroplane.

Roger Druine realised from the start that the *Flea* was not the answer to the demand for a cheap light plane that young people could fly enjoyably and safely. To him the solution seemed to lie in conventional well-proven design features combined with utmost simplicity, and his first product was an unambitious single-seat biplane.

After the war, when he became a flying instructor at Cholet, near Nantes, he began designing a handsome little ultra-light single-seater which he named the *Turbulent*. In order to devote more time to it, he moved to Paris and set up his modest workshop at Buc, the airfield used by an earlier great pioneer, Louis Bleriot. There, the *Turbulent* was joined by a two-seater of almost identical design, called the *Turbi*, and the more sophisticated side-by-side two-seat *Condor* with enclosed cabin.

From all over France came orders for sets of plans, and when the Popular Flying Association came into being to sponsor home construction in Britain, the designs it anglicised and put on sale were those of the *Turbulent* and *Turbi*, at a cost of £10 10s. and £14 14s. a set, respectively, including a year's free membership of the Association.

Before long *Turbulents* and *Turbis* began taking shape in sheds, garages and even bedrooms, in the hands of technical

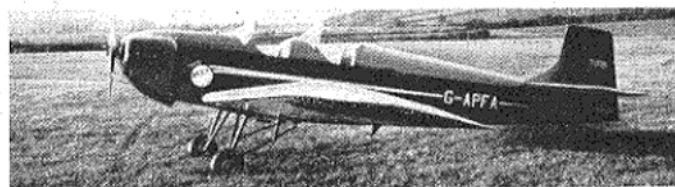
students at Hatfield, a boy of 16 at Spalding, even a clergyman in Ireland. They found that the constructional techniques followed model practice, for there is nothing complicated about the fabric-covered wooden airframes and the rubber-in-compression undercarriages of these aircraft. Even the power plant of the *Turbulent* is simply a modified Volkswagen car engine, giving about 30 h.p.; while the *Turbi* uses any motor in the 55-65 h.p. class.

For those without the time or inclination to build their own *Turbulent*, Rollason Aircraft and Engines Ltd. put both airframe and engine into production at Croydon, finding that three men could turn out a completed aircraft in only ten weeks.

It is too early to claim that all this adds up to a great rebirth of private flying, although upkeep is as economical as initial cost, with only a Permit-to-Fly needed instead of the usual costly annual C. of A. The only certainty is that the *Turbulent* is the simplest, safest and spriteliest low-cost aircraft yet produced. It is a great tragedy that no successors will ever come from that little workshop at Buc, for Roger Druine died in March of this year, in his middle-thirties, having sacrificed his health in too-long hours at the drawing board on which the *Turbulent* was born.

Span: 21 ft. 5 in. Length: 17 ft. 4½ in. Height: 4 ft. 5 in. Wing area: 80.7 sq. ft. Weights: empty 350 lb., loaded 607 lb. Max. speed: 87 m.p.h. Cruising speed: 75 m.p.h. Landing speed: 28 m.p.h. Rate-of-climb: 492 ft./min. Take-off run 145 yd. Endurance: 2½ hours.

The two-seat "Turbi" adaptation of the two-seat "Turbulent."
Photo by A. Ord-Hume.



INTERNATIONAL RADIO, CONTROL LINE and TAILLESS TEAM TRIALS plus area champs

Held at Cranfield on July 20th

A HIGH wind undoubtedly blunted the capabilities of the majority of the fliers in the eliminators to select the teams for the International Radio Control Contests to be held this year in Germany. In fact the afternoon session was postponed for a while in the hope that the wind would drop. However, it remained fairly constant and there was nothing judges Henry J. Nicholls and Harry Hundleby could do but press on with the competition.

One of the first away when flying resumed was Uwins, using Orbit equipment, but when up aloft he lost his fuel tank when a hatch blew open. Only consoling thought for him was that he landed with his engine dead in accordance with the F.A.I. rules under which this competition was being run.

The majority of the models entered were, of course, multi-channel, but Howard Boys flew his small single-channel job that has certainly seen some sterling service. Actually Howard headed the short list of single channel entries with 273 pts.

Of those that braved the elements, easily outstanding was Chris Olsen, who, of course, also won the S.M.A.E. R/C Trophy at this year's Nats. Each flier was permitted two flights and Olsen made them both, but on the second there was a bit of a mix-up with his controls when his Fox-35 powered job was inverted, the model pranged badly but he thought the equipment was O.K. However, his 1,366 pts. easily makes him this year's most outstanding competitive radio flier.

Second place man, R. Higham, from Norfolk, also made two flights and had one or two anxious moments on his second, when his model appeared not to be responding to the TX and was over some distant trees downwind—this with the delightful-sounding De Long 30 throttled back. Full throttle and opposite rudder to the turn appeared to do the trick, although points were dropped on the heavy landing downwind from the spot.

Doug. Pierpoint, who came third, was, until this meeting, comparatively unknown—not being a regular contest flier, but his beautifully

judged take-off with a neat low wing monoplane certainly made the spectators sit up and take notice. Sporting a new K & B R/C engine up front, the model was stable in the high wind and making full use of his Orbit equipment, Pierpoint completed some very fine spins.

Fourth man, Ed. Johnson, was flying a bi-plane that had a very familiar look about it and indeed it was basically a *Smog Hog* with a lower wing added to bring the model's wing area up to F.A.I. regulations. It appeared that this extra wing made no difference at all to the flying characteristics of the model. Up front was a Ruppert twin diesel complete with two mighty exhaust pipes.

On this occasion it was Johnson (there's usually someone) who made the spectators duck, when he did a stall, but we think he forgot the resultant dive. After flattening out at about 10 ft., he brought his model in for a final approach that was very good indeed.

Both Pierpoint and Johnson only made one flight each, electing not to fly during the morning session owing to the high wind, and consequently the final positions may well have been considerably altered if all four top men had each made the two flights.

In the lee of the hangars the C/L eliminators to select the team for the International Stunt, Speed and Team Race contests, in Brussels, progressed smoothly. The team racing was run on a time basis, but all the competitors seemed plagued with minor (and sometimes major) troubles of some sort all day, no one reaching the standard which might have been anticipated in view of the very high performances reached in normal class A flying. However, several models showed an excellent potential, especially Dick Edmunds' and that flown by the Gordon Yeldham/John Hall combo was at times very fast, as were also: he models flown by the large Wharfedale contingent, although even here no one was consistently getting the expected number of laps. Anyway, the performance of each model was meticulously noted in three heats and suitable comments made on its

performance and the ability of pilots (some of the flying was downright bad), so we may be sure that the team will be equitably selected.

Stunt flying to the F.A.I. schedule was hampered by the high wind even though the schedule is not so exacting as the new S.M.A.E. one, but the result was very fair and could well have been foretold by the Gold Trophy results. It was rather amusing to note that several fliers tended to "square" their corners, presumably the result of too much practice for the S.M.A.E. schedule but neither Eifflaender, Morley nor Ridgeway were "guilty" of this.

Only one speed model, Gibbs' naturally, reached anything like an international speed, and it would seem that Fred Carter has managed to work the oracle again. Gibbs was plagued with pen bladder trouble but the motor sounded beautiful when it was "in," so we can confidently expect to see him back at the top of international speed again shortly. Ironically, the only other model with the necessary 120 m.p.h. plus potential was powered with a Czech M.V.V.S. and belonged to Bob Page, but unfortunately it was caught by a gust of wind on take off and rolled in, thus eliminating Bob's chances and our chance of a good supporter for Gibbs.

The International Tailless elimination attracted more entries, and attention, than we had anticipated, and in spite of the high wind times were quite high. In the past private enterprise teams that have flown in this event have far from disgraced themselves and with all the top names in the results "known," we are sure those selected will do well this year.

The only non-eliminator was the contest to decide the Area Championships. In this teams consisting of a maximum of four fliers each in rubber, glider and power, flew against each other, the winning area, of course, being that with the highest aggregate. Although the flying was perhaps not quite to the standard that might have been expected, this was probably accounted for by the gusty wind, but in any case everyone seemed to enjoy themselves and that, at a model meeting, is really all that matters.

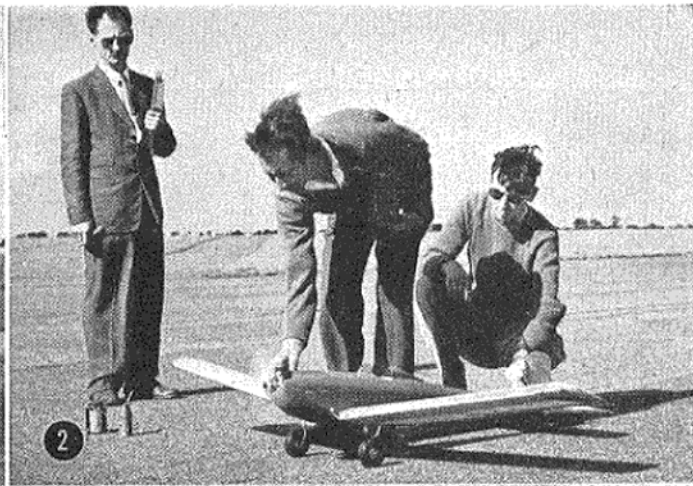
RESULTS

From the following, teams to represent Great Britain in the various events will be selected.

SPEED				RADIO SINGLE-CHANNEL			
1. R. Gibbs	...	E. London	123 m.p.h.	1. H. Boys	...	Rugby	273 pts.
2. J. Hall	...	Chingford	101.2 m.p.h.	2. G. H. Redlich	...	A.E.C.C.	105 "
3. G. Eifflaender	...	Macclesfield	93.97 m.p.h.				
STUNT				RADIO MULTI-CHANNEL			
1. G. Eifflaender	...	Macclesfield	805.5 pts.	1. C. Olsen	...	A.R.C.C.	Aggregate { 1,366pts.
2. W. Morley	...	W. Essex	771.5 "	2. R. Higham	...	C.M.	
3. P. Ridgeway	...	Macclesfield	709.5 "	3. D. Pierpoint	...	C.M.	
				4. E. Johnson	...	A.R.C.C.	
TEAM RACING				TAILLESS			
			Average three flights	1. P. Hedgeman	...	Hayes	7 : 04
1. R. Edmunds	...	High Wycombe	5 : 39	2. P. Wilkins	...	...	6 : 50
2. G. Yeldham	...	Belfairs	6 : 16	3. J. O'Donnell	...	Whitefield	6 : 06
3. P. Stevens	...	Belfairs	6 : 41	4. W. Holland	...	...	5 : 22
4. A. Vine	...	High Wycombe	6 : 56	5. J. Marshall	...	Hayes	5 : 03
5. R. Gibbs	...	E. London	7 : 21	6. S. Smith	...	...	4 : 36
6. F. Baxter	...	Wharfedale	7 : 40				
AREA CHAMPIONSHIPS							
1. Northern	...	...	...	69 : 23			
2. East Anglia	...	...	...	57 : 47			
3. North Western	...	...	...	53 : 14			
4. Midland	...	...	...	51 : 20			
5. London	...	...	...	51 : 19			



1



2



3

1. Bill Morley, Gig Eifflander, and Pete Ridgeway topped the stunt results.

2. A final adjustment to the setting of the K & B by Pierpoint before taking off on his one and only flight at the meeting.

3. G. Tideswell appears almost airborne as he releases for L. Hey of Baildon, flying in the Area Championships.

4. R. Edwards, of Wharfedale, pits club mate F. Baxter's model. All of this club's models were very similar in appearance and very fast, but rather inconsistent.

5. Gadget Gibbs' F.A.I. speed model. Carter engine, of course. Model is of balsa and hardwood construction, covered with a new tissue.

