

AERO *Christmas 1958* MODELLER



TWO FREE PLANS

2'6

AERO MODELLER



CONTENTS

THOSE to whom AEROMODELLER ANNUAL is no new comer will appreciate again the high standards of contributions contained therein, for we are able to draw on the widest circle of expert writers and designers throughout the world.

New readers will find the contents a source of interest in each and every phase of the aeromodelling hobby, our aim being to present each year a plethora of articles, ideas, designs, and hints and tips that will ease their path in the construction and flying of model aircraft. Comparison of national and international designs and the thoughts make for a widening knowledge of this fascinating hobby, and the information published annually in AEROMODELLER ANNUAL has assisted many aeromodellers to progress from the novice to expert stage.

Among the contents of this volume are two exceptionally interesting Radio Control contributions by Tommy Ives and C. Olsen, both experts in this particular field, an absorbing appreciation of the current methods of Engine Speed Control by Ron Moulton; M. Gasson provides a fine practical-technical article on the all-wing model; and well-known "Aeromodeller" contributor George Cox gives many hints and tips on the art of solid modelling.

Pete Russell, British expert in stunt control-line flying, gives an interesting account of the development of his long line of highly successful contest winning models, while Hans Neumeier of Germany submits a well balanced résumé of current developments in the F.A.I. Power model.

These and numerous other articles are supplemented by a large number of detailed drawings of the best in world-wide model designs, together with collated information on engines, records and all the many features that ensures the Annual a permanent place on the aeromodeller's bookshelf.

We present this latest edition of AEROMODELLER ANNUAL fully confident of its acceptance by our readers.

ANNUAL 1958-9

Now on sale at your local
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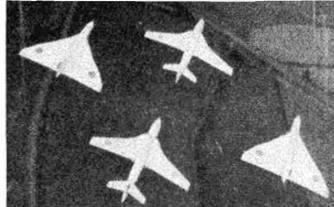
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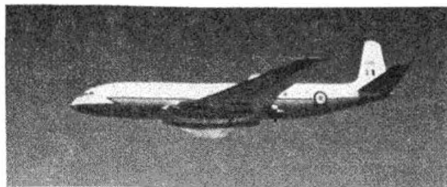


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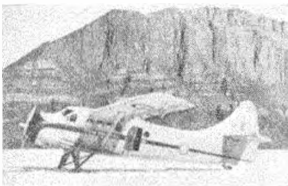


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Time for recreation. Teamwork, in work and play, is encouraged. Rowing is just one of the many sports and recreations organised by the R.A.F.

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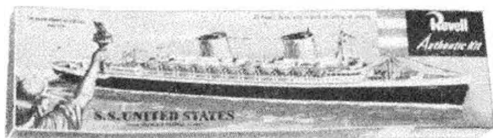


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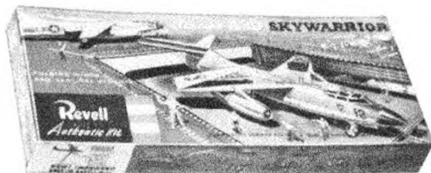


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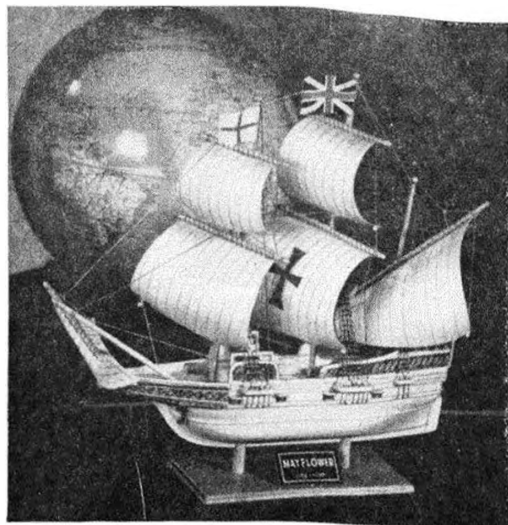


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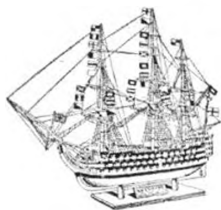
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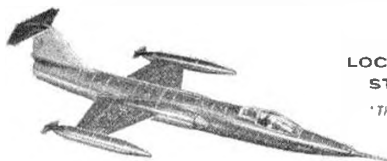
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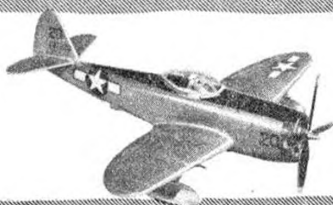
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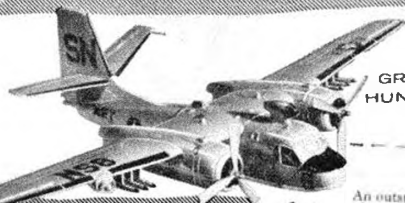
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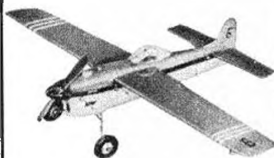
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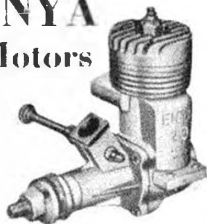


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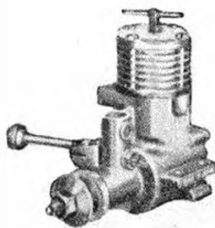
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Examples (right) of
models mounted on
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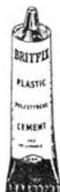
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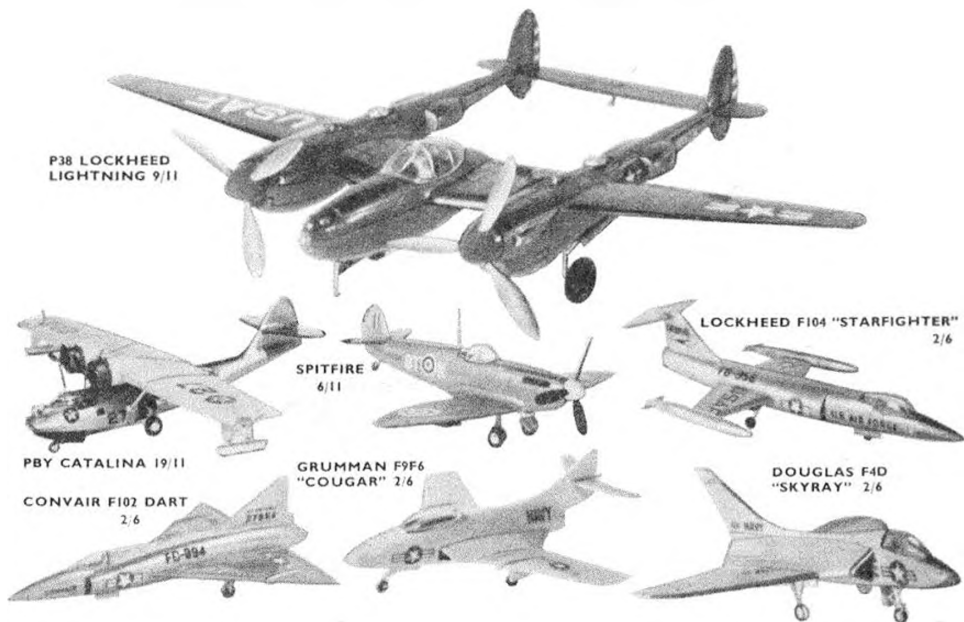
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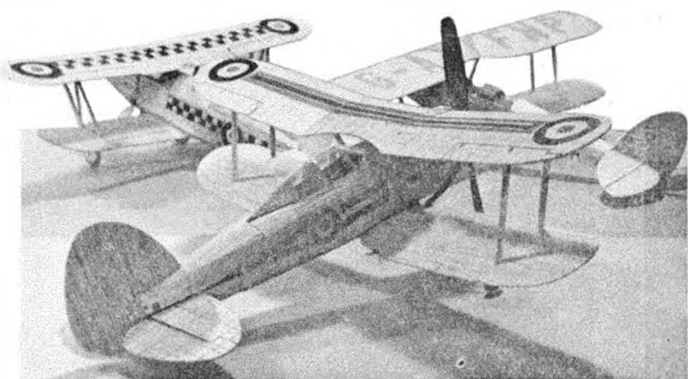
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▲ This photo shows the flight test line up of the three new Quickbuilds

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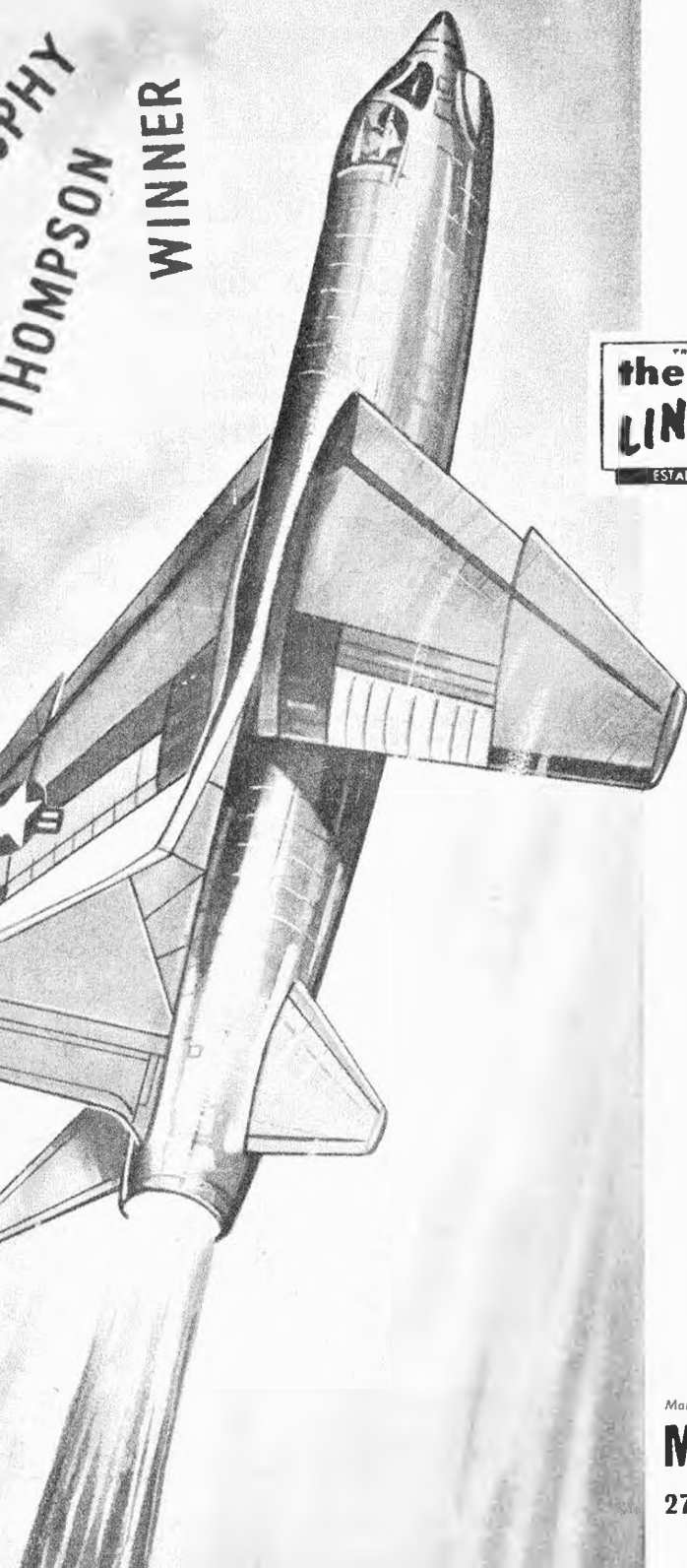
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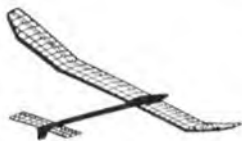
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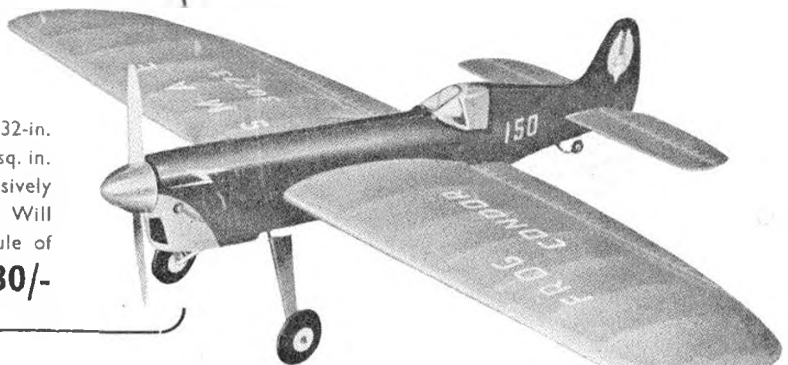
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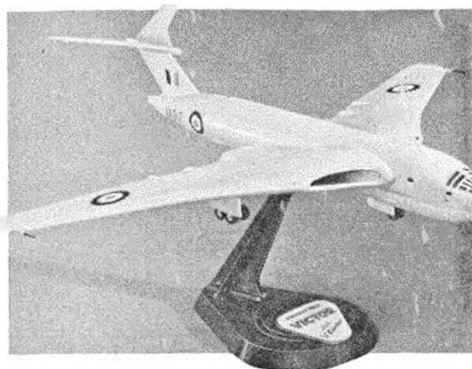
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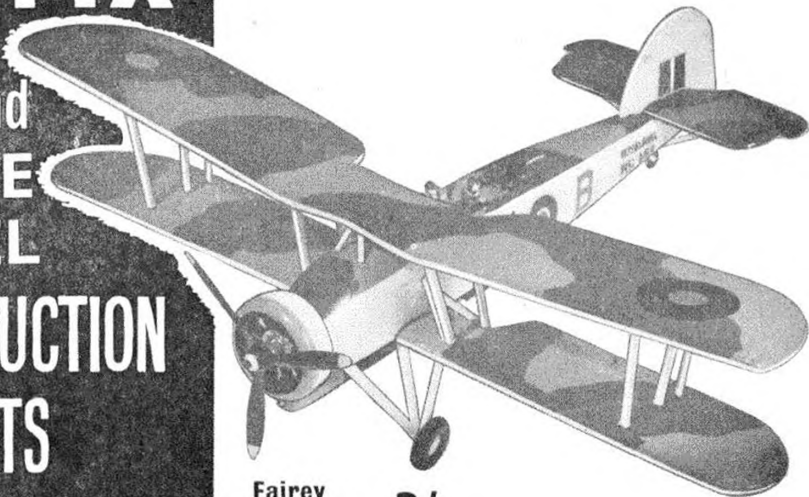
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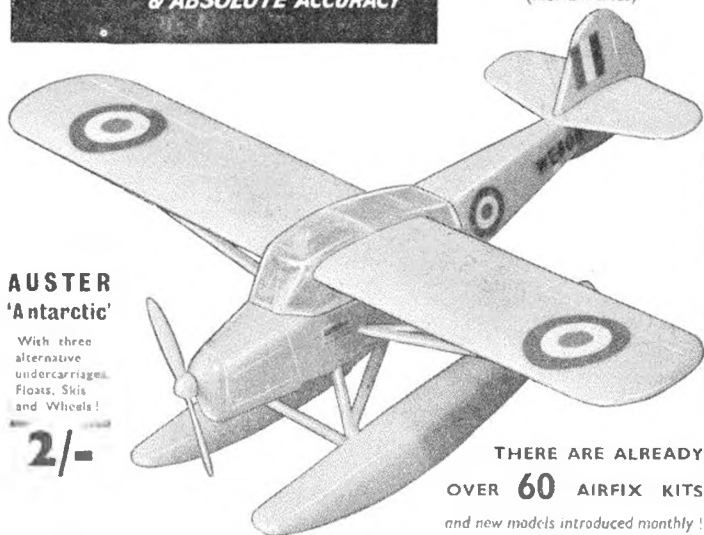
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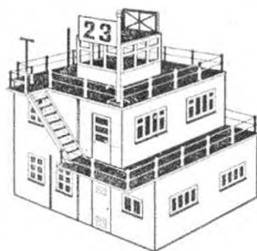
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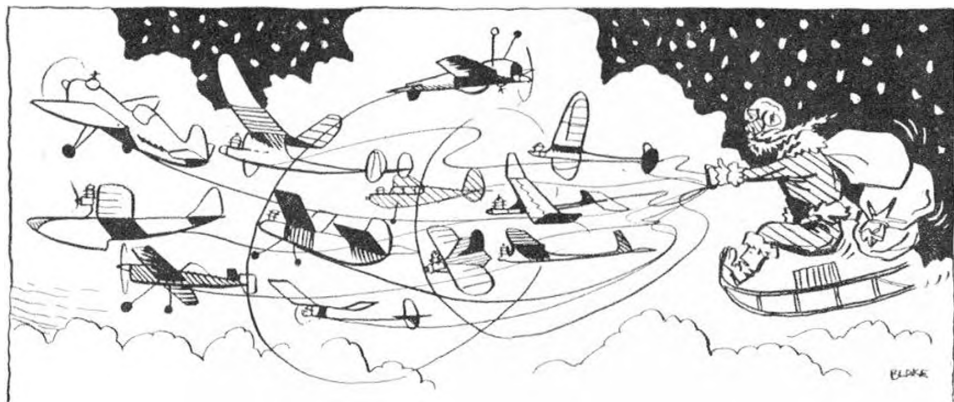
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No. 275 DECEMBER, 1958

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Greetings from the HANGAR DOORS to all readers throughout the world

WITH SANTA ON HIS WAY, if hindered by a slight problem of over control, we bring you this, our twenty-fourth Christmas issue. With due modesty we believe it is one of the finest Christmas treats an aeromodeller can enjoy, containing 84 pages of varied modelling fare sufficient to cater for every kind of modelling taste.

Our contents certainly reflects the multitude of diverse subjects that make up this grand hobby of ours, ranging as they do from the simple plastic kit through to the complexity of multi radio control. We trust that you, our valued readers, will find and enjoy reading your favourite subject and thank you for your support and enthusiasm throughout 1958.

The task of producing your favourite journal is made that much pleasanter by your enthusiasm and also that of our contributors, who are, of course, all keen modellers. We thank them also for their creative efforts which do much to maintain "AEROMODELLER's" reputation as the leading journal in the world of models. And whilst we are handing out bouquets let us not forget the many behind-the-scenes workers at our Printers, Blockmakers, Distributors, etc., who have a particularly onerous task with an enlarged edition such as this, involving as it does many extra hours of hard work.

Finally we would thank our advertisers without whose support not only "AEROMODELLER" but indeed aeromodelling would hardly be possible. We believe that they have many new products awaiting us in 1959 and look forward with them to a year of unprecedented prosperity now that aeromodelling is on the upgrade due to the post-war bulge of younger enthusiasts.

**A Merry
Christmas
to all
Aeromodellers
from
McGillcuddy
and
DRAMBAIE !!!**



Whilst we are mentioning younger enthusiasts let us assure them that their particular interests will not be forgotten in the coming year. New blood is the lifeblood of a hobby such as ours and it is up to the older and experienced modellers to devote some small portion of their time to guiding and encouraging the newcomer as we shall devote a definite proportion of our editorial space.

Fire! Fire!

And who were the boys who caused a public scare by running engines in the loft at Allhallows Public School? National newspapers have it that the local fire brigade turned out in strength when smoke was seen gushing from the roof, only to find three boys testing their model aero engines! Bend down Jones Minor. Six of the best! And not for causing the scare, but for running your engine so rich as to produce an excess of smoke!

Water! Water!

With our old friend Eddie Keil stranded all night in his Wickford factory during the September floods and recent reports of further watery inundations in the same area we hasten to deny rumours that Keil Kraft are going over strictly to model boats! We congratulate, too, Messrs. Keil Kraft's new General Manager Eddie Cosh, formerly Managing Editor of our contemporary journal *Model Aircraft*, on his new position.

Frank Foster

Pilot of the Viscount airliner that crashed so tragically in October following a collision with an Italian jet fighter, was Frank Foster well known for his successes in the world of gliding. He was, in fact, presented with a gold medal for his gliding efforts by the Royal Aero Club at the same time as "Gadget" Gibbs was similarly awarded for speed flying. Frank was a founder member of the Brighton District M.A.C. and started modelling in 1936 with "Kinglets" and "Ad Astras" before going on to design power models of his own which were invariably Brown Junior-powered.

We offer our sincere condolences to his wife and family on their tragic loss.

What next?

The LARKS, that fabulous radio control group on the West Coast of America, recently held their annual LARKS Circus. Highlight, apparently, was the character who turned up with a genuine version of the famous "Smog Hog". This a Los Angeles porker on the end of a string complete with curly tail and the lot! Incidentally, one of the prizes at their last radio control contest was a Chevrolet car!

The perfect day

The magnificent conditions which prevailed on October 26th will probably remain as a happy memory for most of us for a long while. This was the date for the Decentralised Hamley Trophy and Frog Junior (sorry we announced this as Area Centralised in Club News!) and also for the Northern Heights Wakefield competition to stimulate interest in the class, held at Chobham Common. John Palmer of Croydon led the field just

two seconds short of a perfect total, followed by N. Elliott (who has had a most successful season) with 14.29; Geoff Lefever and Bob Copland filling third and fourth places. In Power at Chobham we are hearing of nine minute fly-off times!

At R.A.F. Benson the A.R.C.C. were having their pylon race, single and multi contest and the air was literally carved apart by the fine performance of Messrs. Olsen and Uwins with their *Uproars*. Inverted turns, vertical and horizontal eights and fantastic spins are now firmly fixed as part of their repertoire and it was a joy to watch them in action with their aerobatics, but no less impressive was the fine performance of Ed Johnson making touch and go landings with his Stegmaier-equipped *Smog Hog* (including twin cylinder engine) and Mr. Riall with his Mills 1.3 *Mini Smog Hog*. This Galloping Ghosted its way through loops and tight turns with a remarkable degree of control exemplified by no less than six touch and go landings in the course of one flight. Truly it was a day to remember and we hope that someone will book this date for a Rally next year in case the weatherman chooses to repeat the conditions.

Night flight

Thirteen-and-a-half-year-old Geoffrey Beardsley of Kenilworth, Nr. Coventry, offers the perfect answer for the timorous controlline beginner who is always afraid of contacting *terra firma* in those early stages of learning how to stunt. He flies at night with an Alblon Sabre-powered Mercury Picador carrying a small battery with a bulb mounted just in front of the cockpit. All manoeuvres are said to be possible and because the ground is not visible, all of one's crash fears are forgotten—but do not fly too late at night or you will have the neighbours after you!

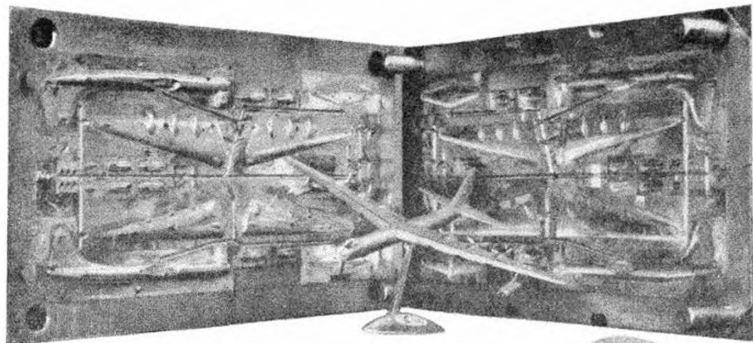
London's Loss

With the sudden death of Harry Bateman on October 19th London has lost a link with those days when solid modelling prevailed, and it was considered shameful to use ready-made accessories on a detailed shell-model. Aeromodellers from the large area of North-East London and West Essex used to seek Harry's advice and encouragement at the shop in Walthamstow's very busy High Street and eventually he found himself making up kits to meet customers' demands. In the tough war years that shop did much to keep the movement going with regular supplies of modelling needs and since then Harry maintained his enthusiasm by marketing his "solids"—alas now ousted by the modern trend to plastics. We extend our fullest sympathies to his relatives.

Reflections on the times

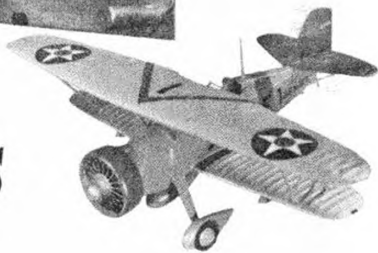
Our not-so-time artist certainly extended himself a bit when we asked him to provide the border decoration for this page, but though he has travelled a little further than expected by including a "Moome" and an Eastern Wizard, we feel he is not so very far off the mark in depicting current trends (and successes) of certain well-known countries.





Some idea of the complexity of a plastic model moulding is shown in this view of Revell's Conqueror B.36 in front of its original dies which probably cost several thousands of pounds to produce. Below is the Lindberg Curtiss Goshawk in bright silver and yellow trim with green tail.

the latest in **PLASTICS**



WHEN WE CONDUCTED our first survey of the range of model plastic kits in February of last year, there were many in the trade who would have willingly gone to high stakes to support their views that the plastic was a "passing phase". With thirteen manufacturers' ranges listed on page 618, the vast majority of them now being moulded in Great Britain, the plastic is firmly established as a healthy contributor to the retail model trade, and the "phase" appears to be indefinite.

Moreover, the standard of kits continues to improve and we are extremely pleased to be able to say that some of the finest plastic kits available anywhere in the world both for scale and intricacy of detail emanate from these British Isles. Each model represents a fantastic financial outlay on the part of the manufacturer. So competitive is the business that more than one manufacturer has attempted to market a model which would out-sell his opposition, only to be obliged to withdraw his proposed kit design because production would completely absorb

his working capital and eliminate profit from all his hitherto established lines.

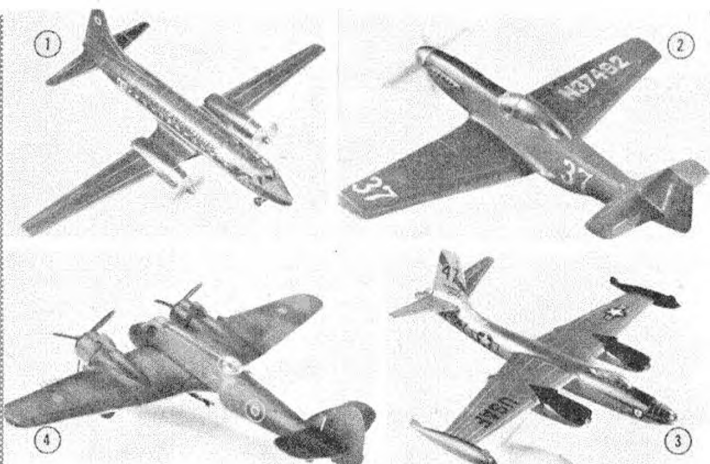
We, the model makers concerned, can only wonder at the ingenuity of the tool and mould makers who continue to produce such fine replicas to make our modelling all the more easy and enjoyable. There is still room for improvement in assembly of the average plastic model and the many hints we have published in previous features in February, March and December editions of last year have proved invaluable to the plastic model kit collectors. There are one or two more hints which can be passed on at this stage and we hope they will be found useful, particularly with the latest kit models introduced to the British market in the last twelve months.

A fault common to most paint sets available is that once the bottles have been opened and set aside for a week or so pending construction of another model, the paint tends to become thickened and insufficient thinners



Boeing 707's of different types are compared in this view of the Frog replica of the B.O.A.C. long range version with Rolls Royce Conqueror engines, the Comet kit for the prototype 707/KC.135 in chocolate and amber as made by Kleeuware

Finished examples of four inexpensive kits. (1) is the Busch Concord 348 Metropolitan of 8 in. wingspan. (2) The Airco Mustang in American racing colours, bronze overall makes an attractive change from the military scheme. (3) The North American Tornado reconnaissance bomber or target tug, is a colourful subject included in the Frog range at 1 in. span and can be given brightly coloured tip tanks and tail decoration. (4) Airco Biplane fighter with sprayed camouflage finish and worn scorching around areas usually marked by continued operational service.



are supplied to cope. Cellulose thinners must never be used because of their ill-effect on model plastics, but we found petrol or lighter fuel admirable for the purpose and it can also be used to clean down a plastic model so removing grease from surface prior to decoration.

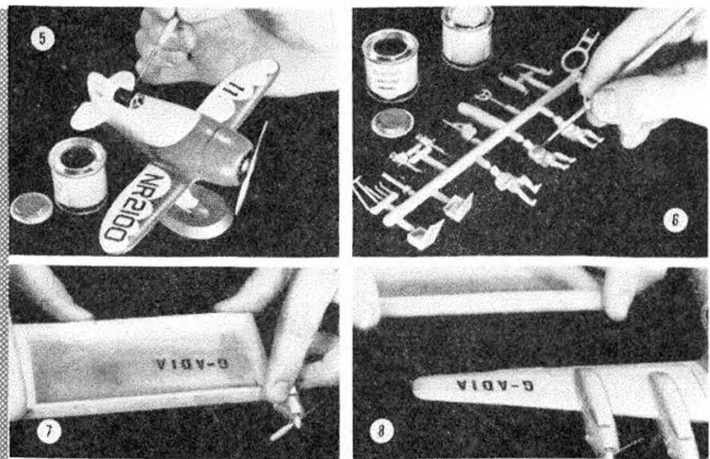
A very useful innovation in the Revell paint set has been the introduction of matt varnish which can effectively "flat off" any glossy surface such as a wheel tyre or international insignia. The varnish should be applied thinly for best effect and is most suitable for relatively small areas. Matt or egg-shell varnish is a commercial product used by decorators, but cannot be purchased in small quantities so we have tried an artist's recommendation as follows: Mix pure beeswax and turpentine to a thick paste, moderate heat helps it to dissolve, and add to this a proportion of spirit varnish; mix well and then thin with methylated spirits. Experiment first with small quantities to arrive at the

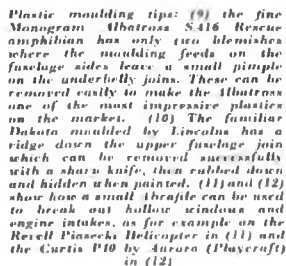
correct proportion and to give the degree of "flattening" required. More beeswax gives a duller finish which will slow the drying. A common fault we observed in plastic airliner models is the endeavour to paint the white fuselage top in one coat. At least two coats should be used to produce a good finish and eliminate those unsightly runs.

