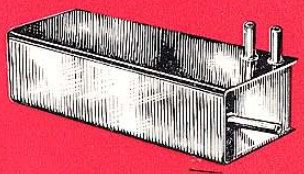
NOVEMBER 1957

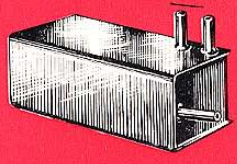
AERO MODELLER

Super Mystère drawing inside

1'6

BAILEY





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TEAM RACE TANKS neatly fabricated in tin plate. Class "A", 15 c.c., 3/4. Class "B" 30 c.c., 3/7.

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STERN TUBE & PROPELLER SHAFT. Screwed 4 BA for propeller but does not include propeller. Accurately turned steel shaft and brass housing and suitable for motors up to 2.5 c.c. 12/-.

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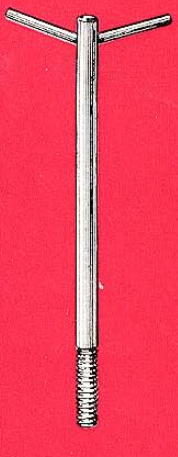
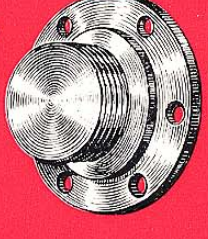
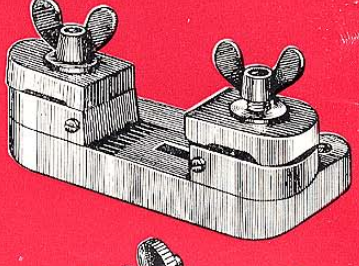
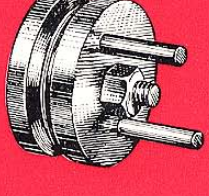
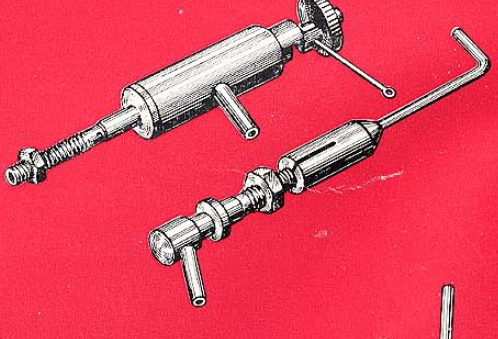
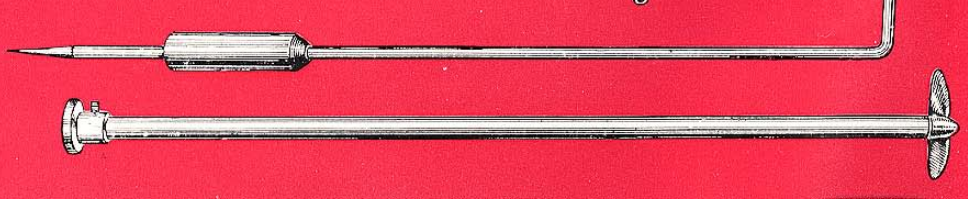




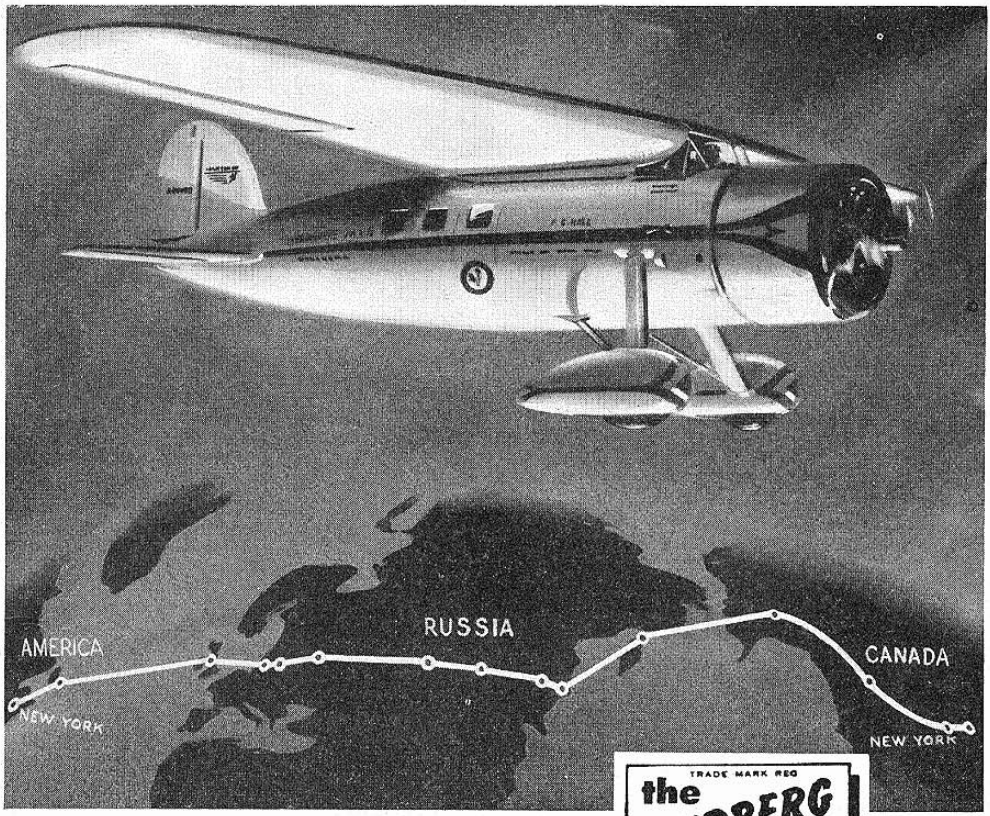








HISTORY OF THE "WINNIE MAE"



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ESTABLISHED SINCE 1933

AMERICA'S most authentic PLASTIC CONSTRUCTION KITS

LINDBERG PRESENT ANOTHER HISTORICAL MODEL.

In 1931, Post and Gatty flying the aircraft "Winnie Mae", completed a round-the-world flight in eight days, fifteen hours and eight minutes. From New York to Newfoundland, to England, to Berlin; then to Moscow, across Russia to Alaska and then back to New York.
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The second round-the-world flight was made in seven days, eighteen hours and forty-five minutes. It was a historic flight and its last for the "Winnie Mae". This aircraft is now on exhibition in the Smithsonian Museum, Washington, D.C.

A truly beautiful model complete with

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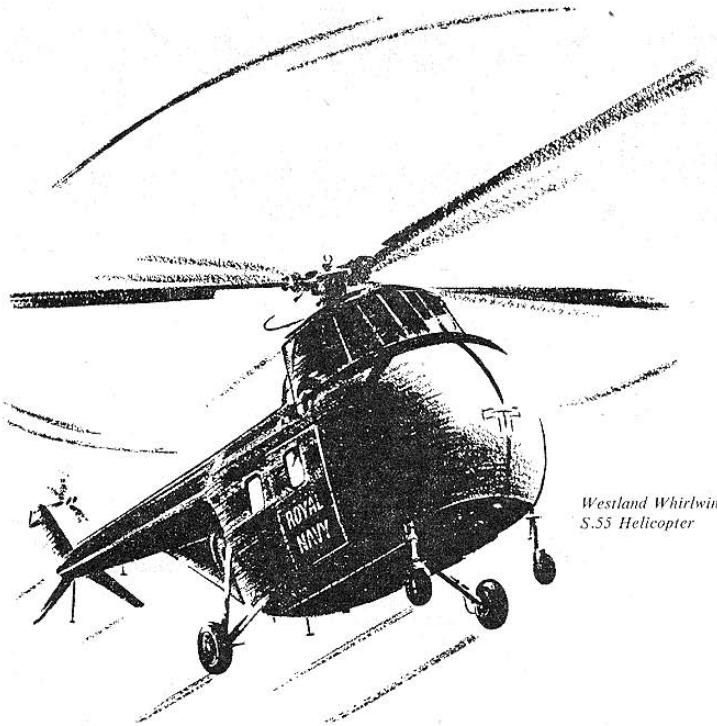


Westland Whirlwind S.55 Helicopter

FLY AS AN OFFICER IN

BRITAIN'S NEW NAVY

'*In modern conditions the role of the aircraft carrier, which is in effect a mobile air station, becomes increasingly significant.*'

DEFENCE WHITE PAPER, APRIL 1957

THERE IS NOW NO QUESTION about the importance of the Fleet Air Arm or of the continuing need for Pilots and Observers.

The new Carrier Group is the most exciting, hard hitting and mobile formation that we have ever had.

So the Fleet Air Arm requires the finest men they can get. The standards are high, the training is strenuous *but* there is nothing to compare with the rewards, the personal satisfaction and standing, and the life of a Naval Officer flying the latest jet aircraft and helicopters in Britain's New Navy.

You join on a 12 year engagement, and can apply later for your commission to be made permanent. The pay? A married Pilot or Observer of 25, for example, can earn up to £1,500 a year. There is a tax-free gratuity of £4,000 after 12 years service.

Age limits :—
Pilots 17-23, Observers 17-26.
Full details of life in the Fleet Air Arm are explained in an illustrated booklet "Aircrew Commissions in the Royal Navy".

For a copy of this booklet write to :
THE ADMIRALTY, D.N.R. (Officers) Dept. AM/4
QUEEN ANNE'S MANSIONS, LONDON, S.W.1

THE BALSA STORY

PART 7

This is one of a series of articles written by John Paterson, Managing Director of Solarbo Ltd., covering all aspects of Balsa Wood and its many applications. Previous articles have appeared monthly.

BULK BALSA AND ITS PROBLEMS . . .

THE OUTSTANDING characteristic of Balsa is, of course, its light weight; but no wood has such a variation in weight. Balsa commonly occurs in weights of from 6 lb. to 16 lb. per cubic foot. The top weight is still light-weight compared with other woods but much too heavy for the man who wants 6 lb. Balsa for some particular purpose.

It wouldn't be so bad if any one piece of Balsa was consistent in weight, but Balsa planks are commonly much heavier on one side than the other and I have seen an 8-ft. long plank where the wood at one end weighed more than twice the weight of the wood at the other end.

The mills' biggest worry is to find a market for their low grade Balsa wood, just as it is our biggest worry here! Balsa is so full of defects that I think it is the most variable raw material in the world.

There seems to me to be three ways of dealing with Balsa wood. Firstly, there are two big American companies who have their own mills in Ecuador who do as good a job of grading for quality at their mills as is possible. They sell wood in bulk to individual purchasers in the grade that they require for their particular job. The proportion of really top grade, absolutely clear stock resulting from these mill operations is low and, therefore, relatively expensive. Even with the best of Balsa faults are found which don't show on the surface and it isn't possible to buy the exact size you want for your particular job. Therefore, it is impossible not to have some waste in manufacture.

The *second* method is to buy a somewhat lower grade of Balsa wood which is more economical and sell an article which doesn't look quite so nice but may be just as strong and effective for its purpose. But still you get waste, probably more waste, because you have still worse defects and you still have the waste of sizes.

The *third* method is to do what SOLARBO does, which, as far as I know, is different from any other firm handling Balsa in the world. We buy much more a "mill run" Balsa, as it is known, without the saw-mill spending the same amount of time on selection. As we find uses for it we are buying an increasing percentage of lower grade Balsa with the object of reducing the overall price. Of course, we have to know what we are buying, so we have our own Agent who inspects all shipments as the wood is bundled and makes sure that the wood is in accordance with our specification.

In general, we buy from a number of small mills and with the individual skill of the owners buying the right kind of logs, I think we get very good Balsa wood indeed. We specifically exclude certain defects, certainly the most objectionable defects altogether, and if only we could find sufficient uses to take greater quantities of the lower grade Balsa wood, which must always arise in saw-mill operations, our Shippers would be very happy indeed. As it is, they still seem to be very willing to make contracts with us.

Having bought our Balsa wood we are able to make the most effective use of it because we have centralised in one business every known use of Balsa wood and quite a few special ones of our own developing. In this way we can use up wood with a very great range of qualities, and almost equally important, all the bits and pieces which are left after standard sizes have been cut from the random size pieces of Balsa that you always receive from the saw-mill.

By having this great range of uses we can select for each use the best Balsa wood most suitable for it.

'I should like to say a word about the future of the Royal Air Force . . . The introduction of new weapons will be a gradual process, extending over a good number of years, and even then there will still remain a very wide variety of roles for which manned aircraft will continue to be needed. I therefore hope that young men who have the ambition to be pilots, as well as those who are interested in new technical advances, will continue as before to look to the R.A.F. for a fine and useful career.'

MINISTER OF DEFENCE, APRIL 16TH 1957

Flying in the

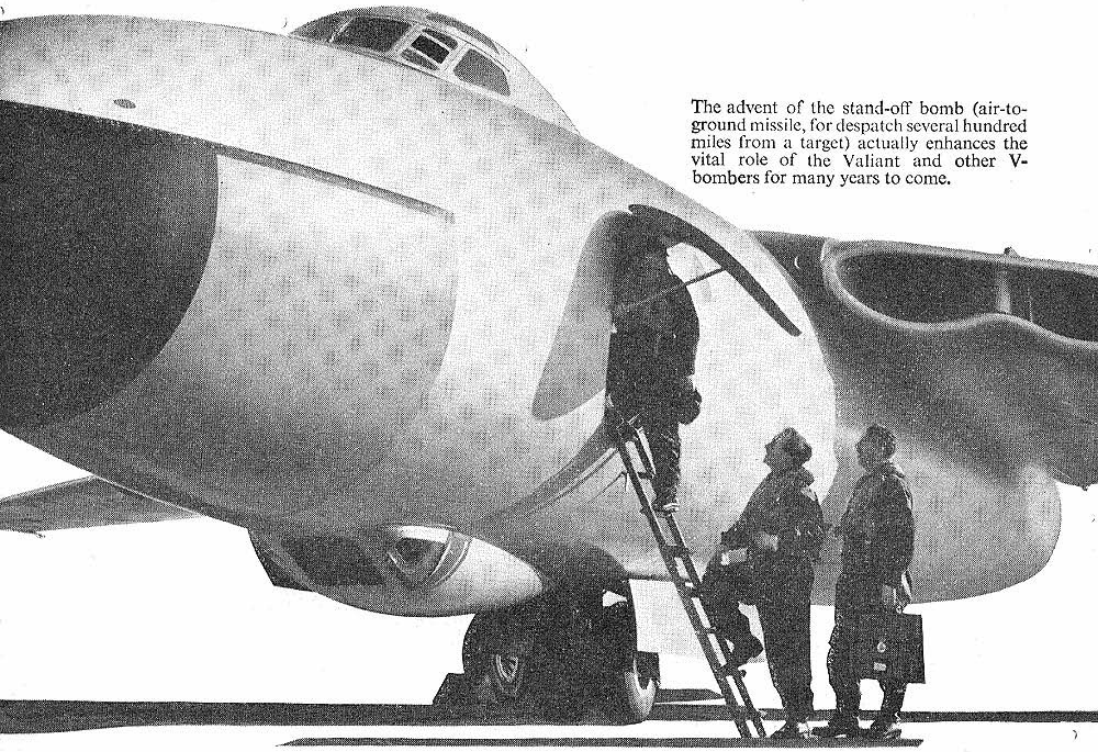
THE NEED FOR PILOTS, navigators and air electronics officers is as urgent as ever... and the career prospects no less promising. Weapons change, tactics change, but the role of the R.A.F. today remains the same.

MORE OPPORTUNITIES—NOT LESS

To a young man ambitious to fly, and with the ability to lead others, the R.A.F. offers a fine and useful career. Men of high quality are required to fly the V-bombers, fighters and high-speed reconnaissance and transport aircraft. Even for those functions where unmanned missiles will in time give the answer, manned aircraft must continue in service for a number of years yet. Moreover, manned aircraft will *always* be needed for those functions to which the human brain in the air is indispensable. And, whatever new instruments of air power are evolved, the R.A.F. will always need men of initiative who have been trained to master the problems of the air in the air. For such men this is a time of opportunity. Not only can they fulfil their ambition to fly for as long as they serve. They will have the chance of a full and satisfying career. Aircrew do much more than fly. They are often seconded for other important work in Britain and abroad. Variety is more than ever the essence of a career in the R.A.F. Whatever a man becomes—pilot, navigator, air electronics officer—there is no limit to what he may achieve. Quality counts. There is, and always will be, room for good men.

A SURE FUTURE — GOOD PAY

You can join the R.A.F. through the Direct Commission Scheme, confident of a permanent career right up to pension age. Or you can choose a twelve-year engagement with the option of leaving after eight. If you leave after 12 years you take back to civilian life a tax-free gratuity of £4,000! Alternatively, there is a five-year Short Service Commission Scheme, and for University Graduates, a special four-year Short-Service Commission. Whichever you choose, the pay is good. At the new rates, a Flight Lieutenant of 25 for



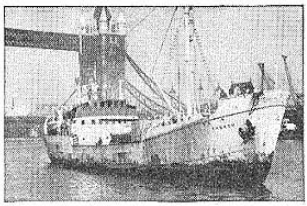
The advent of the stand-off bomb (air-to-ground missile, for despatch several hundred miles from a target) actually enhances the vital role of the Valiant and other V-bombers for many years to come.

missile age

instance, can draw, with full allowances, about £1,500 a year.

HOW TO FLY WITH THE R.A.F. You must be between 17½ and 25 and absolutely fit. You must have General Certificate of Education or Scottish Leaving Certificate or their equivalents. You must be able to lead others, and you must have aptitude as well as enthusiasm for flying. If you feel you have all these qualities, write at once for details of the schemes of entry and an informative booklet, to the Air Ministry (AM 5), Adastral House, London, W.C.1. Give date of birth and educational qualifications.

RESPONSIBILITY. To fly with the R.A.F. is to work with the most dependable men in the world, confident and well qualified for each of the many calls on their skill and initiative.



ADVENTURE. R.A.F. personnel were aboard the *M.V. Theron* as she returned with the advance party from the Commonwealth Trans-Antarctic Expedition, on the 23rd March this year.

The Royal Air Force *Flying... and a career*

VOLUME XXII
NUMBER 262
NOVEMBER 1957

Managing Editor - - - C. S. RUSHBROOKE
Editor - - - - - H. G. HUNDLEBY
Assistant Editor - - - R. G. MOULTON

★

Special features

★

Regular features

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AEROMODELLER Incorporates the MODEL AEROPLANE CONSTRUCTOR and is published monthly on the 15th of the previous month by the Proprietors:

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TELEPHONE: GADEBROOK 2351 (Monday-Friday)

Candidate for World Championships

IF WE WERE ASKED to specify which particular branch of aeromodelling showed the greatest scope for advancement and experimentation for the future, coupled with maximum benefit to aeromodelling and aviation in general we would, without hesitation, plump for radio control.

Still suffering from growing pains it has progressed from infancy to a lusty juvenility as can be seen from the reports we give in this issue.

The battle of the multi-channel giants at the American Nationals has produced technical skill and flying ability of the highest order, with a mere half point separating the top two contestants, who, together with other experts at the top of the list, scored over 80 per cent. of the possible maximum marks, performing some 21 intricate manoeuvres in the process.

A similar display of skill took place at the King of the Belgians International Radio Control contest held at Antwerp, where German fliers fought a close but successful battle of skill with Belgians and other experts from all over Europe. Inverted flying, consecutive inside and outside loops, aileron rolls, Cuban eights, etc., are now the order of the day and not wonders to be marvelled at by the ordinary radio flier.

What a contest it would be if the Americans were encouraged to participate in this European event, and what better way of stimulating interest on a world wide basis than making it a World Championship for Radio Controlled Models!

We are not certain of F.A.I. policy in relation to giving world championship status but we presume that the model class concerned should have a large following, which radio flying certainly has. We presume it should also be within the reach of the average aeromodeller from both the constructional and financial viewpoint. On the former there is no doubt, and although in relation to the financial aspect, radio control can be considered expensive, it does encourage teamwork between the radio technician and the aeromodeller when it comes to equipment and airframe with resultant reduction in *per capita* expense.

The horizon for this branch of our hobby from the sporting and competitive angle, and indeed from the fly-for-fun aspect, has no limits. Aerobatic contests, Pylon Racing, and pure speed flying over a measured course will provide endless challenges to the aircraft designer, whilst the radio men have a constant challenge to produce equipment that is infallible in operation; that is not restricted through other people being on the air; and which can eventually be marketed at relatively inexpensive prices.

None of the existing championship classes offers such wide scope in the way of technical advancement as can result from the holding of this type of contest. Control line speed flying has already reached the point where the engine is the main criterion of performance achieved, as a result of which the private flyer is completely eclipsed by works sponsored and state supported engines.

We are not suggesting that any of the existing championship classes should be dropped, unless the F.A.I. considers the holding of more than four impracticable, but we are suggesting there is a very worthy candidate that should be given immediate consideration for the future.

On the cover . . .

A YEAR AGO, the conflict arising over the Suez Cana made headlines throughout the world. Laurie Bagley has captured a typical scene as a Mystere 4A sweeps through the smoke and flames of a Soviet built Mig 15 of the Egyptian Air Force over the Sinai Desert. Operating at long range, the Mystere retains its wing tanks, a concession it can afford in view of its superiority over the Mig 15 in combat. Full details by Charles W. Cain and George Cox are to be found on pages 584 to 587 of this issue.

Heard at the HANGAR DOORS

Your Editor recently visited Nuremburg, Germany, to judge the first United States Army contest to be held in Europe. Five Army Commands held eliminators and sent teams to Monteith Barracks, Nuremburg, making a total of 34 finalists competing in various control-line and free-flight events. Picture at bottom of page shows the winning C/line scale model, a Piper Tri-pacer fitted with third line engine control. Prior to the army events a German model meeting was held at which the Editor espied the somewhat oversize jet model shown on left. It was in fact a scaled up Dynajet with individually made valve petals but was somewhat disappointing in performance, due, no doubt, to the excessive weight of the model which was built entirely from metal by Walter Backmund of Wurzburg

Sparks fly over first "All-Electric"

Following publication of our report on Col. Taplin's all electric flight with a "Radio Queen" on June 30th came comment in the S.M.A.E.'s "Model Flying" that it was not the first free-flight electrically-driven model aeroplane to take the air. John O'Donnell, who has a retentive memory, pointed out that we published in AEROMODELLER in 1944 details of an all-electric model built by a Mr. Cannon, reprinted from the *Model Engineer* of October 21st, 1909.

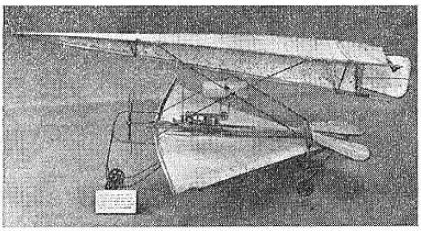
We feel that the claims made can be taken with a pinch of salt. According to the facts given, the model had a cardboard wing which appears to be unbraced and from the measurements quoted the wing loading would be approximately 37 ounces per square foot. Assuming the "dry battery" used was something like the present day torch battery there simply would not be the power available to lift even the weight of the electric motor.

Colonel Taplin is so certain that it never flew that he makes the following offer: "I am prepared to offer £100 to anyone who can make an aeroplane to the specification detailed in the *Model Engineer* article, *i.e.*, a machine with a 1 ft. 6 in. span, 5½ in. chord, cardboard wing and other details as specified, and I will not ask for an eight minute flight but I will be content to pay my money on a two minute free flight, hand launched and flown over level ground in virtually still air."

We feel that this £100 is going to be hard to earn, in fact Colonel Taplin's money is pretty safe!

One of our readers, a Mr. R. Powell of New Malden, adds further to the question as to who made the first all-electric free flight by sending in details of a model built by H. Ramsey Kerruish published in *Flight*, January 24th, 1914. Details of the latter gentleman's model are as follows: Span 4½ ft., chord 9 in., length 2 ft. 11 in., wing area 3½ sq. ft., weight 9½ oz. He mentions using six silver chloride cells which, together with a specially-wound tri-polar motor, weighed 5½ oz. leaving 4 oz. for the airframe which was covered with chiffon for lightness. Propeller was 14 in. diameter and 10 in. pitch, giving a thrust of 2 oz. for a period of 1½ minutes with the electric motor described. The model would only fly in complete calm at a height of 4 feet, the owner launching it by running along at the model's flying speed of 7·5 m.p.h., and releasing same.

A.T.C. Cadet-Sgt. Eddie Harris won the Kelvin Hughes Challenge Shield at the A.T.C. model championships (see September AEROMODELLER) for the second year in succession. Part of his prize was a day as a guest of Kelvin Hughes Ltd. including a trip in the firm's Saab Safir flown by Mr. P. J. Robins, Chief Pilot, who here discusses their route



Mr. Kerruish claims a flight of 250 yards and says he "steered" the model by touching the nose whilst it was in flight.

The model was then modified to loop by fitting a 10 in. x 6 in. propeller, a large fin under the nose to counteract torque, and then over-elevated. It was placed on the ground and released, whereupon it climbed to 15 ft, did two loops, hitting the ground at the bottom of the second with disastrous results.

The above details of Mr. Kerruish's model were contained in a general model feature edited by Mr. B. K. Johnson and we would be interested to hear from this veteran aeromodeller, or any other "old timer" as to whether the Kerruish claims were substantiated. The building of a model of the size quoted for a weight of 4 ounces would be an achievement in itself, and even with the present-day highly efficient Venner Silver Zinc accumulators driving a motor such as the Ever Ready TG.18 which weighs 1⅜ ounces, the total power pack would weigh 6¼ ounces. Stall torque of the Ever Ready is 1 ounce-inch which, even assuming a 100 per cent. efficient propeller, still falls way short of Mr. Kerruish's 2 ounces thrust.

So here the situation rests, leaving exactly who made the first all-electric flight slightly open to doubt, although Colonel Taplin can be certain that he made the first all-electric *radio controlled* flight.