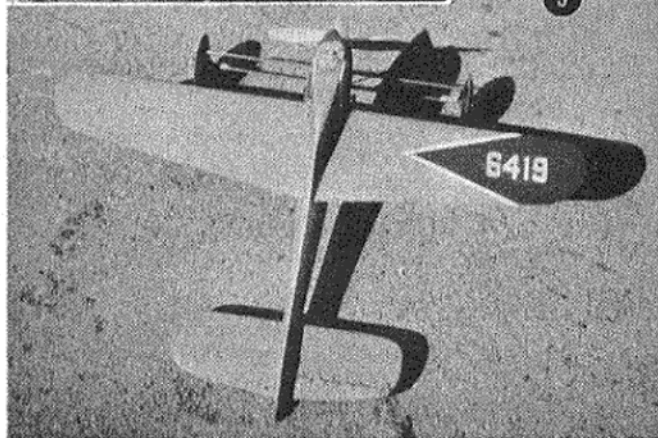


4

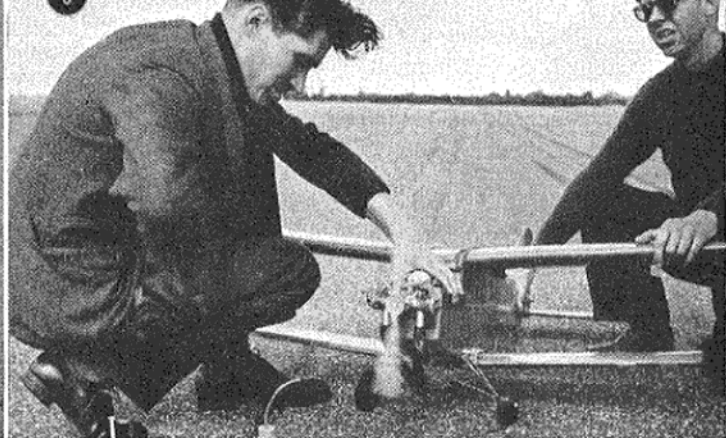
6. Ed. Johnson starts up the twin cylinder Ruppert on his converted "Smog Hog." A central choke served the two cylinders and only one compression screw was adjusted for starting, the other being left in the running position.

7. Speed man Gibbs, this time with his team race entry. Model flew well but was plagued with fuel feed troubles.

8. Nationals Class A winner, Gordon Yeldham, flew this fast, attractive design, but was also plagued with trouble which beset most people during the day.



5



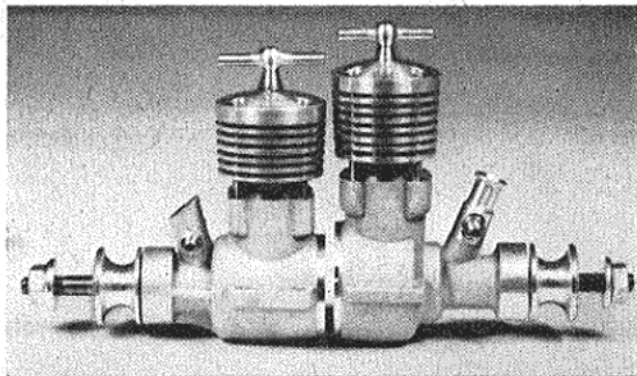
6



8



7



TO start this month's notes, we have a couple of home news items of especial interest to the competition-minded enthusiast.

Firstly, the Merco 35 engine, of which we gave the first published description last month, is definitely going into production, together with a 29 version for team racing and combat.

Secondly, the incomparable Oliver Tiger will, next year, have a new "Cub." This, like the earlier Cub, marketed during 1954-5, will be of 1½ c.c. capacity, but is otherwise an entirely new engine having a much heavier crankshaft and a shorter stroke. We have just been testing the prototype unit and this prototype is certainly the hottest 1½ we have ever handled.

Since last month's interim report on the Merco 35, we have had a chance of running some tests on this motor and are also able to give a few details regarding its background.

As is known, the prototype Merco was used to gain second place in this year's Gold Trophy by Bill Morley and it is to Bill that much of the credit is due for the existence of this, the first British made true stunt-35 motor. Previously, on several occasions, he had endeavoured, unsuccessfully, to interest British manufacturers in producing engines of this type. Then, when the A.M.A. schedule was adopted by the

S.M.A.E., he teamed up with Ron Checksfield, noted tuner of racing motors, to design and build a private venture prototype.

There is only one way to be sure of turning out an item—no matter what it is—that is as good as the best that the opposition has to offer, and that is to have had some experience of the opposition's products. This, Morley has and he was thus able to bring the practical user's requirements to bear when Checksfield began the design work.

From the time that castings were obtained to Checksfield's pattern, it was a race to get both a prototype engine and a model built for the Nationals. We don't know how confident Morley and Checksfield were at that point, but it seems clear that they were pretty sure they were on the right track. The engine emerged 10 days before the Nats., and went through a series of bench tests and modifications during the next week. The model (a *Thunderbird*) was finished only 24 hr. before the Gold was due to take place and, when it was taken to Waterbeach, the whole outfit had not even been flown. It speaks volumes for Checksfield's engine and Bill Morley's flying ability—not to mention Bob Palmer's excellent *Thunderbird*—that, with only two preliminary test flights, second place was obtained, only three points behind the winner.

Bench tests are virtually of academic interest only when an engine has already proved itself conclusively under actual flying conditions and our own tests have, therefore, only served to confirm b.h.p. figures and prop/r.p.m. speeds comparable with the recognised top American 35s. More important is the engine's unfaltering pulling power: its ability to pull the model through the tightest manoeuvres without "sagging."

Heading photo shows main external differences between the new s/s Cub and the 1954 Cub. New model is not yet in production and will not be available until next year.

Left: Parts of the Merco 35 glowplug stunt engine. A 0.29 cu. in. version to the same basic design will also be available.

Peter Chinn's Latest Engine News

Production Merco 35s should be reaching the market during late December or early January and every effort will be made to ensure that these will be just as good as the prototype. The main difference will be in appearance only, due to the adoption of a pressure diecast crankcase, cylinder head and rear cover in place of the present sand cast and machined components.

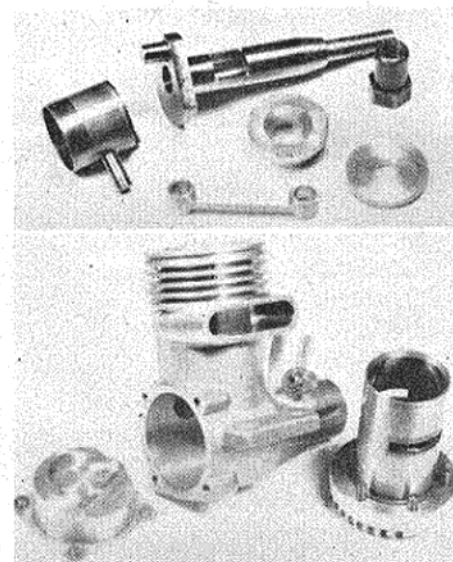
We shall be giving further news of the Merco 35 and its companion 29 model as soon as production versions become available.

Anyone who had experience of the earlier model Oliver Cub will know that its overall performance is still unsurpassed by any current mass-produced 1.5. Many modellers regretted that this beautiful little engine was withdrawn from production, when world-wide demand for the 2.5 Tiger Mk. III necessitated a one-model policy.

In actual fact, however, the John Olivers were never quite happy about the earlier Cub. It had one weakness, but a serious one: a tendency to break crankshafts, and ham-fistedness on the part of the operator was not always to blame. Despite the use of the highest grade material, the shaft was just not quite strong enough for the power developed by the engine.

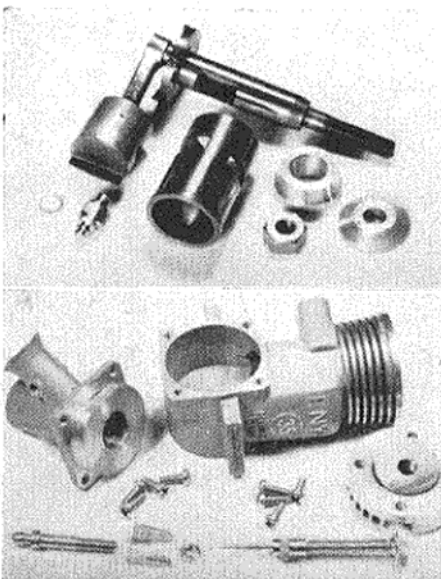
One of the first requirements in designing the new short-stroke Cub, therefore, was to substantially increase the diameter of the shaft journal. This is now ⅜ in. dia.—larger than that of any other 1.5—and breaking loads should be about twice as high as for the old shaft. In addition, the opportunity has been taken to strengthen the crankcase, using a webbed bearing housing and heavier mounting lugs to give much increased resistance to crash damage.

Despite this general beefing-up, the new Cub is a wee bit lighter than the old one, due, mainly to the short stroke design. Actually, the stroke/bore



ratio, unlike many popular 1.5s, is still above unity and is, in fact, 1.125/1, derived from a bore and stroke of 0.465 in. x 0.525 in. By comparison, the Tiger Mk. III has a stroke/bore ratio of 1.136 and the old Cub, which had the same stroke as the Tiger, was 1.453.

As can be seen from the photograph of the old and new Cubs, the new version is much more compact, and now looks



The parts of the Enya 35, none of which are interchangeable with those of the 29 Enya. The motor is a good argument for the individually designed engine as opposed to the usual dual capacity 29/35 approach.

very like a miniature version of the Tiger III. The general layout and detail design, of course, follows the familiar Oliver pattern.

On test we found the S/S Cub prototype to have a quite outstanding performance, allied to really excellent handling characteristics. Starting was instantaneous under all loads, including small props allowing speeds of up to more than 16,000 r.p.m. and the specific output was virtually identical with that of the Tiger III.

There is one point we must make clear, however, and this is that the new Cub is not yet in production and will definitely not be available this year. The design, in fact, is not yet out of the experimental stage and would-be purchasers are earnestly requested not to address enquiries to the manufacturer at this time, but to await further announcements in MODEL AIRCRAFT.

As is widely known, manufacturers who make both 0.29 and 0.35 cu. in. engines nearly always use a common basic design and a number of components common to both engines. Generally this works out well enough and, of course, has the advantage that the final products can be offered to the modelling public more cheaply than in the case of two individually designed engines using entirely different sets of

parts. This policy is no different from that adopted in the full-size i.c. engine industry where, as in the case of motor cars, for example, a large degree of rationalisation is now apparent.

Nevertheless, one may still argue that, for a given swept volume, all other considerations being equal, there is only one ideal combination of dimensions and that any design which seeks to double the role of two different capacities is bound to suffer in some measure from the results of such compromise. As we have said, one may argue the fact. Actually, there is not much practical evidence to support such theories but there is at least one noteworthy manufacturer who, up to the present, has eschewed contemporary practice. We refer to the Enya Metal Products Company of Tokyo.

The Enya 29-III engine has previously been described in these columns and its outstanding performance and the reasons for it, briefly analysed. The Enya 35 is actually a slightly earlier design and certain of its features, such as the large crankshaft porting, may have influenced the design of the 29-III, but, in fact, although there is a natural family resemblance between the two engines, none of the component parts are interchangeable between them. The dimensions of the 29-III parts are generous throughout, but the 35 parts are, almost without exception, slightly bigger throughout. The crank journal, for example, is 12 mm. dia. (0.472 in.) against the 11.5 mm. (0.453 in.) of the 29-III. The overall dimensions of the 35 are also greater and its weight is 8.1 oz. as opposed to 6.8 oz. for the 29-III.

Porting is also different, as befits two engines designed primarily for stunt on the one hand, and Class B contest work,

Top right: Another view of the new British Merco 35, first described last month. First production models will be available in a few months time.

Centre right: The latest Oliver experiment—a new short stroke 1.46 c.c. Cub with 3-in. dia. shaft and strengthened crankcase.

