

MARCH 1959

AERO MODELLER



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3-view

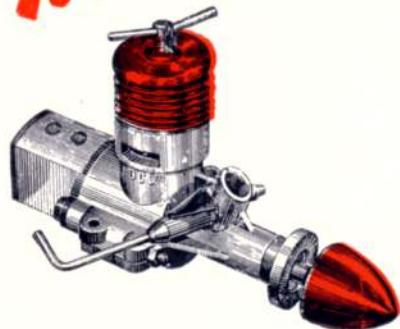
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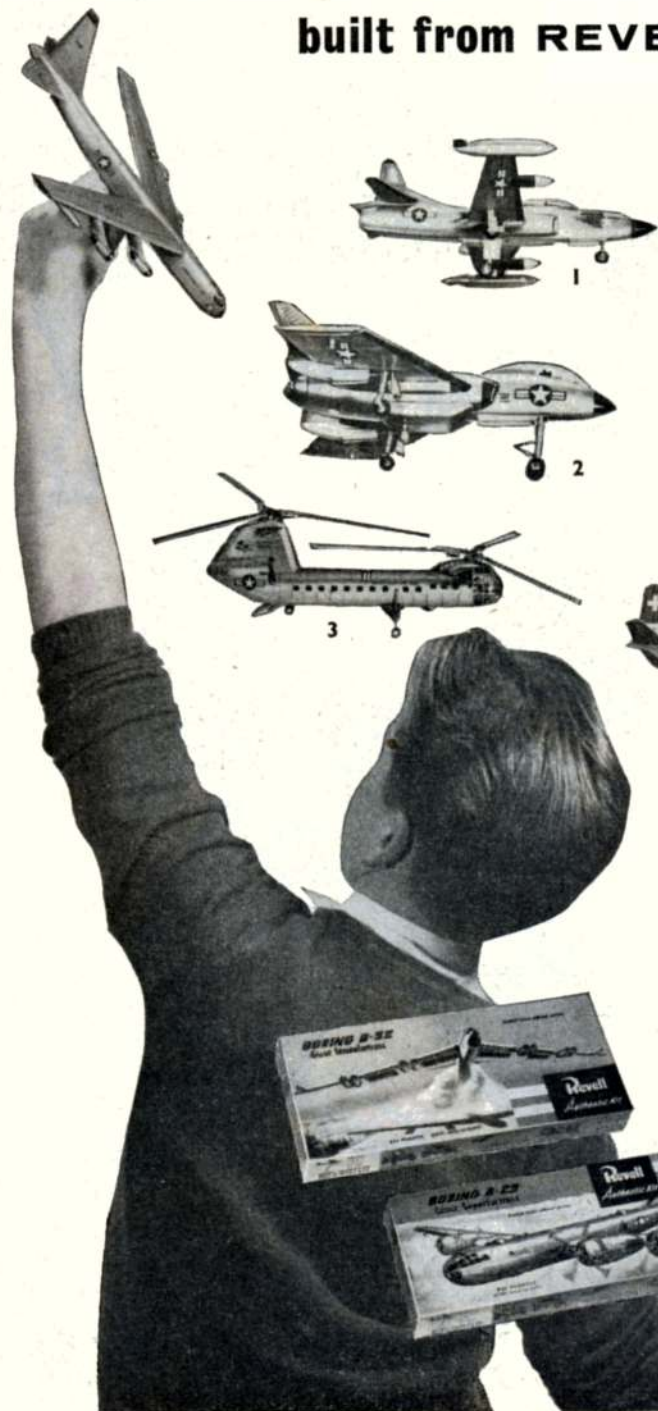
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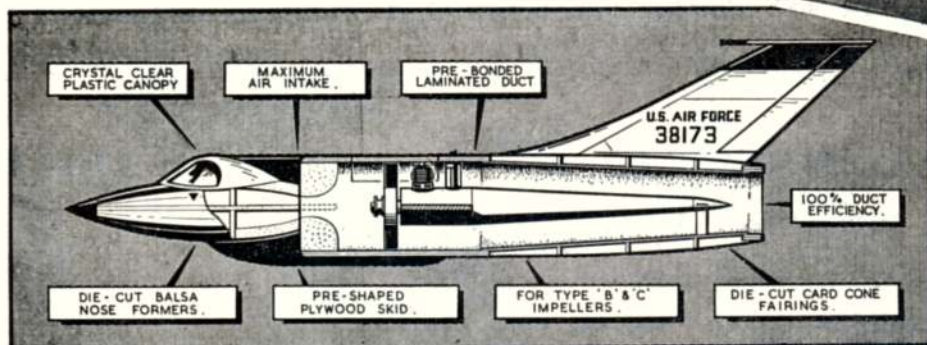
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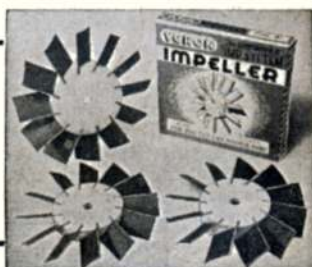
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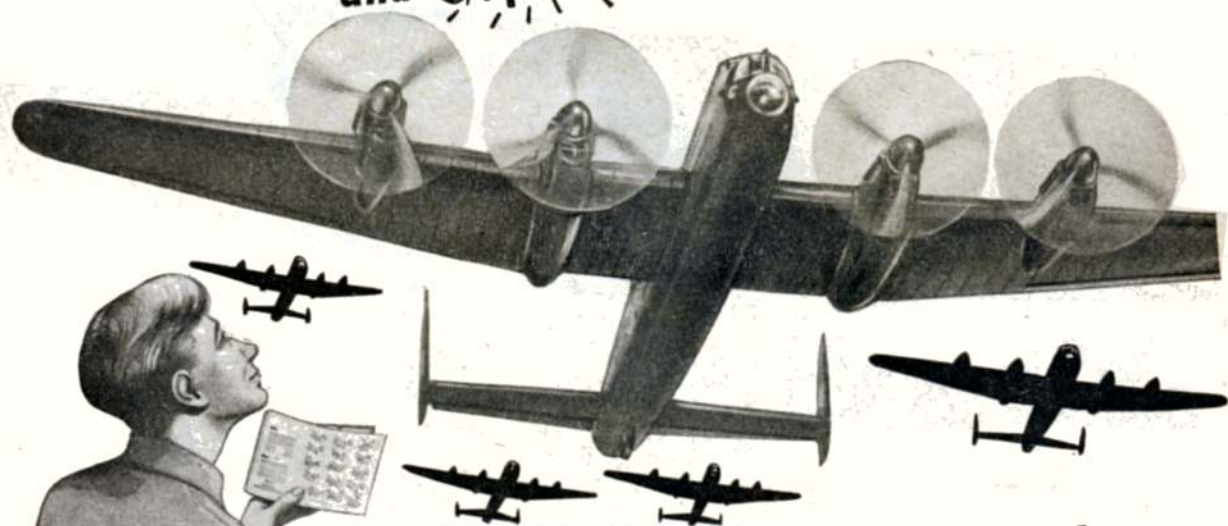