FOOTNOTE.

The S.M.A.E. Council at their last meeting ruled that at present there was insufficient interest in all-electric models to justify the institution of a new record class!

A Santos-Dumont Relic

News that Vickers Armstrong (Aircraft) Ltd. had presented an interesting relic of the work of the great Brazilian aviation pioneer, Alberto Santos-Dumont to the Brazilian Government prompted us to ask for a picture of the model concerned, as shown above.

The maestro himself gave the model to a Mr. Jephcott-Tanburn about the year 1922, after which it was put on show at the R.A.F. Club, where it remained for 25 years.

Mr. Charles H. Gibbs-Smith, the well-known aviation historian, comments on the model which he places as having been built about 1906. "The top component of the machine is in the familiar form of a schoolboy's dart. Santos would have been familiar with this form of aircraft as it was patented by Butler and Edwards in 1867. The power section of the airframe, consisting of a single curved wing, is very similar to that used on Thomas Moy's model of 1879 and follows the same wing form of an aeroplane Santos himself designed, but did not build, early in 1906 before the construction of the '14-bis'."

The power unit, a clockwork motor, is mounted above the lower wing with a long propeller shaft carrying the airscrew protected by the forward undercarriage cage. Some form of horizontal trimming device actuated by pulleys is positioned above the motor, with a moveable rudder on the top plane and elevator on the lower.

It is not known if the model was ever successfully flown, but it is almost certainly one of a series of design studies which eventually led to the building of the famous "14-bis" which made the first official powered aeroplane flight in Europe on November 12th, 1906.

Latest addition to the extensive S.M.A.E. collection of trophies is the "ARTHUR MULLET MEMORIAL TROPHY", presented in memory of the popular Brighton dealer. Will be awarded annually at the discretion of the Council for action that enhances the prestige of British aeromodelling, not necessarily on the flying field, and will be a fitting appreciation of one who did much for the movement in a quiet, self-effacing manner

Don't miss it!

Christmas comes but once a year and so does the AEROMODELLER Special Christmas number. It will be on sale on November 15th and besides being greatly increased in size also contains a free plan. This year's plan features a really outstanding scale model of the S.E.5a by J. D. McHard, free flight, and for ·5 to ·8 c.c. motors. The same aircraft is featured on the front cover in a magnificent full colour painting by Laurie Bagley as illustrated. Continuing the theme, George Cox has prepared an epic of detail on McCudden's S.E.5 in his "Famous Biplanes" series and Arch Whitehouse tells the fascinating true story of yet another S.E.5 Ace, Major Edward Mannock, V.C., D.S.O., M.C.

Other special features include a review of current control line systems, "How Many Lines?" by Ron Moulton; further hints and tips on building plastics including a complete reference chart of all the plastic kits at present on the market; a review of radio control actuators and servo units; a neat sport model design for ·8 to 1 c.c. motors; a delta control line team race and sport model by Laurie Ellis and all the regular features such as "Engine Analysis", "Model News", etc., not forgetting one or two humorous items in view of the festive season.

RADIO CONTROL CHAMPIONSHIP

KING OF THE BELGIANS CUP AT ANTWERP

FULL REPORT BY D. J. LAIDLAW-DICKSON

Karl-Heinz and Kurt Stegmaier ready to begin the first of their two outstanding flights which so justly enabled them to regain the King of the Belgians' Cup

THE FOURTH ANNUAL contest for the King of the Belgians' Cup, proved to be a battle of the giants between holder Gobeaux wielding his new American Orbit equipment—acquired by an all-night dash to meet Howard Bonner during his half-hour halt on Belgian soil, when returning home after his successful British visit—and the now well-established vacuum system operated by the Stegmaier-Bernhardt combination. Cast in the role of Jack-the-Giantkiller, was amiable Albert Wastable, with his all home-made equipment, who was always dangerous and liable to slay a giant or two, as indeed he did! The new aggregate scoring system kept the leaders on their toes right through the second round, where the result remained in doubt until the forty-first of forty-two flights, when Dr. Gobeaux's second effort proved insufficient to beat the phenomenal Karl-Heinz Stegmaier, flying his last year's machine, equipped with the sensational twin cylinder Ruppert diesel motor, also now favoured by the worthy doctor.

No less than forty-two entries were processed, divided amongst eight competing nations—Belgium, France, Germany, Gt. Britain, Holland, Sweden, Switzerland and the Soviet Union. The contests were divided into the King of the Belgians Cup for multi-channel models; the Ministry of Communications event for single control models; and a Glider event limited to single control equipped models. Break down of entries was fifteen multi; eighteen single control; nine gliders. Scores were obtained by fourteen, eighteen and eight respectively, so that it is clear nearly everyone got aloft barring accidents.

Processing proved an exciting procedure, not only in awaiting the arrival of new models, new entrants and the "Men from Mars" as someone happily described the Russian contingent, but also in the weighing-in section, where half the British entries were declared overweight under sections 2.1.2. and 2.1.3. (weight and loading) of the General Regulations of the F.A.I. Code Sportif, 1954 Edition under which the contest was run *as announced*. We did not receive our detailed rules until arrival at the acrodrome, but we checked that our team had received theirs on entry. Ted Hemsley's No. 1 model, which should have acquitted itself well was 750 gms. (nearly 2 lbs.) overweight and could not be adapted to comply, others, including George H-R.'s had cardboard flaps added and were thus able to make undistinguished flights. The *Smog Hogs* of Breeze and Franklin, and Soper's modified *Wave Guide* did not offend in this direction, but Hemsley, Donohue and Redlich were all forced to fly planes whose flight characteristics were changed by the alteration in their wingloadings.

Bernhardt's semi-scale Navion attracted considerable attention, with its perspex dome serving admirably to portray the complicated looking eight-channel vacuum operated relay system. Stegmaier's cigar-shaped all enclosed fuselage, shows nothing beyond its starkly mounted Ruppert twin, which makes its performance seem all the more surprising.

Swiss gliders were very beautiful, as were some of the German gliders; Swedish planes were mainly small and unpretentious sports types, Dutch and Belgian entries again followed the small unassuming slabsider layout. Dr. Gobeaux, who did not process until very late, produced what was virtually his 1956 model layout plus ailerons and a Ruppert engine. He did not get the best out of this twin, mainly because he adjusted it to scream like his old Micron 60, when he would have done better to achieve the healthy purr that was a characteristic of Bernhardt and Stegmaier's examples.

Our old friend Bickel, brought along his Laurie Ellis inspired Delta as flown last year and won the event for single control with it again! He had intended to enter multi with a Delta, but unfortunately wrecked it the Sunday before.

Everyone was waiting for the Russian group to make their appearance. They had been reported as sight-seeing in Brussels, so we knew they were not far away. They arrived after supper with magnificent model boxes, team leader, interpreter, who spoke English, and—to the disappointment of many—no uniforms! (Their famous track suits were not donned until the contest proper).

Models when unpacked were so like the pictures that have appeared of Russian power models that everyone was happy. Ron Donohue confessed that he had never really believed the flat slabsiders and high spindly undercarriages portrayed in AEROMODELLER, but now his faith was completely restored!

Albert Wastable brought along his beautiful new Cessna-based AW6, complete with ailerons, which he is now using with increased confidence.

Flying order was drawn by lots in each round, first by country and then by individuals, so that team leaders had no choice in arranging team extries to suit their tactics.

This resulted in the "favourite" Bernhardt being drawn to fly first in multi-channel, the fourth flight of the day. Alas for his chances, the model suffered with a suspected sticking elevator, and he wisely did little more than enjoy his scheduled fifteen minutes flying time in circuits and turns (which still gained him a higher one round score than the combined two-round total of any British entrant). Klauser of Switzerland, followed shortly and passed his score. His attractive, though orthodox model was handicapped by a limited engine run of only six minutes (another case of not studying the rules) so that there really was hardly time to carry out the wide range of scheduled and optional patterns.

Next notable flight came from Albert Wastable of France, who delighted with a sparkling performance. He has lost his contest nerves, and learned to enjoy himself with an immense improvement all round. He put in vertical, horizontal and "lying-down" eights, with verve, loops, both normal and inverted, but his motor cut before he could complete his inverted programme or a roll.

Dr. Gobeaux, in a blue flying suit, trimmed with white, took the arena clutching his Orbit Tx, assisted by Jean-Pierre and with a faithful and attentive crowd of supporters.

The sun was bright, and though wind seemed to have freshened, the Belgian's flight seemed unbeatable. Ailerons were seen at their best for the first time, with a really lovely roll completed without appreciable loss of height, which brought a roar of applause from an otherwise silent audience. Inverted manoeuvres and an inverted eight suffered somewhat from the wind, but the whole pattern was remarkable for the conditions of the day.

Not till almost the end of the round—gliders, single control and multies followed according to the draw to provide a mixed diet—at flight 39 did joint-favourite Stegmaier have a chance to show his paces and redeem the rather disappointing effort of his business partner Bernhardt earlier on.

Last year's model design with the now commercially produced vacuum servo equipment, and the elegant Ruppert motor, looked far too docile on the ground to do anything surprising. As usual the young German taxied out slowly on half throttle, almost disdaining his brother's restraining hand on the wingtip, opened up and took off confidently for what was to be the best flight of the contest.

A microphone on stand was provided for pilots to announce their manoeuvres and with translator standing by, he began. First came the "standard pattern" of straight line up wind, 1½ turns left, straight

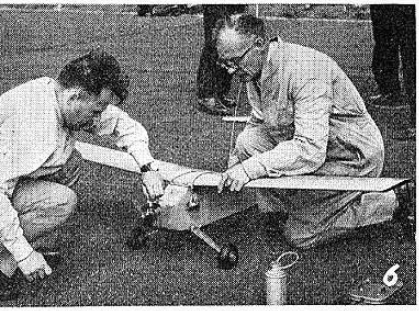
1. An assistant holds the 1957 Gobeaux machine, which made up in efficiency what it may have lacked in looks

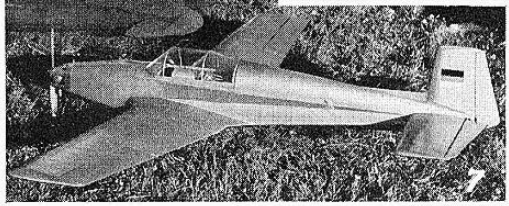
2. Belgian De Hertogh starts up: eclipsed by the giants his performance was nevertheless most praiseworthy

3. Soper, G.B., and his Waveguide, which gained highest British points, single or multi

4. Albert Wastable at the control box, with Madame efficiently releasing AW6

5. Stegmaier's model in the scales, with Bernhardt waiting his turn at processing





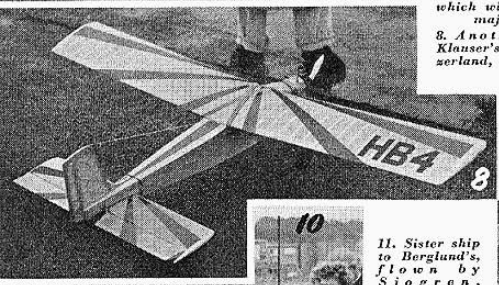
6. Berglund, Sweden, who flew one of the prettiest sports models seen at the meeting

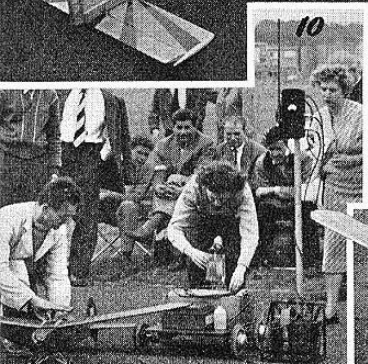
7. Bernhardt's elegant beauty, which will certainly score a major victory soon

8. Another goodlooker! Klauser's model from Switzerland, defeated by a short engine run

9. A dirty day! Hemsley and G.H.R. beat the weather at any rate.

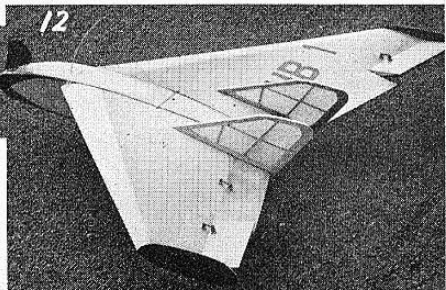
10. Bocquet, Belgium, and his "Wings & Wheels" equipment



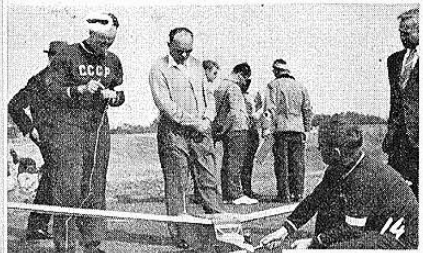


11. Sister ship to Berglund's, flown by Sjogren, Sweden

12. Bickel's single-control Delta — winner again!

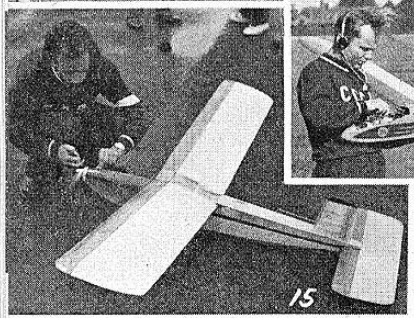


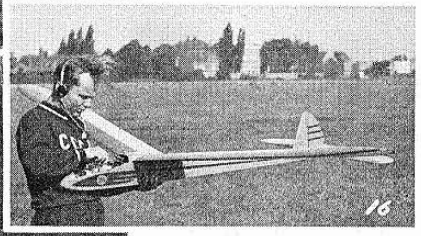
13. Edgar Erd's glider from Germany. Its beautiful scale lines were much admired, but failed to live up to their high promise in the contest



14. Velitchkovsky, Russia, makes ready, Malik checks the radio, and on the far right interpreter Tatiaynche looks on approvingly

15. Erler, Russia, with his big single-control model which has been a flying test-bed. Similar plans appear in "Aeromodeller Annual 1957/58"

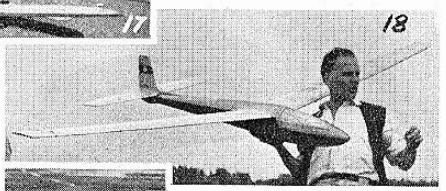




16. Drozghin's handsome glider held by Velitchkovsky, who carried out the routine radio checks on all the Russian models—earphones very much de rigeur

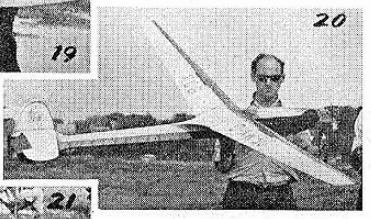
17. Gorynin with his multi model, finished in pink, which like all the other Russian machines performed excellently within its capabilities

18. Arnold Degen, Swiss team leader, with Muller's very successful glider. Arnold was not quite so energetic this year with the towline!



19. Malik with the Goliath of the meeting — a good ten foot span and single control. Lighter section on wing represents an all night repair session

20. Osterfeld with Muschner's glider, which took a very close 2nd place for Germany seven points behind Muller



21. The big Malik model seen from the front. Although so big it was beautifully made with ribs fretted from ply fullsize ashion and hardwood fuselage properly braced

KING OF THE BELGIANS CUP
MULTI-CHANNEL

	Name	Country	1st	2nd	Total
1	Stegmaier	Germany	2,126	1,990	4,116
2	Gobeaux	Belgium	1,879	1,960	3,839
3	Wastable	France	1,204	1,501	2,705
4	Bernhardt	Germany	436	1,906	2,342
5	De Hertogh	Belgium	904	1,049	1,953
6	Klauser	Switzerland	445	750	1,195
7	Gorynin	Russia	195	699	895
8	Malik	Russia	435	120	554
9	Hemsley	Gt. Britain	287	—	287
10	Donohue	„	108	115	223
11	Redlich	„	172	—	172
12	Breeze	„	149	—	149
13	Franklin	„	144	—	144
14	Vigneaud	France	—	110	110

SINGLE CONTROL
MINISTER OF COMMUNICATIONS PRIZE

1	Bickel	Switzerland	408	482	890
2	Laiy	Belgium	474	385	859
3	Bocquet	Belgium	413	440	853
4	Schmacher	Germany	410	426	836

flight down wind, horizontal eight, 90 degrees right turn, and straight line cross-wind. The twelve optional manoeuvres could be taken in any order and included vertical eight, flat eight, stall, dive and recovery, hammerhead stall, consecutive loops, U-stall, Immelman and roll. Then followed inverted consecutive loops, ten seconds inverted level flight, inverted eight and then the last two items on his normal schedule, consecutive spins. As he made the second, his motor cut and he was forced to land deadstick, which he achieved most creditably, having gone "through the book". It was not until his second round flight that we saw the artistry of his engine-on approach and landing. This effort put him in the lead for round one with 2,126 points against the Gobeaux 1,879.

The performances of the four masters tended to put in the shade creditable efforts of many others. The Russian contingent were equally concerned with single and gliders with two entries in each class. Gorynin and Malik, the latter flying his well-known world record model, were their multi representatives. Malik's effort with 435 would have won him a British National event quite comfortably—but the model was picked for reliability rather than aerobatic possibilities, so that its very stability prevented many manoeuvres being even attempted. Take-off and handling was superb. The team drill was worthy of emulation, with one man responsible for engine work, another handling Tx control box, handing over to the actual flyer in due course, so that the rules were punctiliously obeyed, and never a man missing his cue.

Laiy of Belgium, who had flown well last year, led the single channel first round with 474, fellow countryman, Bocquet and German, Schumaker hard on his heels, last year's winner Bickel of Switzerland, along with them with his Delta, handled as well as ever, but unlucky in landing when it caught a table and badly damaged a wing tip—a wind-induced casualty.

Meanwhile the whole of the glider group showed the way to get right to the top of that 200 metre line permitted, so that it seemed unlikely ever to come down again. The heavy machines, however, had fast sinking speeds, so that little enough time remained for even a limited pattern to be completed before they were hopelessly downwind. The French entries of Dubois and Lafitte were outclassed, leaving it a dingdong struggle between Soviet, Belgian, German and Swiss entries. Schmidt proved best of a moderate field with 173. Marking was the same for all contests so the comparative efforts can be clearly appreciated.

Sunday dawned with complete absence of wind, but a fine and persistent drizzle that lasted with only momentary stops throughout the day. Spectator pleasure was greatly reduced, and the vast gate expected failed to materialise, so that our unlucky hosts must face a deficit on the meeting.

Bickel started the ball rolling with his Delta and improved on first round times by

5	Schoorel	Holland	216	421	637
6	Velitchkovsky	Russia	189	444	633
7	Stetz	Switzerland	169	463	632
8	Erler	Russia	196	396	592
9	Hallmann	Germany	193	287	480
10	Berglund	Sweden	144	316	455
11	Gerber	Switzerland	143	310	453
12	Soper	Gt. Britain	112	287	399
13	Adolfson	Sweden	112	285	397
13	Christianse	Holland	143	254	397
15	Sjogren	Sweden	—	363	363
16	Rolle	Belgium	269	—	269
17	Janse	Holland	222	—	222
18	Dilot	Sweden	195	—	195

GLIDERS SINGLE CONTROL MINISTER OF INFORMATION PRIZE

1	Muller	Switzerland	75	426	501
2	Muschner	Germany	163	331	494
3	Schmidt	Switzerland	173	263	436
4	Drozgin	Russia	46	383	429
5	Erd	Germany	56	309	365
6	Mabille	Belgium	120	219	339
7	Dubois	France	25	46	71
8	Lafitte	France	—	61	61

a spot on landing such as he achieved! as1 year. No one bettered his points during the day, though some came close, and he finished the winner by a mere 31 from Laiy.

Bernhardt again drew an early number at 5, but this time nothing prevented him giving a superb exhibition. At 1960 his flight was third best of the contest, though not enough to bring him to better than fourth place on aggregate. He did all that Stegmaier had done, though not quite so smoothly. His roll was the best of the event, the low wing semiscale Navion being slightly better designed for such an evolution and looking far handsomer in the air. Wastable came on at 14 and improved on his first round effort.

Eclipse of the ordinary man by the stars meant that an excellent flight by Belgian De Hertogh—the only "outsider" to exceed 1000—of 1049, which with his first round effort of 904, represented most consistent performances to bring him to 5th place, was almost unnoticed; as was Klauser (Switzerland) with a steady 750.

At flight 37 Stegmaier came on to produce a second flight that lacked some of the fantastic brilliance of his first effort but nevertheless marked him with the second best figure of the contest at 1990—so that he was able to win on merit by any possible permutation of results!

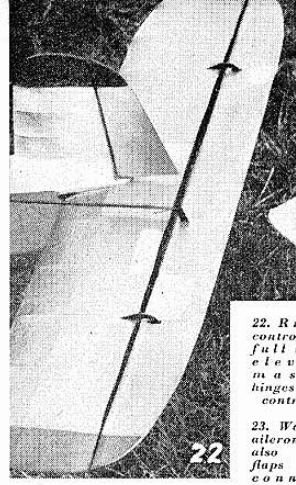
Last but one of the day at 41 Dr. Gobeaux was faced with the almost impossible task of scoring more than 2237 out of a max. of 2560 to win!

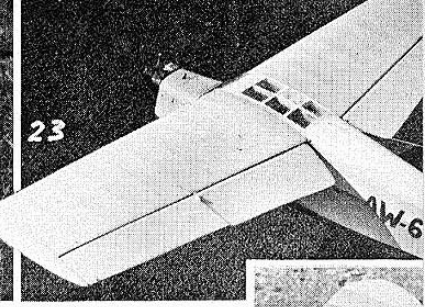
Thus the German vacuum system took 1st and 4th places; Bob Dunham's Orbit in the hands of Dr. Gobeaux was 2nd and the all-home-made Wastable outfit a worthy third. Wastable's allocation of his seven channels is interesting. Two govern rudder; one engine control; one aileron control; three handle elevator—considered his most important control—one for up, one for down (both proportional) and the third is an instant self-centring control.

Alfred Bickel, single control winner, is still faithful to the 4-valve modulated receiver designed by Nievergelt of Zurich and described in December, 1954, AEROMODELLER. He certainly knows his Deltas!

The Russian equipment excited considerable interest. It can be graphically described as "Moscow E.D." Circuit used is basically the E.D. Mk. IV receiver but in place of three-reed equipment a native Russian six-reed layout is incorporated, with Russian-produced reeds and very beautifully-made relays. Vic Breeze acquired a number in exchange for a pair of 3-in. airwheels—second only to Britfix in the exchange scale. Transmitters again were virtually E.D. sets with Russian characters.

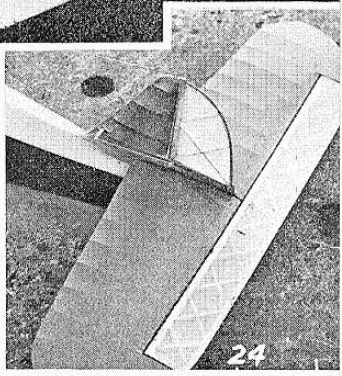
Muller, winner of the glider event, was using an XFG1 receiver that had been transistorised. Soper of G.B., making his debut in the international class, was also flying with a transistorised receiver from the AEROMODELLER design.





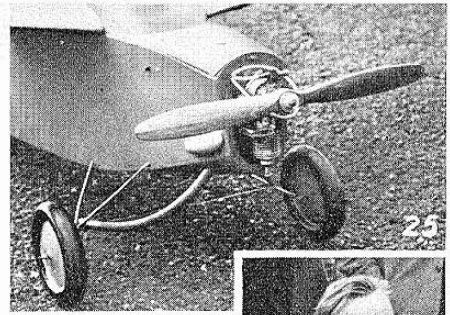
22. Russian controls. Note full length elevator, massive hinges & stout control rod

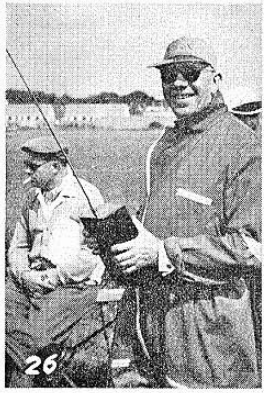
23. Wastable's ailerons. See also inboard flaps interconnected with elevator —very dicey!



24. Russian controls again. More conservative elevator, but look at the movable rudder area! Concealed fuselage linkage on this one

25. Massive Russian undercarriage with hard wood wheels rubber tyred. Messy diesel exhaust is led away by long polythene tube. K.16 motor surprisingly quiet running



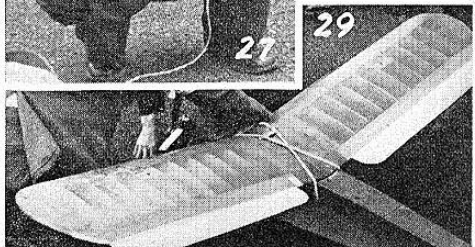


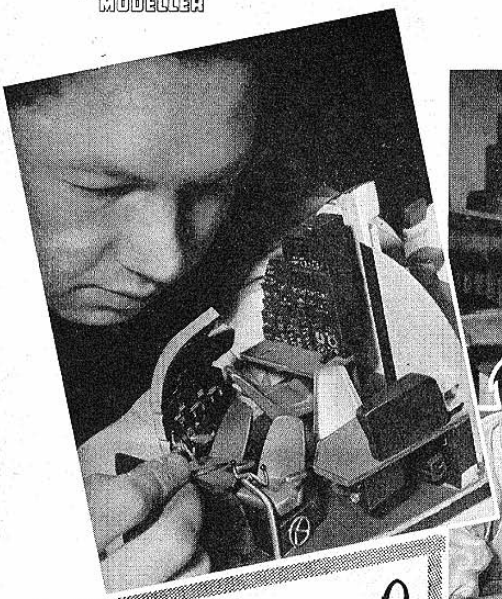
26. Dr. Gobeaux, ex-champion, elegantly clad in blue and white with his recent acquisition the Orbit Tx.