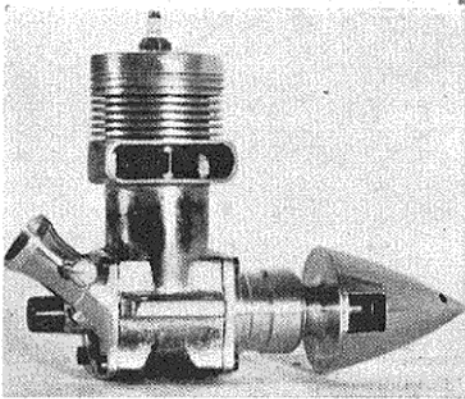
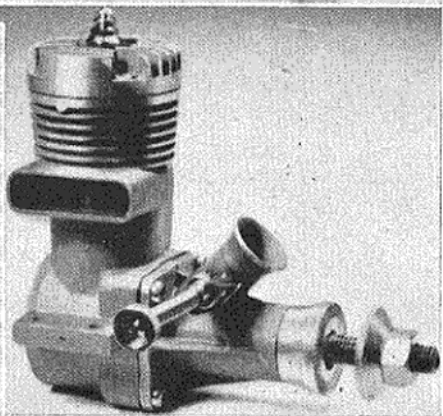
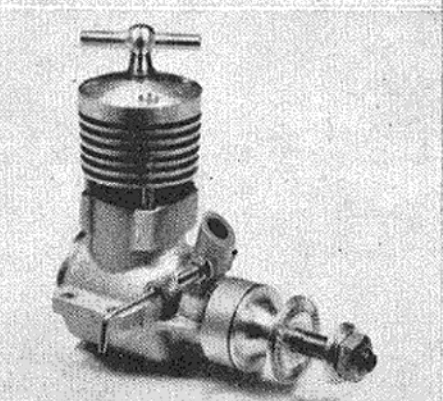
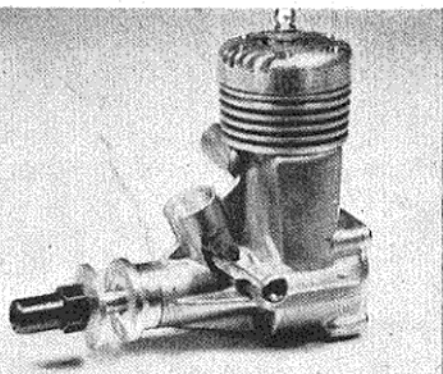
The Enya 35 (lower right) is one of the most powerful and robust stunt engines currently available.

Below is the Bogdanyi B.60S, a one-off Class III racing engine designed by A. Bogdanyi, of Prague. It has a bore and stroke of 24 x 21.7 mm., giving a capacity of 9.82 c.c., weighs 16 oz. and is claimed to deliver 1.60 b.h.p. at 17,000 r.p.m.

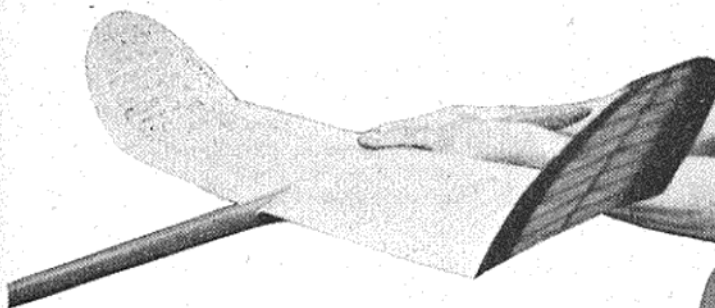
including team-racing and F/F, on the other. The 35 has a crankshaft port nearly $\frac{3}{16}$ in. long—even longer than the 29-III—but a normal circular section intake aperture is used in the main bearing, giving a less abrupt valve opening and closing, and slightly earlier cut off.

The general layout of the 35 is, of course, similar to the other models in the Enya glowplug engine range. These include a one-piece crankcase and cylinder barrel casting with push-in liner and a metal-to-metal head joint. The hardened counterbalanced crankshaft runs in a bronze main bearing and there is the usual removable venturi insert. The cylinder head is deeply finned and has a brass-bushed centrally located plug hole.

We hope to give some test figures for the Enya 35 in due course. The engine has a bore and stroke of 0.794 in. x 0.715 in. (the 29-III is 0.736 in. x 0.704 in. incidentally) giving a swept volume of 5.8 c.c.



PETREL



Reigning World Glider Champion BABIC SLOBODAN

presents his winning design exclusively for
M.A. readers

WORLD Championship class $A/2$ gliders are, without doubt, the most graceful looking of all contest models, and *Petrel* is certainly no exception to this rule. Of its performance we need only remind readers that flying the original, designer Babic Slobodan, won the World Championship in Czechoslovakia last year, with a perfect five-flight score of 900 sec.

This being an out and out contest design it is not anticipated that anyone without sufficient experience to interpret the plans will attempt to build it, so the usual building instructions are unnecessary. However, there are one or two points that should be borne in mind.

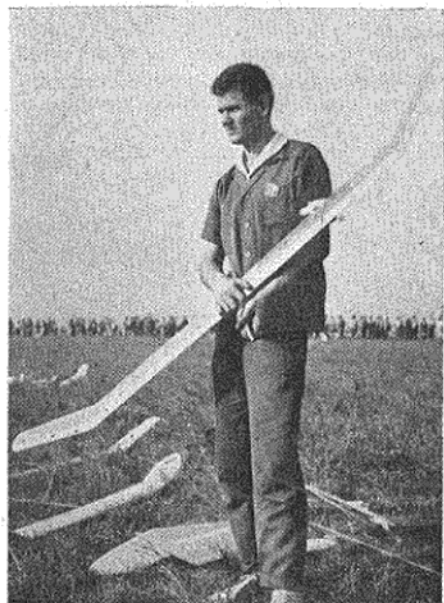
Firstly, the total area is somewhat under the maximum permitted by the $A/2$ formula, and also the original model was very slightly (about $\frac{1}{2}$ oz.) over the minimum weight. Neither of these two things (obviously) affected the performance, but they did make absolutely certain that there were no queries likely to arise during processing.

The final trimming of the model determines whether it will be a potential contest winner or just another "also ran," and this cannot be carried out too carefully. It is essential that the c.g. be exactly in the position shown on the plan, and this must not be varied. Trimming adjustments are made by altering the tailplane incidence, as the wing incidence is fixed and must also on no account be altered.

Trim the model to fly in a 150-200 ft. diameter anti-clockwise circle which will enable it to take advantage of any slight lift that is about. The auto rudder will take care of the tow, but be careful when releasing the model from the top of the (nylon) line, that it is biased into this anti-clockwise circle, for if it is released straight it may refuse to take up its natural turn and just stall down in a straight line.

Provided the foregoing points are watched, you shouldn't have any trouble in reaching World Championship standards (or will you?) but anyway, the best of luck.

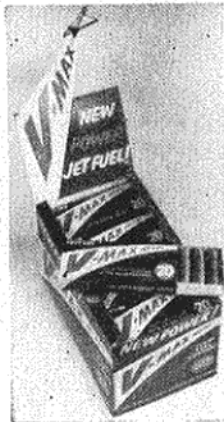
Below: Babic Slobodan just after completing five maxes in the World Championships held in Czechoslovakia last year.



OVER THE COUNTER



There is no doubt that the comparatively high cost of the fuel has prevented Jetex motors from attaining the popularity that many anticipated, however, for the faithful adherents to these motors there is good news from **Ripmax**. They have marketed, under the name of V-Max, a fuel suitable for the "50" size motor. The fuel is sold in boxes containing 20 tablets, and four special large mesh gauzes, at 1s. 11d. per box, which, therefore, enables models to be flown at a cost of slightly less than 1d. per flight. Each tablet burns for approximately 8 sec. but motors can, of course, be loaded with two charges which give a run of some 16-18 sec. with a very smooth change over.



From **Revells** we have just received their latest plastic kit—a replica of the Piasecki YH-16A transport helicopter. We need hardly say that as usual with Revell products, all the parts fit "like a glove" and the kit makes up into a most attractive model. The price is 8s. 11d. As a means of attaining a



realistic finish on all plastic models we can recommend their new 4s. 6d. paint set. This comes in a neat slide tray, designed to hold the bottles while they are being used, and consists of seven colours specially developed to adhere positively to the normal glossy plastic

surface. There are also instructions for mixing the colours so that any desired shade may be achieved while included with the colours is a special matting fluid, which works very well and has many uses.

Well known for their Equado balsa wood **E. Law & Son**, have just arranged an import of an interesting "new" wood from Malaya. Known as Jelutong, it has a fine grained silky texture and is exceptionally easy to carve. Roughly equivalent in weight to very hard balsa, i.e. about 20 lb. per cu. ft., it will be available in a variety of sizes up to a maximum of 2 in. thick x 6 in. wide. It could ideally be used in the construction of speed and other C/L models where pine is normally employed, while for solids it would appear to be perfect. The price is not yet finalised but should work out only slightly higher than balsa wood.

You can win £100 by building a plastic model. Sounds too good to be true, but true it certainly is, for that is the first prize in a competition organised by S. Guiterman & Co. Ltd., importers of the **Lincoln** and **Lincoln-Hawk** range of kits.

Actually there are two competitions with equal prizes in each. A first prize of £100 will be awarded to the best model built from a Lincoln kit, and the same amount will be given for the best Lincoln-Hawk model. In addition, there is a second prize of £20 in each class and 20 consolation prizes of £1 each.

The contest commences on September 1st, and closes on October 31st; judging taking place on November 15th. Full details and entry forms are available at your local Lincoln supplier so please don't write to us for more information, but we wish all **MODEL AIRCRAFT** readers who enter the best of luck.

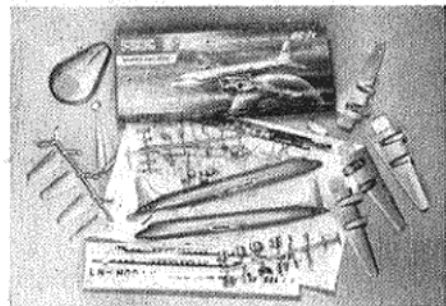
Contest Kits, under the direction of well-known modeller Mike King, are never short of new ideas, but the latest one is really something different.

With each of their kits they give a guarantee that, provided it is built and

trimmed in accordance with the instructions, it will perform a stated minimum flight time. If it does not perform this time, they will, upon its return to them, either trim it to the required standard or return the full purchase price.

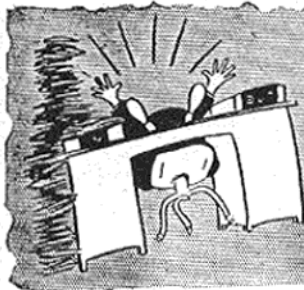
On the material side they have two new "quickie" kits—profile gliders representing in 1/48th scale the *Hunter* and the *F.D.2*. The kits include cement, noseweight, transfers and instructions, and sell at 1s. 9d. each. The C/L enthusiast is catered for with a range of spooled wire. Each spool contains two lines, which come off together, 62 ft. long, and in either 30, 33, or 35 S.W.G. thickness at 2s. per spool. Stranded wire is also available at 5s. 6d. per spool. Two other neat and useful accessories are the folding prop. assembly for rubber models, and the auto tow hook for gliders—these cost 2s. 6d. and 1s. 2d. each respectively.

We hear that **Frogs** are definitely putting a 3.5 c.c. motor into production shortly. One of the prototypes for this design was mentioned in the February issue of **MODEL AIRCRAFT**, but there are likely to be a number of differences between this and the final production version. On the kit side there are yet more additions to their plastic range. To the 3s. 6d. series have been added the Boeing B-47 and B-52, Douglas B-66, and Lockheed P2V-7, while for those



who prefer big 'uns there is the 1/96th scale DC-7c. Among the coming attractions in the latter series are the *Vulcan*, *Valiant* and *Victor* bombers which should prove very popular.

Over the years balsa cement has been the only accepted adhesive for the aeromodeller, but there are other glues equally as good, and for certain jobs considerably better. One of these is **Le Pages** Bond-Fast P.V.A. White Glue—an adhesive that is rapidly finding favour in the States, and which we have found under test to be most effective. It is milky white while wet, but as it dries out (which takes about an hour) it becomes clear. Obtainable in various sizes—the 2 oz. plastic bottle at 2s. 3d. is likely to prove most popular—we can heartily recommend it for jobs such as sheet covering, where the quick drying properties of a normal cement often prove an embarrassment, as well as for the always difficult hardwood/balsa joints.