For realistic high polished engine cowl, as for example on the Hawker Hart, condenser foil can be boned around the compound surface and has the advantage of providing the choice of matt or glossy sides. Old condensers can be bought from ex-Government Surplus radio shops.

We have tried to show some of the other tips in the photos on these pages and perhaps the most important of all is our own introduction of the Letraset type transfer system marketed by Art and Techniques Ltd., 14/15 Manette Street, London, W.1, at very reasonable

Decorative schemes. (5) is the Lincoln Hawk Lee Bee racer being painted in a famous Doolittle colour scheme of red and white with matt black on the cockpit area as no transparent canopy is provided. (6) shows excellent pilot and gun detail provided with Merit's Vickers Armstrong's Valiant amphibian for original British kit. Pilots or painted aches conveniently attached to plastic stems. (7) Shows how the Letraset type transfer system is applied via miniature silk screen to a Frog Britannia wing. In (8) we see the screen removed with transfers firmly adhered to the wing without any surrounding backing visible and the thinnest of transfer letter standing proud on the plastic surfaces. Developable typographical work transfer method has admirable application for modelling use.





Make your choice of model from the hundreds listed in our survey below and on p. 659, of those currently available on the British market (we know more are to come, but these are the types you can actually buy now).

Scale taken from wingspan, we regret blanks due to certain kits not being available for examination

TYPE	Checked Scale	Model Span (in-het)	Price (in C.T.)	No. of
KLEEWARE				
Wright Biplane	1105	4 1/2	13	24
Spirit of St. Louis	1101	4 1/2	13	24
Spad XIII	1108	3 1/2	13	24
Mustang	1117	4 1/2	13	24
Sabre	1111	3 1/2	13	17
Grumman Cougar	180	5 1/2	26	10
N.A. Super Sabre	1103	4 1/2	26	10
Lockheed Starfire	175	5 1/2	26	15
Douglas Skyknight	96	6 1/2	26	15
Douglas Skykay F4D	189	4 1/2	26	9
Republic Thunderstreak F.84	180	5	26	1
Boeing 707	1306	5 1/2	26	15
Douglas B 66	1129	6 1/2	26	15
Boeing B52				
Strato-Fortress	1317	7	36	27
Boeing B47 Stratojet	1199	7	36	20
Piper Apache	164	7	36	27
Aero Commander 680	180	8 1/2	36	24
Cessna 310	162	6 1/2	36	24
Bechcraft Super 18	188	6 1/2	36	23
Grumman 52F-1 Killer	1111	7	36	28
Republic P-47 Thunderbolt 1/53	98	5	36	1
Starfighter	155	4 1/2	5-	17
Bechcraft Super 18	160	10	5-	17
Boeing 707	1120	13	9-	52
Grumman 52F-1 Killer	156	15	9-	42
Bell H-13 E Helicopter	112	2 1/2	8	18
Dornier DO-X	1160	11 1/2	8	65
Tri Motor Stinson	166	12	8	51
Curtis Condor	185	11 1/2	8	39
U.S. Navy Blimp	9 1/2	8	27	1
LINCOLN				
Lockheed 749A				
Constellation	1142	10 1/2	4 11	20
Vickers Viscount	1121	9 1/2	4 11	25
English Electric				
Canberra B6	198	8	4 11	21
Douglas DC7	150	9 1/2	4 11	25
Lockheed F94C Starfire	149	9	4 11	16
Bristol Britannia 100	166	10 1/2	4 11	25
P-4 Victor B1	112	8 1/2	4 11	25
Victory Valiant B1	154	8 1/2	4 11	20
Boeing 707	190	8 1/2	4 11	23
Bristol 171 Cycomer	165	8 1/2	4 11	59
Douglas DC3 Dakota	100	11 1/2	4 11	35
Faircy Gannet A54	172	9	4 11	40

SURVEY of Lincoln-Hawk, Lindberg, Meritt,
Monogram and Revell Kits P. 659

Gloster Gladiator

Described and drawn
by C. A. G. COX

AFTER DISASTROUS DEFEATS in all theatres, the tide turned in our favour half way through the second World War. How well we who lived through those days remember the stirring news of successes against a hitherto victorious foe—how we rejoiced at the rout of Rommel and the inferno of Falaise! Revenge was sweet after our long, heart-breaking struggle against insuperable odds, when the hardest fight was against one's own inner feeling of frustration and resignation.

The "Phone War" which immediately followed the defeat of Poland was abruptly ended when Hitler invaded Denmark and Norway. The strategic advantage which possession of the Norwegian coastline presented to the enemy was painfully obvious to us; so was the hopelessness of resistance, yet British land forces were sent to stiffen that resistance and help a new ally in distress. The fight was clearly one-sided.

When the enemy has the initiative reaction has to be quick. On April 20th, 1940, 263 Squadron was stationed in the West of England; on the 22nd they flew their fighters on to H.M.S. *Glorious* off Scapa Flow; on the 24th they landed on the only available "airfield" within range of the fighting area—a frozen, snow-covered lake called Lesjeskog, and, dispersing their machines around the edges of the lake as near to the trees as they could get them, immediately set about preparations for the coming battle. For unblooded pilots to fly over strange terrain spoiling for a fight requires fortitude. For the same eighteen men to do so without the backing of ground personnel, having to do their own servicing and refuelling by means of four-gallon cans, even their own guard duty and still keep up a twenty-four-hour fight in the air demands the special sort of guts which we British like to think are indigenous only to these islands. The difficulties were enormous. It was intensely cold; so cold that oil systems and carburettors froze, and even after draining the oil and warming it some engines failed to start. There were no starter trolleys and no flight mechanics.

On the morning of the 25th, after hours of exasperating work to get the engines started, two pilots managed to take off on patrol and sighted their first enemy aircraft, a Heinkel He 115, which they shot down. The Germans knew we had arrived. In a matter of hours two He 115s visited Lesjeskog and paid their respects, but no damage was done. From the 11th, however, the bombers came in relays to attack the airfield, managing to destroy four Gladiators and wound three pilots within five hours, but they paid a heavy price. Between raids the Gladiators would take off and pounce on every enemy aircraft in sight. One Heinkel after another suffered a hail of bullets delivered with deadly aim from the Gladiator's four guns. One after another became a heap of wreckage littering the Norwegian mountainsides. The He 111 was the slightly faster machine, but what the Gladiator lacked in speed it made up for in manoeuvrability, making it an elusive target for the German rear gunners. After nine hours' almost continuous bombardment, ten fighters had been destroyed on the ground, leaving eight to carry on the fight. Still the bombers came, and always somehow there were Gladiators airborne to receive them. Like angry wasps they darted at their attackers to deliver their deadly sting, giving no quarter and asking none.

The battle raged for two-and-a-half days until on the 27th the five remaining fighters were set alight on the ground by their crews. The only spirit they lacked was petrol. Supplies were completely exhausted and nothing further could be done for Norway at this moment so, under repeated attacks from what bombers they had left intact, all eighteen pilots were evacuated by cargo boat to the relative peace of Britain. During their short operation in Norway these gallant men had destroyed no fewer than fifteen enemy aircraft and probably downed fourteen more without losing one pilot or machine in aerial combat. All eighteen of their Gladiators had been destroyed on the ground by their own or enemy action. Not only had they achieved their objective in bringing relief from air attacks to their



Having a good photo kindly loaned from personal album of Air Commodore Whitely. Shows exactly the conditions for the second Norwegian campaign. Camouflage hides a Gladiator and a Skua. Views at left of the Gloster Command's rebuilt Gladiator show details to advantage.



21 years between!

hard-pressed countrymen, but they had also given the Luftwaffe a taste of what to expect from the R.A.F.

Within a fortnight the squadron was at sea again, heading for Norway. This time their destination was Narvik, north of the Arctic Circle, near which place an airfield called Bardu Foss had hastily been prepared while the squadron was re-equipping in Britain. At three o'clock in the morning of May 21st the first section took off, and, led by a Swordfish, headed in appalling weather for their new base. Disaster visited that small band of men in the strange night light of the northern latitudes. Visibility was down to three hundred yards when, by a slight error of navigation, they were led straight into the side of a mist-covered mountain. Three aircraft crashed but the fourth by a miracle managed to loop out of danger and return to the carrier. When the squadron assembled on Bardu Foss they had sixteen fighters left, but those machines in the hands of courageous—and now experienced—men were to inflict incredible losses on the enemy during the next few weeks. Again the squadron had to contend with adverse weather and makeshift airfield facilities, again they were to be the target for vicious bombing attacks, but this time they had ground personnel—and anti-aircraft guns.

The Gladiator pilots wasted no time in coming to grips with the enemy, and within hours the aerial war over Norway was resumed with all its former intensity. Our boys knew now how to use a slow fighter to bring down a faster bomber. The Heinkels were relatively easy meat, but not even the speedy Junkers 88 was immune. The pursuer would dive on his victim from behind, forcing him to make an evasive turn, whereupon the Gladiator would cut across the turning circle to come within range. A four-second burst was sometimes enough. Down they went, with monotonous

regularity. There was not a type which the Germans could put into the air which was safe from these savage attacks: Heinkel 111s, Dornier 17s, Junkers 87s and 88s, even Me. 110 were taken on and either fell to the blazing Brownings or jettisoned their bombs and made for cloud cover. Every day the nimble little biplanes climbed high above the snow-covered landscape looking for their adversaries, and nearly every day on landing they had victories to report, on one occasion there was the destruction of three four-engined Ju. 90s to celebrate—all within twenty-four hours.

This second campaign was short-lived, too. Following the collapse of France the situation in Britain became grave and there was little hope of reinforcements when all our forces were needed for the defence of the homeland. On June 7th, therefore, after successfully covering the evacuation of our troops from the Narvik area, 263 Squadron flew back to H.M.S. *Glorious*, only to go down with her when she was sunk by the *Scharnhorst* and *Gneisenau* a few hours later. During seventeen days at Bardu Foss the squadron scored twenty-six confirmed victories and five unconfirmed, with a loss of only three of their own machines in the air. They had proved that there was life in the old dog yet, and Italy was next in line for a demonstration.

On June 10th Mussolini declared war on the Allies and immediately put into effect his plan to "sink" the island of Malta. On the face of it, no target could have been easier. The little island was within easy reach of the mainland not only for bombers, but also a fighter escort, but there was no apparent need for this, because Malta had no defending interceptor squadrons. Little did Mussolini know that there was soon to begin a contest of the "gladiators" that the Romans had not bargained for. The story of Faith, Hope and Charity is well known; indeed it is doubtful whether any individual aircraft will ever again earn such fame. Outclassed on all counts except the skill and courage of their pilots, these three Sea Gladiators withstood the onslaught of an air force until reinforcements arrived. Day after day they took on formations of thirty or forty bombers with escorting fighters and somehow not only managed to inflict losses on the enemy but lived to fight again.

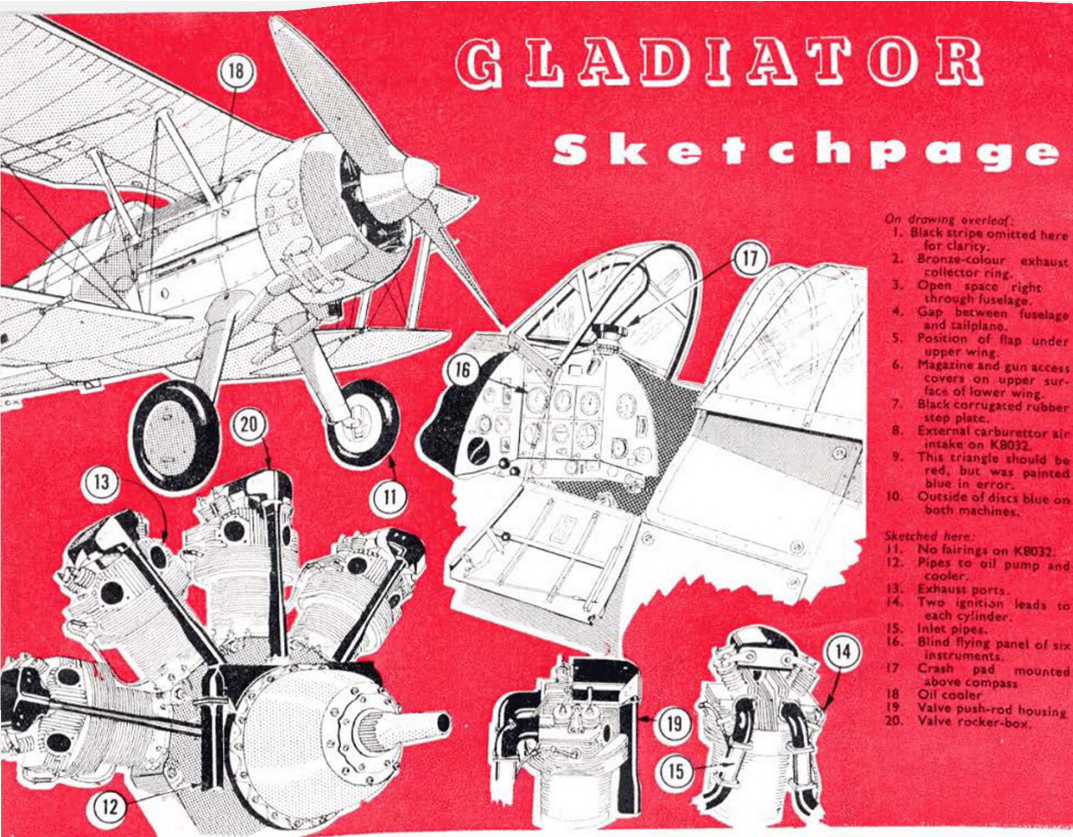


All together lads!

These, 21 years separate these two photos. Left, a Charles E. Brown study of a very early Gladiator; right, a Russell Brown study of the last of the Gladiators. Left, a Charles E. Brown action shot of No. 26 Squadron taking off at R.A.F. Debden in 1938. Sea Gladiators underwing roundels on the nearest machine were quite commonplace.

GLADIATOR

Sketch page



On drawing overlaid:

1. Black stripe omitted here for clarity.
2. Bronze-colour exhaust collector ring.
3. Open space right through fuselage.
4. Gap between fuselage and tailplane.
5. Position of flap under upper wing.
6. Magazine and gun access covers on upper surface of lower wing.
7. Black corrugated rubber step plate.
8. External carburettor air intake on KB032.
9. This triangle should be red, but was painted blue in error.
10. Outside of discs blue on both machines.

Sketched here:

11. No fairings on KB032.
12. Pipes to oil pump and cooler.
13. Exhaust ports.
14. Two ignition leads to each cylinder.
15. Inlet pipes.
16. Blind flying panel of six instruments.
17. Crash pad mounted above compass.
18. Oil cooler.
19. Valve push-rod housing.
20. Valve rocker-box.

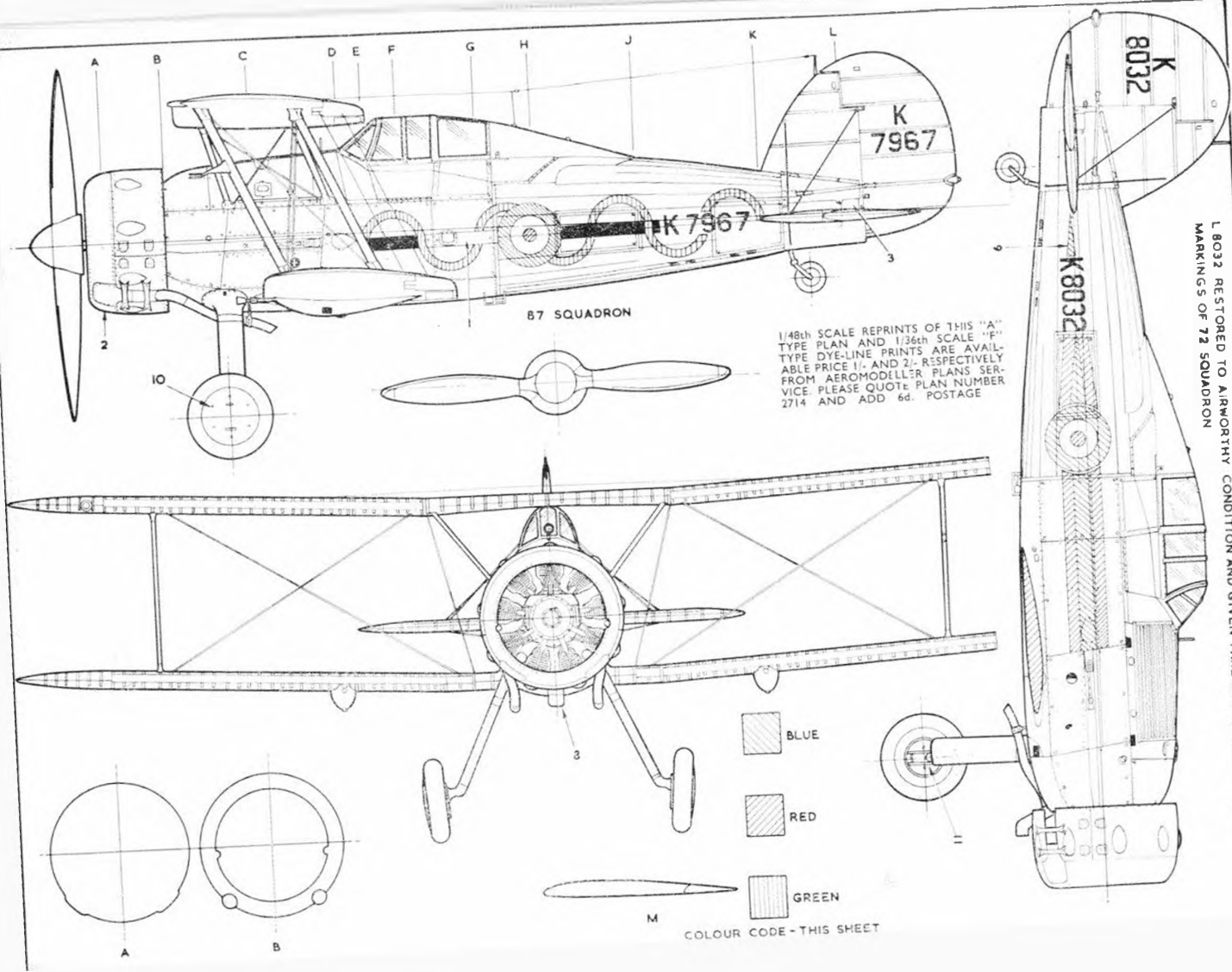
In Malta, as in Norway, the fighter was slower than the bomber, the throttle gates were therefore removed so that the engines could run at more than the maximum permitted speed. No engine will survive this rough usage for long, and eventually they had to be replaced by the only ones available, Mercuries intended for Blenheims, complete with three-bladed variable-pitch propellers, so in this respect, too, the Malta Gladiators were unique amongst their kind. On June 28th the trio were supplemented by Hurricanes but continued to fight until the middle of July when two were lost. In 1941 Faith was retired from service, and there could be no more appropriate memorial to the men and women who defended the island than the remains of this machine, presented to the people of Malta in 1943. It fell to the Gladiator to make a dramatic exit on behalf of the biplane, and none could have been worthier of the honour.

The Gladiator as a fighter

One cannot easily assess a machine such as the Gladiator without looking back at its ancestors, for it is on the experience and success gained from one design that the next one is founded. It is a long story, beginning with the astonishingly successful S.E.5 and followed by Mr. H. P. Folland's Gloster Grebe and Gamecock fighters, mainstays of the post-war fighter squadrons. In 1929 came the SS 18 with two-bay equal span wings and an uncowed Mercury. This airframe was used for further experiments leading to the SS19B, produced in 1933 as the Gauntlet I. In the middle 'thirties the Gauntlet was the fastest fighter in service with the R.A.F. with a speed of 230 m.p.h. and the 228 machines

built formed the backbone of our fighter defence. Basically the Gladiator was a cleaned-up version of the Gauntlet, although it incorporated several entirely new features. Most noticeable were the reversion to single-bay wings and the cantilever single-strut undercarriage which relied entirely upon Dowty internally sprung wheels to absorb landing shocks. The feature which made it unique amongst contemporary biplanes was the use of hydraulic flaps on both wings. The prototype, built as a private venture although it conformed to Specification F7/30, retained the open cockpit and narrow-chord cowl of the Gauntlet, but when the initial contract was awarded in 1935 it was for a production version with a canopy and revised cowling. Outwardly, the only ugly feature on an otherwise perfect design was the clumsy modification of the fuselage to take the hood runners. Early models of the Gladiator had wooden fixed-pitch airscrews, but the Mark II had a Fairey-Read three-bladed metal propeller. When production finished in 1940, a total of 527 of these delightful machines had been built, and of these 218 were supplied to no fewer than ten foreign countries. Apart from Faith, there remains one example, bought in 1953 by the Gloster Aircraft Company and maintained in perfect condition by them. Formerly registered G-AMRK, it now bears the near-authentic markings as shown on the drawing.

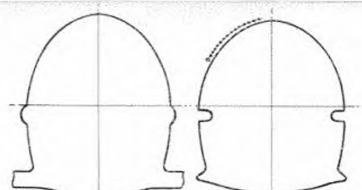
The Gladiator's maximum speed was 253 m.p.h. at 14,500 feet and it cruised at 210 m.p.h. Its initial climb was 2,300 ft. min. and its endurance two hours. The service ceiling was 33,000 feet. Power was provided by a Bristol Mercury engine of 840 h.p. and it carried an armament of four Browning .303 machine guns.



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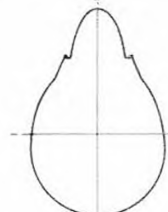
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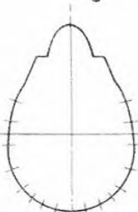


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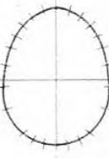
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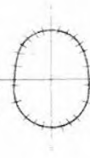
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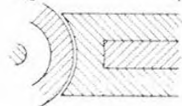
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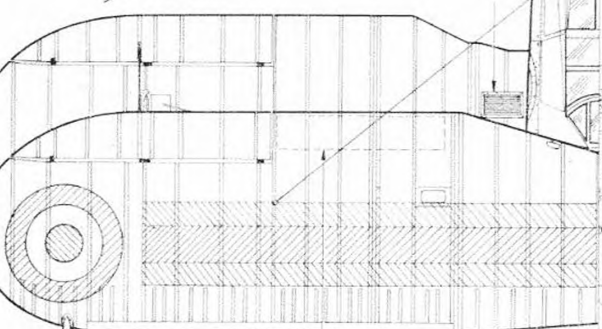
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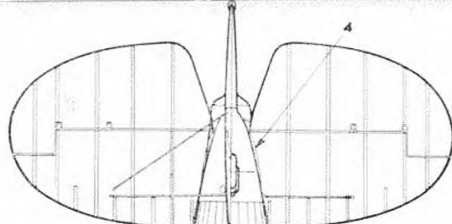


72 SQDN MARKINGS
1938

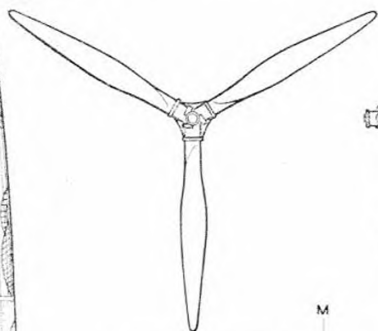


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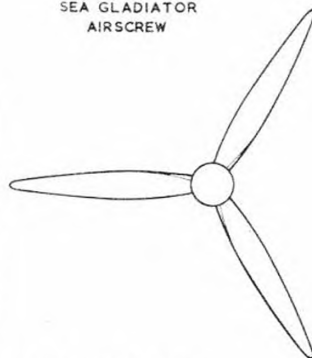
BRISTOL MERCURY VIII
ENGINE



C.P. AIRSCREWS ON MALTA
SEA GLADIATORS ONLY



M



PRE-WAR ROUNDEL



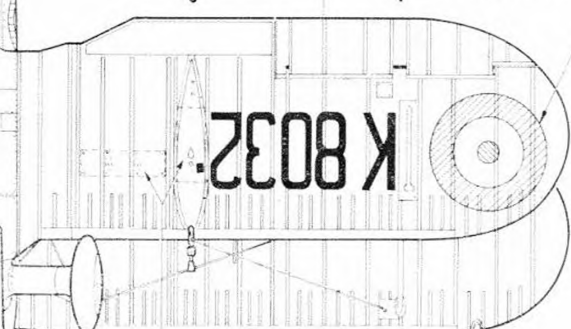
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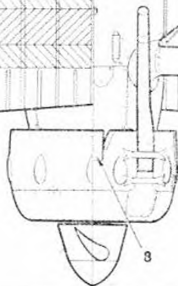
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PLAN VIEW OF K7967 BUT SHOWING
DISPOSITION OF 72 SQDN. WING MARKINGS
OR L8032, 1958



8



RED



BLUE



GREEN

COLOUR CODE-THIS SHEET



SEA GLADIATOR
AIRCREW



Doug McHARD'S
superb 1/12 scale
free-flight model
of the famous

GLADIATOR

DOUG McHARD'S GLADIATOR which made its debut at this year's Nationals has been the object of many a scale fan's request over the last six months. In its pristine silver colour scheme with 72 Squadron markings it has attracted a great deal of attention wherever flown, and its characteristic flight with the muffled exhaust note coming through genuine scale pipes have made it both look and sound the part of the last of the famous biplane fighters.

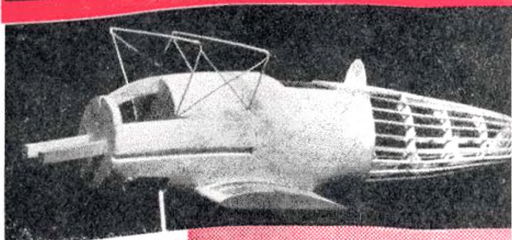
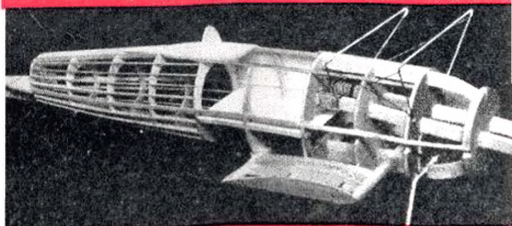
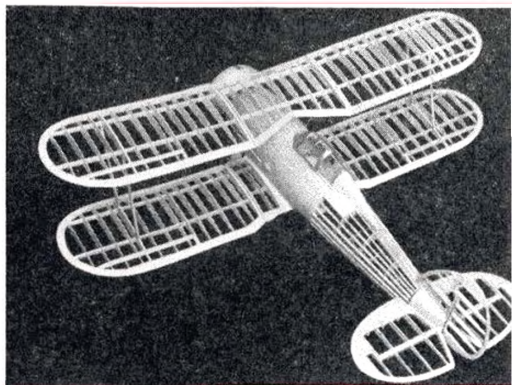
Here is a subject for the ardent scale enthusiast who wants perfection or the man who has made a model or two and would like to try his hand at scale. It is a docile model, and one which will achieve great popularity in years to come.

All constructional details are given on the plan and provided they are carefully followed no difficulty should be encountered. The sheeted front part of the fuselage can be covered in wide sheets of 1/8-in. medium balsa as there is very little double curvature present, most often the outer surface of the wood to facilitate bending. Joints between sheets should be arranged to come over the keels and 1/8-in. sq. stringers. A slow-drying adhesive of the Le Pages PVA type will be found to be of great assistance during this operation. Araldite was used on the original model for all hardwood jointing such as undercarriage ply fairings and motor hanger fixing, strength is enormously increased and the extra time required for drying is worth while.

A sliding cockpit cover is, of course, optional, but adds considerably to the final appearance. The cockpit may be completely equipped and a dummy pilot included (from soft balsa) as desired. Details will be found included in the 3-view drawing in our "Famous Biplanes" feature.

The exhaust system is also optional, but if used is very effective and also helps to keep the model clean by leading surplus oil out of the motor cowling. Covering on the original model was heavyweight Modelspan, although in view of the light weight of the finished job, silk will be used when recovering becomes necessary. Silk covering will increase the "hole resistance" con-

(Continued on Page 526)



Structural photos show completed airframe before covering to reveal scale rib spacing and authentic control surface false spars. Centre view shows the fuselage before adding starboard sheeting. Note cockpit floor and tail platform. Lower photo shows the fuselage only needing end and tail blocks to make it complete.