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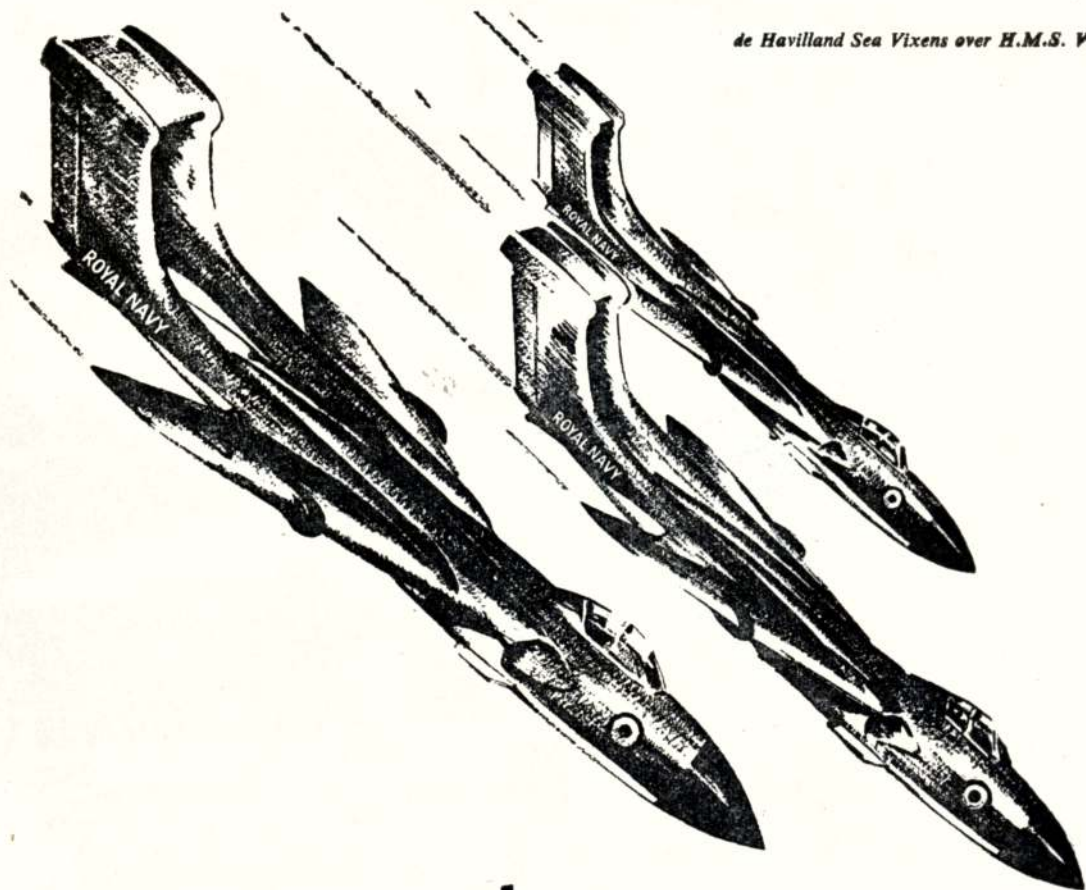


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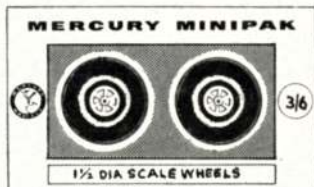
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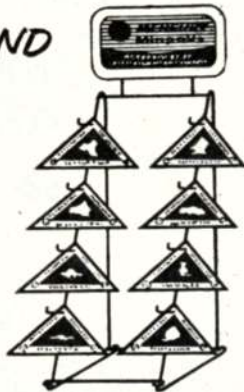
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FIFTY YEARS OF MODEL

From the days
of oiled silk,
bamboo,
umbrella wire
and pushers

THIS IS A GREAT YEAR for celebration of Golden Jubilees in full-size aviation. We shall be reminded of Louis Blériot's first flight across the English Channel, of J. T. C. Moore-Brabazon (now Lord Brabazon of Tara, President of the S.M.A.E.) making history as first to make a circular flight of one mile in a British aeroplane, and of the first flight in the British Empire when J. A. D. McCurdy flew the Silver Dart over the ice of Bras d'Or Lake in Nova Scotia. They were great pioneering days, when aerodynamics were based on a blend of hope and conjecture, and success attended but few of the many courageous experiments.

For us aeromodellers, the year 1909 is of no less importance, for in January of that year the first move was made towards organisation of regular flying meetings under the administration of the Kite and Model Aircraft Association and from February onwards the hobby of model flying was run by the united effort of a cohesive group with considerable progress through competition and the exchange of ideas. Many famous names are associated with that initial foundation of the British aeromodelling movement, and we are specially pleased that the Chairman of the S.M.A.E., Alex Houlberg, M.B.E., should contribute the fascinating story of those early days and subsequent progress on pages 116-118 of this commemorative issue.