LETTERS

You can please some of the people . . .

DEAR SIR,—Congratulations upon a very interesting issue for May, 1958.

It is hoped we can expect a more varied series of articles other than the repetitive scale series that MODEL AIRCRAFT tends to lean to. Why not come out of the rut of allowing resident associates of the magazine to print each month their brain-children? All too often we see repeated familiar names. Why not invite articles from experienced modellers? : not the overnight expert who has luckily won a couple of contests and thereby is an expert, but from the modeller who builds and flies for fun and has learned a great many wrinkles and, indeed, has some very excellent well-tryed designs.

I know many experienced modellers with many years' experience who have forgotten more than the present "expert" ever knew.

And, finally, these top contest fliers who appear at the many rallies solely for what they can get out of them should be professionally categorised and barred from local rallies, the same being for novices only. These same contest fliers are bone idle when it comes their turn to do a spot of timekeeping, etc.

One top rubber flier had to more or less be forced by a lady, before he submitted, very grudgingly, to do a spot of timekeeping. Shows what the movement is coming to, doesn't it?

Encourage the up and coming modeller, and leave the top ones to gloat over their gains. Bar the top fliers from local rallies. Encourage dark horses and let's have the aeromodelling hobby a hobby and not a ground for grabbers.

Yours faithfully,
R. WILSON.

Hyde,
Cheshire.

Reader Wilson has not got his facts quite straight. As we stated in the last issue of M.A., we welcome articles, plans and other contributions from any reader. Therefore, the answer to readers who feel the same as Mr. Wilson, is to do something about it—send us your material and, provided it is suitable, we will print it.—Ed.

For Shame!

DEAR SIR,—For shame! As editors of a model airplane magazine which does feature scale models, how can you justify the reversal of the *Kaydet* picture

on your June front cover? Pity the poor beginner trying to determine just which way the exhaust pipes should go and whether the BuNo should be on the fin with designation on the rudder or vice-versa. You owe him better treatment than this!

Just for the record the *Cloudboy* and PT-9 series' airplanes were not model 738, but were Stearman's earlier model 6 series.

As a regular reader of MODEL AIRCRAFT, articles such as these on the "old chunks" are always welcome but discrepancies at this late date are hardly excusable.

Yours faithfully,
Arlington,
U.S.A.

HAROLD ANDREWS.

Mr. Andrews was the only reader to spot the reversal of the *Kaydet* cover photo. We would hasten to say that this is not our usual practice but was done as a last resort when the anticipated photo did not arrive in time.—Ed.

Hot tip!

DEAR SIR,—I noticed in the July Club News that C. J. Percival of the Springpark M.A.C. has experienced vibration burns on his model's pylon and wings.

I have had this happen, too, and have found that the easiest cure (apart from asbestos mountings, or positive location on a type of surface which prevents slip) is to experiment with different props at the expense of a trim change. This changes the frequency of motor vibration which will not then coincide with the natural vibration of these parts of the model.

Yours faithfully,
Hayes, Middx. J. BAGULEY.

Engine Manners

DEAR SIR,—Much as I dislike prolonging the discussion aroused by my letter in May M.A., I feel I cannot ignore J. R. Howarth's criticism of my views in the July issue.

To begin with, he expresses a desire for a "well mannered 5 c.c. motor." In this I agree, but how many diesels of this size would be well mannered? As volume increases, so does viciousness. One of the notable exceptions was

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

the Amco BB. An easier handling engine would be hard to find. Incredibly easy starting and consistent running at all speeds. Once a suitable prop/fuel combination was decided upon, the compression and needle settings could be left alone and the engine would start, time after time with no trouble at all.

Without discrediting the efforts of Dennis Allen (the AM.35 is undoubtedly a fine engine), I don't think anyone can seriously compare its output with that of the Amco. Even with the "hacking" process of the transfer ports, as Mr. Howarth suggests, the figures still speak for themselves. With a doped fuel, all one can expect from the AM is 0.26 or 0.27 b.h.p. at 11,000-12,000 r.p.m. But the Amco was guaranteed to give a peak of 0.32 b.h.p. at 13,000 r.p.m. on commercial fuel, and as much as 0.34 b.h.p. with special "brews." Mr. Howarth also states that filing of the ports on the AM will improve starting

Each month when we have received a particularly outstanding letter, we have presented the writer with one of the fine X-acto Knife Chests illustrated below. In recent months we appeared to have got weighed down with plastics and varying



impossible suggestions as to what the contents of M.A. should be. However, Knife Chests are here to be won, by writing interesting, amusing or controversial letters, so why not drop us a line, and if you "ring the bell" then you receive the X-acto Knife Chest by return.

and smoothness of running. But these features were inbuilt in the Amco without the need for reworking. No doubt the Amco performance could be improved with reworking, but I feel that a lot of useless motors would still be running today, had the file been left in the tool box.

In conclusion, I would ask Mr. Howarth to try both a good used Amco BB (if he can get one!) and a "run in" AM.35 in the same airframe and using the same prop sizes. If doubts still exist after this experiment, I suggest he has his stopwatch checked.

Yours faithfully,
Sheffield, Yorks. E. H. HIGGINS.



Club News

CLWYD SLOPE SOARING MEETING

The 17th annual Clwyd Slope Soaring Meeting was held on the slopes of Moel Famau, being organised for the fifth time by the Chester M.F.C.

Although weather conditions were not ideal the contest attracted a large entry in all the five classes, some entrants camping out on the mountains overnight. An unusual wind from the north-east made conditions for the R/C event rather difficult and duration a battle of skill.

The flight times increased as the day went on and some contestants were unable to make the four possible flights due to distance covered in retrieving, this being so in the case of the eventual winners of the A/2 and open classes, each making only two flights.

The R/C event attracted a record entry of nine contestants coming from as far distant as Blechley, St. Albans and Stoke-on-Trent; the order of flight being decided by a draw and the best individual time being the winner.

Many well-known radio enthusiasts attended, including D. Hsley, D. McQue and D. Kersby. The McQue transistorised superhet multi receiver was most impressive in construction and layout and most efficient in operation, the unusual weather conditions not giving the owner—on his first visit to the slope—a chance to prove the capabilities of his model. Previous experience on the site enabled Don Bailey to emerge as winner. After the contest, as a result of experience gained during the day, D. Kersby made a flight of over five minutes.

On the completion of the contest, Bob Gosling (who had hurried from an S.M.A.E. Council Meeting) presented the Gosling Trophy for the best time of the day, other than radio controlled, and the bronze medals to the class winners, who were as follows:—

Gosling Trophy		
D. H. Tipper ..	St. Albans ..	7 : 10
Open		
D. H. Tipper ..	St. Albans ..	7 : 10
A/2		
C. R. Filtress ..	Chester ..	6 : 43
Tailless		
D. Edwards ..	St. Albans ..	2 : 37
Junior		
E. Jenkins ..	Chester ..	4 : 3
Radio		
D. Bailey ..	Burton-on-Trent ..	3 : 57

CROYDON & D.M.A.C.

First of all, our congratulations to John Palmer on finally making it into the Wakefield team; John got into second place flying a four-year-old model, liberally weighted up with a large hunk of stainless steel. His final place in the World Championships was 20th with a total of 711 secs.

Ecurie Nerik have decided to retire from active combat flying, after some of the recent combat fiascos and culminating in the strangely organised effort at a recent gala. Limited entry—fine; three hours late starting—not so good.

Before this, Gordon Cornell got into the semifinals of the Godalming combat "do" with a modified A-M 35 in a flying wing (Oh! The shame of it!) and also took second place in concours at Northern Heights with a Torp. 15 version of his Princess stunt yo-yo which took fifth in the Gold.

Once more, don't forget our gala, September 14th at Chobham.

ST. ALBANS M.A.C.

Six members went to the Clwyd Slope soaring meeting. We were rather disappointed with the weather conditions, as we like to slope soar our

models and not use hills as a means to an end for getting altitude. This was the case at Clwyd where the wind was blowing down the main slope. Most of the best flights were made with the aid of thermal lift out over open country. (For results see Clwyd report.)

At the Northern Heights gala, George Fuller had a very satisfactory day! Went with the idea of winning open rubber, did one flight of 2½ min. and was so disgusted that he went and clocked up a double max in both glider (open) and power!

He won the power with a fly off time of 4 : 10; came second in glider and to cap it all collected Gala Championship as well!

Don't forget our next slope soaring rally at Ivinghoe Beacon on November 2nd.

CAMBRIDGE M.A.C.

It was recently agreed that our club should buy an altimeter for the use of all members, which as well as registering the maximum height reached by a model, would operate a d/t at a predetermined height—very useful when the cloud base is low. One was duly bought by the secretary, Clive King, and attached to his *Inchworm* for testing. The model, which had till then showed no signs of flying well, went o.o.s. over the cornfields carrying the meter with it. The club is hoping it will be found before the combines get to work.

DE HAVILLAND (HATFIELD) M.A.C.

We recently held an exhibition and gave a C/L display in connection with the firm's sports day. The exhibition was housed in a small marquee and was mainly of F/F models with gliders (A/1, A/2, R/C and tailless) predominant. The C/L display was the second of its kind and this time was augmented by a contingent from Dagenham M.A.C., making it possible to have formation and solo stunt flying, class "A" team racing, combat and scale flying. A large crowd was suitably distracted for over an hour from all other events. Thanks for coming, Dagenham; we hope you had an enjoyable day.

WEST BROMWICH M.A.C.

Our coach trip organiser, Mac Grimmett, has been doing an excellent job this season, filling up for trips round the rallies with members from West Bromwich, Halesowen, Walsall, Outlaws, and Wolves clubs. Mac returned from his Continental holiday (Swiss tiffet included) to defend the Keil Trophy at Halton, succeeding only in smashing his one and only model on the posts surrounding the undersized combat circles. Nevertheless, Dave Wilkes came second in the unofficial combat, and allowed us to keep our record of coming away from any rally with at least one placing.

At a recent display, one of the members provided a beautiful stunt schedule only to be asked at the end by some clueless spectator, "Why can't you fly it straight?" !!!

KENTON M.A.C.

During the past few weeks we have been very busy visiting rallies.

At the Northern Heights gala L. Burbridge and R. J. Hickman were 1st and 2nd in the combat, and at the Enfield C/L rally S. Copeman and R. Meakins also achieved 1st and 2nd in combat in spite of the high winds.

BILDON M.F.C.

Quite a strong contingent from the club attended the Scottish P.A.A. festival (how Silvio packed four passengers and 14 models into the Golden Studebaker will forever remain

a mystery, though the latter showed its resentment by running out of petrol three times during the trip) and gorged themselves with prizes, Arthur Collinson and Silvio himself taking first and second places respectively in power and Frank McNulty third in glider.

The following weekend Baildon Moor provided very pleasant conditions (for once!) for three club contests, A/2, chuck glider and precision, and the knock-out between our "C" team and Teeside. The A/2 event was won by George Cameron, the precision by Henry Tubbs after a fly-off, believe it or not, against junior Pete Rennison, and the chuck glider—for the fourth year running—by "Muscles" McNulty, who also captained our victorious Knock-Out team, which won the round by over 9 min.; Frank himself aggregated 8 : 44, flying power, and Silvio turned in a faultless triple max.

In the second round of the Power Team trials, Arthur Collinson was once more hero of the day and only missed another perfect score by one second—as a result of d/t'ing early!—to become overall top in results and, of course, a member of the team. Heartiest congratulations from all of us.

LEIGH M.A.C.

We are now getting on our feet again, a new club room having been made available and membership is around the 50 mark. The local model shop has kindly presented the club with two silver cups, one for F/F and the other for C/L.

STEVENAGE M.F.C.

Giving a demonstration at a local fete Bob and Monty put on an impressive show of stunt flying and made occasional passes at balloon bursting to an appreciative audience. This show went off surprisingly well considering that flying was done on 35 ft. lines owing to limitations of space. Our next show is to be a more ambitious affair provided that sufficient models survive rehearsals which so far have been rather expensive.