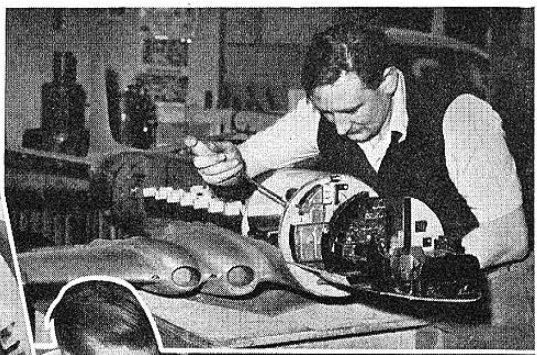
27. Russian radio boffin Velitchkovsky with the Soviet "musicbox" is not too happy about those reeds! Actually, he proved a very cheerful little man

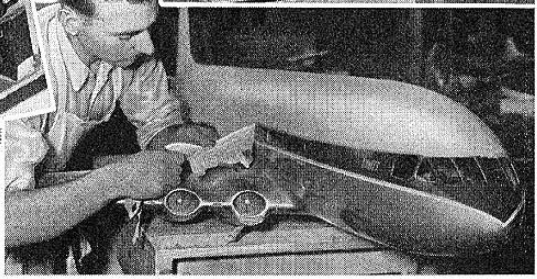
28. Master organ-grinder Bernhardt with the immensely sought-after Bernhardt-Stegmaier Tx.

29. What are those great big flaps for, grandma? Big bad wolf Rules gobbled up any G.B. hopes as these unwelcome additions would indicate



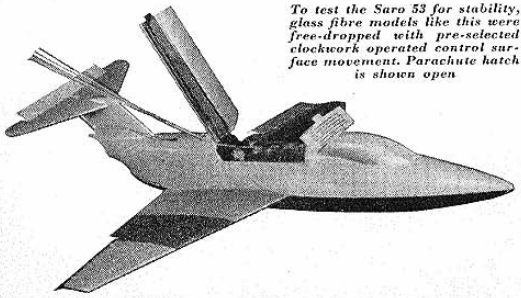






Professional Aeromodelling

THE USE OF MODELS for design study, free drop aerodynamic tests or publicity purposes in the full-size aviation industry has created what will eventually flourish into a very highly skilled profession. A visit to the static show at the S.B.A.C. exhibition, Farnborough, would reveal the extent to which models gain importance year by year, and we "amateurs" never cease to wonder at the magnificent standard of finish—and accuracy, that can be seen on the manufacturers' stands each September.

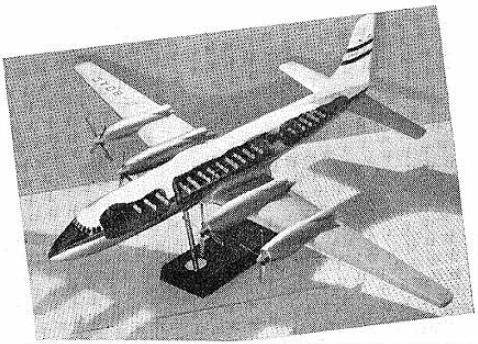


To test the Saro 53 for stability, glass fibre models like this were free-dropped with pre-selected clockwork operated control surface movement. Parachute hatch is shown open

During a recent visit to Westway Models at Acton, we discussed the connection between the home-builder and "Pro" with Company Director Ian Walker and well-known contest modeller, Laurie Barr, his aide. Our conclusion was that whilst the methods and materials are basically similar, the organised specialisation of particular work (rough shaping, interior details, assembly, Perspex transparencies, Livery painting, rubbing down, etc., etc.) channels the model-maker into the production line and develops his particular ability to best advantage. Rarely does one man see the whole job through, it is the combination of specialised skills which achieves so high a standard.

There are about two dozen modellers in the Westway establishment, and the flow of work, which might be a 1/48th airliner or 1/12th scale Vulcan, is so varied that interest level must rate higher than any other comparable occupation. Modellers see more in one day than the most enthusiastic follower of aviation could glean in a year. They work on projects that might not be flying for another ten years, often making design study subjects for rival companies that show the pattern of Britain's aviation future.

Models for the Ministry of Supply like the one at left are playing a very important part in design development. Spinning tests on new types of aircraft can be conducted without personal risk and at relatively little cost to the taxpayer. The Gloster Javelin is one such type that was the subject of scale model tests



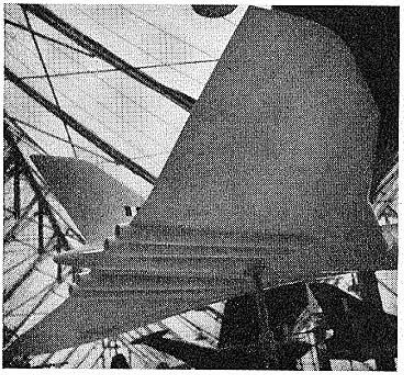
De Havilland Comet at left is a Westway model with full interior detail. Close-up shows the cockpit, other views, fixing the Perspex main body cover, and removing colour masking on the Starboard side. Before and after views like this help to illustrate the enormous amount of modelling required, much of it hidden in the final job

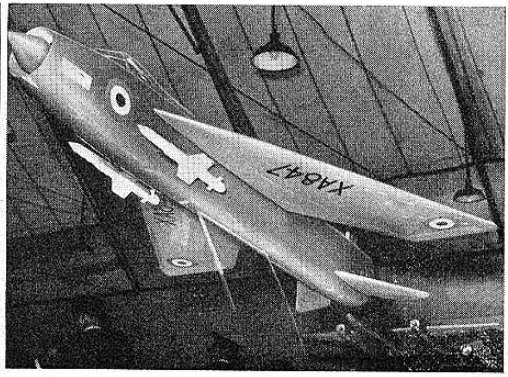
Most of these professionals are one-time amateur modellers. Not the type that knocks out solids by the dozen with the aid of razor blade and glasspaper, but the Lime and chisel men, who know how to use a tool and in particular, have pride in their labours. Many are ex-pattern makers and joiners who have passed through apprenticeships in those trades and are attracted to modelling for the particular skills and sense of satisfaction in one's work that it imparts.

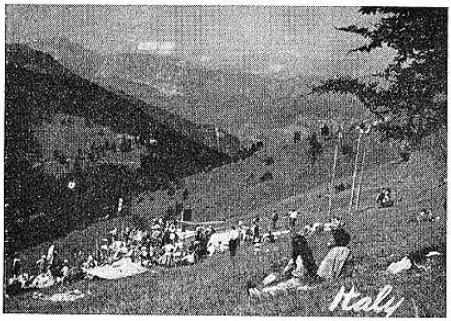
With the increasing demand for display models (Westway have a number of long term contracts from airlines all over the world) there is a constant need for new staff, and we were particularly pleased to hear of a proposed apprentice scheme which will provide that opening in the industry which so many young modellers seek. Pay is good, conditions excellent, and if one is ready to learn and reasonably skilful with his hands, the opportunities for the future are boundless.

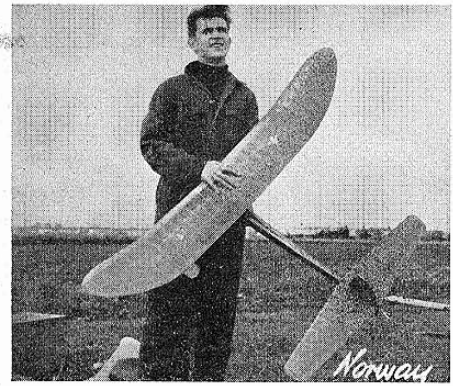
While many of the smaller models are carved from solid Lime, plastics are used extensively for the majority of large types, whether left in the "cutaway" transparent form, or sprayed and painted in full livery. Mass production of one type, such as the N.A.T.O. F-84F Thunderstreak, is often undertaken as a metal casting and repetitive items such as standardised seats, nacelles, airscrews, etc., are metal or plastic moulded. Many items spotted on our visit would have a big demand in the model shops. Props for the Britannia in polished aluminium would make many a modeller drool, and vacuum formed Vanguard and Viscount plastic fuselage halves are perfect for a scale C/line version; but, alas, they are not for sale and remain as two of the many perquisites of the small but highly skilled band of aeromodelling professionals.

Four more Westway models. Above: two magnificent Bristol subjects, the Britannia and Sycamore. Latter model is perhaps their finest, has everything duplicated, will dismantle like the real aircraft, and is used as a sales demonstrator by the Filton Company. Note the half transparent Britannia fuselage. Nacelles contain electric motors to drive props. Below at '57 Farnborough, the new wing on the Vulcan B.2 with more span and considerably more area, and the missile positions of the P.1B were model revelations, hitherto "classified"



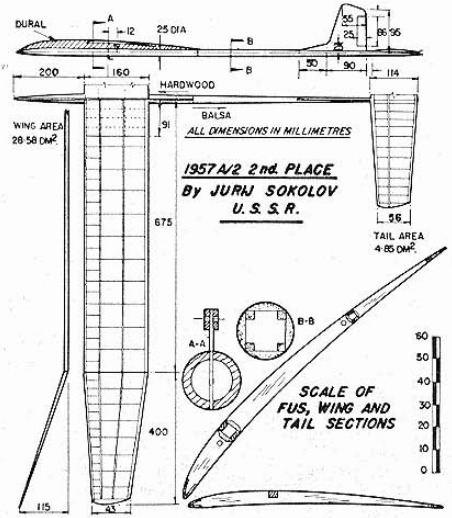


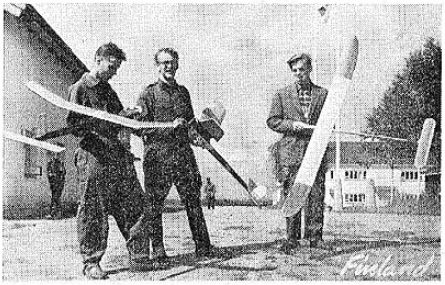




WORLD NEWS

HIGHLIGHTS FROM THE "biggest ever" **U.S.A.** Nats (5,277 entries from 1,521 individuals including 475 in ½A power and 357 in R/C) are taken from informative *Model Aviation*, the A.M.A. news bulletin. Meet opened with a 'drome to 'drome 4·3 miles R/C distance record flight by Vern Kroamer, who later directed the mammoth radio entry for the 7 days at Willow Grove. He also loaned his farm for practice and fun flying sessions to make up for what must have been a long wait. Vern's farm was a scene of R/C speed attempts too. Dale Root averaged just over 60 m.p.h. with his *Ascender*, but consensus of opinion had it that much more power and special designs will be needed to beat Dr. Gobeaux's 66·48 m.p.h. World Record. (Wonder how he did it!) Team racers have yet to beat the 8 minute mark for 10 miles. Fastest heat qualifier was 90 m.p.h. airspeed. Seventeen year old Don Gurnett lifted 100¼ ozs. total over three flights to win P.A.A. Clipper, also collected first in both A/2 and F.A.I. Power (Senior class) . . . terrific achievement. Other Herculean effort was George Aldrich's Open Stunt win, was Sr. Champ for two years, now Open Champ and outright Champ for two more years, all with his *Nobler*. George has joined Duke Fox's establishment, Ft. Smith, Ark., whence comes Bob Lauderdale who set a 167 m.p.h. World Record (McCoy 60) with Monoline. Other notable speeds: Bill Wisniewski 154·58 (Torp 19 and Tornado 6 x 10),





Top: magnificent soaring site at Trentino, where youngest entrant, 14-year-old Petrolli of Rovereto is seen launching magnet steered model at right. From Norway, Birger Balukin with Zeiss powered pylon design, won Norwegian '57 Nats. Below: the '57 Finnish Champs, Seppo Takko (Wake), Sandy Pimenoff (Power) and Esko Hamalainen (A/2). Drawing is of the Soviet 2nd placer at World Champs

Madras modeller Darius N. Irani made this Harvard for an AMCO. B.B. 3.5 from a Berkeley kit

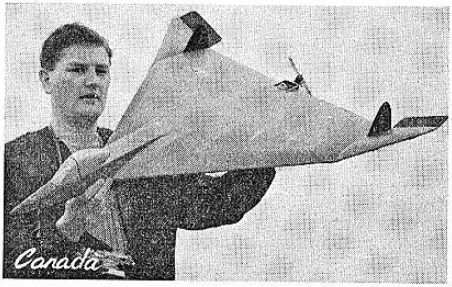
Warren Kurth, 100·5 on two lines (Cox ·8 c.c. Thermal Hopper) and someone did 114 m.p.h. with a "T" Hopper for a new record! In free flight, a "surprising number" of foreign diesels were used. Normal max. in A.M.A. is 5 mins., winning times in several classes were about the ½ hour mark, indicating 15m. fly-offs—yet wind was said to be generally high throughout the Nats. Recovery involved unusual hazards. L. Lohaus encountered a rattlesnake, others a farmer with shotgun, Willow Grove was said to be unsuited for f/f unless calm weather prevails.

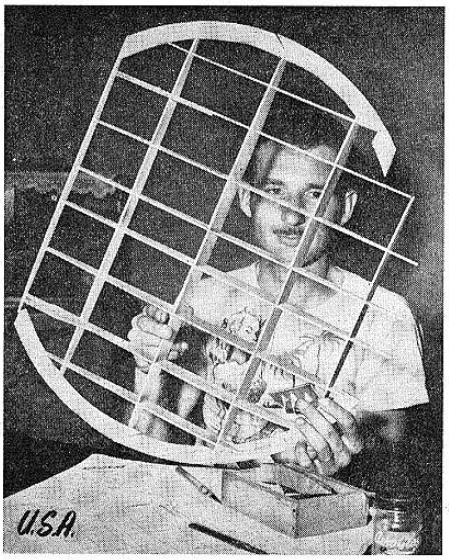
Indoors, Joe Bilgri broke the ½-hour with 32:53 and Lee Hines set a new 1 : 17 record for chuck glider.

Down from **Canada,** Don Mackenzie won open Wakefield with 5 max's plus 2·54. Tammy Thompson, first to make a Canadian quintuple max. in A/2 at an Ottawa meeting, was out of luck at Willow Grove. First flight was o.o.s. behind a hill in the field. Second flight was a max. that went up and up, despite a popped tail.

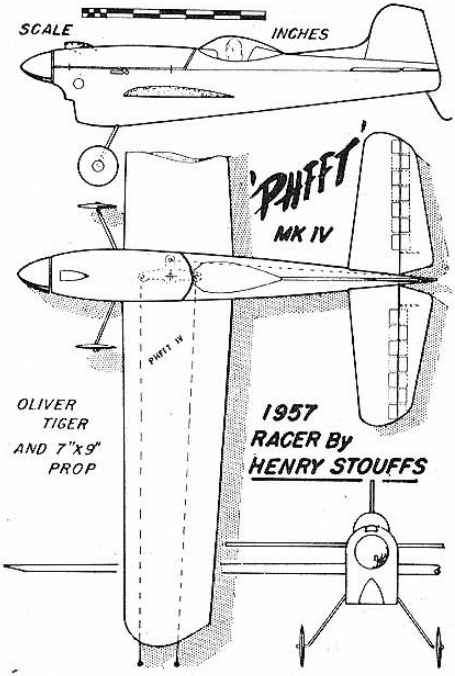
The 5th Coppa Stella d'Italia International slope soaring event at Trentino attracted 73 entries from **Italy, Germany** and **Switzerland.** 25 of them with magnet steering. Proof that the magnets take the luck element out of slope work is shown in the winning Bavarian team's total of 1,574 out of a possible 1,620 points. Three magnet type designs made triple maximums (3 mins.), and Hans Gremmer, whose articles have done much to encourage this form of steering, had the personal satisfaction of leading the winning team.

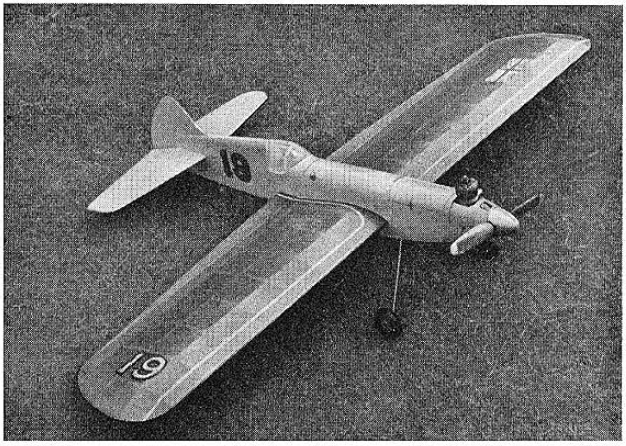
Freeflight Delta by Brenton Neal, ex-N.W. Middx. Club, now of Bay of Quinte Aeromodellers is based on A.P.S. design. Held by F. Atkinson, its 36-in. span has McCoy .8 c.c. diesel





Control-line Saucer known as Disc-us is one of many built by W. Woods at Edwards, Calif., for the Fox 35. Also has a Dynajet version. Drawing below is Henry Stouff's winner at the Criterium d'Europe Team Race, patterned after British style





COUGAR

45-in. span flapped stunter for 3·5-5c.c. by T. W. J. Stoker

COUGAR was designed specifically for flying in the 1956 Gold Trophy, but unfortunately, fuel feed troubles did not allow it to show its full paces. Normally it flies extremely smoothly through the whole stunt schedule at 72 m.p.h. with a K & B 19 in the original. With a little modification the popular Frog 500 or any of the powerful 3·5 diesels and "19" glow engines would be ideal.

Begin construction with the wing. This is best tackled with the leading and trailing edges packed up. The lower spars and leading edge sheeting are cemented in place after removal from the board. Next the flaps are hinged on with nylon and the bellcrank assembly fitted. The flap push rod is connected and the elevator push rod is cut to the correct length and also fitted to the bellcrank.

Lead-outs are heavy Laystrate, and are threaded through holes cut in the ribs and through tubes held in the inboard tip with nylon. Next the centre-section of the wing is sheeted with $\frac{1}{16}$-inch sheet, and all the ribs capped. Holes will have to be cut in the centre section sheeting to clear the push rod. Finally, $1\frac{1}{2}$ ounces of lead is cemented securely into the outboard tip. Note that the inboard wing panel is two inches longer than the outer panel.

The $\frac{1}{8}$-inch sheet fuselage sides and doublers are cut out first and the doublers cemented to the sides. If a Frog 500 is being used, $\frac{1}{16}$-inch ply doublers could be used to allow for the greater width of the Frog crankcase.

Bearers are next cut to length and cemented in place on F1 and F2. F1 should have been previously drilled for the tank feed pipe, and for the undercarriage, which should now be sewn in position and cemented. When this is set the whole assembly is cemented to the fuselage sides, which are drawn together at the tail end and cemented. Next, the rest of the formers are cemented in place.

The curved top in front of and behind the cockpit is of $\frac{1}{16}$-inch sheet soaked in water and then held in place with rubber bands until dry, when it can be cemented in place. The tank box is $\frac{1}{16}$-inch sheet, and is made separately on formers H1, H2 and H3.

The wing is added to the fuselage by cutting away the sides immediately below the wing slots. The fuselage formers already have slots cut from the bottom to take the push rod, but the rear fuselage side below the elevator push rod hole will have to be cut away so that it can be accommodated. When the wing is cemented in place the pieces cut away are replaced and securely cemented. The tailskid and fuselage bottom are now added.

Tail surfaces are now hinged together, the split elevators like the flaps, being joined by wire. The control horn is cemented in place, and the tail-plane slotted into the fuselage and cemented. The elevator push rod is then connected to the elevator horn.

Next, the fin is added and the cowling made from block or $\frac{1}{2}$-inch sheet balsa. Both cowling and tank box are held in place with hooks, round which is wrapped fuse wire.

The inside of the cockpit is painted (silver on the original) a dashboard and pilot fitted if desired, and a cockpit formed from two pieces of celluloid. Cockpit frames being unsightly, one was not used in the original, and it has not caved in after a full season's flying.

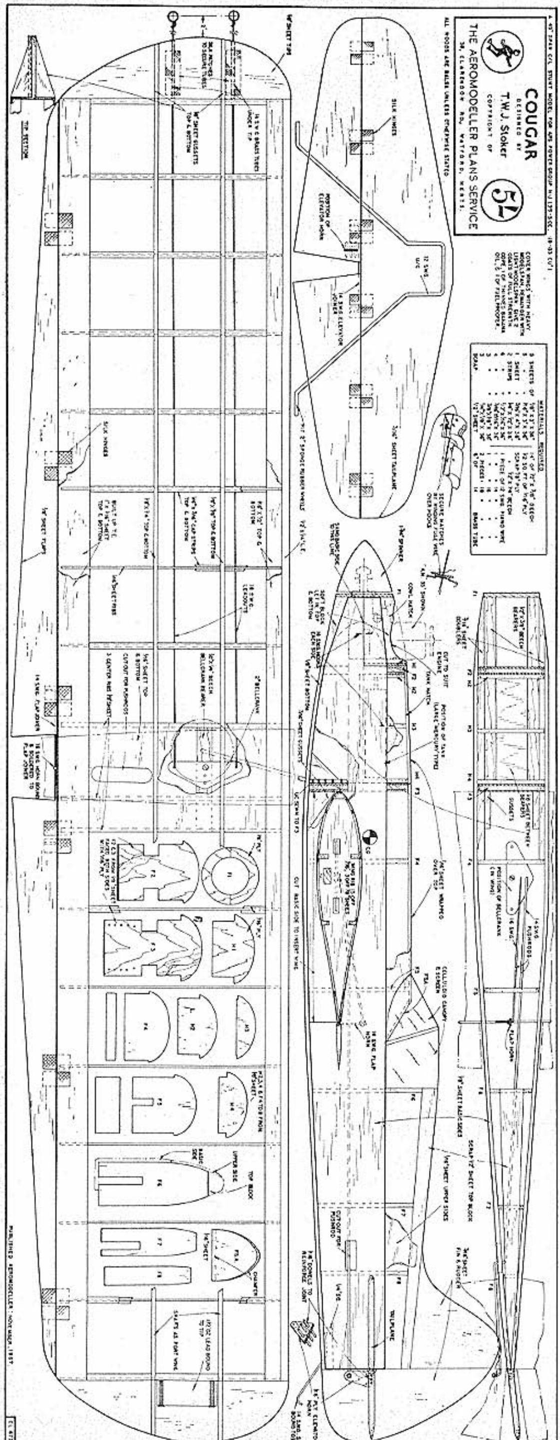
The fuselage and tail surfaces are covered with lightweight Modelspan doped on, and given as many coats of grain-filler as one can afford, sanding between coats. The wings are covered with heavy-weight Modelspan, with one coat of full-strength dope, followed by one of thinned banana oil.

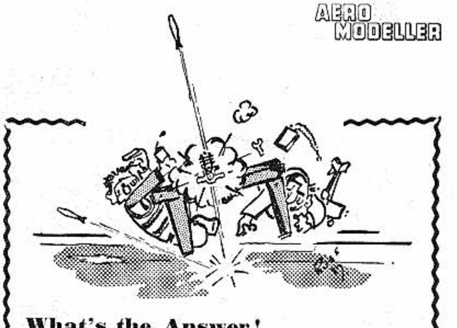
Final finish is much improved by Aerolac. The original had the wing covered with red Modelspan, with a finish of red Aerolac. The rest of the model was pale blue, and the whole fuel-proofed.

Use 56 feet light Laystrate lines. Thinner lines can be used, and the length increased to over 60 feet, if desired.

A final warning! Do not have the C.G. to the rear of that shown on the plan. The position indicated is perfect for full sensitivity and contest performance.

Full-size copies of the 1/5th scale plan opposite are available Price 5/- post free from Aeromodeller Plans Service as CL.673





What's the Answer!

—on plastic props

John Jones always thought that plastic propellers were tougher than wooden ones, so he was more than somewhat peeved when one burst on a bench run. "You should have used a nylon one," his friend told him. "Or high-impact polystyrene". "But how can I tell the difference?" John wanted to know. See answer below.

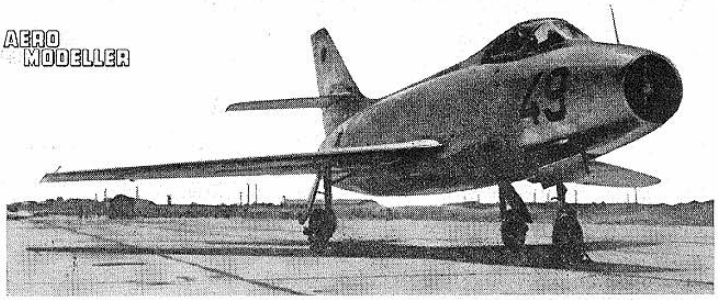
WOOD OR PLASTIC ... IT STILL HURTS

ANSWER: Commonly, the four plastic materials used for propellers are acetate, polystyrene, high-impact (or modified) polystyrene and nylon. Acetate plastic has been preferred by British manufacturers for most plastic mouldings until the last year or so because of its greater availability and cheaper cost. It is a relatively "dead" material which will break on impact, but generally quite suitable for propellers, provided it is run at moderate speeds. Acetate mouldings are susceptible to warping and so sections used are generally thick and fairly symmetrical.

For really thin sections, which are free from warping, polystyrene is superior (*e.g.* small rubber model propellers). But this is a very brittle plastic, and sounds brittle if tapped. To overcome this defect, high-impact polystyrene was introduced—basically polystyrene modified with rubber. High impact polystyrene mouldings generally lack the high gloss finish which can be obtained on acetate or polystyrene mouldings, which is one way of identifying them. Also if a thin section, like a propeller blade, is flexed, the material tends to show up white at the bend.

Nylon is the toughest of the common plastics used for mouldings. You can always recognise a moulding since (in this country at least) it is only available in translucent "off-white" colour.

REMEMBER LADS, THEY ARE ONLY EQUAL TO A COUPLE OF 9×6's.



