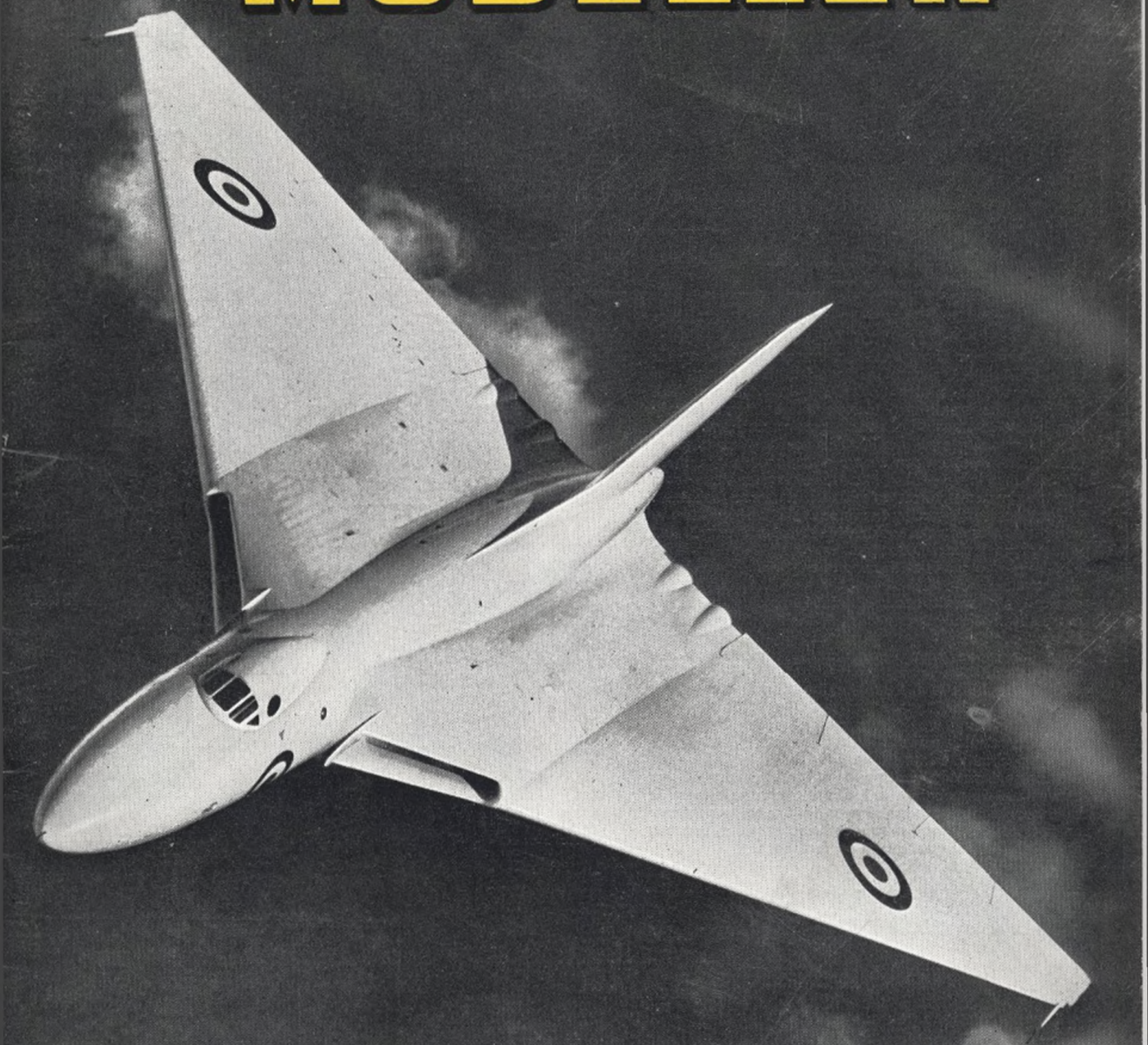
MARCH 1954

AERO MODELLER



SPECIAL FEATURE on AVRO VULCAN

1'6

Digital Edition Magazines.

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

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

All Plans and Articles can be found here:

Hlsat Blog Free Plans and Articles.

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

AeroFred Gallery Free Plans.

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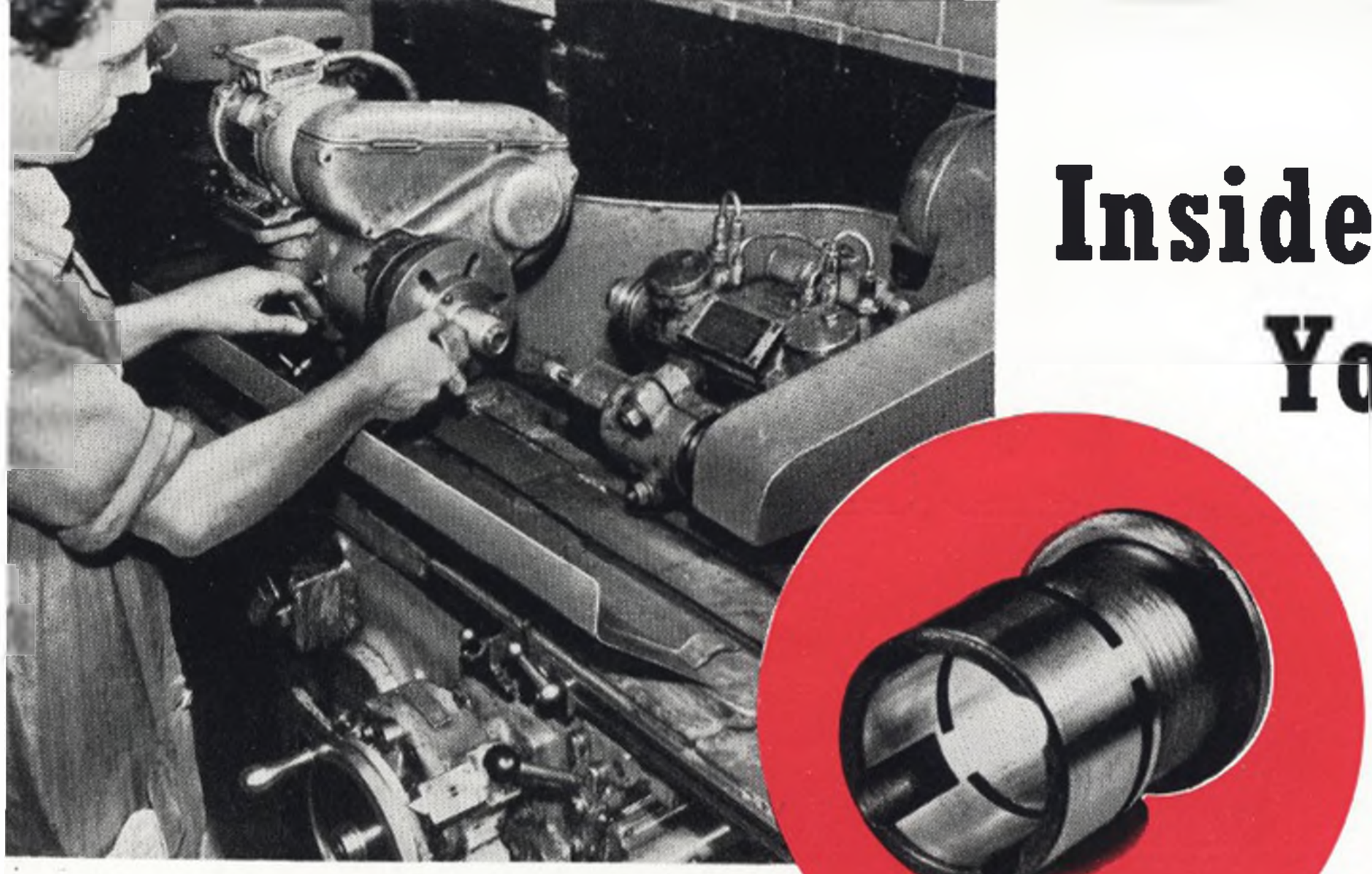
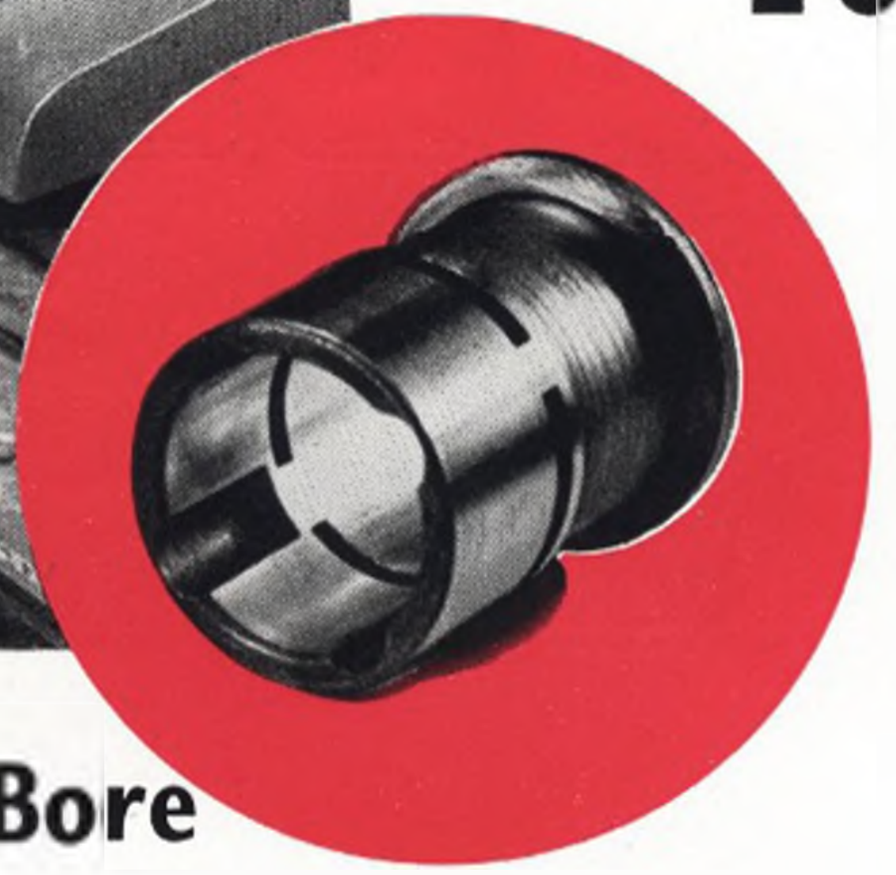


Inside Your Engine



No. 4 Grinding the Bore

Above is another of our skilled operators at the controls of a Churchill Universal Grinder in the process of grinding the bore of a D.C.350 cylinder liner. The finish on the crankshaft, piston, and liner are largely dependent on the skill of the operator and the accuracy of the grinding machine. For this reason we mount all our grinders on ten-ton blocks of concrete surrounded by a six-inch layer of sand in order to solate them from outside sources of vibration and that of nearby machines.

The operator is setting the liner in the wheel head and will then switch on the automatic traverse. The grinding wheel, rotating at 16,000 rpm., traverses the full length of the liner bore and at the end of the stroke automatically reverses. On each stroke the grinding wheel automatically advances its cut by .00002 of an inch and furthermore automatically cuts out when the liner is ground to the pre-set size. When you further consider that the bore has to be ground with a slight taper you can appreciate the intricacies of the operation.

Grinding fluid is fed to the job during the whole process in order to prevent the wheel from loading, and the grinding wheels themselves must be matched to the particular material being ground. The wheels are periodically trimmed with an industrial diamond costing perhaps £80, which will help some aeromodellers appreciate why engines are not the cheapest item in their workshops. We make every effort to market our engines at the most economic prices possible, but not at the expense of quality and performance.

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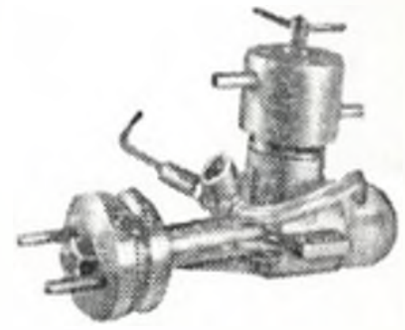

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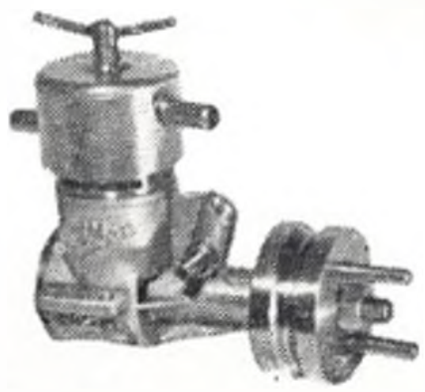

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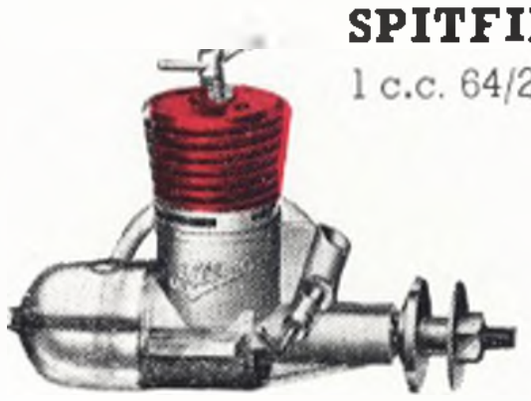

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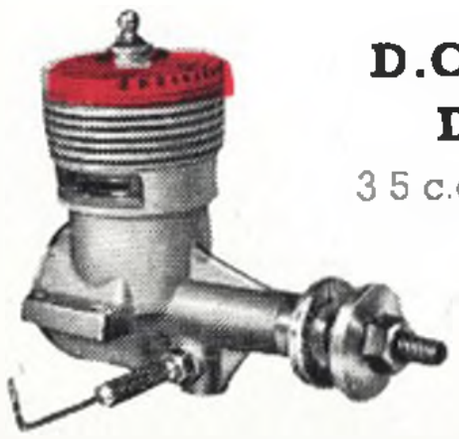

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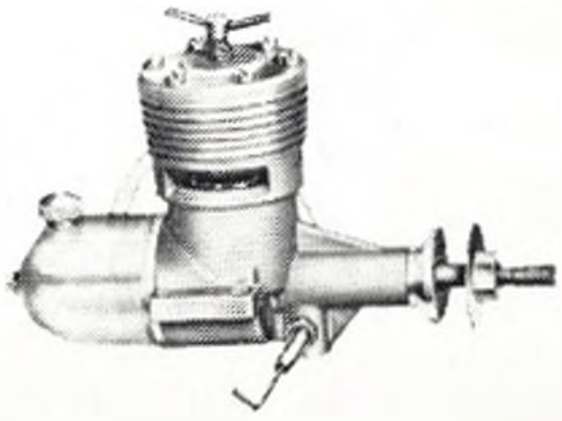

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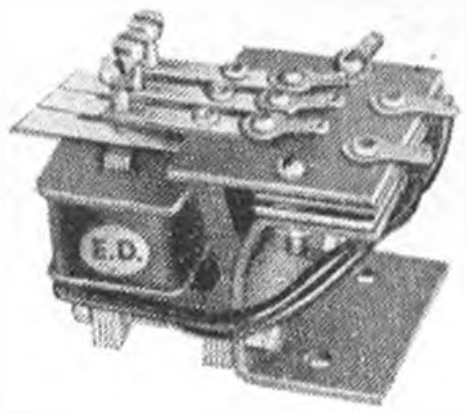

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Southerner Mite ...	32"	10/6	+ 1/9
Slicker 50	50"	25/–	+ 4/2
Slicker	42"	17/6	+ 2/11
Slicker Mite ...	32"	9/6	+ 1/7
Outlaw	50"	22/6	+ 3/9
Bandit	44"	18/6	+ 3/1
Ladybird	41"	18/6	+ 3/1
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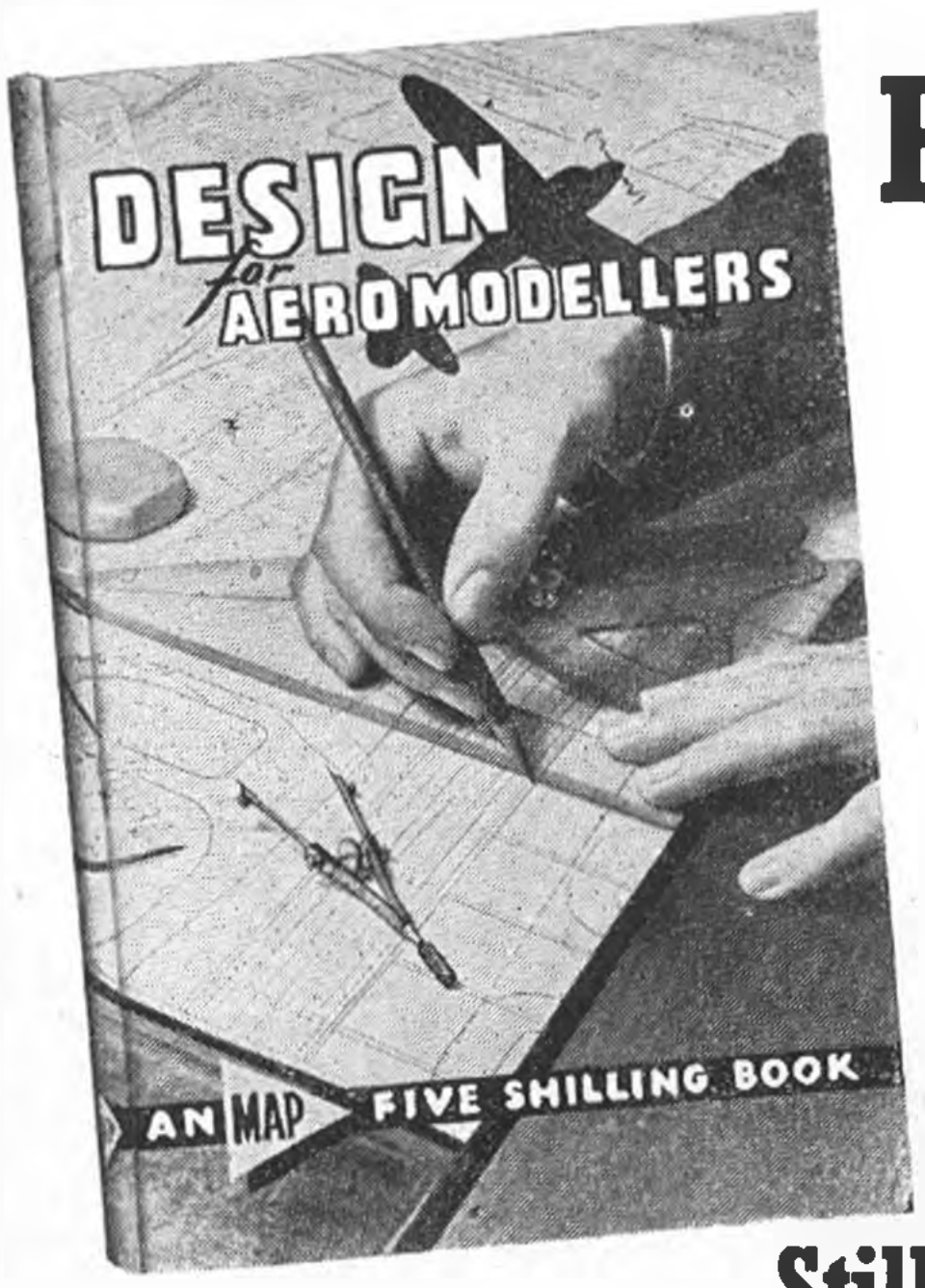

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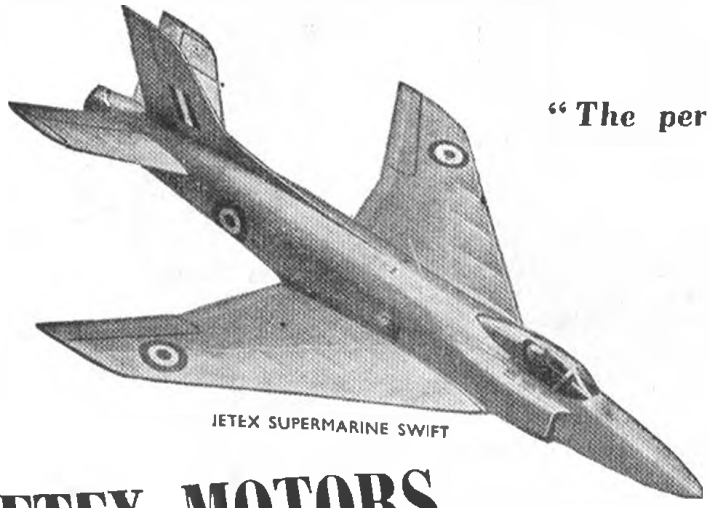

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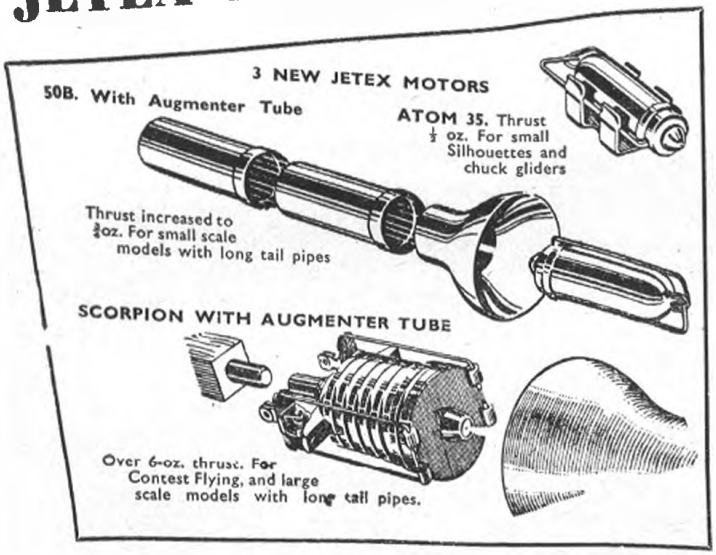

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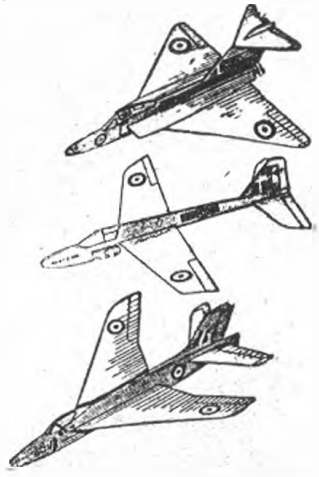

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Contents

Editorial and Advertisement Offices:
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Alpha, Beta, Gamma . . . . . .

MEMORIES of our own dabbling with delta wingplan forms way back in 1934—and their horrible failures!—were brought to mind when we were first staggered by the sight of the Avro 707 at the 1949 Farnborough Show. To see the 707A and 707B in flight at later Shows was a thrill indeed, culminating in the magnificent sight of the big bomber version, the "Vulcan," flying in formation with its tiny predecessors at the 1953 event.

Any who were lucky enough to witness this event, or who saw i separately on newsreel or television, must have wondered at the temerity of test pilots who take a completely unorthodox layout into the air for the first time, and we unblushingly admit our unstinted admiration for Wing Commander "Roly" Falk for his single-handed demonstration of the "Vulcan" at Farnborough.

The success of the Avro and other deltas has stimulated aeromodelling interest in this type of craft, and nowhere is this more clearly demonstrated than in the demand for our A.P.S. drawings of S/Ldr. Ellis' "Vultan." Response to J. N. Lancaster's "Delta I" (November 1952) was encouraging enough for us to present further designs to this planform, but it is evident that the somewhat scalish lines of the "Vultan" have caught the imagination of many modellers who appreciate a departure from the orthodox.

To include the "Vulcan" in our series of accurate scale drawings has long been our ambition, but it is not always possible to secure information (or the release thereof) to keep pace with our requirements. However, we are confident that the many keen scale modellers who have been pressing us for the inclusion of this popular aircraft in our extensive range of plans will welcome the 1/144th. scale drawings which appear in this issue, together with the abundant "gen" gathered by our new contributor, J. R. Enoch. We consider ourselves fortunate in securing his services, consolidating the increasingly popular series from the pen of George Cull.

Interest in scale modelling, both flying and "solid", has shown remarkable growth during the past year, and it is our aim to augment our already extensive range of accurate scale drawings as rapidly as possible. Already our list indicates well over 600 different designs, in many cases to more than one scale, and during 1953 nearly 20,000 readers availed themselves of 3-view scale drawings through our increasingly popular Plans Service.

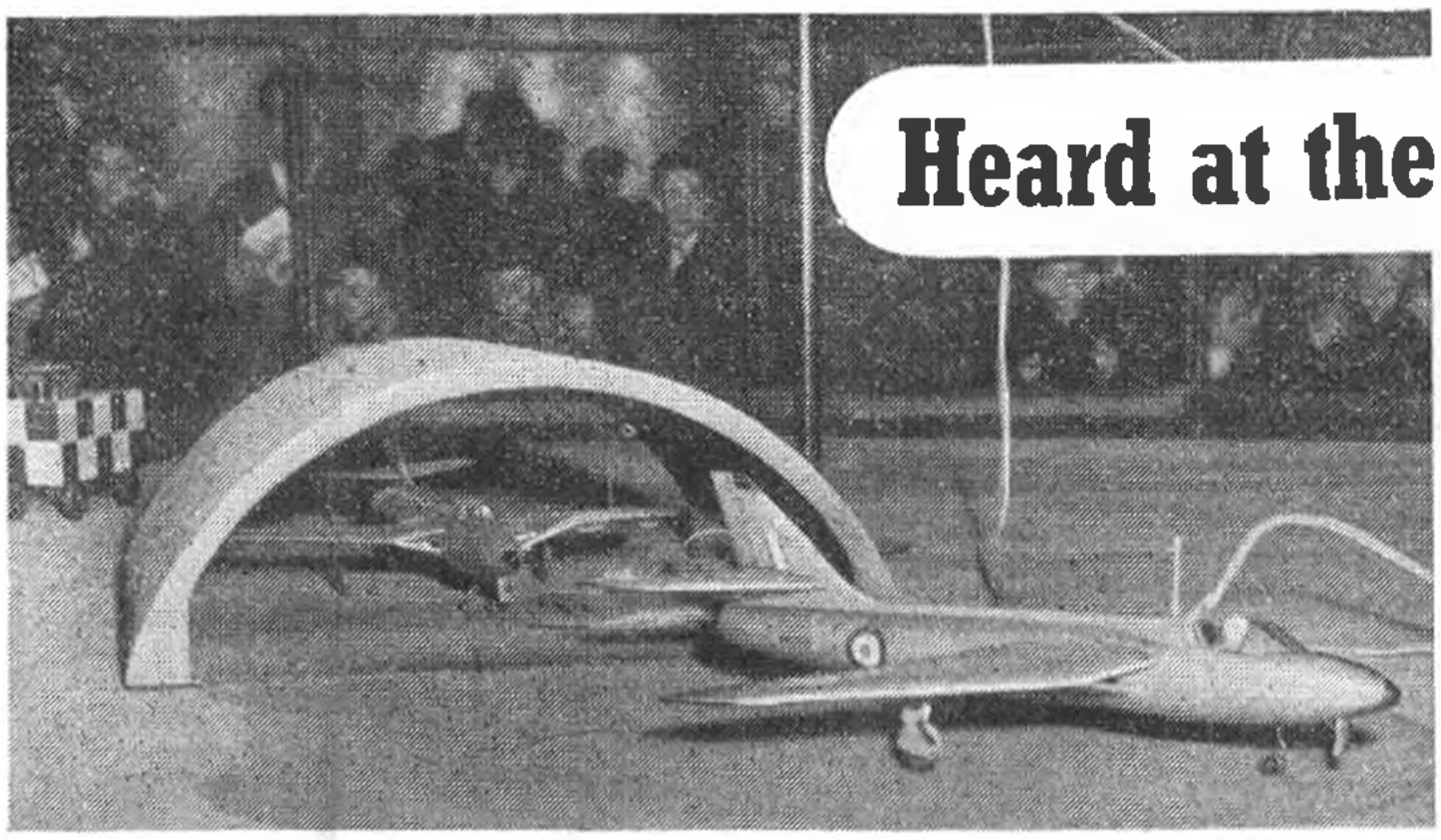
We repeat—accuracy is our aim at all times, and every endeavour is made to provide readers with drawings that cannot be questioned for their authenticity, for they are based upon every scrap of official and works information that we can lay our hands on. Nevertheless, it should always be borne in mind that certain types of aircraft remain under official secrecy for many many moons, and we can do no more than include the total information on any one design that is available at the time we go to press.

Accuracy and service is our motto, and we invite all readers who have yet to sample our range of drawings to send in for the latest A.P.S. Catalogue (price 6d.) without which no modern modeller is complete.

Cover Picture . . . .

Like the symbol o a new air-age, the delta shape of the Avro 698 Vulcan prototype gleams in high gloss white finish against a bleak northern moorland. No hint here of its immense speed and carrying power, for A. V. Roe photographer Paul, Cullerne arrests Vulcan in flight and portrays it as a craft of beauty and superb streamlined form.

Heard at the Hangar Doors



First of the Year

Run by the Blackheath Club, the "Bill White Memorial Trophy" and Winter Glider Cup are now traditionally established as first of the season events. Each year we make tracks for the bleak chosen site and on every occasion we are ever hopeful of finding a few new season's developments to witness on first outing. Without exception we are always disappointed—for these are the events where last year's models receive their final turns and a flyaway last flight of the day is rarely chased for recovery. After all—the bitter chill of January winds across exposed Epsom Downs is hardly conducive to first tests of a new design.

With the prior eliminators for new rule Wakefields last September, quite a number of '54 Wakefields converted from old-rule models are in current use for "open" contests and contrary to first beliefs, they are giving the old-established 5 ounce motor jobs a long run for their money, especially where the 3-minute maximum is stipulated. John Gorham topped the fly-off at Epsom with one such model. A standard "Ghost" Wakefield, ballasted and with 2½ oz. motor flew 4 : 11 o.o.s. against the nearest approach by Bruce Rowe's lightweight at 3 : 52 and the top old-rule Wakefield time of 3 : 32 by Hugh O'Donnell.