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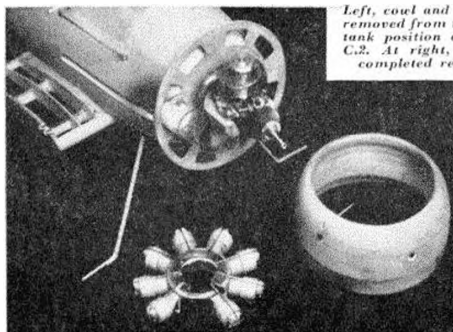
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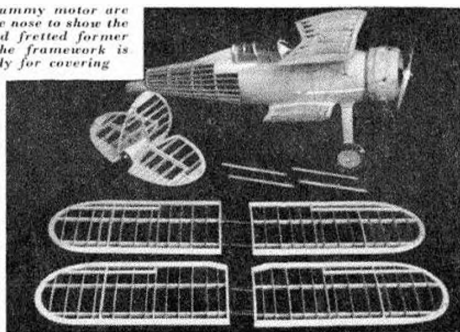
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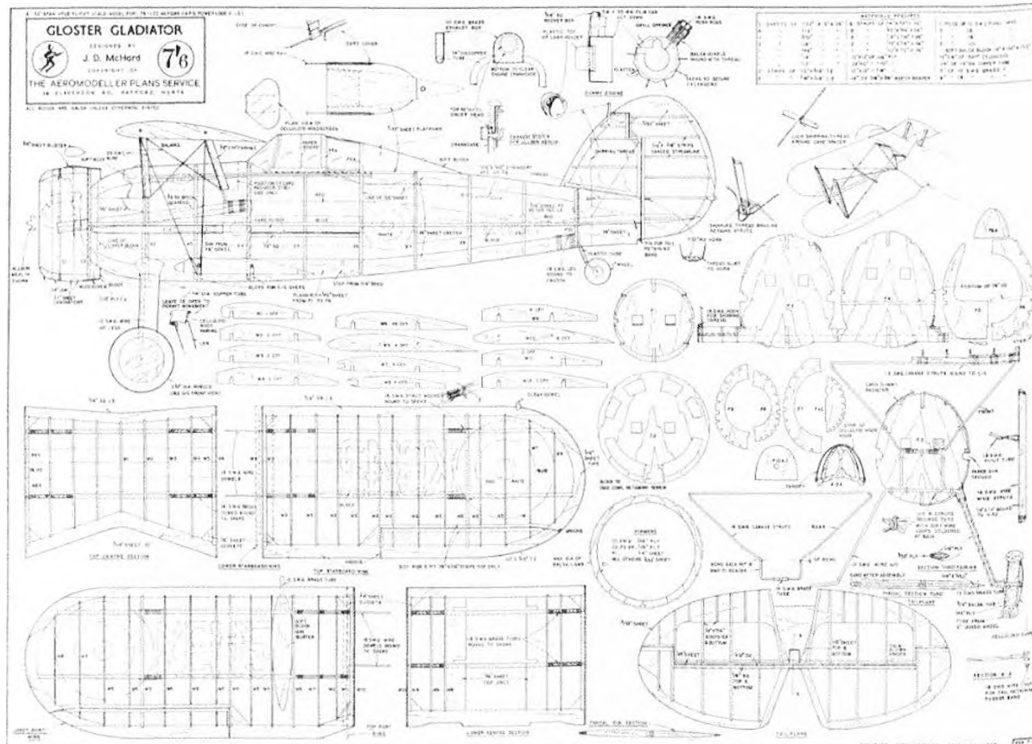
Left, cowl and dummy motor are removed from the nose to show the tank position and fretted former C.2. At right, the framework is completed ready for covering



siderably, but if used pay particular attention to the wing and tail structures which should have very hard spars and leading and trailing edges throughout. The 2½-in. thin-tyred wheels presented a problem which was surmounted by using the tyre from a 2-in. "Roadway" wheel with the internal ridge cut away, stretched over the larger hub and fixed with "Evo-stick" to prevent splitting.

Before flying, check incidence angles and engine

thrustline carefully and set elevator to neutral. The fuselage should be horizontal when the assembled model is supported under the upper wing centre section at the point indicated on plan. *Slight* nose-heaviness is permissible, but *NOT* tail-heaviness!! A flat straight glide should result from a gentle level launch. Trim out with elevator. When satisfied, *cement and pin the movable surface* before power flying. The model should fly left-handed circles under power and glide to the right.



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R/CONTROL INTERNATIONAL

The Editor reports on the 6th King of the Belgians radio trophy at Darmstadt

EDINBURGH, SEPTEMBER 1965. 1958 saw a private enterprise, British team approaching Darmstadt, Germany by devious routes for the 6th King of the Belgians Cup.

Tom Manger, George Reddy, founder of a holiday in sunny Spain, came up from the south, from Liverpool with Silver City via Ostend came Ed Johnson, Rex Franklin and Roger Clarke in an Austin A55. Dick Higham, Chris Olsen and Stewart Lewis, surprised from Harwich via the Hook of Holland in a Morris Minor with large model boxes on the roof. Howard Bux travelled by boat and rail, and the writer accompanied Henry Schalk in his MG. Maguette, with Tommy Day and Eddie Cash arriving from Dover via Ostend and daffing a little in the Rhine Valley when the lure of cool Moselle and Hook proved irresistible.

When we were involved in the whirl of Deutscher Aero Club administration at the Hotel Post Darmstadt, the British party being billeted at the new Autobahn Hotel, thus side the Frankfurt Mannheim autobahn.

Processing was carried out in Darmstadt on the Friday, and early Saturday morning we journeyed through thick morning mist to the airship, banned for the occasion by the American Air Force. Bad visibility delayed the proposed 7.0 a.m. start by three hours or so but meantime the very efficient German Post Office authorities were busy checking the frequency and output of all transmitters.

The aerodrome on fact of it, rather staggered us for an international radio control event. A signals station with full complement of aerial masts etc., occupied at least two-thirds of the field, the balance was taken up with Nava rocket launching area, a field hockey, battery compound and sundry other obstacles. The final flying site, although not about adequate for the job, was flanked by the tall wire fence of the gun compound and models had to make their approach over a thick wood, overhead lines, and fend's the head of the crowd.

Eight nations competed, including a few representatives from the U.S. Army in Germany. The Germans entered a team of three, but again failed to materialise, there being no entries from basket, Europe, whatsoever. The power class, both single and multi were well supported, but there were no entries at all in glider multi and only four in glider single. The different categories were run concurrently with a panel of five judges for the multi control event and a panel of three

(Continued on page 630)



From left to right: The Stegauer brothers in action with Karlheinz adjusting their Rappert motor and brother Kurt watching anxiously. Eric Berglund demonstrates the portability of his transmitter in the rain which persisted through much of the contest. Jean Gabauer's cranked wing multi makes a fast power-on touch down. Willy Schmeider of Ballwin with his E.A. powered 'et Q' which placed second in single multi. Swiss glider winner, Rolf Campalunga used a pulse system to win with this attractive glider.

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looking after single control. Two flights were allowed under F.A.I. rules, the final counting for the final scores which meant that consistent flying over the two-day period was important.

Studying the international line-up, we surmised that the multi event would undoubtedly resolve into a battle between Stegmaier, Bernhardt and Gobeaux. Mistle, although entered, failed to put in an appearance.

There was great speculation the previous evening about Stegmaier, who apparently smashed his model completely the day before the contest. He was allowed to go to the end of the list after the draw had been taken and turned up during the day with a model that had either been very skillfully repaired or was a reserve machine. With its barrel type fuselage and enormous fin, the model he flew could hardly have been termed elegant, but was certainly efficient, which is the main consideration. He and Bernhardt were using the Stegmaier radio equipment with vacuum operated servos, driven by a special pump on the Ruppert twin diesel (see "Motor Mart" page 531). Gobeaux likewise used the Ruppert, but his radio equipment was the American 8-channel Orbit with Bonner servos, and he flew a new model reputedly designed by the Belgian aviation company, "Avions Fairey" specially for "Equipe Gobeaux". Certainly the model had that "full size" look about it, so the rumour may well have been correct. With Jean Pierre at the controls, and Papa Gobeaux supervising the two specially employed radio mechanics, this really is an "escape" to be reckoned with. The same can be said for the Stegmaier outfit which also has a Papa in the background, this time Stegmaier senior with the two sons Karlheinz and Kurt, making up the team.

Helmuth Bernhardt, had, in our opinion, the most beautiful multi machine on the field, and in no way did its aesthetic lines detract from performance. With a span of approximately 7 ft. it was larger than most, the rchord being over 12 in.

Against this formidable Belgian and German opposition, British hopes lay with Chris Olsen, the Swiss had Alfred Bickel of delta fame and the Dutch, Jan Veenhoven the "Typhoon" man.

A single channel entry was the first in the air when Captain Ole Strickland of the U.S. Army stationed at Nellingen, guided his "Breezy Senior" towards the upwind marker perilously close to the wireless masts. Powered with a Torn 19 and equipped with Babcock "Magic Wand" equipment, "Miss Ellen", named after his attractive daughter, gave an impressive performance to be unfortunately curtailed on this first flight through a premature engine cut. Next away was young Bernhard Huber of Switzerland, flying a 3-size "Rudler Bug" with single channel pulse equipment. He was the youngest competitor and eventually placed 4th. A very creditable effort for a 17-year-old.

Ed. Johnson was the first Britisher to fly, scoring a modest 301 points out of a possible

2,120, using Stegmaier equipment and a Ruppert Twin. Then came Alfred Bickel of Switzerland in the multi class flying a well built functional design with rudder, elevator, aileron and engine control. Whilst attempting a vertical eight, he had what we can best describe as a "control confusion", the model plunging vertically towards the judges, to miraculously pull out at the last minute before hitting an adjacent building.

Roger Rolfe of Belgium, was another pulse enthusiast with a particularly interesting transmitter rig. The actual transmitter unit was mounted on a metal pole which passed through two straps on the end of his model box with leads running from the unit to a power pack and to a mechanical pulser.

Prize for the most attractive single control entry must undoubtedly go to Eric Benglund of Sweden. Those who have doubts about rudder-only low wing designs, should have seen his orange and white model scudding across the sky powered by the new Webra 3.5 c.c. Bully. Radio equipment used was also a new commercial unit known as the "Telepilot" and produced in Sweden by Berghand himself. Receiver is a two-valve job on the lines of the New Zealand Wright system, and a neat governor type actuator was employed. The transmitter, which is totally enclosed in a plastic case, straps to the operator's back, giving him complete freedom of movement. Obviously a great deal of intelligent thought had gone into both model and equipment and it was no surprise to us that Benglund carried off top honours in single control power.

The writer and Henry Nicholls were acting as judges for the multi control class and it was not long before we had the task of adjudicating every manoeuvre on the score sheet for Jean Pierre Gobeaux. An excellent take-off we were surprised to see a straight flight that was anything but, he also lost points for a half-hearted stall and spirals that were too shallow. However, the quality of his other manoeuvres was good, and the large German crowd were given their first taste of real multi flying. His inverted flying was particularly good, the difficult left and right turns "sur le dos" being successfully negotiated. Spins were excellent and a good landing within the 50 metre circle completed the first notable flight of the day. Nor must we forget the four glider entries which seemed to reach an incredible height on their 200 metre towlines. Rolf Campolongo of Switzerland with a glider that resembled us very much of an enlarged "Ivory Gull", made a perfect cut off, completing the specified manoeuvres at lazy pace and making the long long approach so necessary with a glider, by skimming the tree tops at the fringe of the wood, skirting a few feet over the heads of the crowd, before touching down near, but not within the circle. Like his team-mates, he used pulse equipment which appears universally popular amongst the Swiss and which was introduced to the contest by Howard Boys when he flew at a R.C. meeting in Arosa a few years back. This fact no doubt, gave Howard a deal of satisfaction which hardly compensated for his bad luck

during this event when he lost control on his first flight near the wire fence and overhead lines, that marred the approach. Subsequent flight checking of the equipment showed it to be in perfect working order, and Howard feels that interference from the many metal obstructions may have been the cause of his troubles. Old time R.C. modelers will be amazed to know that Howard actually turned up at this meeting with a new model, but even then flew the old one.

Stewart Cwins was the next British multi entry to fly and put up the best flight performance of his team in the first round. He appeared a little nervous in this his first International contest, but certainly justified inclusion in the British team. Chris Olsen, his pal, was away shortly afterwards, attempting most of the primary manoeuvres with success but omitting inverted flight and the inverted turns which are bonus point scorers under the F.A.I. scoring system. "Upstar", which we noted has now been chastened in several languages turns a very pretty roll however and Olsen finally totalling 623 points for this round.

Helmuth Bernhardt then made an impeccable take-off, flying smoothly through the compulsory manoeuvres in spite of a rough running Ruppert. He was not, however, prepared to take a chance with aerobatics and brought the model in for a superb spot landing, losing the majority of points through omitting all the aerobatic manoeuvres.

Last man away, Karlheinz Stegmaier, went right through the schedule, losing points for a poor stall and rather odd shaped inverted turns, with the result that he lost the first round to Jean Gobeaux by 35 points.

This concluded the day's flying, and we proceeded to the "Ratskeller" where the famous "Burgomaster" of Darmstadt, who provided sufficient champagne to make two certain British judges wonder whether they were doing loops or bunts!

The prevailing morning mist had influenced the German organizers into a later start than was usual, which resulted in the perverse Clerk of the Weather producing a beautiful clear day at 6 a.m. However, these conditions were not to last, for a steady drizzle soon wrinkled wing fabric as the second round got under way.

Ole Strickland made a first-class flight, being beaten only by Willy Schoorl of Holland, who scored the highest flight points in the single control power class of the meeting. Flying a three-year-old American design, the "C.Q." with pulse proportional equipment and a magnetic actuator, Willy employed a Lorenz type transistorised receiver. He finished within six points of the ultimate single control winner Eric Benglund, already mentioned, and it is interesting to note how consistent flying was in this event as it ultimately did the multi class.

The only delta of the contest was flown by Eugen Zelt of Switzerland, its forward fin pulsing happily away on a long take-off run. After gaining considerable height it reached the low cloud base, sailing from sight in the swirling vapour to eventually be spun down amongst the trees in the wood bordering the aerodrome.

Stegmaier, this time in his correct flying order, improved greatly in this second flight. As the local boys he was obviously the darling of the crowd, and handled his machine superbly right through the schedule, before bringing it in for a perfect spot landing. He was more than 100 points up on his previous day's performance, with only Gobeaux between him and the laurels of victory. Meantime, Dick Higham, looking every inch the English gentleman, but nevertheless suffering a little from contest nerves, provided the finest display of unintentional flying flying over the heads of the crowd, which brought him a tremendous ovation, and also a rocket from the officials! He made at least three attempts at a landing approach all equally spectacular

Outstanding model of the contest was Helmut Bernhardt's graceful semi-scale multi entry here being piloted by Stegmaier whose equipment was installed. Bernhardt excelled in his flying and was only sorry to position his aircraft correctly for the judges



and finally did land the model, albeit somewhat heavily, just outside the 50 metre circle.

Howard Boys did better in this round, but still suffered control loss near the overhead lines. Owm's had a poor flight, being unable to get down elevator when in the inverted position with the result that he almost clobbered the judges. Hetzel of Switzerland also strained the judges' nerves by diving vertically at them.

Although, by our reckoning, the points awarded contradiet, Goleaux's flying was slightly below the standard he had achieved the previous day. His manoeuvres seemed a wee bit jerky, his spirals were again a little shallow, and his final approach was irregular. The model tumbled down in the 50 metre circle. Owm, but at a tremendous speed, its subsequent halt saving much for efficient brakes! In point of fact, he too had scored some 51 points more than on his first flight, but had lost to Stegmair by a mere two points. Over a total of 3,000 odd this might well be called a draw, certainly there is little to choose between them.

(1) Stewart Owens steadies Chris Olsen's "1-proar" which was well flown into fourth place. (2) Jan Veenhoven, the "Typhoon man" with his multi-entry naturally powered by a 5 c.c. Typhoon. (3) Youngest competitor, Huber of Switzerland, with his pulse-operated reduced size "Rudler Bug". (4) Max Hetzel an electronics engineer who has been modelling only 18 months, used two channel simultaneous proportional control with a magnetic "screwing bar" for his rudder plus servo-powered elevator control. The model was designed by Arnold Degen of the Swiss Aero Club for multi control beginners. (5) Another view of Bernhardt with Stegmair transmitter hung from straps around his neck. (6) German Rudi Lodiga on right with his large single control glider entry placed second in the class. (7) Eugen Setz of Switzerland flew the only delta in the contest, again with pulse system using forward fin for control. (8) Lone American entry, Captain Strickland of the U.S. Army with his two Ellens. One on left was Huber's "Breezy Senior" kit which flew well. (9) Roger Rolfe of Belgium with smart Perspex pulse box and Tx mounted on metal stake. (10) Willy Vandermulen, also of Belgium, hurries around his smart single-channel entry that placed third. (11) Jean Gernerix of Belgium sorting out radio bugs in his glider entry. (12) This beautifully-made multi entry was flown by Alfred Bickel of delta fame and employed a vacuum system driven by a pump on the engine. Also unusual in his transmitter was the use of tuning fork stabilized oscillators for the audio frequencies. (13) Hans Schumacher of Germany with his single channel entry using Graupner Bellaphon equipment. (14) Attractive low wing rudder only entry flown by Rolf Ditt of Switzerland used a Super Tiger and pulse radio system.

Category I—Multi-control Aircraft

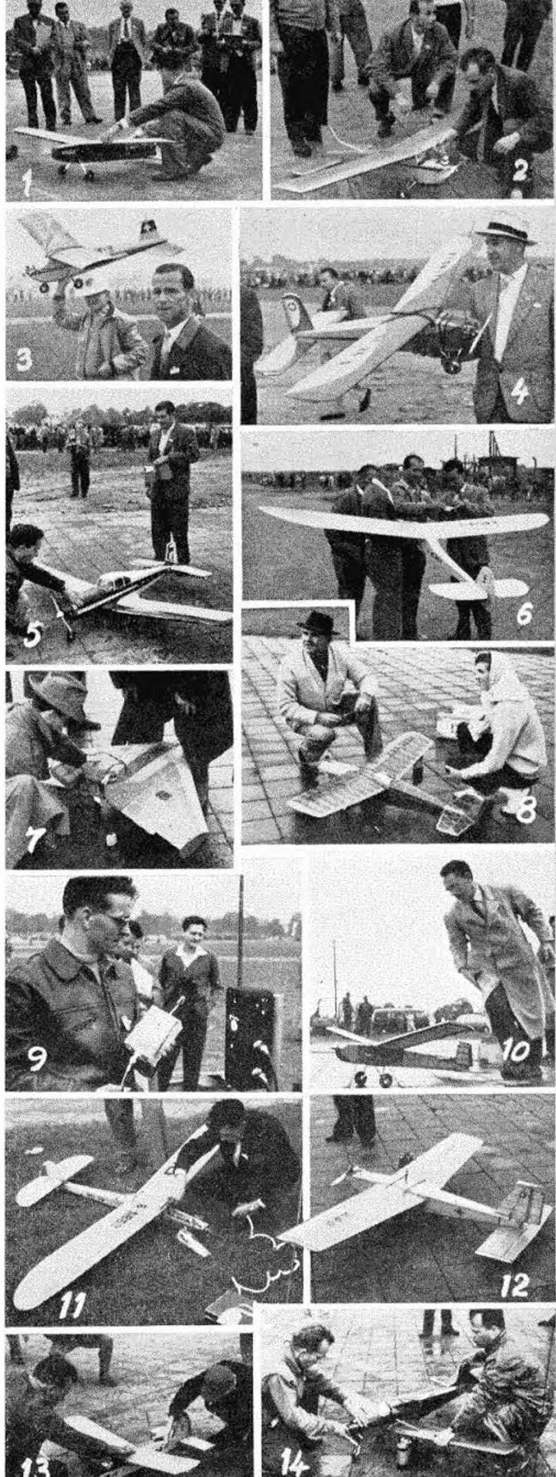
1.	Stegmair, Karlheinz	Germany	1,562	1,685	3,247
2.	Goleaux, Jean-Pierre	Belgium	1,597	1,648	3,245
3.	Bernhardt, Helmut	Germany	287	1,667	1,854
4.	Olsen, Christopher H.	England	625	776	1,401
5.	Bickel, Alfred	Switzerland	528	666	1,194
6.	Hetzel, Max	Switzerland	617	499	1,116
7.	Owens, Stewart	England	657	223	880
8.	Johnson, John Edward	England	301	286	587
9.	Hugham, Richard	England	253	253	506
10.	Veenhoven, Jan	Holland	73	162	235
11.	Van der Hoek, Wim	Holland	72		72

Category II—Multi-control Gliders

1.	Camplongo, Rolf	Switzerland	326	283	609
2.	Lodiga, Rudi	Germany	302	298	600
3.	Nertingsmeyer, Horst	Germany	37	262	300
4.	Geraerts, Jean	Belgium	140	—	140

Category IV—Single-control Aircraft

1.	Berglund, Eric	Sweden	376	336	712
2.	Schoorel, C. Willem	Holland	327	389	706
3.	Vandermulen, Willem	Belgium	443	355	698
4.	Huber, Bernhard	Switzerland	282	335	617
5.	Ditt, Rolf	Switzerland	205	462	667
6.	Schumacher, Hans	Germany	268	387	655
7.	Louis, Adriaan	Belgium	245	302	547
8.	Strickland, Olie	U.S.A.	173	366	539
9.	Setz, Eugen	Switzerland	270	264	534
10.	Louis, Pierre	Belgium	275	232	507
11.	Hart, Fred	Germany	281		281
12.	Rolle, Roger	Belgium	33	232	265
13.	Janse, Lambertus	Holland	229		229
14.	Bossard, Henry	France	196		196
15.	Blois, Arthur H.	England	30	100	130
16.	Kreulen, Evert	Holland			
16.	Christiansen, Cornelius	Holland			



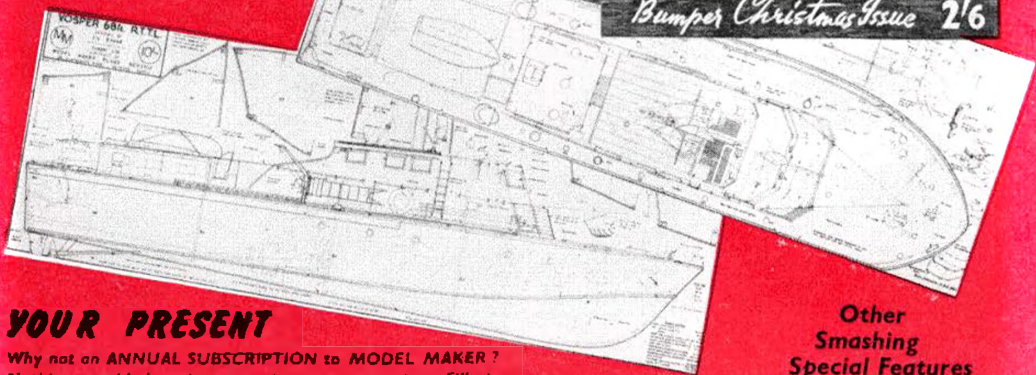
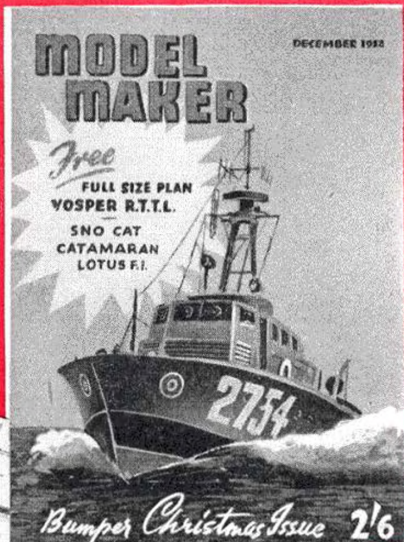
Christmas Issue

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? WHAT'S THE ANGLE

TONY BENSON offers a system for locating your prop-pivot line without resorting to trial and error fitting

Beautiful example of two-blade folding prop is an Italian Taberna's Wakefield seen at Cranfield

THE SKEW-ANGLES for flush folding may be found in the design stage. Choose a radius R , say at the widest part of the blade, where it is required to be flat against the fuselage side when folded. Find the pitch angle at this radius as follows:

$$\text{Pitch} = \tan^{-1} \frac{\text{pitch}}{2\pi R} \text{ or tangent of pitch angle} = \frac{\text{Pitch}}{2\pi R}$$

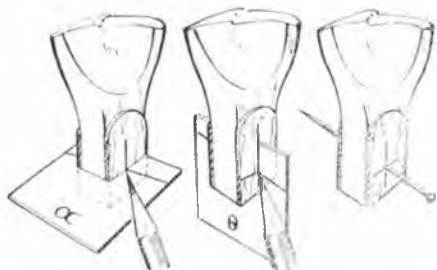
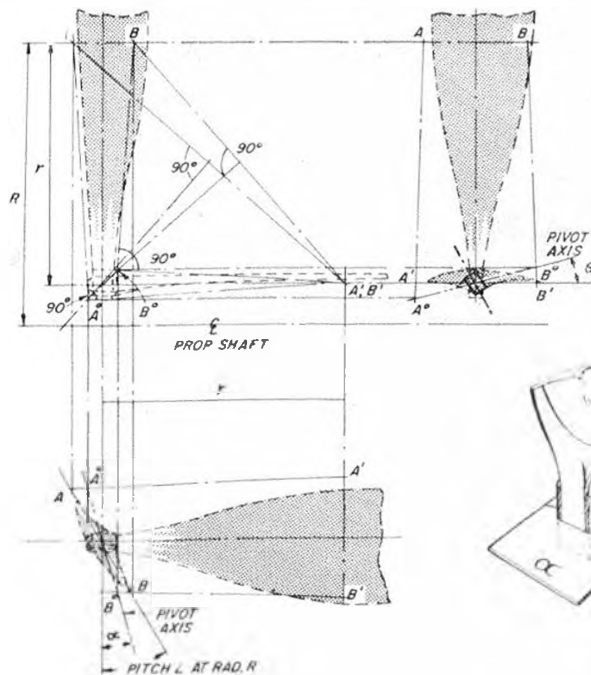
Draw centre-lines of blade passing through centre of hub in side, front elevations, and plan view both upright and folded. Draw pitch angle in plan view passing through centre of hub. Choose two points on this line preferably equidistant on either side of hub centre (Points A and B on diagram). Project these points into all views. Note points A and B will coincide

in folded side elevation. (A^1 , B^1 on diagram.) It is now required to find the centres of rotation of points A , B , which will enable them to reach this folded position at A^1 , B^1 . In each view, draw line from A through A^1 and from B through B^1 . In the side elevation find the mid-points of A , A^1 and B , B^1 accurately and erect perpendiculars at these points.

With the mid-point of A , A^1 as centre and a radius of half the distance A , A^1 describe an arc cutting the perpendicular at A^0 . Treat B , B^1 similarly to find B^0 . Join A^0 and B^0 and check that this line passes through the hub-centre. Project the points A^0 and B^0 into the other views to cut the corresponding lines A , A^1 and B , B^1 in these views and the angles of skew in these views will be found.

It will be appreciated that either of points A and B would give these angles independently, but it takes only a little longer to use both giving greater accuracy and a check. The angle of fold is taken as 90° but a little variation either way would make no appreciable difference.

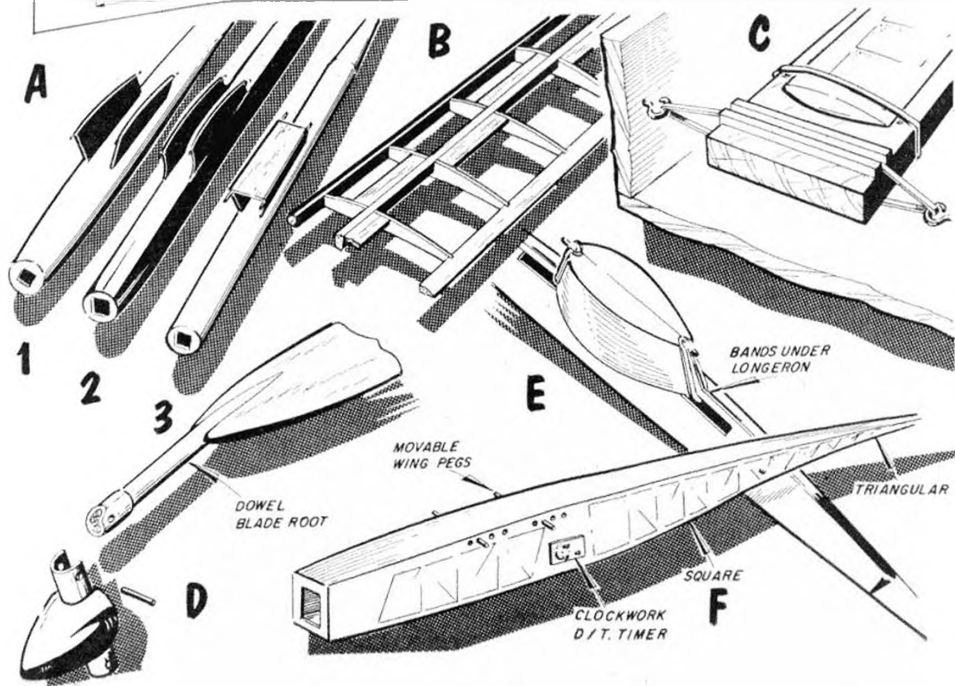
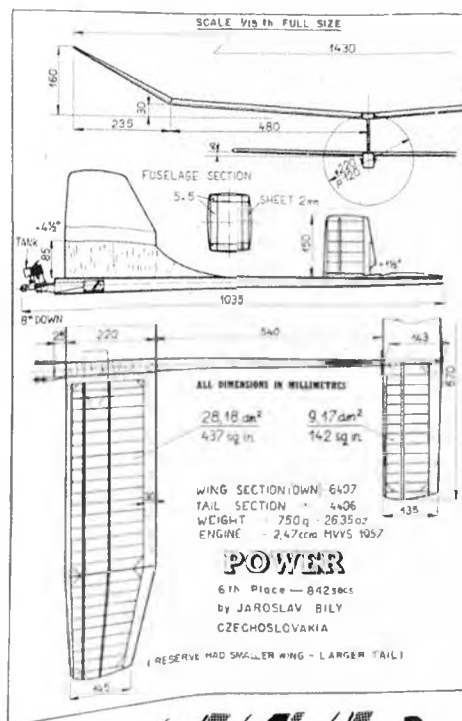
Small cardboard gauges can be quickly made for marking the centres on the actual hub as sketched below for vertical and horizontal blade root marking.