Of course there was no such thing as a specialist aeromodelling magazine in those days; but *Flight* carried regular reports of model happenings and reference to their issue of exactly fifty years back from publication date of this issue reveals that power flying was by no means an innovation, even in 1909. A flight of 100 yards at 20 feet altitude was claimed by the Hon. C. A. Parsons as early as 1893. With a span of 11 ft. and wing area 22 sq. ft. the model was powered by a steam unit working on 50 lb./sq. in. pressure and driving a prop at 1,000 r.p.m. We wonder if such an experiment would work as well today, bearing in mind that the steam unit was only 1½ lb. and the whole eleven feet aircraft a mere 3½ lb.

Following the advance of the hobby through precious back numbers of *Flight* we find mention of what might well have been the first-ever International event, the Nice Model Trials for gliders and powered models, entries for which were invited on February 20th, 1909. Then in June, 1911, one of the earliest inter-club events was announced by the Aero Models Association, entries for which had to be sent to the Motor Union. All models had to be within 1 and 2 square foot surface area and points were awarded for distance flown in a straight line, stability, duration and direction. In addition they had to be fitted with a loop of wire or cane on the nose as a protector to comply with insurance requirements!

They were truly halcyon days, when it was such fun to find out the ways and means of model flight, and in our researches for material in this issue, we unearthed many fascinating sidelights. Tommy Ives showed us Gordon Light's original proxy flying instructions for the 1935 Wakefield winner in which he was told to pile on 750-800 turns. Tommy could only manage 450, but that was enough to catch a thermal with the model that set the fashion for many years to follow!

Then the delightful tale reported by C. A. Rippon in our June, 1939 issue concerning the origin of the Northern Heights Gala in 1933. The date was arranged, and the venue was to be Epsom Downs, then someone discovered that they had chosen the Sunday before Derby day, when the place would be smothered with fairgrounds. So Harry York invited "Rip" to watch a petrol model fly at Chobham Common; but as may well be understood, the 25 c.c. Comper Swift would not take-off and the gorse and bracken

**AERO
MODELLER**

uploaded to Hip Pocket Aeronautics

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No. 278 MARCH, 1959

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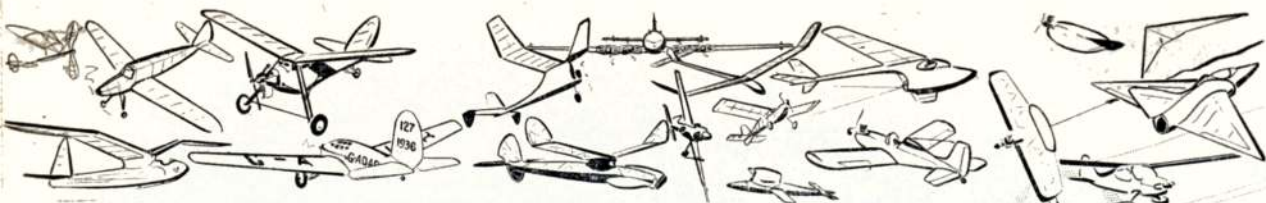
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CLUB ACTIVITY 1909-1959

surface was considered "impossible". Then Capt. C. E. Bowden suggested they go to the ground on which he carried out his own experiments—the Great West Aerodrome at Heathrow, otherwise known as "Faireys", and by kind permission of Mr. C. R. Fairey the first ever Northern Heights Gala took place that year on the aerodrome that was to remain synonymous with modelling until the outbreak of World War II.

Arthur Rippon was one of our keenest pioneers and we asked him how he became an aeromodelling enthusiast. His reply takes one right back to those high collar and straw hat days, yet we are sure that many of our readers will find his story parallel to their own—if of another era of Lindbergh, the Mollisons, Doolittle, Kingsford-Smith, Alan Cobham, or even "Biggles".

'Rip' reminisces

"1909 was to me a real milestone in my life, for at the very beginning of the year my parents moved home from North to South London and soon after I purchased the first copy of *Flight* (which I have faithfully taken ever since). I glanced through, and like a flash it came to me—here was the new outlook I was seeking and from that moment my mind was made up. Flying and all connected with it was to be my future.

"Within a short while I had tried to make a successful flying model of the Wright Brothers' biplane and followed this up with a Santos-Dumont "Demoiselle", but I soon found that I had got to get down to fundamentals.

"In October, 1909, I wrote a letter which was published in *Flight* asking for anyone interested in flying and model making in particular to contact me with a view to starting a club for the study and practice of model aeronautics. There were three answers to my letter. Number one was a local fellow who lost interest, number two was a fellow older than myself who was a traveller in Nottingham lace, etc., and he proved to be a really first class modeller and organiser, indeed, Mr. A. B. Clark. Another man who contacted us proved to be a member of the Aero Models Association which was an offshoot of and associated with the Motor Union—one of the pioneer motoring associations. We attended several of their indoor meetings at Caxton Hall, Westminster, where we met pioneer airmen such as Handley Page, Griffith Brewer, Clark, Burge Webb, etc., and we watched them with intense interest, flying miniature paper gliders and holding forth on their merits.

"Then we formed the South Eastern Model Aero Club, which really got cracking until we once again re-organised in September, 1911, into the Blackheath Aero Club and at the outbreak of the 1914-18 war we had over 100 members, most of them active.

"I remember that our late patron, Mr. C. R. Fairey, was the first British Duration Record Holder and how we enjoyed every minute spent at our chosen hobby—finding out—and we are still doing it."

World Championships venue

As we go to press there is no definite news of the Wakefield and F.A.I. power model Championship venue.