BRISTOL R.C.M.A.C.

We had a day out with the South West R.C.M.F.S., at their ground at Winkleigh aerodrome, near Crediton, Devon recently. An atrocious weather forecast the day before unfortunately deterred some people from making what were quite extensive journeys, but the weather on the day was very reasonable. We were too busy just flying to have a competition, and in any case the object was a get-together rather than a contest.

DEBDENAIRS M.F.C.

Lo, and behold, some of the old 'uns must be reeling giddily to their graves! This is evident from our ubiquitous Mike Pointing's third place in combat at Enfield, to the organisers of which many thanks for an enjoyable though rough and windy day.

Mike Pointing, as predicted, also won our own Glider Trophy, which was duly presented to him by our local shop proprietor, Len Coltham, whom many will sadly miss on his retiring from business, and who has been made our first honorary member.

John Tidy also did well in his first contest at Enfield, reaching the second round in combat and for the rest—practice, practice, in time for our next effort, being our annual (we hope) Open Day, when other clubs in the area will be invited to a real get-together sometime in September.

CITY OF NEWCASTLE AEROMODELLERS

Due to the increasing number of people, particularly boys in the 13-16 age group, becoming interested in aeromodelling in this area, it was decided to provide an additional club in Newcastle.

The first meeting was held with three senior and four junior members attending, the majority of these being ex-members of the Novocastria M.A.S. During the first week, our membership doubled and, following an approach to the Newcastle Education Committee, we now have the use of a local school for meetings.

We can cater for a maximum of 30 members and, if any readers in the Newcastle area would like to be considered for membership, they should send a postcard to the secretary (see under New Clubs).

ENFIELD & D.M.A.C.

The club enjoyed a good day's flying at the Godalming rally, and carried home a large

number of prizes to prove it. In the class "A" team race Pete Hartwell had a well-deserved win to finally end a run of bad luck this season. The class "B" win was again between two models from West Essex and two from Enfield. Our Don Walker/Ray Tuthill team followed McNess of West Essex home by only half a second. This was after the second mechanic, R. Page, had to replace the leads of the accumulator which came adrift during the race. Pete Hartwell placed third after the second West Essex model pranged, although his time was around 12 min., and the mechanics, George Allen and Frank Stevens, had to make 17 pit stops.

At the Northern Heights gala a large number of juniors entered with some very good models. However, our only success was senior Rex Gough, who had a maximum time in the open power and placed third in the fly-off.

STOCKPORT & D.M.A.C.

A hearty welcome is extended to anyone who would like to join this new club. Meetings are held every Thursday evening from 7.30 till 10 o'clock, at St. Peter's School next to the Public Baths, St. Petersburg, Stockport. Present membership is 22, a flying field is available, and transport home can be arranged for anyone in the Bredbury, Romiley, New Mills districts, free.

READING & D.M.A.C.

We were fortunate, this year, to be represented in the Queen's Cup at the Northern Heights Gala by Stan Hinds. Using his O/D A/2 Stan reached the fly off and finally gained second place in a very close contest. This was a wonderful effort, the best in the club for ages!

The rest of the club attended the gala in strength. They were not so lucky in the contests, but enjoyed the beautiful weather.

Membership is steadily rising and by and large things seem very healthy.

The next club meeting is on August 31st, at Benson aerodrome. (Psst, the club is lucky enough to have a reserve 'drome at Booker now; ain't we fortunate!)

GLASGOW BARNSTORMERS M.F.C.

The club had a successful weekend at the P.A.A. Festival at Abbotsinch, taking one first ("B" T/R), one second (clipper cargo) and one third (Radio). Unfortunately, however, prangs rather marred the successes.

The W. McFarlane/F. Forrest/M. Howatt class "B" winner beat the much fancied Thornaby Pathfinders by over 30 laps but barely two laps after getting the chequered flag, and while lapping at 106 m.p.h., the up-line broke, with inevitable results to the model and, alas, also to its A. W. Barclay-tuned Eta Series III motor!

Peter Bannell's multi-channel *Smog Hog* hit an airport building after taking third in the radio event. The model was a write-off but happily the engine (Miles) and the radio gear were O.K. and are now being installed in an *Astro Hog*.

Bill Chrystal's clipper cargo entry was plagued by over-runs on its A.M.10 but lifted a total of 30½ oz. on its two flights, to take second place.

NORTH KENT NOMADS M.C.

The club is holding its annual gala this year on September 7th, 1958 at Dartford Heath. While this flying ground has a rather limited area, we always manage to have a good time.

Our annual R/C contest for the Dance Trophy is to be held at Detling aerodrome, and the club is indebted to the chairman and the committee of the Detling Gliding Club for permission to use this ideal 'drome.

The juniors had an opportunity to show their prowess recently when competitions in all sections were held. The prizes included some gramophone records kindly donated by our honorary secretary. It is believed that with a little music in the air, the juniors' fingers will itch to do more balsa chopping.

We extend a hearty welcome to any lone aeromodelling hands in the Bexleyheath area to come along and see us at the club room in the Travellers' Rest, Long Lane, on any club night which is held on the second Monday of each month at 8 p.m.

DAGENHAM M.A.C.

After the recent success that the club has enjoyed in the joint running of the combat at the "Nats," it has been decided to run a C/L gala on September 7th in Central Park, Dagenham, and everybody is cordially invited.

We are running all classes of C/L including stunt and speed, provided sufficient entries are forthcoming.

I.R.C.M.S.

Our annual contests for radio controlled model aircraft and vehicles will be held this year in the Midlands on Sunday, August 31st at the R.A.F. aerodrome, Wellesbourne Mountford, near Stratford-on-Avon, by permission of the Air Ministry and the commanding officer.

The aircraft contests are for multi control (single or multi-channel); multi control (single-channel only); single control (single channel only).

The contest are open to all R/C modellers, whether or not they are members of the I.R.C.M.S. Entrants for the aircraft classes must, as usual, produce evidence on the day of the contest that they are covered by insurance against third party risks to the value of at least £5,000.

Entry forms, copies of the rules and any further information can be obtained from A. E. Newby, 56, Lime Avenue, Leamington Spa, Warwick.

BLACKHEATH M.F.C.

Just a reminder, that the Bill White Cup for open rubber, and the usual glider comp. will be flown off together with a power comp. which has been brought in by popular request, on October 5th at Chobham Common. Flying starts at 10.30 a.m. and finishes at dusk. Entry fees are 1s. 6d. per comp. Three flights of 3 min. depending upon the conditions.

For further details contact: P. Crossley, 11, Broadfield Road, Catford, S.E.6.

LEICESTER M.A.C.

A stunt, combat and R/C contest (two classes, multi and single) will be held at Stapleford Hall, near Melton Mowbray, on Sunday, September 21st, to commence at 10.30 a.m.

Pre-entry for each event is 1/6 per model, and this will give entry for modeller and one assistant to the grounds, hall, etc. Entry on the day will be 3/- per model.

For non-competitors the charge will be 2/6 for adults, and 1/- for children; this also gives entry to grounds and the private mansion. There is a model railway for the children. Refreshments, teas, cakes, etc., will be available at usual prices.

All pre-entries to be addressed to M. A. Colyer, 17, Turville Road, Leicester, enclosing 1/6 P.O.

DOPE PEDDLERS M.C.

The club went to the Nats. and a good time was had by all. Ray Gibbs came first in speed,

and three of the boys entered the combat, where B. Austin succeeded in getting through the two rounds on the Sunday, only to be knocked out due to a mid-air collision with one of the West Brom. lads.

Anyone over 16 who is interested in joining the club should come to a Friday evening meeting at Gadget's Model Shop in Aldersbrook Road, East Ham.

PECKHAM M.A.C.

The club attended the Northern Heights gala and, although we did not enter any contests, we did put in a good bit of flying. Several 1/2A team racers were flown, and we feel it is about time that more recognition is given to this class. The club rubber and glider men are still at it, although there are only about two members interested in these branches now. One of the more spectacular models was J. Barnes's *Kimolo*. This is a semi-scale mid-wing effort powered by an AM10; with a 7 x 4 prop she really travels, and the flying speed is in the 60s.

One of our members is a model shop owner by trade, and he got the idea of taking a mobile model shop to Epsom. This is a great help to bods who run out of fuel, cement, etc.

WIGAN M.A.C.

Our contest types made the trip up to the P.A.A. at Abbotsinch, and with perfect contest weather it was a pity that a few more modellers couldn't make it up North. With the usual P.A.A. "W" attack (Wigan, Whitefield, Wallasey) we nearly cleared the prizes.

In the glider event there were three models with full max's, so the fly off was the deciding factor for first, second and third. We had two members in the fly off which was won by S. Wood with a time of 9 min. 27 sec. o.o.s. B. Picken was second with 7 min. 10 sec. B. Talbot was in the fly off in power; he was all set for a place, attaining the greatest height by far, only to see his model in a downdraught which made it come down as fast as the others went up in lift a few feet away.

In the local English Electric trophy we beat Colne and District M.A.C. with first, second and third places in all three events.

CHANGE OF SECRETARIES

ENFIELD & D.M.A.C. P. Hartwell, 50, Pembroke Road, Palmers Green, N.13.

NEW CLUBS

CITY OF NEWCASTLE AEROMODELLERS. R. D. Anderson, 62, Lindfield Avenue, Newcastle upon Tyne 5.

STOCKPORT & D.M.A.C. H. Dewhurst, 14, Doris Road, Edgeley, Stockport, Cheshire.



CONTEST CALENDAR

Aug. 23rd	U.K. CHALLENGE MATCH.	Sept. 14th	Croydon Gala. Chobham Common, F/F all classes.
" 24th	SCOTTISH GALA CATON TROPHY, U/R RUBBER. U/R GLIDER. U/R POWER. TAPLIN TROPHY. R/C Rudder Control, Stunt. (Simplified schedule.) TEAM RACING, "A" and "B."	" 21st	Leicester M.A.C. Rally. Stapleford Hall, Melton Mowbray. R/C Stunt, Combat.
" 24th	South Midland Area Rally. Cranfield.	" 21st	*MODEL ENGINEER CUP. Team Glider. Area. HALFAX TROPHY. U/R Power. Area.
" 31st	I.R.C.M.S. Meeting, R.A.F. Wellesbourne, single and multi R/C.	" 28th	TEAM RACING. "1/2A," "A," and "B" Area.
Sept. 7th	NORTHERN GALA U/R RUBBER. U/R GLIDER. U/R POWER. AEROMODELLER R/C TROPHY. R/C Multi-Control (Full R/C schedule, course and aerobatic flying.) TEAM RACING. "A" and "B" P.A.A. LOAD. (Int. Class.)	" 28th	C. H. ROBERTS CUP (flying boats) Danson Park, Bexleyheath, Kent.
" 7th	Dagenham C/L Gala. Central Park, Dagenham. Stunt, Combat, T/R "A. & B.," Speed (*)	" 28th	Southern Area Rally. Open R/G/P; T/R "1/2A," "A," "B"; Combat; Stunt, Radio.
		Oct. 5th	Bill White Cup. Chobham.
		" 12th	*FARROW SHIELD. Team Rubber. S.M.A.E. CUP. A/2 Glider. Area.
		" 19th	South Coast Gala, Ashdown Forest.
		" 26th	HAMLEY TROPHY. U/R Power. De-centralised. FROG JUNIOR CUP. U/R Rubber, Glider, De-centralised.
		Nov. 2nd	St. Albans Slope Soaring Rally. Invinghoe Beacon. *Plugge Cup events. All S.M.A.E. competitions in capitals.

A sprayed finish is a perfect finish

Celspray

HIGH EFFICIENCY
**SPRAY
GUNS**

for any Cellulose, Lacquer, Paint, Dope, etc.

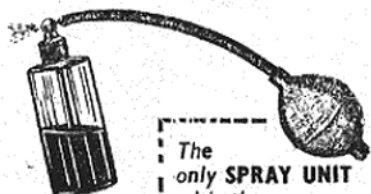
NO. 3 GUN

(Hand Bulb operated)

9/6 Post 9d.