Details from the World Championships

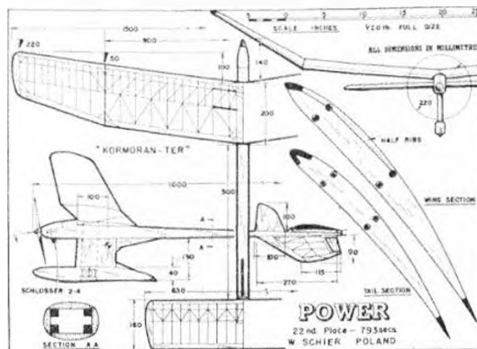
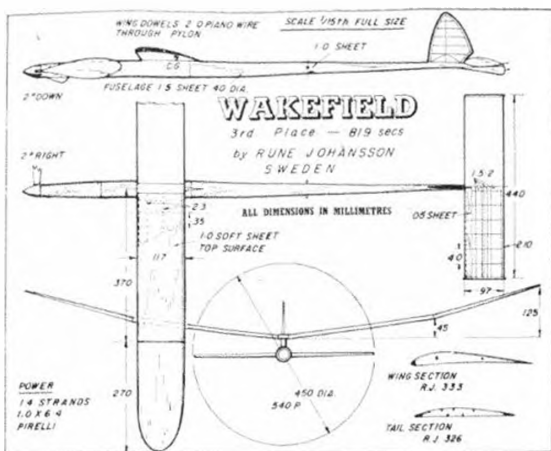
CONTINUING OUR SERIES of technical details on models at the World Championships for free-flight Power and Wakefield classes at Cranfield last August, we complete the set of drawings for the top trio in each event with Rune Johansson's Wake over at top right. This remarkable model with its vivid blue fuselage and orange wings, was notable for its rapid rate of climb and novel wing structure. Note that all of the upper wing surface is sheeted, and that the spars run through the centre of the ribs which are Rune's own section. The fuselage has a short parallel section under the wing of rolled 1.5 mm. sheet, and the tapered tailboom is strengthened in its joint by the streamlined pylon. Some idea of streamlined appearance of this beautifully constructed model may be understood from the fact that the maximum fuselage cross-section is only 1 $\frac{1}{8}$ in.

At left we have Czech Bily's power winner of the "Peoples Democracy's" International in Budapest and also 6th at Cranfield. The large keel surface of the pylon and enormous fin in front of the tailplane were even more evident on his second model which had a 60% tail and correspondingly smaller wing. Eight degrees of downthrust on the new type M.V.V.S. 58D diesel and $4\frac{1}{2}$ degrees incidence on the wing provide a prop-hanging climb, aided by slipstream effect from the 9 in. prop. Wing halves fit on to a metal tongue projecting from the small cross section attached to the pylon and the angle bracket engine



mounts with "L" section facing outwards, provide a simple means of downruster adjustment.

Below it are Wakefield details we noted. A is a trio of double pylons and not the only ones we saw on the field. No. 1 is that on John O'Donnell's reserve, a sheet tubular fuselage surmounted by two $\frac{1}{8}$ in. sheet cross laminated pylons, angled to give a wider wing seat. No. 2 is by Yugoslav Tomkovic (19th) with vertical pylons from a rectangular fuselage, and No. 3 is a variation on the O'Donnell theme with a sheet platform capping the pylons, by Hertsch of Germany who placed 32nd. New wing bracing as employed on some full-size wooden aircraft, is the horizontal web system in B by Oswald of Germany, also placing 32nd. C is an Italian idea for long distance transport. All components were

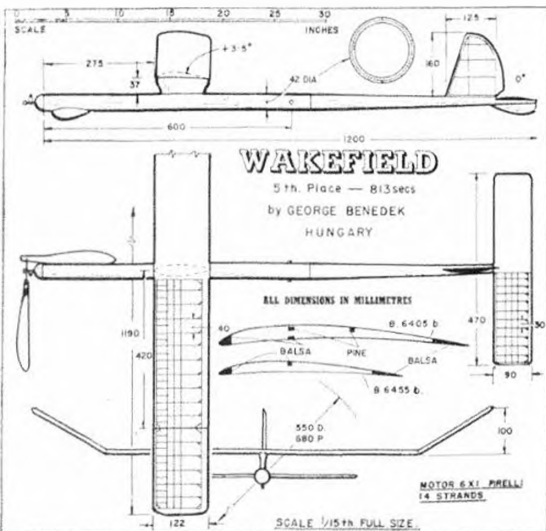


provide a very stable craft in the tempestuous Cranfield winds. Drawn to 1/20th scale, the Kormoranter as it is known, reveals its swept forward surfaces to abbreviate the nose moment, and the low disposition of the rudder area. Note unusual use of square spars through round rib holes, and liberal employment of half ribs in the complex wing.

Finally, below right, the Wakefield which gained more admiration for performance and construction than any other in the World Championships. Designed, built and flown by George Benedek the noted airfoil researcher, it has a double layer rolled sheet fuselage, each layer from 1.5 m.m. sheet, outside diameter $1\frac{1}{8}$ in., and with a ply ring reinforcement at nose and rear peg positions. The short, powerful motor drives a relatively high pitch prop and the rate of climb is something to be envied. The device under the nose is no more than a landing skid and the airfoils are George's very latest, specifically developed for the 50 gramme Wakefield model.

rubber suspended and mounted on anti-rubber boards. We still prefer masses of crumpled newspaper! Incidentally, for those who are sending models overseas in boxes, the following inscriptions appear to have the desired effect in warning railway folk to be careful: Varovast, Zerbrechlich, Fragil, Tilhorer, Versiegig, plus of course, the universal red wine glass label to show which way up the box should be. D explains the hub system for Zrad's 2nd place Wakefield, the blade roots are dowel, alloy cuffed and fit into tailored tubes with cutaway to permit folding. In E Yugoslavian, Radovan employed an ingenious means of wing shift for trim with the 50 gramme or a heavier motor. The whole pylon could slide back or forwards over the fuselage, with the upper longeron acting as a rubber band retaining bar. George Reich of U.S.A. had another system for the same purpose on his Wakefield, using movable wing pegs as in F and other interesting features of his design were the change to triangular section aft, to save weight, and the use of a clockwork D.T. timer, so accurate it could be used to check the flight time.

Schier's "Booted" power design from Poland introduced the old low c.g. theories of C. H. Grant and certainly appears to



The Scribe of Auchengargle

THE CLUBROOM of the Auchengargle M.A.C. was crowded to overflowing. Older members had not seen such a gathering of the model clan since the last share out of the club fund surplus. Even Drambuie, the cunning and voracious seagull pet of the President and Chairman, H. B. McGillicuddy, Esq., was exiled to a precarious perch on the rambling flue pipe, having been noisily evicted from his favourite rafters by one or two hygienically-minded members. Seating accommodation was limited to a few beer crates loaned by the courtesy of the Chairman and the Teuchle Toorie Brewery Co., and the overcrowding was aggravated by an incursion of young bloods, who understandably mistook the occasion for a rock and roll session.

The reason for all the excitement was the Annual General Meeting of the veteran club; the highspot of which was to be an important speech by Maestro McGillicuddy. After the usual business had been chaotically dealt with, the time came for the Maestro to unburden his wisdom on the clamorous multitude. A respectful silence crept gradually over the throng; even the engine tuning experts throttling back their motors the better to hear the Maestro in full eloquent spate.

McGillicuddy rose slowly to his full height, and would have made an impressive figure had not his orange box collapsed. A few indiscreet youths, who saw fit to chortle at this calamity were swiftly and painfully evicted. Quite unperturbed the Maestro began to speak, carefully weighing each portentous word:

The maestro is
revived by
Brian Holmes
sketches by
Russ

"How can I be a Chairman without a chair?" he demanded, gazing meaningfully towards the commodious piece of furniture occupied by the Comp. Secretary, M. T. McSwindle. But the latter gentleman saw fit to ignore this pointer, continuing to gaze steadily in the direction of Drambuie, as if speculating on the miracle by which this common fowl of the air was able to extract edible material from a rusting flue pipe.

The Maestro turned once more to the audience.

"Friends", he began, "our once famed and respected club has been in the doldrums for years, and I think it's about time we did something about putting Auchengargle back on the map..."

"Right on the back!" yelled some worthy from Teuchle Toorie amid general hilarity.

"Order, Gentlemen, please", cried the Maestro, "I cannot hear myself speak..."

"Lucky you!" called back the same merry worthy as he sailed through the doorway.

After relative calm had once more settled, the Maestro continued:

"I say again, gentlemen, it's time we put Auchengargle back on the map. We live, my friends, in an age of advancing mechanisation, and if

we don't all pull on the oar together we're as good as sunk. Today, even the Council dustcart is mechanised, as too are many of our friend McSwindle's models.

McSwindle focussed the Maestro with a suspicious eye, not quite sure how to take this latter remark.

The Maestro carried on in sonorous vein:

"Since the mountain railway came to Ben McSpurge, flying in the club has been confined to throwing chuck gliders from the Summit. A practice which, at ninetence a time, is verra, verra wasteful", he added reprovingly.

"But" he went on, "quite apart from all that, I am privileged to inform you that I, H. B. McGillicuddy, have personally, in addition to my other offices, taken over the duties of P.R.O. Therefore, my friends, in the not distant future the name of Auchengargle will once more ring through the land like a... like..."

"Mouthwash!" prompted some helpful.

Meantime Joe Small began to jump up and down in a state of extreme agitation.

"Why, you old hypocrite!" he choked, "tell me, who was the P.R.O. ... the past year? And who didn't send in a single club report the whole time? and what", he added accusingly, "happened to the stamp money?"

The Maestro treated these interruptions with dignified disdain, calmly proceeding with his momentous speech:

"As I was saying, gentlemen, the lucid pen of McGillicuddy will write a new page of history..."

The Maestro droned on. All efforts on the part of the groaning members to stem the flow of eloquence were of no avail. Equally ineffective was a dramatic and moving performance by Drambuie, who feigned a sudden and mortal seizure by flapping around on one wing and giving vent to a series of



"It's time
we put
Auchengargle
back on the
map"

strangled squawks. The Maestro was in the grip of his genius, and it was left to the resourceful McSwindle to bring relief to the suffering multitude. Turning to Joe Small, he remarked casually:

"Only half-an-hour to closing time."

Now what a Scotsman is reputed to wear beneath his kilt is perhaps beside the point, but observers who witnessed the Maestro's sudden exit through the doorway, have theories about a secret jet apparatus under his voluminous tartan.

After the meeting there was feverish speculation. Some averred that the Maestro's inability to spell "Auchengargle" scotched any hopes of a brilliant literary career. Others asserted that he had gone a little strange in the head, but this was vehemently refuted by those who held the view that Maestro had never been anything but.

Having exhausted all possible theories on the McGillicuddy riddle without arriving at any solution, Thermal McGraw spoke of another mysterious happening.

"Funny thing," he said, "I heard old McSwindle here muttering 'Fee Fie Fo Fum' under his breath during the meeting, and from this I deduced we had a sassenach in our midst."

"True enough," enjoined the McSwindle grant himself, "a lad from the primitive lands yonder. The rascal McGillicuddy appeared to know him."

"I ken, I ken," piped up wee Bawbie Laurie excitedly, "he's staying at yon wee cottage on the mountain road. Me mither says he's a writer or something."

"A writer?" exploded McSwindle, "I smell something decidedly fishy in all this."

At the mention of the magic word "fish", a violent flapping of wings and shrill seductive squawks heralded the arrival of the scavenging Drambuie.

"All right, you chaps," whispered McSwindle, "we'll discuss this piece of skullduggery later—here comes the Maestro."

The next day all were amazed to see a large and prominent paragraph in the Auchengargle *Herald*, impressively headed, "Auchengargle M.A.C." It is often maintained by lexicographers that "the" is the most frequently recurring word in the English language. In this celebrated club report, however, the word "McGillicuddy" left "the" a very poor second.

"Lings! It must be his life history," exclaimed Thermal McGraw,

"where's maestro McGillicuddy"



"Verra strange", pondered McSwindle, "that McGillicuddy should hold the club power record, since, to my long and intimate knowledge of the villain, he has never owned a power model."

"Well, it looks as if he won the McLaird Power Trophy with the same phantom model", added Joe Small. "Can't think what it's doing on my sideboard."

There ensued a slight dispute among the heated members about the precise method by which the career of one H. N. McGillicuddy, President and Chairman of the Auchengargle M.A.C. should be painfully terminated. Thermal McGraw was enlarging upon the beneficial treatment of a swift descent from the summit of Ben McSpurge, when in walked the Maestro himself.

The literary genius submitted them to a triumphant leer, whilst an exultant Drambuie executed a faultless victory roll overhead.

"Ah!" said the Maestro, eyeing the newspaper, "appreciating my wee literary effort, I see."

"They didn't exactly embrace him, though Thermal McGraw came close to it with an attempted rugby tackle."

McSwindle waved the paper under the McGillicuddy proboscis.

"And who?" he boomed, "holds the club power record", "and who won the President's Trophy?" demanded Bob Small. The Maestro looked pained, and waved his hand airily. "Gentlemen, please", he cooed, "you must allow a creative artist a wee bit of poetic licence. But this", he continued, flicking the paper, "is mere seagull food. Just wait my friends until you see the AEROMODELLER, Auchengargle will verily be put on the map—thanks to your new P.R.O."

Further argument was interrupted by a joint effort on the part of the disputants to rescue the Auchengargle

gargle *Herald* from the hungry maw of Drambuie.

Well, gentle reader, a streak of tattered tartan and a flurry of feathers have just flashed by the cottage window—en route I imagine, for the sanctuary of Ben McSpurge. Further down the road can be heard the roar of the club lynching party in hot pursuit.

From this I gather that the Auchengargle model clan have just read this issue of the AEROMODELLER. My report does not, I fear, come up to McGillicuddy's expectations, but



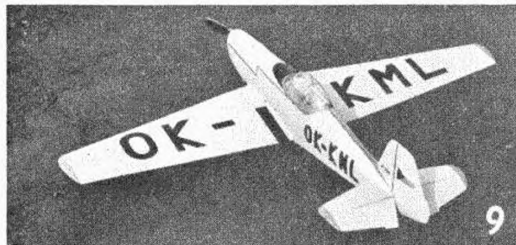
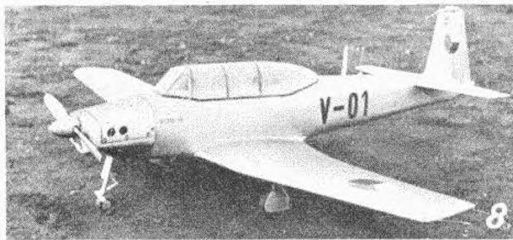
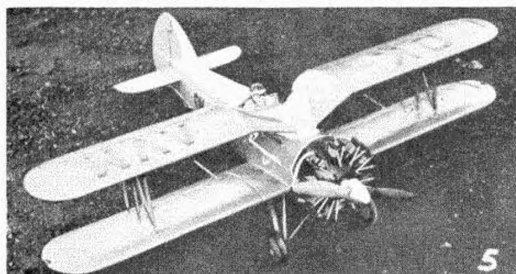
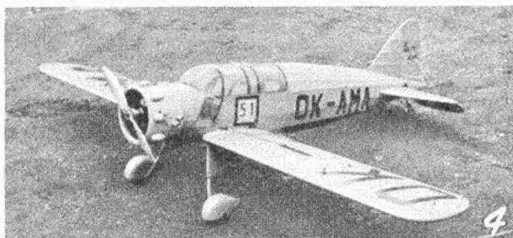
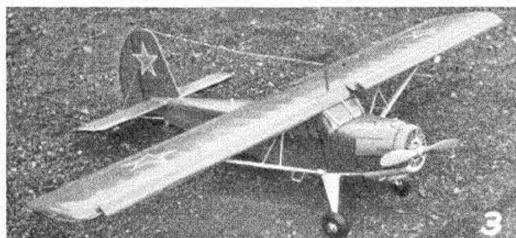
"wait—my friends—until you see the AEROMODELLER"

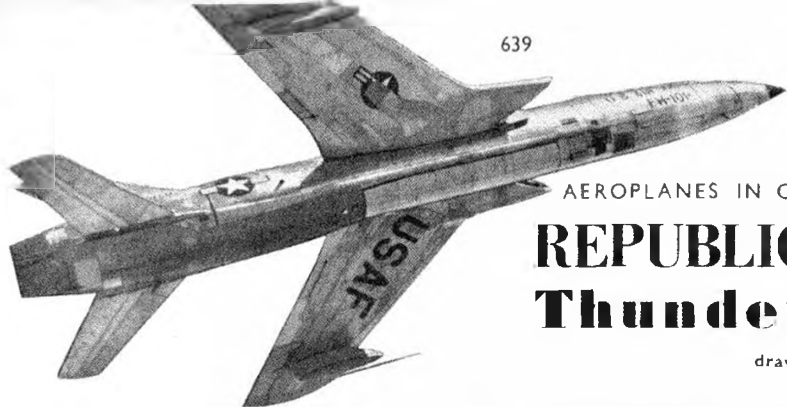
appears to have been most revealing to the club members. I admit to having been misled by the eloquent McGillicuddy over the newspaper report, but in future, as official chronicler of the Auchengargle *Saga*, I will do my humble best to render factual and fullsome account of the life and adventures of one, H. B. McGillicuddy, Esq., not forgetting his scrawny seagull pet and the boisterous members of the Auchengargle club.

"heading for sanctuary"



Czech & Polish Artistry in C/L Scale





AEROPLANES IN OUTLINE No. 55

REPUBLIC F.105 Thunderchief

drawn by G. A. G. Cox

WITH A fuselage comparable in volume to that of the Canberra, wings little larger than a Hunter's, and the 24,500 lb. thrust of an afterburning Pratt and Whitney 1.75, the mighty Thunderchief is destined to be one of the most formidable strategic weapons in service within the next year or so.

Stemming directly from the F.84 series (detailed in March, 1958 edition), the F.105 was first designed as a Mach 1.5 strike fighter for two root mounted Allison J.71's back in 1952. Policy changes dictated use of a single J.57 in the first batch of 16 airframes, and when six of these had been built, the Whitcombe "Area Rule" theory again dictated major design alteration. Thus the new "Coke-bottle" fuselage F.105A was actually the seventh Thunderchief and after its turbulent design period, gave rise to considerable speculation as it exceeded the speed of sound on its first test flight, October 22nd, 1955.

Ten pre-production F.105B's with the afterburning J.75-P-3 engines were subjected to Air Force tests in conditions ranging from tropical Florida to the Alaskan arctic, and many variants were order into full-scale production at the company's Farmingdale, Long Island plant. Budget restrictions have subsequently cut back the programme, but there seems little doubt that the RF.105B photo-rece version and the F.105E strike fighter-bomber will be delivered in quantity to the Tactical Air Command and NATO forces. A two-seat

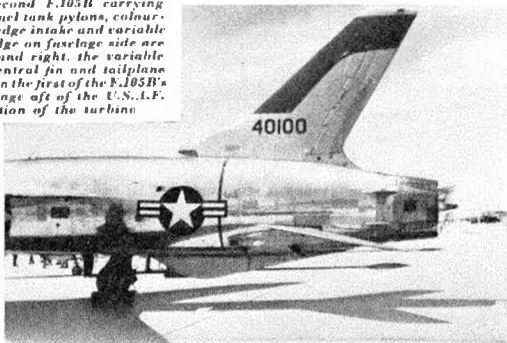
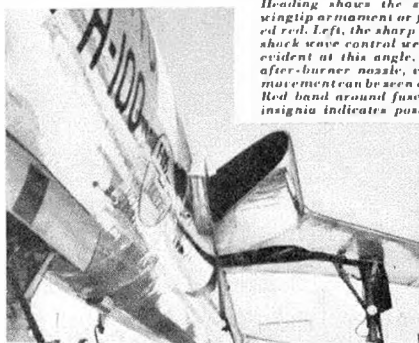
version (accommodation of an electronics officer in the space aft of the pilot's position did not alter the aerodynamic shape) was cut from the programme, possibly because the new weapons systems such as LABS are now fully automatic and the human element is being replaced by automation for radar search and target seeking devices.

The most striking feature of the F.105 is its use of the variable shock wave control nostril intakes, and with such, it is likely to set the pattern for the few remaining manned aircraft likely to occupy the same role of Mach 2 offensive operation. Conical camber on the wing leading edges is used to increase efficiency at lower speeds, and extreme tail air-brakes replace the parachute common to other types. For long range operations the F.105 has a retractable fuelling probe in the nose, and the single 20 m.m. cannon with rotary barrel firing at the rate of 6,000 rounds per minute shoots through a port just behind the radar cap.

Our heading photo shows the near-wing-tip position of pylons for intercepting missiles or overload tanks and also illustrates the large internal weapons bay beneath the centre-section. A total of 8,000 lbs. (more than was carried by many of the B.17 Flying Fortresses in W.W.II) can be delivered to the target at twice the speed of sound—such is the claim for the huge F.105 Thunderchief.

1:45 scale plan overleaf

Heading shows the second F.105B carrying wingtip armament or fuel tank pylons, colour-coded red. Left, the sharp edge intake and variable shock wave control wedge on fuselage side are evident at this angle, and right, the variable after-burner nozzle, ventral fin and tailplane movement can be seen on the first of the F.105B's. Red band around fuselage aft of the U.S.A.F. insignia indicates position of the turbine

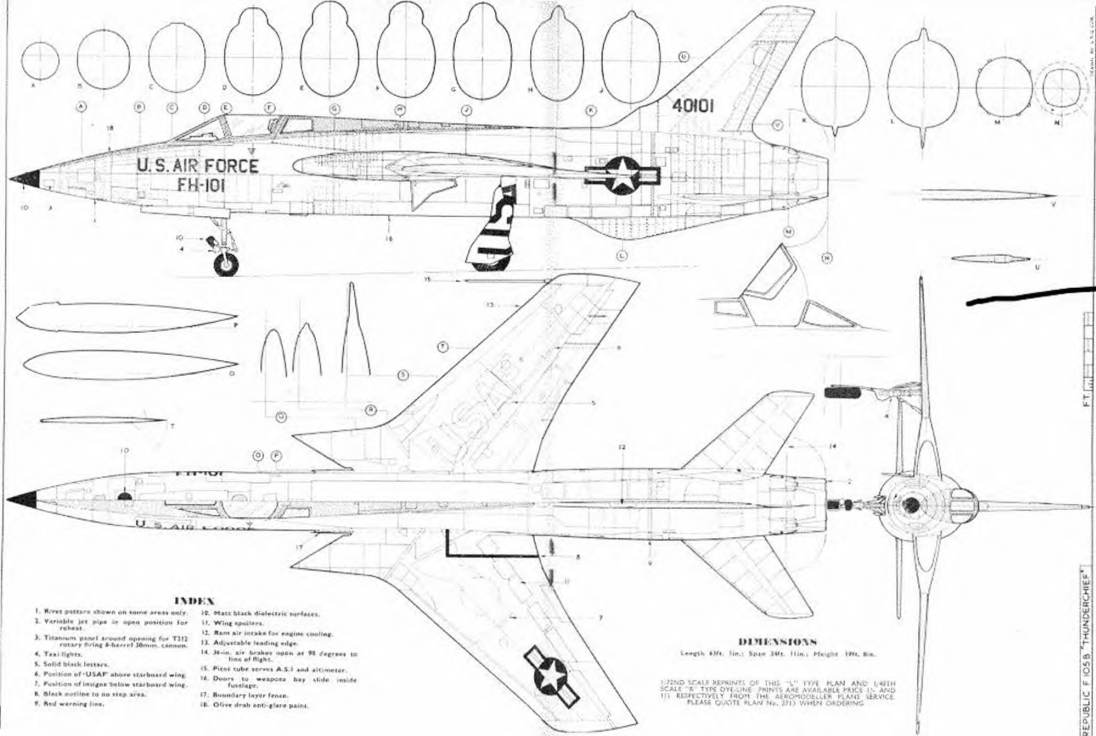


Czech and Polish C/L scale (opposite)

Opposite, fine workmanship and novel selections of unusual aircraft for modelling are seen in these views taken at recent contest on the Continent.

1. Is a Savoia-Marchetti S.73 made by A. Svoboda for a trio of 1.5 c.c. home constructed diesel, total weight of the model is 4 lbs. 2. Is an accurate scale model of the Czech Aero A-18b, fighter of the 1920's, made by C. Baitler, Prague to 1/8th scale—looks like the ideal fuselage cross section for hiding an engine! 3. Is the Russian IAK-12R with a Frog 2.5 c.c. engine to 1/10th scale by Miloslav Hadek of Liberec. Note the adherence to scale in full span leading edge slots. 4. Is the winner of the 1958 Czech Scale Contest at Kladno and is a 5 c.c. powered model of the Aero

200. 5. Is an Avia B.H.122 aerobatic biplane with K. and R. 29 to 1/10th scale by Rudolf Nagovsky of Klatovy, Czechoslovakia. The Avia B.H.122 was a famous aerobatic mount for F. Novak, who demonstrated the aircraft from 1939-1938. 6. Comes from Poland and is a 34-in. Polish Bies T.5-8 by Pawlowski of Bialystok. Poland for the Jaskolka 2.5 diesel and has working lights, retractable flaps and sliding hood. 7. Is a Karas P.Z.L.-D.23A by W. Zielewicz to 1/15th scale with movable flaps, landing lights and full interior equipment. 8. Another Czech scale winner, this time a model of the little known TDM-8. 9. The Zlin 226A aerobatic trainer which has been seen so often at Coventry. 10. Another Zlin, the "12" for a glowplug 2.5 c.c. engine by Mrs. B. Novocna.



INDEX

1. River pattern shown on some areas only.
2. Variable jet pipe in open position for reheat.
3. Titanium panel around opening for T312 rotary firing 8-barrel 20mm. cannon.
4. Taxi lights.
5. Solid black letters.
6. Position of "USAF" above starboard wing.
7. Position of insignia below starboard wing.
8. Black outline to no step area.
9. Red warning line.
10. Plain black dielectric surfaces.
11. Wing spacers.
12. Ram air intake for engine cooling.
13. Adjustable leading edge.
14. 36-in. air brakes open at 90 degrees to line of flight.
15. Piston tube serves A.S.I. and altimeter.
16. Doors to weapons bay slide inside fuselage.
17. Boundary layer fence.
18. Olive drab anti-glare paints.

DIMENSIONS

Length 60ft. 1in.; Span 34ft. 11in.; Height 19ft. 6in.

1:72ND SCALE REPRINTS OF THIS "A" TYPE PLAN AND LINE-SCALE "B" TYPE OYE-LINE PRINTS ARE AVAILABLE FROM THE AEROMODELLER PLANS SERVICE, PLEASE QUOTE PLAN No. 3713 WHEN ORDERING.

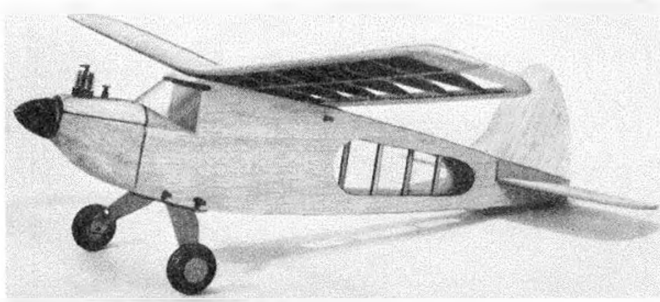


your Two

If you've ever heard a Galloping Ghost system working without the motor running, you'll know why *Chatterbox* was picked for a name! With Ghost system and any small transistor receiver, the total radio weight including Mighty Midget and all batteries, comes out at just about 7½ ozs., which is the suggested safe maximum for this little design. A similar weight is attainable with rudder-only operation, using a Rising clockwork actuator, or with a rubber escapement; since this last is perhaps the most awkward device to install, we have drawn a Conquest actuator on the full-size plan.

Of course, if you're looking for an immensely rugged small sport model, *Chatterbox* without radio should fill the bill admirably, and with that fairly bulky fuselage, you can experiment with parachute dropping and so on. There will be hundreds of *Chatterboxes* flying soon, and we're sure that it will be only a matter of time before we see the first biplane payload version!

Vic Smeed's CHATTERBOX



Vic Smeed launches his red and yellow Chatterbox with Mills .75 power on our local flying ground. Chubby fuselage accommodates any of the latest transistorised radio sets, details are given below for two alternative installations to that shown on the plan.

Any motor of from .5 to .8 c.c. can be used for free flight, but a .75 or .8 c.c. is recommended for radio. The "empty" weight of the prototype in flying trim is just under 12 ozs., which makes it the heaviest model of this size we've ever built; however, the uncovered weight is 9½ ozs., of which nearly two is accounted for by the

undercarriage, so if you're wanting it for sport flying only, it should be possible to come out at 10 ozs. total.

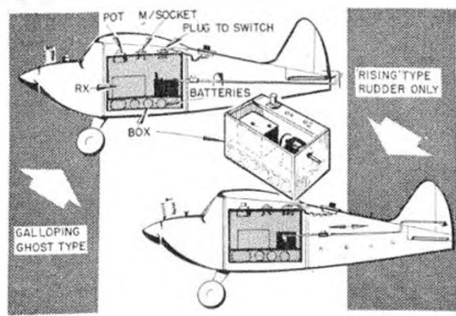
Constructionally, the fuselage is a simple slab-sider built in the usual way, then covered with hard sheet and light nylon. In early tests, with 8 ozs. of ballast moved up and down to alter the vertical C.G., the model several times came straight in on its nose with no damage at all. For F.F. tissue over the basic frame would be adequate.

The wing is different in that the upper and lower spars are glued to the dihedral brace and left to dry first. After checking dihedral it must *not* be less than shown—the wing halves are built one at a time, blocking the up-ended half. Tissue covering has stood up well on the original. The tail surfaces are cut from the softest 1/8 in. sheet you can find and sanded well before tissue covering. Cut 1/2 in. full-span split elevators if you propose to use Ghost R.C.