John Gorham's same model, fitted with floats, won the floatplane contest at Radlett last year with a double maximum, again with ballast and a 2½ oz. motor, so the performance in winning the Bill White may well be taken as its normal average. Where then, shall we be with the five, 3-minute flight rules for the next eliminators? A multiple fly-off is assured, especially when we consider that all the really new models with improved details and higher performance have yet to be aired. What say the competitors???

R.A.F. in Miniature

The heading picture shows two of the "Hunters" whose neat formation flying made the R.A.F. stand so attractive at the Schoolboy's Exhibition, held in the Horticultural Halls, Westminster, during the first few days of this year. The Hunter models went through a routine synchronised to a recorded explanation, and were able to taxi out, take off, fly, land, and taxi back to dispersal either singly or in formation, to the correct R/T patter and light signals from the caravan. The 30ft. platform and gear required for this first-rate show knocks down for transport from one exhibition to another, and the project took a total development time, including research, of about twelve months. Most of the work was put in by Corporals Burch and Barker, prominent members of the R.A.F.M.A.A.

Arthur Burch told us that the actual models were modified from Jetex Hunter Kits, and total flying weight was about 14½ oz., most of which arose from the ingenious retracting mechanism. Air pressure at 150 lbs/sq. in., led out through neoprene tubes, escaped down a standard augmenter tube from the crimped end of a 5/32 in. copper pipe, producing 8 oz. thrust. At full power, incidentally, a handkerchief can be sucked into the intakes with no trouble at all! The whole programme is controlled from a desk fitted with throttles, push buttons, etc.

We imagine that this display put serious thoughts of joining the R.A.F. into many young heads, and certainly a R.A.F. apprenticeship has much to recommend it. To anyone wishing to make a career among aircraft, no finer opportunity of training exists, and when their term of service is finished very few ex-apprentices find difficulty in obtaining excellent jobs in "civvy street." Many of the men in the top ranks of the industry started in this way. Add to the fine training the opportunity for travel, the excellent sport facilities, the general standard of life in the premier service, *and* the increasing activity of the R.A.F. Model Aircraft Association and you have a combination which many young modellers would do well to think twice about.

"Design for Aeromodellers"

Throughout the publication of that popular series of articles in "AEROMODELLER" "It's Designed For You" we were deluged with letters from readers urging us to produce them collected in book form. This we have now done as the first of our new 5/- series under the title of "Design for Aeromodellers." The text has been thoroughly edited,

and the opportunity taken of incorporating the latest views on certain aspects of design, so that readers can be assured of a completely modern approach.

For the benefit of the many thousands of new readers who never saw the original series of articles we would mention that this new book covers in seventeen chapters every type of model aircraft built and flown today, from gliders through the whole range of rubber models to free-flight and control line power, radio control and tailless models, together with some useful appendices on engine data, formulas, and metric conversion tables.

This is definitely not a "pure theory" book, but provides the basic information in simple practical style to design successful models that will—or should—"fly off the board" with the very minimum of mental effort in evolving them, whether they be high or low wing, cabin or contest models, PAA-load or Radio Control.

There really is a whole library of information in this book, which we recommend to every reader hovering on the brink of "own designs."

Fairlop Again?

Latest news on the subject of Fairlop Aerodrome, once the venue for all London model flying, is included in the following quote from the "Daily Telegraph," the italics are ours.

"CITY MAY SELL AIRFIELD"

> Ilford Borough Council, Essex, is negotiating for the purchase of Fairlop airfield from the City of London Corporation for use as a *public open space*. City Corporation officials said yesterday it was hoped that the negotiations would be completed by March.
>
> No indication of the purchase price is available. The 932 acres at Fairlop were acquired by the Corporation before the war for an airport. In 1952 the Ministry of Civil Aviation decided the airfield was not required."

A New S.M.A.E.

Recent comment by our contemporary "Model Aircraft" apropos membership of the S.M.A.E. gives serious food for thought to all those with the interests of the hobby at heart. Certainly the news that membership of the Society has dropped to a mere 3,000 members is disturbing, and we endorse "M.A.'s" remark that the new membership scheme in itself will not provide an immediate cure unless aeromodellers are informed of its advantages.

In company with our contemporary we are therefore donating space in "AEROMODELLER" in order to give the widest possible publicity to the new membership scheme. On page 161 readers will find an S.M.A.E. announcement, together with an application form, and we take this opportunity of emphasising the salient points.

Firstly, let us emphasise that membership of the Society is now open to *all* aeromodellers, whether club members or not. This means that the non-competition flier who wishes to support the Movement, and at the same time insure himself against third party risks can do so as an Associate Member at nominal cost.

Again the lone competition flier, who is so, either by choice, or because he is not situated within easy reach of a club, can join as a *Country Member*. He enjoys the full benefits of Society membership, with reduced competition entry fees, and again is insured against third party risks.

Finally, the true clubman is offered full membership and increased insurance cover at an all inclusive figure, which is less than he paid previously.

We have long felt that the narrow "Club attitude" which has so long dominated the Society's policy has restricted expansion, and prevented the S.M.A.E. from taking its rightful place as a truly national body. This new era of membership, catering as it does for every type of modeller, opens the way to a bigger and better aeromodelling movement.

A Model Card Player

The Banker they called him in the Casinos of Europe. A thousand pounds on the turn of a card meant nothing to him as he justified his name by only playing the fashionable game of Ecarte when he held the bank.

House detectives at the casinos were suspicious but eagle-eyed and experienced croupiers scoffed at the idea of him being a card sharp. Although he played against all the generally accepted rules and won, not once did he betray by facial expression, or any other outward sign of nervousness, the slightest qualms. His eyes were always on the cards except when he wanted to bid.

Special gaming squad detectives trained as croupiers sat by him and watched him, game after game. A specially trained detective hid in the roof above him and maintained a constant watch using a powerful telescope. Still no suspicious signals!

In the end the police, still convinced that the laws of chance could not be contradicted so often, invited "Monsieur le Banquier" to the police station and he finally decided to come clean.

How did he work? He amazed his accusers by confessing that he had cleaned up hundreds of thousands of pounds—as the first card sharper to operate by RADIO CONTROL.

The method was simple, he had a receiver in his clothing and an accomplice who watched the cards of the other gamblers and sometimes backed against him had a noiseless transmitter in his pocket. They used a special code and the system of operation was via copper electrodes clipped to his thigh. These gave a mild shock when the receiver was on signal.

It took two years to perfect the outfit which he had made by a specialist firm, under the pretext it was required for a stage thought reading act.

On reading the above paragraph in the "Daily Mirror" we were a little sad to know that someone had at last put into practice one of our private money making schemes. We also reflected how much quicker "Monsieur le Banquier" would have been found out, had there been an aeromodeller in the local police force!

Introducing a Continental Star from Yugoslavia

ACHILLES

By EMIL FRESL

Many times a member of Yugoslavian Wakefield and Power teams . . . builds his own diesels, was co-designer of the Oskar 150 reviewed on page 130.

TOP place as land or seaplane in the Yugoslavian National contests, and a three year record of continuous high placings, forms the contest background to this outstanding design. Emil Fresl is now internationally renowned as a regular representative of his country in Wakefield and Power finals, and needs no introduction for the contest-minded reader. He adheres to the power design formula originated by American Leon Shulman, whose "Banshee" and "Zoomer" achieved fame in the '46-'49 seasons, and in Achilles, Emil adds the many detail improvements we have come to expect from his ingenious countrymen.

High wing and tail angles, with built-in pylon fuselage and single wheel undercarriage give it the Shulman stamp. Gone is the symmetrical tailplane, and in its place, an anhedralled tail with novel dethermalising tip arrangement allows safe trim and gives better performance. Gone is the extreme dihedral, and added is the drag tab for glide turn. These, and many another structural feature, go to make Achilles one of the neatest F.A.I. power designs it has been our pleasure to witness, and we venture to suggest that its reputation for "in the groove" power flight pattern will make it extremely popular with all power fans.

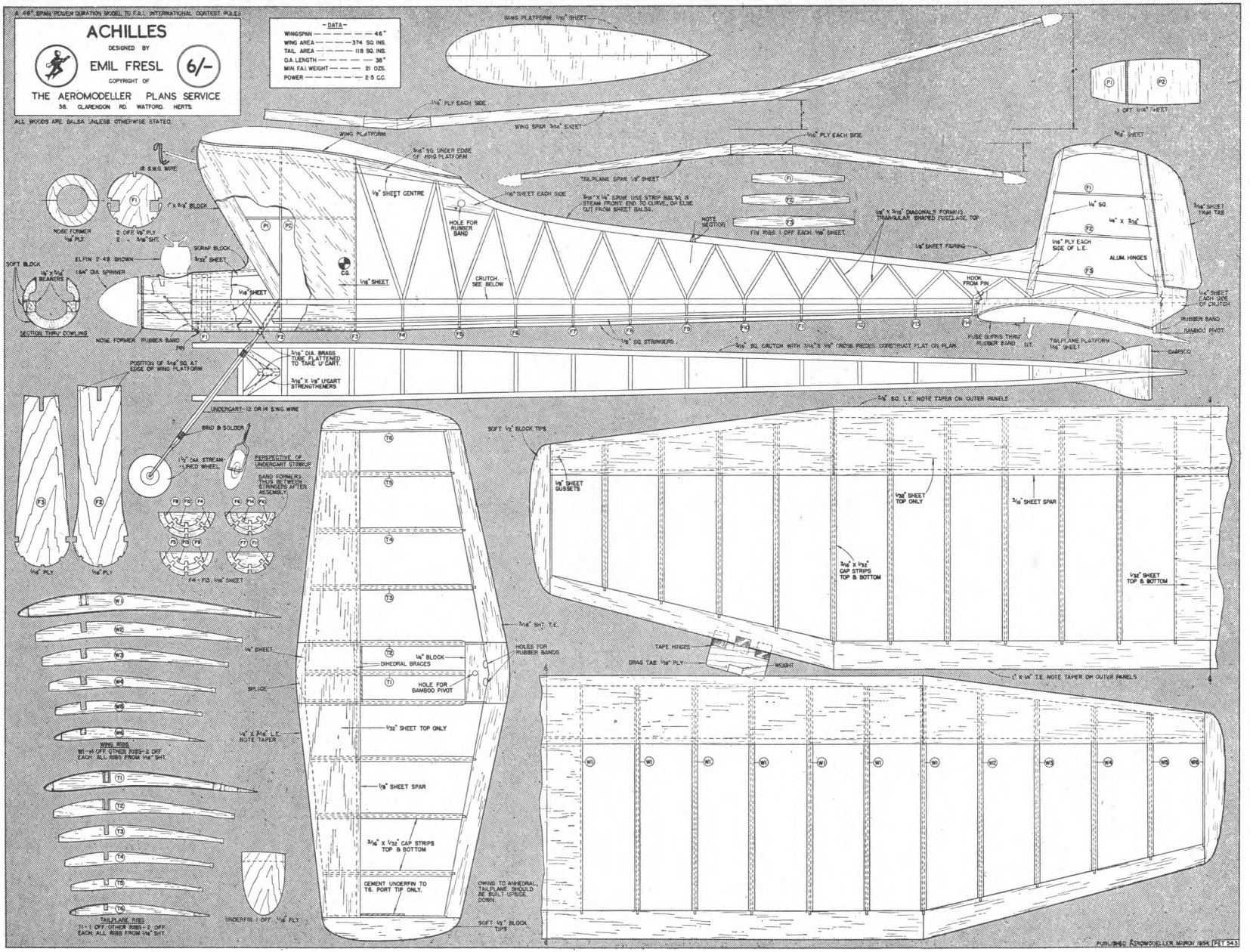
Vertical take-off is advantageous for 10 second motor run contests since it saves valuable seconds of the power run. Achilles climbs away from this launch with ease, but must be fitted with three points of contact to comply with rules.

Construction is robust and practical—the fuselage being built on the crutch system, with F.2 and F.3 installed first, then the wing platform, the spine, and the diagonals. This can be completed over the crutch plan on the building board, with the front portion overhanging the edge. Planking, underside stringers and formers, engine, timer and tank installation follow, then the fin is added, with ply bracing plates at the leading edge joint. Tail and wing structure are conventional, except that the spars are assembled first and each panel built in turn over the plan. All ribs are cap stripped top and bottom, and the tail must be built upside down because of its anhedral.

Initial glide tests with the C.G. at 56% Chord and rudder 3° to the left, should produce a shallow descent with very slight left turn. Try an 8 seconds power run at half revs, and check the power turn which should be to the right rather than left. (3° right thrust and 5° downthrust was used on the original.) Actual flight pattern is 30 ft. take-off run, blending into a fast straight climb and left glide circle after a quick recovery from power cut.

In later contests, following the example of Lederer at the '53 World Championships, Emil has used the vertical take off system with every satisfaction and resulting increase in height gained during the precious seconds of the power run, has improved the high average flight time even further.

As a design for the experienced power modeller, Achilles possesses a rare combination of qualities that should make it extremely popular.



THIS S A 1/5th SCALE REPRODUCTION OF THE FULL SIZE PLANSWHICH ARE AVAILABLE, PRICE"6/- POST FREE FROM THE AEROMODELLER PLANS SERVICE

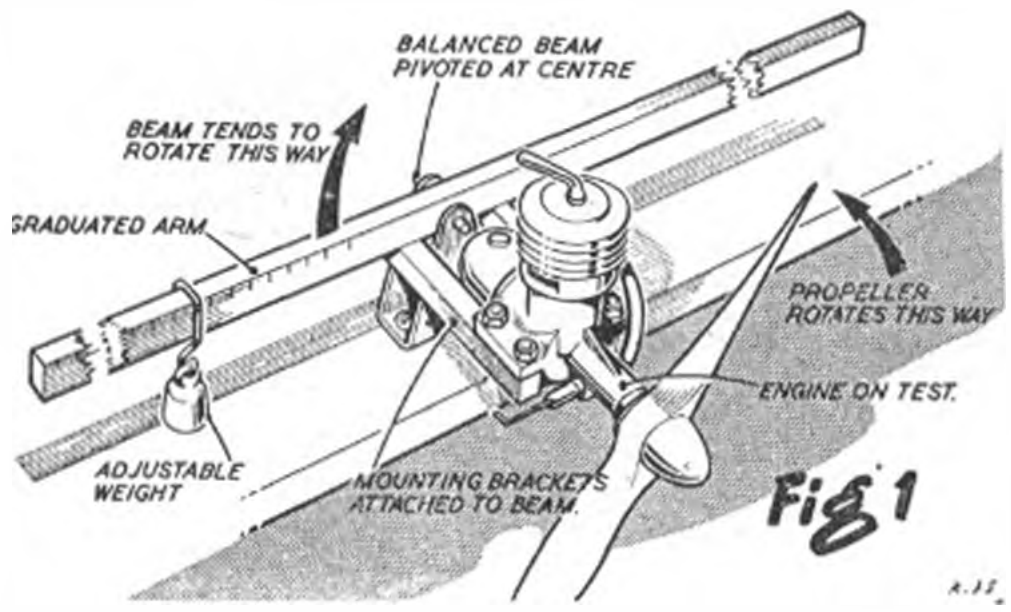
ENGINE TEST TECHNIQUE

RON WARRING describes the torque beam system and how to interpret the Brake Horsepower Curve

ALTHOUGH the basic results are the same, i.e., determination of brake horse power, the technique of testing model engines is considerably different from that of most "full size" internal combustion engines. The chief difference lies in the fact that a model engine has no throttle, as such, and running speed is mainly limited by the size of load being driven. Fitted with a given load (e.g., a certain size of propeller), and the controls set for most efficient running, there is only one speed at which that propeller (load) will be driven. Any variation in speed obtained by further manipulation of the controls can only result in less efficient operation and loss of speed. In other words, provided the design is sufficiently flexible, the engine can be slowed by making it run less efficiently, such as by making the mixture excessively rich (opening the needle valve), but such a control is never as positive as the normal throttle control on a larger internal combustion engine.

The only positive control over speed is to vary the size of the load, using a smaller propeller to increase speed and a larger one to decrease speed. The size of the propeller then limits the power which that particular engine can develop. To make this clear, we must study the relationship between horse power and speed in more detail.

Horse power is a measure of the work done by an engine. It is a derived function. That is to say, it cannot be measured directly. The two factors we can measure are the speed or revolutions per minute of the engine crankshaft, with a tachometer or stroboscope; and the torque or turning moment imparted to the crankshaft. Methods of measuring the latter were described in the previous article.



Work, basically, is the product of a force and the distance through which the point of application of the force moves in the direction of the force. In the case of a simple torque testing rig—Fig. 1—the counterweight on the torque arm is subjected to gravity, but the gravitational effect is overcome by the torque imparted by the motor. The "force' is thus just the value of the weight W. The corresponding "distance" is $2\pi D$ times the rate of revolutions of the crankshaft.

To reduce this to practical figures:—

$$\text{Horse power} = \frac{2\pi DNW}{33{,}000}$$

where N is revolutions per minute.

Now "DW" is the actual torque—balancing weight multiplied by distance from the axis. In working units, expressed the other way round as "WD," this is the measured torque in ounce-inches (Fig. 2). To correct the basic formula for these units:—

$$\text{Horse power} = \frac{2\pi NQ}{33{,}000 \times 12 \times 16}$$

where Q=WD

If this equation is simplified, we find that:—

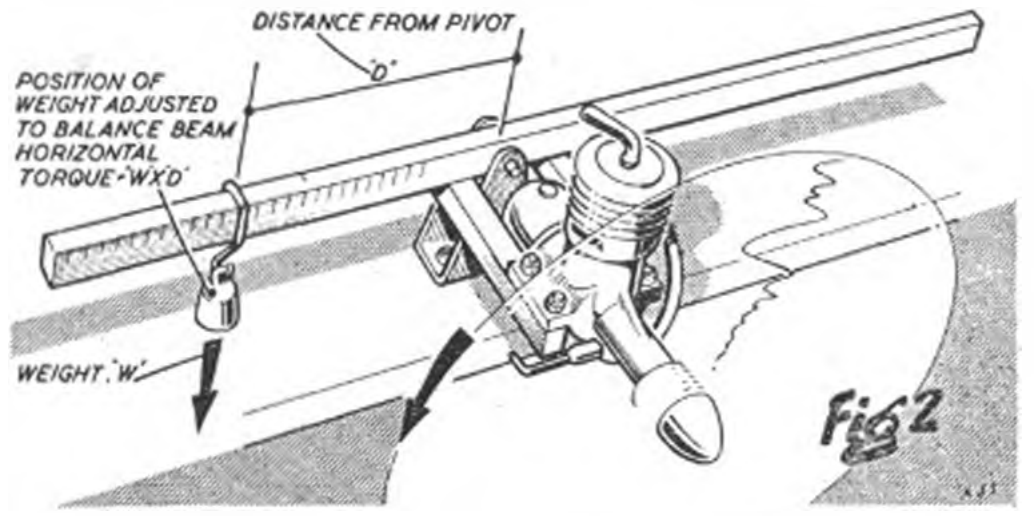
$$\text{Horse power} = \frac{NQ}{1{,}008{,}000}$$

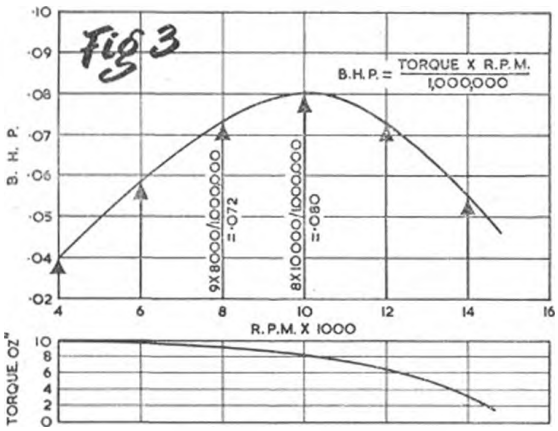
In other words, with sufficient accuracy for most practical purposes, the brake horse power (B.H.P.) of a model engine can be found by measuring the torque at any speed (in ounce-inches), multiplying by the r.p.m. and dividing by one million,

i.e., Torque × r.p.m.=B.H.P./1,000,000

The manner in which the brake horse power curve of an engine on test is built up should now be clear. The tests are concerned with fitting the engine with different loads, in turn, and measuring the corresponding r.p.m. and torque figures. The product of these related readings then lie on a more or less smooth curve—the B.H.P. curve—which is also plotted against r.p.m.—Fig. 3.

Now one of the facts which the average person finds most difficult to understand is that the torque tends to *decrease* with increasing r.p.m. This is because he confuses torque with horse power. Although the engine may produce more power at higher speeds, its capacity to turn a load at these higher speeds is reduced, hence calling for lighter loads, i.e., smaller propellers.

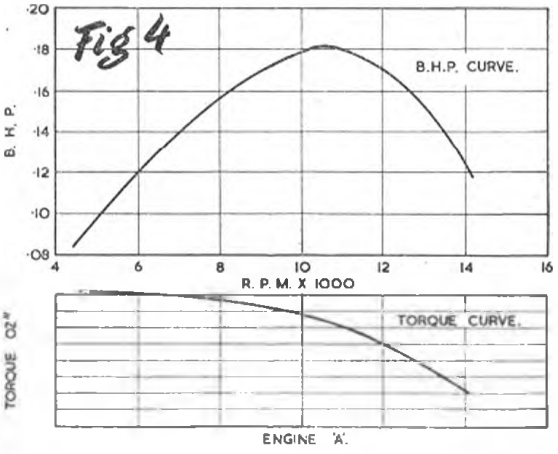




The manner in which torque drops off with increasing r.p.m. varies with individual engines. Three contrasting examples are shown in Figs. 4–6. With engine A (Fig. 4), torque falls off steadily with increasing speed, giving a fairly low peak B.H.P. and low r.p.m. figure corresponding to peak power. Engine A, in other words, is essentially a low-speed engine.

With engine B (Fig. 5), torque is maintained approximately constant over quite a wide range of r.p.m., and then starts to drop off. The different effect on the B.H.P. curve is quite clear. This is a high-speed engine, producing its peak power at very high r.p.m.

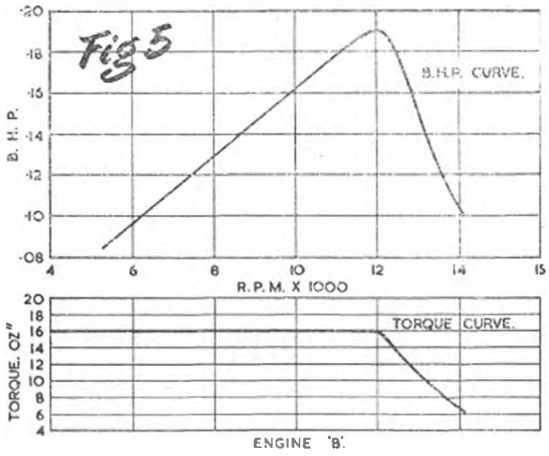
Engine C (Fig. 6), is relatively inefficient at low speeds and, again, essentially a high-speed type, peaking at a high r.p.m. value.



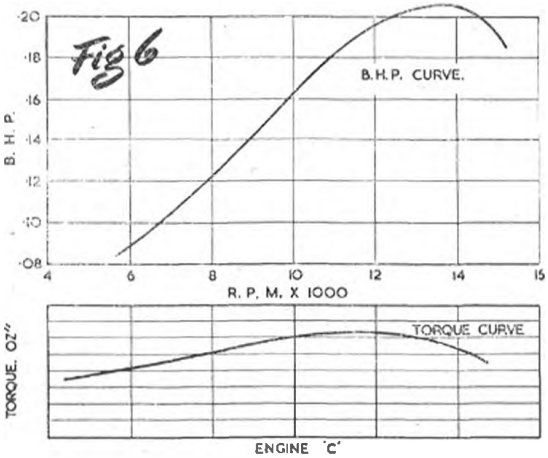
Quite a number of practical curves have "kinks" in them, i.e., plotted torque readings do not lie on a smooth curve. This is largely due to varying engine efficiencies at different r.p.m. It may also be due to vibration setting in and the effect of other practical test conditions.

The "peak" previously mentioned refers to the B.H.P. curve—corresponding to the region where the B.H.P. output no longer increases with increasing r.p.m., but now starts to fall off again. The top of the curve represents the peak or maximum B.H.P. which that engine can develop. Operated at that speed it is developing all the work that it possibly can, on the fuel used. It will be appreciated, however, that the load capable of being driven at that r.p.m. may be quite light, representing too small a propeller size for practical use in many types of models.

Theoretically it may be advisable to use a propeller size enabling the engine to operate at peak r.p.m. (i.e., the r.p.m. corresponding to peak B.H.P.) for contest models (free flight duration and control line speed). The small propeller size involved may make starting difficult, however, and extremely high r.p.m. may involve trimming difficulties with the model due to the gyroscopic action of the propeller. There may also be definite demands on the propeller characteristics desired, setting other limits.



Another point to consider is that the test figures represent static running conditions. Under flight conditions, propeller r.p.m. will tend to increase due to a change in the propeller load. Propeller



(*engine test technique cont.*)

load will actually decrease when it is both rotating and travelling forwards, equivalent, very roughly, to an increase in r.p.m. of about ten per cent. To operate an engine at peak r.p.m. under flight conditions, therefore, the propeller load would be selected to give a static r.p.m. figure about ten per cent below peak r.p.m., as determined for that particular engine.

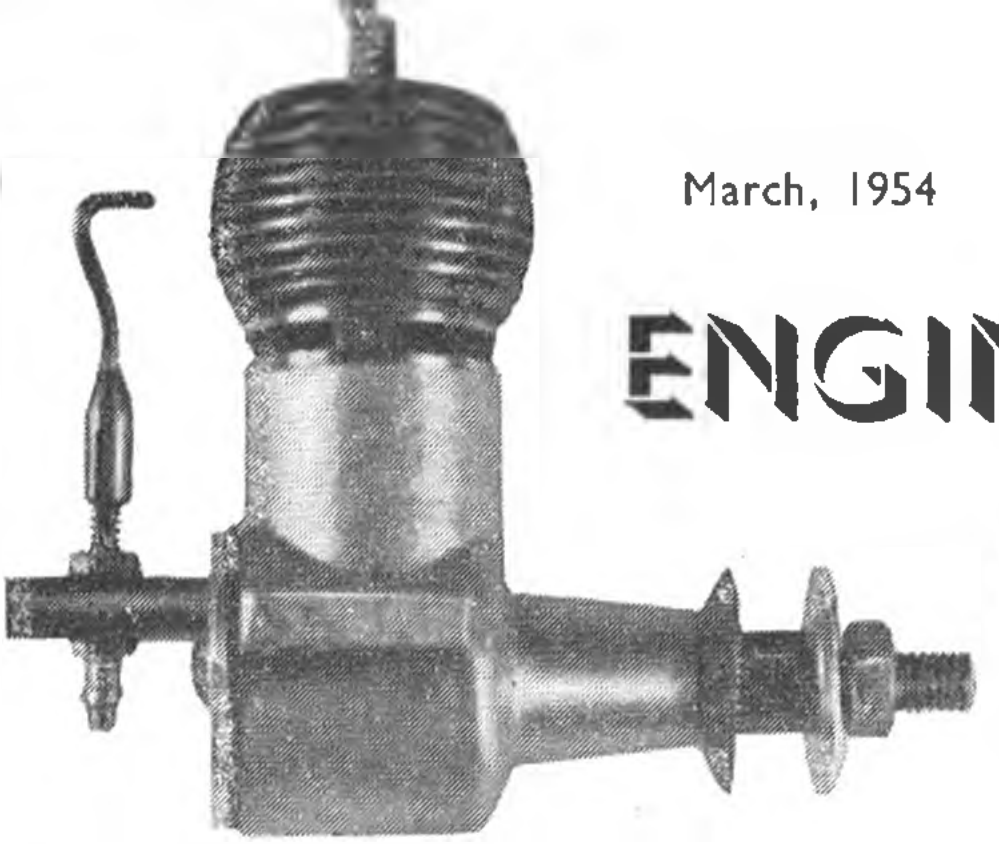
Another danger with engine test data is that results from one particular specimen on test cannot be guaranteed as representative of all other engines of the same type. Even with the close tolerances held on production engines, there must be manufacturing differences and, with the small sizes involved, such differences between individual engines can be most marked. The smaller the engine size, the greater, proportionally, such variations are likely to be.

In addition there are numerous other possible causes of variation. Atmospheric conditions have a bearing on the efficiency of the fuel charge so that, strictly speaking, test data should be related to standard atmospheric conditions (e.g., relative humidity, temperature and pressure). It is not considered worthwhile to introduce these complications in presenting test data, however, since their proportionate effect is not particularly great compared with other practical factors.

The effect of different fuels is quite a different matter. As far as the engine is concerned, it is the pressure of the exploding fuel charge on the top of the piston which basically governs the torque generated by the crankshaft. In general terms, a more powerful fuel will generate more torque, to drive a larger propeller load at the same speed, or the same propeller load at a higher speed. Strictly speaking, true comparative tests on different engines should be conducted on one standard fuel, and "AEROMODELLER" tests use Mercury Nos. 5, 7 and 8 fuels exclusively for this purpose.

This is a reasonable compromise, since it does approximate to the operating conditions which the average user of the engine will follow. Comparatively few of the thousands of engines produced annually are used for specialised duties where absolute peak performance is of paramount performance and in such cases the engines concerned are usually subjected to considerable individual attention by their owners. Engine test data applicable to performance on standard fuels then still forms a useful background for further experimentation.