Aeroplane in Outline
Number 52

description by
Charles W. Cain

drawn by
George Cox

Dassault MYSTÈRE IV series

"THEY ARRIVED at a very opportune moment. We know that they are more than a match for our neighbours' MIGs. Now, everyone respects them!" The commentator is a senior Israeli air officer who gave AEROMODELLER his considered opinion of the sleek French Mystere IV A in an exclusive interview in mid-September.

The Dassault Mystere IV A is in the same class as the R.A.F.'s Hawker Hunter F, Mk. IV. Both are supersonic in a shallow dive, and both have an estimated level speed in the region of Mach 0·92. The initial climb rate of the Hunter IV is better than the Mystere's by some 3,000 ft./min., but the Mystere is heavier and the Hunter's Rolls-Royce Avon gives more thrust than the Mystere's 7,710 lb. st. Hispano-Suiza Verdon 350. The climb rate of the Mystere is the only fault the Israelis can find. The combat record of Israeli Mysteres in the 1956 Sinai campaign speaks for itself: two MIG-15s and a MIG-17, plus two damaged MIG-15s, for the loss of one IDF/AF Mystere IV A.

The comparison with the Mark IV Hunter is noteworthy because of the explosive conditions which prevail in the Middle East to-day. It should be remembered that earlier this year the British government made a present of "a small number of Hunters" to the Arab kingdom of Iraq.

The current Mystere IV A production line—now beginning to taper off in favour of the Super Mystere B2—takes advantage of the comprehensive design and development programme which was initiated in November, 1947, by Avions Marcel Dassault (pre-war Avions Marcel Bloch, and now Generale Aeronautique Marcel Dassault). The initial design studies of 1946/1947 resulted in France's first mass-production, jet interceptor/fighter-bomber, the straight-wing MD-450 Ouragan powered by a 5,000 lb. st. Hispano-Suiza (licence-built) Nene turbojet. Eventually a total of 365 Ouragans was built.

Three prototypes of the Ouragan were ordered in 1948 and the first, MD-450-01, took to the air on February 28th, 1949; followed by '02 on July 22nd, and '03 on June 2nd, in the following year. Then came a dozen pre-production models, MD-450-1 to '12, the first one flying on February 23rd, 1951. Ouragan MD-450-13 was the first of 350 production models of which all but 91 were destined for l'Armee de l'Air, the remainder formed an export order for the Indian Air Force. The French name Ouragan (Hurricane) was exchanged for the Hindu word Toofani. Approximately 48 ex-French air force Ouragans were sold to Israel last year, together with a minimum of 24 Mysteres. But that is another story!

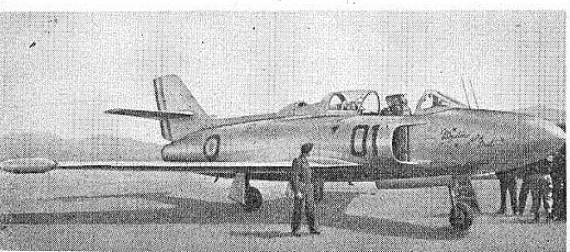
Variants of the MD-450 were used for experiments with after-burners, small-diameter double main wheels,* side air intakes, tandem seating and numerous armament trials, including those of the new 30-mm. DEFA cannon in place of the standard four 20-mm. Hispano Type 404 cannon. Many of these trials were designed to try out ideas which were to be incorporated in the Mystere IV A.

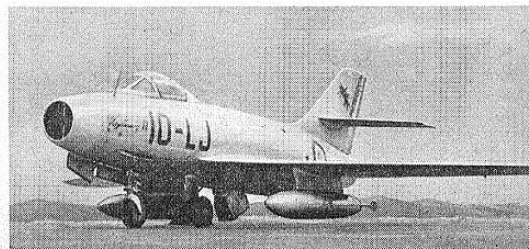
Since the projected Mystere IV was regarded as a considerable advance requiring a much longer development period than that of the Ouragan the decision was taken to proceed with an interim stage, accepting a sweepback of 30 deg. instead of the projected 38 deg., and a thickness/chord ratio of 9 per cent. instead of 7·5 per cent.—the result was the MD-452 Mystere I which flew for the first time on February 23rd, 1951.

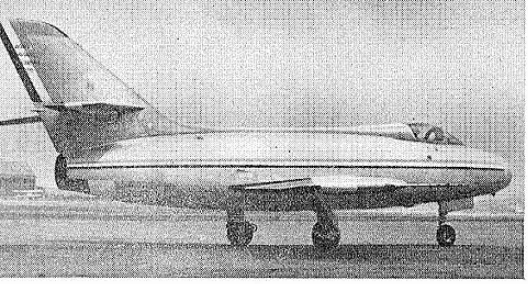
In order to herald the new fighter Dassault embarked on a novel advertising campaign which made great play on secrecy by adopting the key word "Mystery". Instead of the joke wearing thin, everyone took to calling the hush-hush interceptor "Le Mystere" and so Avions Marcel Dassault took a typically Gallic decision and abandoned any idea

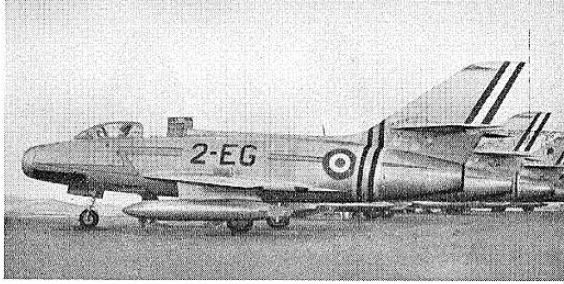
* Large numbers of Ouragans have since been equipped, and re-named Barougans.

Heading shows an Israeli Mystere IV A "clean" and without external load pylons. Below, left: the "one-off" Mystere III de Nuit with tandem seats, side intakes and nose radar. At right is an early II C version showing small tank clearance and prancing horse fin insignia. Note squared tips









The Patrouille de France aerobatic team is equipped with the IV A resplendent in red, white, blue striping which divides wing and tail in three across chord. Other striped IV A,s are fresh from Cyprus. Marks above and below tailplane are grease stains from tail motion

of naming the MD-452 in more orthodox fashion.

Like the Ouragan, three prototypes were ordered. The MD-452-01 retained the 5,070 lb. st. Hispano Nene 104B of the production MD-450, while the other two prototypes utilised the 6,280 lb. st. Hispano-Suiza (licence-built) Tay 250. The MD-452-02 and '03 became the Mystere II A and flew in April and July, 1952, respectively. Seventeen pre-production MD-452s were built—the first three as Mystere II Bs (with Tay 250s) and the remainder as Mystere II Cs, fitted with 6,615 lb. st. SNECMA (BMW development) Atar 101 turbojets. The French air force has taken delivery of 150 Mystere II Cs since the first production II C (MD-452-1) flew in June, 1954. Maximum level speed is Mach 0·865, or 660 m.p.h. at sea-level.

An off-shoot of the Mystere II A is the "one-off", Tay-powered MD-453-01 Mystere III (popularly called Mystere de Nuit), a tandem-seat all-weather fighter with lateral intakes and nose radar. The Mystere de Nuit was first flown on July 18th, 1953, and although still utilised for seat ejection and radar installation research, it has been superseded by the tandem-seat Mystere IV N (N—Nuit, Night) which is derived from the Mystere IV B—also powered by an Avon R.A.7R axial-flow turbojet—and first flown on July 19, 1954. The Mystere IV N has nose radome and ventral or chin intake reminiscent of the F-86D Sabre.

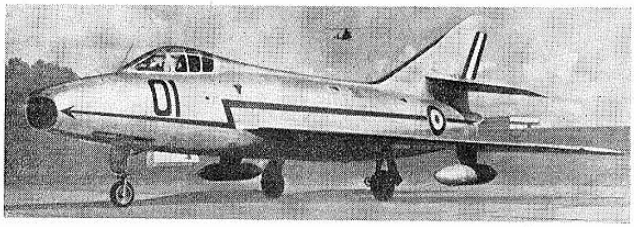
The first prototype Mystere IV A was flight tested some 18 months after the Mystere II C—on September 28th, 1952—and retained some of the external characteristics such as the raised cockpit canopy and the large area fin and rudder. Like the 2nd and 3rd Mystere II As, the first Mystere IV As were powered by the 6,280 lb. st. Hispano-Suiza Tay 250 centrifugal turbojet (including eight pre-production IV As) but all subsequent Mystere IV As have the 7,710 lb. st. Hispano Verdon 350, which is a Hispano-Suiza developed Tay 250A.

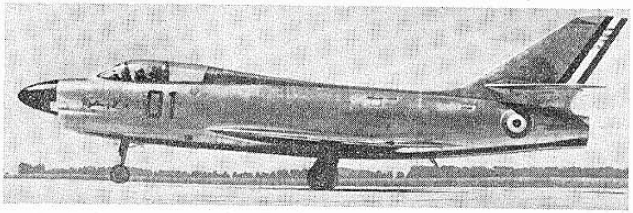
Under the NATO (U.S. "off-shore" procurement programme) an initial 225 Mysteres were ordered. This was followed by a French government contract for 100 plus an Indian Air Force order for 110 (and 15 tandem-seat trainer variants) and at least 24 Mysteres for the Israel Defence Force/Air Force. No details of the Indian two-seat conversion trainer are available.

The only other variant of the Mystere IV series is the IV B, which like the IV N is powered by the afterburning, 9,500 lb. st. Rolls-Royce Avon R.A.7R axial turbojet giving a maximum speed of 740 m.p.h. The fuselage is lengthened to accommodate reheat and the nose intake resembles that of the F-86F/H Sabre. The Mystere IV B is a single-seat all-weather interceptor. First flight, December 16th, 1953.

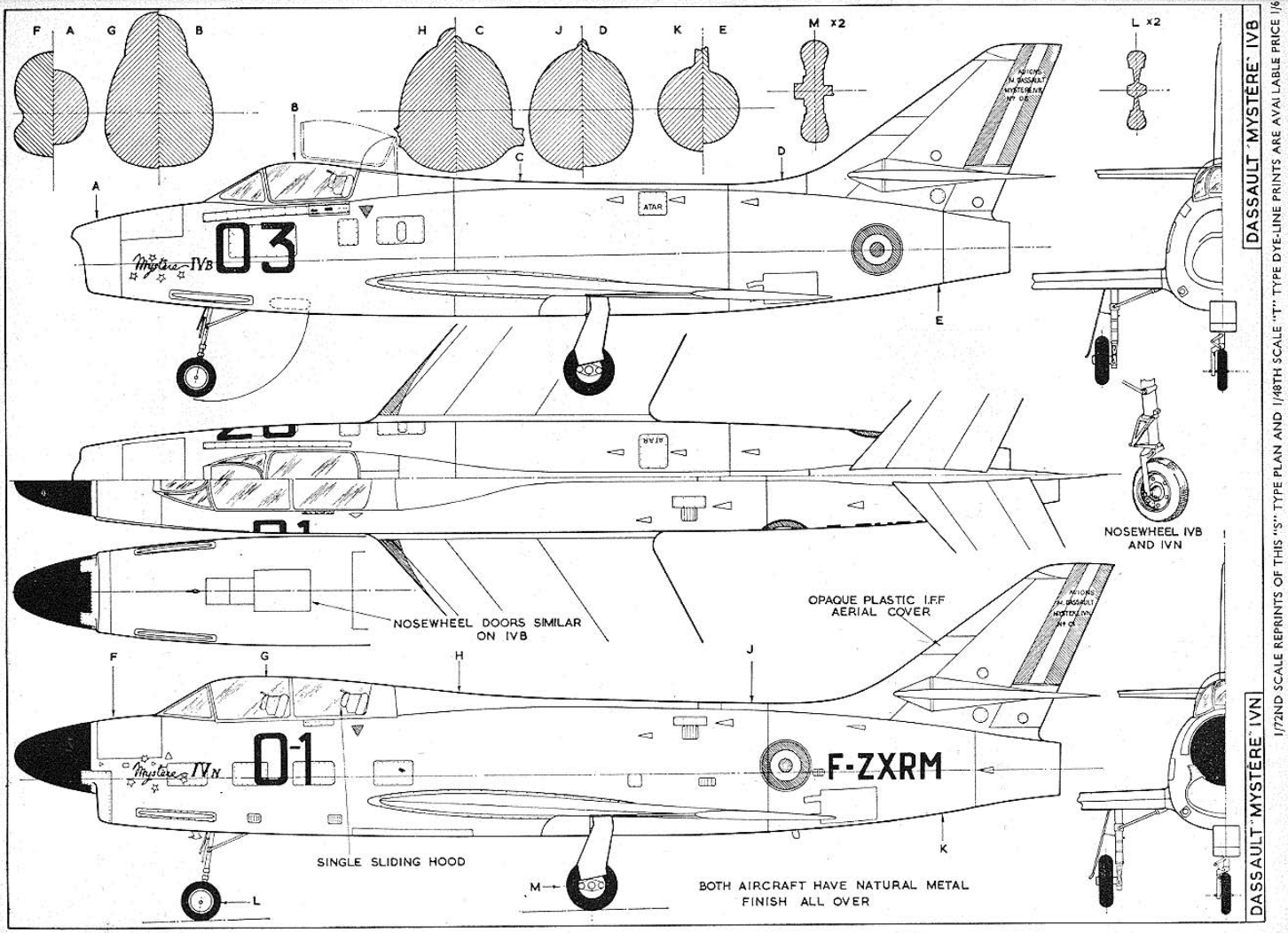
From the Mystere IV A series stems the new Super Mystere B2, the first production version of which flew for the first time on February 27th of this year. Some 370 are on order. The wing sweep has been increased from 38 deg. to 45 deg. In level flight the max. speed is Mach 1·2, or 880 m.p.h. at 10,000 ft., progressing to Mach 1·3 at and above 36,000 ft. The engine is an afterburning 9,700 lb. st. SNECMA Atar 101 G-2 axial. The Super Mystere B2 has a different canopy and tail pipe shape to that of the Avon R.A.7R-powered first prototype Super Mystere B1 first flown on March 2nd, 1955. In 1958 the later Super Mystere B2s will be powered by the afterburning 11,900 lb. st. Atar 9.

Serial Note: Two of the first Indian Air Force Mystere IV As are IA943 (IV A No. 259) and IA943 (IV A No. 268). The "IA" serials are of large dimensions, in black, on the rear fuselage.





The latest developments are the B2 with braced canopy and different fin shape, more sweepback on wing, to be fitted with afterburning Atar 9 jet. The IV N has nose radar, and lengthened fuselage for re-heat on the R.R. Avon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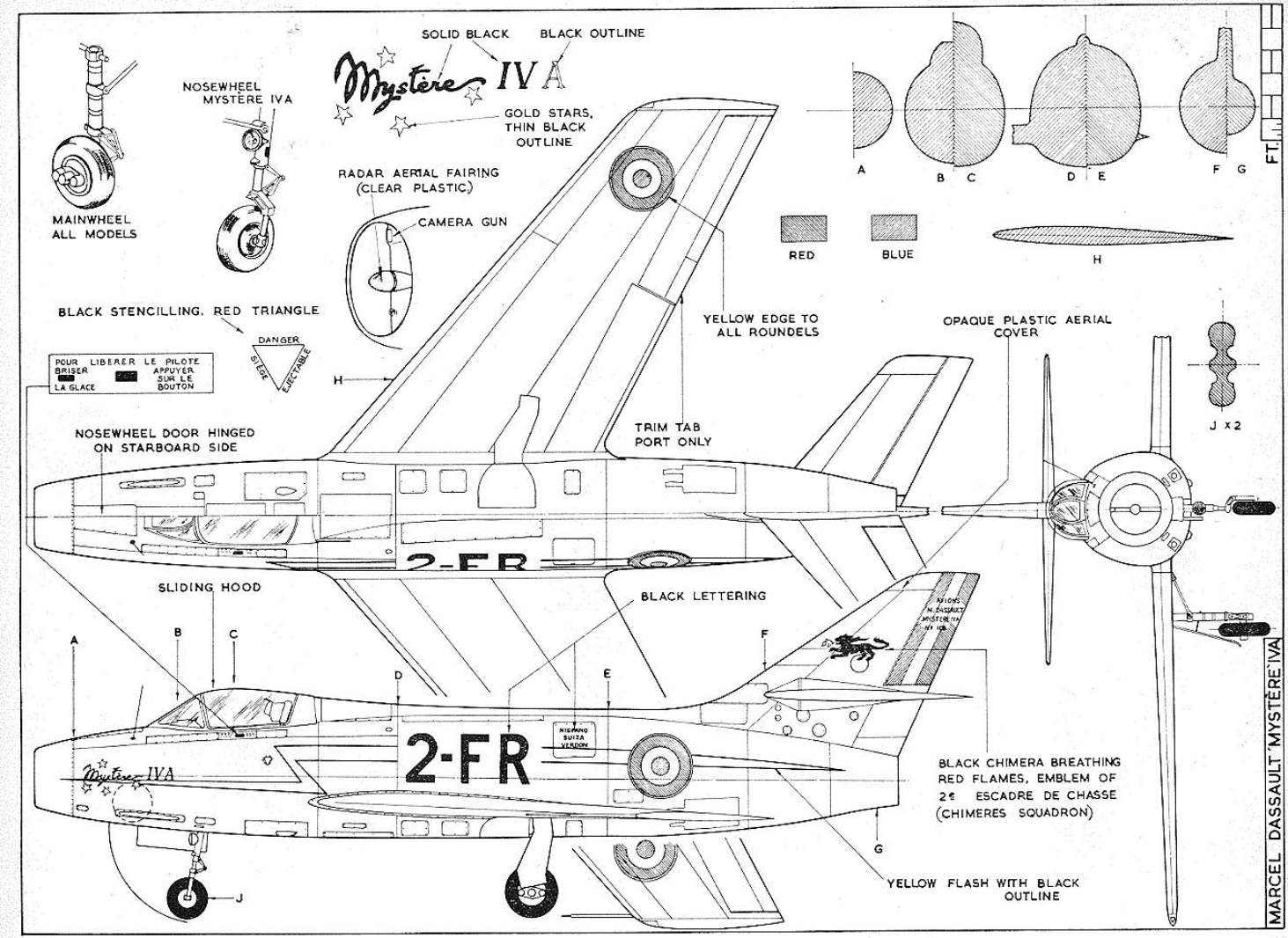
BOTH AIRCRAFT HAVE NATURAL METAL FINISH ALL OVER



MARCEL DASSAULT 'MYSTÈRE IVA'

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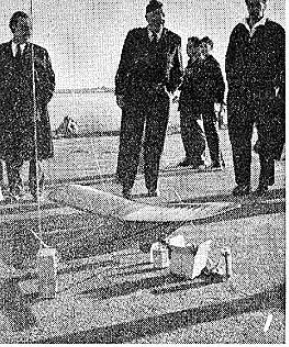


CHAMPIONNAT du FRANCE—1957

IT IS TEN years since we last had the opportunity of witnessing French aeromodelling on its native soil, so it was with particular pleasure that we journeyed to Chartres in early September to be interested spectators of the 1957 annual Championships, organised by the Federation Aeronautique de L'Union Francaise.

Earlier in the year we had been twitted by the famous flying priest Abbe Amiard for our "neglect" of French modelling activities, and our retort that we are not clairvoyant and can only print news with which we are supplied resulted in a request to "come and see for yourselves".

Chartres aerodrome is a vast stretch of country, and ideal for the conduct of a model contest, but unfortunately the same could not be said for the weather on Saturday, September 14th, which was devoted to the power and rubber-driven classes. A high wind was supplemented from time to time with heavy showers, and the temperature was far too low for comfort, in fact a typical contest day! This did not deter the 113 competitors, who had been gathered from all parts of France on an Area elimination basis, and were in attendance as guests of the Federation with all expenses paid.

The Championships are conducted in three sections, broadly speaking as Junior, Senior and Expert categories, the model specifications being graded to suit with the Experts flying World Championship type aircraft, and the general standard of model exhibited showed excellent workmanship. Many of the experts have been met at various World Championships, and it soon became obvious that competition would be extremely keen.

Under the watchful eye of M. Moretti, President of the Commission, both contests proceeded simultaneously, and it was notable that generally the rubber powered model was better able to cope with the rough conditions than its engine-powered counterpart. 20 seconds was the permitted motor run, and a number exceeded this limit, spoiling otherwise excellent flights. The majority of models featured all-sheet fuselages, either wound or carved, with streamlining well in evidence, and the Wakefield class of machine was generally recognised as to old type specification with a short motor to the 50 gramme limit.

Most models featured the established French practice of two-piece wings of very thin section, universally braced with wire struts. In the power section Webra engines predominated, with a few Allen-Mercuries to add interest, and most models retained a wire type skid though hand-launching was employed.

Five flights of three minutes each were required for the f/f events, and M. Perineau of the P.A.M. club put up a fine performance under the conditions to score 799·8 seconds in the expert's Wakefield event, his times being nearly double that of the other two classes. In fact, his total was well in advance of the power class winner, Thunin of Marseille.

Whilst these events were being fought out, the radio enthusiasts were having their own battle on another part of the field, and it was a pleasure to watch the smooth and varied manoeuvres carried out by such experts as Wastable and Brossard, using single and multi control. This despite a high wind and rain that would have kept most English radio men grounded! (Later in the day Wastable was persuaded to put his machine into the air again to demonstrate before M. Burlaton, President of the Federation, and, despite extreme turbulence and a heavy downpour, he went through the book with an excellent display, only to have the model caught by a gust when bringing in for landing, with dire results to model and equipment.)

The following day saw a marked improvement in weather conditions, and the glider contingent made full use of their luck. Stick type fuselages were much in evidence, with a few sheet covered wings, strut-braced two-piece wings again being in the majority. Notable was the high speed launching technique employed by some experts, the models being hurled off the line to shoot up for a gain of altitude. As was to be expected, this did not always pay dividends, and generally the gain was more than lost in the stall that followed these tactics. Bertin of the Mme. Charente club recorded the best score of the meeting in this contest, missing a perfect score by only 11 seconds. His model was one of the very few featuring a one-piece wing, and was superbly built and finished in a black and orange decor.

Jarry-Desloges of the S.N.E.C.M.A. club had a field day when romping away with all three classes in the control-line speed section, using his home-made motors in all categories.

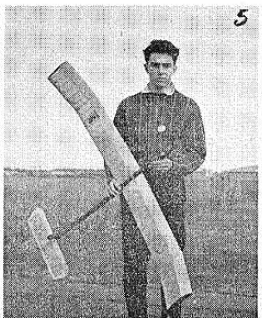
At a luncheon held during the second day, attended by high Air Ministry officials and other dignitaries, much discussion took place on the possibility of resuming the friendly pre-war contacts between French and British aeromodellers. Father Amiard, who initiated these pleasant meetings at Flers (and who incidentally was awarded the Palmes Academiques by his country at the same time as Mr. Houlberg received the M.B.E.) is naturally keen to see a resumption of these informal get-togethers, and we hope to publish further news of this project in the near future.

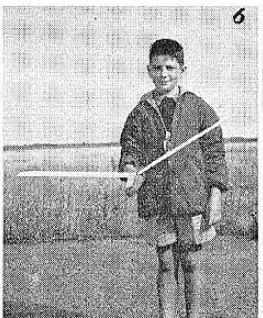
We congratulate the organisers on a fine meeting, and French aeromodellers of all ages on the very marked progress they have made in the hobby since we last viewed their efforts at first hand, and look forward to many more such friendly contacts.

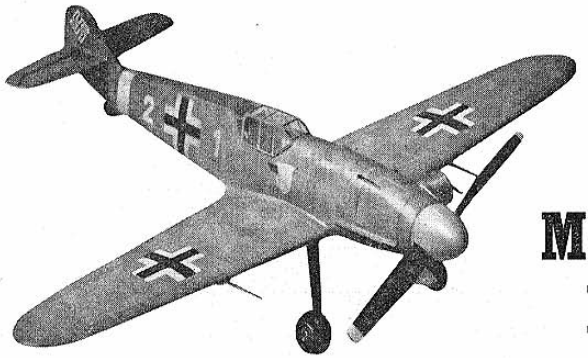
Results:

Rubber Powered:	Junior:	Menard	Angers	305·4 secs.
	Senior:	Maroquesne ...	Vichy	357·5 ,,
	Expert:	Perineau	P.A.M.	799·8 ,,
Power:	Junior:	Brau	S.N.A.C.A.S.E.	312·0 ,,
	Senior:	Wattez	Douai	439·2 ,,
	Expert:	Thunin	Marseille	706·4 ,,
Glider:	Junior:	Balgairies ...	Douai	540·0 ,,
	Senior:	Civetta	S.N.C.A.S.E.	508·2 ,,
	Expert:	Bertin	Charente	888·9 ,,
Speed	Class I	Jarry-Desloges ...	... ...	167·4 k/hr.
	Class II	Jarry-Desloges	... ...	222·2
	Class III	Jarry-Desloges	... ...	232·2
Radio Control:	Single:	Brossard	Cholet.	
	Multi:	Wastable	Moulins.	
	Glider:	Poulain	Vichy.	

(1) The Wastable radio outfit in readiness for the demonstration that ended so unfortunately. (2) Top score of the meeting was set up by this A/2 glider in the hands of Pierre Bertin. (3) Thunin (Marseille) launches his Webra powered model into a screaming vertical climb. (4) Pioneer French aeromodeller M. Delbrel (Corbeil) showed this ambitious helicopter, which put in a flight of over 8 minutes. (5) Balgaries (Douai), junior glider winner. (6) The young element was well to the fore, 9-year-old Deleye of Ivry showing good form. (7) Jarry-Desloges cleared the board in the speed events with motors of his own manufacture







All-balsa true-scale controliner for small engines by

M. F. HAWKINS

Messerschmitt Bf 109 G-16

IF YOU WANT a tough little control-liner for ·5-·8 c.c. here's a scale W.W. II fighter that has no claim for being a stunt model, but will give a most lively performance. The original flew with an Allbon Merlin and apart from lengthening the drop-out undercarriage and shortening the carburettor intake, is true to scale. It's a pity that the engine cylinder should have to stick out like a sore thumb: but until we can get the manufacturers to squeeze power out of a thimble size unit, this is one problem we cannot overcome!