An alternative undercarriage is sketched on the plan; use solid rubber wheels of fair weight for either type. Hold U.C. in place with one 1 in. by 4 in. rubber band only.

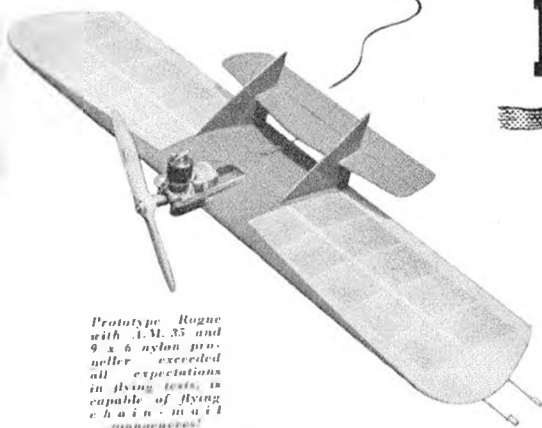
Check finished model balances on main spar, set rudder tab for right circle (P.F.) and release on low power, adjusting turn with subsequent flights up to full power.

For radio, it is useful to build a frame to slide into the fuselage, as sketched, in which all the equipment can be built. An external switch is desirable to avoid removing the wing to switch off between flights.



Free Plans

ROGUE



Prototype *Rogue* with 4 M. 35 and 9 x 6 nylon propeller exceeded all expectations in flying tests; is capable of flying chain-mail manoeuvres!

WE HAVE ALWAYS felt that the addition of a moving elevator to the trailing edge of a flying wing was not necessarily the complete answer to the manoeuvrability and liveliness required of a combat model. Some months ago one of our American contemporaries published a design called "Whatzit" by Riley Wooten, which raised the level of the wing. Remembering the success of "garden seat" or "bench" type elevons on freelflight flying wings and the researches of Charles McCutcheon, who used a high mounted stabiliser on his "Charybdis" design, we felt that this model was on the right track. The Editor saw a number of "Whatzits" flying when visiting an American Army competition, and confirmed that the machine definitely had something, so that when we wanted to design a combat model for our Christmas free plan, it was natural that we should go for something on this layout.

The "Whatzit" is a biggish model with 340 sq. in. area for .35 engines, and there is inevitably some similarity of layout with "Rogue". After all, if one is making a flying wing for combat the engine position and bearer layout is going to be similar, and the use of a heavy leading edge is usual practice. However, our model is different in aspect ratio, section, spar detail, tail mounting, etc., and perhaps most important has an increased gap between tailplane and wing, which experiment proved desirable. Nevertheless we feel that we should acknowledge the Wooten model as being an early practical example of the general type of layout.

Combat flying virtues

Rogue is, in our opinion, the answer to the combat flier's prayers. It is easy to build, immensely strong, fast, and extremely manoeuvrable, while retaining smoothness of control and ease of flying. It is, in fact, so smooth to fly that with the right hand on the handle it can put up a very creditable stunt performance, including square manoeuvres.

Constructionally there is really little to say. It is best to shape the leading edge before assembly, including cutting out the bearer notches and gluing in place the front ply reinforcement strip. Building a wing of this

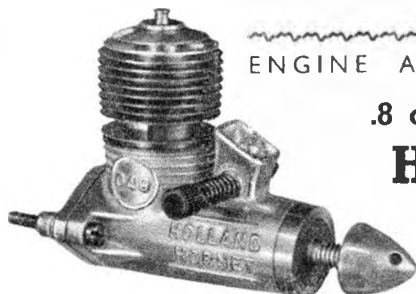
turns on a sixpence, fast as a racer and super-tough for combat' make this Aeromodeller staff design your next controliner for sheer fun or serious combat flying.

type is always open to individual preference, some builders preferring to pin the leading edge down and assemble the structure vertically to the building board, and others preferring to pack the leading and trailing edges off the building board, and proceed to add ribs, etc., in the usual way. The two centre ribs will require to be spaced according to the crankcase width of the motor you propose to use, in order that the bearers can lie snugly alongside the ribs. This also affects the position of the notches, as is self-evident. The bearers should be sawn to shape and fitted in position, and followed by the ply bellerank platform, the bellerank assembly being fitted before adding the centre section sheeting. It is also desirable to position the $\frac{1}{8}$ in. ply fin reinforcement pieces before adding the lower $\frac{1}{8}$ in. sheet. Fins can be cemented in place on top of the sheeting and clipped to the reinforcement by a clothes peg while the cement dries. Install the lead out wires, passing these through two short stubs of tube cemented and sewn to the underside of the wingtip. The outboard tip requires a $\frac{1}{2}$ oz. weight, glued and bound in position; this weight is essential since the model is symmetrical about the centre line.

Tailplane and elevator are conventional, as is covering and finish. Silk or nylon covering is recommended and, in fact, a prototype model was covered with Permatrace, a special plastic film for tracing work, which will not stretch or shrink or tear. Finding an adhesive for this is the most difficult part of the job, and the model in question used Evoxstik, being covered in one piece of film wrapped round the leading edge and stuck to the trailing edge. Permatrace is hard to come by unless you know of a drawing office using it; it is fairly expensive and quite heavy. However, it requires no doping at all, and thus for cost and weight probably equals silk or nylon covering with dope. Apart from incredible strength and a very fine finish the trouble of putting it on hardly outweighs more normal covering techniques.

The motor should now be placed on the bearers and slid backwards and forwards until the model balances exactly on the C.G. shown. When the position is found the hull holes should be marked and the bearers drilled. Experiment with ballast and varying engine position, etc., has shown this C.G. position to be ideal, and for best flying results it is advisable to stick closely to it. There is ample bearer length to move a heavier engine rearwards; it is unlikely that lighter engines will be used, but even so reasonable spare bearer can be left.

Without doubt a 3.5 engine gives the best results, but any good 2.5 will prove entirely satisfactory.



ENGINE ANALYSIS No. 54

.8 cc. HOLLAND
HORNETReviewed by
R. H. Warring

PROBABLY THE MAJORITY of aeromodelers in this country have come to regard the under 1 c.c. glow motors so widely favoured in America as having a poor power output, when compared with our diesels.

The glow motor generally realises its peak performance running very fast and it speeds up very much more in the air than a diesel. Hence static test figures tend to flatter the diesel in terms of measured output.

When one finds a baby glow motor of this size giving a "diesel" performance, therefore, it can be reckoned as exceptionally good.

The new Holland "Hornet" comes into this category. As first tried out with the standard head we rated it as just another glow motor, very easy to start and with a fine turn of speed. Then repeating the tests with the same series of propellers, but using the special "hot" head, a very substantial improvement in performance was at once apparent—such an improvement that a peak of around .06 B.H.P. was plotted at just under 16,000 r.p.m.

For a start the Holland "Hornet" looks a nice engine—and it is beautifully made and finished. It has a rather unusual barrel-shaped crankcase which, used on the British Elin looked rather ugly and cumbersome. On the "Hornet" the shape is tapered and the spinner shape also blends nicely into this taper. So it looks right, if a little heavy (which it is). The soft steel cylinder, typical of American practice, means that very thin fins can be used, which again enhance the appearance. The crankcase casting is bright finished by wet tumbling and there are some very neat detail design features.

On top of that the "Hornet" comes in a "styled" package, resting in rigid foam material covered by a fully-

transparent "lid" in thin clear acetate—complete also with spanner and a beautiful nylon propeller. Many a modeller would buy one just on appearance, and he would not be disappointed with the performance either!

The "Hornet" like to be reasonably "wet" for starting and starts best with the needle valve opened a turn or two from the running setting. With propeller diameters ranging from 7 inches down to 4x inches it then starts readily with a flick or two and once running the glow plug can be disconnected immediately without fear of stopping. Because of such excellent starting characteristics, something approaching the ideal engine for a beginner—it is an example of why so many American modellers prefer glow because of their easy starting characteristics.

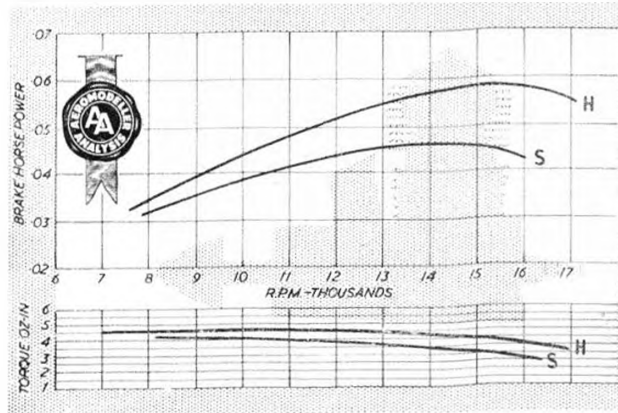
We found the low speed performance relatively good, too. Using larger diameter propellers to pull the r.p.m. down below 10,000, torque continued to rise slightly, but it was not too happy on high pitch propellers. About the ideal size for sports flying would appear to be the American Tornado 6x3 or 6x4 moulded nylon propellers, either probably approaching peak r.p.m. in the air. The moulded nylon propeller supplied with the "Hornet" is 5½-in. diameter by 4-in. nominal pitch. This gave around 12,000 static r.p.m. in British autumn weather on standard fuel with nitro added, and in Californian conditions, 18,000 r.p.m. is reached in maker's claims.

The alternative "hot" head has a sharper conical taper and a smaller clearance around the platinum wire element. It also reduces the effective head volume in the approximate ratio of 7:5, thereby increasing the

PROPELLER—R.P.M. FIGURES

Propeller	Standard head r.p.m.	"Hot" head r.p.m.
6 x 4 (Tornado)	11,500	12,400
8 x 3 (Tornado)	12,200	13,200
6 x 4 (Hog nylon)	11,400	12,600
5 x 3 (Tricut)	12,800	14,000
6 x 3 (Tricut)	10,000	11,000
5 x 6 (Prog plastic)	10,200	11,300
6 x 6 (Prog nylon)	9,000	9,800

Fuel used: Mercury No. 2.



SPECIFICATION

Displacement .795 c.c. (.04895 cu. in.)
Bore: .422 in. Stroke: .350 in.
Bore/stroke ratio: 1.2:1 Weight: 2.0 ozs.

Max. B.H.P.

(Hot head) .058 at 15,500 r.p.m.

(Standard head) .047 at 14,000 r.p.m.

Max. torque

(Hot head) 4.3 ounce-inches at 9,000 r.p.m.

(Standard head) 4 ounce-inches at 9,000 r.p.m.

Power rating

(Hot head) .0725 b.h.p. per c.c.

(Standard head) .059 b.h.p. per c.c.

Material specification

Cylinder: leaded machine steel

Piston: carbon-nitrided steel

Con. rod (ball and socket little-end)

test aluminium alloy

Crankcase, light alloy die casting

Crankshaft: carbon-nitrided steel

Bearing: plain, broached and carbide

Prop. shaft: American K1 No. 8 thread

Cylinder head: aluminium (integral element)

Price \$9.95

Manufacturer: Holland Eng. Co., 12924

Saticoy St., North Hollywood, California

compression ratio. This increase in compression ratio has a definite effect on starting characteristics. The engine is still easy to start but now has a certain tendency to kick back and generally needs more flicking to get going. The "Hornet" is also less happy running at 10,000 r.p.m. and below with the "hot" head, being effectively too far "advanced" in timing for speeds of this order. But there is a substantial increase in r.p.m. with any particular propeller load and also a marked improvement in torque and power output, the latter now peaking at an appreciably higher figure. With either head the running was most consistent at all speeds and the engine very easy to handle. Timing is fairly orthodox. The intake opens at around 45 degrees after B.D.C. and closes some 30 degrees after T.D.C. The square-cut port gives sharp cut-off. The transfer opening is approximately 90-95 degrees and the exhaust opening approximately 140 degrees.

Constructionally the "Hornet" features a heat-treated soft steel cylinder which screws into the main crankcase unit and seats without a gasket. Cooling fins are turned integral with the upper cylinder, which is carried on two thick sections above the lower flange. Large diametrically-opposed exhaust ports are cut in this section. Diametrically-opposed transfer ports are cut inside the cylinder, at right angles to the position of the exhausts and terminating in the solid "pillars", giving an appreciable overlap. The cylinder bore is extremely well finished, possibly by lapping since the type of transfer porting would appear to preclude conventional honing (i.e., the stones would tend to catch in the transfer passages).

The piston is quite light, machined from steel and hardened. A socket fitting for a ball-shaped little-end on the con-rod replaces the conventional gudgeon pin, the central recess in the piston being neatly swaged over to a very good fit.

The connecting rod is turned from light alloy with a relatively narrow neck immediately under the ball end (little-end). The big-end is also small in diameter (1.07 in.), but conventional.

The crankshaft appears relatively massive for a glow motor of this size. It is .280 in. in diameter, stepping down to .163 in. at the propeller shaft end (ANF No. 8 thread). The central hole through the shaft to the square port is also large, removing the bulk of the metal, so the final weight of the shaft is not excessive (less than 1 ounce). The crank web is only 1 in. diameter, relatively narrow and machined away in the form of a counter-weight. The crankshaft is hardened and ground to finish whilst the intake port appears to have been finished by broaching and has exceptionally clean edges.

The comparatively tiny crankcase casting weighs a little over half an ounce. This is largely because the whole front section is solid. The plain bearing runs the full length of this solid section and has an oilway (groove) formed along the bottom but not quite extending to the front. The bearing appears to have been finished by a light honing and was very smooth and an excellent fit with the shaft. The only machining operations done on the crankcase casting are facing for the crank web, finishing the bearing, facing the top (where the cylinder flange rests) and threading, apart from a small vertical oilway above the inner end of the bearing which is simply punched.

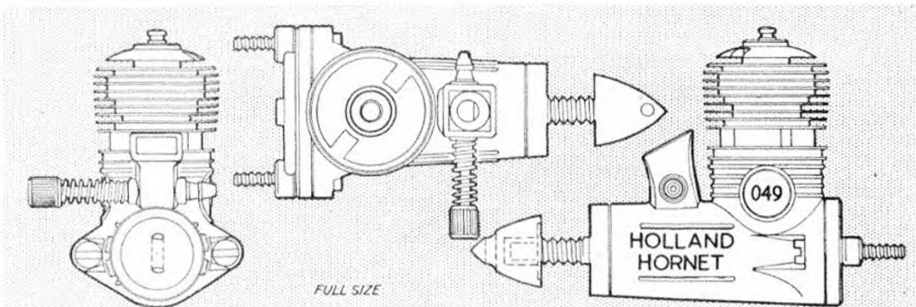
The intake tube, formed integral with the crankcase casting, is square in section, matching the square port cut in the crankshaft. It is, however, fitted with a conventional venturi-shaped restrictor locked in place by the spraybar.

A steel spacing washer is located on the shaft immediately behind the propeller driver, wisely provided with the idea of preventing alloy to alloy contact should the engine be operated as a pusher power plant.

On the standard engine the back end is completed by a cover plate plugging into the crankcase rear and secured with two bolts. An ingenious bar "fix" takes the place of nuts. The idea is that this bar is mounted behind the firewall (front former) of the model, using the central screw provided. Two pins cast into the front face of the bar lock the bar against the ply. The two engine bolts then simply screw into the tapped holes in each end of the bar.

The tank unit supplied as an extra is equally ingenious. This has a spigot-shaped end which plugs into the engine crankcase instead of the standard cover. Longer mounting bolts are now required which pass right through the tank—again to locate in the aforementioned bar fixed behind the firewall. The tank is divided into two compartments, the lower one (which carries an external feed pipe) being shut off (and thus continuing to provide a metered supply governing the engine run) by the operation of a spring loaded plunger by the flight timer.

Summarising, a thoroughly likeable little engine which would appear more than capable of holding its own on performance as well as possessing something extra in the way of first class workmanship and eye-appeal. A lot of careful thought has gone into its design and development—and an equal amount of care into its production. This would probably also account for its somewhat higher than average price for an American .049 of approximately 50s. (the equivalent of around 60s. with tax added, in this country).





Britain's leading exponent on the whirlybirds

E. G. Boreham

GIVES THE LATEST DESIGN FEATURES OF HIS V.T.O. MODEL EXPERIMENTS AND PROVIDES TWO SIMPLE MODELS FOR .5 AND .75 c.c.

HELICOPTERS

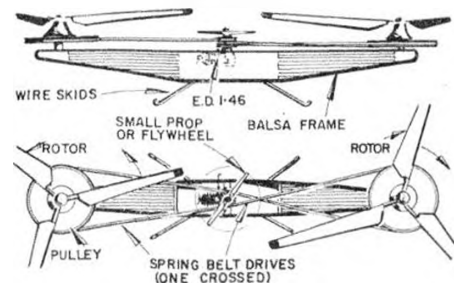
MOST DIESEL ENGINE, or gas-powered model helicopters now flying, work on the reaction principle using three or four blades feathering on the Clough system. The rotor blades are freely pivoted at about 20% of the chord, and should be of low drag to enable a steady rotor R.P.M. of some 150 to 200 or more to be available from the torque reaction of the engine. Models built on this principle will make successful vertical flights and can be made to fly forward by judicious ballasting in calm air, but they are by no means as stable as the Jeticopter type, using Jetex power units. The consistent performance by this type at the Thurston Trophy Helicopter Contest bears this out each year at Halton.

Having done considerable experimental work and pioneered the "delta-three" or skewed hinge and beam system for the Jeticopter, I have now been developing a powered helicopter using the engine-unit to power the blade system in a similar manner to Jetex-powered helicopters.

McCutcheon with his unorthodox and ingenious single blade "Charybdis" rotor system, has achieved a very successful model, but I consider the 2-bladed rotor system to be superior and less tricky to trim and fly. Photo opposite shows a successful helicopter type working on this principle which is now under development.

An advantage over the reaction type model is the

Fig. 3 at right shows how Mr. Boreham releases his large diameter Helicopter for a simulated full size take-off. Fig. 4 below, is the pulley and belt drive twin rotor system still the subject of experiment.



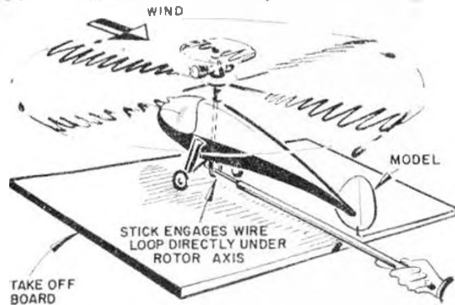
better auto-rotation and slow let-down, enabling advantage to be taken of thermals or risers, like a conventional model. This is due to the lower disc loading of this type, as it will be appreciated that the rotor diameter relative to the engine weight is much larger than the reaction model. Also the whole of the lift is obtained from the rotor system, unlike the reaction type in which the small propeller is actually the greatest lift producer.

Another photo shows a helicopter rotor system hovering, made by R. Dudley of the Weston Model Club on this principle. This displays the inherent stability even when "tethered".

While centrifugal forces on the fuel supply have to be contended with, this problem can be surmounted by careful location of fuel tank and supply, and there is no doubt that a twin engine machine on this principle would be very successful.

Now for some information relating to the reaction-type which will be of assistance in conjunction with the plans given of two successful models which have given demonstrations on many occasions, the Mills version having been lost o.o.s. during the 1956 helicopter event at Northern Heights.

Size of Engine	Weight all up Ozs.	Rotor Dia.	Blade Thickness	Rotor Root	Blade Chord	Tip
c.c.		in.	in.	in.	in.	in.
.5	4½-6	24	3/16	1½	1	1
.75 to 8	7-9	32	3/8	2	1½	1½
1.5	12-16	42	4	2	1½	1½



Rotor Gen

Two-bladed require a balance beam or fly bar to improve the stability and are more suitable for Jetex and engine on beam systems. The 3-bladed are better for reaction types. Four blades are superior and more smooth in operation. Five blades for greater efficiency and better auto-rotation.

These can be quickly and easily made from solid sheet balsa and I recommend a flat bottom section with the leading and trailing edges sanded to form a cambered top surface. Alternatively, a Clark Y or symmetrical section is effective. For rotors used in the smaller type helicopter, a thickness of $\frac{1}{8}$ in. is about right, while for a larger diameter, it is necessary to use $\frac{1}{4}$ in.

The blades should be finished well with fine sandpaper and protected with two or three coats of dope. Larger rotors are best built up with leading and trailing edges and covered with the sheet balsa or heavyweight tissue.

For best results, it is necessary to mount the rotor blades free from propeller's down wash and I find cycle spokes, or fairly stiff piano wire the best means of attachment to the hub.

Bolt the wires to the hub, using 6 or 8 B.A. bolts, this being a very convenient method of allowing the blades to be folded for transit purposes when slackened off. The blades should be secured firmly by lock nuts and washers when flying, otherwise they will work loose in flight.

An added advantage of this method is that should the rotor blades hit any fixed obstruction when in flight, the blade is less likely to suffer damage due to the swinging action of the wire arm.

The counter-weights are required to change individual blade pitch and act as a governor system. As the revs. during auto-rotation are down as compared with the power run, the blades rest against the bottom stops which should be adjusted to ensure a slight negative angle. This setting should be such that the model descends steadily, if it does so in a jerky fashion then this is a sign that too much negative setting has been used. A too rapid fall with side slipping and slow rotor R.P.M. is a sign that the negative blade angle is too small. The counter balance weights can be conveniently fashioned on wire supports using plasticine, lead foil, or solder. The weights will then be just sufficient to tip the blades to rest on the droop or bottom stop. Blade hinges may be conveniently made from tin-can stock; equally effective is a portion of Woolworth curtain wire.

Fuselage

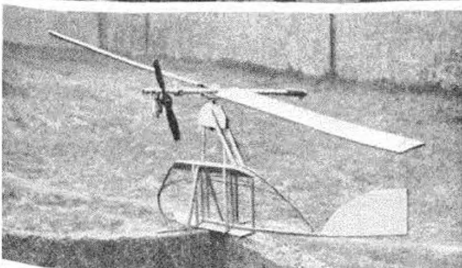
A silhouette type of fuselage works very well on Sikorski, Sycamore, Skeeter or original shape, made of thin sheet balsa, having a card disc or fin to give weathervane stability.

It must be realised that the propeller and motor downwash have a strong effect, so it is important to minimise fuselage drag. I have found for best results, especially in windy conditions, an open type fuselage of light construction to be far superior and the plans given of two recent reaction-type models show this pattern.

A wire or bamboo landing chassis is all that is necessary for light models, and the wheels, if used, can be permanently fixed as vertical T.O. requires no forward motion! Many of the writer's models use oak-apples or acorns in this connection!

When starting R.O.G. flights, the model should be held until the rotor attains steady and maximum revs. otherwise, except in a dead calm, the model will drift and topple over when partly airborne. With large

Below, top to bottom, Mr. Borcham makes a hand-launch with one of the open-frame 3-blade units at Hutton. Next, the tethered test rotor unit with engine mounted on a thrust arm as seen on the other test model in next picture, and further experiment in bottom view. This type of propulsion is more genuine than the vertically mounted engine where prop thrust provides most of the lift.





diameter rotor-craft, a stick holding the fuselage as Fig. 3 will enable a good take-off to be made.

With regard to engine-powered helicopters using a conventional transmission system as on full-size machines through a clutch and gearbox, many problems are involved and, of course, with a single rotor, torque reaction has to be cancelled out by means of a vertical tail rotor. This entails more weight and complications and, so far, very few models capable of flying have been evolved.

Fig. 4 shows an experimental model of the tandem rotor type, like the Bristol or Piasecki machine, which was built but was only partly successful. The belt drive was satisfactory, but due to starting difficulties under

Pietro Tivoli of Rome made this diminutive reaction Helicopter for the Cus Pro Wee, weighing 35 grammes (2 oz.), 16 in. diameter rotor with $\frac{3}{4}$ in. long blades and it climbs to 350 feet.

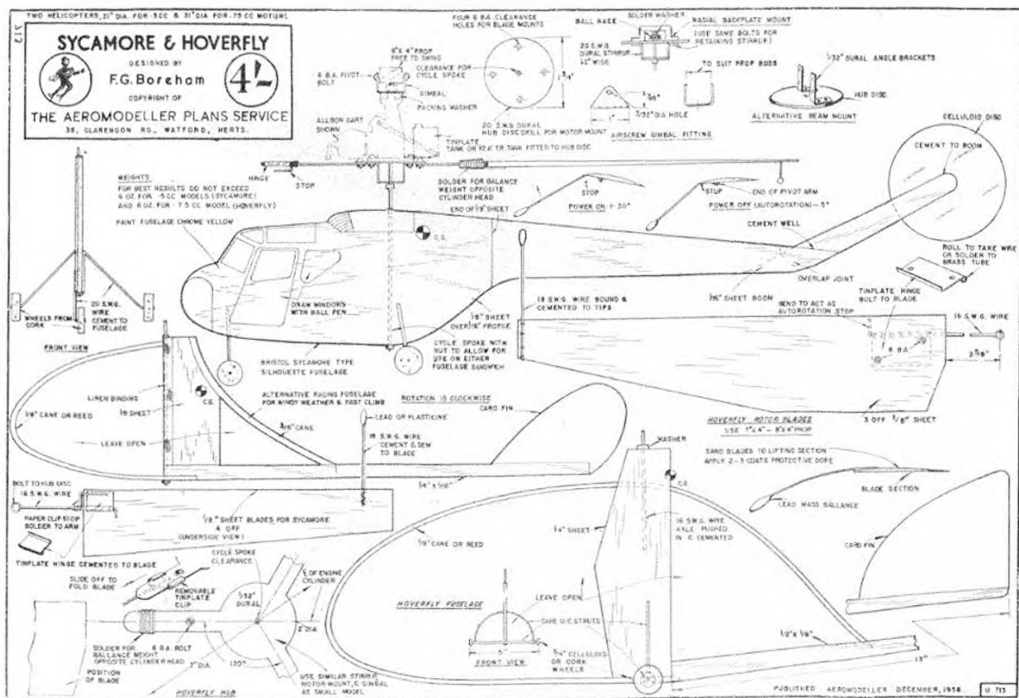
load, modifications were needed. By using a clutch or jockey pulleys, this defect could be overcome and it is thought this would be a good project to work on. No torque reaction need be cancelled out and maximum power is available in the rotors for lifting, as no loss of power would occur from driving a tail-rotor.

In conclusion, it is hoped the foregoing will start many modellers on helicopter construction and experiments, as there is much to be done to improve the stability and control of this fascinating type.

Furthermore, it is the only type of model which can be flown in a limited space under control by testing in "tethered" flight and by using more than one line, transatlantic flight can be achieved, in a very small space. In fact, back-yard flying is possible at long last!

Drawings are given below for two most successful Helicopters showing how simple is the general structure. The Sycamore for .5 c.c. engines has a $\frac{1}{4}$ th sheet profile fuselage with the forward portion strengthened by a $\frac{1}{4}$ th overlay and the .75 c.c. Hoverfly uses an "open" style rear or cane frame fuselage. Rotor and hub detail is not critical provided that the blades are arranged to pivot easily and are retained securely via their mounts to the central disc, which can be heavy gauge tinplate in the event of Dural not being available.

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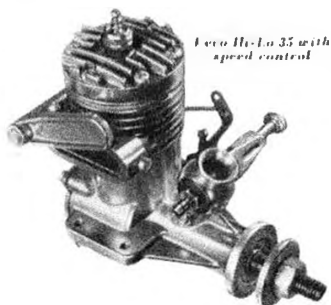


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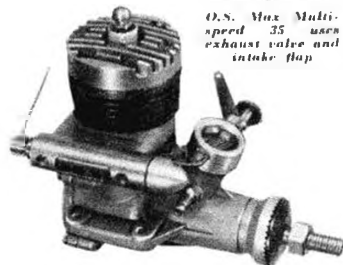
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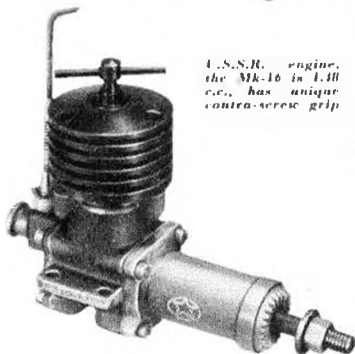
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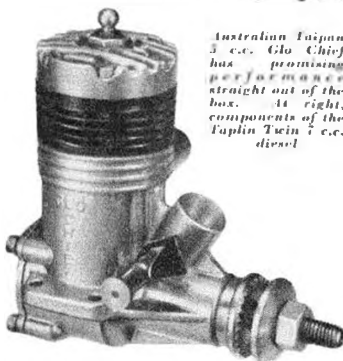
*Veeco Hi-Lu 35 with
speed control*



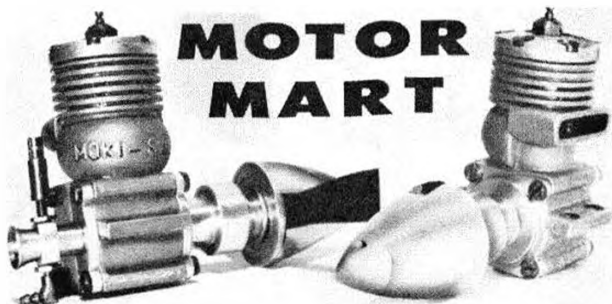
*O.S. Max Multi-
speed 35
exhaust valve and
intake flap*



*U.S.N.R. engine,
the Mk-16 is 1.10
c.c., has unique
contra-screw grip*



*Australian Taipan
3 c.c. Glo Chief
has promising
performance
straight out of the
box. At right,
components of the
Taipan Twin 1 c.c.
diesel*

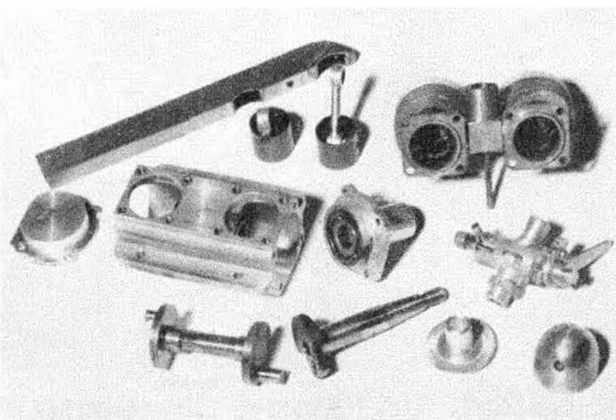


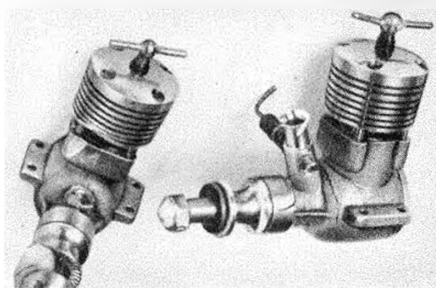
THE GALAXY of new motors we are able to portray this month should herald a great year for aeromodelling in 1959. The accent is on special motors for radio control, and as we have mentioned before so many times, manufacturers are finding it obligatory to market their products with speed control.