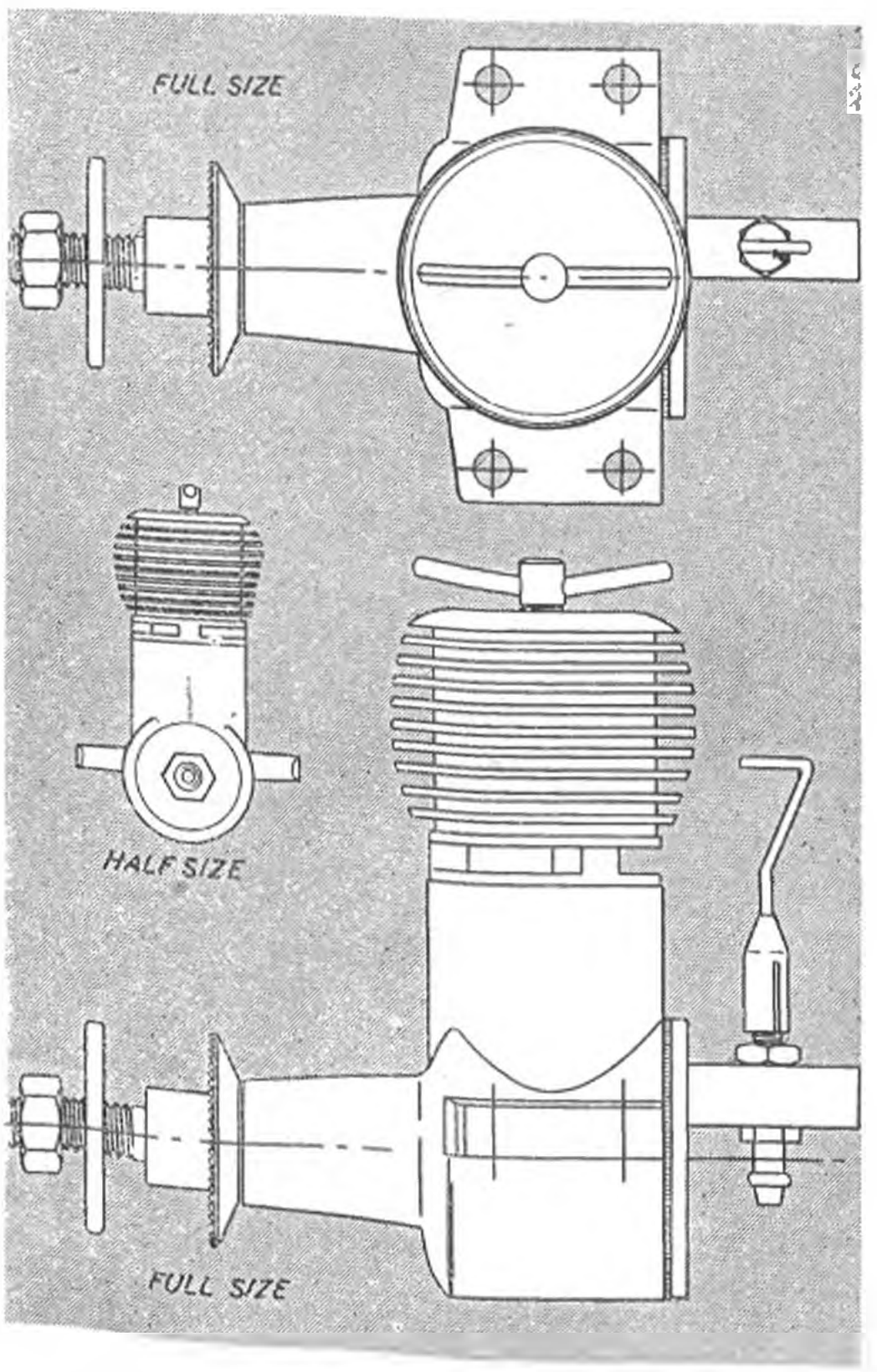
Probably the most interesting conclusion to be drawn at this stage is that the majority of model engines in use are operated at well below their peak power, i.e., at comparatively moderate r.p.m., even in contest models. Peak r.p.m. has increased steadily with production engines over the past decade with the result that few peak at under 10,000. Glow motors tend to peak at somewhat high r.p.m. than diesels, but both have outstripped the spark-ignition motor.



ENGINE

The

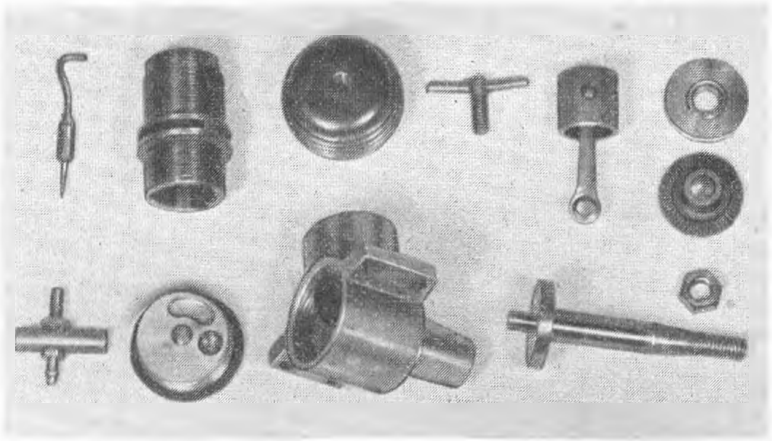
THIS Yugoslavian production engine is rather reminiscent of earlier British production motors in construction, but essentially modern in design—and performance. It could, perhaps, best be described as a down-to-earth engineering job, built for performance rather than sales appearance. Like a typical model engineering job, it is rugged and tough—and relatively heavy. The light alloy crankcase casting is thick, the steel cylinder is thick and about the only concession to "eye appeal" is the red anodised finned cylinder jacket. Obviously not anticipating a wide demand the manufacturers have concentrated on first class construction—and rightly so.



REVIEW

Oskar 150

By Ron Warring



The Oskar 150 proved a very pleasant engine to handle. Propeller tests only were run with this particular specimen, working through a range of diameter and pitch sizes. R.p.m. figures obtained are directly comparable with those of contemporary British productions of the same capacity.

Rotary valve induction is employed, a rotary disc being mounted on the detachable crankcase backplate. A fairly thick gasket is used to provide a seal between the crankcase and backplate and this did show a tendency to blow at one point. Tightening the backplate up to the limit did not cure this fault, which inevitably led to loss of crankcase compression and must have adversely affected the r.p.m. figures obtained on test.

The compression control was rather interesting. The limit to which this could be screwed down still left an appreciable gap between piston at top dead centre, and contra-piston, which possibly may be good from the point of view of reducing the chances of "hydraulic-ing" but means that to obtain a high compression ratio the tommy bar lever was snuggling the cylinder head and not so easy to grasp or move. One blessing, however, the cylinder head did remain remarkably cool, even after prolonged running.

The crankcase web, turned integral with the steel shaft, is a plain disc, (*i.e.* no attempt made at balancing the reciprocating weights) and the piston is also of heavyweight construction, with a "hard" light alloy connecting rod and conventional gudgeon pin attachment. Despite the unbalance, however, no excessive vibration was experienced when running—no more vibration, that is, than is commonly accepted as "inevitable" with a robustly constructed diesel.

Transfer porting takes the form of three grooves machined on the inside of the lower cylinder walls spaced 120 degrees apart, terminating on a level with the three exhaust ports cut in the cylinder walls (equivalent to 360 degrees exhaust). Most of the exhaust is, however, ejected on the port side of the engine. The piston has a slightly conical top with no deflector.

The rotary disc of aluminium, mounted on a brass spindle with, seemingly, an appreciable amount of play. The crankpin engages a blind hole in the rotor disc. The crankcase bearing is unbushed, the front of the crankcase web bearing against a small "collar" cast in with the crankcase unit, wearing itself down to a smooth bearing surface during use.

With little to criticise there is, equally, nothing of outstanding merit to mention and so we can best summarise the Oskar 150 as pleasant to handle, comparable in power with its contempories and a good, honest workhorse of an engine—for general flying or for competition work. A good rival in the international contest field.

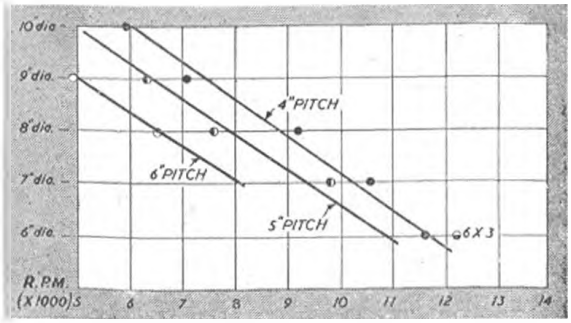
SPECIFICATION

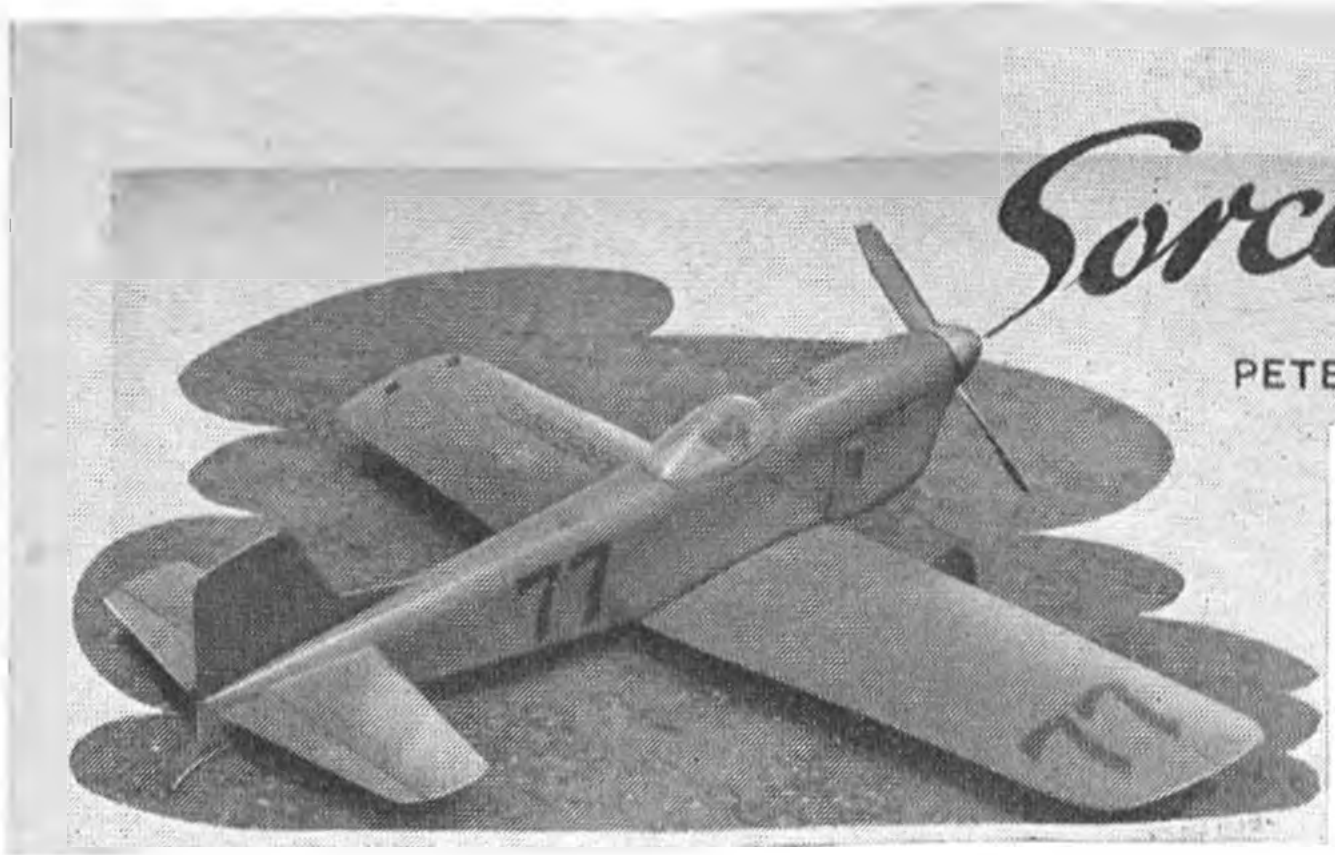
NORMAL CAPACITY: 1.5 c.c. (.09 cu. in.)
BORE: 0.5 in.
STROKE: 0.46 in.
BORE/STROKE RATIO: 1:1
BARE WEIGHT: 2 7/8 ounces
MOUNTING: Beam
MANUFACTURERS: D. Prohaska—E. Fresl

PROPELLER SPEED TESTS

Family of constant geometric pitch wooden airscrews and Mercury No. 8 fuel.

PROPELLER DIA./PITCH	R.P.M.
10x4	5,930
9x6	4,900
9x5	6,400
9x4	7,000
8x6	6,550
8x5	7,550
8x4	9,200
7x5	9,900
7x4	10,400
6x4	11,700
6x3	12,100





Sorcerer

BY
PETE CAMERON.

The famous
CROYDON Racer

FAST!
EASY!
TOUGH!

TEN final placings in twelve major meetings—that's the "Sorcerer."

Listed below is the complete contest Record from first outing in the Gosport Nationals '52 to its sad demise at Sherburn '53.

DATE	MEETING	RESULT	COMMENT
4th Aug., 1952	Nationals, Gosport	Final 4th	Flat Accumulator
17th Aug., 1952	London Area, Fairlop	Final 2nd	Beaten by W. Essex
24th Aug., 1952	All Herts, Radlett	Final 1st	Av. speed 66 m.p.h.
7th Sept., 1952	Y.E.N. Rally, Sherburn	Final 1st	Av. speed 66 m.p.h.
14th Sept.,	Cambridge T.R.	No Place	Eliminated by Harrow
21st Sept., 1952	Southern Counties Rally	Final 2nd	Beaten by Bushey Park
12th Oct., 1952	Davies Trophy, Fairlop	Final 2nd	Beaten by W. Essex
12th July, 1953	N. Heights Gala, Langley	No Place	No comment
26th July, 1953	London Area, Chigwell	Final 2nd	Beaten by W. Essex
9th Aug., 1953	Cambridge T.R. Rally	Final 1st	Speed Not Taken
25th Aug., 1953	South Midland Rally, Halton	Final 1st	Speed Not Taken
6th Sept., 1953	Y.E.N. Rally, Sherburn	Final 3rd	Model Wrecked

Sorcerer's successful team; Pete Cameron, Norman Butcher and Ron Martin have taken this red class B Racer into more final placings than any other model. Wing detaches for transport.

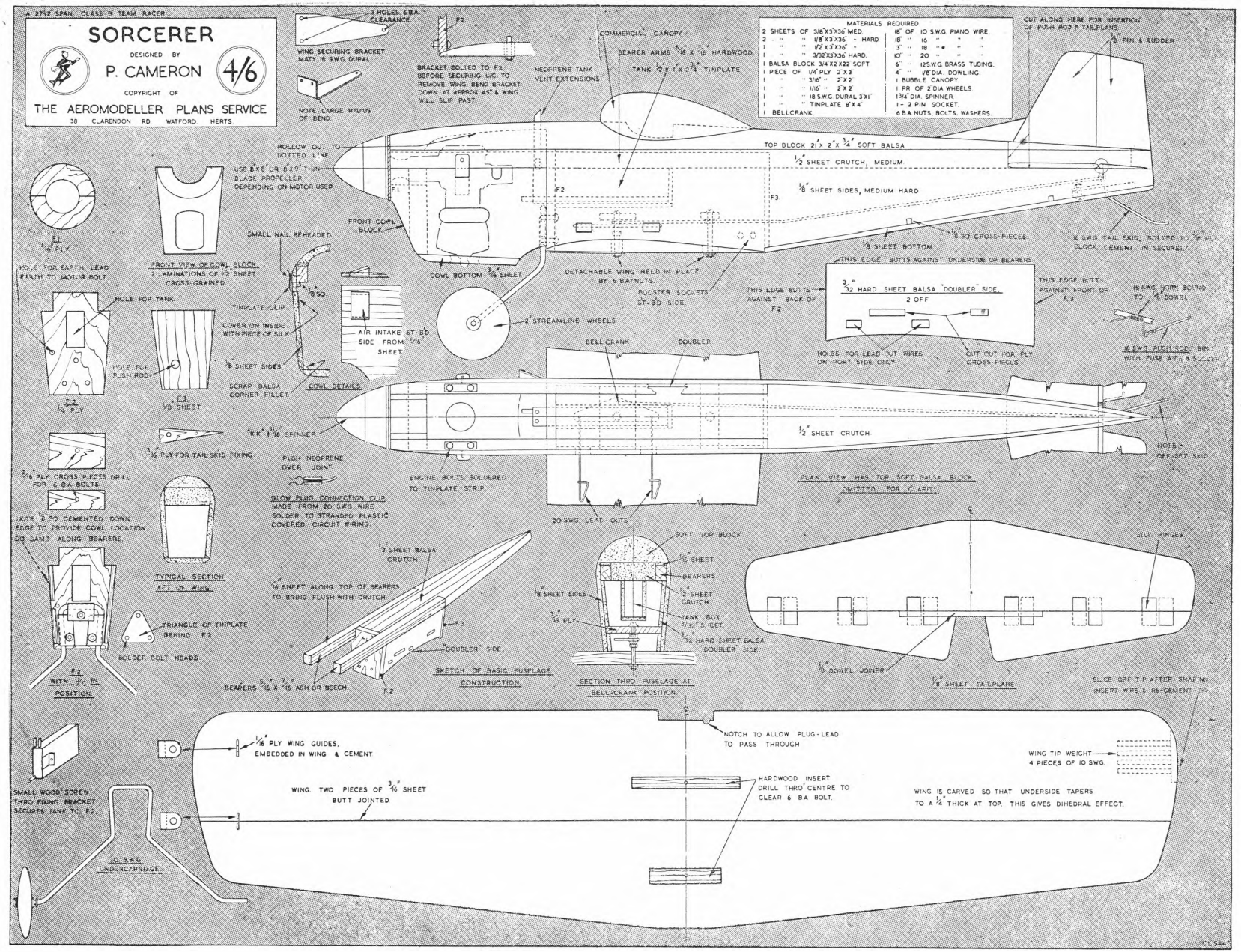
With the intention that the "Sorcerer" should last more than one race, an all sheet and block construction was used on the original. Reliability and ease of maintenance were obtained by having a removeable tank, undercart and wing. Detaching the latter gives access to the bell-crank and booster circuit wiring. It also has the obvious advantage of transportability—for the "Sorcerer" can be carried in a motor-cycle pannier bag!

On the morning of the Gosport Races, the E.T.A. 29 really sang for the first time, (it must have been those sea breezes), and speeds of over 80 m.p.h. for 30 laps were obtained. This was good enough to reach the final, where the model remained well and truly grounded, owing to an overworked accumulator. (Lesson number one. Check your acc.: for intensity of glow on a spare plug before every race!) It might also be mentioned in passing that long thin plug leads should be avoided owing to their high resistance.

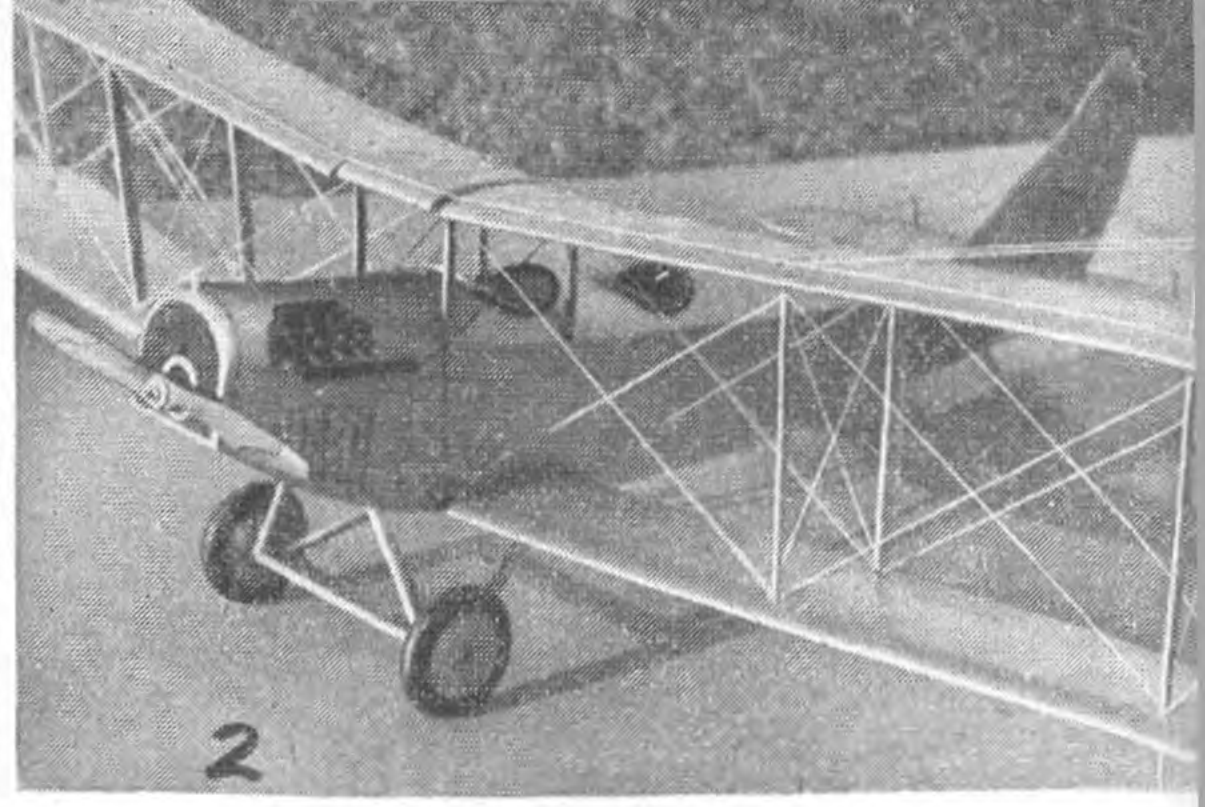
Throughout "Sorcerer's" chequered racing career, Norman Butcher has been its sole pilot; more than once "Butch" has had to "change hands" around an opponent or fly with his feet hopelessly entangled with somebody's control wire (note for pilots—wire cutters should be worn!) under these conditions, you want a model that will virtually fly itself, and "Sorcerer" will do just that.

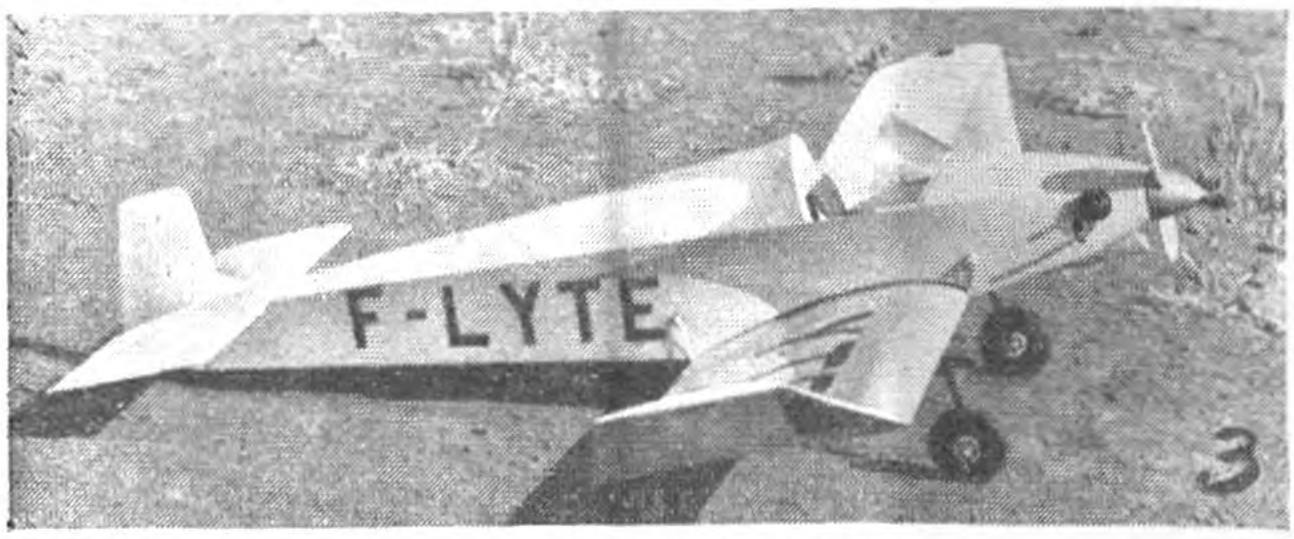
Particularly noteworthy is its two lap glide which is a great help in selecting and anticipating its landing spot. Performance has been raised to a consistent 95 m.p.h. for over 30 laps. Speed increase is due mainly to the E.T.A. 29 loosening up and the addition of more nitro-methane. The latter also gives greater engine flexibility, which is a big help towards getting a smooth run throughout the tank. Contrary to popular belief, the motor is a perfectly stock Series III E.T.A. and has not been worked on at all.

Other suitable engines which can be installed with virtually no airframe mods. are the McCoy and Dooling 29. Shaft valve engines such as Frog, K. and B., Fox, etc., will entail some cowling alterations. Full building instructions are included with each full-size A.P.S. plan.



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





1. Winner of the "Open" class of the contest was Gary Witt's Curtiss Robin, an own design job which gained 81% scale points and made a ratio of 3.147 in flight tests.

2. Outright winner of the Trophy for the most perfect scale model went to Dave Kulikoff's Curtiss JN4D "Jenny" with full rigging detail and magnificent finish. Note how the glowplug engine is completely hidden beneath the scale cowling, and scale prop is used.

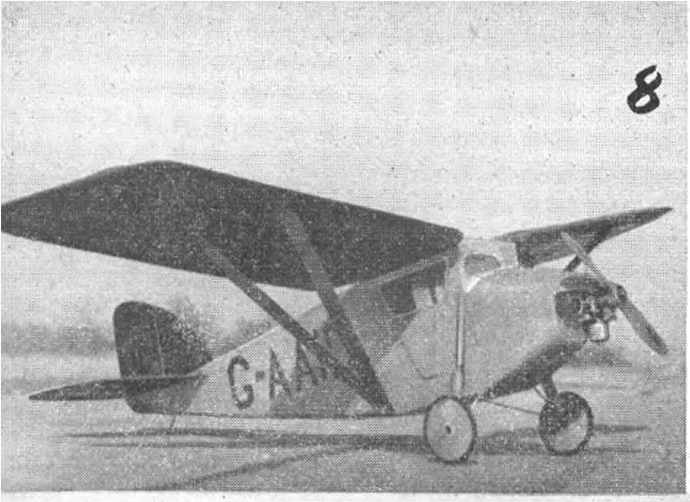
3. Carol Mooney's model of the French Bebe Jodel lightplane, has appropriately taken modeller's "License" in using these registration letters. Wing mounting bands unfortunately spoil an otherwise perfect scale resemblance to the real thing.

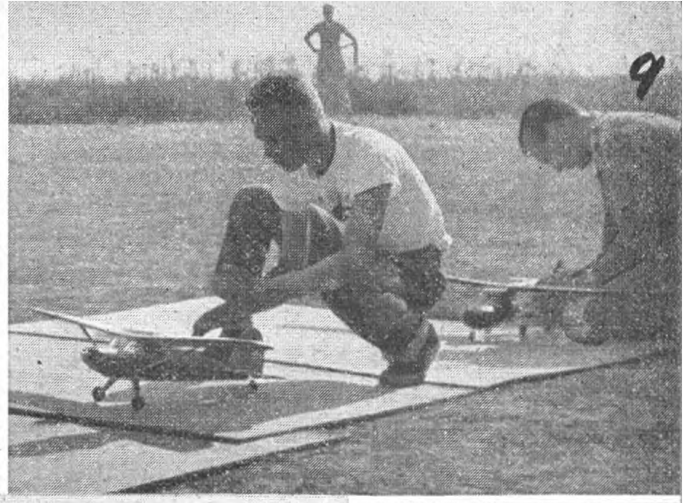
4. Double pictures show close up detail and cigar smoking Wayne Schindler launching his Fokker E.111. Using an unspecified diesel, this smart model made the flight of the day by disappearing in a thermal.

5. Little known type in Europe is the "Longster" lightplane, here made by Dick Baxter and diesel powered. Note how three McCoy diesel heads are used to represent the real 3-cylinder engine.

6. Ced Galloway's Nelson Dragonfly with pusher engine, placed top in the section for most beautiful finish.

7. James Lothringer releases his Mooney Mite, which he didn't enter, but would have gained a high placing.





U.S. Scale Contest

THE INGLEWOOD FLIGHTMASTERS SCALE FOURTH ANNUAL CONTEST

. . . photographed by Bob Linn

COMPARATIVELY little is heard of scale modelling activity in the U.S.A., yet this Californian club contest reported by Bob Linn attracted a greater entry than any yet experienced in a similar national British event. Thirty-five beautifully constructed ½A powered models appeared at the Fourth Annual Inglewood Flightmasters scale contest, and judging by the extensive prize list, almost every entrant carried away a souvenir of the day.

Assessment of scale adherence, detail and finish was the task of a special panel of judges appointed by the Historical Society of the Institute of Aeronautical Sciences. Models were reviewed at the local auditorium overnight, before the day for flight tests, and a points scheme gave Dave Kulikoff the Flightmasters Trophy for the most perfect scale entry, with a Curtiss JN4D "Jenny." The Testor's Plaque for the most beautiful finish went to veteran scale enthusiast Ced Galloway for his Nelson Dragonfly pusher which came a close second to the Jenny for scale points, and third on the list of most outstanding models came Wayne Schindler's Fokker E.III.

In flying, the Fokker monoplane outshone the rest when, on its last official flight, it picked up a Californian thermal and disappeared into the blue, never to be seen again! Highest flying points went to young Frank Pollard, one of the thirteen junior entrants and flying the popular Piper Cub kit model. His flight time was no less than three minutes off a 28 second engine run, a figure that would do justice to many a duration contest design.

8. Bob Linn's own entry was a detailed ABC Robin, built from the Aeromodeller Plans by Eddie Riding. Additional information gleaned after research through many files has provided Bob with sufficient detail to provide full interior furnishings.

9. Dave Linn Jnr. releases his Luscombe Silvaire on the plaster board runway at the dusty flying field. Awaiting his turn behind is Cedric Galloway with his beautifully finished Nelson Dragonfly, a model of the American full-size power assisted sailplane.

10. Unusual subject for scale free-flight is the twin engined Lougheed Alcor with engines closely mounted on the nose of the fuselage. Built by Walt Mooney of "Honey Bee" fame, the Alcor proved to be too heavy for good flight performance.