There will be widespread disappointment in the failure of the U.S.S.R. to take up its option on running the group of three free flight World Championships in

... to ducted
fan deltas,
radio control,
combat, jets, saucers
and Sputniks



1959. It was voted at the November, 1957, F.A.I. Models Commission meeting that for 1959 the contests would be "held together in the same place and organised by the same Club". As holders of the A/2 team trophy for the previous year, the U.S.S.R. had first opportunity of administering the 1959 meeting and, until the Control-line meeting in Brussels last September when unofficial comment from people with considerable authority gave rise to doubt, no indication had been given that there would be any change in such an arrangement. Yet the U.S.S.R. did not take up its option and because no official intimation of likely change in anticipated arrangements was made to member countries of the F.A.I., few of the delegates at the Liege Models Commission meeting carried the mandate to offer the services of their Aero Clubs. Belgium proposed to run the A/2 only and a postal invitation has gone out for offers to take on the Wakefield and F.A.I. Power contests.

Such a state of affairs is hardly encouraging for enthusiastic team aspirants, and we sincerely hope that an early offer will resolve the situation happily. Could it be that Cranfield has set a standard few countries would care to emulate?

Rising Costs

Some club reports indicate a certain degree of dissatisfaction with the rise in S.M.A.E. annual subscription rates and one well-known club goes so far as to forecast that the Society is "sounding its own death knell" with the effect of turning away more members from the competitive to the fly for fun modeller. They quote past and present entries in A/2 trials as evidence that "the S.M.A.E. is killing modelling". This uninformed comment is indicative of the damaging hasty talk which makes us seethe with rage. Here in the S.M.A.E. we have the most democratic institution in all of the world's aeromodelling. Members have insurance protection, a full contest programme, and their flying fields for major events are usually large airfields which are obtained under the terms of special insurance for which the Society foots the bill.

Yet whenever a policy change is made, the very members who neglected to put forward their views at the proper time get up and spout grievances which are not only invalid but also display their own ignorance. We wonder how many of the contest flyers cannot afford the extra 7s. 6d. now asked. Those who do the shouting, spend pounds per annum on their power modelling at constant risk of total loss yet grieve at supporting the security of their hobby with additional three half-crowns. Shame on them!



Sound opinion from Britain's leading exponent of the art of model gliding

Experts' Forum No. 3

John Hannay

(designer of Topscore, twice a member of the British team at World Championships)

on his approach
to the A/2

SINCE ITS INCEPTION as the standard world championship glider the A/2 has reigned supreme, being probably the most popular of all the F.A.I. World Championship class models. Unlike Wakefield and Power the specification has undergone few rule changes and does not appear likely to do so in the near future, hence one of the reasons for the great popularity of this class.

It is said that glider contests are a "thermal catching game" with luck playing the major part in winning. The A/2 is unique amongst our f/f classes in that it depends on its glide for ultimate performance and not on the ability of the flier to obtain (a) a costly and high-powered engine unit; (b) an efficient timer; (c) good quality rubber. The point being that everyone starts on an equal footing, the only item of equipment necessary apart from the model being the line and winch.

Before setting out to design an A/2 it might be interesting to note the design developments that have taken place over the past few years. For those it is necessary to look no further than the World Championship winners themselves.

Just about the most significant factor has been the almost universal employment of small area, high lift tailplanes, a maximum being around 18 per cent. of projected wing area. Babic in 1957 actually went as low as 13 per cent. (57.7 sq. in.). The point being here that the models behaved equally well in good and bad weather, witness Lindner's win in Denmark in 1954, this in gale force winds and rain. Coupled with the use of the small tailplane has been the adoption of the undercambered section and this has proved itself time and again. The choice of wing sections has also been important as it is on these that we rely for the model's ultimate performance (see AEROMODELLER, April, 1957, for Lindner's model data).

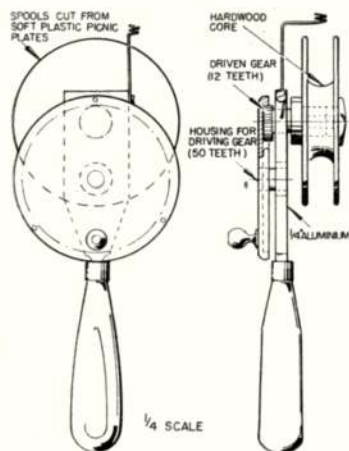
Use thin airfoil sections

For continual high averages the winners have invariably used thin sections along the lines of those designed by Benedek. I do not favour "Hansen" type sections (drooped trailing edge) as I feel that they fly too slow and induce too much drag. Highly finished wings with thin sections allow the model to fly faster, generate more lift and thus reduce the sinking speed.

A factor not apparent to the eye and yet in my opinion of prime importance in glider design is the question of longitudinal dihedral. All the models mentioned previously employed small *lightweight* tailplanes with light fuselage construction behind the C.G. thus allowing the use of generous longitudinal dihedral. A model thus rigged is lively and responsive, can be trimmed right on the stall and yet will have inherent instant recovery should any forces try to upset it.

With these thoughts in mind we should be able to achieve a good basic design so let us sum up the requirements as follows:

- (1) Wing area projected—around 445 sq. in.
- (2) Tail area—80 sq. in.
- (3) Moment arm—say 4 chords.
- (4) Nose length—say 1 chord.
- (5) Fuselage should be as light as possible, particularly behind the C.G.
- (6) Particular attention should be paid to wing and tail sections keeping them as thin as possible and also highly finished to reduce drag.



The winch described by John Hannay, as made in Germany by R. Lindner and associates for private distribution. Planetary gears drive the line reel, each bearing is a ball race

Having designed our model then comes the question of construction and as the wing is the most important part of our model we will start with this component.

Will thin sections stand the stress of our competition conditions? Having flown the same models through all seasons, weathers, eliminators, trials, etc., the answer is definitely yes. The important thing with wing construction is that the wings must be flexible. People seeing Wallasey models on the line shudder when they see our wings flex on tow, but the point is that wings give and do not break. To achieve this the only suitable wing fixing I have found is tongue and box, using really good quality dural (16 s.w.g.) that will spring and flex readily.