Gil Henry of Veeco has for a long time been aware of this prime requirement, and in the "Hi-Lu" version of his 19 and 35 engines he has combined exhaust and intake throttle to very good effect. The chopper action of the exhaust blank does not muffle the noise entirely and first checks with a brand new 35 yet to be run-in before we quote precise figures, offers a degree of reliability superior to modifications of standard engines. The new type glow-plug with a heat bar across its face seems to solve the problem of the fire going out at the crucial moment. In Japan, the O.S. ("Oilhand Start, Overall Splendour and Outstanding Superpower" reads the box label) Company at Osaka have also coupled exhaust and

throttle in the 35 multi-speed, relying more on the exhaust than the intake. This, too, is an impressive motor, but needs running-in. It has one advantage in that the needle valve is completely independent of the throttle.

But British manufacturers have been far from idle, and we are more sure that their use of twin cylinders is the best approach. The Davies Charlton 5 c.c. unit which started out for diesel ignition and is to be made as a glowplug motor, fires simultaneously, weighs $9\frac{1}{2}$ ozs., has exhaust control, is remarkably smooth and utilises sensible radial mounting for such a unit. No claim will be made for superiority in peak power over its one-lung counterparts, but for R/C and sport this motor is going to offer a degree of controllability that is sorely needed to improve our modelling. From Birchington Col. Taplin is marketing his in-line twin of 7 c.c., a larger and heavier unit with alternate firing and a carburettor control so flexible that it is possible to start the motor on slow setting merely





Left, two cracked Olivers which met head-on in combat, shattering, is it not? Right, the D.C. Twin and Tuglin Twin, each aiming at the R/C market by widely different approaches. Below them is the R.S. c.c. Stegmaier Twin, now made by Wehra at 2.6 c.c. capacity, this has vacuum pump and carburettor

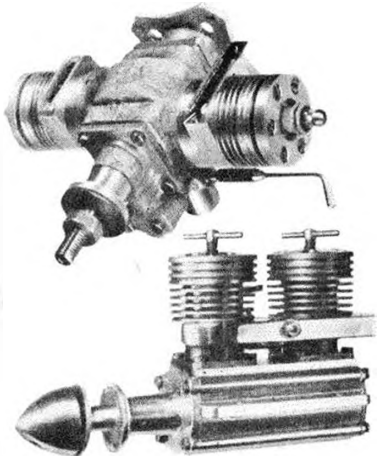
by pushing the prop around as distinct from flicking. Side port induction offers rotation in either direction, the large beam mounts and robust crankcase eliminate vibration, and exhaust is collected in a smart duct to be led away as on full-size. We shall be saying more about these R/C motors later, when tests have been made with run-in examples.

Which could be called the motor of the year in 1958? Oliver's maintain their remarkable position at the head of the popularity poll for Team Race and Free Flight, the Thermal Hopper still reigns supreme among the 8s—its Pee Wee brother has introduced a new modelling phase, and the A.M.15 and Frog 150 Mk. II have set a new standard in powerful, inexpensive 1.5s. But our palm goes to Hungary for their Moki (Model Kiserleti Intezet) S-1 (Speed-one) for whatever is said about research institutes, State-aids and full-time aeromodelling study, the fact still remains that any manufacturer in the West has similar opportunity to do the same development, and many individuals

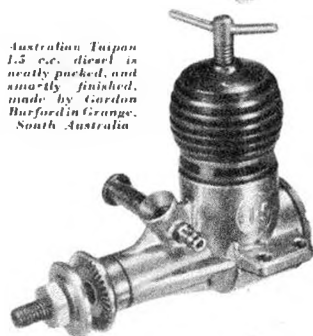
have both facilities and enthusiasm. The Moki S-1 which shattered both Italian and Czech opposition in Brussels has now beaten 140 m.p.h. (see "World News") with a model made to those "impossible" new rules and with a metal tank too!

A Russian engine, the 1.5 c.c. Mk-16 of 11.5 mm. stroke and 13 mm. bore (same as used for the Wehra) recently came our way and though somewhat agricultural in construction with strong evidence of hand tooling, it delivers comparable performance to that expected of a modern disc valve motor from the West. Other motors recently on our bench were the Australian Taipan 5 c.c. Glo Chief and 1.5 c.c. diesel by Gordon Burford, each a credit to the manufacturer and to be the subject of future analyses.

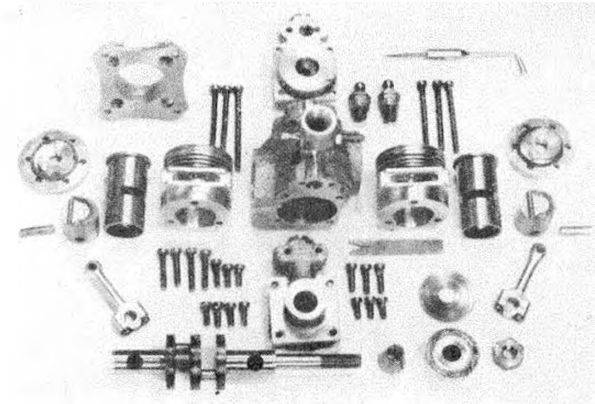
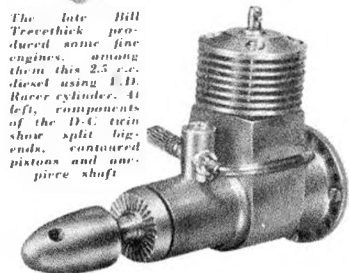
Finally, take heed of what happened when Kenton's Burbridge met Northwood's Tribe in combat. Photo above shows the result of a Tiger collision when these two got cracking in more ways than one. Nett cost for new parts was £5 14s.!



Australian Taipan 1.5 c.c. diesel is neatly packed, and smartly finished, made by Gordon Burford in Geelong, South Australia



The late Bill Teece has produced some fine engines, among them this 2.5 c.c. diesel using 1.11. Racer cylinder. At left, components of the D.C. twin show split big-ends, venturated pistons and one-piece shaft





COMPETITION RESULTS

Before congratulating the winners we must thank the many enthusiasts who not only submitted entries to our competition but also wrote most constructive letters containing their ideas for future engine development. They can be assured that all ideas submitted have been given careful consideration and will greatly assist Davies-Charlton Limited in their coming new engine programme.

The new DC horizontally-opposed 5 c.c. twin gloplug motor shown opposite will no doubt give some indication that our future developments will open an exciting era in British engine production.

Strange to relate, no one submitted an accurate forecast as to our next engine project but two readers did specify a 5 c.c. horizontally-opposed diesel and Mr. R. G. Armstrong even gave the correct bore and stroke. He supplied a neat drawing of a twin diesel layout but was wrong with his induction, given as rear rotary disc valve. Second prize winner, Mr. J. M. Drinkwater, suggested reed valve induction, but like Mr. Armstrong did not appreciate the crankcase gas flow problems of the opposed twin layout which involved many hours of development work on our part. The central intake with entry via shaft valves at each end of the crankshaft proved the ultimate solution to the problem of gas flow assisted by a specially-shaped crankcase interior.

Both these gentlemen will be intrigued to know how near they were to the correct solution when we tell them that the DC Twin as originally developed was in fact a diesel! Many factors contributed to the ultimate shelving of the diesel layout, not the least being those of power weight ratio, satisfactory life expectation of the big end bearings and, in particular, the almost insoluble problem of preventing one cylinder running rich due to the gas flow peculiarities of the opposed twin layout already mentioned.

Third prize winner Mr. Meier, although not specifying a twin, did get the correct size and mentioned items such as exhaust choke for engine speed control, silencers, etc., which the twin will incorporate. He gave a very detailed specification for a new style small diesel with items such as an integral timer incorporated and in the opinion of the judges was the next best entry for third place.

We again thank all those who participated, who, incidentally, came from all quarters of the globe. Entries were received from Australia, South Africa, India, Philippines, Switzerland, Eire, New Zealand, etc., as well as from all over the British Isles.

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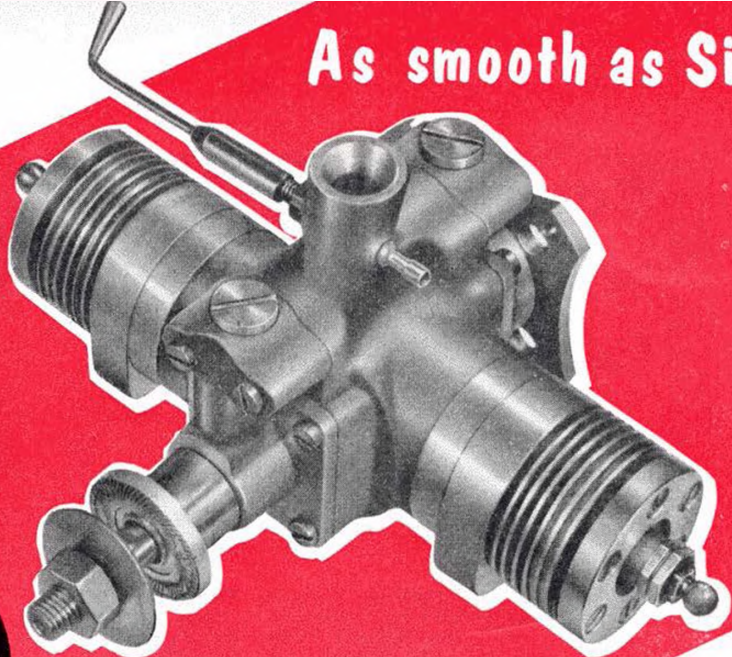
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TWIN**

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Bore: .5785. Stroke: .5705.

HERALDING a new era in British engine production the D/C Twin is suitable for all classes of model flying. It turns an 11 x 6 propeller at 12,500 revs., throttling down to 3,000 r.p.m. with the integral exhaust slide control. It will be available early in 1959 when full details will be announced in our regular inside cover advertisement. Naturally, as with all D/C engines, it "Engineered to last a modelling lifetime".

*Seasonal greetings to prop swingers everywhere
and to our trade friends. We wish you all
prosperity and many happy landings in 1959*

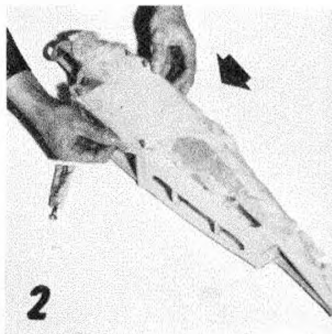
Covering with fabric

(Including Sis's Nylons!)

by Ray Coles

FOR SOME YEARS NOW NYLONS have intrigued modellers not only as they flatter the "undercarriage" of the fairer sex but also because they seem to offer a source of material for model building. Unfortunately, their structure is such that they do not fulfil our hopes. The very fact that they are so lightly knitted makes it practically impossible to obtain a satisfactory surface by the straightforward application of dope or any other readily obtained paint, fillers, etc. We know this because we have tried them all. However, it did occur to us that it might be possible to obtain a light yet strong covering by bonding the stocking material to paper. Before a final, workable method was decided upon many types of bonding agent were tried and in the end we came back to the most obvious one of all; dope. It has not proved to be necessary to resort to full strength glider dope, simply to the common or garden clear dope found in any model shop.

To test the possibilities of this kind of covering a Mercury kit *Aeronca Sedan* of 5 ft. 6 in. span has been covered by using five discarded, laddered, nylons and lightweight tissue. If you are not afraid of twice the work in covering each job as the payment for a tough light and durable covering then read on. If you are, then turn to the next article.



Five stages in covering the Chatterbox fuselage sides with nylon. (1) The dampened nylon profile is laid over the fuselage side, then doubled back so that adhesive can be applied to the outline of the center sheet area. (2) The nylon is pulled taut as possible across the sheet surface and pressed with thumbs to set in place as the adhesive dries.

Covering a wing

Take the stocking and carefully pick out the thread that runs around the welt. This is best done with a needle. Draw that thread, and the welt should open thus extending the length of the stocking by some four inches.

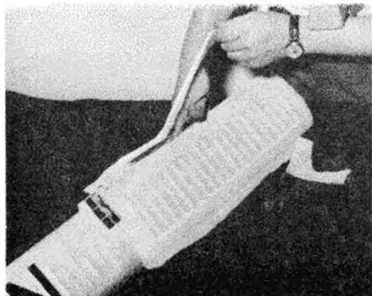
With the seam on the outside take a sharp pair of scissors and cut down one side of the seam. Care should be taken to avoid wandering in this cut.

Apply the nylon to the wing to be covered with the welt at the root rib and try for size. A normal stocking will cover the upper or lower surface of a plane of 9-in. chord and 30-in. span in one piece.

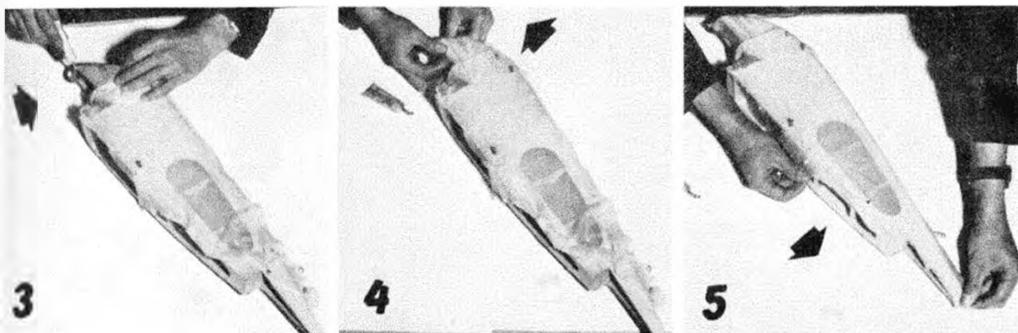
Remove nylon and snare the edges of the wing with tissue or photo paste. Replace the nylon, and beginning at the root rib stretch lightly chordwise and pin in place. Repeat at the tip rib, stretching lightly, pin in place. The nylon may now be attached to the leading and trailing edge and is stretched in the process.

When dry, secure to the wing with dope-cement mixed in the ratio of five parts dope to one part cement. When this is dry trim away surplus nylon from the underside with a sharp razor blade. Now repeat for covering of the upper surfaces.

At this stage, the nylon is comparatively slack,



At left, experiment with Terylene covering, not altogether successful. Extreme photo shows how the material cannot be trimmed very accurately due to its toughness and the requirement for extra sharp scissors! It also has a resistance to most adhesives and requires application of thick dope to key into the pores and hold the fabric in place. In right view, liberal coats of dope are applied chordwise across the material after dampness has dried out. Note use of old pickle jar to keep the brush fresh in thinner when not in use for dope.



(3) Nylon is doubled back so that the curved nose area can be covered, again the outline is secured with adhesive leaving the centre area "clean". (4) Nylon is pulled forward and stretched taut around the sheet area, pressure being applied with the thumb to make sure that the nylon stays in place. (5) Now for the rear section, nylon is stretched taut by pulling with one hand to the tail end of fuselage whilst other hand stretches the fabric across the open area and is pushed down on to the adhesive.

but wrinkle free. To attempt to tension it unduly, is to prepare yourself for a warped wing.

Dope the surfaces upper and lower with a mixture of dope and thinners; three parts thinners to one part dope. This should be done with a very soft brush or better still with a spray gun. Apply ONE coat only, taking care to see that on the upper surface the nylon does not sag and touch the spars. When the dope is dry the nylon will still be slack, and no attempt should be made to tighten it by using full-strength dope.

Cover the wing with lightweight tissue, taking care to ensure that there are as few wrinkles as possible. Water shrink.

Using the same thinned dope apply one coat to upper and lower surfaces. Do not be alarmed if wrinkles appear as these will disappear as the dope dries. When the dope is finger dry pin down the wing to avoid the risk of warping. Repeat with another coat. Repeat again using a normal strength clear dope. Two or three coats will be necessary.

After this the wing may be colour sprayed.

During the application of the final coats of dope it will be noticed that the paper and nylon are bonding. At certain stages in this process the appearance of the wing will lead you to believe that the final result will be useless; do not give up hope, it will come out right in the end.

Fuselages

For fuselages the process is much the same as for wings, but it may prove possible to cover a fuselage in one piece. In this case see to it that the seam of the nylon lies along the lowest stringer and is on the inside. Beware of stretching the nylon too much or the fuselage will most certainly suffer.

Nylon for this purpose

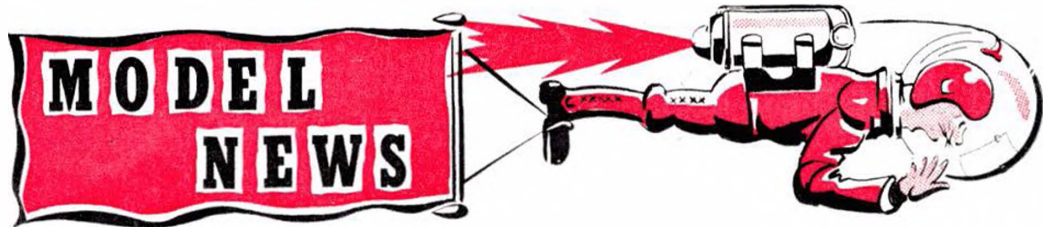
All the better makes of nylons are made not only in different foot sizes, but also in different leg lengths. It goes without saying that the longer the leg the more material available.

While the heavier gauge nylons can be used they

are not recommended, the best results are obtained by using the finer gauge nylons. Fishnet, while immensely strong, are not easy to handle. If there are a few ladders in a stocking it may still be used, but try to avoid unnecessary ladders caused by snagging on cement-stained fingers. DO NOT ATTEMPT TO USE THIS TYPE OF COVERING ON A LIGHTWEIGHT STRUCTURE.

Photos on these pages show how to cover the *Chatterbox* fuselage with ordinary nylon such as can be purchased by the yard at most fabric shops. The material is first cut to size allowing a liberal overlap of at least $\frac{1}{2}$ in. around the profile to be covered and is then dipped in water and squeezed to remove the excess moisture. For *Chatterbox*, Pac adhesive was used and this proved to be most successful in providing a good grip despite the moist nylon and dried without any adhesive "bumps". On the fuselage, one should start in the centre sheet covered area, applying adhesive around the outline and it will be found that the nylon can be stretched taut across the sheet surface with Pac holding it firm and not requiring the use of pins. Then cover the nose area and repeat for the tail section. Working in three stages like this one is able to keep pace with the drying adhesive and also obtain the desired tautness in the moist nylon which does not shrink as much as silk covering. Apart from this difference of shrinking, the procedure would be exactly the same for silk. We have also conducted an experiment with Terylene curtain material which is so tough, it takes a pair of sharp scissors to cut it on a satisfactory straight line! Unfortunately, the results have not been quite as good as expected and one definite requirement for terylene covering, is that the framework should be strong enough to withstand the shrinkage of the fabric through many applications of dope. At least three coats of dope are required for Terylene.

Whichever method is used, the extra time and trouble taken to apply the fabric will be reflected in longer model life and crash resistance.



DECEMBER HERE, ANOTHER YEAR ON ITS WAY OUT, and our next issue will be carrying the date line, 1959! How time flies! What modelling progress can be reported on the past year 1958? The Hungarian eclipse of all opposition by their clever team work in the Free-Flight World Championships and at the Criterium of Europe in Brussels, has probably set many a Western modelling centre a-thinking of more serious approaches to the hobby in the coming season. World News this month show how the Continentals are already getting their teeth well and truly into the A/2 class, with first eliminators already run-off in some countries.

But it is not only competitive modelling that keeps the wheel turning, thank goodness. The unorthodox enthusiast, the sport flier, the "Sundays only" man and the chap who can only manage to get to a flying field three or four times a year, is just as important in our view and the miscellany on the opposite page shows how spirit is far from dead in these spheres.

Take picture 1 for instance, an experiment if ever there was one, created by Colin Read of Newport Pagnell, who is not satisfied with a twin boom pusher, but has to go and make a Jetex Helicopter assisted V.T.O.L. model as well—no flight tests reported as yet, but it attracted a lot of attention at the Northern Heights Gala, Halton.

Who could not be thrilled by the form of Pete Russell's new stunt model, the "350", which shows a distinct following of the Chance Vought Crusader lines in 2? Pete entered his 46 in. span, 380 sq. in. wing area model in the International Team Eliminators at Cranfield to go to Brussels, but motor trouble and lack of practice (Pete's own admission) eliminated his chances. Overall length is 32 in. and keen eyes will see that the whole tail surface pivots like the full size Crusader.

No. 3 is one we have seen many times before, but this particularly attractive view of the A.P.S. *Pultan* by K. H. Smith of Dorking, is taken from an angle which emphasises the semi-scale lines of

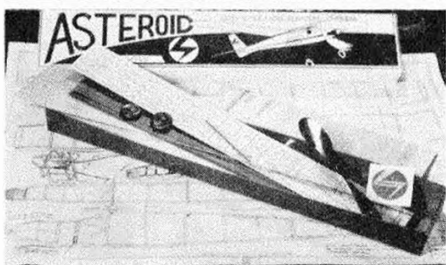
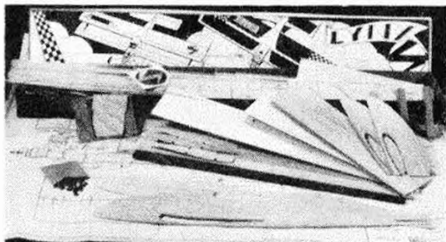
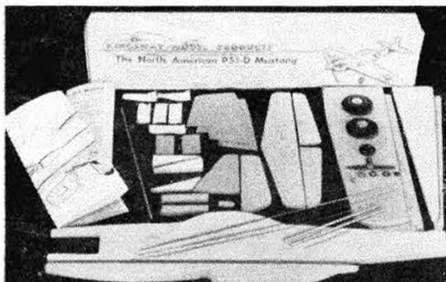
this very popular Delta. Incidentally, a lot of people are asking us whether it is suitable for radio control. The answer is an emphatic yes, but we recommend that lightweight radio control is used and a nose rudder employed, as this seems to give best results. Power should be at least 1.5 c.c.

No. 4 seen in the natural snow setting, is a vivid black and yellow McCoy 29 powered Gee Bee Racer made by Don Prentice in Canada. This is a model of Lowell Bayle's Gee Bee Z, which was the first of the Gee Bee Racers and won the Thompson Trophy in 1931. Its speed was 236 m.p.h.—the full-size that is. 5 Shows our Swedish Acromodeller agent, Bertil Beckman out test flying in the Stockholm snow with his "looping" radio trainer. Looks as though he has a few hazards in the background, but we trust that Bertil has everything under control for a slush landing beside the transmitter every time. 6 Is a very efficient A/1 Glider by Mike Thomas, who has been over in Canada for the last few years and has made a name for himself among the Ontario fliers. This is one of Mike's models on which the towhook is positioned fairly far forward so that the model tends to drag back on the line, then pulls vertically when it is in lift, so telling the operator when to hurl the winch and let go. Already this model has won a local contest and was second in the Canadian Nationals, both "Open" events, flying against much larger designs. 7 Another Racer of the same era as the Gee Bee, this time a Laird Super Solution as flown by Major J. Doolittle, to win the Bendix Trophy in 1931. This 21 in. model by E. P. Edwards of Bramtree has a K. and B. 19 engine, is finished in black and yellow and is, of course, controllable.

Last but not least, an all-sheet Bat in picture 8, 24 in. span for the E.D. Bee and made purely for fun by K. S. Bates of Stamford, Lancs. We suppose it will not be long before such shapes are seen in the combat circles—the shape certainly suits the purpose!







TRADE NOTES

NEW KITS

ACCESSORIES

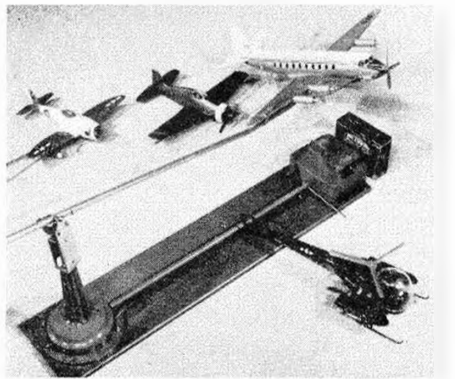
TOOLS

AN IMPORTANT NOTICE has been circulated by the Jetex Division of Schel Products Ltd. in conjunction with the manufacturers of V-Max fuel and it concerns the use of the latter fuel in Jetex units. The special loading instruction sheet will be issued with all fuel in future, but for those operating on existing stock, the following tips are important. When using V-Max single pellets, be sure to employ the coarse V-Max gauze and not the finer Jetex type. When two pellets are loaded, no gauze or base washer should be fitted. One-and-a-half inches of wick should be coiled on the face of the pellet, and the fuse pushed through the jet to make contact.

The new Yeoman series of Quickbuild models includes three fine biplane types: the Gladiator, Tiger Moth and Hawker Fury, at 6s. 11d. each. All sheet parts are completely pre-fabricated and pre-decorated for these 15-in. span models, and the plan leaves nothing to chance through well-illustrated assembly stages. For quick flying success this type of kit does much to encourage the would-be modeller in his early years. Messrs. A. A. Hales, who manufacture Yeoman products, also announce that they will in future be distributing Davies-Charlton products, and we also understand that it will not be long before we hear of a Yeoman move to larger premises and the introduction of power model kits in their range.

Talking of **Power Modelling**, that is the trade name for a new form of electric drive as applied to plastic models. The photograph below shows how it is possible to convert, say, a Hellicat to take an electric motor and prop. by means of a 12s. 6d. kit, and for 49s. 6d. one can buy a flight control unit which gives a speed

New kits at left, with pre-fabricated parts displayed in each of them, below is the Electric Power Modelling system of maintaining plastics



range and enables one to take-off and land. The model is carried on a balanced arm, and the prop. genuinely pulls it round.

This might not be the sunny season, but it is time for Christmas present suggestions, and one which is often overlooked is that of



Items not described in text are the tool pack of six handy files with special handle at 10s. 9d. by Stead and Co., below, and a Danish metal cast Tekno "toy" Mig 15 complete with retracting life and wing tanks, one of a range sold on the Continent to 1/175 scale.

A1 or A2 and cannot go wrong. Then there are the new lightweight pilots for team racers by P. Donavours Hickie, being distributed by Mercury who also announce arrival of a substantial batch of Fox 15s coming in December at a most reasonable price. The introduction by Bill Warne of reeled Lightweight Laystrate with the ends already made up on 62-in. lengths—enough for the

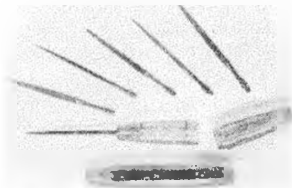
largest stunter will be welcomed at 6s. Mercury's new blend of Super-6 ready mix fuel (not castor based) is having a great reception, the long spout proving very handy.

New kits are seen opposite. The New Zealand Mustang profile trainer includes wheels and all parts cut to shape and is well up with our



Polaroid Sun-glasses. There's nothing as good as the genuine article for following your model in the contest season, and the price range of 29s. to 49s. 6d. makes them a most sensible present.

Accessories we like because they overcome snags that beset the more inexperienced are the sliding auto-rudder and towhook assembly, plus the single blade folding hub unit marketed by **Contest Kits**. The towhook really is a boon, fits any



U.K. standards Mercury's **1A Team Racer** serves a double duty as a trainer or racer and is going to maintain the Holloway Road firm's name for up-to-the-minute designs, while **Performance Kits' Lynx** and **Asteroid** show how a small firm can produce a very good kit with perfect die-cutting if perhaps not the most beautiful of designs.