Variety of types ranged from the APS Dart Kitten to the unique twin engined Lougheed Alcor by Walt Mooney of APS Honey Bee fame. Walt unfortunately overdid the wing and power loading this time, and was one of several entrants with a minus ratio for flight performance (model landing under power). More than half the entry were kit models and the full list of various types selected is as follows:—

Curtiss Robin; Cessna 140 and 170; Cessna L-19 Birddog; Ryan Dragonfly; Nelson Dragonfly; Interstate Cadet; Ercoupe; Longster; Fokker E.III; Aeronca Sedan; Helioplane; ABC Robin; Lougheed Alcor; Heath Parasol; S.E.5A; Bebe Jodel; Zaunkoenig; Air Transport B-2; Piper Cub; Luscombe Silvaire; Dart Kitten; Taylor Cub; Stinson; and Curtiss JN4D.

Vic Smeed's flying-boat for small capacity engines

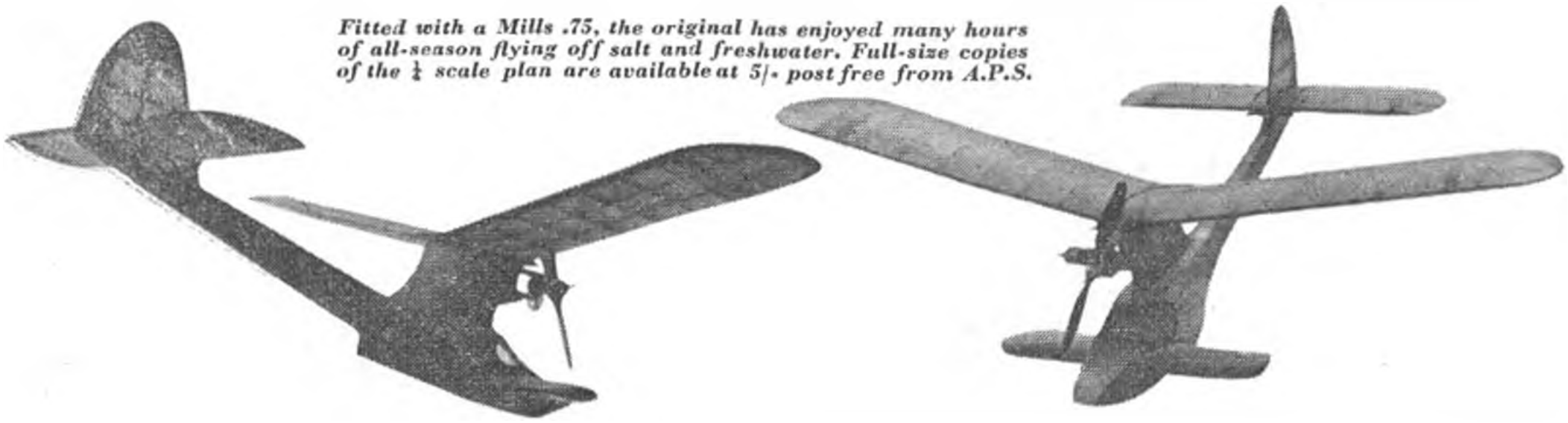
TWELVE building hours proved adequate to construct this little flying-boat, due to the simplified hull construction, which combines efficiency with a very high strength/weight ratio. The total flying weight of 10½ oz. gives a wing loading of 7 oz. per sq. ft., which ensures a reasonably low stalling speed with consequent quicker take-offs and easier "landings." Fitted with a Mills .75, in flat calm the model planes in three to four feet and is airborne in anything between twenty-five and forty feet, depending on the prop.

The hull sides, cut to the true outline shown, are first cemented to F3 and the remaining formers and the bow block inserted, using rubber bands and pins to cope with the slight twist in the sides. Soft, light material should be used throughout. The rear under-sheet must be cemented in before the heel can be drawn together and F4A placed. The sponson mainspar and t.e. should be slid in place before adding the keels and completing the underside sheeting.

Install the pylon (the ply backing to F3 and F4 is to form a secure anchorage) and the ⅛-in. sheet cabin pieces and braces, then sheet the after hull top. Build on and sheet the sponsons, butting the covering against the hull sides, and sheet the remainder of the hull top. The motor bearers are glued direct to the pylon, which offsets the thrust line slightly, giving, in effect, slight right thrust. An alternative mount is given on the plan. Sheet the pylon sides and add wing and tail platforms, dowels, and other details. Sand all over, but do not round the corners along the chines.

Cover the whole model with lightweight Modelspan or rag tissue, and apply two coats of clear dope and one flowing coat of banana oil. Double covering and two coats of banana oil can be used if really rough handling is expected. Add the three-piece cabin celluloid and the motor, and a little colour trim if desired.

Flying is not difficult, but the thrust line is fairly critical and may need slight adjustment for different motors and/or airscrews. 8 B.A. bolts in oversize holes allow sufficient adjustment. Check the model's balance (slightly behind rear spar, as shown) and test glide over long grass—no undercarriage, remember! Any drastic alteration (if your sheet was iron-hard for instance) should be made with ballast, but small incidence changes are permissible. Once glide is fair, launch under low power, increasing gradually and making normal thrust adjustments. Slight right rudder will probably be necessary at full power. When hand-launch flights are satisfactory, water take-offs may be effected.



Fitted with a Mills .75, the original has enjoyed many hours of all-season flying off salt and freshwater. Full-size copies of the ¼ scale plan are available at 5/- post free from A.P.S.

SEA-NYMPH

DESIGNED BY

VIC SMEED

5/-

THE AEROMODELLER PLANS SERVICE

38 CLARENDON RD. WATFORD. HERTS

ALL WOODS ARE BALSA UNLESS OTHERWISE STATED.

-DATA-

SPAN	36"
WING AREA	208 SQ. INS.
TAIL AREA	73 SQ. INS.
LENGTH	29"
WEIGHT	10-1/2 OZS.
POWER- 5-1 C.C. DIESEL. UP TO .065 GLO.	

-MATERIALS REQUIRED-

SHEET BALSA 3' LONG	STRIP BALSA 3' LONG
5 SHEETS OF 1/16" X 3" MED.	1 STRIP OF 1/4" X 3/8" MED.
1 " " 3/32" X 3" "	1 " " 3/16" X 3/8" "
STRIP BALSA 3' LONG	MISCELLANEOUS
2 STRIPS OF 3/16" X 3/16" MED.	5" X 8" X 1/8" PLY
1 " " 1/2" X 1/8" "	3" X 8" X 1/16" "
1 " " 1/4" X 1/8" "	4" X 8" X 1/32" "
1 " " 3/16" X 1/8" "	6" OF 1/4" X 3/8" BEARER.
1 " " 3/16" X 3/4" " T.E.	12" OF 1/8" DOWEL
1 " " 1/8" X 1/2" " "	SCRAP 1/8" & 3/16"
1 " " 1/4" X 1/4" HARD	SCRAP BALSA BLOCK.

1/16" SHEET WING PLATFORM

1/2" X 1/8" T.E.

1/4" X 3/8" BEARERS GLUED TO 1/8" PLY

1/16" SHEET

1/8" PLY

SECTION OF PYLON

1/2" X 1/8" SHAPED T.E. SECTION

C.G.

PYLON: 1/8" PLY. 1/16" SHEET EACH SIDE, GRAIN VERTICAL

UPTHRUST MAY VARY SLIGHTLY WITH DIFFERENT POWERS & AIRSCREWS. USE 6 B.A. BOLTS IN 1/8" HOLES TO ALLOW ADJUSTMENT.

1/8" X 3/16"

ACTUAL SHAPE OF SIDE BEFORE BENDING ROUND FORMERS, SHOWN IN CHAIN DOTTED LINES

F1 F2 F3 F4 F4A F5 F6 F7

1/8" SHEET FRONT CABIN ROOF

HULL SIDES & SHEETING 1/16" MEDIUM

1/8" SHEET GUSSET

CUT HULL SIDES TO INSIDE LINES

JOIN (3" SHEETS)

1/16" PLY KEEL

1/8" X 3/16" KEEL. BUTT LOWER COVERING SHEETS OVER KEEL

HEEL

NOTE VEE'D AFTER-BODY FORMED BY SHEETING FROM HULL SIDES TO CENTRAL 1/8" X 3/16"

MILLS .75 SHOWN

BLOCK BALSA

OUTLINE OF FRONT CABIN ROOF

WING PLATFORM BROKEN AWAY TO SHOW DETAIL OF HULL TOP

1/4" SQ. L.E.

1/4" X 3/8"

1/16" SHEET TOP & BOTTOM

1/8" DOWEL

S1 S2 S3

CHAMFER 1/16" SHEET

3/16" X 3/8" T.E.

SOFT BLOCK TIPS

SPONSONS ARE BUILT DIRECTLY ON MAINSPAR & T.E. AFTER THESE HAVE BEEN FITTED TO HULL. ADD L.E. LAST.

SPONSON RIBS. 2 OFF EACH. 1/32" SHEET

DIHEDRAL BRACES. 1 OFF EACH. 1/16" PLY

TAPER WING SPARS THUS AT TIPS

TRIM 2 CENTRE RIBS TO DOTTED LINES

TAILPLANE RIBS. 8 OFF 1/16" SHEET

TRIM 2 CENTRE RIBS TO DOTTED LINES

WING RIBS. 16 OFF. 1/16" SHEET

3/16" SQ. L.E.

3/32" SHEET

1/8" X 3/16"

1/16" SHEET TOP ONLY

1/8" SQ. SPAR BOTTOM ONLY

POSITION OF FIN

1/2" X 1/8" T.E.

1/16" SHEET TAILPLANE PLATFORM. NOTE GRAIN

TAILPLANE SPAR AT TIPS

3/16" SQ. L.E.

1/16" SHEET TOP ONLY

1/8" SHEET GUSSETS

1/16" PLY DIHEDRAL BRACES

1/2" X 1/8" SPAR

1/4" X 1/8" SPAR

1/8" SHEET TIPS

2-1/4" DIHEDRAL UNDER EACH TIP

3/4" X 3/16" T.E.

SOFT WIRE HINGE

TRIM TAB

COVER COMPLETE MODEL, INCLUDING ALL WOODWORK, WITH LIGHTWEIGHT MODELSPAN OR RAG TISSUE.

CEMENT FIN TO TAILPLANE C/S BUT NOT TO FUSELAGE

3/16" SHEET TO CONTINUE FIN L.E.

3/16" SQ.

PIN

1/8" DOWELS

ASSEMBLE SIDES TO FORMERS, USING PINS & RUBBER BANDS. ADD PYLON & CABIN ROOF SHEET UNDERSIDE AFT OF HEEL & FORM HEEL. INSERT KEELS & SPONSON SPARS. COMPLETE SPONSONS & SHEET COVER. COMPLETE SHEETING OF HULL.

INSERT SPONSON SPARS THRU' HULL BEFORE BUILDING SPONSONS

HEEL IS FORMED FROM INTEGRAL PARTS OF SIDE SHEETS AFTER INSERTION OF REAR UNDERSHEET.

NOTE THAT UNDERSIDE SHEETING BUTTS EDGE TO EDGE OVER REAR KEEL BUT BUTTS AGAINST EACH SIDE OF FRONT (PLY) KEEL.

MILLS .75 SHOWN

SOFT BLOCK

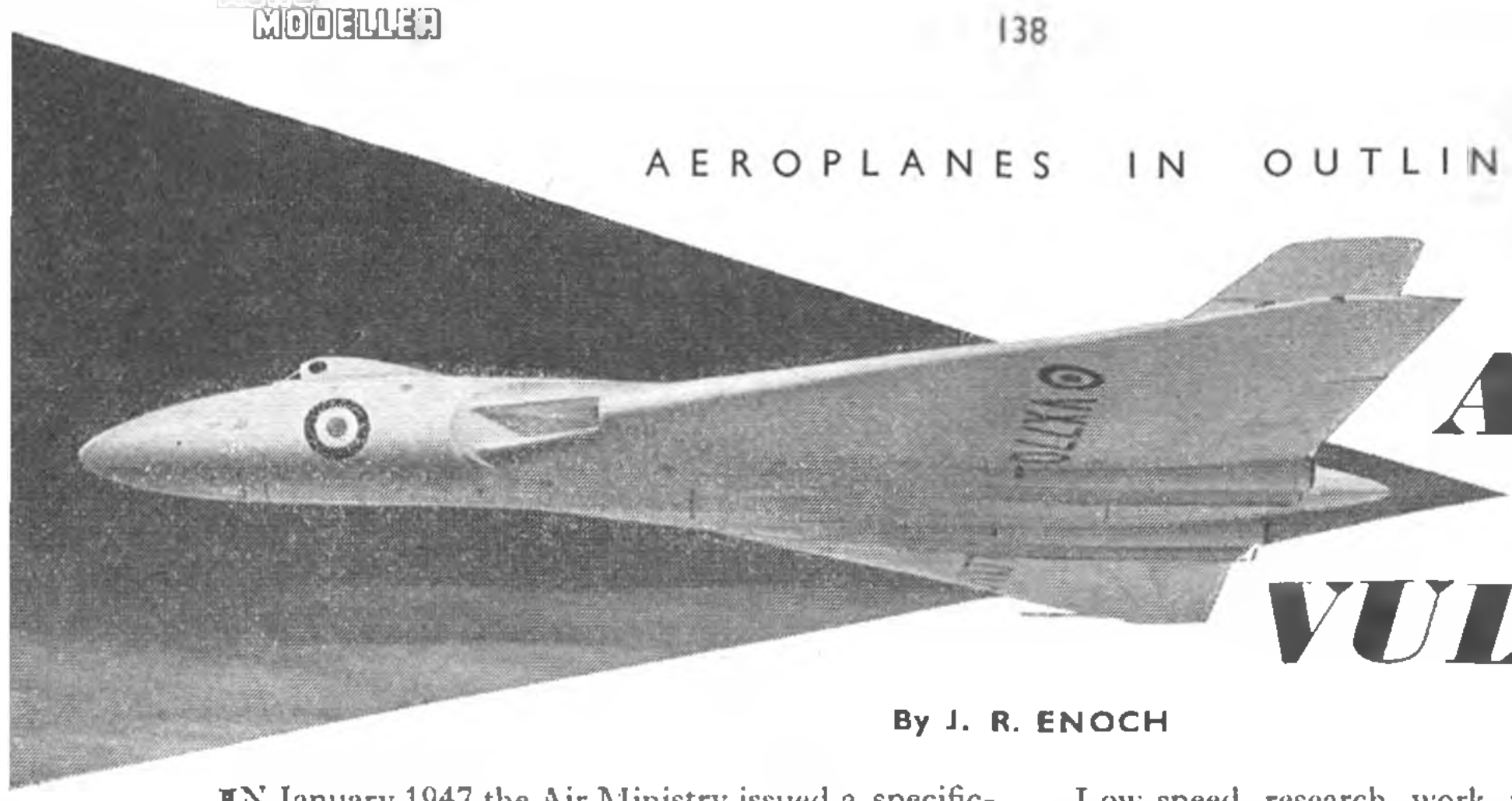
X Y Z

SUGGESTED COWLING FOR UPRIGHT OR INVERTED MOTORS

F1 F2 F3 F4 F4A F5 F6 F7

ALL FORMERS FROM 3/32" SHEET. FORMERS F3, F4, & F4A BACKED WITH 1/32" PLY.

AEROPLANES IN OUTLINE No 12



AVRO VULCAN

By J. R. ENOCH

IN January 1947 the Air Ministry issued a specification for a long range jet bomber with which to re-equip the Bomber Squadrons of the R.A.F. and although these requirements have not yet been made public there can be little doubt that the Avro Vulcan will justify the faith the Air Council had in this design when they instructed A. V. Roe to construct a prototype, "Off the drawing board."

The design of the Type 698, as the Vulcan was then known, was unique, since at that time no British delta winged aircraft had flown, and in order to obtain all the vital information and prove the theories, a series of smaller deltas was evolved.

The first of the third size scale models, the 707 series, made its maiden flight on 4th September, 1949, at Boscombe Down but was destroyed in a crash one month later. Work continued however, and almost exactly a year later on 6th September, 1950, the second prototype, the 707B, made its first flight, and was followed by the 707A, which first flew in July, 1951.

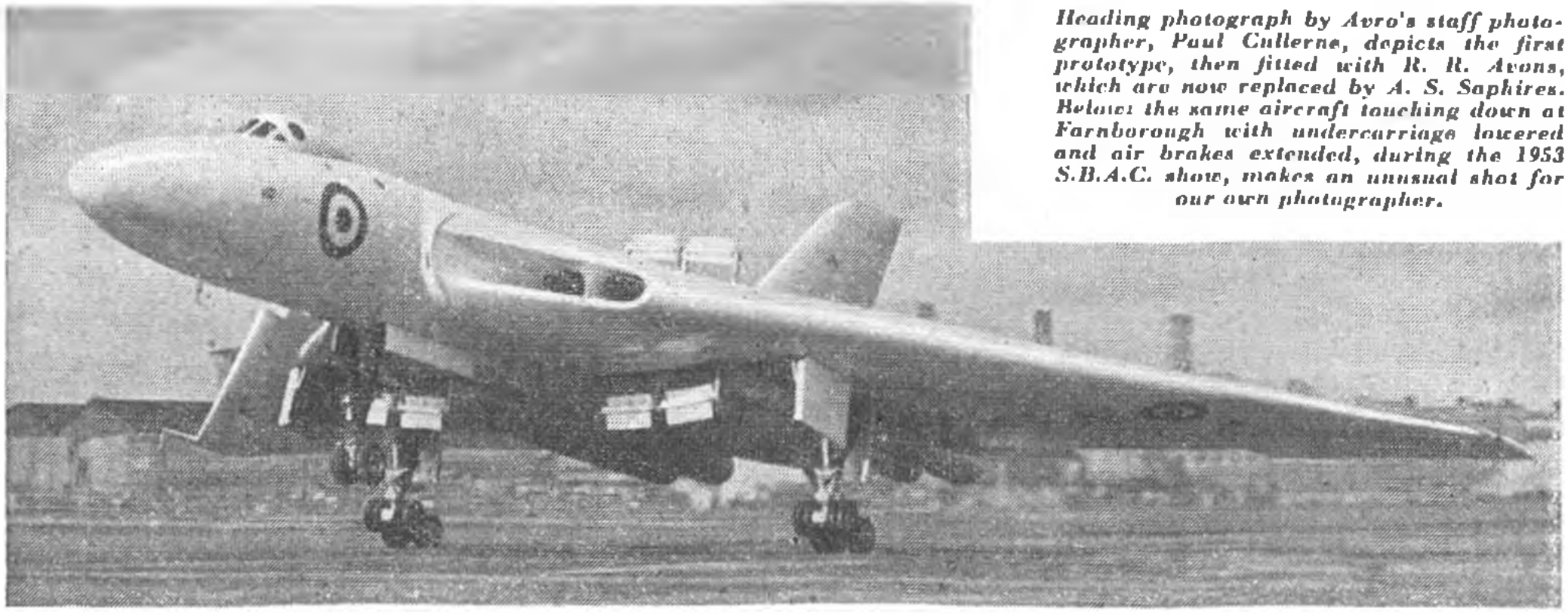
Flight testing of these two aircraft was being carried out at the same time as a production line for the Type 698 was being planned, and mock-ups were rapidly taking shape, overall dimensions having been determined by this time.

Low-speed research work was the only duty performed by the 707B, which had a dorsal intake for its Rolls Royce Derwent Turbo-jet Engine, and the 707A (similarly powered) was flown to investigate the high-speed characteristics of the delta wing, this machine representing more closely the Type 698 in that it employed wing root air intakes.

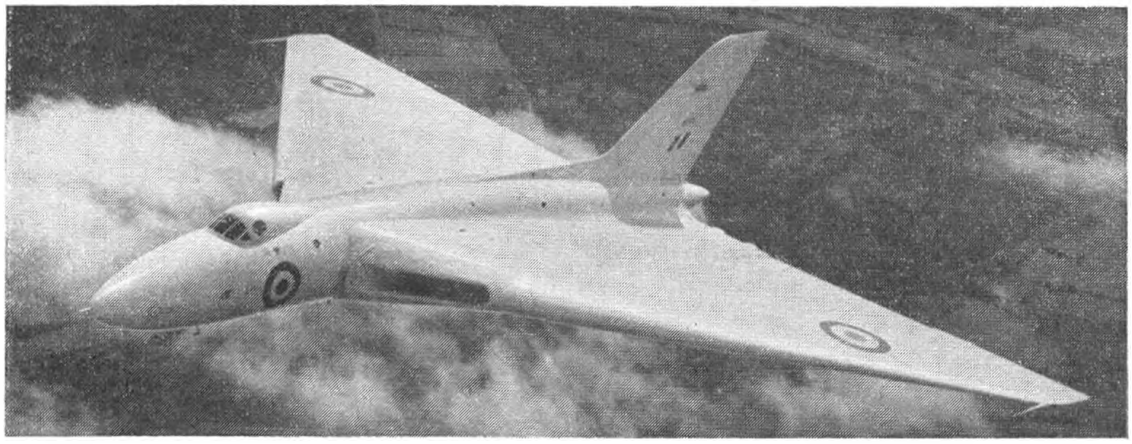
Proof that the basic design was very sound is the fact that few noticeable modifications have been made to the Type 698, which, with the capable hands of W/Cdr. Roly Falk alone at the controls, took off for the first time from Woodford on 30th August, 1952, followed by the 2nd prototype almost exactly a year later, on the 3rd September, 1953.

Few details have yet been released, but from study of the photographs available it is readily seen that the Vulcan is amongst the cleanest of aircraft, being widely acclaimed as an outstanding example of good design.

The fuselage is of circular section, and with the exception of the cockpit canopy, and the "radar bulge" fitted in the second prototype only, it is free of any protuberance. On the underside is the crew entry door, directly below the aft end of the cockpit canopy which, hinged at its forward end, supports the entrance ladder. Large bomb bay doors give an indication of the useful load that can



Heading photograph by Avro's staff photographer, Paul Cullerne, depicts the first prototype, then fitted with R. R. Avons, which are now replaced by A. S. Saphires. Below: the same aircraft touching down at Farnborough with undercarriage lowered and air brakes extended, during the 1953 S.B.A.C. show, makes an unusual shot for our own photographer.



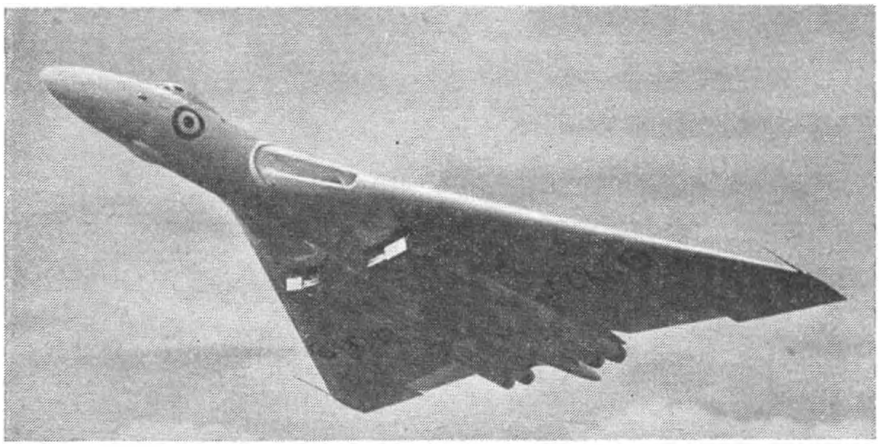
be carried. The twin nose wheel unit retracts backwards, and is contained within double doors situated between entrance hatch and bomb bay.

Originally powered by four Rolls Royce Avon jet engines, supplying a total of 26,000 lbs. thrust, the first prototype was later fitted with more powerful Armstrong Siddely Sapphires, and the second prototype has Bristol Olympus two-spool engines which give a total thrust of over 40,000 lbs. Production machines are to utilise this power plant. The engines are buried within the thick wing root, and air, consumed at the rate of more than twenty tons per minute, passes through the large internally bifurcated intakes. The only discernible difference is that VX777 has slightly deeper air intakes, and tail pipes of slightly greater length.

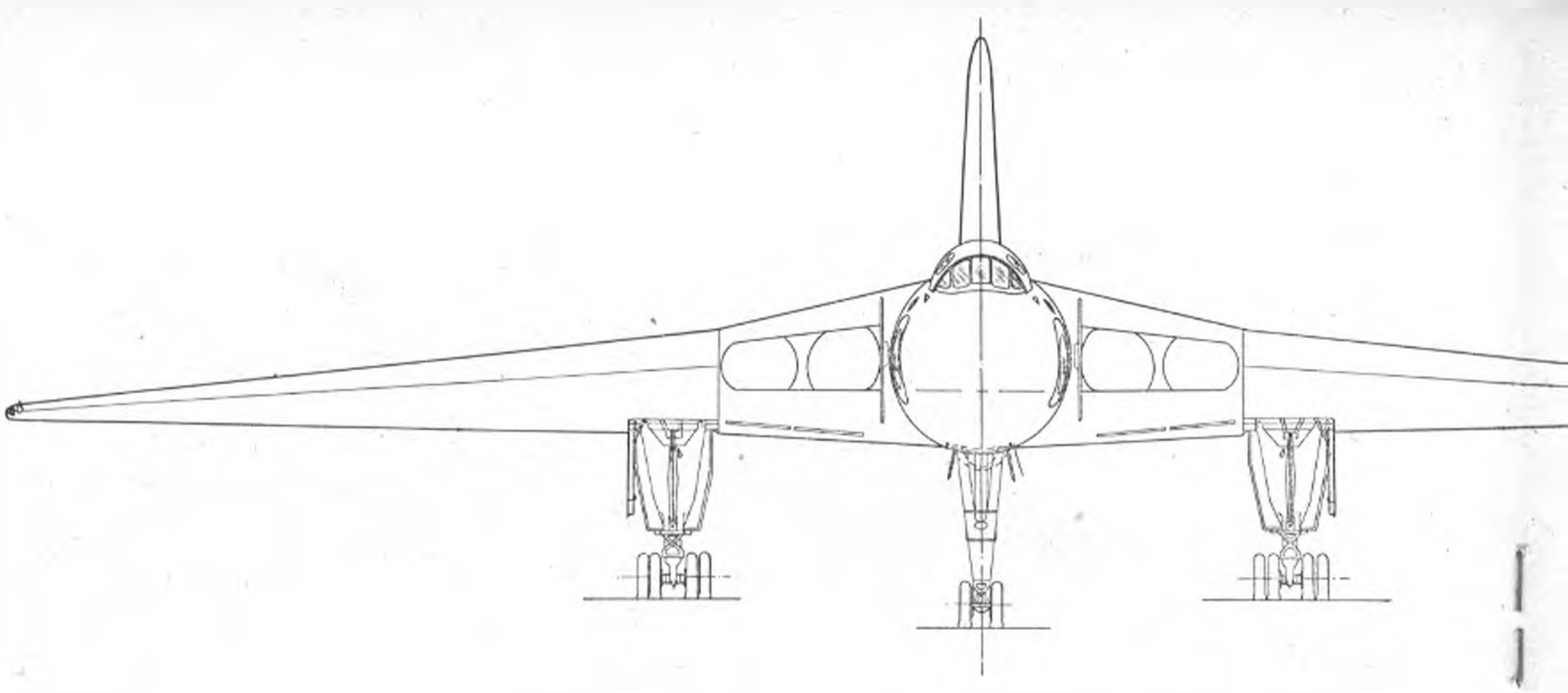
Wing leading edges are swept back roughly 50° and the trailing edge, outboard of the tail pipes, is also slightly swept back. The good low-speed handling characteristics of this type of aircraft make it possible to dispense with high lift devices and consequently no flaps are fitted. To assist braking, a tail parachute can be used.

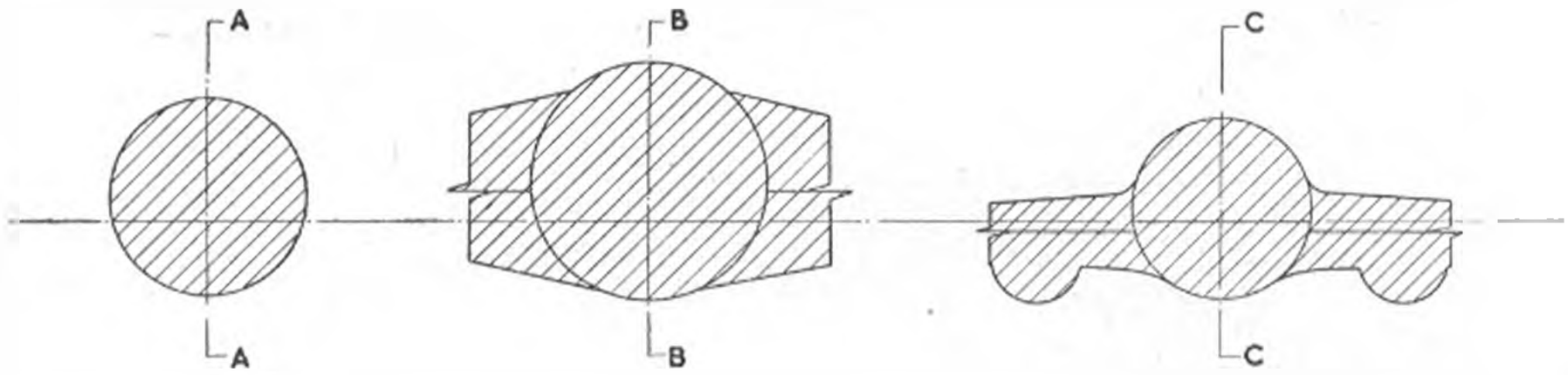
Bearing close resemblance to those of the 707's the control surfaces are segmented, utilising separate elevator ailerons, each in two halves, the elevators being inboard of ailerons, all surfaces probably being power assisted. On both upper and lower surfaces air brakes (mounted in pairs) are carried, when extended, on "stalk-like" supports well clear of the wings to prevent interference with the air flow over the main surfaces, and presumably provide considerable drag despite their relatively small size. The undercarriage main units have eight-wheel bogies and retract forward into the wing, the bogies partially rotating so that they are in a near horizontal position when retracted. The undercarriage legs are quite long, this being necessary to permit the high angle take off,a delta characteristic.