Make the wing efficient

Using thin sections, spar construction must be of "I" section thus avoiding cutting away too much of the rib. Always sheet the leading edge and gusset each rib where it meets the trailing edge. Use close rib spacing and subsidiary tissue spars—1/8 in. x 1/16 in., these in order to preserve the section. Whether to employ tip fins or not? Well, they certainly make wing construction easier and they do not impair the model's performance.

Fuselages I construct from 3/32 in. sheet choosing wood carefully in order to keep the back end of the model light. Make your nose block out of lead, it allows for a shorter nose, which, coupled with good longitudinal dihedral make for instant recovery. Whether to fly with underfin or topfin? I have tried both and the only models that have spun have employed underfins only.

We now have our model complete and awaiting test flights, but first we must obtain the line and winch and here lies one of the secrets.

Obtain or make a good winch

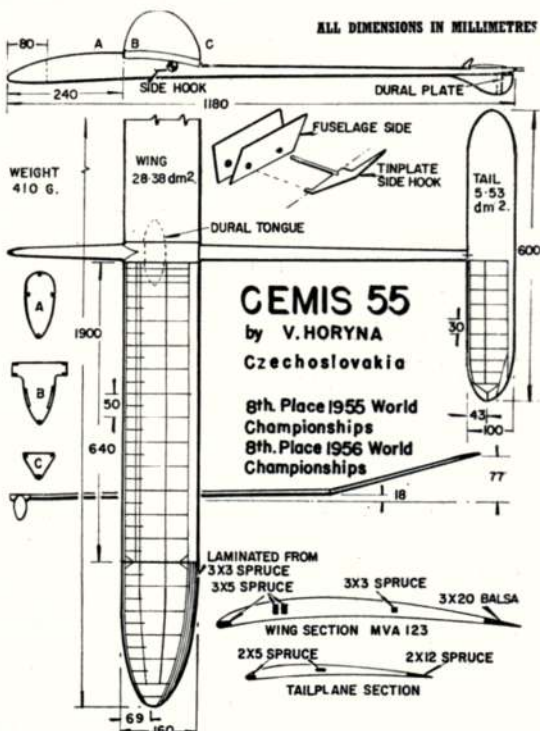
At meetings up and down the country I have seen many beautifully-built models capable of high times and yet their owners are content with a heavy clumsy cast iron winch which breaks on contact with anything hard and has a horrible habit of jamming at the most inopportune moments. If you intend to fly A/2 then beg, borrow, steal or make a good light durable winch, it is most essential. I was fortunate enough to obtain one of Lindner's home-built winches and these being of simple light construction are real beauties.

Now for our line, thick or thin gauge nylon? Having tried both I find a nylon of about 20-25 lb. breaking strain ideal. Very important though, use the line often on non-competition days in order to remove the initial stretch which is always present in new nylon line. Under most conditions, the model should go up with ease, in exceptional calm you must run FAST but the point is that you can feel the lift much better with the heavier line as with a light line it will tauten even with light gusts and this in my opinion is over deceptive.

Tow-hook position

A point not already mentioned, but obviously of great importance, is our C.G. and tow-hook relationship. I always place my tow-hook at a position 55 per cent. from the leading edge of the wing, with the C.G. no more than 1/4-in. behind this point.

Hand glide the model, then try on the line. The tow must be straight and clean. Trim for a fairly tight circle just on the stall. Having obtained a good flight pattern try deliberately stalling off the line, recovery must be instant each time. Having satisfied all these points do not put the model away, but fly and fly under all conditions. When the wind is fresh put a 3-minute D/T on the model and hold it on the line until it D/Ts. This will enable you to get the feel of the model on the line. It will also increase your confidence in the model's tow-line stability.



Czechoslovakian design which has become standard equipment in past teams and currently reigns supreme in the 1959 Czech team elim is Horvna's Cemis, which has twice placed 8th in World Championships. Oddly enough it was John Hannay and his Topscore who placed 8th in 1957

We read of fantastically high averages set up by flyers in the mid-European countries and one wonders. Having personally experienced the average conditions under which they fly, I can substantiate their claims as definitely genuine. Consider past results: Yugoslavia, have won the cup three times, Germany twice with Denmark, Austria and Belgium each having a single victory to their credit. We have many flyers in this country capable of equal performances, but until the S.M.A.E. revise their system of team selection we have little chance of winning the A/2 team award. The accent is on the team prize and to win this every man and model must be good. To decide such a team on five or even ten flights is useless, fifteen flights would be far better.

To have some idea of how seriously the European countries consider the A/2 one only has to study how they choose their teams. In 1957 the winning Russian team was chosen from eight men who flew together for a month prior to the championships, the eight having obtained their places after a series of exhaustive eliminators. Notice also the similarity in the design of the models flown by the winning countries. In order, these were as follows: Russia, Yugoslavia, Czechoslovakia, Hungary and of these four the Russian team's models were similar in design as were the Yugoslavs. All the Czech and Hungarian teams actually flew identical models.

I mention these facts in closing as I think the implications are obvious and might promote some healthy discussions.

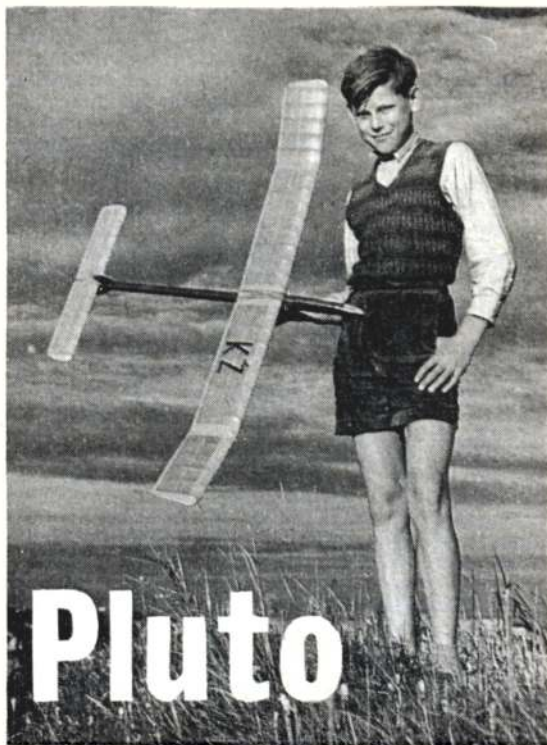
NEXT MONTH:

George Fuller on the subject of Power Models.