Begin by cutting wing panels from hard $\frac{1}{16}$-in. sheet. Then cut out the wheel wells in the under surface panels. Take one half of a 1-inch celluloid wheel, the type moulded from thin sheet, and cut it diametrically. Stick the pieces over the wheel well, packing round with scraps of balsa. Stick the tapered leading edge and the ribs to the panels and join at the centre line with plenty of glue, allowing $\frac{5}{8}$ inch dihedral under each tip.

Make up the control plate assembly from $\frac{1}{16}$-inch ply and cement it to the bottom wing panels, together with the push rod and lead out wires. Install the undercarriage tubes in the leading edge with plenty of glue and add the top sheeting, bevelling to fit the leading and trailing edges.

Cut the motor plate from $\frac{1}{8}$-inch ply. The bolt holes shown are for the Allbon Merlin. Press studs are sewn to the plate via two small holes. Attach F1 to the plate. Assemble the fuselage sides to F2, F3, F4, F5, F6, and attach to the wing by sliding down the push rod. Now install the tank—any 15 c.c. Team Race tank will do. Use polythene tubes led through F2 and the $\frac{1}{2}$-inch soft block forming the fuselage decking. Later a small piece of tightly-fitting celluloid is slid down the tube, stuck to the fuselage and the tube cut off flush. The tailwheel should be well glued to the lower fuselage block before assembly.

Now build the cowling from block balsa, C1 and 2, cutting back to clear your motor. The other half of the fixing press studs are sewn to small pieces of $\frac{1}{32}$-inch ply which are glued in place in the cowling, then attached to the fuselage and the whole left to set. The same method is used for attaching the front half of the spinner, made from block, to the ply backplate.

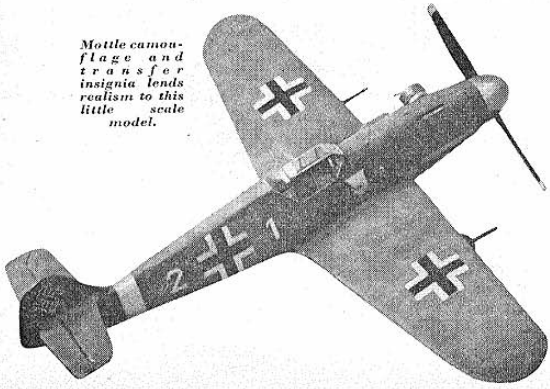
Stick the tapered fin leading edge and bottom block to the fuselage, noting the scale degree of offset, and attach the elevator horn to the push rod. Sandwich the pieces of tape between the halves of the tailplane and slide the fin sides down the stabiliser, over the horn, and into position against the fuselage. Now stick the halves of the elevator on to the tape and the horn.

Give the model two coats of dope and thinner 50/50 with talc. Rub down, and cover with light tissue, doped on. Add wing and fuselage blisters, bomb rack, radiators, exhaust with card fairing, oil cooler and then give another two coats of talc and clear dope all over. Add seat, joystick and dashboard to cockpit and fold the canopy from celluloid. Ailerons, etc., should be marked by carving a shallow V with a sharp knife.

Place the legs in the wing tubes and solder on the spreader bar and wheels. Stick the ply fairings to the legs with polystyrene cement.

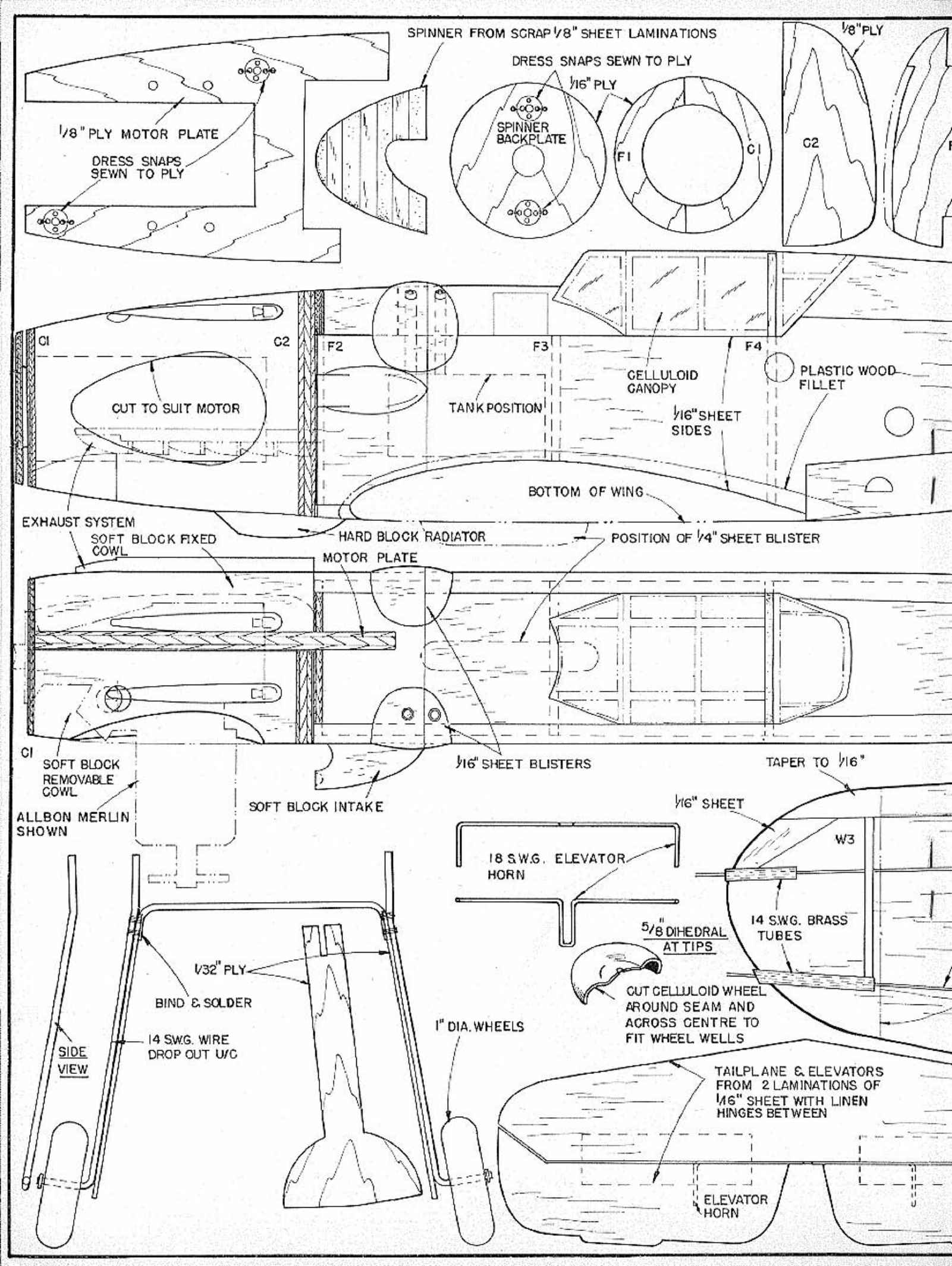
Many alternative colour schemes are available. The original was painted pale blue underneath, and medium grey and green mottle on top with black and white crosses and swastikas and a white band round the rear fuselage.

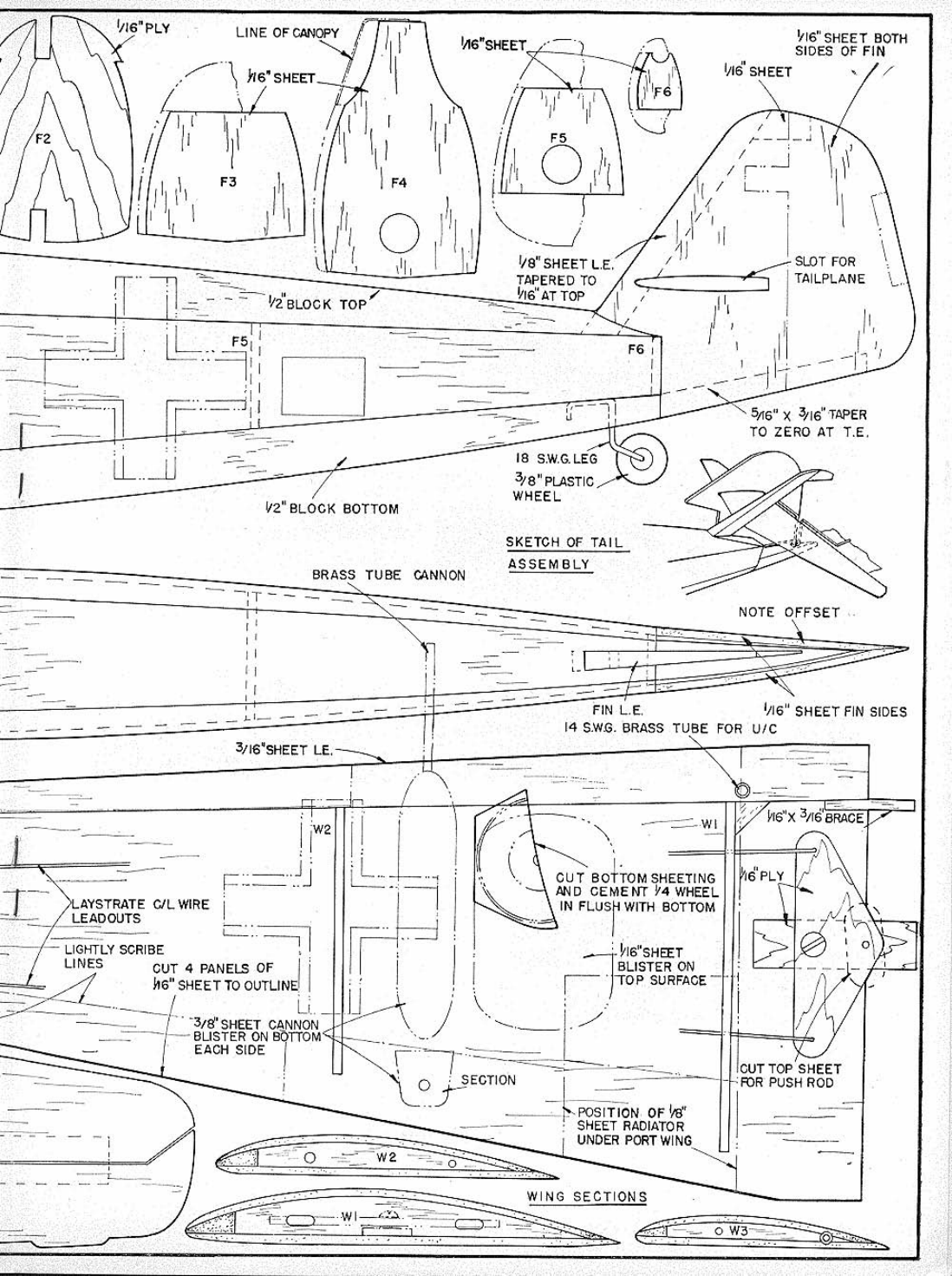
Fit a Frog nylon 6 x 4 prop., 25-ft. wire lines, choose a calm day, hand launch or take off from drop-out undercarriage. Hold your hat—the performance will surprise you!

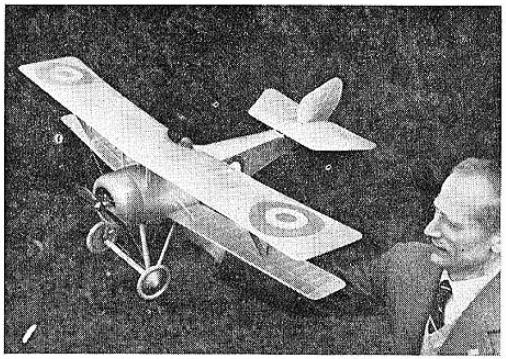


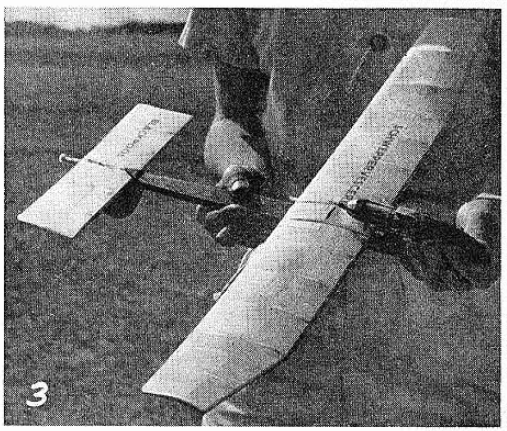
Mottle camouflage and transfer insignia lends realism to this little scale model.

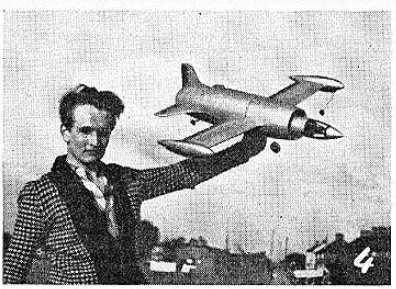
Full-size plans overleaf ➡

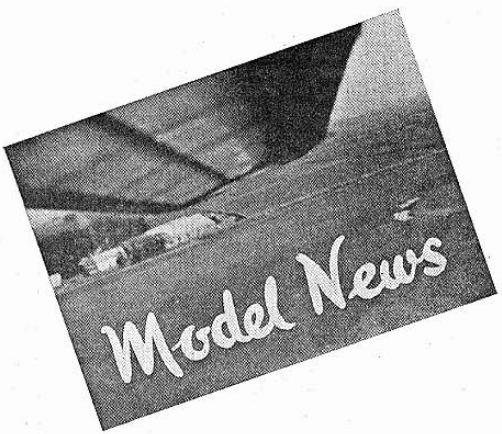

SPINNER FROM SCRAP 1/8" SHEET LAMINATIONS
DRESS SNAPS SEWN TO PLY
1/16" PLY
1/8" PLY
1/8" PLY MOTOR PLATE
DRESS SNAPS SEWN TO PLY
SPINNER BACKPLATE
F1
C1
C2
C1
C2
F2
F3
F4
CUT TO SUIT MOTOR
TANK POSITION
CELLULOID CANOPY
1/16" SHEET SIDES
PLASTIC WOOD FILLET
BOTTOM OF WING
EXHAUST SYSTEM
SOFT BLOCK FIXED COWL
HARD BLOCK RADIATOR
POSITION OF 1/4" SHEET BLISTER
MOTOR PLATE
C1
SOFT BLOCK REMOVABLE COWL
ALLBON MERLIN SHOWN
SOFT BLOCK INTAKE
1/16" SHEET BLISTERS
TAPER TO 1/16"
1/16" SHEET
W3
18 S.W.G. ELEVATOR HORN
5/8" DIHEDRAL AT TIPS
14 S.W.G. BRASS TUBES
CUT CELLULOID WHEEL AROUND SEAM AND ACROSS CENTRE TO FIT WHEEL WELLS
1/32" PLY
BIND & SOLDER
SIDE VIEW
14 S.W.G. WIRE DROP OUT U/C
1" DIA. WHEELS
TAILPLANE & ELEVATORS FROM 2 LAMINATIONS OF 1/16" SHEET WITH LINEN HINGES BETWEEN
ELEVATOR HORN


1/16" PLY
LINE OF CANOPY
1/16" SHEET
1/16" SHEET
1/16" SHEET BOTH SIDES OF FIN
1/16" SHEET
F2
F3
F4
F5
F6
1/8" SHEET L.E. TAPERED TO 1/16" AT TOP
SLOT FOR TAILPLANE
1/2" BLOCK TOP
F5
F6
5/16" x 3/16" TAPER TO ZERO AT T.E.
18 S.W.G. LEG
3/8" PLASTIC WHEEL
1/2" BLOCK BOTTOM
SKETCH OF TAIL ASSEMBLY
BRASS TUBE CANNON
NOTE OFFSET
FIN L.E.
1/16" SHEET FIN SIDES
14 S.W.G. BRASS TUBE FOR U/C
3/16" SHEET L.E.
W2
W1
1/16" X 3/16" BRACE
1/16" PLY
CUT BOTTOM SHEETING AND CEMENT 1/4 WHEEL IN FLUSH WITH BOTTOM
LAYSTRATE C/L WIRE LEADOUTS
LIGHTLY SCRIBE LINES
CUT 4 PANELS OF 1/16" SHEET TO OUTLINE
1/16" SHEET BLISTER ON TOP SURFACE
3/8" SHEET CANNON BLISTER ON BOTTOM EACH SIDE
SECTION
CUT TOP SHEET FOR PUSH ROD
POSITION OF 1/8" SHEET RADIATOR UNDER PORT WING
W2
WING SECTIONS
W1
W3





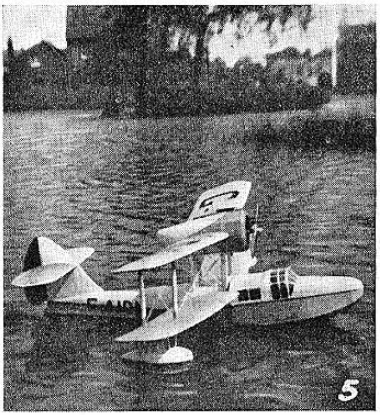


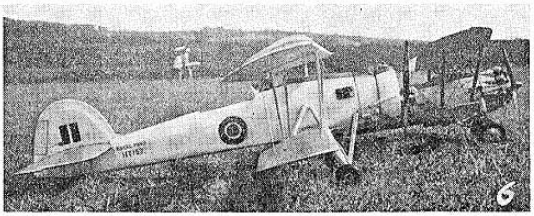


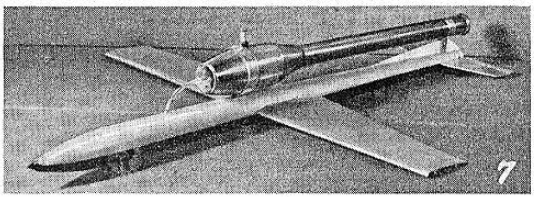
HEADING PHOTO, at left, is quite an achievement. It is the first really clear air to ground photo we have seen taken from a model. John Cochram of Buxton decided to combine his hobby of aeromodelling and fitted a 127 Camera in his 8-ft. powered glider. A D/T fuse operated the shutter, and apart from the model flying o.o.s. on all occasions, most exposures turned out most satisfactorily, including this photo of the local farm.

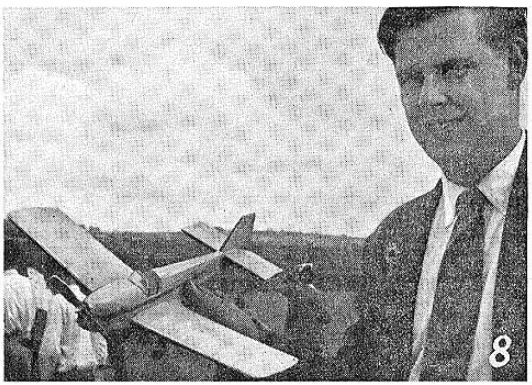
Picture **1** is Billy Bishop's Nieuport made from the popular A.P.S. drawing. An AM.10 diesel powers this one made by B. Broadbank of Harrogate and by all appearances has made a very fine job of the model. No. **2** is a mammoth controline wing for the Japanese Enya 63 glow engine, built by Mick Allen of Whitefield Club. The model was an exhibit at the Northern Models show, but we have yet to hear of it in action at any of the Rallies—must be quite a thrill to fly, if it is stable!

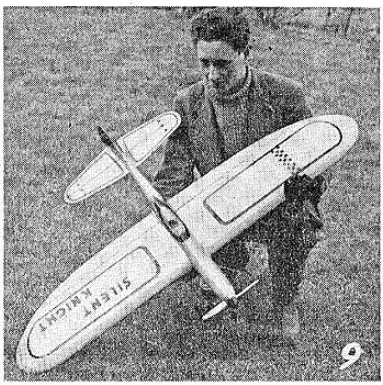
Picture No. **3** is by George Davie of Blackpool, a Jetex entry at the *Stockport Express* meeting with







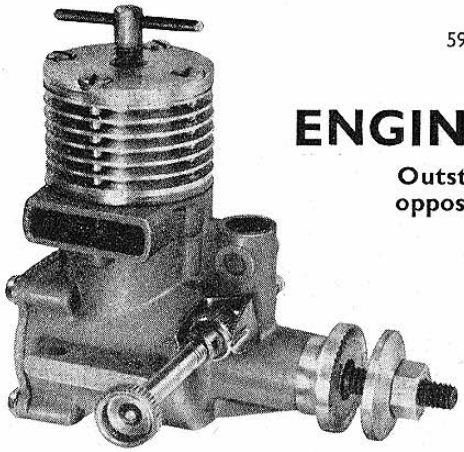




high thrust line for the Jetmaster 150. Mick Garwood of Epsom Club built the Leduc in picture 4, powered by an E.D.2.46 driving a home-made ducted fan. The fuselage was built with three layers of 1/16th sheet and two of 1/32nd, and tip tanks are fibre glass. Although entered in the scale event did not fly at the Nationals through engine trouble. Picture 5 is another entry from the National scale event. H. J. Wright's Sea Otter is seen here in more natural surroundings and somewhat calmer conditions. The weather was none too kind to it at Waterbeach. Colour scheme is blue and white with civil registration. More scale models in 6, in the foreground M. M. Gate's Swordfish and background P. E. Norman's Bristol Bulldog, both of which put up a magnificent display at the Northern Heights Gala, each being truly characteristic of the full-size. Number 7, "Feuer", is a realistic name for the home-built jet-job by D. Illsley of Leicester. Lathe turned beech fuselage is hollow, wings are aluminium slip-on type, and the pulse jet is a Brauner unit made from AEROMODELLER details. Total weight is on the heavy side at 48 ounces, and though it has yet to fly, the Brauner Jet works most effectively. Incidentally, Mr. Illsley built most of this model whilst at school.

When at the Northern Heights Gala we spotted this weeny little Tipsy Junior in 8, flitting around in true scale, cream and red colouring and when we finally managed to catch up with the owner, it turned out to be Mr. A. Jackson-Winch of the Maidenhead Model Makers club who built the model from full-size plans in AEROMODELLER for September, 1955—fitted with a Kalper 3·2 c.c. diesel. This is free-flight, of course.

We doubt very much whether the stunt model in 9 lives up to its name of Silent Knight; for it has an Enya 29 glow engine. Vital statistics are, span 55 inches, 600 square inches of wing, colour: flame with black trim and white panels. A. J. Greenland of Sidcup is responsible, and if he can keep up with the con-rod mortality rate of the Enya, he'll be flying the "Knight" through the schedule at future rallies.



ENGINE ANALYSIS number 41

Outstanding 2.5 diesel from Japan with opposed porting and new design features

ENYA 15D

reviewed by R. H. Warring

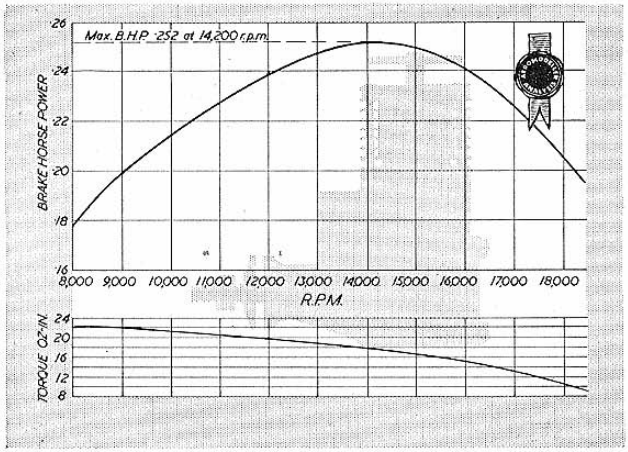
ONE HAS COME to expect outstanding engines from the leading Japanese manufacturers and the Enya 15 diesel is no exception. It is beautifully made, full of performance and especially interesting from the porting arrangement. It does, in fact, look more like a glow motor than a diesel in layout, but is actually quite different from its stable-mate, the Enya 15 glow.

Designwise the Enya 15 diesel departs from the usual circumferential exhaust and transfer porting arrangement and instead used diametrically-opposed transfer and exhaust ports of generous area, with considerable overlap, as on a typical glow motor layout, and the faster diesels. A difference, however, is that the transfer is not one main passage opposite the exhaust, but two passages cut in the lower cylinder casting in a fore and aft direction on what would be the side positions of a conventional transfer passage. These passages extend to the top of the casting and are sealed at the top end by the cylinder flange being bolted down (with two thin gaskets underneath). Insertion of the cylinder also effectively separates the two passages, except where they line up with the transfer port cut in the cylinder wall.

It is, of course, usual with this type of layout to have a deflector on the piston, but one cannot, however, be used with a contra piston, since the latter cannot be constrained against rotation and thus any "matching" shape would not necessarily stay "in line". A solution which has been tried in the past is to "step" the top of the piston as introduced by Mills Bros. to form the deflector. In the Enya the designer has utilised a conical topped piston—and quite obviously achieved a perfectly satisfactory gas flow throughout the cylinder.

Starting and general handling characteristics are excellent. Finger choking is adequate to prime. The exhaust note is peculiar, especially running rich and slow, but settles into a healthy roar. Hand starting remained easy right up to 6 in. diameter propellers and running was consistent and smooth at all speeds. The controls are nicely flexible and easy to adjust, optimum settings for any particular propeller load being obtained with a minimum of trouble. Peak power output on test was found to be slightly in excess of 14,000 r.p.m. but the excellent running characteristics are maintained up to beyond 18,000 r.p.m.