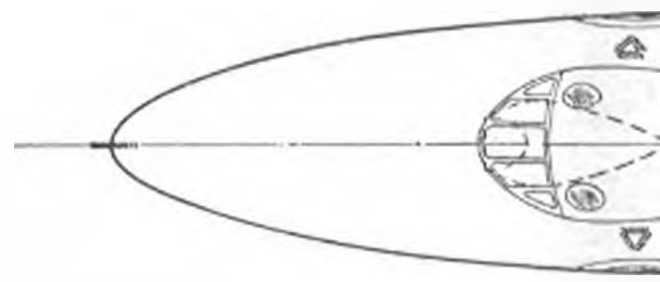
Advantages claimed for the Vulcan are primarily its aerodynamic simplicity which leads to ease of handling over wide speed ranges, extremely good manoeuvrability, long range at high speed with large load whilst crusing at high altitude, and in view of further development, it is to be noted that a transport version, the "Atlantic" is projected.

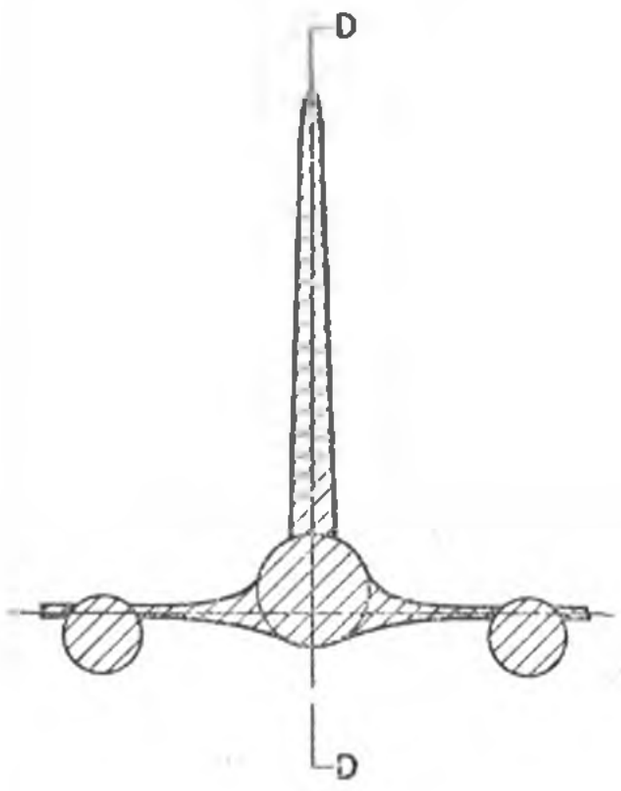


Above, another classic photograph by Paul Cullerne, displays the outstandingly clean lines of the Super Priority Vulcan resplendent in high gloss white finish. Right, the second prototype with distinguishing radar bulge, uses Bristol Olympus jets and was caught by our photographer in the act of performing a slow fly past at the 1953 Farnborough show.









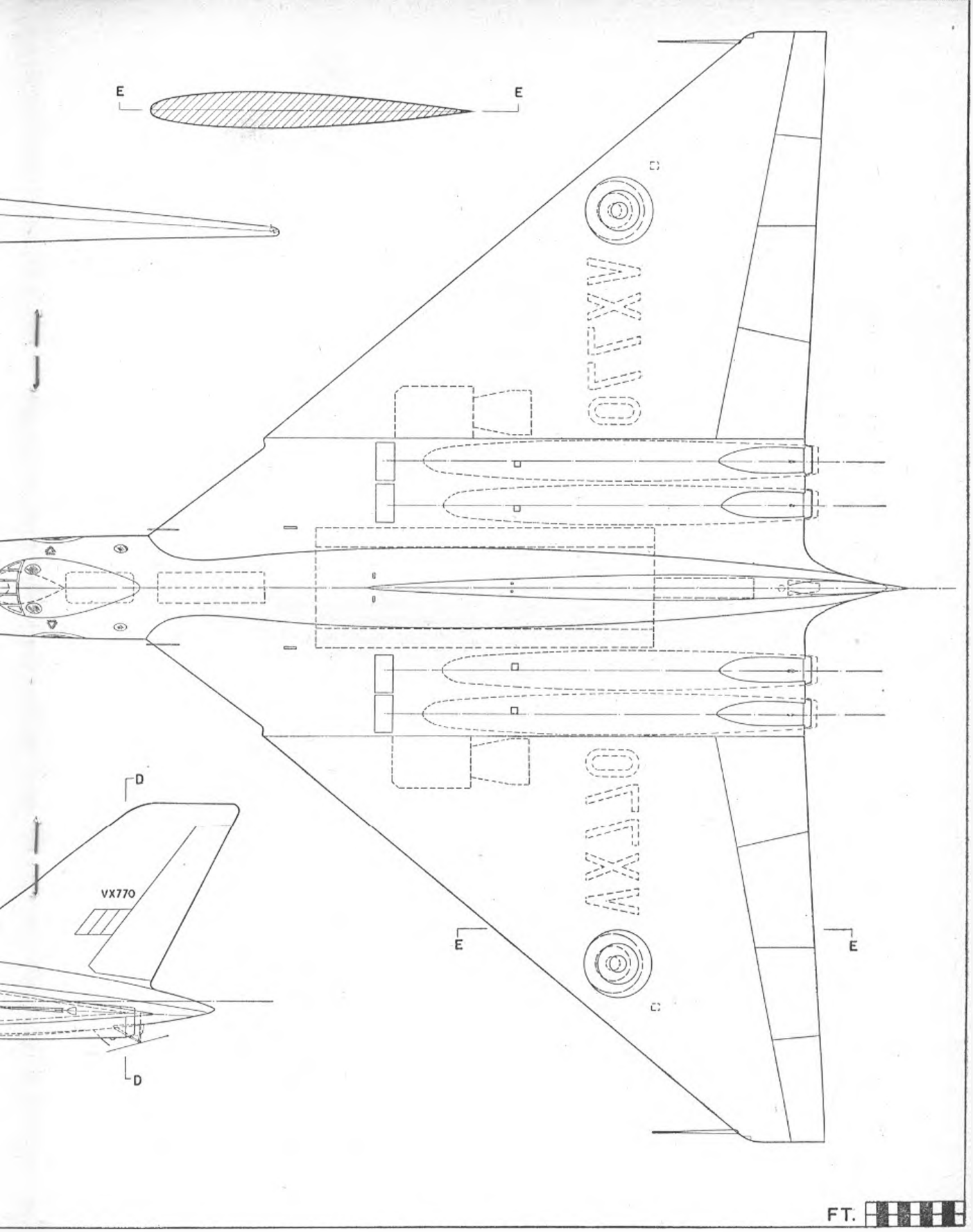
COLOUR.—First two prototypes are finished High Gloss White on all surfaces. Registration number (VX770 1st Prot VX777 2nd Prot) in High Gloss black on underside of both wings and on both sides of fin; AVRO crest mounted approx 2/3 of the way up on both sides of the fin; Yellow Hawker Siddeley Group crest with flying panel containing the name AVRO painted on both sides of the nose.

Standard R.A.F. markings on upper and lower surfaces of wings on each side of nose below cockpit and both sides of the fin as shown on drawing.

SPAN	...	...	...	...	...	99-ft. approx.
LENGTH	...	...	...	...	...	95-ft. approx.
HEIGHT	...	...	...	...	...	27-ft. 6-in. approx.

AVRO VULCAN B.1. (PROTOTYPE)

1/144th scale "N" type reprints and 1/72nd scale "M" type blueprints of this dra



this drawing are available, price 1s. and 2s. respectively from AEROMODELLER Plans Service.

Readers' Letters

Still air?—again

DEAR SIR,

Two aspects of "still air" flying have not yet been mentioned by your correspondents.

I have had many models whose contest performances did not seem to bear out their "still air" flying. I too have a Nordic which put up consistent 2 : 20 flights from a 150-ft. towline in "still air." As the "still air" in this instance was at 10.30 p.m. on a coldish night, *with a heavy dew falling*, no one will ever convince me that there was any lift present *at all.*

What I do think, however, is that even the slightest air turbulence has a more detrimental effect upon a model's performance than we perhaps realise, and that therefore still air in itself is a considerable benefit. My Nordic in particular really "sits in a groove" in dead still air, and its circular flight has a mathematical precision.

I am also convinced that air density has a considerable effect on a model's performance. In other words, the colder or more humid the air, the denser it will be, with proportionately beneficial effect.

This would mean that the colder evening air would tend to boost performance, and would also explain the excellent performance of my models on those very still, bitterly cold and frosty winter days.

In particular, however, I should say that excessive humidity has the greatest beneficial effect, and it is in warm "muggy" weather with perhaps even a little fine drizzle, that my models really seem to excel. The loss of density in this case due to higher temperature would be more than compensated by the greater ability of warm air to hold moisture.

These conclusions are supported by the fact that in cricket a fast bowler of the Bedser calibre is able to move the ball in the air to a much greater extent in a humid atmosphere, and at the moment I read of the England fieldsmen having difficulty in adjusting themselves to the quicker flight of the ball through the hotter, and consequently thinner, West Indian atmosphere.

If it makes a difference to a cricket ball, it must make a difference to a model aircraft.

Kingsbury. J. BOWERMAN.

½ A Team racers

DEAR SIR,

I have been reading through back editions of the "AEROMODELLER" recently and noticed a wide variety of suggestions for ½A team racing. No doubt Cambridge M.A.C. have had some success with this formula and to date a few plans have been published.

Well, I have now come across Team Racing Rules (½A) as suggested by the F.A.S.T. club from the American West-Coast.

These specify:—1. Minimum wing area 75 sq. in.; 2. Max. engine displacement. ·05 cu. in. (This *could* correspond to British 1 c.c., and *could* possibly be extended to 1.5 c.c.); 3. Max. tank capacity ½ fluid oz. (This corresponds approximately to 15 c.c.); 4. Minimum cross-section at cockpit 1¼ in. by 2½ in. (worked in terms of cross-section area—about 3 sq. in.—could allow a variety of cockpit styles and fuselage shapes).; 5. No engine cut-off (not applicable in Britain since cut-offs are not used anyway).; 6. Realistic design, fully cowled engine, fixed undercarriage; 7. Line length 26 ft. 3 in. One advantage that seems obvious is the fairly large wing minimum, as compared to contemporary British design. This would enable slower flights and better off-power characteristics.

These rules were formed almost parallel with the 5 c.c. class, by the F.A.S.T. members, in their original experiments which used engines from ½A to B, wing areas from 25 to 150 square inches, and weights from 4 to 11 oz.

London, W.9. W. GOTTLIEB

"Unuttered Balderdash!"

DEAR SIR,

With reference to your article "Heard at the Hangar Doors," issue February, 1954.

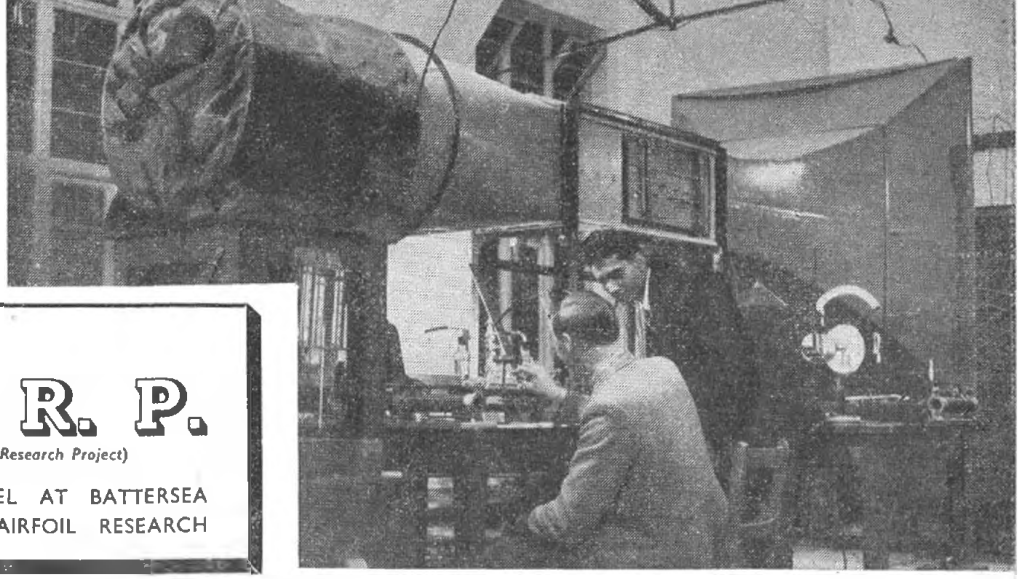
Oh the shame of it all! "The unutterable balderdash." I quickly looked up the Press release and yes, there it was; but the question is, how did it get there? So Mr. Editor, I hastily write to assure your good readers that it is most certainly unutterable balderdash, in fact, *unuttered balderdash*!

No sir, I may be credited with it, but I certainly never said it. Along with 90% of the Avro Apprenticeship, I share a very healthy interest in the aeromodelling world. Failures at Avro's are very few, and the apprentice who does not make the grade is invariably the unfortunate who has been persuaded by his parents, against his wish, to enter the industry.

Manchester. H. LOMAS

Apprentice Supervisor. A. V. Roe and Co. Ltd.

We are extremely pleased to print Mr. Lomas's explanation of what we considered to be an extraordinary statement, particularly as it vindicates our strongly held opinion that aeromodelling is the right and proper ground work for so many who wish to enter the British aircraft industry. —(*Ed.*)



Introducing . . .

M. A. R. P.

(Model Aerodynamics Research Project)

NEW WIND TUNNEL AT BATTERSEA POLYTECHNIC FOR AIRFOIL RESEARCH

FOLLOWING the installation of a small wind tunnel at the Battersea Polytechnic, London, a comprehensive programme of model aerodynamic research is being carried out by a small group of enthusiasts, brought together by letters published in this and other journals by the initiator of the project, Mr. M. M. Gates.

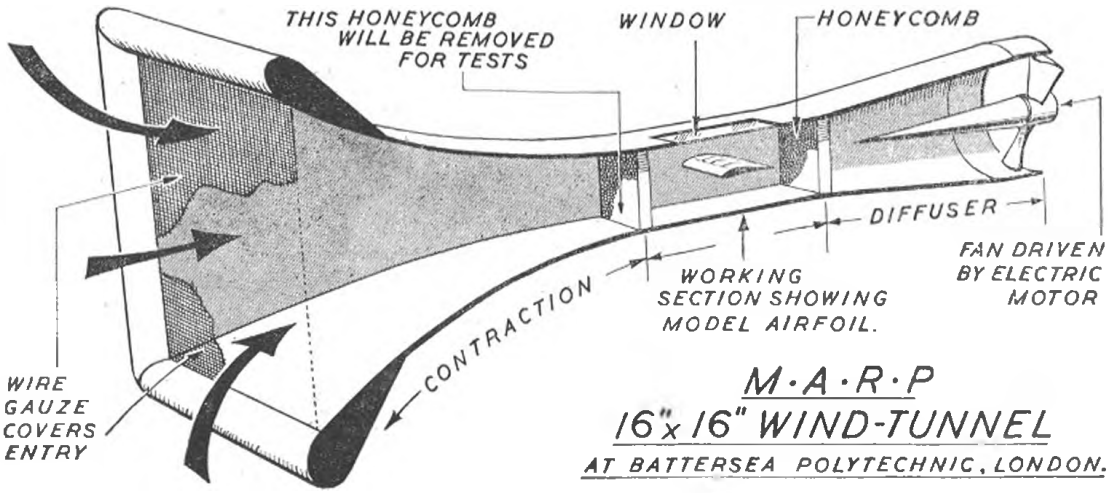
Whilst all members of the group are keen practising aeromodellers, there is no lack of technical talent, five members being B.Sc's. Organising the work of the project is Mr. Gates, assisted by an Indian student, D. M. Rao, whilst news has recently come to hand from Charles M. Christie, who is planning a parallel series of tests on model airfoils as part of his work at Aberdeen University.

The wind tunnel has a 16 inch × 16 inch working section, and speeds of up to approximately 60 feet/per/second are available. Amongst other equipment on hand are a 20-tube multi-manometer, and a wake traverse gear to measure the pressures inside the wake of models—both pieces of equipment being by courtesy of the L.S.A.R.A. These will greatly extend the range of tests of model airfoils, the test of which, at present, form the basis of the test programme.

Among the sections to be tested are N.60, NACA 6409, Benedek 8258b, Isaacson 64009, LDC-2, Flat Plate, NACA 0009, Clark-Y, Joukowski, etc. The tests on standard airfoils are expected to show up the particularly interesting characteristics of each, as well as provide general conclusions regarding the desirable shapes for top performance. New sections will then be designed which can in turn be perfected by further tests.

Among other items on the programme are the investigation of various wing planforms, and tests of complete models representing all types of model aircraft. The effect of turbulators, slots, and flaps will also be investigated.

Time is limited at present, but it is hoped that the quality of work produced will sufficiently interest the Polytechnic authorities for the Model Aerodynamics Research Project to be given greater use of the tunnel than present arrangements allow for. The results of the tests will be published in a series of reports, especially written to be of interest to both the technical and the less technical reader.



M·A·R·P
16"x 16" WIND-TUNNEL
AT BATTERSEA POLYTECHNIC, LONDON.

RADIO CONTROL NOTES

CONDUCTED BY HOWARD BOYS

THE first item this month is a very interesting actuator scheme seen on Mr. W. Trow's model at the Ripmax Trophy Contest at Long Marston. Mr. Trow says it was developed by Mr. Roe and himself, and one of the features is that it is self centering on release of the control button, yet uses current only when actually changing position. It will be seen from Fig. 1 that a four tooth rotor is used with a single pawl, with two contacts on the rotor, and two wiper arms at right angles, each connected to a contact on the relay. As soon as current flows, the escapement is tripped and the circuit is broken. The pawl flies back to catch the next tooth, and the circuit is switched to the other relay contact. With only pulses being required, the actuator battery lasts a season's flying.

Fig 1

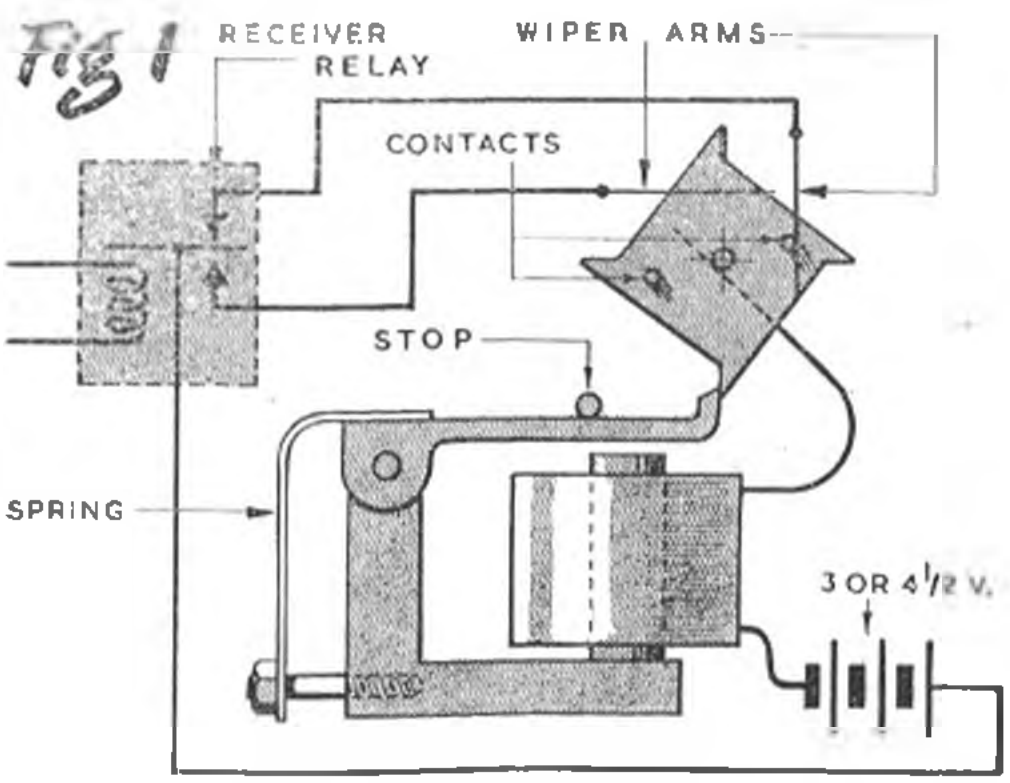
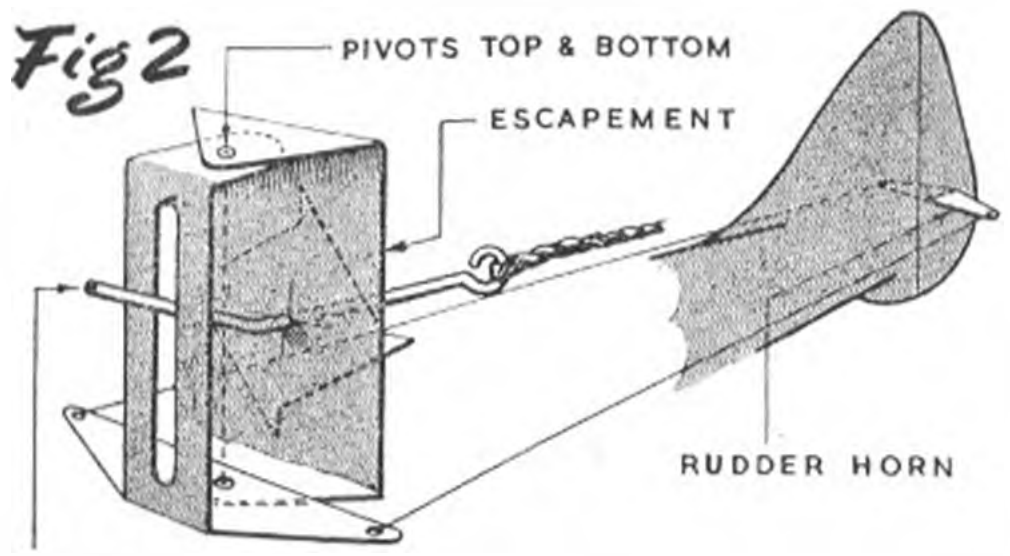


Fig 2

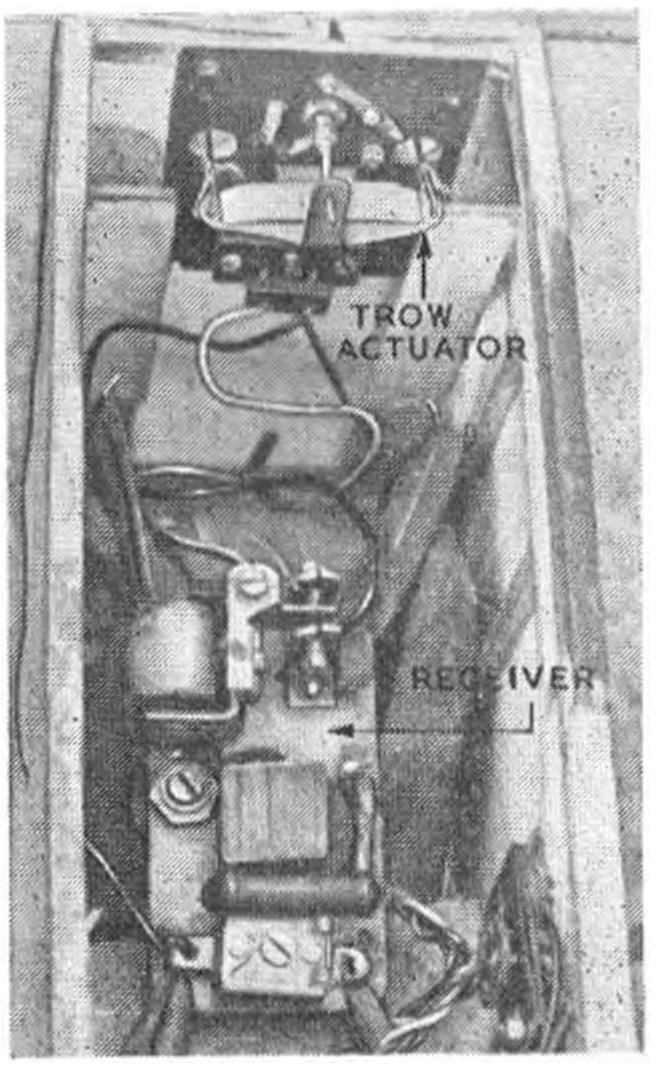


Another feature of this actuator is that the escapement shaft is bent at an angle and works in a slot as shown in Fig. 2, and moves a lever that is connected to the rudder by thread. This enables the actuator to be mounted well forward in the model. Bending the shaft to a larger or smaller angle gives larger or smaller rudder movement.

K-K Junior 60 Conversion

The most popular model for radio control seems to be the Keil Kraft Junior 60 judging by the numbers seen at various meetings. It always gives a good account of itself as long as the radio works. The fuselage is a bit narrow for getting in the radio gear and for adjusting it, but there are various ways of overcoming the difficulty. A method in use by some members of the Coventry R.C.M.C. is to make a section of the fuselage removable, see Fig. 3. It is the part that comes directly under the wing, and the frames fore and aft are made a little stronger. The dowels for the wing holding bands also form the anchorage for the receiver mounting bands.

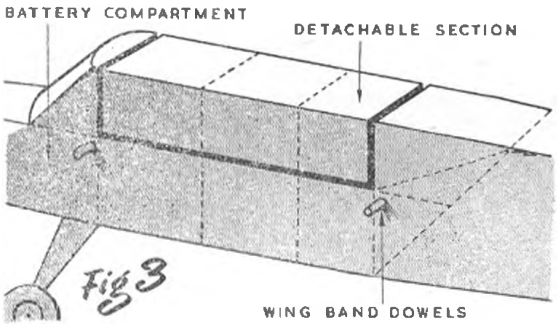
Additional strength is obtained on one model by sheeting the whole fuselage. The increase in weight



W. Trow, seen about to start his Amco 3.5 Glow-plug engine in the heading picture, has developed this unique actuator, Fig. 1 and 2 and right, in co-operation with Mr. Roe of Malvern. Bellcrank and flexible leads to rudder allow actuator to be placed in cabin for better access and weight distribution.

at the rear due to this is balanced by putting all batteries well forward. The E.D. 3.46 engines are fitted and give a good account of themselves. This engine and model make a very good combination. Various receivers have been fitted, one of them being the small three valve detailed in the October '53 "Notes." Two of these models have also been fitted with "waggling rudder" proportional control, one of them being flown in the 1953 "Ripmax" contest, thus breaking the writer's four years run of being the only proportional controller entering S.M.A.E. contests. Proportional control was fitted by those modellers through getting a good impression of the writer's control, gained while using the same flying ground. This Coventry Radio Controlled Models Club have decided to become the Coventry Group of the I.R.C.M.S. which should enhance their prestige, and at the same time, since they are a very good club, add some very useful strength to the I.R.C.M.S.

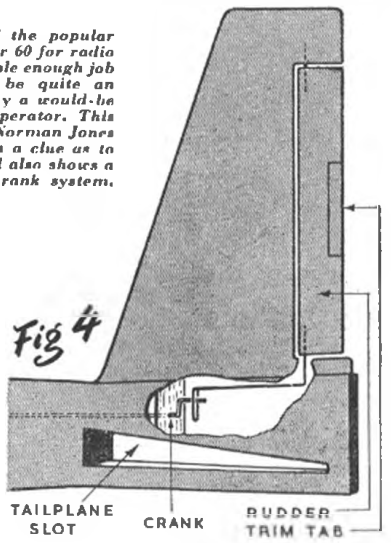
Another interesting modification to the Junior 60 has been that by Mr. Norman Jones, to the tail-end as shown in Fig. 4. The fin and rudder have been built on to the fuselage, and a slot cut out for the tailplane. Crank and lever for operating the rudder are hidden away in the fuselage. A rudder trim tab adds a realistic touch.



Rudder Hinges

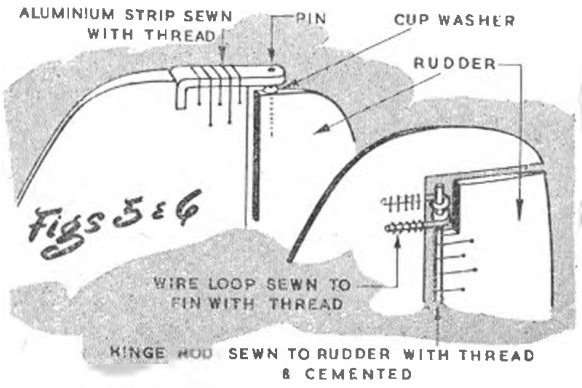
Control surface hinges sometimes give trouble, a failure can cause a flyaway. Tape is used by some people, and while it does seem reliable, it takes a lot of power from the actuator. A properly made hinge is much better. One type used successfully is shown in Fig. 5. A strip of aluminium is cut to the width of the fin, drilled for the pin, and bent at the other end. It is pushed into the balsa and bound with thread and glued. An ordinary pin can be used as the hinge pin, pushed through the hole in the strip, then through a cup washer and into the balsa rudder. Using $\frac{1}{8}$ in. thick balsa, this scheme can be used on models up to four feet span. Another type of hinge is shown in Fig. 6, in which a hinge rod is bound and glued to the rudder and the rest of the hinge, is a piece of wire wound twice round the rod. About 20 s.w.g. tinned copper

Modification of the popular Kell Kraft Junior 60 for radio control is a simple enough job that seems to be quite an obstacle to many a would-be radio control operator. This illustration of Norman Jones alterations gives a clue as to rudder area and also shows a neat actuator crank system.



wire will do for this, and it is bound and glued to the fin. This and other schemes can be interchanged and combined, the main requirement being free movement without shake or play.