AEROMODELLER PLASTIC KIT SURVEY

Scale taken from wingspan, we regret blanks due to certain kits not being available for examination

(Continued from page 618)

TYPE	Checked Scale	Model Span (Inches)	Price (inc. P.T.)	No. of Parts	TYPE	Checked Scale	Model Span (Inches)	Price (inc. P.T.)	No. of Parts	TYPE	Checked Scale	Model Span (Inches)	Price (inc. P.T.)	No. of Parts
LINCOLN HAWK					LINDBERG					MONOGRAM				
Dart XF92A	1/72	5 1/2	4 11	21	Junkers Ju 87B	1/48	11 1/2	9 11	55	Cessna 180	1/41	10 1/2	11 9	
Republic					F.11-F "Blue Angel"	1/48	8	9 11	51	NA T28A	1/52	9 1/2	11 9	
Thunderstreak F84F	1/72	5 1/2	4 11	43	Grumman F11-F1 Tiger	1/48	8	9 11	59	F11F-1 Tiger (Blue Angels)	Set of 41	11 9		
Spad XIII	1/48	6 1/2	4 11	29	Boeing B.17G	1/64	19 1/2	11 9	95	Wright Kitty Hawk	1/19	12 1/2	11 9	64
Nieuport 17c	1/48	6 1/2	4 11	22	F8U-1 Crusader	1/48	9	11	63	Grumman TBF Avenger	1/50	13	18	57
Grumman Panther F9F	1/48	9 1/2	6 11	26	MERIT					Convair B58 Hustler	1/14	6	11 9	72
Supermarine 56B	1/48	7 1/2	6 11	14	Sopwith Camel	1/48	7 1/2	7 11	30	Republic F105	1/73	5 1/2	11 9	
Gloster Javelin FAW1	1/72	5 1/2	7 11	37	Albatross DIII	1/48	7 1/2	7 11	29	REVELL				
N.A. Mustang F51D	1/48	9 1/2	6 11	24	Nieuport	1/49	6 1/2	7 11	35	Lockheed F94C Starfire	1/54	8 1/2	6 11	
D.H.105 Comet IV	1/53	9	7 11	89	Fokker DR 1 Triplane	1/43	6 1/2	7 11	30	Interceptor				
Howard "Ike" Racer	1/46	5 1/2	2	15	S.E.S. Scout	1/46	6 1/2	7 11	31	Grumman F9F-8 Cougar	1/52	8	6 11	
Gee Bee Sportster	1/48	6	2	13	Fokker D-7	1/46	7 1/2	7 11	33	Douglas D-558-8				
Laird Solution	1/47	5 1/2	2	15	Avro 504K	1/48	9	8 11	35	Skyrocket	1/65	5 1/2	6 11	16
Curtiss Racer	1/48	5 1/2	2	16	D.H. Tiger Moth	1/48	7 1/2	7 11	32	Thunderbolt	1/54	7 1/2	6 11	
LINDBERG					Bristol Bulldog	1/48	8 1/2	7 11	38	Chance Vought F7U-3				
Supermarine Spitfire	1/60	6	2 1/2	25	Fairey Swordfish	1/48	11 1/2	15 11	57	Cutlass	1/53	8	7 11	35
Messerschmitt Me.109	1/65	6	2 1/2	21	Supermarine Walrus	1/48	11 1/2	15 11	68	Convair B-36 Bomber	1/184	15	8 11	49
Douglas Skyhawk	1/48	6 1/2	5 11	40	Hawker Hunter	1/47	8 1/2	12 11	14	Boeing B-47 Stratojet	1/116	12	8 11	
Curtis Goshawk F.11C2	1/48	8	5 11	46	MONOGRAM					Boeing B-52 Stratofortress	1/72	13	8 11	
Mig 19	1/48	8 1/2	5 11	35	Douglas A26 Invader	1/67	12 1/2	11 9		Boeing B-29 Superfortress	1/130	14	8 11	
Lockheed Starfire	1/48	9 1/2	5 11	29	N.A. B25 Mitchell	1/70	11 1/2	11 9		Douglas A30 Skywarrior	1/83	10 1/2	8 11	
S.E.5a	1/48	7	5 11	55	Consolidated PRY	1/104	12	11 9		Navy Bomber	1/49	13 1/2	7 11	
Spirit of St. Louis	1/48	11 1/2	5 11	36	Douglas DC3 TWA	1/92	12 1/2	11 9	34	Sikorsky S-55 Helicopter	1/51	10 1/2	8 11	
Grumman F6F Hellcat	1/50	10 1/2	5 11	33	Douglas B66 Jet Bomber	1/90	10 1/2	11 9	45	Piasecki YH-16A	1/51	10 1/2	8 11	
Thunderbolt	1/46	10 1/2	5 11	58	Douglas C47 Skytrain	1/92	12 1/2	11 9		Sikorsky Air Sea Rescue	1/49	13 1/2	8 11	
Curtis IN4D Jenny	1/48	11	7 11	52	Douglas C-47 Skytrain	1/92	12 1/2	11 9		Swissair DC-7C	1/113	12 1/2	8 11	
Winnie Mae	1/46	10 1/2	7 11	46	N.A. T28 Navy Trainer	1/54	9 1/2	11 9						
Convair XPY-1	1/46	7	7 11	23	Ford Tri Motor	1/81	11 1/2	11 9						
Douglas X3	1/48	5 1/2	9 11	35	Lockheed "Super G"	1/64	11	11 9	72					
McDonnell F-98 Voo Doo	1/48	11 1/2	9 11	31	Grumman SA-16B	1/72	16 1/2	18	65					
					Piper Tri-Pacer	1/34	10 1/2	11 9						

* rotor

WORLD NEWS

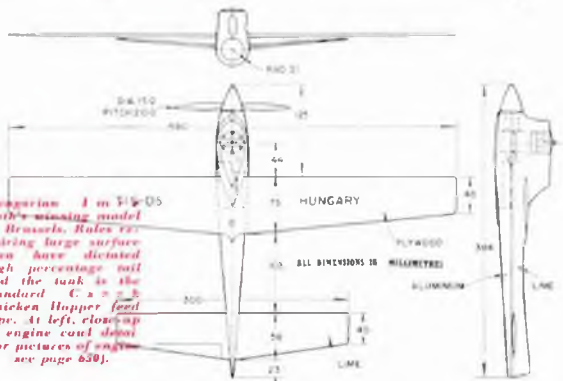
THE GREAT WIDE world of aeromodeling that never seems to forget us at Watford whenever an important event takes place (including Hermanos Xelyphid's first flight with a C/L stunter in the heart of the African bush) has set us in a spot this month as we have ten times too many pics. for the space and loads of Nats. news from all over the globe. So we've picked 20 outstanding photo's plus the plan all the speed fiends were clamouring for and will have to go telegraphic style on the news.

France. P.A.A. sponsored their last 1 c.c. and 2-5 c.c. events in Paris, September 7th. Next year it's Jetex and Clipper Cargo only. Held at historic Villacoublay, 25 entered the '58 events, Jacques Morisset taking 1st in Jet, Pierre Dupin 1st in 1 c.c. with a McCoy .049 Blanchard Payee and Jumaux narrowly collected 2-5 c.c. by one sec. over Aubertin from Monaco. Modeller in **New Guinea.** John Clatworthy, has power loss problems, 5,250 ft. a.s.l. at Goroka, where 15 strong club recently exhibited 43 models. Anyone help John with his need to get more of his glow motors? We'll forward letters. **Australia** is very happy about the Baker Wakefield win, Bond's report in *Model News* is frank, to the point, and funny. Said he didn't have time even to scratch, just filled up the fuselage with rubber and chucked off hoping for the best, hardest part must have been drinking that Cup full of White Bordeaux! The Newtown boys in Brisbane have bulldozed three of six acres for future C/L work and are waiting for grass to grow. Seems that for f1 their models have to choose between a river or a mountain at Beenleigh—where are those wide open Aussie spaces? **Bahrain** modeller in R.A.F. has all the heat he needs, but no line tension on four listed types. Could it be the humidity, or the fact that thermals are so powerful they bump a C/liner? Any clues from those who've been there before? Also hot is **Mexico**, where Nats. were held at Guadalajara. All the A/L's were *Aglets* and U.S. glow engines dominated all power events. How are these for combat model names—*Chihua*, *El Pescado* and *Pepe-Grillo*? Or just to be up-to-date, plain *Falare*? **Norway** was host for '58 Nordic Champs, on August 24th, won by **Finland** with sweeping success thanks to Raulio in power, Hyvarinen (see pic.) in A2 and Wake and Hamalainen, Wake winner.

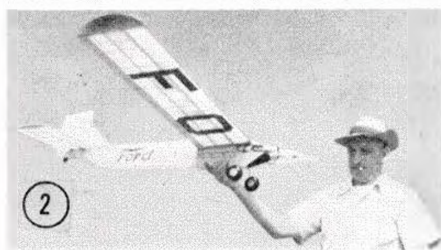
Another Nordic International on September 28th in Finland, saw a reversal with Gamen, Champion **Swedish** club taking team event though Hyvarinen and Raulio topped Wake and Power again.



Hungarian 1 in 1/2 OS
Tudor's winning model in Brussels. Rules for gliding large surface area have dictated high percentage tail and the tank is the standard C 2 x 2 x 2 Chicken Hopper feed type. At left, close-up of engine could detail (for pictures of engines see page 630).



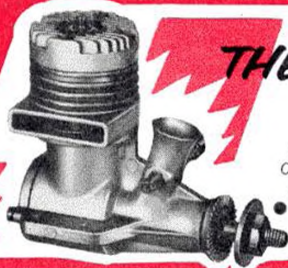
U.S.A. Yes it's true! This k. and B. 35 C/L magic carpet actually flew and is the creation of E. Ogurchak Jr., of Lebanon, Phil. U.S.A. Below, one outstanding free-flight design of 1958 U.S. Nationals was Bob Hunter's Satellite in various sizes. (2) Appropriate decorations for a P.A.A. Clipper Land design by H. Oshiwane of Los Angeles.



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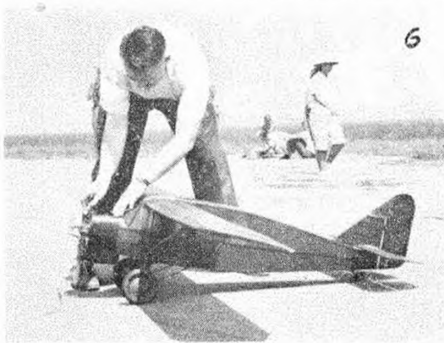
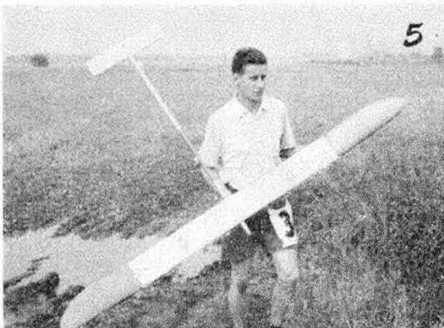


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Thomann led A2 by 72 secs., he also went to the **Saar** and won the same event in Europa Cup to emphasise his skill with *Aquila*—surely '58's outstanding advance in model design? His model obviously influenced Peter Wyss (see pic.) the **Swiss** A2 leader from 76 entrants, on September 29th, Rudi Schenker was only man to make 900 total in Swiss Nats, by leading power, was also 5th in Wakefield—note these keen countries well on their way with serious practice for the '59 World Champs. In **Czechoslovakia**, Michalek and Horyna had to fly-off to decide Nats. A2 winner, Michalek did 8 : 10, Horyna 3 : 10. Hmmm! Conditions were interesting as the models did not go higher than 164 ft. at any time. 53 entered A2, 46 in Wake, 36 in Power Muzny and Cizek led in Wake, and five flew off in power, lowest making 3 : 07, winner Bouchard doing 4 : 27 all using M.V.V.S. diesels. **Hungarian** Nats. tell similar tale with Ordogh making higher power fly-off time of 5 : 15 over World Champ, Frigyes' 3 : 55, Krizsma won Wake, Benckek 3rd at 900 and 865 respectively, while Radoczi made a perfect 900 in A2. These times emphasise that the Hungarians were not lucky to win at Cranfield, and to rub it in on October 5th, Rudi Beck established a new F.A.I. speed at 221 f.p.h. (137.3 m.p.h.) and a National record on 0-2 min. lines of 229 f.p.h. (142.3 m.p.h.) with the Moki S-1 2-5 c.c. What price now, any claim that the rule changes were going to ruin the F.A.I. speed class?

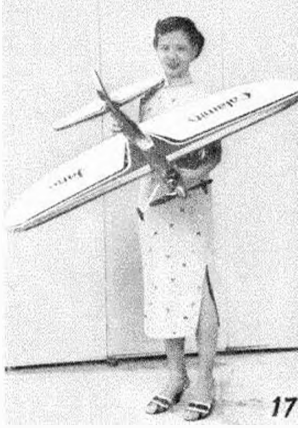
24 Entries made the Inglewood Flightmasters Scale event on August 24th something like a historical pageant

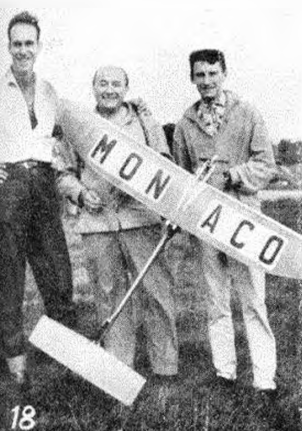
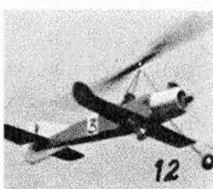
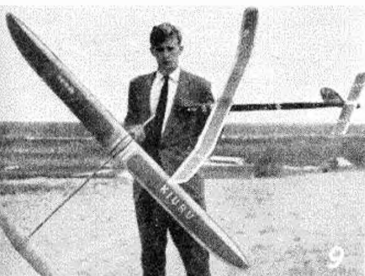
Germany's Lothar Pieck's outstanding 1.5 c.c. model which could well have won the World Championships this year, was proxy flown at German Nationals, where it placed 9th. (1) *Arco Arion* for single channel c.c. weighs 7.5 lbs., has a K. and B. 45 pusher engine and is 70-in. span, made by Gunther Klinger of Bremen.

(2) Switzerland's Hansrudi Thomann with his very successful asymmetrical *Aquila* won A2 in Europa Cup and Finnish International Contest.

(3) F.S.I. Gordon Gidding winning up his 72-in. *Bellona* in the Inglewood Flight Masters Scale Contest, Los Angeles.

(4) Switzerland. Interesting swept forward A2 by Bruggmann of Tübingen in Swiss Elms, which were won by Wyss, of Olten with 620 seconds in picture (6). Finland's A2 and Wakefield Champion 1958, is Hyvärinen, seen in (9) with his two models.



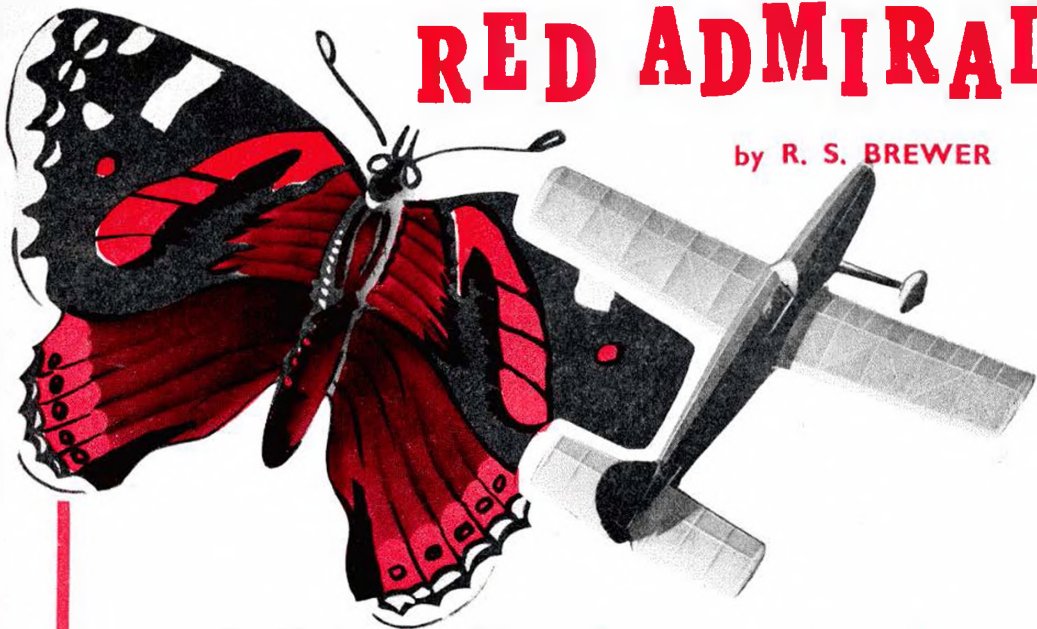


Ranging from Dunne tailless to Skyray and including six for the Cox Pee Wee, it was won by Bill Kresig's Curtiss Robin, which took eight years to build. (There's a lot to tempt a modeller from the board in California U.S.A.) The Eastern Canada Open for freelight at Hawkesbury, drew several U.S. competitors and the winners list includes names of Barry Hansman and Dave Sugden, well-known for their British Club activities. Well sponsored in its prize list: but calling for journeys up to 340 miles by contestants from Hamilton, the E.C.O. enjoyed fair conditions and 900 scores were recorded in two power classes and rubber. Hugh Tuck (Niagara) clinched under 2.5 power with 5:20 fly-off. Over in Singapore such times usually mean a lost model, either to bush or sea. At Far East A.F. Champs., Seler timed to synchronise with R.A.F.M.A.A. event in U.K., conditions were kind and Cpl. Godden Zout Suted 6:03 for top time of a wonderful day to win power. This was the first F.E.A.F. Champs. and as pics. of two models on this page show, the standard is well up to that of the boys back home. Rumania invited 17 countries to participate in the "European 11 Power Championships" for the Yugoslavian Challenge Trophy on September 27th. U.S.S.R., Poland and Yugo. were the only countries that sent teams, and result was a clear victory for U.S.S.R. Verbitski took home a fridge for making sure of a perfect total, the only one to collect five max's. The question arises—by what right is this a European Championships?

(10) Germany's Europa Cup Wakefield winner, Manfred Randle. (11) Sweden's Europa Cup Power winner Hans Briss. (12) Singapore, Autogyro from "Aeromodeller" Annual feature, flown at R.A.F. Meeting. (13) Israel's Dr. Sallan, who has been building and flying models for over 50 years, with latest 42 Canard design. (14) Another smart model from R.A.F. Changi, Singapore, by N.A.C. Jeffs. (15) Mexican Jesus Sanqueria winner of Speed and Combat with his successful models at the Mexican Nationals. (16) Vietnam, Nguyen Quang-Bu and Locke Wolf BB using two Micron 20 engines for control. (17) Malaya's Mrs. Charlie Chong with hubby's U.P.S. Calamity Jane, decorated in the Palmier style, looking very much like the Thunderbird. (18) Monaco, In Paris for the P.A.U. Contest, Father and Son Aubertin with Robert Lestournaud (left), P.A.U. organizer of this popular event.

RED ADMIRAL

by R. S. BREWER



A 32" low-wing high performance sport model

MANY OF US "OLDIE" modellers will remember with not a little affection the delightful *Cruiser Pup* low wing kit model which was so popular among the sport flying fraternity in those very pleasant flying days of almost twenty years ago, when contests were a rarity and flying fields no problem.

"Rip's" little Pup was the perfect introduction for the beginner and would flit around the field in a very stable manner for 60 seconds on any flight. Mr. Brewer's Red Admiral design brings back these fond memories with its similar layout, embellished with modern trends of thought in larger fuselage proportions and using more area, more power and a larger propeller to obtain high performance and longer duration.

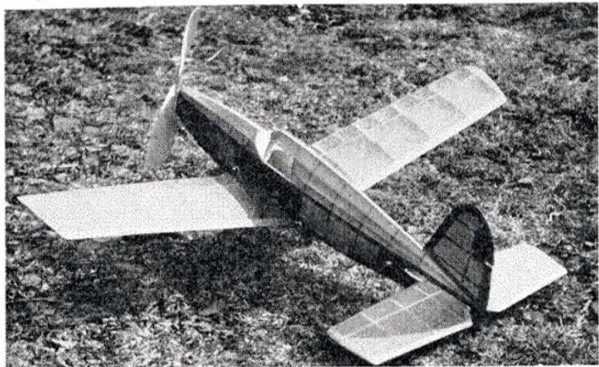
Construction is within the capabilities of any beginner and the flight trim procedure is as simple as one could

desire—why not tackle it as a one-design club model, or build one to while away pleasant moments on the local playing fields?

Cut out basic fuselage from light $\frac{1}{8}$ sheet, add vertical spacers and stiffeners. Mark position of all formers and bottom spacers and then join the two sides using forms F-6, F-8 and F-10 and their corresponding bottom spacers, check for squareness and allow to dry. Then pull in at front and rear and add the rest of the formers and spacers, holding both ends together with rubber bands. Add sternpost, stringers, fairings and u/c tubing. Make up tailskid, cement to $\frac{1}{8}$ sheet fill-in at stern, and cement assembly firmly in place. Make up u/c legs and braces, insert them in the tubes on the model, adjust for correct take, bind with fuse wire and solder. Bind fairing securely in place, assemble spats, allow to dry and then carve and sand to shape.

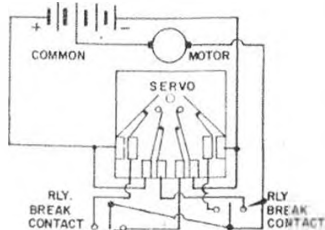


Smart fuselage lines, neat wheel spacers, undercarriage and a semi-scale cutaway in the elevator, help to give Red Admiral realistic lines which go well with its fine performance. Simple construction is particularly simple for beginners, eliminating even the usual longwinded — why not make it your standard club model for sport flying?



RADIO CONTROL

Control Linkages and a review of the C.G. Transistor equipment



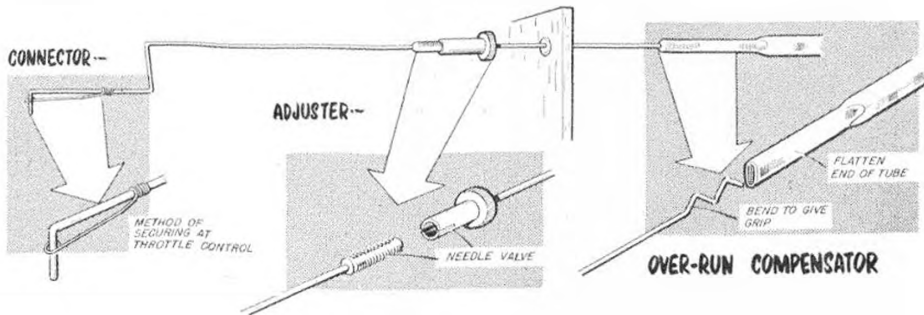
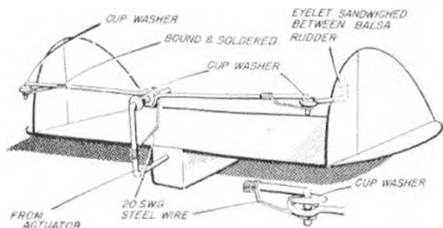
WE APOLOGISE for an error in the circuit diagram relating to the Olsen servo unit described in our last issue. The correct circuit is shown above and we stress again the importance of correct polarity if the unit is to operate correctly.

Twin rudder linkage

Builders of that well-known New Zealand design of the R6-B may be interested in the method of twin rudder linkage used by reader E. G. Gordon of Southern Rhodesia. As the diagram below shows, two 16 s.w.g. piano wire links are made with eyelets at one end and a right-angled clip at the other. The method of making the clips by means of a cup washer and 20 s.w.g. steel wire is apparent from the drawing and the rudder horns are bent from piano wire, firmly retained by being sandwiched between the two laminates of balsa that make up the rudder.

A similar clip is incorporated with the rudder actuating shaft projecting from the rear of the fuselage.

This assembly produces a tail assembly that is quickly



NOTES

and easily removable from the fuselage and will, of course, suit any twin rudder design, apart from the R6-B.

Motor control linkage

Similar clips are employed on Howard Bonner's cunning engine control linkage employed on his famous multi design "Smog Hog", also shown diagrammatically on this page. Used with his Bonner servo unit it permits a simple yet positive adjustment of the amount of throttle movement by means of a modified needle valve assembly, the head of the needle valve acting as a limit stop when it comes up against the bulkhead. Over-run of the servo is taken care of by the simple expedient of flattening the end of a piece of brass tubing, the end of the shaft being kinked to provide a friction grip in the inside of the tubing. Howard came second at this year's American Nationals, being narrowly piped to first place by 1957 winner Bob Dunham. We gather that Howard, flying an "Astro Hog", completed his aerobatic schedule in grand style only to discover that he had omitted entirely his three loops! Goes to show that even the experts make mistakes and that one mistake will lose a contest. We bet that if Howard had a hat at the time he must surely have jumped on it!

Mighty Midget actuators

Now for a tip from reader P. G. Tucker of Croydon for those people who use "Mighty Midget" compound actuators. These units invariably incorporate dead segments in the large gear wheel via leaf contacts similar to the Ellis Canadian actuator described a year or two back, or the system described by Mr. Ford of Brighton in the August, 1958, issue.

Sellotape is invariably specified as the dead segment which to Mr. Tucker seems a makeshift. He drills holes in the gear wheel at the appropriate points, squares them off with a small file, chamfers the edges of the hole from each side to form a key and then fills them with "Bondafiller". This when set produces a rock hard surface and the job finally needs rubbing down with a sheet of emery cloth. "Bondafiller" is manufactured by our old friend Peter Smith of Croydon and is available in powder form together with a resin in convenient-sized packs from any good model shop.

AVIATION LITERATURE REVIEWED FOR YOUR ENJOYMENT

Armchair Aeronautics



MY ZEPPELINS by Dr. Hugo Eckener (Putnam's, 216 pages, 21s.)

With a personal collection of Zeppelins limited to seeing their silvery shapes caught in the glare of searchlights over London way back in World War I, supplemented by the awesome sight of witnessing two of these mighty dirigibles fall to earth as flaming torches, Dr. Eckener's book was perused with interest. Unfortunately, the bulk of the famous aeronaut's discourse deals with the navigational hazards that had to be surmounted in the early days of flying these huge craft, and in this respect the book would have been considerably improved by the inclusion of maps depicting the courses of the more famous journeys made by this craft.

Nevertheless, his account of the early struggles of the famed Count who gave his name to these airships, and his own experiences when he carried on the projects, make interesting reading. Perhaps more illuminating are the closing chapters where the Doctor discloses his clashes with the Hitler regime and propaganda system, and the book is rounded off by a technical chapter contributed by Knut, the son of the author. Here much interesting information comes to light, which would have made the earlier chapters more absorbing if interspersed in relevant places. C. S. R.

MODELLING WITH BALSA by ROX WARRING (Stanley Paul and Co. 50 pages, 8s. 6d.)

Aimed at the schoolboy with limited pocket money, this handy book is well illustrated by clear sketches, and leads the youngster through an easy-to-understand description of materials and their uses. No fewer than 28 projects are given for the modeller to try his skill, ranging through aircraft, boats, kites, and railway buildings to puppets and the art of carving a propliner.

AIRCRAFT OF THE ROYAL AIR FORCE 1918-58 (Putnam's 533 pages, 50s.)

BRITISH NAVAL AIRCRAFT 1912-58 (Putnam's, 426 pages, 50s.)

Both these works are the result of stupendous research by Mr. Thetford, whose abilities are well known to readers of this magazine. The tome dealing with the R.A.F. is a revised version of an earlier publication, brought up to date with the addition of many aircraft such as the Vulcan and Comet C.2, and numerous criticisms of detail in the first version have been thoroughly dealt with.

"British Naval Aircraft" is the first complete reference book to all the aircraft ever flown in regular service by the Naval Wing of the Royal Flying Corps, the Royal Naval Air Service, and the Fleet Air Arm. Besides containing the maximum possible technical data, covering performance, dimensions, armaments and weights, each aircraft is given its development history,

supplemented by its Service record. There are over 160 photographs and 100 three-view drawings, making this one of the finest illustrated books on the aeronautical market.

Both books are a tribute to the painstaking efforts of the author, who has left no (reference) page unturned in his search for the last bit of information on each aircraft, many of which are revered in the glimmer of aviation history.

C.F.S. (BIRTHPLACE OF AIR POWER) by JOHN W. R. TAYLOR (Putnam's, 222 pages, 21s.)

This fascinating account of the Central Flying School makes absorbing reading, provided one can overcome a natural aversion to the author's excessive use of the semi-colon which rather mars the earlier chapters. Formed in 1912, simultaneously with the R.F.C., in order to train the world's first military pilots, the C.F.S. became in 1920 the sole training centre for R.A.F. flying instructors. Before long the quality of its instruction was such that pilots came from all over the world to take a C.F.S. course—its story told.

Much pioneer work was carried out, but it is true to say that hard work was blended with high spirits to a degree that glues the reader to the pages of its recounting. Many famous living men figure in its pages, and we recommend this book to any with a love of flying, and the high humour that goes with it.

VON RICHTHOFEN, AND THE "FLYING CIRCUS" (Harleyford Publications, 208 pages, 45s.)

Compiled by H. J. NOWARR (Luftfahrt-Archiv, Berlin) and MAJOR KIMBERGREN S. BROWN of the U.S.A.F., this massive history of the famed Red Knight and his Jagdgeschwader Nr. 1 is impressive in its coverage of every known detail of the man and his activities, and much time and effort has obviously gone into its compilation. Whilst the rabid enthusiast will no doubt savour every detail, we feel that the average reader will find the often repetitive "gen" somewhat indigestible. Whilst we would not quarrel with the publisher's statement that the "book is unique" in that the life story of von Richthofen and his Circus are combined into an interesting whole, we feel that the further statement that the book "will stand for all time as the standard work of reference" is only true till a new author feels he has fresh information with which to reopen the controversy which seems inseparable from this glamorous World War I pilot. The book reviewed in no way resolves many of the conflicting views held on the subject of the "Ace of Aces".

Minor faults in captioning of photos (the machine Goering is inspecting on page 130 is a D-VII, not a D-VIII), and certain discrepancies in the six-view drawings are unfortunate in a work of this standard. Nevertheless, we congratulate the authors on a work that in its magnitude is probably the best history of Manfred von R. yet produced.

GLIDING. A Handbook on Soaring Flight. (The Book People, G.A. and C. Black, 201 pages, 25s.)

I may not be known to our newer readers, but the author of this highly authoritative book was one of the keenest British aeromodellers in earlier days, and the reviewer well remembers accompanying him with the British team which competed for the first post-war Wakefield Cup contest held in America in 1948.

Derek graduated into his current eminence as one of Britain's best gliding instructors via the R.A.F., and has instructed some very famous people during his activities at Lasham. This book is, therefore, written from his vast experience as Chief Flying Instructor with a wide knowledge of the questions asked by the novice, and he sets out in concise form virtually all there is to know about the fascinating art of soaring flight. At the same time, Pigott wisely says in the very first sentence of his book, "do not expect this, or any other book to teach you to fly. A book can only be a useful supplement to your gliding instructor, and cannot replace him". C. S. R.