Workmanship is of the highest order throughout. The crankcase unit is a quite complicated pressure



SPECIFICATION

Displacement cement: 2·494 c.c. (·1517 cu. in.)
Bore: ·5895 in.
Stroke: ·5565 in.
Bore/stroke ratio: 1·06
Bare weight: 5⅛ ounces
Max. Torque: 22 ounce-inches at 9,000 r.p.m.
Max. B.H.P.: ·252 B.H.P. at 14,200 r.p.m.
Power rating: ·101 B.H.P. per c.c.
Power/weight ratio: ·049 B.H.P. per ounce

Material Specification:

Crankcase unit: light alloy pressure die casting
Cylinder: hardened steel (ground inside and out)
Piston: cast iron (honed)
Con. rod: light alloy casting; bronze big end bush
Bearings: Rear ball race; bearing sleeve brass or bronze (reamed)
Crankshaft: heat-treated carbon steel
Cylinder jacket: aluminium (turned) with steel insert for compression screw
Spray bar assembly: nickel plated brass (flexible needle valve extension)

Manufacturer:

Enya Metal Products Co.,
5533 Araicho Nakanoku,
Tokyo, Japan

die casting in light alloy. The main bearing sleeve is of brass or bronze cast in and merely reamed to size. A ball race press or shrunk fitted into the front of the crankcase forms the rear bearing and effectively takes most of the load, such is the shaft fit that one can spin assembly more readily than many a twin ball-race unit.

A generous diameter flange is machined on the steel cylinder to seat on the crankcase casting, with the two ports cut in the walls below the flange. It is an extremely close fit in the casting and the turned dural cylinder jacket a "plug" fit over the cylinder. Four assymmetrically placed screws through the cylinder head then hold the assembly in place, one screw being longer than the others and fitting on the exhaust side.

The cast iron piston is quite light in construction with a honed finish and is an excellent fit in the bore, its skirt is cut away on the transfer side to avoid masking the transfer passage at the bottom of the stroke.

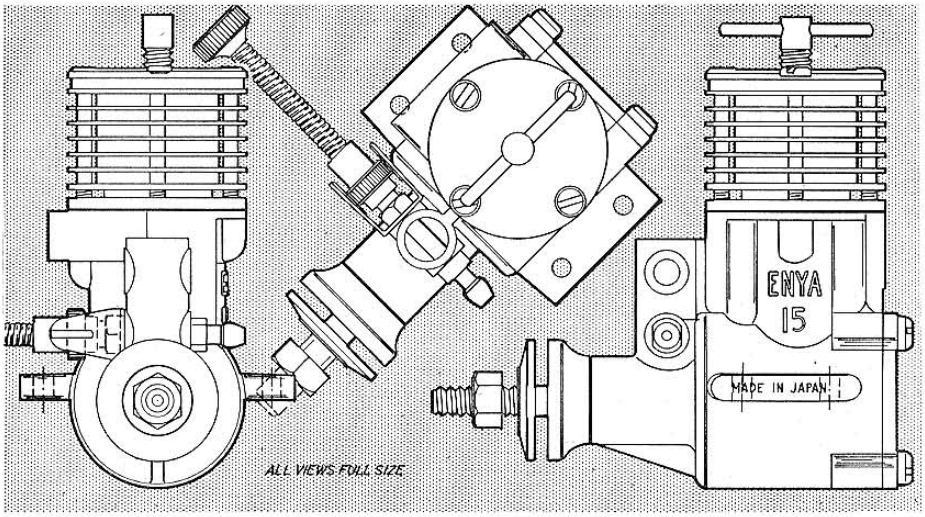
Connecting rod is a light alloy casting, with a bronze bush for the big end bearing. It is quite substantial in size to accommodate the ¼-in. diameter crankpin and ·197-in. (5 mm. brass end padded hollow gudgeon pin. Crankshaft diameter is ·3935 in. (10 mm.), stepping down to 5 mm., for the threaded length. The induction port in the shaft is circular and the shaft hole extends up the length of shaft past for lightening, crank web is partially machined away to form a crescent-shaped counterbalance.

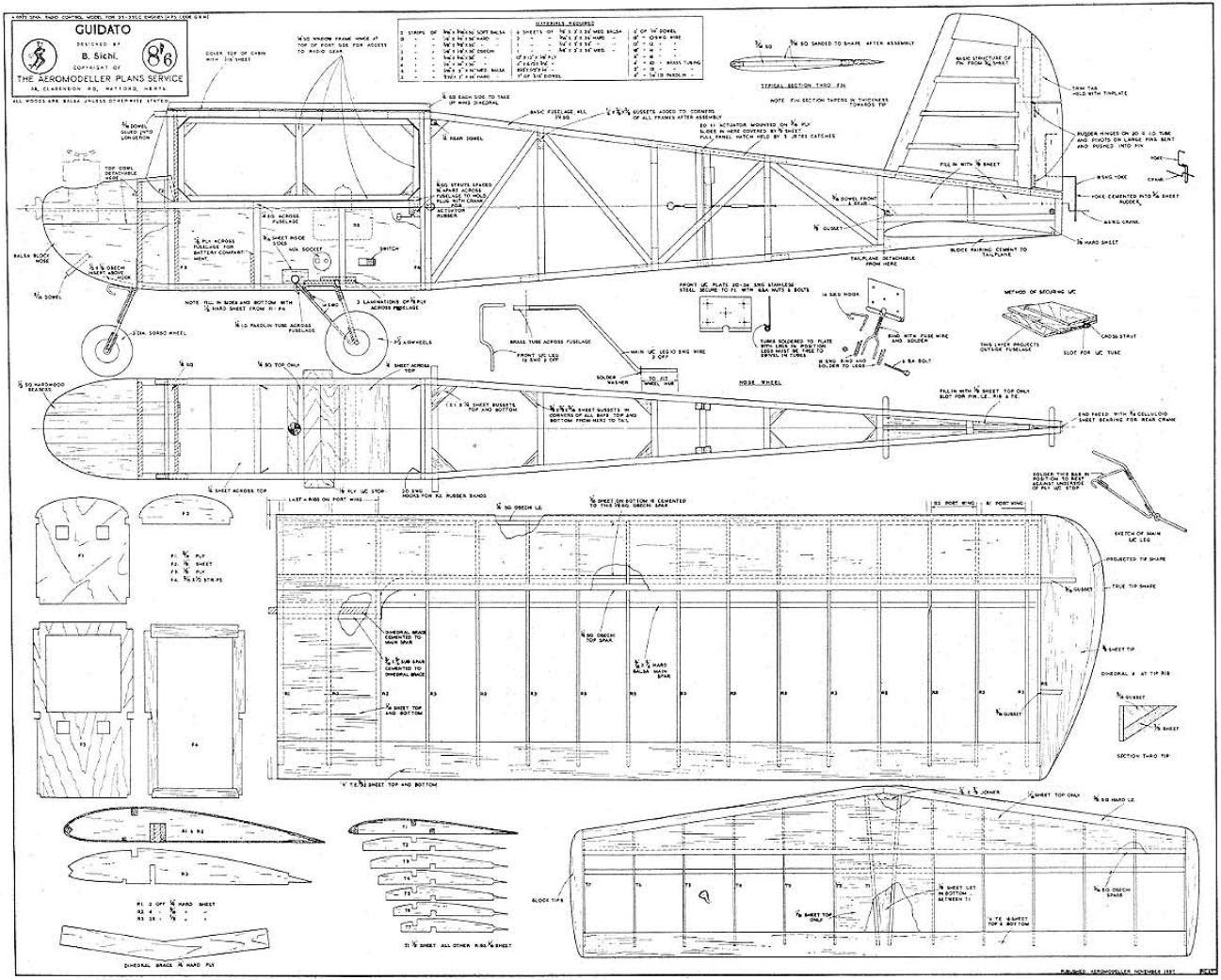
Other interesting features are the fitting of a steel insert in the head to take the compression screw; the back cover (the fit of which, incidentally, emphasises the close tolerance held on the castings) attached by four short screws instead of screwing in; the use of typically Japanese nickel plated screws throughout and the nickel plated spraybar unit and needle valve assembly, and the really robust flexible extension of the needle valve. Provision is made for the fitting of a second spray bar and needle valve at the upper end of the intake tube for two-speed operation, although this is not drilled out on the standard model.

Propeller dia. x pitch	*r.p.m.*
9 x 6 (Frog nylon)	9,400
9 x 4 (Stant)	10,400
8 x 9 (Stant)	13,500
8 x 5 (Stant)	12,500
8 x 6 (Stant)	11,000
7 x 6 (Stant)	13,600
7 x 4 (Stant)	15,000
9 x 3 (Tiger)	12,200
8 x 3½ (Tiger)	15,000
8 x 4 (Tiger)	14,000
6 x 9 (Tiger)	14,600
7 x 9 (Tornado)	12,000
11 x 4 (Trucut)	7,600
10 x 4 (Trucut)	8,000
9 x 4 (Trucut)	11,200
8 x 4 (Trucut)	13,600
7 x 4 (Trucut)	16,000
7 x 3 (Trucut)	17,300

Timing is fairly conventional by modern high performance standards. The intake opens about 100 degrees before top dead centre and closes some 45 degrees after top dead centre. Both the exhaust and transfer open rather later, which is usually an advantage in extracting the utmost power from the charge and a feature which can be tolerated much more with the type of porting used. The exhaust opens approximately 120 degrees after top dead centre and the transfer approximately 20 degrees later. Bore and stroke approximate the E.D. Racer, but the use of opposed porting has given far greater over-lap.

Summarising: a truly excellent 2·5 c.c. diesel in all respects, and also a very rugged engine achieved at little or no weight penalty. It is also the first of the *high* performance diesels to appear with "glow motor" style porting—(not forgetting the much earlier Super Tigre 5 and 6 c.c. engines of moderate output)—a design feature, we feel, which will soon be followed by other engine designers, because in the Enya at least it certainly gives top performance.




GUIDATO
DESIGNED BY
B. Sichi.
COPYRIGHT OF
THE AEROMODELLER PLANS SERVICE
ALL WOODS ARE BALSA UNLESS OTHERWISE STATED
MATERIALS REQUIRED
COVER TOP OF CABIN WITH 1/16 SHEET
BASIC FUSELAGE ASS. 19 SIS
REAR DOMEL
TOP COWL REMOVABLE HERE
SHEET INSIDE SIDES
MDA SOCKET
SWITCH
BALSA BLOCK NOSE
NOTE FILL IN SIDES AND BOTTOM WITH 1/16 HARD SHEET FROM F1 TO F4
3 LAMINATIONS OF 1/8 PLY ACROSS FUSELAGE
3 DIA. BALSA WHEEL
1/16 PIANO WIRE ACROSS FUSELAGE
2 1/2 AIRWHEELS
BRASS TUBE ACROSS FUSELAGE
FRONT U/C LEG 10 SWG 3 OFF
MAIN U/C LEG 10 SWG WIRE 2 OFF
SOLDER WASHER
TO FIT WHEEL HUB
NOSE WHEEL
FRONT U/C PLATE 20-26 SWG STAINLESS STEEL SECURE TO F1 WITH 6BA NUTS & BOLTS
TUBES SOLDERED TO PLATE WITH LEGS IN POSITION SECURE TUBES TO SERVAL IN TURNS
BEND WIRE AND SOLDER TO LEGS
8 BA BOLT
METHOD OF SECURING U/C
CROSS STRUT
SLOT FOR U/C TUBE
TAIL LATER PROJECTS OUTSIDE FUSELAGE
TAILPLANE DETACHABLE FROM HERE
BLOCK FAIRING CEMENT TO TAILPLANE
FILL IN WITH 1/16 SHEET
TRIM TAB HELD WITH TINPLATE
RUDDER HINGES ON 20 S.I.D. TUBE AND PIVOTS ON LARGE PINS BENT AND PUSHED INTO FIN
WIRE FORK
WIRE CRANK
FORK CEMENTED INTO 1/16 SHEET RUDDER
WIRE CRANK
1/16 HARD SHEET
TYPICAL SECTION THRO FIN
NOTE FIN SECTION TAPERS IN THICKNESS TOWARDS TOP
1/16 SQ SANDED TO SHAPE AFTER ASSEMBLY
BASIC STRUCTURE OF FIN FROM 1/16 SHEET
1/16 DOWEL GLUED INTO LONGERON
1/16 SQ EACH SIDE TO TAKE 1/8 WIRE DIHEDRAL
1/16 SQ ACROSS FUSELAGE
1/16 PLY ACROSS FUSELAGE FOR BATTERY COMPART. HOLE
1/16 SQ STRUTS SPACED 1/8 APART ACROSS FUSELAGE TO HOLD PLUG WITH CRANK AND ACTUATOR RUBBER
1/16 SQ HARDWOOD BEARERS
1/16 SQ TOP ONLY
1/16 SHEET ACROSS TOP
1/16 SHEET GUSSETS TOP AND BOTTOM
1/16 SHEET GUSSETS IN CORNERS OF ALL BAYS TOP AND BOTTOM FROM NOSE TO TAIL
FILLIN WITH 1/16 SHEET TOP ONLY SLOT FOR PIN I.E. PIN & TEE
END FACED WITH 1/16 CELLULOID SHEET BEARING FOR REAR CRANK
1/16 SHEET ACROSS TOP
LAST 4 RIBS ON PORT WING
1/16 PLY U/C STOP
20 SWG HOOKS FOR RE RUBBER BANDS
1/16 SHEET ON BOTTOM IS CEMENTED TO THIS 1/16 SQ OBECHI SPAR
22 PORT WING
21 PORT WING
SOLDER THIS BAR IN POSITION TO REST AGAINST UNDERSIDE OF PLY U/C STOP
SKETCH OF MAIN U/C LEG
PROJECTED TIP SHAPE
TRUE TIP SHAPE
1/16 GUSSET
1/16 SHEET TIP
DIHEDRAL 4 AT TIP RIB
1/16 GUSSET
1/16 SHEET
SECTION THRO TIP
F1 1/8 PLY
F2 1/16 SHEET
F3 1/16 PLY
F4 1/16 STR F5
DIHEDRAL BRACE 1/16 HARD PLY
F1 2 OFF 1/16 HARD SHEET
R2 4 " 1/16 " "
R3 18 " 1/16 " "
T1 1/16 SHEET. ALL OTHER RIBS 1/16 SHEET
1/16 SQ JOINER
1/16 SHEET TOP ONLY
1/16 SQ HARD LE
BLOCK TIPS
1/16 SHEET TOP ONLY
1/16 SHEET LET IN BOTTOM BETWEEN T1
1/16 SQ OBECHI SPARS
1/16 SHEET TOP & BOTTOM

GUIDATO

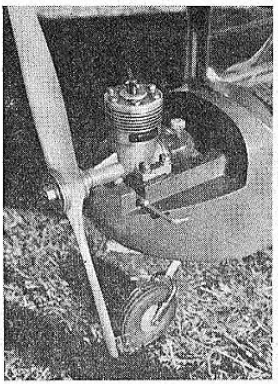
Easy-to-build 66-inch radio control design for rudder only course flying. Ideal for the r/c beginner using 2.5-3.5 c.c.

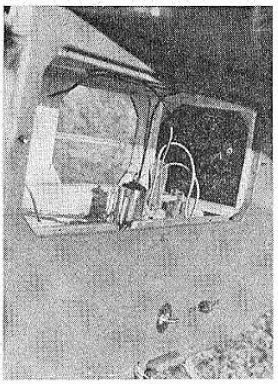
By Brian Sichi

HERE IS A MODEL that makes no pretence of being fully aerobatic but fills the bill as far as most modellers are concerned for top class performance as a pure sport flier. The original with its D.C.350 is now a veteran flier up at Ayr in Scotland, and has proven time and time again that its robust design features are just what the average modeller needs for pure and simple course flying for fun.

Everything on this model has been designed for simplicity and serviceability. Radio equipment is accessible through the cabin side flap, the tricycle undercarriage takes all landing shocks, the motor is upright and fully accessible, the tailplane and wings quickly detach leaving the fin and control surface permanently fixed to the fuselage. For the man who wants to start radio flying, Guidato is ideal for quite a wide range of engines from 2·5 c.c. to 3.5 c.c.

Begin with the fuselage, making up the engine bearer assembly with F1, F3, to which are added the side frames with projecting longerons forward of F.3 position. Join sides with F4, cross braces, adding wing and tail dowels and make arrangements to take whatever type of actuator is selected. The undercarriage fitting should be added before sheeting-in nose bays to F4 position, with $\frac{1}{8}$ sheet. Build up fin and rudder, adding to fuselage, then complete all incidentals before proceeding with the tailplane. Flat bottom makes assembly simple over the plan both for the wing and tail, wings being made in two separate pieces over the main spar and ribs R1 merely used as locators until the dihedral brace has been added for joining wings when they can be cemented firm. Add centre section and leading edge sheeting, wingtips, then cover overall with heavyweight Modelspan giving a liberal application of clear dope (silk would be preferable). For first flights, use low engine power to give extended hand glide performance just to check that wing and tail angles are suitable, then gradually increase the power and you will soon be performing those figure eights and spot landings and three point spot landings on the local flying field.



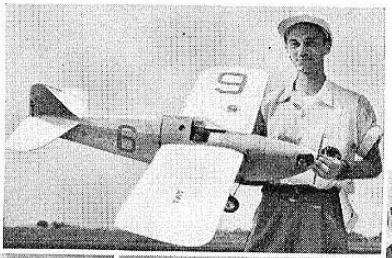


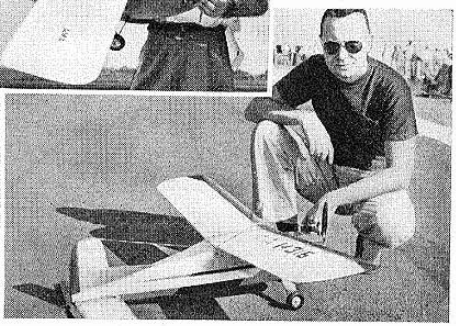
Heading shows designer with his red and yellow prototype. Note the spacious cabin and tricycle undercarriage. At right, close-up detail of the Davies Charlton DC 350 engine installation with upper cowl removed shows clean simplicity. Far right view illustrates receiver access through the side hatch. ECC Rx is used, with E.D. lightweight escapement but Guidato will take all commercial sets in its spacious cabin

FULL-SIZE COPIES OF THE 1/6TH SCALE PLAN OPPOSITE CAN BE OBTAINED THROUGH AEROMODELLER PLANS SERVICE AS RC677 PRICE 8/6 POST FREE

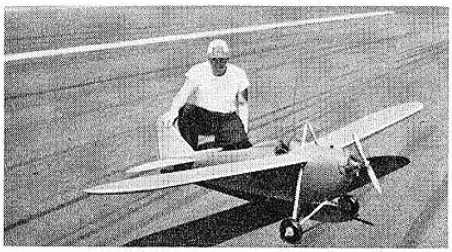
Radio Control NOTES

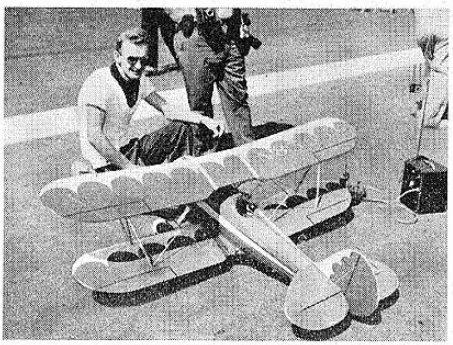
By Harry Hundleby





Pictures from U.S. "Nats". Above, left: Harold deBolt in check shirt holding his flapped, symmetrical airfoil biplane that took second place in multi. Centre: Keith Storey won the pylon event with this Oliver Tiger powered 8 reed job. Right: Don Brown won the intermediate class using the Galloping Ghost system. Below: Harold Van Horn of Canton, Ohio, builds big. Shown here with his 10-ft. span O.K. twin powered Buhl Pup flown in scale event which was won by George Kilby's beautiful Waco F-3 at bottom. Bramco 3-channel radio used with power supplied by Anderson Spitfire





NEWS OF THE Northern Height's team radio control slope soaring record of 3 hrs. 39 mins. 27 secs. came in just as we closed for press with our last issue, and we feel sure that readers would like to hear more of the background to this fine achievement.

The team consists of Ernest Jones (the radio man), Bob Copland, Malcolm Young and Geoff Warwick, who have haunted Ivinghoe Beacon for many Sundays this past summer gaining valuable experience at the somewhat specialised sport of slope soaring. They arrived at 3.45 in the afternoon this particular Sunday with four radio controlled gliders intending just a pleasant day's flying and no thought of record attempts. First model away was the record holder at 4 p.m. under quite boisterous weather conditions with plenty of down elevator required in order to make headway. After ten minutes the model was brought into land on top of the hill as conditions were not good. Then just before 5 p.m. the sky cleared and the wind moderated so the model was put in the air again. Geoff Warwick was flying it at 500 feet altitude about 300 feet upwind using down elevator when necessary to make headway. After an hour and a half Bob Copland took over, and the group was beginning to appreciate that this might well be a flight to remember. They had on several previous occasions made flights of around one hour, only for something to go wrong such as rain getting in and contacting the down elevator reed!

Bob Copland took over from Geoff Warwick just after the 90 minute mark and the next hour seemed very long indeed. The model maintained height nicely, and as the wind speed varied, so Bob found it necessary to adjust the longitudinal trim. A right bias on the model also necessitated the use of left rudder and proceedings were enlivened by other models being flown by Ken Tansley, Terry Challen and George Upson, with three models airborne at the same time.

Malcolm Young took the next stint after 2½ hours, adding on another hour before handing back to Geoff Warwick when the wind gusted up. Geoff is the most experienced of the three pilots at flying in rough conditions, and carried on until it was nearly dark at 8.30

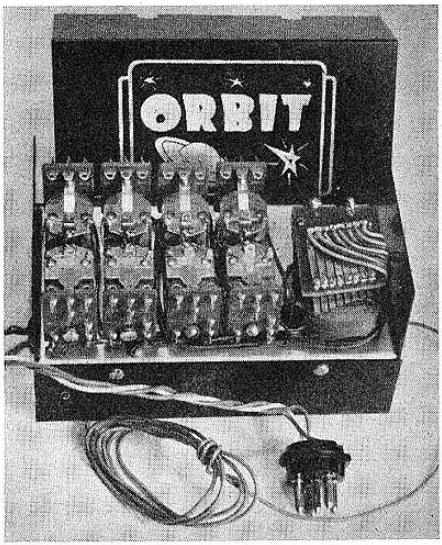
p.m., when he reluctantly brought the model back to the hill top.

A few technical details of the model and equipment would not go amiss at this stage, and we would refer readers to the drawing published in our last issue. All up weight of model is 54 ounces, and the wing loading 11·8 ounces per square foot. Radio equipment was designed by Ernest Jones, a 3-valve (DL96, DAF96 and DL96) super regenerative receiver being used to operate six reeds. No relays are employed, pairs of OC71 and OC72 transistors replacing these components and providing sufficient power to operate Mighty Midget servo motors. System is so arranged that no current is drawn by the motor except when actually moving the controls, Pencells being used for these and the L/T supply with a life of 9 to 10 hours. Transmitter uses 5 valves, a crystal and a further stabilising valve, power being supplied by a vibrator pack.

American Nationals

From both Nat Rambo who sent us the "Galloping Ghost" material and Claude McCullough, Chairman of the A.M.A. Rules Committee, comes news of the radio events at the U.S. "Nats" which attracted a total of 357 entrants. It seems that Multi control accounted for ninety per cent. of the flying activity, although there were in fact 97 entries. The top ten competitors were near perfectionists, with prototype take-offs, violent spins, and incredibly precise rolls. Winner was Bob Dunham, designer of the Orbit 8 channel reed equipment, which he used in a "Smog Hog" with a Fox 35 and Bonner Servos. Second was Harold DeBolt flying a Live Wire Custom Biplane using Bramco 8-channel reed equipment, DeBolt servos, and a Torp ·35. Third was Walt Good with a "Multibug" using Wag Dual Proportional equipment as described in this year's *Aeromodeller Annual*. Power unit was a Fox 35. Fourth came Howard Bonner with 8-channel Orbit equipment in his well-known "Smog Hog" with a Veco 35 up front.

Reed and multi-tone receivers were the rule rather than the exception. Most models employed wheel brakes and three-speed throttle control not to mention the wealth of control surface servos and "gold-plated" receivers. Most of the competitors flew well through reliable equipment and proficient piloting. In the opinion of one of our observers the performance of Walt Good who placed third with his dual proportional equipment convinced most of the contestants that it would not be long before reed outfits would be outclassed. Doc Good's system of pulsed tone radio with two Mighty Midget motors double geared, gives

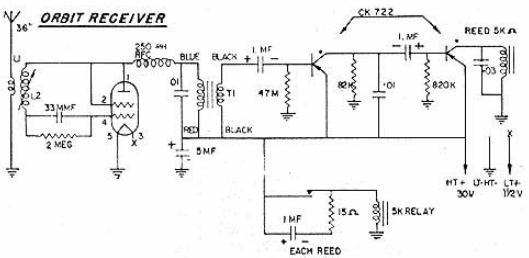


simultaneous proportional rudder, elevator and engine, and is described in this year's *Aeromodeller Annual*.

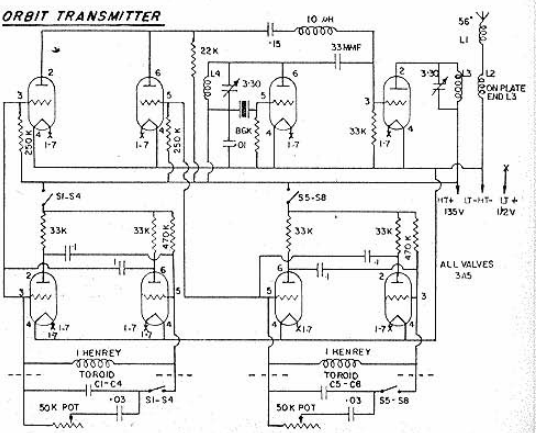
Other radio events were *Rudder Only* (161 entries), *Intermediate* (30 entries), *Scale* (21 entries), and *Pylon Race* (48 entries).