When using a motor-generator for the transmitter for a tone modulated equipment, it is necessary to smooth the H.T. output. Mr. L. F. Sinfield who gave us the 3/1 receiver, and its attendant high efficiency transmitter described in these "Notes" for January 1953 has supplied the necessary details in Fig. 7 overleaf. Besides the low frequency smoothing, R.F. filtering is incorporated to prevent R.F. interference from the brushes. The H.F.C. consist of 20 s.w.g. enamelled wire on a $\frac{1}{2}$ in. diameter former, close wound to a length of 2 in. The .01 mfd. mica condensors should be fixed as close as possible to the brush holders. The 2 milli-henry choke and first .1 mfd., condensor should also be close up. The 20 henry L.F. choke must be rated at 30 milli-amps, and the resistance R is used for dropping the volts if necessary. Fitted in the position shown it helps the smoothing.



Those Were the Days

October 1929 It is an interesting point that when any type of model aeroplane has reached a certain standard of performance its place as the leading type is taken by another. Following the twin-pusher r.o.g. machine came the spar tractor, which point had been reached about the summer of 1914. There followed a gap of five years, and in 1919 many of the old hands had been swallowed up by the War, or had lost interest.

For a time the pre-war types of model aircraft were built, but soon the demand for a new field to conquer became evident, and the fuselage machine made its appearance as a successful type.

Stanger made a record flight of 51 seconds in April 1914 with a PETROL DRIVEN MODEL; then a few years later a man well known in model power boat work, Westbury, designed a petrol engine which was built into a scale model of the Cranwell light monoplane by aircraft apprentices. (See the recently published book "Jet" by Sir Frank Whittle.—*Ed.*)

"I have not said anything about the wireless control of models, for if I know little about engines, I know less about wireless. It does seem though that at least we have reached the size of model which justifies the use of wireless control, but what form it will take I have not the slightest idea. May we be preserved from the "scale" fiend who will not be satisfied until he has inserted his "scale" pilot with joystick grasped in one hand, and feet on the rudder bar! Whatever happens, the rubber driven model will continue to be built in increasing numbers, for the petrol plant will only be available to the prosperous few who have time and money to devote to it." (The foregoing is extracted from an article by "R.L." in the S.M.A.E. Journal for October 1929.)

1928 Rockets In 1928 the S.M.A.E. exhibited at the Schoolboys' Exhibition, and early in July entertained a team of aeromodellers from America. At Croydon Aerodrome a contest for spar models was won by Ford Grant of the U.S.A. with a flight of 79.2 secs., England winning a fuselage type event with Plater's 48.4 secs. The speed competition brought forth a surprise model in the form of a rocket plane by B. K. Johnson. R. N. Bullock won with a speed of 34 m.p.h. Fuselage model records were again beaten by T. H. Newell 76 secs. h.1., and 65.2 secs. r.o.g. by Mr. Bradley.

Formulae Controversy When fuselage models were first flown the fuselages varied considerably in cross-sectional area and in some instances veneer tubes of about one inch in diameter and three feet in length were deemed by their designers to be fuselages, inasmuch as they completely enclosed the rubber motor. The committee of the S.M.A.E. decided not to allow this, and thereupon agreed that the cross-sectional area of a fuselage should have a reasonable and definite relation to its length, so that a model should at least have some appearance of the full-sized machine. (The original formula of $\frac{L2}{100}$ was later modified to the F.A.I. requirement of $\frac{St}{80}$ where St represented the total surface area of the machine. The right to limit designers to any resemblance to full-size practice is still one of hot debate wherever aeromodellers gather.—*Ed.*)

RADIO CONTROL NOTES (*contd.*)

Circuit in Fig. 7 illustrates Mr. L. F. Sinfield's use of a motor generator as described on the previous page. The source of supply for suitable ex-government surplus stocks to make up units such as this, is not always easy to locate. We have, therefore, undertaken some research into the market for ex-W.D. radio equipment, and a special foolscap sheet is available from the editorial offices, listing principle advised sources of supply.

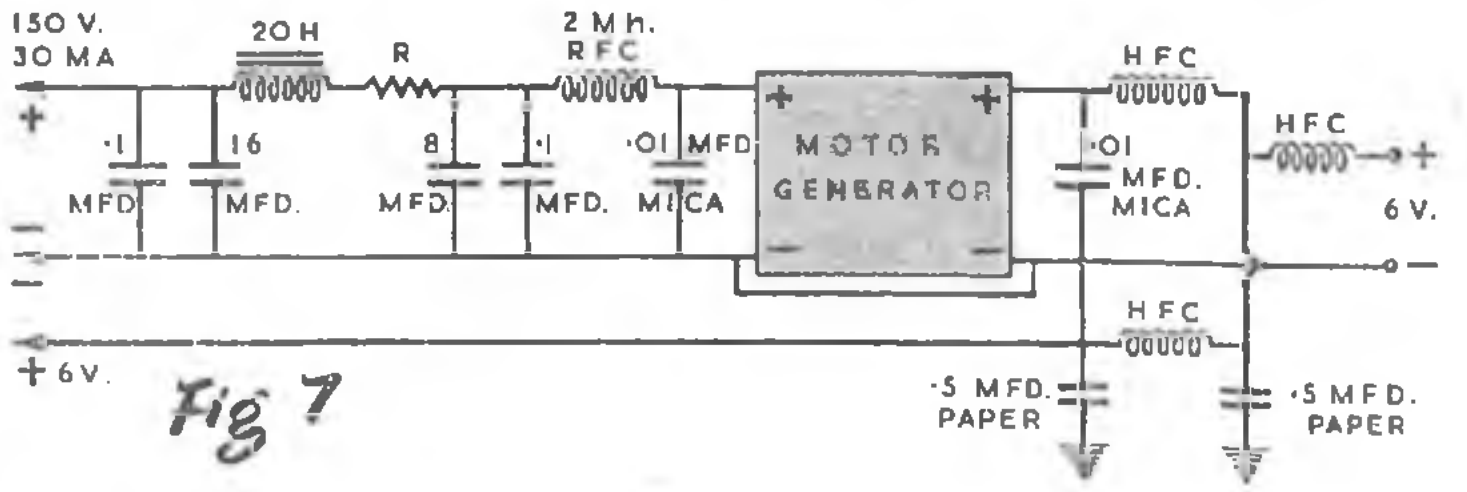
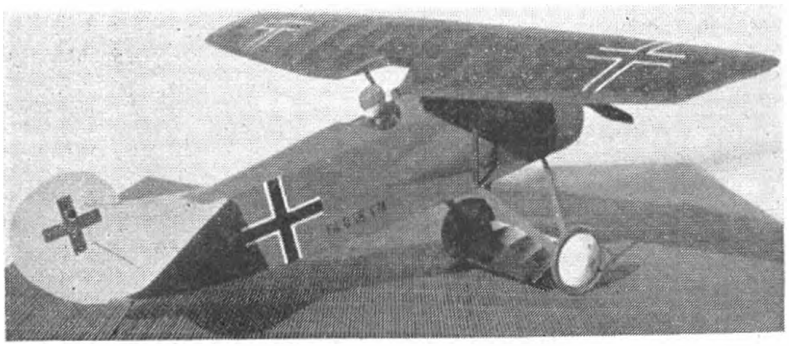


Fig 7



A 22 INCH SPAN ACCURATE SCALE MODEL OF THE WORLD WAR I FIGHTER — FOR .32—.5 c.c. DIESELS

The fabulous FOKKER D. VIII

By Ron Moulton

ANTHONY FOKKER'S famous parasol wing fighter, the D.VIII was not altogether a successful fighting machine: but to the aeromodeller it represents the perfect proportions for a true scale model. Large tail area, low slung wheels for stability and good prop clearance, useful high lift aerofoil section and simple fuselage. Against it there is the lack of dihedral and an awkward strut arrangement; but each of these points is ably dealt with in the 22 in. model given full-size on the next four pages.

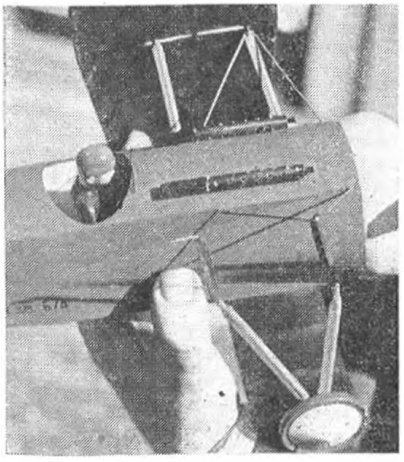
This is strictly for fun flying. The power/weight ratio with an E.D. Baby diesel at full revs is sufficient to make the Fokker tear the sky into shreds as it spirals and cavorts in any and every direction, going upwards all the time, and when the power cuts after a long engine run, the ensuing glide is flat but fast. Right thrust is essential and is "built-in," right rudder too may be needed, and a $\frac{1}{4}$ inch washout at each tip compensates for the lack of dihedral. Here then, is the ideal model for the .5 c.c. scale fan who likes a spot of excitement.

Cut the bulkheads F1-5 and assemble with two $\frac{1}{32}$in. sides; the slots locate each one. Add $\frac{1}{8}$ sq. braces and engine bearer "U". Make the axle wing, bend the u/c and slide the axle through ribs and vee's, then bind and solder. Bind u/c to braces at F2 and 3 and sheet fuselage bottom with $\frac{1}{32}$nd. Add skid and bend two each, front and rear struts. Now study the wing fixing, cut a piece of balsa $5\frac{7}{16}$ in. × $2\frac{3}{8}$in. and use as a dummy c/section by Sellotaping strut ends at each corner. Other ends are bound and soldered to u/c when incidence and front alignment are set. Add 20 s.w.g. bracing around front strut, and sheet fuselage top, cutting out cockpit and add engine fairing cones. Providing incidences are as plan, the sheet tail and fin can be permanently fixed, with rudder adjustable. Scale strut covering is simply stiff paper doubled over and cemented.

The cowl is shallow, but allows plenty of room for a separate tank beside the engine. Make the cowl by wrapping $\frac{1}{16}$th laminations around a "Nescafe" tin, then fitting $\frac{1}{2}$ in. front ring and double $\frac{1}{32}$ laminated (crossgrained) "face" plate. Cement cowl in place, with holes for needle extension and fuel filler tube.

Wheels are also laminated with $\frac{1}{32}$nd, mounted on a ply disc with tube axle bearing and stiff paper cone. Retain with a blob of solder. Use plenty of cement on the inside of the cone around tube.

The wing should be built in one piece, port half first, then shifted over to complete starboard side. Prop front of t.e. up, and space the pairs of W.1 with tubing and packing. Remove from board, crack for lower surface dihedral and add spars. Washout at tips is helped by the warping effect of the l.e sheet. Wing mounting is now completed by swinging the rear struts forward, entering all four strut ends in wing tubes through uncovered slot, and allowing rear struts to return. This is not only secure in flight, but also crash-proof, though with the total weight at less than $4\frac{3}{4}$ ounces, the model has to hit really hard to do any serious damage.



Guns made from Ladies' hair curlers and the quickly detachable wing fixing are shown in this view. Wing is engaged on port struts only. Struts are paper covered.

FULL-SIZE PLANS OVERLEAF

C.G. RANGE

COWLING FACE

COWLING RING

1/16" SHEET (3 LAYERS)

BIND & SOLDER 20 S.W.G.

PAPER FAIRINGS

CELLULOID

ENGINE FAIRING 1/32" SHEET

F1

F2

F3

F4

1/8" SQ.

-1/32" SHEET SIDES-

1/4" SQ. HARD--WOOD BEARERS

SIDETHRUST IS BUILT IN

BIND & SOLDER

18 S.W.G.

SLOT FOR SIDES

F1

1 M.M. PLY

F2

1/8" SHEET

BRASS TUBE

BIND & SOLDER

TYRE IS 5 LAMS. OF 1/32" X 3/16"

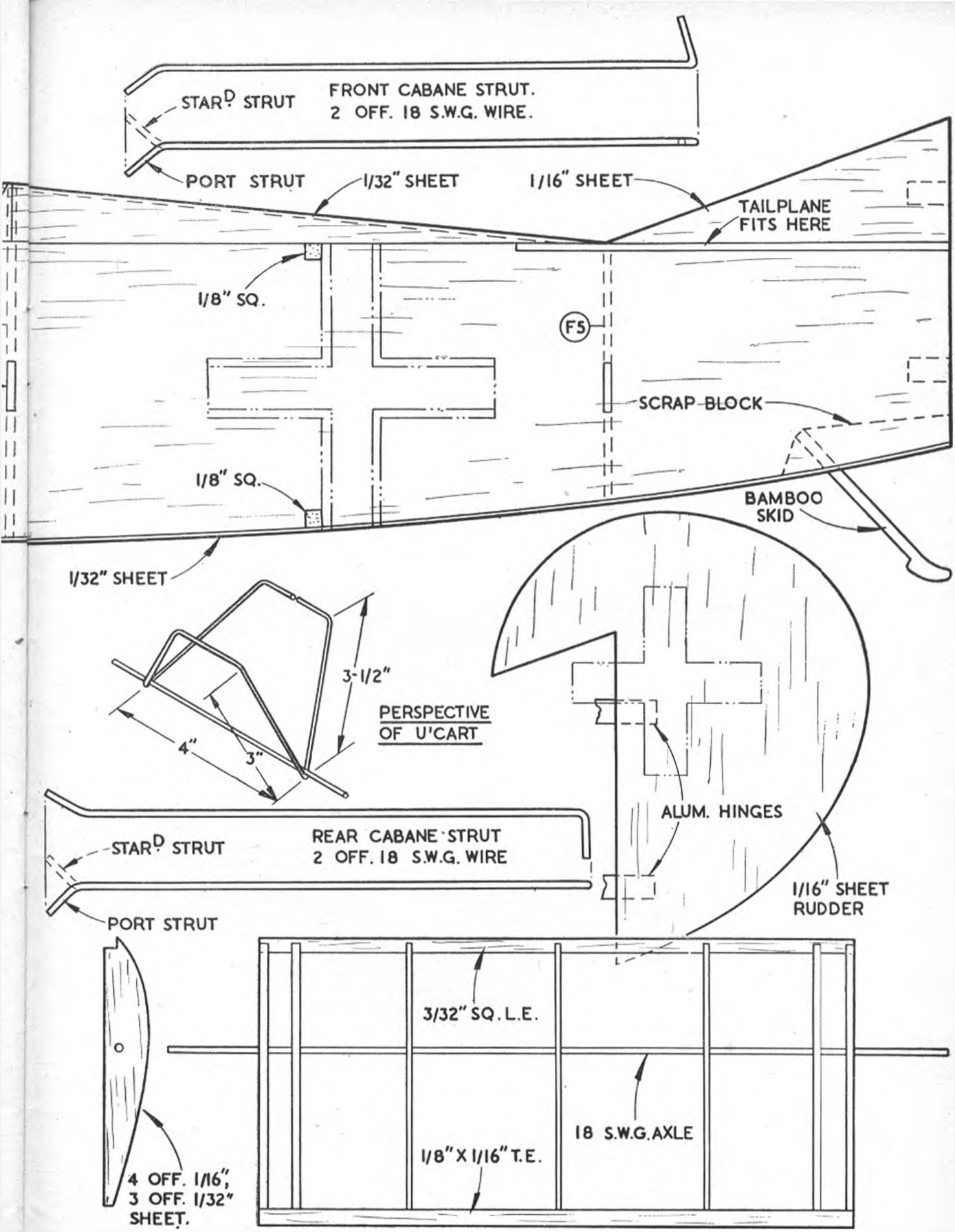
WHEEL DISC. 1 M.M. PLY

WHEEL CONE

STIFF CARD.

COWLING FACE

COWLING RING. 1/4" SHEET


STARD STRUT
FRONT CABANE STRUT.
2 OFF. 18 S.W.G. WIRE.
PORT STRUT
1/32" SHEET
1/16" SHEET
TAILPLANE
FITS HERE
1/8" SQ.
F5
SCRAP BLOCK
1/8" SQ.
BAMBOO
SKID
1/32" SHEET
3-1/2"
PERSPECTIVE
OF U'CART
4"
3"
ALUM. HINGES
STARD STRUT
REAR CABANE STRUT
2 OFF. 18 S.W.G. WIRE
1/16" SHEET
RUDDER
PORT STRUT
3/32" SQ. L.E.
18 S.W.G. AXLE
1/8" X 1/16" T.E.
4 OFF. 1/16",
3 OFF. 1/32"
SHEET.

1/32" SHEET TOP ONLY

1/16" SHEET TIP

W6 W5 W4 W3 W2

1/16" SHEET SPAR

1/16" SQ. SPAR

3/32" SHEET T.E.

STARBOARD WING SHOWN IN CHAIN DOTTED LINE

F3

F4

F5

1/16" SHEET

1/16" SHEET

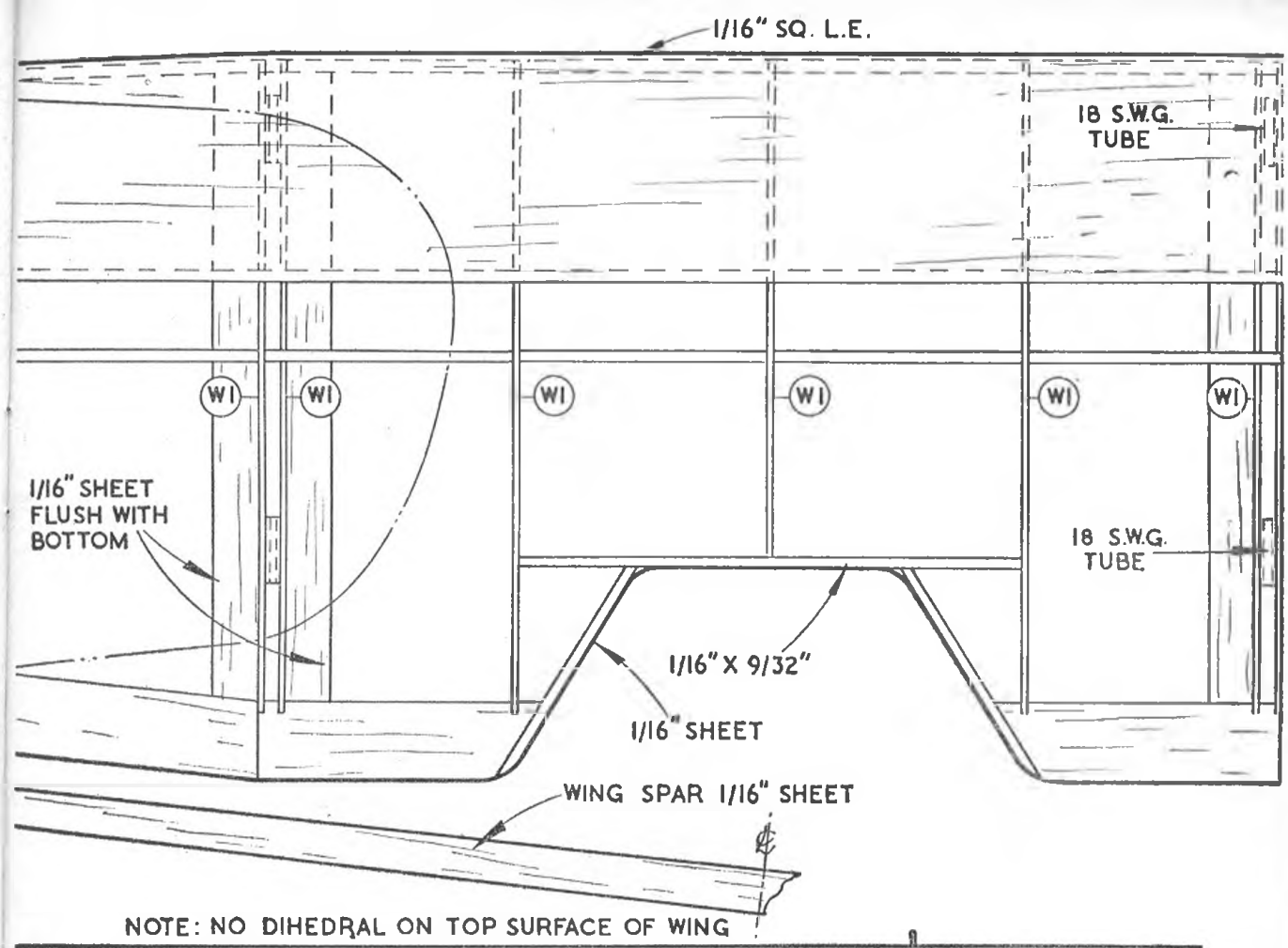
1/16" SHEET

WING RIBS

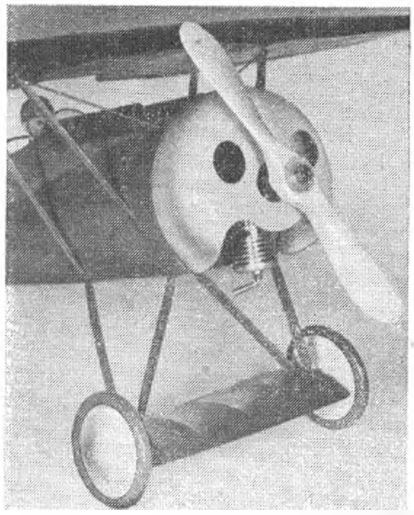
W6 W5 W4 W3 W2 W1

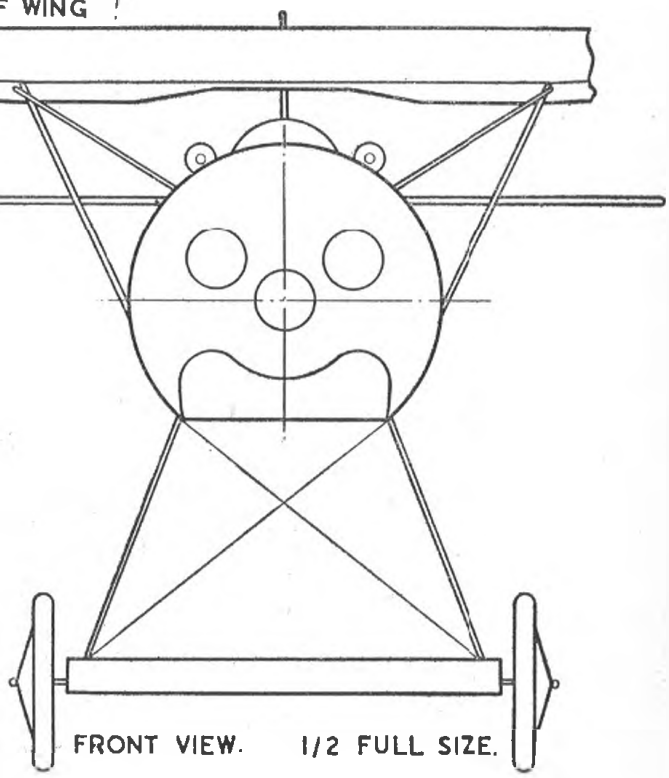
W1 - 7 OFF. THE REST - 2 OFF EACH. ALL 1/32" SHEET

TAILPLANE. 1/16" SHEET

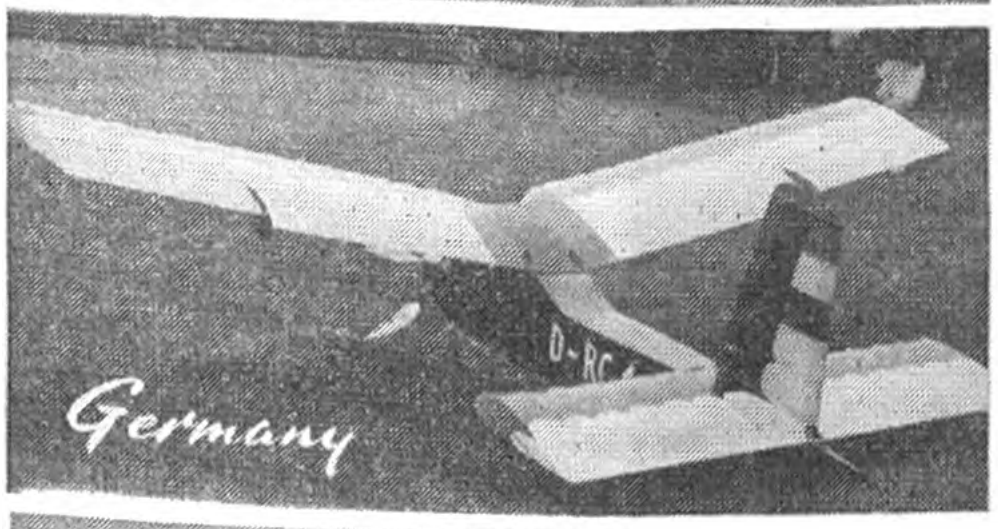


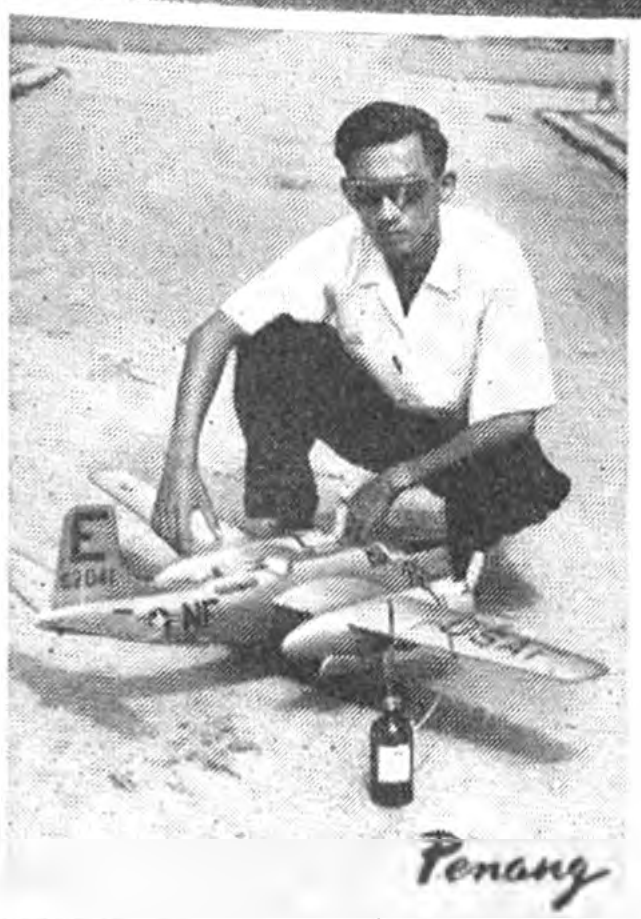
NOTE: NO DIHEDRAL ON TOP SURFACE OF WING



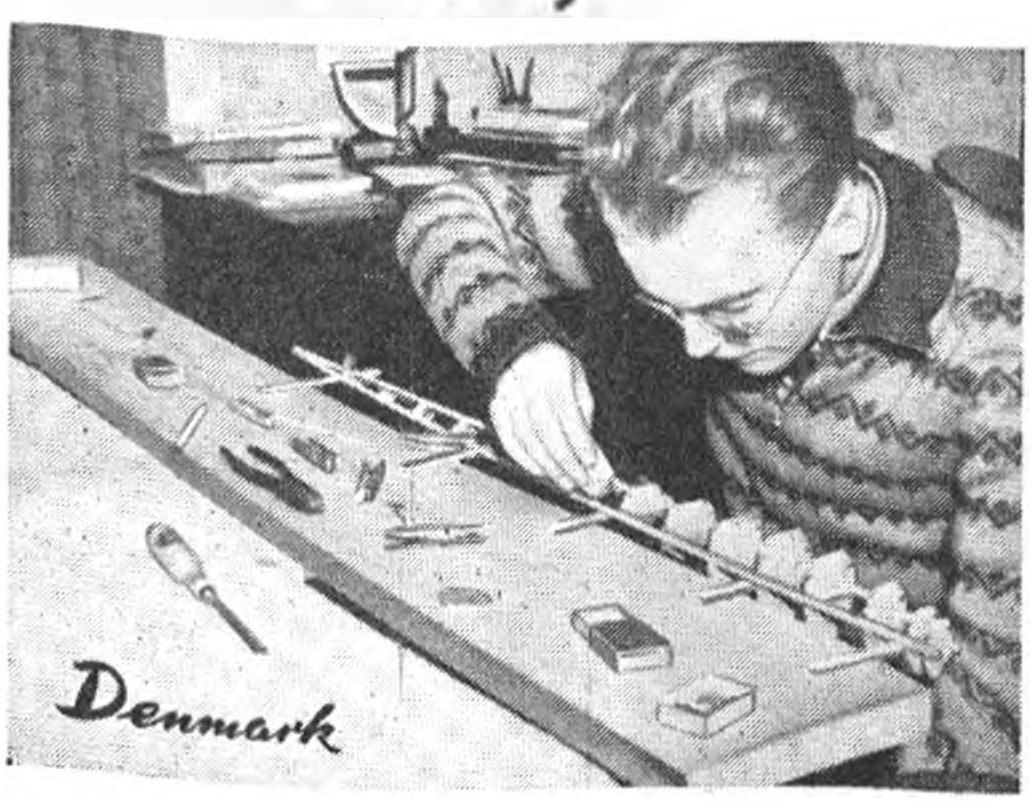


FRONT VIEW. 1/2 FULL SIZE.





With a background of Bristol Beaufighters, Robin Wee helps lady friend wind up her rubber job on Singapore's airfield in top photo. From Germany, the radio control design by Walter Molmann above, has unique aileron fences and actuator inside the fin, 6 c.c. Eisfeld diesel, and weighs 7 lb. Left: Charlie Choong of Penang and APS Invader (Twin Elfins), speed 65 m.p.h. Bottom: Fritz Neumann prepares his '54 A/2 fuselage in Denmark (method of crutch construction with full bulkheads is interesting).



World News

FIRST of the International Calendar dates to be announced is that for the A/2 World Glider Championships to be held on June 24-28th at Odense Aerodrome. Reference to the map shows that this is located on the central island of **Denmark,** which is known as Fünen and is readily accessible. Odense will also be the site for the Danish Nationals on May 2nd and is reckoned to be an ideal spot for model contests.

From **Finland** we hear that Arne Ellilä the Wakefield man has earned his Ph.D. on account of his work "Ionisation of Acetic Acid in Aqueous Alkali Salt Solution." This should stand him in good stead for a new discovery on lightweight rubber solution to suit the new rules! Arne's record average of 4 min. 4 sec. for three Wakefield flights is now upped to 4 min. 12 sec. by none other than a gentleman with the name of J. Järvi, whose namesake aerodrome was the site for the 50-'51 Wakefield contests.