Spare 2 oz. contain-
ers. 1/6 post free.

Rubber Tubing and Pump
Connection to convert for
tyre pump operation. 2/6 post free.



The
only **SPRAY UNIT**
with the
5 YEAR GUARANTEE

FOR OPERATION WITH CAR TYRE PUMP—

NO. 2 GUN

(with 4-oz. spraying bottle)
8/6, post 1/-; spare contrs. 1/6.

NO. 6 GUN

(with 6-oz. wide neck spraying jar)
9/3, post 1/-; spare contrs. 2/2.

NO. 8 GUN

(with 8-oz. wide neck spraying jar)
9/9, post 1/3; spare contrs. 2/3.



ALL GUNS INTER-CONVERTIBLE

Obtainable through all Halfords branches, Hobbies and model stores
or direct

Write for particulars of Complete Spray Kits and all spraying materials

CELSPRAY LTD.,

Beechwood Rise, Nth. Watford, Herts.

Tel.: Watford 6284

(T.10)

YES! SIX VIEWS

Front and rear elevations, port and starboard
elevations, top and bottom plan views of:

Albatros CI; Albatros CIII; Albatros DII;
Albatros DIII; Albatros DV and DVa;
Fokker EIII; Fokker DIII; Fokker Dr I;
Fokker DVII; Fokker DVIII; Halberstadt
DII and DIII; and Pfalz DIII.

AFTER ALL, it is only with the aid of six views
that you can see ALL aspects of an aircraft! With
the aid of these drawings you can now build fully
detailed and completely accurate models.

BY THE WAY, we have available four-page illus-
trated leaflets and sample drawings describing fully
the contents of "VON RICHTHOFEN AND THE
FLYING CIRCUS." Write your name and address
on a postcard and send it to us. We'll send you a
copy per return.

AMPLE STOCKS OF THIS LATEST
"HARBOROUGH" BOOK ARE NOW
AVAILABLE

HARLEYFORD PUBLICATIONS LTD.
LETCWORTH, HERTS.

EXHIBITION NEWS!
SHEEN MODELS WILL BE SHOWING
ON STAND 25 ALL THE VERY LATEST IN:—

PLASTIC KITS · FLYING KITS · DIESEL ENGINES · FUELS · PROPS · ETC · ETC
PURCHASE YOUR KITS AND ACCESSORIES FROM THE SPECIALISTS AT

★ **STAND 25**

263, Upper Richmond Road West, East Sheen, LONDON, S.W.14.

Tel.: PRO. 4353

England's Only Aviation Bookshop

The books, plans, photos you want on Aviation are
here—we stock nothing else!

We BUY, SELL or EXCHANGE

Thousands of magazines and books always in stock

Open All Day Saturday Only

or send 4d. for our 14-page catalogue

Beaumont Aviation Literature
2a Ridge Avenue, London, N.21

(Trolley bus 629 and 641, or Greenline bus 715
pass the door. Nearest Tube—Wood Green)

Going on Holiday?

You'll need the up-to-date information in the

**FORTNIGHT HOLIDAY
SERIES**

38 titles in this popular series of
guidebooks cover the principal
holiday centres in Europe. The
latest are:

ANDALUSIA and
VENICE 5s. (\$1.00)

Send 3d. stamp for leaflet
detailing full list of 5s. and

3s. 6d. titles to the Publishers, Percival Marshall & Co. Ltd., 19-20, Noel
Street, London, W.1. Or phone Gerrard 8811.



A MUST for Modellers!

**A new book by a
world famous author!**

CHAPTERS ON . . . Making a start • Flight simply explained • Making the fuselage • Building the wings and tail • Covering and dopping • Trimming and Flying • Rubber-driven models • Your first engine • Building a control-line trainer • Flying your C/L trainer • Solid scale models • Jetex motors and models • Free-flight power • More about free-flight • More about motors • Control-line stunt models • More about control-line Radio-control in a nutshell • Converting the "Deacon" to R/C • Preparing and flying your R/C model • Soldering for the modeller • Silk covering and colour finishing • Fuels and how to make them • Glossary of model aircraft terms.

112 large pages 8½ by 7½ ins. (same size as MODEL AIRCRAFT) Over 50,000 words. 24 chapters. Approx. 400 illustrations Price 6/- (Post free 6/8). U.S. A and Canada \$1.50.



Please mail me a copy of ALL ABOUT MODEL AIRCRAFT. P.O./Cheque for 6s. 8d. enclosed.

NAME

ADDRESS

ON SALE NOW!

At your local Model Shop or Bookseller

**MODEL AIRCRAFT SALES DEPT
19-20 NOEL STREET • LONDON • W.1**

RADIO & ELECTRONIC PRODUCTS**G. Honnest-Redlich**

8 Station Parade, Sheen Lane, Mortlake, S.W.14

Telephone: PROSPECT 9875

Single-channel carrier transmitter unit

"A Printed Circuit addition to the R.E.P. range"
 Pretuned to G.P.O. R.C. band. Complete component package includes Printed Circuit, all Resistors, Condensers, Valve Holder and Flex. Price less D.C.C. 90 valve, 18/6
 Suitable 3A5/DCC90 17/6

"Transmutone" multi-channel transistor receiver

Component package includes: 1 valve, 2 transistors, 8 condensers, 5 resistors, 1 RF choke, flex, wire, sleeving, drilled and tagged pre-assembled panel complete with coil former, valve and transistor holders and transformer. Price 82/-

Aeromodeller single-channel transistor receiver

Component package includes: 1 valve, 2 transistors, 4 condensers, 5 resistors, 1 RF choke, flex, wire, sleeving, drilled and pre-assembled panel complete with coil former, valve and transistor holders, and potentiometer. Price 62/-

"Modulation unit"

Component package includes: valve, transformer, all condensers and resistors, tag strip, wire, socket and drilled pre-assembled chassis. Price 38/-

★ A full range of engines with throttle control to suit R/C models.

★ Prompt Mail Order Service.

★ S.A.E. for price lists and information.

6-reed tuned relays ... 60/- 8-reed tuned relays ... 70/-

"Uniac" motorised "Speediac" motorised

actuator ... 45/- actuator ... 30/-

Relays from ... 22/6 F.R. Clockwork Escapement 35/-

Always Something New

and Exciting at

GAMAGES

Britain's Largest Selection of

PLASTIC KITS

Don't miss the

**'AURORA'
BLACK KNIGHT
of NUREMBERG**

(Illustrated here)

When assembled and painted it makes a truly magnificent model. Can be used as a bookend when mounted. 10½ in. high.

ONLY
8/11

Also from the

'AURORA' Range—

Silver Knight of Augsburg 8/11

Panther tank ... 9/11

Patton Tank ... 9/11

Monogram Kitty Hawk ... 11/9

Post & Pkg. 1/1 outside our own extensive van area

**GAMAGES, HOLBORN, LONDON, E.C.1**

HOL 8484



How-to-do-it
**Magazine of U.S.
 Modeldom**

Read FLYING MODELS, the only American magazine devoted exclusively to model aviation! Every issue includes how-to-build data on new model aeroplanes of various types (with full-size plans wherever possible) ... worth-while hints ... photographs ... how-to-do-it information ... and features for sport a-plenty!

Now published every month.

Annual subscription (12 copies) £1 9 6
 Including Postage

Mail your order and remittance today to:
ATLAS PUBLISHING & DISTRIBUTING CO. LTD.

(Dept. A)

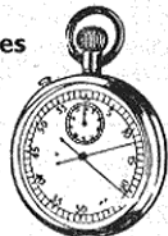
18 Bride Lane, Fleet Street, London, E.C.4

**THE POPULAR
FLYING ASSOCIATION**

Read Popular Flying: The bi-monthly magazine of the Popular Flying Association. Subscription, £1 a year. Specimen copy with scale plans of the Hirtenberg HS9A and history of this unique aircraft 1s. 6d. from **The Popular Flying Association, Londonderry House, 19, Park Lane, London, W.1.**

**OUTSTANDING OFFER!
EX-GOVERNMENT
SPLIT-ACTION Stop Watches**

These fine precision watches are ideal for individual and successive timing. Either hand can be stopped independently. Split action obtained by side button. Reads to 1/5 sec. and records on separate dial to 30 min. Fully tested and guaranteed for 12 months. Others from 52/6.



**UNITED
 TECHNICAL SUPPLIES £5.5.0**

Dept. M.A., 3 Harrow Road, London, W.2. Tel: PAD 1133
 Opp. Edgware Road Stn. 5 min. Marble Arch.



**AFRICA HOUSE
KINGSWAY
LONDON W.C.2.**

Telephone : HOLBORN 7053
Telegrams : BALSAWUD LONDON

***WE IMPORT ONLY THE VERY
FINEST SELECTED Balsa
WOOD FOR THE MODEL
MANUFACTURING TRADE**

Today (August 20) Is Opening Day!

**The *MODEL AIRCRAFT*
EXHIBITION**

Don't miss this exciting new show! There are hundreds of superb models in the Competition and Loan Sections. Attractions include: Demonstrations of modelling. An actual World War I fighter plane. A display showing the construction of a full-size machine. The cockpit of a Canberra bomber with pilot standing by to explain controls. A display by the British Gliding Association. C/L flying in the flying arena. British Model Aircraft industry stand. S.M.A.E. stand, etc.

HOW TO GET THERE

You can get there by any of the following routes:

St. James's Park Station by Circle or District Line.

Victoria Street. Buses: 10, 11, 24, 29, 39, 76, 134. Ask for Army and Navy Stores.

Vauxhall Bridge Road. Buses: 2, 2a, 36, 36a, 57, 69, 169, 181, 185. Ask for Rochester Row.

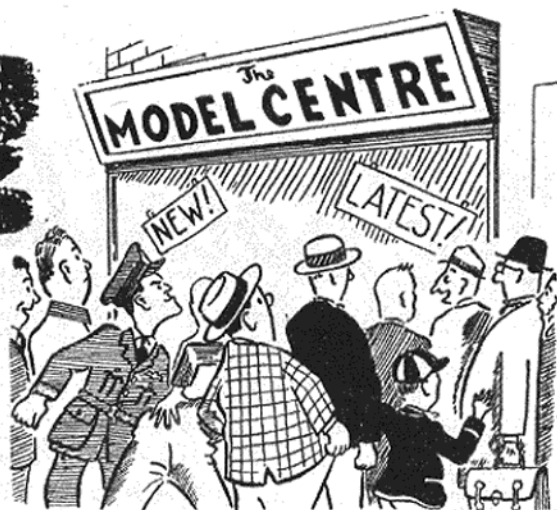
Horseferry Road. Buses: 10, 46. Ask for New Horticultural Hall.

NEW HORTICULTURAL HALL, WESTMINSTER • AUG 20-30

11 a.m.—9 p.m. (closed Sunday)

Admission 3/- Juniors 1/6

YOUR BEST MODEL SHOPS



Readers

YOU CAN DEAL WITH
THESE MODEL SHOPS
WITH COMPLETE
CONFIDENCE

Retailers

ADVERTISE ON THESE
PAGES TO REACH THE
LIVE MODELLERS IN
YOUR TOWN

BIRMINGHAM

Tel.: Central 5483

Hobbies Ltd.