THIS EASY-TO-BUILD glider to the A/I specification by one of the leading Czechoslovakian designers, is an ideal subject for the beginner who wants to try his hand at the competition class model. One can expect a regular flight average of up to two minutes from 164-ft. towline and the cost of construction is well within the means of most schoolboys of our acquaintance.

As will be seen from the plan below, the fuselage is of equal width from nose to tail and a strip of 3/32nd sheet is cut to the width of formers 1-14 to form top and bottom. Pin these up on edge over the plan view, fit in formers and then set aside whilst cutting out the side profile in 1/8 sheet. It is advisable to get medium to soft sheet for this purpose in order to avoid too much weight in the rear fuselage. The auto-rudder arm and tow hook assembly should be fitted before the last side profile is added and the laminated nose blocks can be shaped after final assembly. Upper and lower fins are butt-joined on to top and bottom sheets, but if you have additional patience it is advisable to let them in for extra strength.

Wing construction is a little different to normal British practice in that it utilises the Continental system of avoiding tissue contacts with spars by positioning the spars through the centre of each rib. One must, therefore, cut all ribs and slide them on to spars loosely, then position them accurately over the plan. Attach trailing edge with appropriate packing under its forward edge to lift it to the section and then the leading edge, finally



A high performance glider for beginners

—by Radoslav Cizek

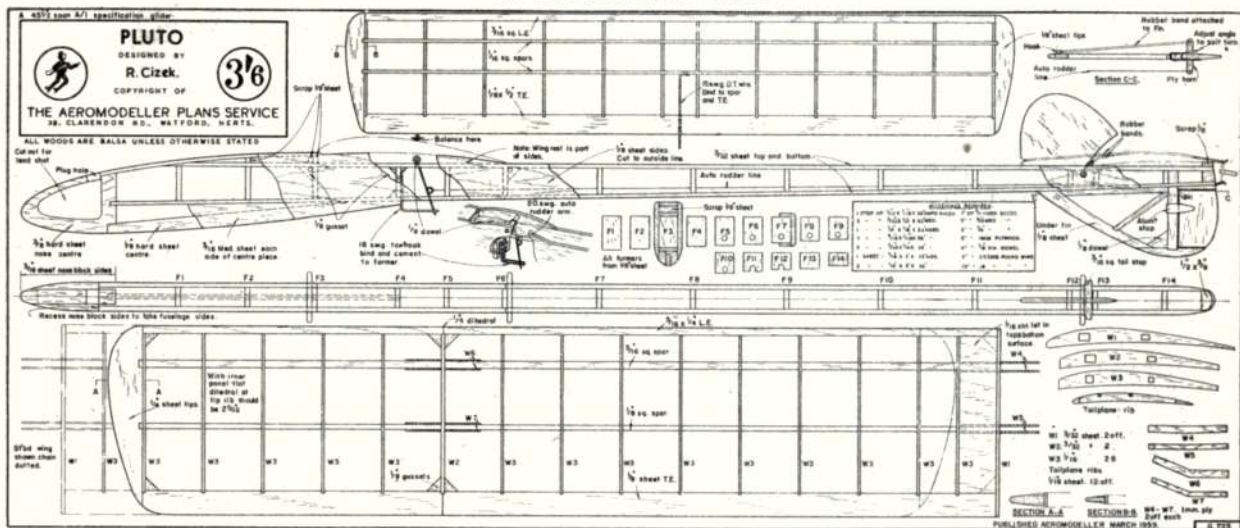
cement the spars firmly on each rib. The wing should be made in four panels, each joined to the other by the ply dihedral braces. Tailplane construction is the same, except that spars are added last.

Pluto is a fairly light model and like all A/1s is not quite as easy to tow straight as with models of large proportions and heavier loading. It is best to start with about 75 ft. of line paid out from the winch and then

to gradually allow the glider to unreel the winch after the line angle is over 60 deg. Trimming via the tailplane incidence is advised and the standard setting of 1/8th packing is already indicated on the plan.

Now get building and include the dethermaliser fuse in your shopping list, for this is a model that will hold any thermal and soon disappear into the blue if you give it half a chance.

FULL SIZE COPIES OF THIS 1/5TH SCALE REPRODUCTION ARE AVAILABLE AS PLAN G/723, PRICE 3/6d. PLUS 6d. POST FROM AEROMODELLER PLANS SERVICE.



From small beginnings? . . .

DEAR SIR,
You may be interested to know that the publication of the article (Warren Young Wing, August, 1958) in your journal has led to negotiations for the building of a full-scale aeroplane.

NORMAN HALL-WARREN,
Westbury-on-Trym,
Bristol.

Satisfied Classified

DEAR SIR,
I am just writing you a short letter of thanks and praise. When I inserted an advertisement for the sale of some old issues of the AEROMODELLER and *Annals* in your magazine, I really thought it was money down the drain. I did not realise the value of the magazine or the distance which the AEROMODELLER travels. I received offers even before I received my own issue containing the advertisement, but what I marvelled at was that about a month after this issue was out I received an offer from Sweden. I had also received many replies from England. I did a successful deal with the Swedish writer, but more surprising was the recent offer I received from America. I am getting a Cox Pee-Wee through this deal.

I have now disposed of all I advertised and have realised a handsome profit much to my surprise. I still have the AEROMODELLER every month and now do not underestimate its sales and capabilities.