News of the Power and Wakefield contest location and dates are yet to come from the **U.S.A.** New York interest in waterplanes leads to much activity on Long Island Sound where Don McGovern has been flying a 9½ ft. Privateer carrying four pounds of radio gear. The single Spitfire 61 engine has no difficulty lifting this much off the water, and, say Berkeley Kits for whom Don works, the flying boat layout is good for overland operation as well. Landings on rough ground are often better than with wheeled jobs; but what about take-offs? From farther south, in the **Argentine,** Bob Leishman, a Scot working in that part of the world, gives many interesting points on the recent Nationals which took up a whole week with contests for every category. First two days were all control-line, and in stunt, the American "Barnstormer" Kit design earned first and second places, both models using the Fox 35 glow engine. Speed returned 116 m.p.h. in class A (K and B 19), 112 m.p.h. in class B (Dooling 29) and 134 m.p.h. in C with McCoy 60, then the free-flight events were spread over the next five days. Following the main event for each day, a Wakefield round was held in the calmer evening air using the '54 rules for five flights of three minutes each. From fifty keen entries, Faby Mursep and Cesar Altamirano (both came to Cranfield) emerged 1st and 2nd with a few seconds short of a quintuple maximum time in each case.

Held for the first time in the **Argentine,** F.A.I. Power and A/2 eliminators attracted large entries, there being no less than 140 gliders in the Nordic. Presumably this was run off the 100 metre line length giving the favourable top time of 10:35 for Silvio Simoneschi. Power evokes something of a quandary, for it was won by Bob Leishman with an Elfin 2.49 powered "All-American" and since

Bob is a Britisher, he cannot represent the Argentine at the finals in the United States. A close second in more ways than one, with 14:35 against Bob's 14:36 was Frederico Deis flying a K and B 15 "Kiwi." Other power classes flown to U.S. rules gave similar high times and included a victory in class A for an APS Stomper (Super Tigre G.20).

Elsewhere in the Southern Hemisphere, advance reports of the **New Zealand** and **Australian** Nationals give glowing accounts which we hope to amplify with photos next month, of "best ever" Nats. at Omaka and Toowoomba. Accommodation at these meetings, where competitors can travel anything up to 1,000 miles to make three or more official flights, is first consideration for the organisers and we gather that the R.N.Z.A.F. is owed special thanks for co-operation at Omaka.

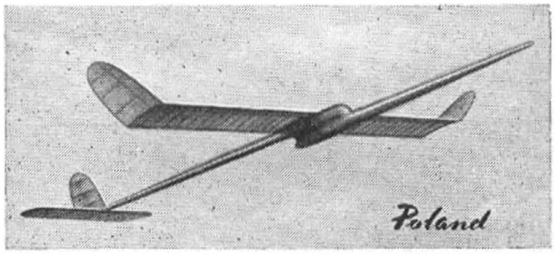
Sponsored representative to go to the U.S.A. for the Power, Wakefield and U.S. Nationals was selected by ballot at the Australian Nats. Alan King, thrice Champion of Champs, twice Australian Wakefield winner and holder of enough trophies to stock a Jewelry store is to have the honour of representing his country, and should do very well.

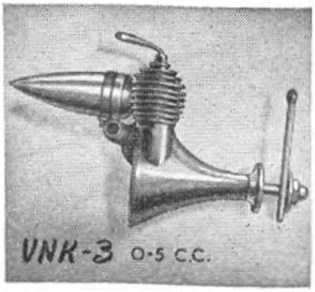
Postal Contests

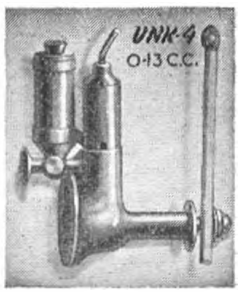
Now that the other half of the world has enjoyed its annual spree at the Nats., we wonder how many of the town and city clubs in these faraway parts would welcome an arrangement for postal contests. These are by no means a novelty to several British Clubs—the Wayfarers in West Herts have been matched with Wellington, New Zealand, and Santa Barbara in the U.S.A. have competed with St. Albans. Free-flight power, glider and rubber are the usual events in such an arrangement, and a day is initially set for each club to fly off its entries, then exchange results by post with the other party. Rain dates are fixed should conditions be impossible at either end, and local model rulings apply unless either club has any special idea on the subject.

What we have in mind is a register for clubs wishing to take part in this type of contest, which certainly does help both to stimulate interest and International exchange of ideas. Send in your Club's official address, membership, and major interest in modelling and World News will endeavour to pair the club with a similarly matched group in the country of your preference. . . . and British clubs note, this concerns you too!

Champion Polish A/2 glider is the "two-boom" fuselage design by Miss L. Degler shown below. This is one way of getting the fuselage cross-section with minimum wetted area.



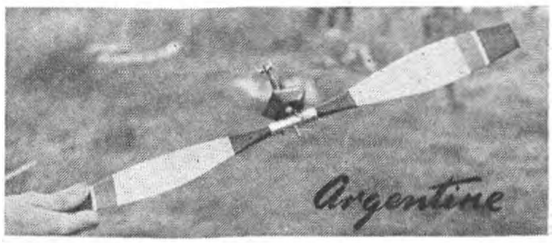




Above: Russian .5 and .13 c.c. diesels designed by V. N. Krasnagolavoj. Smaller one has 5.5 mm. bore and stroke and weighs 13 grammes. Both are used for indoor models.

Below: From Argentine, top photo is of Bob Leishman, F.A.I., power winner, with Elfin 2.49, "All-American."

Centre: A close-up of Eliseo Scotto's superb new feathering prop, no doubt influenced by his visit to Cranfield, and Bottom: Colombo and Scotto with their new rule models. Note the forward fin at right.



Trade Notes

THE **Skyleada** series of scale kits reviewed in "Trade Notes" last month aptly includes two different sizes of Avro Vulcan for Jetex power. We built up the smaller version for the "50" unit and true to type, it proved a beautifully stable flier with very impressive flight pattern. A spot of ballast on the nose to bring the C.G. forward was the only trimming need, though additional elevator tabs cut from postcard and fitted to the trailing edge do certainly simplify flight technique for any beginner. The price of the kit is only 3s. 6d. including P.T.

Heading photo shows both the "100" Comet and the "50" Vulcan on "AEROMODELLER" flight tests. Incidentally, the Ray Booth monogram which appears on Skyleada scale plans is an assurance of accuracy in the Vulcan, for Ray is a draughtsman at the Woodford factory.

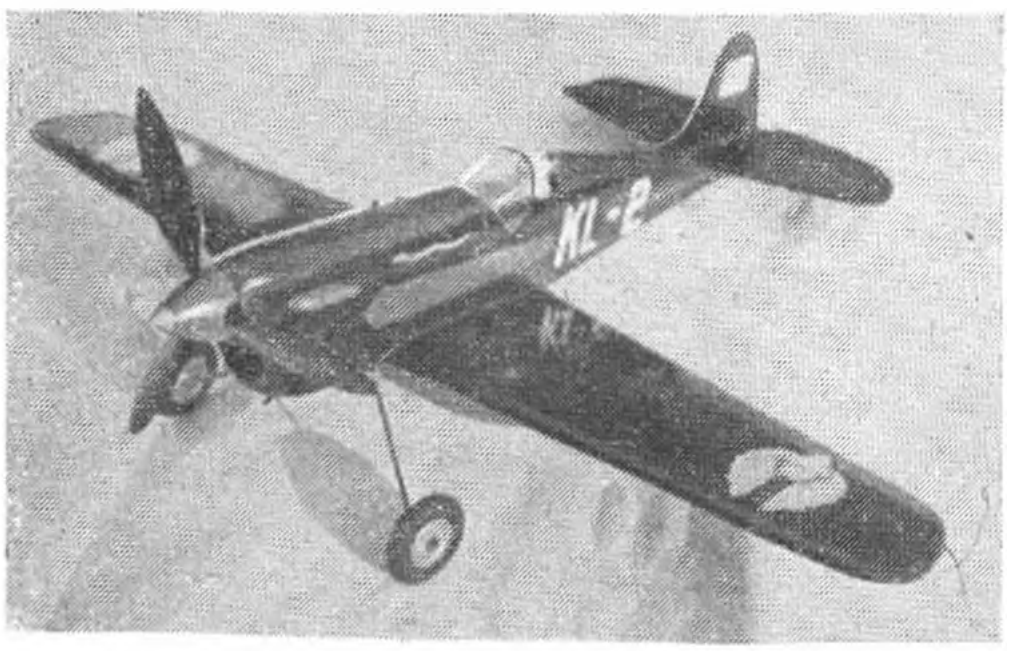
Another kit recently introduced to the market and enjoying repeat orders from most retailers is the **Frog** Mirage baby team racer. This is the first and so far only kit for the so-called ½A class of racer, and, naturally enough, is especially designed for the Frog 50 diesel. Adaptability, however, is not the least of the attributes of I.M.A. kits, and reader C. Russell tells us that the Allbon Dart diesel fits inside the cowling perfectly. He took the photo at bottom left of K. Johnson's Mirage, which was made in spare time at home when not employed as model-maker to the Handley Page wind tunnel. Weight is 4½ ounces, speed 38 m.p.h. plus, and manoeuvrability excellent.

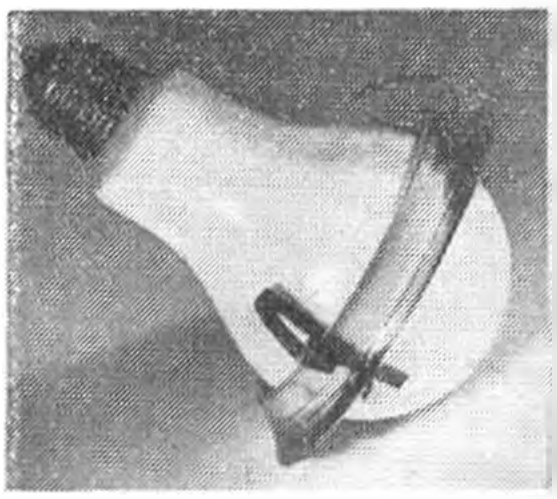
For value, at 10s. 6d. including P.T., the Mirage is top class and to be thoroughly recommended, the price includes a special three-bladed prop in plastic and rubber wheels. About the prop, we felt this better suited to a rubber job, the pitch being somewhere way up in the 'teens, and in practice it has proved to be too much for the average .5 c.c. engine. Warping the blades to finer pitch with heat does help, but is not to be advised in view of weakening the hub material.

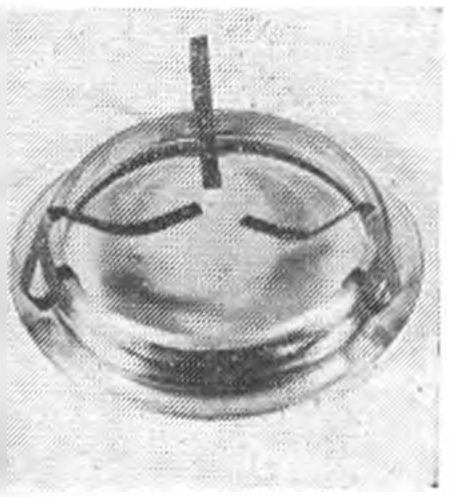
More light on the subject . . . a regular request by all model-makers, especially when working on the finer details of a complicated project, can now be amply answered for the small expenditure of 5s. 6d. The **Lowacost** light ring is a simple adaptor in high grade crystal glass made in the form of a moulded prism. It clips in place on any electric light bulb and makes it possible to catch the dispersed rays of light and direct them on any required spot. Clips are so arranged to take advantage of the spherical bulb shape and so the light ring can be swivelled about to point in any direction. It is also claimed to act as a cooling ring and said to disperse heat from the bulb.

Prime claim of this gadget is in the economy it brings. Those who burn the midnight oil in preparing last-minute models for the week-end contests will well appreciate any saving in the household electricity bill, and the Lowacost ring is claimed to convert a 40 watt lamp to 100 watt brightness with less than half the electricity consumption. We tested the ring on a bulb and measured the light reading with a Weston light meter before and after fitting. No visible increase in illumination can be seen by looking directly at the lamp; but measurement of *reflected* light showed an increase of 33% with the ring fitted. Sole distributors of this item are Mercantile Marketing Co. Ltd., 22 Grosvenor Mews, S.W.1.

Left: The Frog Mirage Team Racer fitted with three blade prop as supplied in this good-value kit. Below: The Lowacost light ring as fitted to a lamp by means of spring clips. Prism effect is seen at right, where camera lamps are shining on the ring.







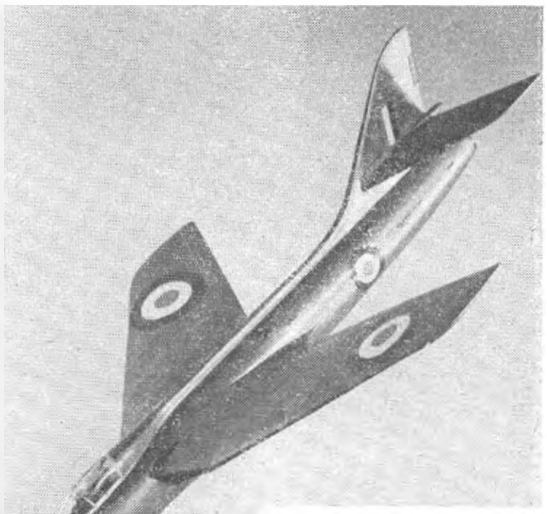
New Solids

Quarter-scale (1/48th) solid models have a great following, as we know by the ever-increasing demand for this size of solid scale plan in the A.P.S. range. The "bigger" solid allows more detail to be incorporated, enables a more accurate outline to be maintained, and, on the whole, makes a far better display job. We are pleased, therefore, to announce that Messrs. **Miniksca**le of Liverpool are introducing the "Avian" range of solids with all parts cut to outline, moulded canopies, authentic squadron and national markings, card templates, plastic wheels, and spinners and props where appropriate. First types in this new range are the Swift, Spitfire, Super Sabre, Mustang, Tempest, and Hurricane, making it a "Fighter" series of commendable selection. The Jets are at 5s. 6d. and piston types 5s. 3d. per kit.

Radio enthusiasts who have exhausted much time, patience and shoe-leather in fruitless searches of the ex-Government surplus radio shops for aerial base sockets, will now be very pleased to learn that the **E.C.C.** people have produced a special base for this purpose. Retail price is expected to be in the region of 5s. A moulded plastic casing surrounds the metal tubing liner which gives 1¼ inches of contact for 5/16ths diameter aerials, and a convenient connector tag is tapped in at the bottom end. Three radially disposed holes in the mounting flange enable the socket to be let into the top of any home constructed transmitter cabinet to add a professional touch.

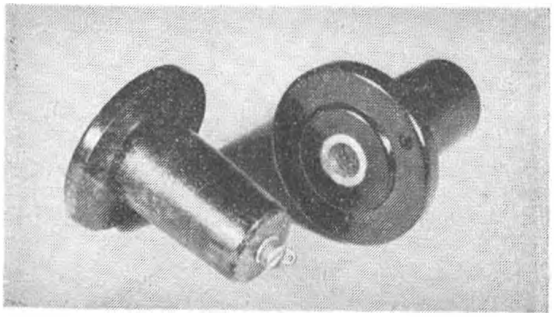
Quickest of the "Quickie" kits it has been our pleasure to assemble on test are the **Veron** range of six, 11½-inch span all balsa rubber models. The parts arrive not only ready-cut, but pre-decorated in authentic fashion, with plastic propeller and nose bush, wheels and pre-bent undercarriage. One of our younger prodigies had a great time assembling the Autocar in less than an hour, and then proceeded to demonstrate how well they fly on the brief Brrrrrrrrrh of a five-second motor burst. In fact the only point lacking in this admirable series of pre-fabs is in the rubber motor supplied, which is short and powerful for the job. A longer motor run with a larger loop of ⅛-in. strip rubber gives quite a performance. At only 3s. 6d. each, these Veron Quickies are just the right type of model to recommend for the young beginner. Easy to build and bound to fly, they give satisfaction at low expense and provide a good grounding for more ambitious projects that come after initial experience.

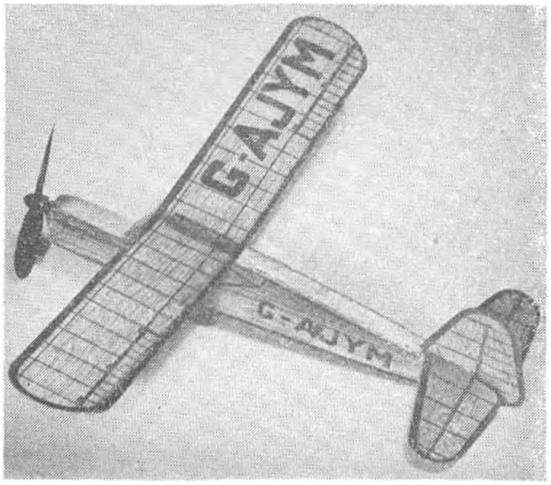
Note from the house of **Davies-Charlton** tells us that an unprecedented demand for that company's products, the Spitfire, Javelin, Dart, and "350's", has set back the production schedule for the new 0.1 c.c. Bambi. Development staff are taking advantage of the delay by introducing detail improvements to the prototype design so the production Bambi, when it gets under way, will be a little gem of a diesel. Incidentally, Erik Wegger, the Norwegian modeller from Sandefjord, who chose the winning Bambi name, is quite a person for his 19½ years. He has run a model department in the local store, manufactures cement in tubes, will soon be making the first plastic props in Norway, went to the U.S.A. under the Cadet exchange scheme last year, is a "C" glider pilot, training for an "A" power plane licence and hopes to be a fighter pilot in the Norwegian Air Force. Seems like the Norwegian for enterprise should be spelled "Wegger."

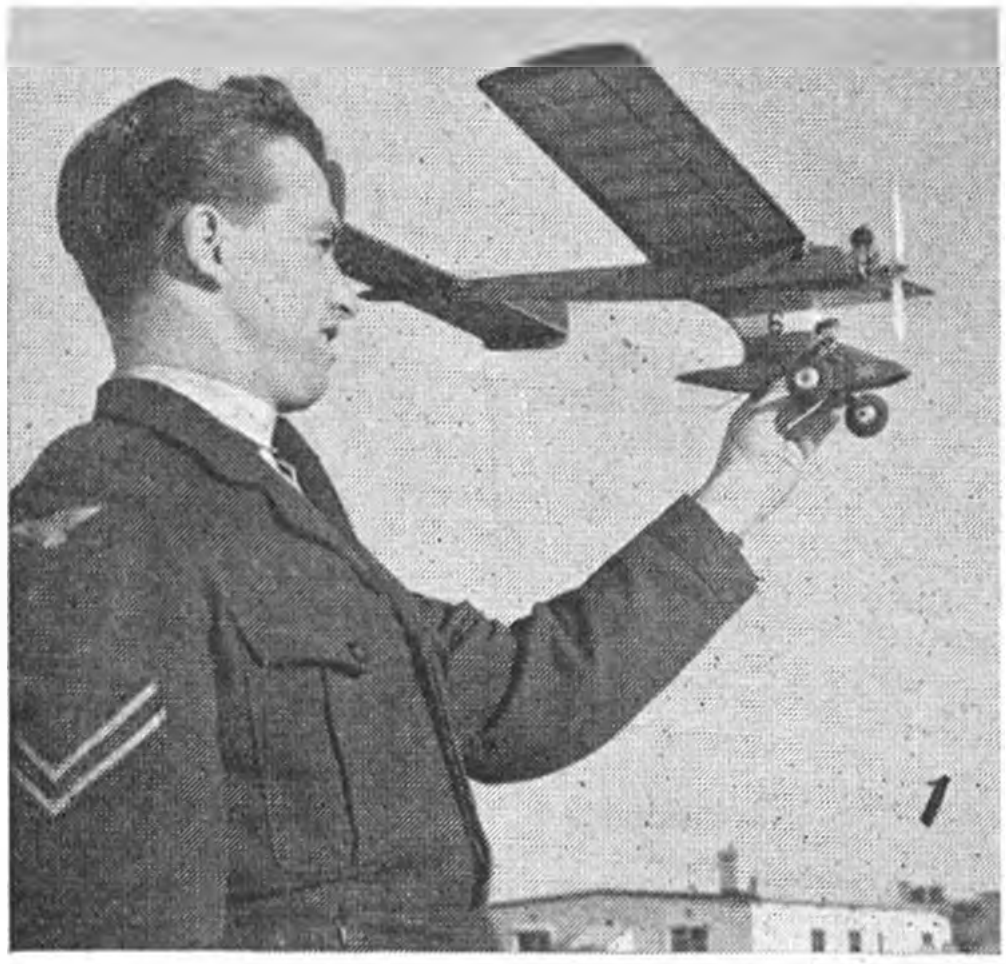


Jetex Hawker Hunter with Jetmaster makes delightful high-speed take-offs and climbs to 90 ft. states builder D. Stuart Wallace of Co. Derry. N. Ireland. Weight all-up is only 5¼ ozs.

Below: The new E.C.C. aerial sockets in plastic with metal liners. Right: The Veron "Quicky" Auster Autocar pre-fabricated kit model has a snappy performance for its 11½ inch span and comes ready decorated in authentic blue lettering and outlines.



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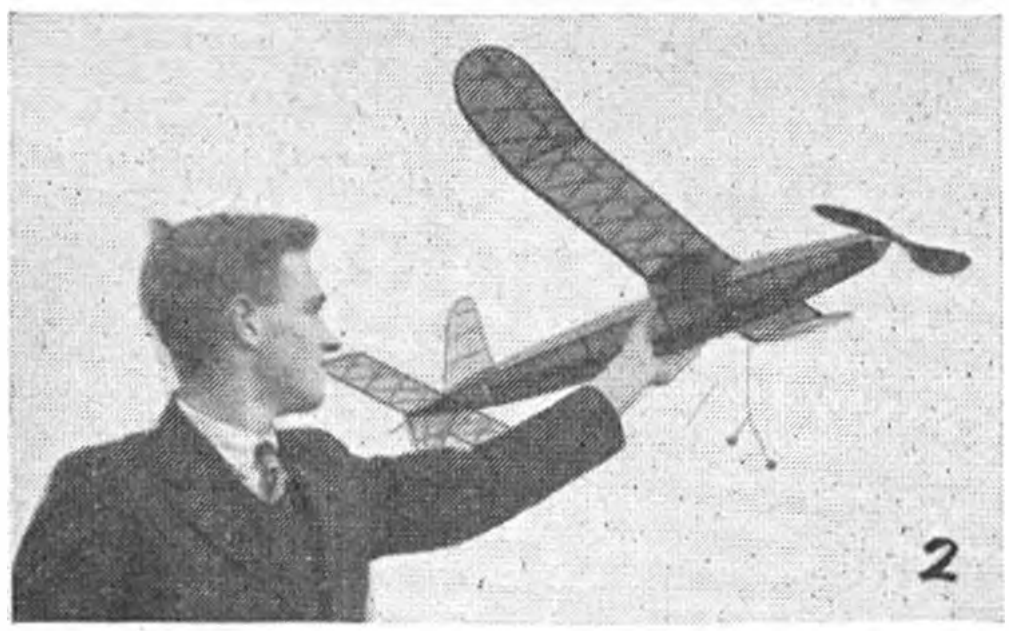
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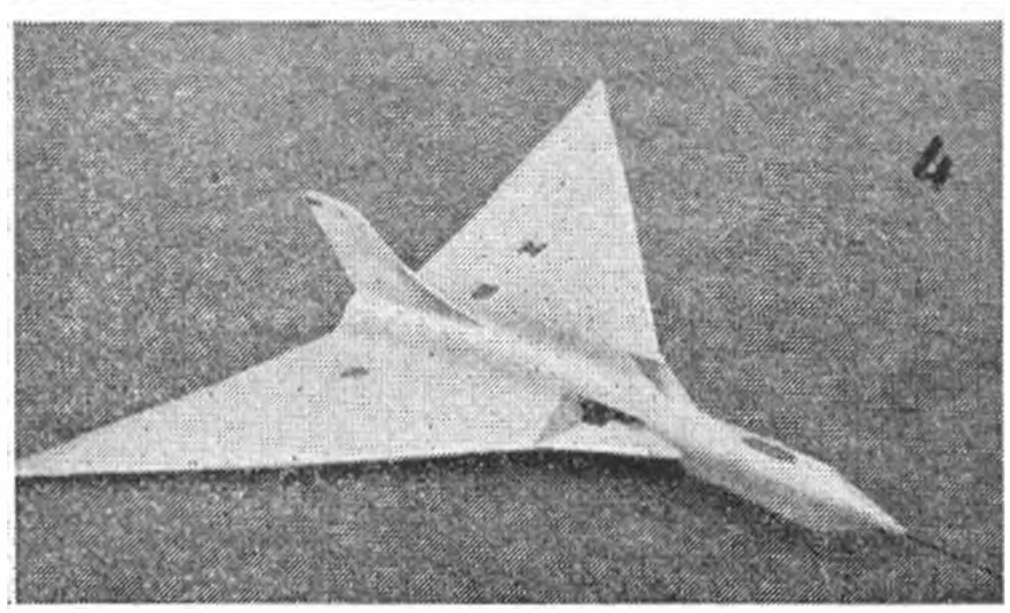
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Model News

THE UP - TO - DATE PHOTO - REVIEW

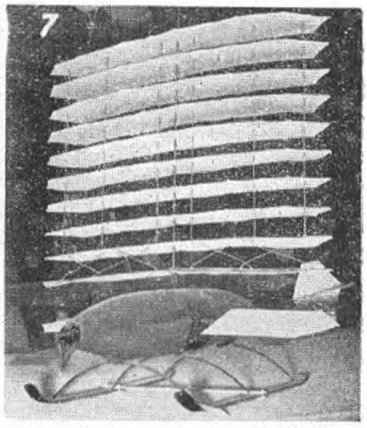
THE great variety of winged marvels that come under the embracing heading of aeromodelling and reach the editorial offices in the form of photographic evidence, never ceases to amaze us. Here, in this month's selection we have a twin-engined stunt model and deltas, a multi-plane historic model and even a hot-air balloon. We like to think that in "Model News" we have a clearing house for all that is the very latest in modelling development whether it be a new variation in design or the culmination of many hours' hard work on a beautifully finished model. Photos (6 in. x 4 in. glossy preferred) of your latest effort would be welcomed for consideration—why not send one in? Fifteen shillings is paid for each published photograph.

Number **1** is a high thrustline novelty sportster for .5 c.c. diesels by Cpl. Macleod of R.A.F., St. Eval, in Cornwall. 36-in. span, and with passenger mounted in the cockpit nacelle, this Dart powered model has a reliable and consistent performance—could be another variation in layout for the coming Payload contests.

Few can deny that the famous O'Donnell brothers' Wakefield design, "Borderline," is one of the hottest models in its class. A. Bagnall, of Whitefield Club, winner of the 1953 Flight Cup, is seen in **2** with his modified version of this popular APS model. Geodetic ribs, feathering prop and forward mounted fin are innovations for the 1954 rules, plus ballast, of course. In the next view, No. **3**, even the airwheels and 2.7 c.c. diesel were made by builder R. Burns, of Darlington. Total weight of this 63-inch scale version of the French Aero Centre "Chardonerte" is 4 lb. and photographer R. C. Poad informs us that inherent stability is its greatest virtue.

We have in **4** the largest free-flight delta we have seen. Built by B. Ellis, of Hounslow, as a ducted fan design, it now has a pusher E.D. 2.46 at the rear of the "fuselage" and carries its 2 lb. 10 oz. with ease. Tip to tip it measures no less than 63 inches, which represents quite a mass of wing area.

4 : 15 off 100-metre towline is the claim for the A/2 class glider held by Johnny Rogers, of



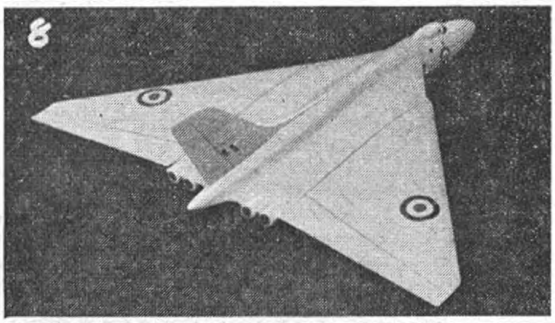
Birmingham, in 5. This is a derivation of Maurice Hanson's Swan, and the answer to the high average is the fact that it is now flown as a lightweight with 6 oz. ballast removed! Strange, but our pet A/2 performs best *with* its extra ballast weight! Also from Brum, though South Birmingham this time, is 6, the "Lighter" side of club activity showing initial tests of their hot-air balloon—a product which has since disappeared O.O.S. at 15 min. upwards. Club committee are seen filling the object with hot air in the photo.

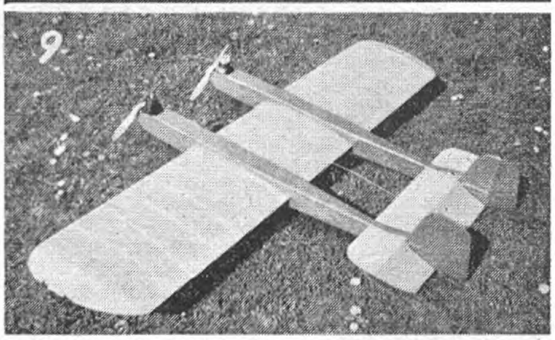
What is a Decaplane? In 7 there's the answer, built in 1873 by a French gentleman by the name of Renard, it has no less than ten wings and a pair of flappers each side of the fuselage. Not exactly new, but one of the most interesting exhibits at the recent Geneva models show, where it was sent from the Musee de l'Air, Paris.