OTHER BOOKS RECEIVED

THE GEE BEE STORY by CHARLES G. MENDEK (Robert K. Longo Co. Inc., U.S.A. \$4.95)

Collector's book covers the fascinating history of the Graubauer Brothers' famous racing aircraft. Fine photos, sketchy 3-views and lots of hitherto unrevealed data.

EXPERIMENTAL LIGHT A/C AND MIDGET RACERS by JOHN UNDERWOOD and JOHN CALDER (Aero Publisher, Inc., U.S.A. \$2.50)

Pictorial review of 360 light planes and motors. Fine for reference work, the first of a regular series.

U.S. ARMY-AIR FORCE FIGHTER PLANES by EDWARD J. FORTY (Aero Publishers Inc., Los Angeles, U.S.A. \$2.50)

196th scale drawings and pictures of America's famous fighters, first of the larger types to F-129 in scale.

THE FORD STORY by WILLIAM T. LARKINS (Robert K. Longo Co. Inc., U.S.A. \$7.95)

A pictorial history of the Ford Tri-Motor 1927-1957. A very complete history of the famous "plane that figured so largely in American aviation." A collector's item.

AERODYNAMICS (Butterworth's Scientific Publications, 7s. 6d.)

A series of 11 papers revised and reprinted from *Research*, Vol. 10, 1957.

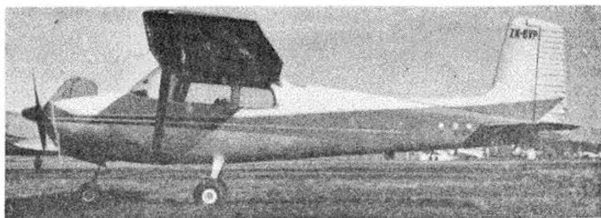
FLYING WITNESS by GRIFFITH WALLACE (Putnam's, 272 pages, 25s.)

The story of aviation from 1906 to the outbreak of World War I as seen by Harry Harper, the first aeronautical correspondent in the world.

DECOR DETAIL

FOR FIVE POPULAR APS FLYING
SCALE MODEL DESIGNS.

THIS MONTH'S selection will be
a great boon to those who like to
be different with their colour

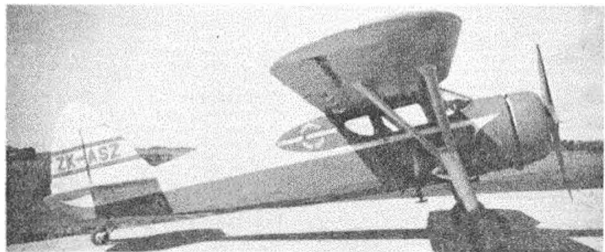


schemes for flying scale models built from our Plans Service. Dealing from top to bottom, first is ZK-BVP, a Cessna 172 with silver lower fuselage and vertical tail, bright green dart trim and white top surfaces. Registration in black. This Drake-Meehan picture will help builders of our 72-inch model for sport of radio control, plan FSP'668, 10s.

Next, a novel silver S.E.5 with no registration but clearly advertising its purpose on the fuselage. Note the

long extension of exhaust pipes which join in middle of rudder to make smoke. R. G. Hamilton sent us this early shot which helps builders of plans FSR 274, 28-inch rubber-driven model and FSP'682, 27-inch free-flight power, each 3s. 6d.

The Ercoupe 415 C-10 registered ZK-AQN was originally flown to New Zealand from Belgium as

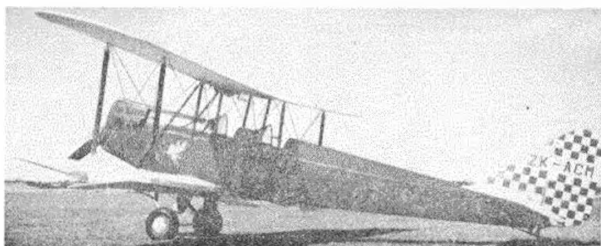


OO-ENC and is all ivory with metallic dark blue trim. A most attractive colour scheme for our 39 1/2" control line plan CL 385, 5s. 6d.

The Fairchild Argus is a popular subject as A.P.S. plan FSR 272 for a 37-inch version, price 3s., this being most suitable for power conversion and the next photo, ZK-ASZ, shows an attractive silver and blue scheme with narrow red line dividing the two colours. Struts are silver, wheel covers blue. This aircraft was originally built as AUC-61

and in the past has carried registration G-AJSM and military serials 11B621 and 43-14894.

Lastly, oldest aircraft flying in New Zealand, the Avro Avian IVm ZK-ACM with blue fuselage, white wings and a checkboard fin and rudder. Note the winged horse insignia on the fuselage side. A flying scale model of this aircraft can be built from FSP 468 for a 35-inch version, price 6s. These last three photos are by K. Meehan of New Zealand.





WILL, although you will be reading this some weeks before the Christmas holidays but you, it behoves me (translation on receipt of s.a.c.) to wish all readers the very best for yet another year.

A keen young modeller of Corning ignored the usual warning:

Instead of fun flying,

When last seen was crying

"I started to build it this morning"

Incidentally, how many of you know how long it is since I undertook the drastic task of editing your club reports? Yes, a year to the gentleman in the bath-chair! May, 1958, saw the dreaded name "Clulman" appended to these columns, so this will be the twenty-first time I have wished you the compliments of the season.

Midland

The OUTLAWS M.A.C. revival continued at the Leicester C.J. Rally, when one stunt and no fewer than eight combat entries were made. (Twelve months ago there weren't even eight members!) Seven won through, but an assortment of chopped models prevented anyone getting among the prizes. A recent combat comp, with the Walsall club was upset by high winds and

heavy rain, and the proposed 10 heats were cut to seven, of which Outlaws won four. Stunt is beginning to claim a little more interest, and plans are already under way for a mass exodus in a fleet of Durnobiles to next year's Nats. A series of monthly combat comps. are to be held during the winter to keep in practice.

Another club to sunbathe a rally with a neighbouring group was the STRATFORD-UPON-AVON M.A.C., again activities being spoilt by the weather, this time a heavy thunderstorm. On the previous day a visit was paid to R.A.F. Gaydon, as a result of which monthly meetings are being held in conjunction with the Station enthusiasts.

The meeting at Leicester was also supported by members of the WEST BROMWICH M.A.C., who had quite a good day's outing, with several of the keen types bringing home prizes. Mike Kendrick had the misfortune to be flying in a torrential thunderstorm which marred the day, when he received quite a powerful shock through the C.L. handle. He vows he will never fly in a thunderstorm again!

DERBY M.A.C. team totalled 24-17 in the "M.E." Cup event to place third in the Area results. On the same day the combat section (alias "Rangpods") visited Leicester, where Brian Kirkman smashed one Oliver and two models to win. With so many rallies to attend, the club is hard pressed to find time to fly off its own club events, the last attempt ending in a deluge.

The BEDWORTH M.C. gave a C/L display on September 13th for the pupils of Exhall Grange Special School for disabled children. Most popular feature was combat, which aroused many cheers on each cut.

A new club has been formed in Leicestershire known as the PRIMETHORPE AERO CLUB, with some 15-20 keen members who, we are told, have all the makings of top class contest winners. A club engine is being designed, a 2.5 c.c. with nitrided cylinder, special iron piston, tuned little end and pin roller-beatings.

The radio section of the NORTHAMPTON M.A.C. are still trying to get models to stay in the air! So far the same results seem to have been achieved: fly-aways, spin-in, etc. The club scribe asks when is he going to be able to say "Well done, smashing flight. Under control all the way!" Latest gimmick for indoor work is r.t.p. with PeeVee-powered models.

The HUCKNALL AND D.M.A.C. wish to state that they do not have the use of the Rolls Royce sportsfield as stated in our October issue, having only flown there on occasion as guests of Rolls Royce. The club has been keeping busy on the contest field, though most practising has left the boys with no models for contests!

LEICESTER M.A.C. report a very successful result of their C.J. rally, where 60 entries were received for the Combat

Twenty gliders were mass launched at Henon on October 12th when South Midland Area had their annual "Picnic". Most of them in this view, but not one to land ever! It was a prize-fantastic to watch in calm air.

event, and 14 for Stunt. Following a slight delay, combat got under way and went quite well, though the club would appreciate any constructive criticism for the benefit of future organisation. Winners were:

Combat:	B. Kirkman	Derby
	J. Vaughan	Chestfield
	D. Walker	West Bromwich
	M. Kendrick	West Bromwich
Stunt:	D. J. Day	West Bromwich
	R. Collis	Boston-on-Trent
	M. Grimmett	West Bromwich

Southern

Results of the recent West Hants and Southern Area Rally were very much a clean-up for visitors, or was it that the locals were busy running things instead of flying?

Open Pacer:	G. Fuller	St. Albans	13:14
	P. Buskell	St. Albans	13:03
	K. Glynn	Surlinton	12:22

Open Rubber:	N. Elliott	Men of Kent	9:00
	C. Callman	Surlinton	8:38
	B. Roberts	Lincoln	7:22

Open Glider:	S. Hinds	Wallasey	9:00
	A. Wisner	Surlinton	7:55
	T. Punter	Hayes	7:36

Mike Hackett (Surlinton) won both A and A Team REX events, with McNeess of West Essex taking the B class. In radio George Redlich cleaned up the multi section, and R. Marsh the single channel. (Only speeds and points were not given in the report, or do P.R.O.s think that duration is the only criterion worth mentioning?)

PETERSFIELD M.A.C. have been getting on a more organised footing in recent months, but owing to the restricted flying field problems are limited to C.L. work, where stunt and combat are the main interests. Negotiations are in progress with the local council for acquisition of a new field, but some effort is being made in the slowing of motors. Ken Waller's high-speed Vero 19-powered combat job gained him third place in the Southern Rally.

Another active C.L. club is the LEATHERHEAD AND D.M.F.C., though it is not ignored. A recent census disclosed that there are some 25 engines in the club, also a very impressive list of models is notified, but cannot possibly be noted here!

Northern

WHARFEDALE M.A.C. maintained their contest record at the Area Rally held on September 23rd. About half the R entries managed to fly in the restricted time allowed, producing some very poor times in the Class A event. In Class B Ken Long topped the list with 8:00 for 10 miles. The 1/4 race was flown in the dark, but junior Brian Turner managed to out the club experts with 5:31 for 5 miles. Big surprise was B. Rushworth's performance with his Class B model, which was double-checked at 120 m.p.h. for 40 laps.

In the Halifax Trophy contest the BAILDON M.F.C. best men were Eckerley 10:14 and Pannett 10:01, three times also counting for a club power event. Their "M.E." Cup team came third in the Area results with 22:04, but their sole representative in the Muxlow Memorial Trophy for Wakefield models seems to have been right off form and only scored 3:10. The club held an open glider contest at Baildon, when Gerry Fildeswell claimed top place with 8:15 in distinctly unpleasant conditions. For their last visit this season to Rufforth the weather man produced a beautiful still day, marred only by early morning mist. C. P. Miller scored a faultless 12:00 in the Farrow, Henry Tulbs coming second with 10:29. Regrettably, then C Team failed miserably

For Your Diary

November 22nd

S.M.A.I. Dinner and Dance,
Horseshoe Hotel, London.

December 7th

Blackheath M.F.C. Gala,
Chobham Common.

December 26th

Bletchley and D.M.A.C. Slope-soaring
R/C and F/F, Ivinghoe Beacon.

S.M.A.I. Contest Results

NORTHERN G.A.L. September 7th, 1958

Open Glider

1. Dent, D.	Scunthorpe	7:47
2. Southam, P.	Chorlton	7:39
3. Ellison, I.	English Electric	7:33
4. Spencer, B.	Chorlton	7:30
5. Davies, E.	Wallasey	7:19
6. Tyrrell, B.	Leicester	7:13

*Model Engineer's Cup September 21st, 1958

1. Birmingham M.A.C.	30:17
2. Coventry D.M.A.C.	29:56
3. Leamington M.A.C.	29:42
4. Audley M.A.C.	29:03
5. St. Albans M.A.C.	27:25
6. Teeside Group	27:10

Halifax Trophy September 21st, 1958

(96 entries)

1. Topham, D.	Loughboro Coll.	12:0	14:30
2. Gaster, M.	Surlinton	12:00	
3. Roberts, G. L.	Lincoln	11:48	
4. Draper, K.	Coventry	11:46	
5. Bucknott, C.	Halifax	11:44	
6. Monks, R. C.	Birmingham	11:35	

in the final of the Area Knock-out and lost to Tweedie by about four minutes. Inquest to be held later!

London

KENTON M.A.C., visited the last rally of the combat season at Ashford, where, despite damp conditions, I. Burbridge and D. Wilson placed top two. The club is feeling the influence of the new stunt schedule, and several members are turning towards models of American origin with various Jap and Yank glow engines. With the new powerful British 1-1.5 c.c. engines appearing, this club would like to see LA combat at the Nats, and other large rallies. This should open a new field of interest in combat against the usual Oliver Tiger equipped.

Four **FARNBOROUGH M.A.C.** members entered power at the Croydon Gala, when M. Beech managed two maxis but had engine run trouble on his last flight. Alan Leeson has, probably the fastest climbing model in the club, an Oliver-powered hybrid "Saint", but his timer consistently failed, and J. Harris's E.D. 2.48 suffered from flutter-valve trouble. Looks like some joy for the club.

The **ENFIELD AND D.M.A.C.** put on an exhibition and flying display at the Enfield Town Show, but the numbers were reduced owing to pranks at recent rallies. Highlight was two Mosquitos flying in formation. The club's annual fift comp. for the Handbridge Trophy resulted in a tie between Rex Gough and John Foster. As the time was agreed to be inside park opening times and outside licensing hours, fight gave out at that stage, so the fly-off had to be postponed!

BLACKHEATH M.F.C. announce that their Gala, which had to be postponed due to bad weather, will now take place at Croydon on December 7th. Events will be: I. R. rubber for the Bill White Memorial Trophy, plus a glider and power event. Entries to P. Crossley, 11 Broadfield Road, Catford, London, S.E.6.

North Western

The **BLACKPOOL AND FYLDE M.A.C.** activities have been curtailed lately by lack of flying space for the C.E. 1, is popular with Pescemakers and Thunderbird stunters. C. J. Davey wins both the Good-tellow Cup and the Tekni-Flo Trophy, whilst I. M. Robson took the Progress Cup for rubber.

Tom Smith of **ENGLISH ELECTRIC M.A.C.** continues to do well in most events, usually placing top in Area results. The I.E. team did well in the Farrow with a total of 33/23, flying conditions being good with a little mist at times.

Main interest in the **WALLASEY M.A.C.** at present is the radio control project of the Jannay-Davies team, and it is hoped that others will follow suit. Latest report from the club field is that the surrounding stream has matured into quite a large river, and a large hole appeared in the centre overnight! Those power pranks must have some effect, you know!

At last the **CLEAVE AND D.M.A.C.** has won the Rootes Trophy, despite the fact that they had only five members to get in the necessary 24 flights. Credit goes to Jimmy Wincute who made four flights in each rubber and power. Wallis Nicholls seems to have ironed out the gremlins from his radio jobs, for he must be the most successful flyer in this category in the 1958 season. We hear he will not be able to build any new jobs for next year, being too busy polishing this year's winners!

SHARSTON D.M.S. entered a team for the "M.E." Cup at Stretton, but luck was against them, their total being only 12.47. Interesting model built by R. Cladie is a 6-ft. delta pusher fitted with radio operating elevator and rudder.

We learn from the **WIGAN M.A.C.** that their radio section seems to have dwindled to a discarded *Radio Times* near the club

wireless set! Owing to an unusual lack of team support, only half a team was held for the Rootes Trophy. Even so, they did not disgrace themselves, B. Talbot and D. Yates combining to top power class.

Latest stunt in the clubhouse of the **STOCKPORT AND D.M.A.C.** is a PeWee-powered 3s. 6d. kit flying on a ten-foot line fastened to a camera tripod. Could be that these new tiny engines will open up a new contest class.

South Eastern

Members of the **WORTHING M.A.C.** have obviously been getting around lately, most memorable impression of the Beaulieu affair being the sight of Ron Bray's Eta-powered team racing sliding the wings out of the fuselage leaving him with a flying-wing on wires, the fuselage displaying a decided affinity for the tarmac! Another surprise was to find the most hardened and practised club "scorer" actually helping with the drying up at the club canteen. Oh well, a new lady member was washing up!

A new club known as the **SUSSEX RADIO MODELLERS F.C.** has come into being, details to be found in the usual listing at the end.

Main interest of the **COSMO A.M.C.** is C.E. 1, chiefly combat. H. Southam and S. Robinson have done quite a bit of two-minute at-once flying, the latter doing quite well at the recent R.A.F. Championships.

Held at Ford for the first time, the **SOUTH COAST GALA** was favoured with fair weather. Only complaint came from the glider flyers who were having to work quite hard at times to get their models to the top of the line! Although there was some thermal activity, there were few fly-aways and the quality of the flying can be adjudged from the results with fly-offs in all three classes. Possibly the greatest variety of models could be seen in the glider contest, with many large spans, some Tailless, in evidence. Many illustrious names were beaten by junior C. Fuller in this event. The Gala was organised by the South-Eastern Area Committee of the S.M.A.E. and clubs in the area were responsible for the running of the various events.

(Glider 75 entries)

1. Hinds, S.	Wallasey	7:42	2:12
2. Fuller, C. (J)	Spring Park	7:42	1:45
3. Williamson, D.	Spring Park	7:20	
4. Giggie, P.	Southampton	7:17	
5. Partridge, D.	Croydon	7:07	
6. Boxall, R. E.	Chichester	7:00	

(Power 49 entries)

1. Eggleston, B.	Baldon	9:00	1:24
2. Gaster, M.	Surliton	9:00	2:48
3. Bunkell, P.	Surliton	8:55	3:08
4. McClave, K.	Colne	8:55	1:41
5. J. Manville	Bournemouth	8:40	
6. Slaughter, P.	S. Park	8:47	

(Rubber 25 entries)

1. Boxall, E. H.	Brighton	9:00	4:25
2. Elliott, N.	M. of K't	9:00	4:23
3. Fuller, G.	St. Albans	9:00	4:14
4. Taggley, J.	Ilaves	9:00	4:10
5. North, J.	Croydon	9:00	3:10
6. Crossley, P.	Blackheath	8:02	

(Chuck Glider 63 chucks)

1. Young, G.	Surliton	1:16	
2. Sturges, G.	Croydon	1:15	

South Midland

BLETCHLEY AND D.M.A.C. (formerly the Bletchley District Model and Experimental M.C.) propose to hold a spot-sailing contest at Lyngrove Beacon on Boxing Day from 10 a.m. to 4 p.m. Events will be staged for both radio and I.D. models.

Power modellers of the **LEITCHWORTH M.A.C.** have had a disappointing season, having been unable to produce in comps. the excellent form shown on their own field. However, they made amends at the Area Championships when Steve Rees captured glider and Junior Trophy, and Chris Thorne came second in power with his A.M.25, powered and. Membership of the **COWLEY M.F.C.** has been falling off a bit lately,

and interested modellers are asked to contact them at their Monday meetings in the Fox Inn, Cowley. Meetings start at 8 p.m.

STEVENAGE M.F.C. members got a shock when told they could not compete in their Area Rally at Cranfield, but were expected to wangle a stop-watch instead! However, amends were made at Benson, when in perfect weather Geoff Dallmore placed second in glider, though John Brooks (who won the mass launch event with a crafty hand launch) broke down and "fessed up! Whilst the contest boys were away at Benson, Vic Searle lost his "Topper" glider 10:00 a.o.s. from the club ground.

Western

Brian Hopkins of the **SOUTH BRISTOL M.A.C.** has a new model to attack the jet speed record, and in a recent short flight it clocked 107 m.p.h. "on the glide". In a recent one-model contest using the K.K. Achilles, Terry Gane topped the list with an average of 65 secs.

Mr H. W. G. Bunney, comp. sec. of the **BRISTOL ACES M.A.C.**, advises that he has in his possession a Mercury Matador fuselage, found by a friend when on holiday in Sutton Park, near Birmingham. Claimants should supply details of name and number on fuselage, colour, also make of engine. Apply to 30 Bradley Road, Patchway, Bristol.

East Midland

In spite of high winds, the **NORWICH M.A.C.** put on a good programme of flying and a static show at R.A.F. Horsham St. Faith for Battle of Britain Day. Most of the stunts were finished up in a little heap, but the crowd obviously enjoyed the display, and many enquiries for membership have been received.

East Anglia

A new club has been formed in the Area, known as the **LAINSTON M.A.C.** Success in recent rallies augurs well for next season, and the combat crews—all equipped with Oliver Tigers—are rarin' to go.

Final round of the **CAMBRIDGE M.A.C.** open glider comp. was held in fine weather, with which both rounds of this event were blessed. "Lurifers" were much in evidence, and Dick Gadden won with this type.

North Eastern

Membership of the **GOATSHED KNIGHTS M.F.C.** is on the increase, and they have been fortunate enough to obtain the use of Alexandra Road School, where meetings are held every Monday at 7 p.m. Flying takes place every Sunday at the Team Valley Training Estate, where all classes of flying are catered for, and anyone interested is invited to go along.

Pen Pals

J. Byrne, 11 St. Bridget's Terrace, Kells, Co. Meath, would like to correspond with a boy in either Sweden or Japan.

Jouko Hakala, Perustie 23 A 16, Helsinki-Munkkiniemi, Finland, is 16, and wishes to exchange letters with a British lad.

B. Briscoe of 8 Andrew Street, St. John's, Wakefield, Yorks. wishes to correspond with an American modeller.

Same goes for D. G. Park of 29 Highthorne Drive, Moorstown, Leeds, Yorks. Fourteen-year-old Martin A. Jenkins of 147 Sapcote Road, Burbage, Hinckley, Leics, wishes to find a German boy of his own age who can write in English.

M. Bartholomew of 20 High Street, Winstan, Rotherham, Yorks. is 16, and wants a club enthusiast from either America, Canada or Australia.

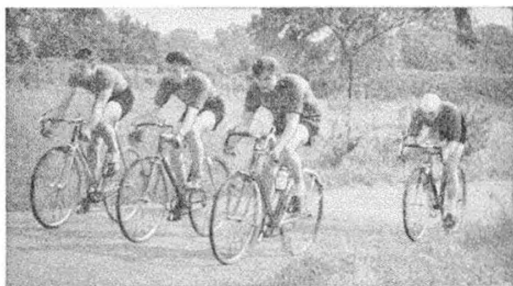
Luraj Sitar, Hlboika 5, Bratislava, Czechoslovakia, is 25 years old, wishes to correspond with an English modeller of 20-30 years.

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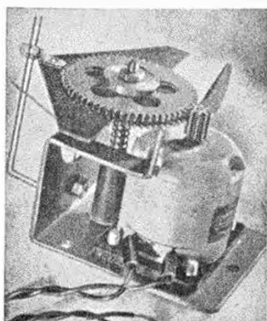
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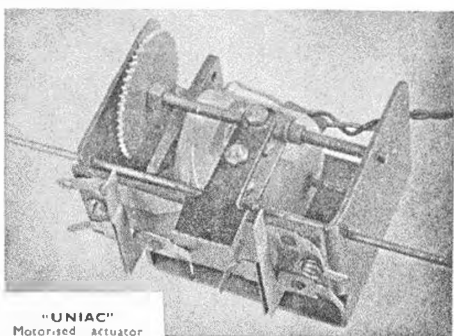
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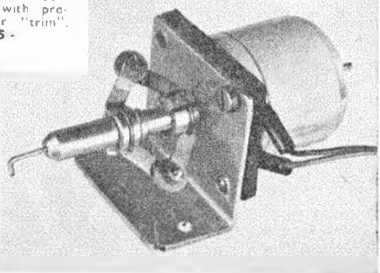
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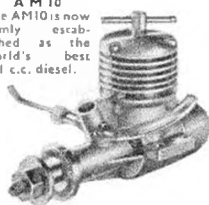
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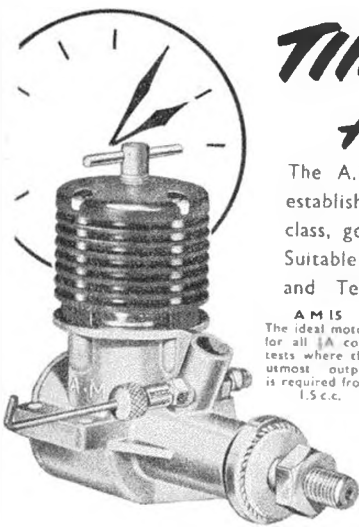
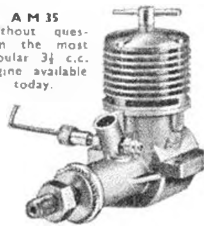
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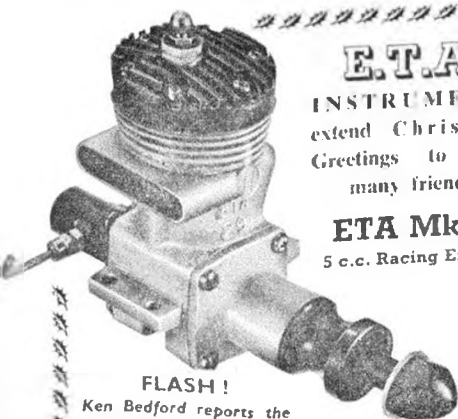
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I would like to thank you for
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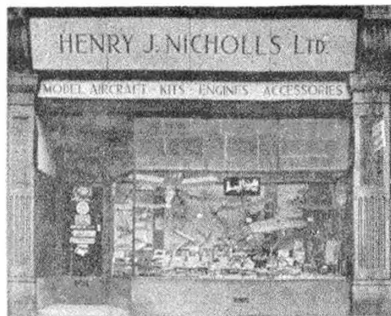
(J.B.) Beechwood Rise North, Watford, Herts.



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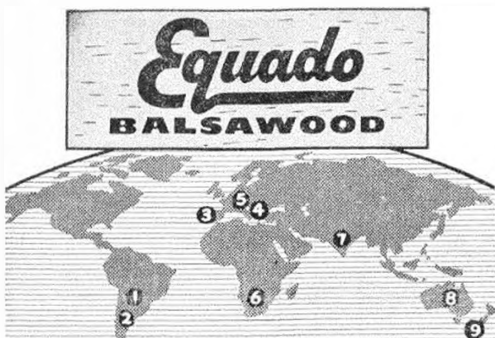
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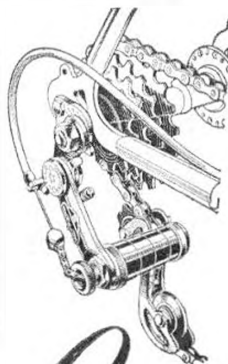
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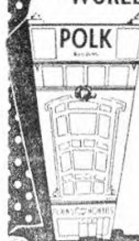
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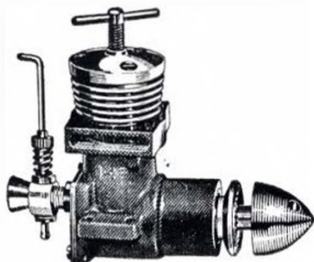
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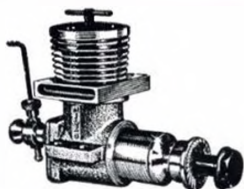
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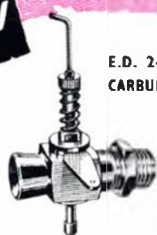
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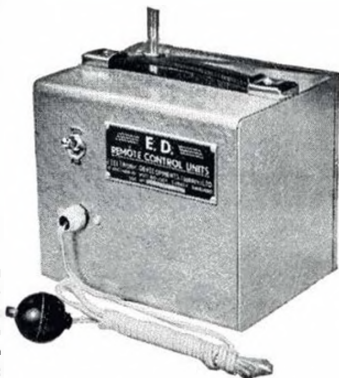
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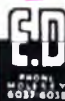
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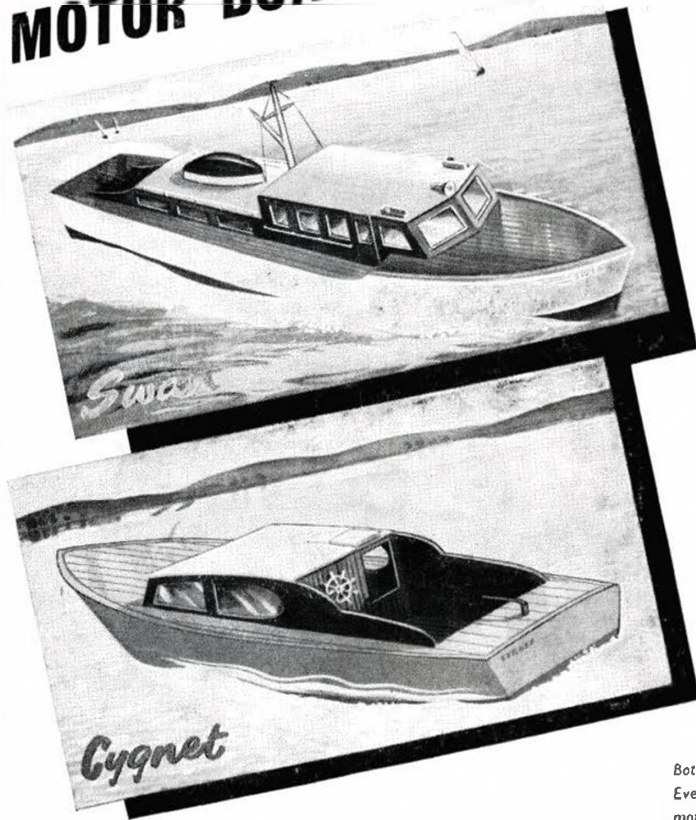
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