J. STENNARD.

Chippenham, Wilts.

Pranging Unlimited

DEAR SIR,
I have been a reader of your magazine since the days of the *Model Aero Constructor*, but I have never had so much enjoyment from a model until I built an *Unlimited* fitted with a Webra 2.5. For some unknown reason the model refused to fly straight and level, due perhaps to some fault of construction, but as I am somewhat of a ham-fisted C/L type, the fact that I could do dozens of figure-eights per flight lessened this. The crashproof construction of the model enabled it to withstand dozens of vertical power crashes without damage apart from superficial tissue tears.

Now the model has been retired—not due to wrecking, but the fuel tank has finally given up the ghost and split its side with helpless mirth!

C. G. BAKER.

Carlson, Coventry.

Gladiator Pilot

DEAR SIR,
As one of the first members of No. 72 Squadron when it was re-formed at Tangmere in 1936, I was naturally most interested in seeing such a superb model of Gladiator K 6142. (December issue).

I flew this aircraft several times, but my own mount was 6141. The Squadron was

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



based at Church Fenton, Yorks, in 1938. In these particular pictures I am flying 6140, the Flight Commander's machine (note the all-blue fin), and the late F/O Humphenson (war casualty) is forming in 6142, which was his allotted aircraft. (Photo's below).

You will note that we are flying without the metal spinners fitted. These gave trouble at an early date, due to cracking, and were discarded, never to be re-fitted. Also, the sliding cockpit canopy was seldom used in the forward position—perhaps because of a slight feeling of claustrophobia after years of open cockpits! Anyway, the cockpit was always perfectly warm and virtually draught-proof; goggles were not necessary.

S/Ldr. L. F. HENSTOCK.
Ashbourne, Derby.

Looping Antics

DEAR SIR,
It was with some interest that I saw in a recent issue of your magazine a photograph of a combat model which was unable to cut its own 50-ft. streamer. Obviously this modeller hasn't yet tried your *Peacemaker* design.

We found that cuts on a 25-ft. streamer were easily attained provided that one steps forward a pace as the model completes the loop. This is necessary to allow for the drift out of the circle of the streamer.

Incidentally, during a later flight with the same model *Peacemaker* I had the misfortune to break the "up" line while flying fairly high. The model completed about 50 consecutive bunts before finally piling in, my friend losing count at about the 30 mark.

There are surely very few designs of such cheap and simple construction which can emulate this performance.

P. HEELEY.

Kempston Barracks,
Bedford.

Actuator cleaning

DEAR SIR,
Most articles for the beginner in radio control recommend the use of a rubber-driven escapement usually the E.D. standard. I have been flying an A.P.S. *Ethereal Lady* fitted with the Hill receiver and an E.D. standard escapement with monotonous reliability for a year. The escapement is

buried in the rear fuselage and is inaccessible except by minor surgery.

Recently I decided to take the experts' advice. I cleaned the actuator with carbon tetrachloride and placed a small drop of oil on the rotating shaft.

From then on I experienced all the faults which I have observed others suffering from on the flying field. I re-cleaned the actuator and have had no trouble since.

Obviously good electrical contact must be maintained between the rotating shaft and its bushing and between the pawl and current saving contact.

Oil on the shaft prevents this and the oil must also be eventually flung out on to the arms of the pawl, and get on to the current saving contact.

This will prevent the armature from pulling in and give rise to skipping and sticking. There is a risk of this no matter how small the amount of oil used. Providing everything is in perfect alignment, there is no need to use oil on any part of the escapement. The only maintenance needed is a very infrequent clean with carbon tetrachloride applied with a camel hair brush.

D. SMITH.

Those Plastics

DEAR SIR,
Models have been made and cherished for thousands of years but now, for the first time, they can be mass produced and assembled by anyone. Little craftsmanship and no feeling for materials is needed.

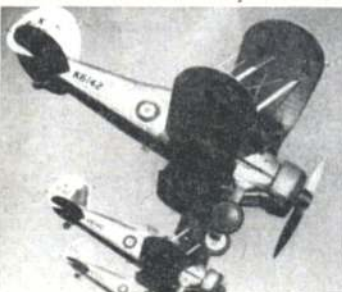
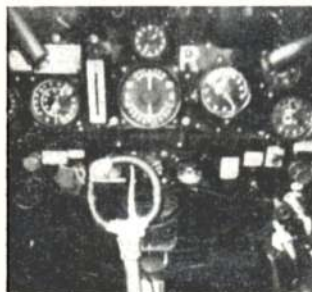
Some ship models made more than three centuries ago are as perfect today as when they were made. The lovely aircraft models in the Science Museum will probably last as long. I wonder if "plastic" enthusiasts will still have their models after ten years?

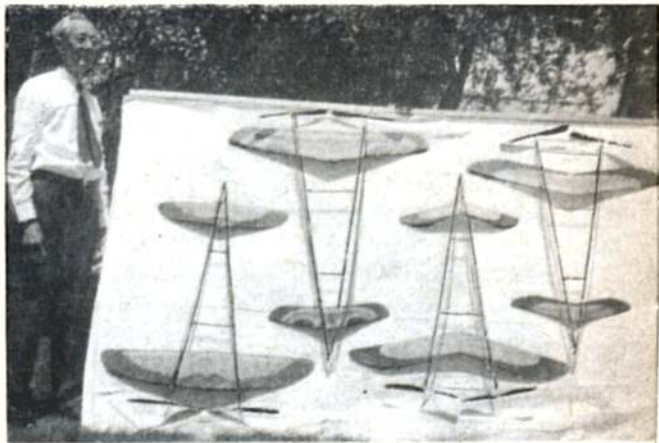
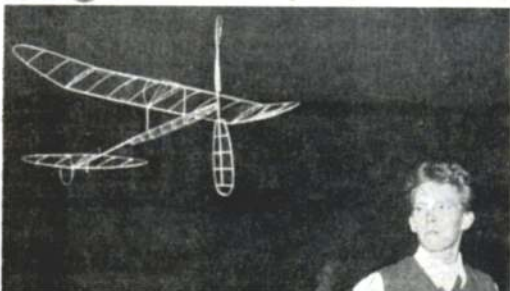
There is only one way of making a worthwhile model and that is the hard way—by hand.