In the Intermediate class, which can be described as any control from one channel, Don Brown outflew the cascade-compound escapement systems with a "Galloping Ghost" installation in an E.D. 2·46 powered Live Wire Trainer using a Graupner type receiver.

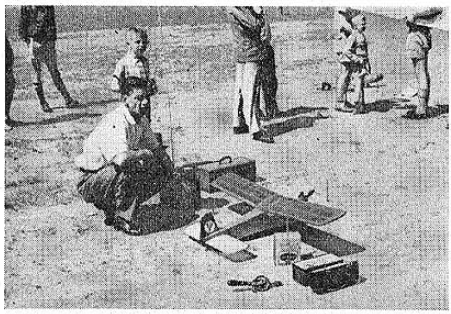
Some of the scale entries were outstanding, in particular first place winner George Kilbey's beautiful Waco F-3 that was powered by an Anderson Spitfire equipped with a 16 x 4 inch Tornado prop. Radio was 5-channel Bramco and the model flew like a dream. Slightly more exciting was the Pylon Race, won at 24·3 m.p.h. by Keith Storey, former A.M.A. president. The model was a semi-scale Bonzo Goodyear racer and



8-channel Orbit receiver is shown in photo top right. Details of circuit are as follows: Valve Orbit or 1AG4: L1, 2 turns insulated, grid end: L2, 32 turns of 34 gauge enamel on ¼-inch former: Transformer is 5½-1 stepped down. TM1 or OC71 transistors can be used in place of the CK 722 but resistance values may need modification



3A5 valves are used for transmitter and stages are added from dotted line according to number of frequencies required. L1, 10 turns 22G enamel: L2, 5 turns 16G enamel: L3, 11 turns 16G enamel; L4, 11 turns 16G enamel; all close wound. S1-S8 DPDT switches: C1-C8 chosen for reed requencies, approx. .15 to .33



Lt. Fred Els flew in the Pretoria meeting with this rudder only "Mambo" using Deltron single-channel equipment

Keith's first attempt at R/C flying. Powered by an Oliver Tiger and using Orbit 8-channel reed equipment it made quite a few hearts skip a beat going round those pylons, including Keith's! Pylon rules call for a minimum of 766 square inches of wing for use with a ·19 (3·2 c.c.); 576 square inches for a ·15 (2·5 c.c.); and 386 square inches for an ·09 (1·5 c.c.). This is to keep the aeroplanes from becoming guided missiles, but even so, tight turns close to the ground with these loadings are pretty hair-raising.

We understand that American manufacturers are working on prototypes for ten-channel reed units and tri-proportional tone units so the battle of the R/C giants at next year's U.S. "Nats" should be even more spectacular!

Up with the Larks!

Thanks to the good offices of Bob Bowen, Editor of the Los Angeles Radio Controllers monthly bulletin, *Lark*, we are kept up to date with the activities of this very large group of R/C enthusiasts. Current issue tells us that a "Smog Hog" won second place in the Nationals R/C Pylon event, and that a new near relative of this famous design has been produced by Fred Dunn, a Larks club member. Known as the "Astro-Hog" it is, in effect, a low-wing version and impressed the club no end with its beautiful flight performance. To quote: "It does terrific aileron rolls just like there was pivot at the nose and tail". It is fully aerobatic, more so than the "Smog Hog" apparently, and plans are already in circulation amongst the Larks.

Doctor Hauck recently ran the Larks Flying Circus which included radio control combat flying using streamers. No cuts were recorded but one or two people did burst balloons in the balloon-bursting event, Dean Kenney going one better and shearing his wing on the pole. Same character won a prize for the most novel stunt, when he sprayed crowd with his own airborne rainstorm. Bill Williams flew two planes simultaneously, and our old pal Howard Bonner performed wing-walking with this "Smog Hog" in flight. How did he do it? Merely by walking up and down on an old wing whilst controlling "Smog Hog" way above! Ouch!

News from Pretoria

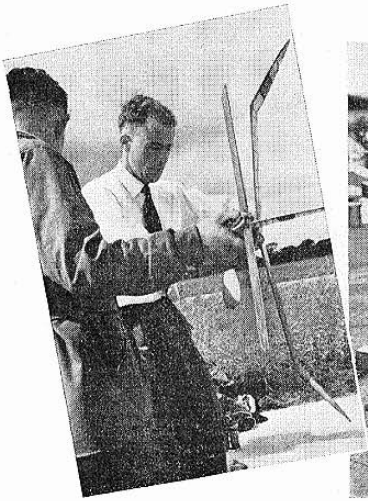
Mention of Howard Bonner in preceding paragraph reminds us of the great boost to radio control activity in South African afforded by his tour with Bob Palmer earlier this year. On September 2nd the Pretoria Aeromodellers Club organised their annual district competitions including R/C contests for *Rudder Only, Intermediate* and *Multi*. A number of single-channel Deltron receivers were in operation, including that of Pete Mollet, a young polio victim, who gave a masterly display with his "Champion" operating from a wheel chair. Monty Malherbe flew a "Rebel" fitted with a K & B ·09 and C.G. single-channel equipment using Duo-Varicomps to obtain rudder and elevator. His performance included Cuban Eights, *i.e.* horizontal eights with a roll out on the down leg of each circle. Cliff Culverwell, using a "Smog Hog" with eight-channel Orbit on 52 megacycles was immune from the common 27 megacycle boys and gave a polished display including inside and outside loops, six turn spins, inverted flying, in fact everything in the book! Gordon Hamilton did low level aerobatics with his "Equaliser" equipped with C.G. 2-channel unit and finally misjudged his height at the bottom of a loop with unfortunate results. Considering there were better than 150 radio flights and this was the only crash, reliability of equipment was of the highest order.

"Galloping Ghost"

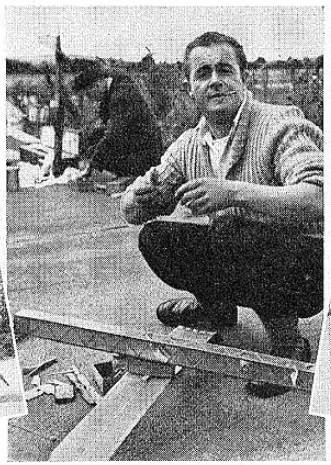
We continue to see references to this system in the U.S. model mags from which it is obvious that it is being flown with great success in the States. Bill Gilkey of Pitman, New Jersey, designed a plane specially for the system and has performed inside and outside loops, rolls, inverted flying, etc. At Langley Field, Virginia, a pylon race was won by Walt Good, the next four places being won by G. G. operated models. We would be pleased to hear from home readers who are currently operating this type of equipment.

"Aeromodeller Transistorised Receiver"

Seems that the temperature variation troubles we mentioned in our September issue are no real problem at all. George Redlich tells us that careful selection of the transistors eliminates this bother altogether, which, incidentally, never did occur with Tommy Ives' original receiver and has not occurred with many hundreds of others, to judge by the letters received. One club in the States has at least seven receivers in operation and suggest alternative U.S. transistors as follows: CK722, 2N107, GT-34. Radio and Electronic Products can supply selected British transistors, and do in fact provide complete kits of this unit with the panel, etc., drilled and ready to assemble. It is significant that we have yet to hear of temperature trouble occurring with a set fitted with genuine commercial transistors such as the Hivac T.M.1, and feel sure that the 10/- variety available on the surplus market are not such an economic buy in the long run. For the benefit of readers who missed it, the receiver was fully described in our May issue, and we do emphasise two important points that ensure 100 per cent. reliable operation. Firstly, make certain that the valve stage is working correctly. It should idle at ·2 milliamps and rise to ·7 to 1·0 milliamps when the R.F. choke is squeezed (this, of course, without the transistors inserted). Secondly, ensure that the H.T. and L.T. batteries are well up to scratch by checking same under load. For the small amount of extra weight involved it is better to use the B110 for H.T. and a D18 for L.T., both of which provide adequate capacity for the job. By observing these conditions and by taking reasonably intelligent precautions when flying in very hot or very cold weather no trouble is likely to be experienced. One or two people have been unable to obtain range and sensitivity and examination of their receivers showed that a reduction of the fixed resistor value from 680 ohms to 330 ohms was necessary, this modification curing the trouble completely.



Reporter Patrick Smith prepares to launch proxy for Murtagh in Rubber.



Centre is long distance man W Redmond repairing motor damage. Above: E. O'Neill, winner of Glider

IRISH NATIONALS

RAIN MARRED THE first day of the 18th Irish Nationals held at Baldonnel Aerodrome (by kind permission of Col. Quinn) on August 31st. E. O'Neill led the field from start to finish in Glider, being the only one to score a maximum in the first round. On Sunday, conditions were fair for Wakefield and Power. N. Corwell, favourite for Wakefield, lost his model on the test hop at 11 a.m. to return at 6.30 after travelling across Dublin mountains with success. This was not the only long-distance flight. W. Redmond spent some hours repairing his Wake after a broken motor, flew again and lost the job which was finally recovered fifteen miles away creating an Irish record for which he was duly reimbursed at the prize giving by presentation of a cigarette lighter, doubtless a reminder that he should always light the D/T in future! Des Woods led through all three rounds of the Wakefield with T. Morelli coming up in second place.

In Power, F. Policky, a promising junior, did well to come in third, following the familiar names of S. Elder and J. Thompson. In this event, T. Morelli wound up with a first-class prang, so this is one event in which his name does not appear among the top three. Tony made up for this by collecting both Class A and B Team Races, and just to rub it in, placed first in Stunt as well.

Captain Hammond presented the prizes at the evening banquet, Grosvenor Hotel, and in his speech mentioned that the Model Aeronautics Council of Ireland must encourage more international flavour in next years' Nationals, so there is hope of invitations being extended to the S.M.A.E. for participation in 1958.

Glider

1. E. O'Neill ...	...	D.A.M. ...	396.0
2. R. Armstrong	...	B.M.F.C.	383.7
3. T. Morelli ...	...	D.A.M. ...	345.9

Power

1. S. Elder ...	...	D.A.M. ...	540.0
2. J. Thompson	...	Mt. A.A.C.	431.6
3. F. Policky ...	...	D.A.M. ...	248.8

Wakefield

1. D. Woods ...	...	P.A.C. ...	515.7
2. T. Morelli ...	...	D.A.M. ...	383.8
3. G. Drew ...	...	B.M.F.C.	372.0
4. A. Gordon ...	...	P.A.C. ...	363.0

Open Rubber

1. D. Woods ...	...	P.A.C. ...	515.7
2. T. Morelli	...	D.A.M. ...	383.8
3. N. D. Taylor	...	... ...	372.2

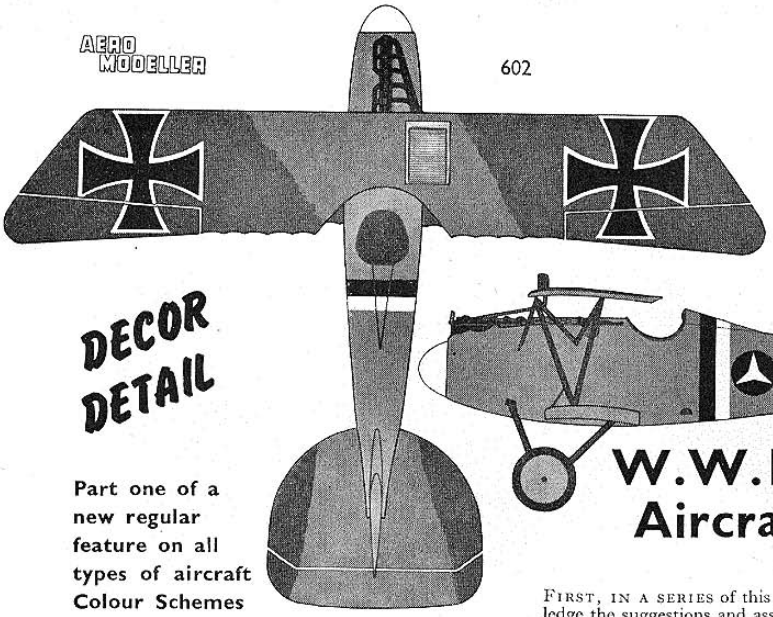
Team Racing

Class A.—T. Morelli ... D.A.M.
Class B.—T. Morelli.

Stunt

T. Morelli ... D.A.M.

Left: S. Elder launches for a 3rd and winning power max. Right: Des Woods, winner of the Rubber event, hardly looks jubilant whilst being congratulated by J. Thompson



Albatros D V (distinguished from D VA by headrest) of von Schleich's Bavarian Jagdstaffel 21 when stationed near Verdun in 1917. Varnished ply fuselage. Wings and tailplane dark green and mauve camouflage patches on top surfaces and pale blue underneath. Fuselage bears black and white ribbon, insignia also black and white

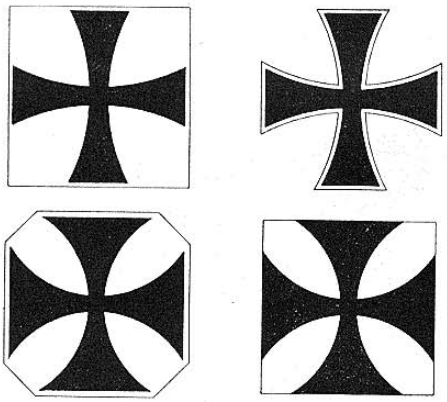
DECOR DETAIL

Part one of a new regular feature on all types of aircraft Colour Schemes

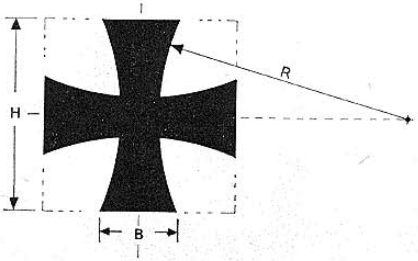
W.W.I German Aircraft Finish

—by P. L. GRAY

VARIATIONS ON PATÉE CROSS



CROSS PATÉE PROPORTIONS



FIRST, IN A SERIES of this nature, one must acknowledge the suggestions and assistance kindly given by so many friends. Space demands preclude the mention of their names but their efforts are none the less sincerely appreciated. One name which must be acknowledged, however, is that of Herr Egon Kruger of W. Germany, who lent so many original documents, without which the degree of authenticity could never have been obtained.

Secondly, it might be as well to say a word about colours, which are notoriously difficult to describe; the trouble is that few people "see" a colour the same—to one person a green may appear a yellowish-green, to another it might seem a bluish green. Where a definite colour designation is given it is intended only as a guide to the shade and not that it was precisely that colour. Obviously pigment would fade or darken with age and weathering, it would also get quite dirty during the aeroplane's use, which factors must be taken into consideration.

Mention might also be made that the designation of all officially accepted German aircraft was correctly shown in Roman numerals and prefixed by the aircraft class letter, *i.e.* C XII, D VII, etc. The class letters, incidentally, were of no particular significance.

Prior to the introduction of camouflage, the majority of German Air Force machines simply had the unbleached linen fabric clear doped then given a coat of protective varnish; which accounted for the many "white" aircraft mentioned in early Allied combat reports. A few representative types finished in this manner were Fokker E type monoplanes, Halberstadt D I and D II, Aviatik C types, Albatros C I, LFG Roland C II and Rumpler C types.

Camouflage began to be introduced during 1916 and the initial scheme saw the aircraft finished on the upper and side surfaces in large irregular patches of either green and red/brown or mauve and green, in a manner similar to the "shadow shading" of British aircraft during World War II. The shades of green varied from

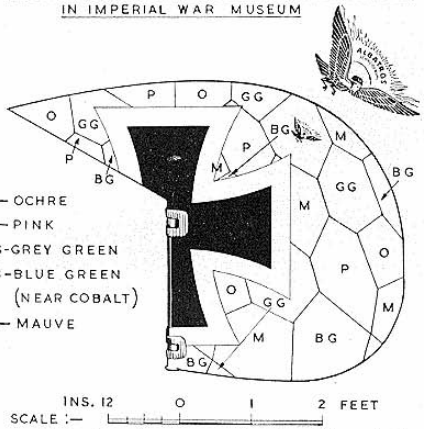
CROSS PATEE PROPORTIONS PER ORDER 25th July, 19th

H=Height. B=·4 of height. R=radius=1·3 height.
Actual dimensions to be used (in centimetres).

H	=	500	600	700	1000	1200	1400
B	=	200	240	280	400	480	560
R	=	650	780	910	1300	1560	1820

Crosses were painted in above sizes, in appropriate locations, in the largest size the surface would allow.

DIAGRAM OF ALBATROS D.V RUDDER ON DISPLAY IN IMPERIAL WAR MUSEUM



sage to dark olive, the mauve varied from lilac to indigo tinged with red. Undersurfaces were usually a pale sky blue although yellow was quite often used. A telegram was sent by the authorities on April 12th, 1917, ordering that red/brown paint on top wing surfaces be discontinued, due to misunderstandings (being taken to be enemy colours) which had led to fights between their own aircraft! From thence only dark green and lilac was to be used.

From the early days of the war the patee cross had been used as a National Insignia, but no standardisation of the proportions, radius of curve, etc., seems to have been in force. Some of the early crosses were constructed with extremely curved sides and in some instances were located on *both* surfaces of both wings in addition to the usual fuselage and rudder locations. When the aircraft had a dark finish the crosses were usually painted against a square white background, on machines covered with natural linen fabric this white square was of course unnecessary. On these early aircraft crosses were sometimes painted on the wheel discs too, more often on trainers.

However, on July 25th, 1916, an order (which remained in force until March 20th, 1918) to all aircraft contracting firms, stated that crosses were to be standardised in both proportions and size (*see diagram*). Whether they should be merely outlined or painted against a square white background was apparently still left within the contractor's jurisdiction. This position was regularised on October 29th, 1916, though, by an order which stated: "Night aircraft—black cross only. Day aircraft—black cross surrounded by 5 c.m. (approx. 2 inches) wide white outline." Crosses were carried on the fuselage sides, fin/rudder and on all four wing tips; those on the upper wings were usually (but not invariably) located with the inboard edges adjacent to the rib where the aileron commenced.

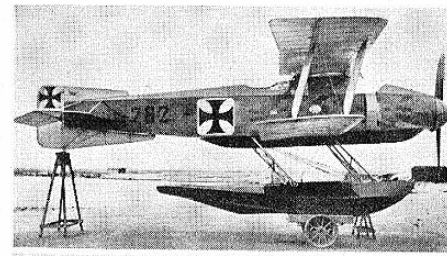
Serial numbers were white or black, usually the latter, and painted on the fin or rear fuselage; several styles were used according to builder, some of which are illustrated. The prefix letter indicated the aircraft class, and the oblique stroke followed by two digits usually of reduced size, indicated the year the serial was allotted, not necessarily when the aeroplane was built. Inevitably there were variations, even in machines emanating from the same factory.

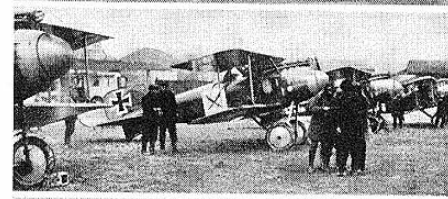
Additionally, operational identity markings were carried; on two-seaters mostly in the form of a numeral, or letter, painted on the fuselage sides forward of the cross. On single-seaters coloured bands or stripes decorated the fuselage and/or tail.

Struts were either varnished (natural) spruce or painted a dark shade of grey or green, which colours were also applied to any metal panels. Undercarriage struts were usually painted the same colour as the undersurfaces. The wooden ply-covered fuselages of the Albatros single-seaters were left in their natural varnished condition which resulted in a warm transparent straw coloured shade.

Variations existed in the way camouflage colours were apportioned, some aircraft having patches of smaller size with hazy sprayed outlines (*see illustration*) and sometimes more than two shades were used.

The following may be taken as a brief representative list of aircraft types which carried this type of finish: LFG Roland D I and D II, Halberstadt D II and D III, Fokker D I to D IV, Albatros D I to D V, Albatros C V, C VII, C X, DFW C V, LVG C.V and Rumplers C IV and C V.





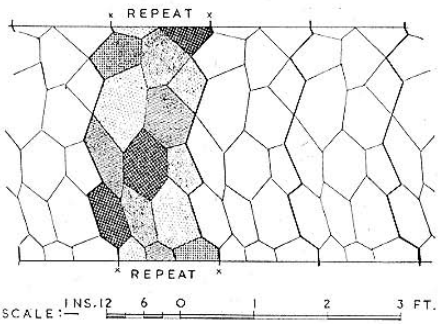
Top: Ursinus seaplane photograph is something of a collectors' item—note the retractable fuselage belly cum float which idea was tried by Blackburn aircraft during the Second World War. The rounded corners of the square white panel against the painted fuselage sides are unusual. The flying surfaces are covered with natural linen fabric

Centre: Albatros D IIs of Jasta 9 warming up ready for patrol, present a well streamlined appearance for 1916. Note "crossed swords" insignia on first aircraft also the use of mud guards

Bottom: Albatros C VII—200 h.p. Benz— General purposes two-seater used extensively during late 1916 and 1917 shows patee crosses against square white backgrounds. The serial style is well displayed on the fin (on the original the figures after the oblique stroke are discernible as 16) and the operational identity markings on the fuselage sides are worth noting

All Imperial War Museum Photos.

ACTUAL PATTERN PRINTED ON FABRIC



The next major development in German camouflage schemes was the introduction of fabric which was pre-printed in a pattern of irregular polygons and usually known as "losenge" fabric. Representation of this fabric has been the bane of many scale modellers, however it is hoped that the illustration of the fabric pattern may simplify things in future, though one is aware it may horrify! Reference to the "Table of Fabrics Examined" will show the varieties of colours; lack of uniformity probably being due to cheap pigments being used, although aforementioned fading, etc., must be taken into account. In the official documents loaned from Germany first mention of this camouflage scheme is in an order dated October 27th, 1916, calling for a return of all cloth held by firms at the moment prior to it being recalled for the necessary colour printing process, or being exchanged for printed fabric.

Most controversy seems to have arisen as to whether there were two colour varieties of this fabric for upper and lower surfaces; it is therefore hoped that the following translation of a directive sent to Messrs. Siemens Schuckert, dated April 12th, 1917, may settle the matter:

". . . cover all new aircraft with the new coloured fabric. The method to be used has been laid down in letter 296651/17. Will you also order as soon as possible a great quantity of fabric from the new Augsburg Cotton Factory.

"The aircraft are covered with the coloured fabric in exactly the same way as with the white fabric.

"Two different colours are used by day aircraft, light and dark, and are to be fitted as follows: the dark fabric is for all upper surfaces of aircraft as well as the fuselage sides; the light fabric is only for the lower surfaces of the wings and fuselage belly. When joining the two colours one should try to make the imprints thereon to fit one another. After covering all surfaces, to be doped in the usual way and lastly to be covered with a matt top lacquer obtainable from the firm Cohn of Berlin-Neukolln. Undercarriage struts and metal cowlings on engines are to be given the same coat of paint colours as fabric so that on the aircraft no other colour is visible.

"For night aircraft the top and bottom surfaces are to be covered with the dark fabric. In the case of queries come and see me personally".

This then was the rule; as is known from reports on captured aircraft, however, some day machines were covered all over with the same fabric.

. . to be continued next month

Table of Fabrics examined

SINGLE SEATERS

ALBATROS D I.—Camouflaged all over with large irregular patches of green and brown (sage green and dark burnt sienna). Machine brought down March 21st, 1917, was piloted by Prince Charles Frederick of Prussia, who later died from his wounds.

ALBATROS D III.—Covered with losenge fabric in shades of indigo, dark cobalt blue, sage green, yellow ochre and violet—all surfaces. The fuselage was natural varnished wood, a good colour approximation being the shade of bright new straw. Aircraft captured November 13th, 1917.

ALBATROS D V.—Wings and tailplane top surfaces painted in large irregular patches of dark olive green and violet/mauve. Under surfaces of same were painted pale sky blue. Fuselage was varnished plywood and again straw coloured. Aircraft serial number was 4422/17, brought down February 16th, 1918.

FOKKER D VII.—Wings (both surfaces) and under side of tailplane covered with losenge fabric in shades of sage green, blue-grey, indigo, mauve and yellow ochre. Top surfaces of tailplane painted bright royal blue. Metal nose panels painted red. Aircraft serial 1445/18, brought down by S.E.5's of 24 Sqdn. on June 17th, 1918, near Conchy; pilot, Lt. Wusthoff (27 victories) was captured.

FOKKER D VII.—Covered with losenge fabric in shades of sage green, yellow ochre, salmon pink and cobalt blue. "This machine appears to have been covered all over with the under-surface fabric". No other details of this aircraft available.

PFALZ D III.—Painted all over with aluminium dope; both sides of tailplane painted deep chrome yellow. Aircraft serial number 1116/17; brought down by a Sopwith Dolphin piloted by Lt. Thompson, near Flesquiers on November 30th, 1917.

PFALZ D XII.—This piece of fabric was taken from an aileron trailing edge where the upper and lower surface pieces were machined together. In this instance both pieces were definitely of different colour combinations, as follows: top surface—sage green, violet, ultramarine blue, dark khaki and prussian blue (note two shades of blue occurring in this instance); under surface—violet (a lighter shade than the top surface, more a lilac colour), yellow ochre, pink, cobalt blue and pale green/blue.

FOKKER Dr. I.—All upper and vertical surfaces were painted a streaky dark olive green shade, the streakiness being caused by he brushing out of the dope on white fabric; under surfaces were a very pale sky blue. Aircraft was serialled 144/17 and was brought down by A.A. fire on January 13th, 1918.

TWO-SEATERS

ALBATROS CV.—Whole machine sprayed in a series of smallish patches of dark olive green, greenish grey/blue and brown (dark earth). Aircraft, serial 1394/17, brought down by A.A. fire at Armentiers on May 13th, 1917.