100a, DALE END, BIRMINGHAM 4

The firm known to Modellers throughout the world. Ask our Mr. W. Starns for advice

BRISTOL

The Model Airport

51, COLSTON STREET

Get your supplies from the leading M.A. shop in the town

BIRMINGHAM

Tel.: Midland 0972

Hornton's

32, STEPHENSON STREET, BIRMINGHAM, 2
(Facing stage door Theatre Royal) and
1, NAVIGATION STREET, BIRMINGHAM, 2
(Adjoining Queens Hotel)

Stockists of Model Aircraft, Railways and Ships

CARDIFF

Tel.: 52906

Bud Morgan

THE MODEL AIRCRAFT SPECIALIST
22/22a, CASTLE ARCADE

SEND 4d. IN STAMPS FOR MY 1958 PRICE-LIST

BIRMINGHAM

Tel.: Northern 5569

The Model Mecca

204-206, WITTON ROAD, 6

A 100% Modelling Shop. Aircraft Kits, etc.
Trix "OO" L.M.S. Co. "O" gauge. S and Sa buses pass door
WRITE, PHONE or CALL

DARTFORD

Modern Models

49-51, LOWFIELD STREET, DARTFORD, KENT

Whether you call or whether you post, we claim we've got more stock than most

BIRMINGHAM

Tel.: CALthorpe 2554

A. J. Reeves & Co. (B'ham) Ltd.

416, MOSELEY ROAD, 12

Specialists with a world wide reputation
AIRCRAFT, BOATS, RAILWAYS
and accessories. Radio Control. By return postal service

GLASGOW

Tel.: Central 5630

Caledonia Model Co.

5, PITT STREET, C.2

THE engine repair specialists. EVERYTHING for the enthusiast,
with personal attention from GEORGE LEASK, A.M.I.B.E.

BRIGHTON

Tel.: Brighton 27693

Arthur Mullett Ltd.

16, MEETING HOUSE LANE, BRIGHTON

Agent for all leading Model Manufacturers
World wide Mail Order Service

GLASGOW

Tel.: Central 5042

Hobbies Ltd.

326, ARGYLE STREET

The firm known to Modellers throughout the world. Ask our Mr. J. Stewart for advice

YOUR BEST MODEL SHOPS CONT'D.

HOUNSLOW

Tel.: Hounslow 0941

Poulton's Model Shop

79, HIGH STREET
HOUNSLOW, MIDDX.

Model aircraft, boats and trains. No charge for technical advice.
engine runs or radio checks

LONDON

Tel.: GULiver 1818

Ripmax Limited

39, PARKWAY, CAMDEN TOWN, N.W.1
THE RADIO CONTROL SPECIALISTS

All Requirements stocked PLUS Personal Mail Order Service

HULL

Tel.: Hull 32959

Hobbies Ltd.

10, PARAGON SQUARE

The firm known to Modellers throughout the world. Ask our Mr. J. Mason for advice

MANCHESTER

Tel.: Central 1787

Hobbies Ltd.

10, PICCADILLY

The firm known to Modellers throughout the world. Ask our Mr. W. B. Cummings for advice

IPSWICH

Tel.: 51159

East Anglian Model Supplies

37, UPPER ORWELL STREET, IPSWICH

Wakefield gears: 3s. each, post 2½d. Contest "Avenger" sailplane
Nordic A/2 design. Plans and cut ribs 10s. Kit, 23s. 6d., both post free

MANCHESTER

Tel.: Blackfriars 3972

The Model Shop

13, BOOTLE STREET, DEANSGATE

We have **EVERYTHING** in stock for the aeromodeller: Kits,
Engines and Accessories

LONDON

Tel.: Museum 2975

Hobbies Ltd.

78A, NEW OXFORD STREET, W.C.1

The firm known to Modellers throughout the world. Ask our Mr. S. Nelson for advice

NEWCASTLE

ESTABLISHED 1924

The Model Shop

(NEWCASTLE UPON TYNE) LTD.
18 BLENHEIM STREET, Tel: 22016
NEWCASTLE UPON TYNE, ENGLAND
Pioneers of modelling with 33 years' experience...
Our Expert Staff are at your Service

LONDON

Tel.: Chiswick 0858

Jones Bros. of Chiswick

56, TURNHAM GREEN TERRACE, W.4

1 min. Turnham Green Station (Dist. Line)

THE SHOP WITH THE STOCK

OPEN SATURDAYS 9 a.m.-6.30 p.m.

OXFORD

Tel.: 2407

Howes Model Shop

LARGEST STOCK IN THE MIDLANDS

CALL, WRITE OR PHONE

9-10, BROAD STREET

Mail service by return

LONDON

Tel.: Hop 3482

Model Aircraft Supplies Ltd.

171, NEW KENT ROAD, S.E.1

The oldest established model aircraft shop in London.

Personal service with satisfaction

PADDINGTON

Tel.: 8827-8-9

THE COMPLETE MODEL SHOP

Burleigh's

303, EDGWARE ROAD, W.2

All your wants supplied by return
BURLEIGH, OF EDGWARE ROAD, LTD.

LONDON

Tel.: North 4272

Henry J. Nicholls Ltd.

308, HOLLOWAY ROAD, N.7

M.A. enthusiasts' complete stockist. Britain's No. 1 Model Shop.
H.J.N. will be pleased to see you

SHEFFIELD

Tel.: 26071

Hobbies Ltd.

4, ST. PAUL'S PARADE

The firm known to Modellers throughout the world. Ask our Mr. C. Smith for advice

YOUR BEST MODEL SHOPS—CONT'D.

SOUTH AFRICA

Greenacres

WEST STREET, DURBAN

You can obtain all your Model Aircraft requirements from Natal's Hobby Centre

WATFORD

Tel.: Watford 3522

H. G. Cramer Ltd.

172a, HIGH STREET, WATFORD

The leading stockist in the area

ST. HELENS

Tel.: St. Helens 3972

George Webster (St. Helens) Ltd.

THE MODELLERS' RENDEZVOUS, CORPORATION STREET, ST. HELENS

All leading makes of kits, engines, etc., in stock. Mail order by return. Aircraft List 6d., post free.

EVERYWHERE

Tel.: Gerrard 8811

Model Aircraft

19-20, NOEL STREET, LONDON, W.1.

This advertising space is available to all good retail Model Shops. Rates may be had on application.



CLASSIFIED ADVERTISEMENTS

Private 3d. per word; minimum 12 words. Trade 6d. per word; minimum 12 words. Use of Box No. 2s. 6d. extra.

Displayed Classified Advertisements (including Situations Vacant): 35s. per single column inch (column width 2 3/4 in.).

Advertisements, together with remittance, should be sent to Classified Advertisement Department, MODEL AIRCRAFT, 19-20, Noel Street, London, W.1, at the latest by the 25th of the month preceding publication date.

SITUATIONS VACANT

PRESSED STEEL COMPANY LIMITED

Stratton St. Margaret, Swindon, Wilts.

Invite applications for employment from

UNSKILLED MEN

aged 21 to 35 for training as

METAL WORKERS

Ideal working conditions. Good rates of pay. Canteen facilities. Pension scheme. Hostel accommodation available.

For further particulars, please apply to the Personnel Officer.

**WHEN YOU SEE
THE OPPORTUNITY
GRASP IT**

**The Fairey Aviation
Company Limited
White Waltham Aerodrome
White Waltham, Berkshire**

Offer immediate employment to
RADIOTRICIANS

With experience on airborne and ground Radar Equipment.

If you have this experience then this is your opportunity to obtain a worthwhile job with a progressive Company world renowned for its aircraft and record breaking achievements.

Applications please to
EMPLOYMENT MANAGER
Address as above.

"SAILPLANE & GLIDING"—the only British magazine devoted to the sport of gliding. Published every other month. Send stamped addressed envelope for descriptive leaflet; or 2s. 10d. for current copy; or 17s. for a year's subscription to BRITISH GLIDING ASSOCIATION, Dept. M.A., 19, Park Lane, London, W.1.

THE RIGHT ANGLE IS DEXION. Saves time and money on every job. Right for brackets, shelves, racks, ladders, tables, trolleys, scaffolding, etc. Send for details.—PITTIERS, 36, Mortimer Street, London, W.1.

★ **TRUCUT** ★
PRECISION—AIRSCREWS



- ① PARAGUAY
- ② ARGENTINE
- ③ PORTUGAL
- ④ YUGOSLAVIA
- ⑤ THE CONTINENT
- ⑥ SOUTH AFRICA
- ⑦ INDIA
- ⑧ AUSTRALIA
- ⑨ NEW ZEALAND

EQUADO BalsaWood is shipped all round the world to satisfied clients—in metric and English sizes. Let us quote you for your balsaWood requirements.

Trade price lists on application to Sole Manufacturers and Shippers

E. LAW & SON (TIMBER) LTD.

272-274 HIGH STREET, SUTTON, SURREY • VIGilant 8291-2

WIN £200 IN THE LINCOLN and LINCOLN HAWK model building competition

NO ENTRY FEE

PRIZE LIST £100 for the best Lincoln model, £100 for the best Lincoln Hawk model, £20 second prize, £10 third prize and 20 consolation prizes of £1 each

Enquire at your local model or toy shop



National Sponsors:
S. GUITERMAN & CO LTD
37 SOHO SQUARE LONDON W1



We are exhibiting on Stand 21 at the **MODEL AIRCRAFT EXHIBITION**

An opportunity to inspect and purchase the full range of *Model Aircraft* handbooks including the new book by Peter Chinn "All About Model Aircraft" and the latest edition of the "M.A." Plans Catalogue.

PERCIVAL MARSHALL & CO. LTD.
19-20 NOEL STREET, LONDON, W.1

REALISTIC MODELS AT REALISTIC PRICES!

AIRFIX 1/72 SCALE CONSTRUCTION KITS

2/3
AND 3/- EACH

Realistic models of aircraft that have made flying history. Moulded in high impact plastic, complete with illustrated easy-to-assemble instructions, authentic marking transfers and display stands. Undoubtedly the finest value in kits today!

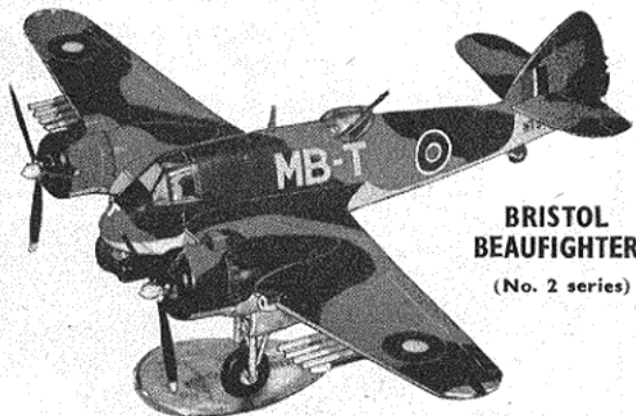
Models available include:

GLOSTER "GLADIATOR"	SUPERMARINE S.6B	TIGER MOTH
SPITFIRE	SOPWITH CAMEL	R.E. 8
WESTLAND LYSANDER	ALBATROS SCOUT	M.I.G. 15
BRISTOL FIGHTER	STUKA J U. 87 B	MUSTANG
HELICOPTER S.55	HURRICANE	S.R. 53
M.E. 109	HAWKER HART	WHIRLWIND
FOKKER D.R.I	D.H. 88	SKYHAWK
		FW 190

No. 2 SERIES: MOSQUITO, WALRUS, BEAUFIGHTER
Range also includes: VINTAGE CARS and HISTORICAL SHIPS

New models in each series introduced every month. Ask your dealer for the latest Airfix list.

AVAILABLE FROM ALL GOOD MODEL SHOPS, STORES AND TOY SHOPS



**BRISTOL
BEAUFIGHTER**
(No. 2 series)

OO SCALE (4 mm. to 1 foot) TRACKSIDE SERIES



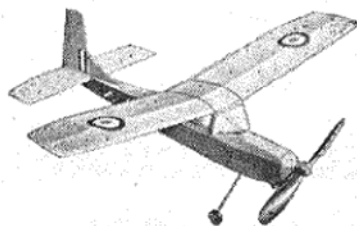
COUNTRY INN
SIGNAL BOX
BUNGALOW
DETACHED HOUSE

Also available:—
SERVICE STATION
GENERAL STORE
STATION PLATFORM
BOOKING HALL

An exciting new series of attractive buildings in kit form, with illustrated easy-to-assemble instructions. Terrific value: 2s. and 3s. each.