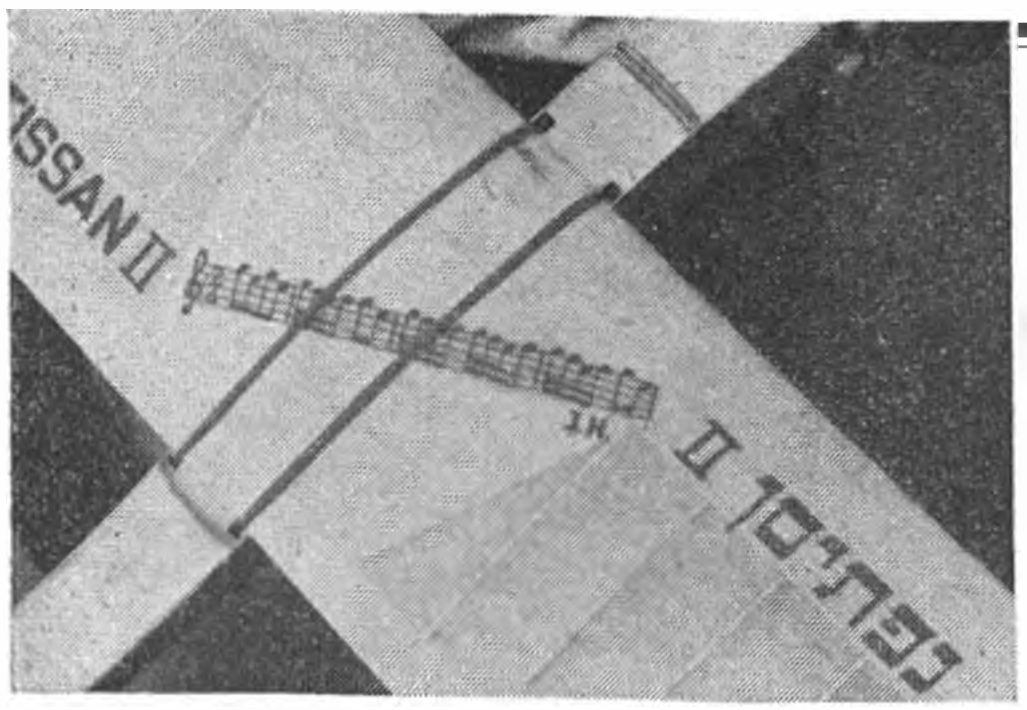
Without a model Vulcan, this issue would hardly be complete; so in 8 we have one, appropriately enough from the Assistant Secretary of the A. V. Roe Model Aircraft Society, and, moreover, jet-powered with a Jetmaster and augmenter tube. Holder of the 1953 Avro Silver Cup for the best Avro model in the club, this Vulcan is 25-inch span and weighs, ready for flight, 4¾ oz

Two Frog 500's in the twin-boomed stunter by N. M. Uglow, of Aldershot, seen in 9 should make for some pretty aerobatics at over 70 m.p.h. With large tanks, giving up to an eight-minute engine run, fuel costs run up to a high figure, so general flying can be conducted using only the inner engine. Total weight at 4½ lb. is on the heavy side; but with almost 700 square inches of wing area, the loading is still light enough for it to go through all the stunt schedule with ease.

"Model of the Month" is a beautiful example of the APS Invader, built by seventeen-year-old Harry Cline, of Inverness, and covered realistically by that silver-faced wallpaper mentioned in these columns some time back. Fully detailed in every respect, the Invader collected the valued Highland Hobbies Exhibition trophy for best model aircraft, and deservedly so we'd say.







Kadmon family musical theme decorates the A/2

"3 in 1" TOWHOOK

By Naftali Kadmon

WHEN designing my A/2 model for the 1953 Israel Nationals and the World Glider Championships, I decided to try out a new towing hook which would not only operate the auto-rudder, but also be adjustable for stability and maximum towing height, and would retract.

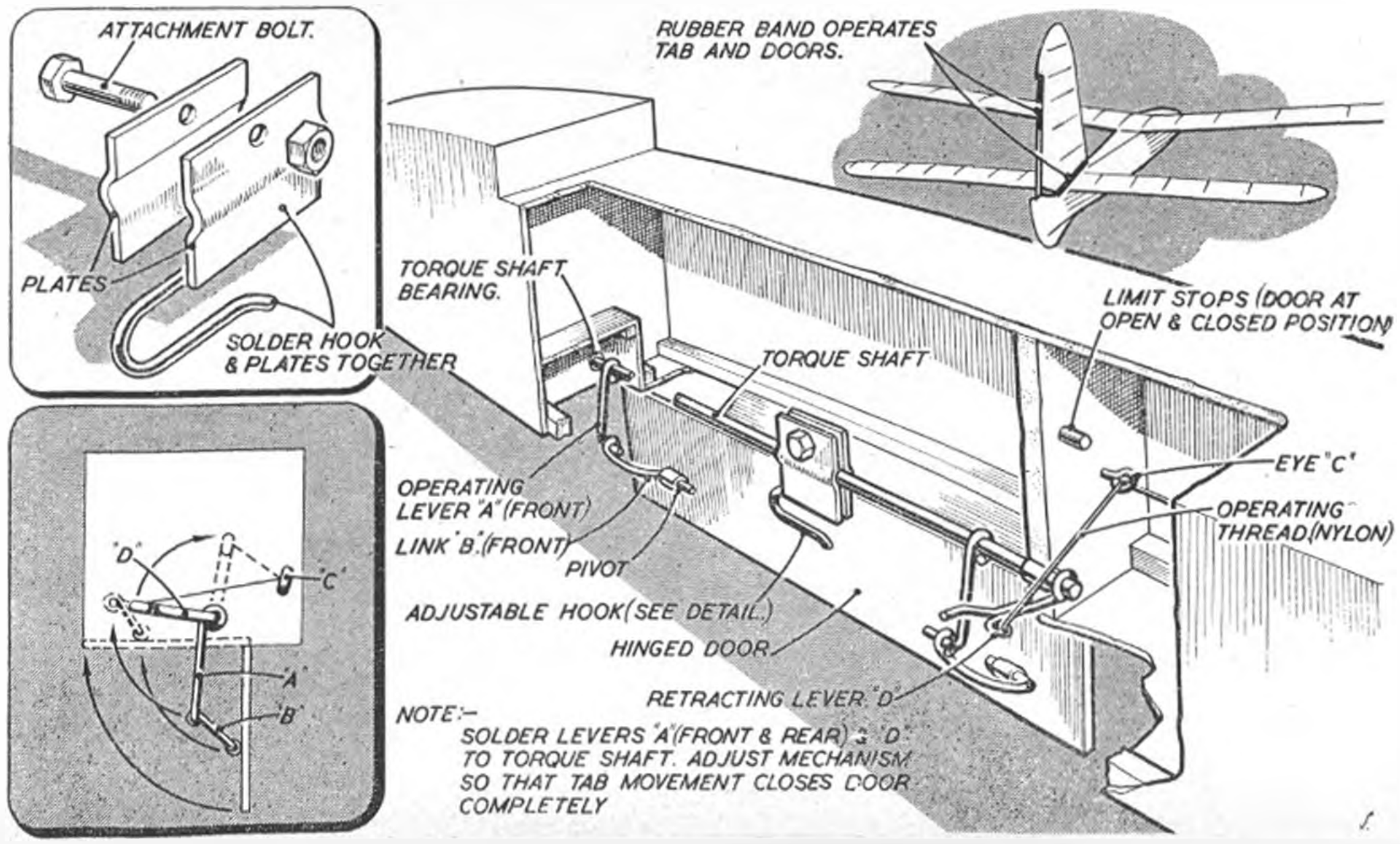
"Naftissan 1" was built, incorporating this relatively simple device, and proved to be a good performer. The reliability of the towing hook operation was so successful that it was built into "Naftissan II" almost without alteration. In fact, only two points affect the safe operation of the device; a warpless door and a dirt-free hinge.

Retraction of the hook is sideways. This has an advantage over other forms: the hook cannot retract (and the auto-rudder switch over) as long as there is any *downward* pull of the line.

Construction is as follows: the auto-rudder is tensioned to one side by a rubber band, as usual. A Nylon fishing line (No. 50) extends from the rudder horn to a loop in an arm (D) at 90° at the rear end of the main torque shaft (14 s.w.g. piano wire). The shaft bearings are two short brass tubes, well-cemented in 1.5 mm. aviation ply bulkheads. These parts take the strain of launching. The hook itself is bent to shape and connected to the main shaft by the aid of a doubled sheet metal holder and a small bolt and nut. The hook can now slide along the main hinge, but can be fixed in any position. The $\frac{1}{16}$ balsa door is connected to the fuselage by a strip of silk, and connected to the wire main hinge or shaft by a simple linkage ("A" and "B")

The ring of the towline is put on the hook, thereby holding the door in the "open" position during the launch. As soon as the line falls off, the tension of the tail rubber band pulls the rudder, and with this, the Nylon line, the latter pulling lever "D" and thereby turning the main hinge by 90°. The rudder horn must be adjusted so as to take up the line "given out" by the arm on its 90° travel. Stops are provided for the arm, limiting its movement to 90°. The hook now retracts sideways, the door is closed by the linkage to the hinge and presto!—no hook visible.

I should like to add that I launch my gliders with the aid of a small hand winch with nylon line. Near the "upper end" of the line I incorporate a small parachute which is closed as long as there is any tension in the line, but billows out immediately on the line falling from the towhook. This line enables one to wind in the line tightly. To end: if anyone thinks that the line may become entangled in the structure, let him rest assured—nothing of the sort can happen.



Club News

A COUPLE of days ago we received an unnecessarily discourteous letter from a club P.R.O., complaining about inaccuracy in our presentation of his news. It seemed we'd presented two cups to one person instead of one each to two people of the same name and initial. Checking back, it proved to be one of those ambiguous cases where either of us could be right, only we'd need clairvoyance on our side to be spot on. We only mention this so that P.R.O.s can realise that reports need to be clear, especially as we usually have to abbreviate them to get a representational number in. O.K.?

Predominance of scale models in this photo of Watford M.A.C's outing to the All-Britain Rally is due to specialisation in this type by three senior members. This is one of the many "Sport and Scale only" model clubs who will be taking advantage of the new S.M.A.E. Membership scheme.

London Area

The first of the 1954 popular contests, the Bill White Cup and the Winter Glider Trophy, held by **BLACKHEATH M.F.C.** on January 10th, attracted entries from far and wide—something like 200 in all—and was blessed with bright, though very windy, weather. Worth noting was the fact that Gorham's win was with a '54 Wakefield against '53 Wakes, and many "open" jobs. Also remarkable was the observation that nearly half the glider entries appeared to be flying A.P.S. "*Seraphs*"! Results were:—

Bill White Cup.

1. J. A. Gorham	Ipswich	6:00 + 4:11
2. B. V. Rowe	St. Albans	6:00 + 3:52
3. H. O'Donnell	Whitefield	6:00 + 3:32
4. J. O'Donnell	,,	6:00 + 3:24
5. A. Albone	Croydon	6:00 + 3:23
6. J. Marshall	Hayes	6:00 + 3:21

Winter Glider Trophy.

1. G. Pearce	By-Pass	5:48
2. D. Mander	Spring Park	5:14
3. J. Wheatley	By-Pass	5:05
4. D. Leach	Norwich	5:00
5. H. O'Donnell	Whitefield	4:40
6. R. Gilroy	Croydon	4:38

An early team race meeting which will enable teams to get their hands in is being staged by **DARTFORD M.F.C.** at Dartford on April 4th. A, B, and ½A racing is scheduled, the last-named to High Wycombe rules. A line to N. Broom, 18 York Road, Dartford, Kent, will bring all the details.

BROMLEY M.A.C. extend an invitation to visitors at 145 Mason's Hill, each Wednesday at 8 p.m. R/C has edged out ducted fans in popularity, and two members are building 69 in. *Luton Minors* for radio. Catapult gliders, 15-40 in. span, are currently amusing members.

A new club in the Croydon region is **ADDINGTON MODEL CLUB,** which extends its scope to cover all models. Additions to the 30-odd members are welcome; the address is given in the "New Clubs" list.

Pete Mason received the **BUSHY PARK M.A.C.** "1953 C/L Champion" label, and after a very successful last year the club is prepared to outdo itself this season. E. Hemsley's 6-channel job is expected to make its mark, and there is even the hope that a male member may beat Mrs. B. Simmonds in the glider sphere.

The transfer of Cliff Edwards from the West Hants A.A. to the **NORTHERN HEIGHTS M.F.C.** appears to have been partly responsible for the resurgence of the "N.H. News," the monthly journal of that club. First issue is snappy and interesting although we hope it was a misprint that mentioned "*festering* the club spirit"! The club is apparently booming, new members helping to make up for the inroads made by Service demands. Highlights of the past year were the winning of the London District Knock-out contest and, of course, representation in the Wakefield in the person of Bob Copland. The tentative date for the N.H. Gala is June 20th, by the way, and last month's report of the new Queen's Cup rules is confirmed.

Mention of Galas reminds us that the 1954 All-Britain Rally is scheduled for August 22nd, all being well.

BY-PASS MODELLERS, Sutton, are naturally very cheered at their members' good showing in the Winter Glider contest. Pearce's model, incidentally, was an A2-size lightweight, and third placer Wheatley flew a 72 in. pylon A2. Reduction of club fees, made possible by the new S.M.A.E. rates, has brought new members.

North Western Area

Remember that "News Chronicle" glider contest? With **WHITEFIELD M.A.C.** taking it up what would you expect? You're right. Junior (up to 12) winner was Miss Wendy Bennett, whose A2 chalked up 3: 00 and 1: 12, which flights also won her Junior Glider at Woodford. First in Senior (13-17) was H. O'Donnell, 3 maxes and 0: 40, and third A. Crane, 2 maxes and 0: 59. In addition to individual cash prizes, the club received £5 5s. Other contest successes include D. Willars' 6: 51 win in the domestic Novices' Event, and a string of places at the Tilstock Winter Rally—1st and 2nd in power E. Mordin and E. Horwich, 1st and 2nd in rubber, J. O'D., and H. O'D., 2nd and 3rd in glider, H. O'D., and J. O'D. A. Crane returned 4: 40 in rubber for best unplaced junior.

The scramble event held recently by **ORMSTON D.M.A.C.** sounds like a McGillicuddy special. Among the entries were C. Howe's Elfin 1.8 helicopter, G.

CONTEST CALENDAR

Events for March and April

March 14th	**Gamage Cup.** Unrestricted Rubber.	D/C
	Pilcher Cup. Unrestricted Glider.	
	S.M.A.E. Cup. 2nd 1954 A2 Eliminator.	
March 28th	**Farrow Shield.** Team Rubber.	Area.
	Women's Challenge Cup. Unrestricted Rubber/Glider.	
	Jetex Challenge Cup. Jetex.	
April 25th	**Weston Cup.** 2nd 1954 Wakefield Elim.	Area.
	Aztral Trophy 2nd 1954 Power Elim.	

Gamble's Mills .75 pusher delta, and W. J. Barrett's *Lulu* powered by a cabane-mounted K.2, which proved the eventual winner! The feminine influence is causing much secret practice in this club, too, this time due to Miss Eileen Whiston taking up stunt flying.

The **ENGLISH ELECTRIC M.A.C.** are all set for an assault on all possible contests, and with Warton aerodrome at their disposal, thanks to the management, are busily sharpening up their trim. The aforesaid management have also made a clubroom available for members. We must say that it is gratifying to see the industry gradually being made aware of model flying and its value.

The Boxing Day contest (how long ago that seems!) attempted by **SHARSTON D.M.S.** was well and truly washed out. Of the three hardy souls taking models to the field, one fell over his, another broke his on a hand glide, and the third got his too wet to fly. A happier note was M. Taylor's Junior Glider win at Tilstock. Club nights have been enlivened by G. Crichton's 8 in. microfilm jobs which knock off flights of up to 1 min. in the restricted space available.

East Anglian Area

Several **NORWICH M.A.C.** members have decided to concentrate on team racers this year, but there are enough members over to ensure a fair number of entries at all competitions. Fluttervalve "Racers" are being produced from various quarters, and similar mods. on a B.B. Ameo are in the air. G. Davie's *Falcon* still remains the high-point of radio development, now being fitted with two-speed motor, thermo-relay, and other refinements, although it doesn't play records yet. A big week-long exhibition in April is stirring up building activity; this show will include indoor C/L stuff and—we are assured—remote control flying saucers, no less.

With weather conditions upsetting outdoor flying and sabotaging the one contest held so far, **WARE D.M.A.C.** men, starved for a sniff of exhaust, have turned to small engine-powered R.T.P. jobs. Restricted to a 7 ft. line, .5 powered models gyrate at a noisy 40-50 m.p.h., and one-at-a-time team race is planned. Oh, my oily floor!

South Western Area

SOUTH BRISTOL M.A.C. laid on a quick scramble event at a well-supported meeting at Lulsgate on December 27th. Fifteen minutes proved as much as turkey-laden retrievers could stand, and J. Down's 5½ min. glider total (three quick flights and a 2 min. max.) showed the way to the longer-flying but also longer-running R. Wood, 3:56, and D. A. Wilson, 3:04, who placed second and third. A startling event was B. Hopkins' show of C/L stunting with a 50 in. *Dynajet* model (Petranek's *Acro-Jet* design). 95 m.p.h. and no fuel feed troubles, but unfortunately the model blew in and broke when the motor cut. Two *Junior 60s* performed all afternoon under radio, and never landed more than 10 yards from the transmitter. Flown by D. Maggs and J. Mardon, the models used E.D. 2.46s and E.C.C. equipment, and one had 10 in. extra span to enable heavier batteries to be carried. Some anxiety was felt when A. Wilson, showing a turn of speed that belied his Christmas pud. consumption, hand launched a Canadian visitor's 8 ft. radio job. Seemed as though he might *run* it out of range. The model got airborne, failed to respond, and was last seen cart-wheeling behind a hedge.

South Wales

The **EBBW VALE M.F.C.** tell us they are still awake, and certainly they need to be, since interest in *night* C/L flying is quite the vogue. Lights fixed on the model make it fairly simple. This was done in the States some years back, but we hadn't heard of it happening regularly over here before. (The next step for stunt men is to fit one light on the model, expose a film in a fixed camera, and sign their names on the film with the model's flight pattern!?)

CARDIFF M.A.C. joined with the local Federation of Model Clubs in putting on a one-week exhibition recently; 300 models were on show and were seen by a total of 10,000 visitors. The club's flying programme, which started with baby team racers and stunt jobs, rather went by the board—they finished up flying four 2½ and 3½ c.c. racers in the 60 ft. diameter space provided! B. Flaherty, 57 Australia Road, Heath, Cardiff, is the man to contact if any local enthusiasts want more details of either the club or the federation.

South Midland Area

The Area's A.G.M., commendably brief, revealed a favourable financial position but a drop in contest entries over the last season, possibly due, it was felt, to the mid-season change in rules. A cheerful party attended the dinner following where Mrs. Hinks (Luton) presented the "Aeromodeller Championship Cup" to A. Cooke (Henley) who was the 1953 Area Champion; J. Lamble and P. Holland also received S.M.A.E. awards earned during the past year.

Northern Area

Rare nowadays is a "C/L only" club such as the **HEATH AEROMODELLERS** group. The 45 members of this club seem a little out of touch with the movement generally, for after nearly two years' activity in the team race line, they are only now adopting S.M.A.E. rules. Let's hope the boys will be seen competing at some of the big meetings this year.

April sees the **SHEFFIELD S.A.** running a big hobbies and crafts exhibition at the Central Tech., Sheffield, and exhibits from other clubs are welcome. Cash prizes, too. Details from Mrs. F. Shirt, 157 Infirmary Road, Sheffield 3. Members attended an inter-club rally held by **CRESWELL W.M.A.C.** on January 3rd; **BARNSLEY** turned up too, but so wet and windy was it that everyone preferred the hot air and fluids of the Creswell canteen.

That Lanfranchi man of **BRADFORD M.A.C.** once again achieves the impossible; seems he was flying a new job (to fellow clubman Collinson's design) with no address label. As always seems to happen, it disappeared in this state and Silvio's search proved fruitless. On notifying the police, he found they already had it—it had landed on a large mill roof some distance away, and might not have been found for months had not a painter actually been working up there! A. Collinson has two of these models under construction, but most other jobs are much the mixture as before—*Eliminators* and *San de Hogans*.

Unkind weather failed to spoil the enjoyment of the **WORKSOP AEROMODELLERS** and visitors at their Boxing Day meeting. 41 secs. o.o.s. won Jetex for P. Russell and a 4:1 ratio o.o.s., by an unidentified

Mansfield modeller, was top time in power. Russell also won glider with two flights, his *Gnome* d.t.'ing at 45 secs. each time. H.L. glider and speed handicap both fell to R. Calvert. Indoors, scale Jetex 50 speed is the rage—enclosed motors, strict scale, dolly take-off, dollies must resemble full-size U/C. Record has been held by a Lippisch L13A (the first delta), a Horten IX (twin tailless) and is currently at 59 m.p.h. with an Me.1101. At 60, timing is by sound, so, they ask, how do you time 200 m.p.h.?

Midland Area

An A2 sailplane, kit, plan, or o.d., is the subject of **LEICESTER A.M.C.'s** winter building contest. This is another club to write off the old records and open the books for new ones under the present flight limitation trend.

North Eastern Area

Second placer in the area eliminators, R. Pollard of **TYNEMOUTH M.A.C.** has a new 50 in. geodetic Wake featuring a huge prop. and which, we are assured, "is well into the 3½ min. mark on two-thirds turns." Second A2 man, T. Stoker, has a 90 in. Nordic coming up, with the somewhat peculiar title of "Goat's Egg." Five of the nine top places in the eliminators were taken by members of this keen club.

Southern Area

Good publicity for the **WEST HANTS A.A.** was a three-column write-up of the annual dinner in the local daily paper. Extensive and fairly accurate quotes from the speeches must have done a lot of good to the movement, especially since the functions of the S.M.A.E. were mentioned. Many local papers are glad of this sort of material—does *your* club take advantage of it?

The **BOURNEMOUTH M.A.S.** *News* contained an article supporting the '54 Wake in open events, in the January number. The results of the Bill White Cup Show that the writer certainly was on the right track. A year old, the club journal is receiving some fine contributions from members and is always interesting to read.

South Eastern Area

Three clubs, **SEVENOAKS, SIDCUP** and **GILLINGHAM,** attended an Area Winter C/L Meeting at Rochester Airport. Two interesting models, F. Buckland's 500-powered *Tiger Moth* and D. Beard's v-tail faired wing "A" racer unfortunately pranged in practice, but most spectacular occurrence was a mid-air collision during the "A" heats. Both models were able to continue, and one of them, flown by A. Kingswood of Sevenoaks, actually won the finals, with the assistance of several spools of Sellotape.

SOUTHERN CROSS A.C. are pursuing the bye-law question, for though the Hove Corporation by-laws have now been approved, the approval was apparently granted in a manner contravening the policy statement issued by the Home Office in 1950. The club has respectfully queried this with the H.O. and further developments are awaited. New short-line and short-run club records ratified are A2, A. Nicholls 5 : 37, and Power "A", E. W. Gravett 2 : 06.

Ireland

The **DUBLIN S.M.E.E.** carried off the Inter-club Championship in 1953, for the second time, main scorers being J. J. Carroll and J. Tompson. The former, incidentally is now flying a canard Wakefield,

(*Continued on page* 167)

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CLUB NEWS *Continued from Page 161*

but has trimming troubles; junior M. Walsh is having great success with his *Last Straw*.

Scotland

Lightweight rubber jobs are now entering their sixth year of popularity with the **BUCKSBURN M.A.C.**, but the club's strength is being drained by the loss of numerous stalwarts drifting to careers away from home.

MONTROSE M.A.C., on the other hand, is on the upgrade, with more members and models than for some years. E. Smith has left for a cadetship at Cranwell, and R. Sutherland for work at Farnborough. An outstanding A2, built by Petrie to a Falconer design features an end-plated parallel wing with simple dihedral and torsion box construction, plus a sheeted slab fuselage with an angular fin on top, and small flat-plate tail trailing behind; the towhook is ½ in. behind the C.G. and on tow or in flight the model is first-rate.

The **ANGUS D.A.L.** schedules eight contests on four days throughout 1954. New events are PAA-load to "AEROMODELLER" rules and R/C under local rules. A close finish in the League Championship for 1953 saw D. L. Petrie (Montrose) top with 1,129 points, with W. D. Guild (Dundee) second, 1,095 points.

A startling club is the **NEW ELGIN D.A.C.**—it has to *restrict* its membership to 25!! Formed only six or seven months ago, the club has suffered a blow in losing the local park for C/L flying, but enthusiasm is still strong.

While north of the "wall," we have a request from 14-year-old C. Shepherd, of 16 East Grove, Muirhead, Troon, Ayrshire, who would like an American or Canadian lad to correspond. From overseas comes 16-year-old Sietse Meyer, Leliestraat 134, Lwolle, Netherlands, who has built eight or nine assorted models and seeks a pen-pal of around the same standard. He writes very fair English, incidentally.

Pardon me, but the bottom of the page is coming up fast. For another month, then,

The CLUBMAN

NEW CLUBS

ROWLEY REGIS M.F.C.
B. B. Atkiss, 81 Harrold Road, Blackheath, Birmingham.
ADDINGTON M.C.
C. F. Elliot, 245 Castle Hill Avenue, New Addington, Croydon.
NEW ELGIN D.A.C.
G. Smith, 99 Morriston Road, Bishopmill, Elgin, Morayshire.

SECRETARIAL CHANGES

BROMLEY M.A.C.
I. Ross, 23 Hornbeam Way, Bromley, Kent.
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P. Tomkinson, Apprentices' Hostel, Astwick Manor, Hatfield, Herts.
LINCOLN D.M.A.S.
R. C. Monument, 215 Monks Road, Lincoln.
NORWICH M.A.C.
E. Greebe, 62 Clabon Road, Norwich.
SOUTH BRISTOL M.A.C.
P. A. Miller, 28 Drake Road, Ashton, Bristol 3.
DUBLIN S.M.E.E.
F. J. Ridgeway, Castle Corner, 57 Hyde Road, Dun Laoghaire, Co. Dublin.
ASHTON M.A.C.
C. Girling, 8 Manor Street, Audenshaw, Nr. Manchester.
TYNEMOUTH M.A.C.
K. D. Mole, 12 Belmont Avenue, West Monkseaton, Northumberland.
HEATH AEROMODELLERS
G. Brodie, 18 Charles Avenue, Agbrigg, Wakefield, Yorks.
ILMINSTER D.M.A.C.
K. Priest, 4 Blackdown View, Ilminster, Somerset.
BRIDLINGTON M.C.
C. Hickmott, 7 Haslemere Avenue, Bridlington, Yorks.
ST. ALBANS M.A.C.
D. R. Woods, 5a Ridgmont Road, St. Albans, Herts.
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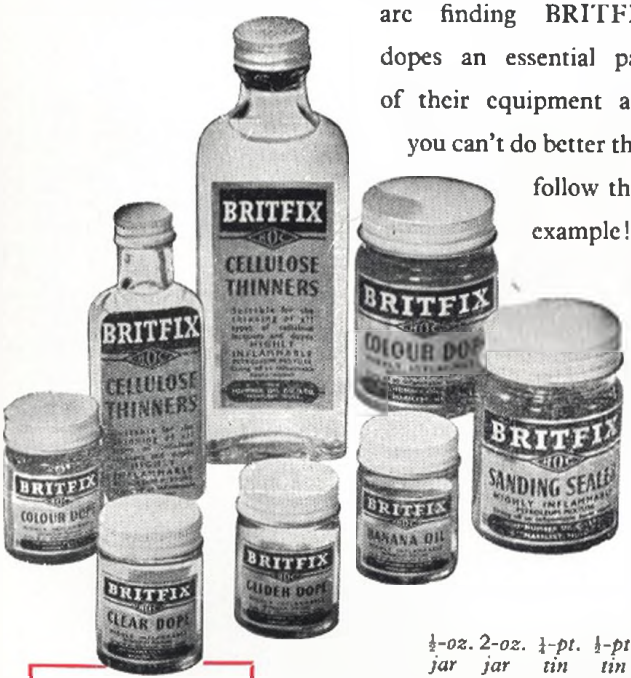

COLOUR RANGE

Glossy: Deep Orange, Signal Red, Crimson, Sky Blue, Azure Blue, Dark Admiralty Grey, Aluminium, Emerald Green, Cream, Gold, Brown, Black, White, Canary Yellow.
Matt: Black, White, Camouflage Green or Brown, Red, Trainer Yellow, Duck Egg Blue, Dark Grey.

	½-oz. jar	2-oz. jar	¼-pt. tin	½-pt. tin
Clear Dopes	8d.	1/3	2/3	3/10
Glider Dope	8d.	1/3	2/3	3/10
Sanding Sealer	8d.	1/3	2/3	3/10
Banana Oil	8d.	1/3	2/3	3/10
Colour Dope	8d.	1/6	2/6	4/3

	1-oz. bottle	3-oz. bottle	8-oz. bottle	Pint tin
Thinners	8d.	1/3	2/3	4/4

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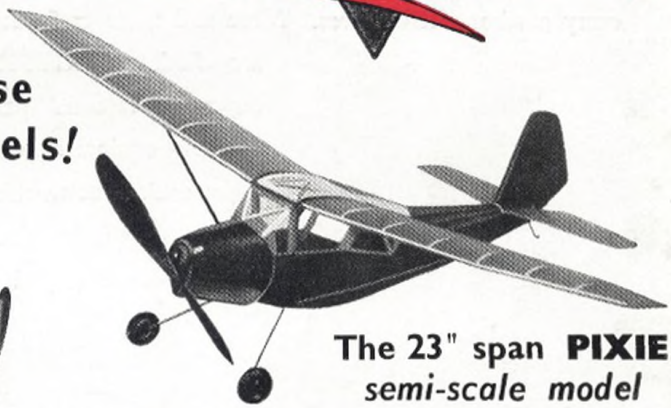

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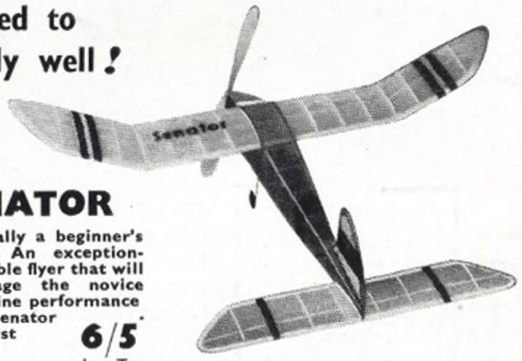

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