ALBATROS C Type.—Camouflaged all over with varying shades of mauve, the piece of fabric seen was pale pinky mauve (lilac). Aircraft serial number 9289/16; brought down by Capt. Webb at Belle Vue on July 12th, 1917.

A.E.G. JI.—All top and vertical surfaces dark brown and very dark red shadow shaded effect. All under surfaces painted cream. Machine was shot down by an R.E.8, May 16th, 1918.

AVIATIK CV.—Top and vertical surfaces painted in fairly large, merging, patches of green, purple and brown; the green was dark, but quite a bright green (Hookers dark green) and the purple quite a bright colour (almost a royal purple). A portion of the brown fabric was not available. Under surfaces were clear doped natural linen—a dirty white. Aircraft, serial 7877/17, was shot down by A.A. fire on April 21st, 1918.

D.F.W. CV.—Top and vertical surfaces painted in large irregular patches of dark grey, fairly bright greyish-green and bright purple. The finish of the colours was "stippled", the brush marks being clearly discernible. Under surfaces were clear doped, natural linen. Aircraft serial was 7787/17 (note similarity to foregoing serial),, the machine being brought down on April 22nd, 1918.

HANNOVERANER CL III.—All flying surfaces covered with losenge printed fabric in shades of indigo, dark cobalt blue, sage green, yellow ochre and pink on both surfaces. Aircraft, serial 13103/17, crashed intact on April 16th, 1918.

L.V.G. CV.—Top and vertical surfaces camouflaged in large irregular patches of bright mossy green and a lilac shade of mauve. Under surfaces were pale duck egg green, which closely approximated the shade used in World War II on British aircraft.

TWIN-ENGINED BOMBERS

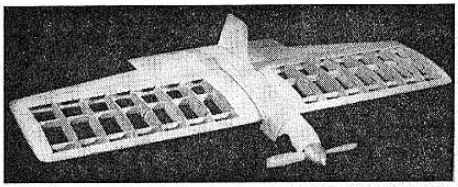
GOTHA G V.—No. 109 shot down at Rochford on December 6th, 1917. Covered all over with natural white linen fabric very thinly washed over with blue.

GOTHA G V.—No. 938 shot down at Wickford on January 28th during London raid. Camouflaged all over with large irregular losenges in shades of black, indigo, dark grey (tinged with mauve) and dark olive green (tinged with grey).

GOTHA G V.—No. 925 shot down at St. Osyth on May 19th, 1918. All over large losenges in shades of black, indigo, brown (reddish purple/brown), dark blue and dark olive green.

GOTHA G V.—No. 979 shot down Isle of Sheppey on May 19th, 1918. All over losenge pattern in black, indigo, very dark blue (tinged with red), slightly lighter shade of blue and dark purple.

Note: Losenge pattern on all these twin-engined types was not printed fabric, but painted on in dead matt dope, with the exception of No. 979 which had a slight sheen to the dope surface.



Trade Notes

A CATALOGUE which should be in every retailer's file is that recently issued by **Multicraft,** of 5 Fitzroy Street, London W.1. In new, vertical format, this booklet gives a full listing of all the items handled by Multicraft, including, of course, their extensive knife and cutter range. Last month we reproduced a photo of the latest addition to the knife sets in the form of a plastic case containing a junior knife of the pocket pencil size—with clip, two gouges, a double-ended blade and a ⅛-in. diameter Abrafile. For only 6s. 9d. this is real value, and we commend the set as a number one field repair kit for all aeromodellers. Don't be put off by the "Junior" title—it refers to the size of the knife as distinct from the "Major" size. Incidentally, we still come across aeromodellers who have not seen or used an Abrafile—and we can't understand how they manage to carry on without them!

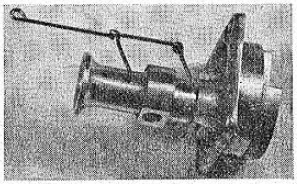
Contest Kits sent us a list of successes gained with just one of their now extensive range of high performance designs. We refer to the *Inch Worm* A/2 class glider. If we published the full details we might be accused of taking up too much space, so suffice to say that Inch Worm must now be very high in the short list of "Most Successful Kits". Latest addition to the Contest Kits range is a third Calypso for baby engines, certain to be very popular.

Quality in contents is obviously the ideal of a new firm, **Performance Kits,** of 61 Four Pounds Avenue, Coventry. Good boxing, top grade wood, clear plans (if a trifle amusing with mis-spellings), completeness extending to provision of Roadway wheels and die-cut parts and multi-purpose designs are the keynotes of their first two, the *Apex* and *Ion*. We cannot agree, however, that the manufacturers have chosen the most flattering views of these designs to illustrate the finished model in advertisements or on the box label. Many a modeller buys "on sight", and providing the man behind the counter is able to assure him that the kit is complete and of good quality, he is satisfied to take the box home and start building. But we feel that in both Apex and Ion, a little extra effort is going to be needed to show the lines of each design in more favourable light.

Uncovered Mercury Toreador above shows its sturdy construction, rendering it especially strong for combat. Kit is easy to assemble, and only point we have to pick is the wrong position for the tank fuel feed tube through the bulkhead. Otherwise full marks to Mercury! At right is the Fred Rising "two-speed" E.D. engine conversion, actually fully variable

Apex is a 42-in. low aspect ratio model for sport free flight, PAA 1 c.c. class or Clipper Cargo, and even has room for radio conversion. Price, including Purchase Tax, is 33s. Ion, a tailless design with a well-known contest record, has a crescent shape, due to the curved leading edge and retails at 30s.

Throttle control for radio or control-line has yet to become established as a commonplace item on the British model flying fields. Diesels are difficult to throttle due to the reliance on mixture control for varying speeds and for this very reason, many people have fought shy of trying to devise a simple adaptor that would fit any of the more popular engines with a minimum of bother and expense. Happily, **Fred Rising,** the old-time modeller from Whissendine, Oakham, in Britain's smallest county, Rutland, has solved the situation with a double butterfly unit to fit all E.D. engines in the 2·5-5 c.c. range, meaning the Racer, Hunter and Miles Special. Extra weight is



negligible, and the cost most reasonable at 19s. 6d. for conversion of one's standard carburettor unit. Simply send the backplate assembly and cash—and Fred will do the rest. *See photo above.*

We drew attention to the range of **Humbrol** colours on their newly produced tone cards last month, but overlooked to point out that the range include very accurate tones (much more so than Vickers could manage for their shiny—ugh—surviving Spitfire!) of camouflage colours, ten in all. Send a 4 x 8 ins. stamped and addressed envelope to The Humber Oil Co. at Marfleet, Hull, if your dealer cannot supply you with one of these cards. With tones supplied in Humbrol Art Oil and Britfix Cellulose Dope, there's no excuse for not getting the right camouflage on that scale model now! . . . and if you write for a card, say you "saw it in AEROMODELLER"—thanks.

IT IS VERY NICE to see one or two new developments in the contest sphere these days. Radio control slope soaring is catching on fast—although five years overdue—and up in the North Western Area a mammoth team race was planned for September 15th at Chetwynd. This was for Class A, racing over a 100-mile course—yes, one hundred miles. Pilots had to be changed after 200 laps, or on the first pit stop after that distance had been covered and heats of ten-mile distances were used as eliminators. It will be interesting to see if the lads managed to keep up a good average and do the distance in under 90 minutes.

London

Brilliant weather and still-air conditions favoured the Croydon Gala. Although this clashed with the Public Day at Farnborough there was a fine turn out and thanks to that energetic P.R.O. of the **LONDON AREA**, D. Posner, I have the following results:

CROYDON GALA

Open Power	*Open Rubber*	*Open Glider*
1 Posner Surbiton 12+4·27	1 Callinan Surbiton 12+6	1 Allsop
2 Jays Surbiton 12+3·20	2 Elliott Men of Kent	2 Barnical Birmingham
Slope Soaring		*Chuck Glider*
1 Smeed, Surbiton		Young—C.M.
2 Hughes, Wayfarers		

Dave Posner also included the West Hants Rally results in his September area newsheet.

The **LONDON AREA TEAM RACE LEAGUE** has now finished activities for 1957 with the following results:

Class A	*Class B*	*½-A*
Ashdown Sidcup	Walker Tuthill	Templeman Sidcup
Allen Enfield	McNess W. Essex	Bell Godalming
Hartwell Enfield	McGoun W. Essex	Bassett Sidcup

For Your Diary

October 13th
Farrow Shield, Team/Rubber, K.M.A.A. Cup, U/R Glider } Area Cent.
October 27th
Hamley Trophy, U/R Power, Frog Junior Cup, U/R Rubber/Glider } D/C
November 3rd
St. Albans Slope Soaring Meeting F/F and R/C.—Ivinghoe Beacon, off B489.

The **WANSTEAD AEROMODELLING CLUB** ran their C/L Rally on Wanstead Flats also on Farnborough Sunday, and Combat ended with a 10-min. final with Pinnock the easy winer with three good cuts. D. Platt made up for his misfortune in the Nationals and gained more practice for future contests by topping Stunt. Results are:

Stunt	*Combat*
1 D. Platt Wanstead 283 pts.	1 Pinnock Enfield 11 pts.
2 G. Oswell Tynemouth 213 pts.	2 Burbridge Kenton —1 pt.
3 M. Reeves Wanstead 184 pts.	3 Waldon Dagenham —9 pts.

Free-flight boys in the **ENFIELD AND D.M.A.C.** were somewhat put off by the windy conditions at the South Midland Meeting at Cranfield, but more than made up for this by carrying off Class A Team Race and placing 2nd in Class B. The gremlins have been getting at Enfield and they had transport difficulties getting down to West Hants for the Rally. One of their cars carrying the free-flight contingent had to throw out the anchors quickly and they discovered that getting five bods and umpteen models in two front seats and under the dashboard was not too good for the health of the models! On one run the Walker/Tuthill Team Racer was timed at 112 m.p.h. until it over-heated. As a matter of fact, it had a dead heat with McGoun of West Essex, racing in the Contest. On the way home from West Hants the free-flight boys nearly drove straight over the edge into one of the docks at Southampton and R. Tuthill collected half a gallon of hot oil when a pipe burst all of which makes a good laugh on reflection, but was not very funny at the time.

EPSOM AND D.M.F.C. have suggested that Newland's Corner—wherever that may be—might be the site for their next year's slope soaring event following difficulties at Box Hill. Class A Team Race is popular in the club and Pete Dodd is said to be getting 90 laps at 70 m.p.h. on one tank full from his Oliver-powered Mercury Mac. Since leaning the mixture he has had to fit a new piston and con rod, so perhaps it is more economical to fly faster on richer mixture! Club members who happen to work for a well-known model engine manufacturer responsible for clockwork timers tell us that the original stock is now exhausted, so those who favour this mechanism had better lay in stock.

Winter comes upon us, and clubroom activity will see much indoor flying and yakkity-yak. Llanelly Club had a bring-a-model-night as seen in the heading, raising quite a high proportion of A.P.S. designs. Could your club do as well?

East Anglia

M. J. Smith was warmly congratulated by fellow members of **NORWICH M.A.C.** for winning the Pilcher Cup and coming 2nd in the Jetex Trophy which really put the club on the map. Monthly cup winner was R. Howard-Alpe's *Time Traveller* with its 75 to 80 m.p.h. range. The **CRITTALL (BRAINTREE) M.A.C.** continues to flourish and recently gave a control line display at a local horticultural show. Despite a howling gale the full programme of team-racing, stunt and scale was carried through with only one major casualty, a scale Mustang. The following week the club gave a static display at another local show which attracted considerable interest.

East Midland

CLEETHORPES AND D.M.A.C. has dropped the name of "Thermaleers" and the name "CLEEMAC" has been substituted. The new club badge shows the Cleethorpe's Owl on a background of a Meg (halfpenny). The sample transfer sent me is one of the nicest club insignia I've seen. Tom Smith (English Electric) paid a surprise visit to his old club on September 8th and the power boys are now a lot wiser on the subject of hot fuels after the interesting and enlightening discussion that took place. Free-flight has been restricted during the past two months, owing to the fact that the flying field was surrounded by crops; however, the harvest is now complete and with the gracious permission of the local farmer flying is once again in full swing.

Southern

LANCING AND D.M.A.C. have been holding Combat contests at Southwater and Horsham, between Worth, Lancing and Horsham clubs. Dave Harper appears to be the combat man from the Lancing contingent. **FARNBOROUGH M.A.C.** state that the number of active members has dropped recently leaving under a dozen keen types. Three members entered the Power event at the Croydon Gala. Secretary M. Gates managed 10·33 with an Oliver-powered model, but D. Sibbick suffered from downdraughts, and A. Leeson's motor refused to function. Gates and Sibbick encountered typical Chobham bogs downwind. The club is now reinstated in the British Legion Hall, due to the club hut being burnt down. New members are welcomed at the club meetings which take place fortnightly on Thursday evenings. As mentioned under the London heading, I have the results from Dave Posner for the West Hants Rally which are as follows:

WEST HANTS RALLY

Class B	*Class A*	*½-A*
McGoun-Walker/ Tuthill dead heat	Templeman Sidcup	Templeman Sidcup
Open Power	*Open Rubber*	*Open Glider*
Gaster Surbiton 9+4·27	Burwood Surbiton 9+8	Baguley Hayes
Jays, Surbiton 9+3·36	Callinan Surbiton 9+4	
Buskell Surbiton 9+3·33		

Northern

WHARFEDALE AEROMODELLERS sent a strong contingent down to Cranfield, but, unfortunately, the van broke down at Doncaster so ensuring their absence, although in fact they saved themselves a lot

of bother due to blow-out conditions. Les Davy placed 2nd in Combat at the North Midland Area Rally and on the same day the free-flight lads went to Colne and R. Waud and R. King both obtained three max's in Power with a Webra Mach. 1 *Dream Weaver* and Elfin B.B. *Stomper* (both A.P.S.), decided to call it a tie and shared first and second prizes.

Midland

LITTLEOVER M.A.C. got into the semi-finals in Combat at Cranfield, Ed Spencer finally managing to get 3rd place. Seven of the local DERBY M.A.C. helped to fill a coach for the trip and among them was B. Sadler who placed 2nd in Combat. In future Littleover and Derby are going to alternate in arranging transport to rallies. WEST BROMWICH M.A.C. are planning indoor Team Racing (rubber) and microfilm for the coming winter with WOLVES M.A.C. and HALESOWEN Y.M.A.C. joining the league. STRATFORD-ON-AVON D.M.A.C. went down to Farnborough on public day and reputedly came back with plenty of inspiration for future scale models. One of them is thinking of a smoke producing gadget after seeing the magnificent F.A.A. and R.A.F. aerobatic team displays. WALSALL M.A.C. have recently benefited from an influx of ex-Outlaw club members so introducing more C/L interest and they turned up in force at Cranfield, but left the models in the coach.

North Western

As mentioned in the heading, the big item in the September Area Newsheet was the introduction of the Team Race Marathon. WALLASEY M.A.C. are very pleased with John Hannay's performance in Czechoslovakia and also for his 2nd place in rubber at the P.A.A. Rally where Stan Hinds and John Done also repeated last year's success by winning Glider and the P.A.A. America Class. John Hannay also placed 1st in Glider at Huddersfield on September 1st and there is interest in the new Power and Wakefield rules, although no one has yet decided on the line of approach to the power requirements. ENGLISH ELECTRIC M.A.C. went to the Northern Gala where I. Ellison placed 2nd in Glider flying a 900 sq. in. lightweight model (weighing only 12½ ounces). It is proposed to organise an inter-club knock-out competition for clubs in the area formed by lines joining Southport, Ormskirk, Wigan, Accrington and Morecambe. The trophy to be supplied by the English Electric Club, and any interested clubs who have not been contacted are invited to apply to the club for details. One comes to expect a lively report from WIGAN M.A.C. In last month's Club News I quoted verbatim and this month I will do the same. "Wigan F/F competitors average over 3,000 miles a season travelling to fly in comps, but never have they experienced such atrocious retrieving conditions as at an advertised comp held at the beginning of September. Power flights up to 16½ sec. run, unless attached to control lines hadn't a hope of being retrieved in time for a second flight (if found at all). In such conditions the club lost over £30 worth of engines and timers (not counting cost of models). Competitors had to pay for the privilege of launching from a farmer's field, the size of a small garden. B. Talbot won the Power event with two max's, but lost two models with PAW specials and Autoknips timers. The other members just lost models." I presume they mean the Huddersfield Rally and I would like to hear what the Huddersfield lads have to say in reply.

At OLDHAM AND D.M.A.C. a comprehensive list of week-end flying comps has been arranged along with a number of new club night activities. The club secretary recently built an 18-in. flying saucer only to have it disappear on an 8-sec. engine run and its loss reported in two national newspapers and mentioned in the B.B.C. News. WHITEFIELD visited Honley (Huddersfield) for the N.W.A.R. The comp got off to a good start with quite a number of modellers losing or getting their models in trees. Mr. W. Bell's 10-ft. glider hit a farmhouse; when he got there he was informed that the farmer and his wife dived for cover expecting the house to fall in (the model is only 35 ounces, very light for its size). The club did well with J. Trainer taking 1st in Rubber, J. Martin 1st in Combat, and B. Worthington 3rd in Power.

South Western

The DEVON RALLY held at Woodbury Common on beautiful September 8th was enormously popular. Over 1,000 spectators watched the free-flight and radio control events and free-flight was divided into two separate contests, one being open to all-comers and the other for the South-Western Area Shield being limited to Devon and Cornwall clubs. Results of the Open event are as follows:

Power	*Rubber*
1 Ken Bellingham, Exmouth, 327 sec.	1 E. Fuller, Bristol West, 514 sec.
2 J. Greenwood, 281·5 sec.	2 J. Symes, Bristol West, 472 sec.
3 J. Down, South Bristol, 270·4 sec.	3 S. Gibbons, 279 sec.

Glider

1 H. Selway, Exmouth, 329·2
2 J. Down, Sth. Bristol, 256·5
3 P. Drew, Glevum, 254

The South Western Area Shield went to the EXMOUTH AND D.M.A.C. for the second year running on a points system whereby 14 points went to Exmouth, Torquay 3 points, Plymouth and Barnstaple zero. In Radio Control C. Gill placed top with 185 pts. against H. Stillings' 175 pts. and R. Dunstan's 123 pts. Prizes were presented by Air Vice-Marshal H. G. White, C.B., C.B.E., who congratulated the Exmouth and D.M.A.C. on their organisation of the Rally and all other competitors on the high standard of their models not only as models but as flying machines. Owing to the success of the rally the Exmouth and D.M.A.C. hope to make the Devon Rally an annual event.

Scotland

ANGUS AND D.A.L. had its August match on Sunday, August 18th, at Montrose and were blessed with good weather. Nearly everyone turned up with an A.1 and it augurs well for the future of that class—a use for those old Wakefield flying surfaces at last! D. L. Petrie saw that things were going well with his A.P.S. *Borderline*, so later he did the three 3m. R.O.G. flights to complete his set of times for his S.M.A.E. "C" certificate which has just been officially confirmed, making him the first to gain a "C" in Scotland.

A.1 Glider	*A.2 Glider*	*Open Rubber*
W. Petrie, 6·45	R. Yule, 9	D. Petrie, 8·39
K. Whyte 6·31	L. Dempster 6·54	C. Campbell 5·54
D. Petrie 6·16	K. Whyte 6·57	L. Dempster 4·2

My correspondent tells me that he has never seen so many A.P.S. designs at a comp., only one of the above had a non-A.P.S. job which was an "own design". Montrose won the team sections, thus are sure of winning the Annual Champs, even with the September's events still to come. EDINBURGH M.F.C. held their A.G.M. at the end of August. A hectic and controversial meeting but most of the problems were ironed out. It has been a successful season for the club with 3rd place at the Nationals and three or four places in the Scottish Comps. Incidentally, D. Bathgate who lost his K & B 23 model at the Stranraer do has just recovered his engine and timer from the captain of a trawler who picked it up off the Mull of Galaway.

Although the engine's appearance was slightly affected, its performance is none the worse for its eight-day trip down the Irish Sea. PRESTWICK M.A.C. had a field day at the Scottish Nationals, winning "A" T/R getting two models into the final. In Class B the club won a close final and also came 2nd in ½A.

John O'Donnell tells me of poor weather and hardy fliers up at Glasgow. The third PAN AMERICAN AIRWAYS sponsored RALLY was held at the Royal Naval Air Station, Abbotsinch, near Glasgow, over the week-end of August 24th and 25th, 1957. Location of the 'drome was rather nearer the river Clyde and the town than desirable, but facilities laid on (from field telephones to a first class refreshment tent) were good. Unfortunately, the weather ruined what could have been a very successful meeting, as competitors came from far and wide—even most of the English entries did not travel as far as the contingent from Wick in the far north. Eleven-thirty on the Saturday morning saw the opening of the contests and a wind of 25 m.p.h. plus. Entrants showed no inclination to fly, and were obviously hoping the weather would improve. However, continuous rain was soon added to the wind, and eventually competitors realised that it was a case of flying in the rain or not at all. The Payload models fared even worse in the wind and rain. Only one flight (by Parsons of Prestwick) was recorded in the International (2·5 c.c.) Class, whilst the smaller class places went to the competitors who asked for their "Attempts" to be recorded as official scores. An idea of conditions can be gauged from the fact that at least two models had their wings folded before lunch.

Sunday dawned wet and windy, but the rain proved to be intermittent and eventually gave way to brilliant sunshine. The wind, however, got stronger as the day progressed, and the worst periods were probably about 35 m.p.h. Only two max's were recorded all day and both models were lost. Power winner J. O'Donnell, flying two Eiffaender-powered models, landed in a steel works on the far side of the Clyde on the first flight.

Top man in Rubber was Jock Finlayson of Glasgow with three flights of approximately 1½ mins.—using a sheet fuselage design presumably to 2·8 oz. Wakefield rules.

The radio event saw a surprising number of people willing to risk flying, but was mainly the usual story of trying to make headway into wind—one model did a 12-min (timed) flight drifting tail first downwind to finally land at the extreme end of the 'drome.

Team Race "A" terminated with a Scots-English Final resulting in a home win.

PAA America Class		
1. J. Done	Wallasey	0 : 08
2. D. Mitchell	Prestwick	0 : 05
PAA International		
1. R. C. Parsons	Prestwick	0 : 45
Glider		
1. S. Hinds	Wallasey	3·19
2. J. O'Donnell	Whitefield	3·17
Power		
1. J. O'Donnell	Whitefield	6 : 17
2. W. Ewins	Paisley	3 : 57
Rubber		
1. J. Finlayson	Glasgow S.A.	4 : 22
2. J. Hannay	Wallasey	3 : 00
Radio		
1. R. Fraser	Kirkcaldy	105 pts.
2 P. Bannel	Glasgow B.S.	64½ pts.
Team Race A		
1. A. Hill	S. and S.	
Combat A		
1. I. Mackay	Mauchline	
Combat B		
1. I. Mackay	Mauchline	
Best Junior		
1. A. Hill	S. and S.	

One last thought: Why is it that old Wakefields never die—they simply FAId away?

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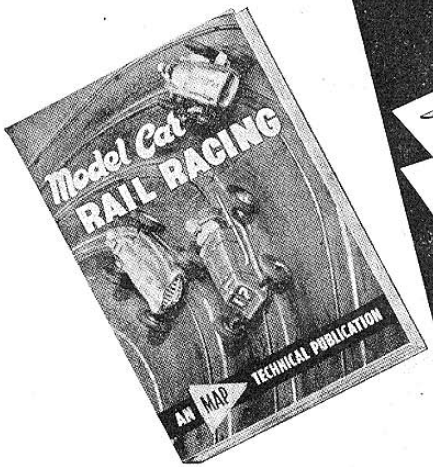

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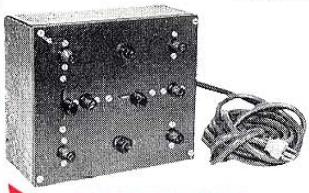

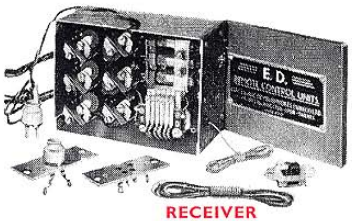

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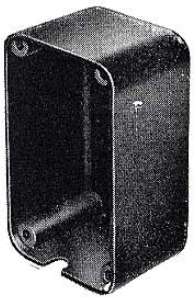

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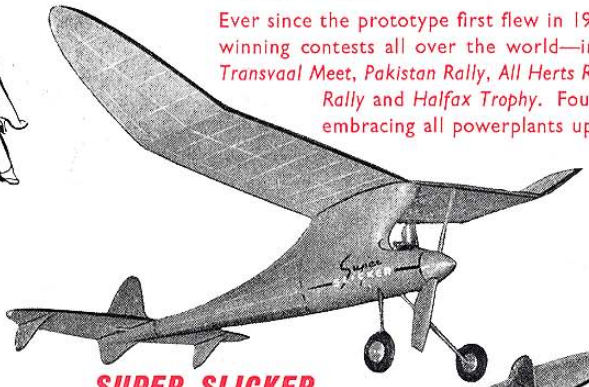

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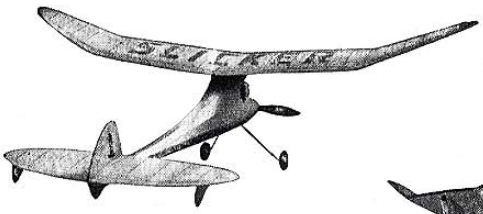

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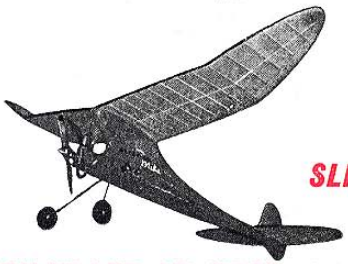

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