SHOP & FLAT
THATCHED COTTAGE
KIOSKS &
PLATFORM STEPS

Easy to BUILD-Easy to FLY! **JASCO**



SPOTTER

SPOTTER

An 18-inch rubber model complete with plastic prop and noseblock, plastic wheels, cement, sandpaper, transfers, tissue and rubber motor. Quality balsa is used throughout and all parts are accurately printed. Suitably modified it is an ideal model for the Allbon "Bambi" diesel. Price including tax 5/11

TRACER

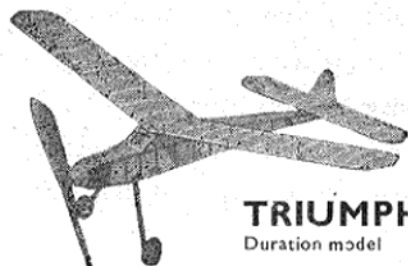
A 31 1/2-inch span Stunt Model designed for beginners and experts alike. The kit is complete even to the cement and the finished model will go through the stunt schedule with ease. Suitable for 1.5 c.c. to 2.5 c.c. engines. Price including tax 16/11

TROJAN

A model suitable for a beginner who wishes to build his first model. An exceptionally strong model of a most pleasing appearance. Profile fuselage and solid sheet wings. Wheels, transfers and all small parts supplied. All parts preshaped. Wing span 18 inches. Suitable for engines .5 to 1.5 c.c. Retail price 10/3



TRACER

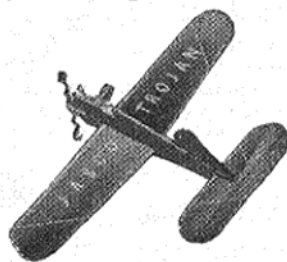


TRIUMPH
Duration model

TRIUMPH

A beginner's duration model kit containing selected balsa parts die cut for easy construction. Contains tissue, wheels, balsa propeller, transfers, all necessary small parts, except rubber motor for which 9 yards of 3/16" x 1/30" flat rubber is required. Wing span 33 inches. Retail price 8/9

TROJAN
Control line model



JUNIOR AIRCRAFT SUPPLY CO. LTD.
129a EASTBANK STREET SOUTHPORT



Printed in Great Britain for the Proprietors by ELECTRICAL PRESS LTD., Cordwallis Works, Maidenhead, Berks. and published by PERCIVAL MARSHALL & Co. LTD., 19-20, Noel Street, London, W.1. Registered for transmission by Magazine Post to Canada including Newfoundland.



Radio Controls

Equipment which will enable the user to operate, independently, more than one control, is now demanded by most enthusiasts.

The reliability and ease of control of the Tuned Reed System, pioneered by E.D., has, after long and exhaustive experiments and tests, been amply demonstrated and proved by continual successes in open competition.

E.D. now produce six models, which will adequately meet the demands of most enthusiasts. Three of these are illustrated and the others are:—

The "BOOMERANG"

A Hard Valve Receiving Set, completely wired and ready for use. Includes Transmitter Receiver Escapement. Range approx. 500 yd. Price complete £11 18s. 6d.

E.D. Mk. IV RADIO CONTROL UNIT

Tuned Reed—three channels, for the multiple control of all models. Price complete £20 9s. 7d.

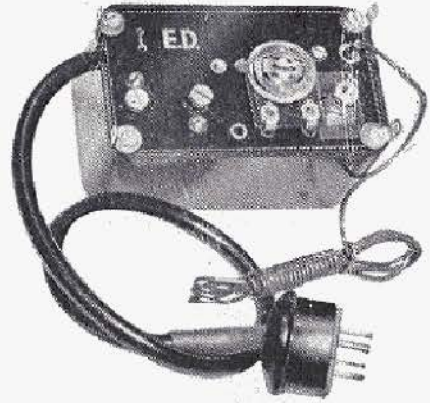
P.C.I TRANSMITTER

A high powered, super compact, lightweight, portable Radio Control Transmitter. Price (less batteries) £5 19s. 9d.

Ask for and insist on E.D.

**the finest
Equipment
for the
Model Maker**

A comprehensive range of Radio Controls, Mechanisms, Spare Parts, Accessories, is also available. Full details are given in our illustrated lists—free on request.



H.T. Supply—22½ volt battery.
Idling current—0.6 ma.
Current change—0.6 ma.
L.T. consumption—25 ma.
Hard Valve—no quench coils.

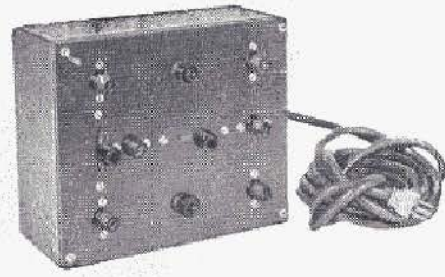
The "AIRTROL"

HARD VALVE RECEIVER

**The smallest
Receiver in the
World**

Size 2½" x 1½" x 1½" and weighs only 2½ oz.
The latest addition to the E.D. range of Remote Control Receivers, specially developed to meet the great demand for a transistor hard valve receiver with a specification producing the ultimate in Radio Control.

Simple tuning.
Two transistors for output and economy.
Valve life—4,000 hours.
Price £7 5s. 0d.

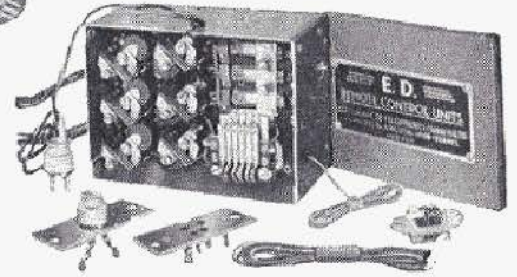


TRANSMITTER and RECEIVER with 8 ft. sectional Aerial. Fitted with Standard Hard Valves and six standard relays. Price complete £29 3s. 11d. (sold separately.)

The Mk. V "EVEREST"

TUNED REED 6 CHANNELS

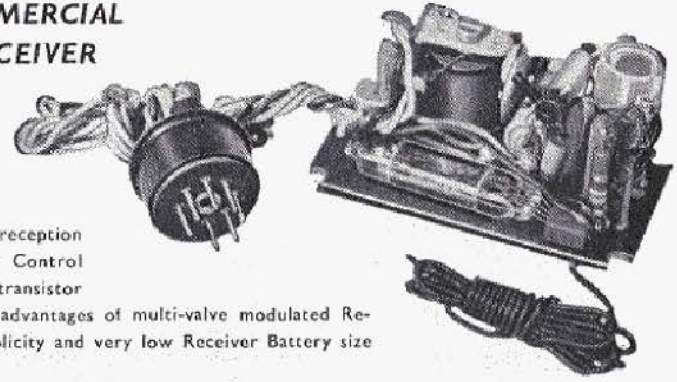
MULTIPLE RADIO CONTROL UNIT. Includes CONTROL BOX, size 6" x 5½" x 2½" giving up to six controls.



The "TRANSITROL"

RADIO CONTROL UNIT
THE FIRST COMMERCIAL
TRANSISTOR RECEIVER

E.D., of course, were again first to introduce this new technique. Its advantages in size, weight, current capacity and quality in reception will appeal to all Radio Control enthusiasts. This valve transistor Receiver combines all the advantages of multi-valve modulated Receivers, together with simplicity and very low Receiver Battery size and weight.



RECEIVER. Size 2½" x 1½" x 1½". Weight 2½ oz.
Price—Receiver Transmitter and Escapement, £12 15s. 6d.

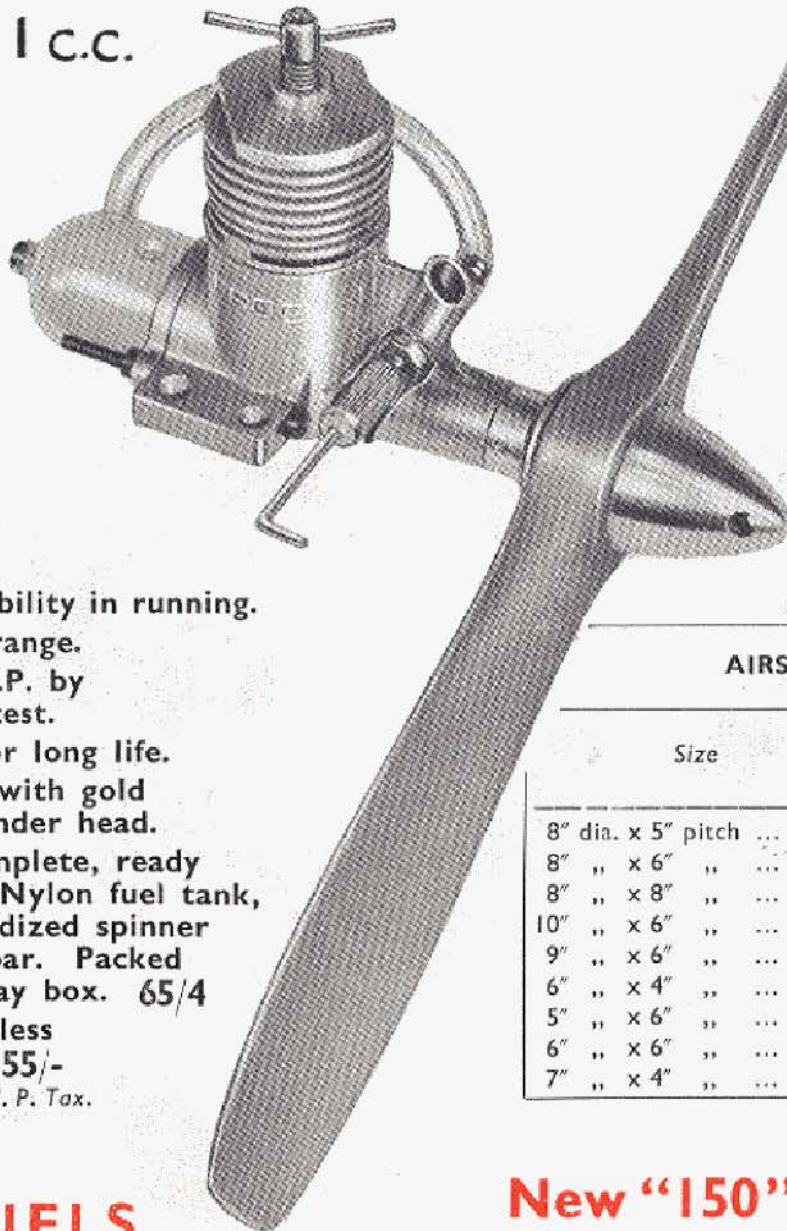
All prices include P. Tax

E.D. ELECTRONIC DEVELOPMENTS (SURREY) LTD
DEVELOPMENT ENGINEERS
PHONE: 6037 6038 ISLAND FARM RD, WEST MOLESEY, (SURREY) ENGLAND. GRAM: 7 4005 EAST MOLESEY

FROG "100"

Mk.II DIESEL

1 c.c.



- Exceptionally easy starting.
 - Extreme flexibility in running.
 - Wide speed range.
 - Over .10 B.H.P. by independent test.
 - Engineered for long life.
 - Super finish, with gold anodized cylinder head.
 - Available complete, ready to run, with Nylon fuel tank, airscrew, anodized spinner and tommy bar. Packed in rigid display box. 65/4
- Bare engine, less accessories. 55/-

incl. P. Tax.

AIRSCREWS

Size	High-Impact Styrene	Nylon
8" dia. x 5" pitch	1/3	3/-
8" " x 6" "	1/3	3/-
8" " x 8" "	1/6	3/6
10" " x 6" "	1/6	3/9
9" " x 6" "	1/6	3/6
6" " x 4" "	9d.	1/6
5" " x 6" "	9d.	1/3
6" " x 6" "	1/-	1/6
7" " x 4" "	1/-	2/-

FROG FUELS

Specially blended fuels suitable for these motors have been prepared by Shell-Mex and B.P. Ltd.

"Red Glow" for Glow-plug ignition motors and "Power-Mix" for Frog diesels.

Made in England by

New "150" type "R"

1/2 A Contest Engine. Revised timing, exceptional power. Output over 100 b.h.p./litre.

Price 55/- inc. Nylon Tank

INTERNATIONAL MODEL AIRCRAFT LTD.
MERTON · LONDON · SW19 · ENGLAND