Real modelling is still being done and being encouraged by your excellent journal. The wonderful drawings appearing in the AEROMODELLER such as the Famous Biplanes series have never been equalled before. They give real modellers the chance of building perfect and well-built models. Thank you for these.

Penarth, Glamorgan. H. MORONEY.

The original Gladiator instrument panel, K 6142 without colours, and Sqdn.-Ldr. Henstock with mechanics and his aircraft. (See "Gladiator Pilot")





WORLD NEWS

GREAT BRITAIN was not the only aeromodelling cen'tre 50 years ago, the beginnings of what are today flourishing modelling movements were taking place concurrently in many other countries. Among the "Early Birds" of 1909 in the U.S.A. was Arthur O. Heinrich, of Long Island, New York, and in the picture above Arthur is displaying four of his A-frame models which are still flying after all these years. From left to right the models are: Blue Heron, 36 in. long, built in 1926 with Clark Y curve on a 34 in. wing, did 2:10 last time out. Osprey is 40 in. long with 35 in. wing. Pelican Mk. I is 36 in. square, made in '32 and last is Pelican Mk. II, made in '55. All of these models weigh less than two ounces and use props about 12 in. x 18 in. Talking of low weight, the draft rules issued for PAA events in U.S.A. for this season will come as a surprise. Engine limitation for both the PAAload duration and Clipper Cargo events is to be limited to .020 cu. in. This is throwing the ball right into Le Roy Cox's court, but as his Thermal Hopper has dominated Clipper Cargo for so many years, few can complain. The Pee Wee engine is, of course, the only one in current mass production to suit the rule changes. Maximum dimension for the duration model is limited to 36 in. and for Cargo to 42 inches. The PAAman is 1 in. x 1/2 in. x 1 1/2 in. weighing one ounce and model must be four ounces, making a minimum of 5 oz. in all. For Cargo, the load must be at least 1 in. x 1 in. x 2 in. and minimum ROG duration 45 sec. to qualify. Engine run is up to 30 sec. in each class.

Doubtless we shall be hearing of more .020 engines from the States now that it has become a contest size; but the only indications of new productions in the next few months are Duke Fox's .09 with what looks like sideport induction, selling at a low \$4.95, and Johnny Brodbeck's new K & B 45, a big engine specially created for bigger and better R/C models.

How's this for a Club Championship prize? The East Bay Radio Controllers are offering a free air trip to the U.S. Nationals for their high-point man under an interesting scheme which includes such items as

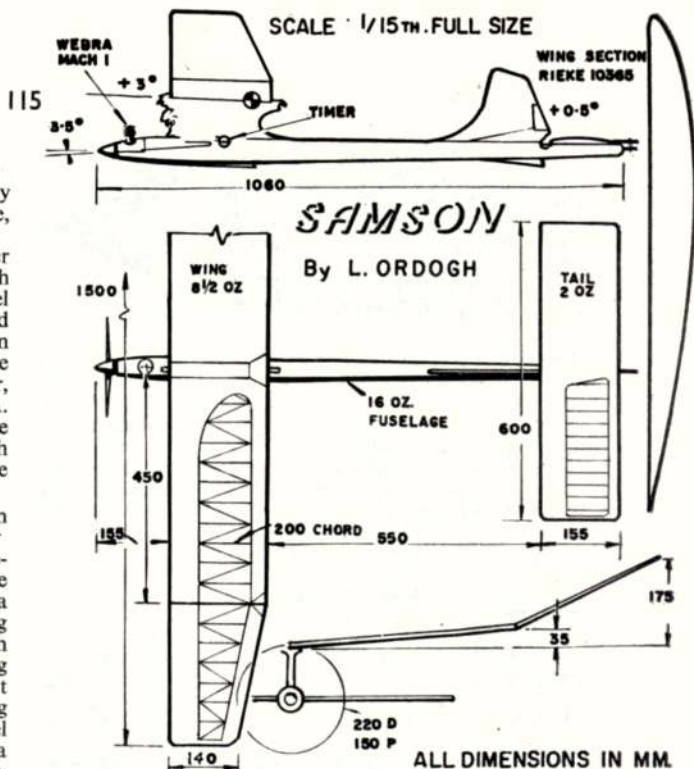
Top to bottom at left: Over-ice flying in the U.S.A. at Green Bay, Wisconsin. The Lockheed Neptune control-liner is by Joe Pule of Vittoriosa, Malta, G.C., with all sheet covering for a pair of 2.5 diesels. Indoor model is at Finland's New Year's Day meeting, shows Leif England with his fuselage model. Spad control liner is by Rolf Norstog of Norman, Oklahoma, even has simulated dents in the cowls for realism. Bottom is a Focke-Wulf Stosser by A. D. Coe of Oklahoma City powered by an old Arden 099, weighing only 11 oz.

5 points for each new model, 2 points for entering any event, more points for attending meetings and, of course, bonus points for contest successes.

Over-ice flying is a facility some of us would rather do without: but in parts where the grip of winter is such that open marshlands are turned into solid model chasing areas, we suppose the idea has much to commend it in places like Hamilton, Ontario, Canada, and also in Wisconsin, U.S.A., where the Fifth Winter F/F Jamboree took place on February 1st. This included F.A.I. power, soon to be the main power model spec in the A.M.A. Though the invitation read "come out and get your nose cold", and we would have really enjoyed attending such a far-off meeting, we feel that justification of our air fare expenses would have been too tough a task!

The Eastern Canada Open is, as the title suggests, an "open" event with only restrictions of engine size for classes under and over 2.35 c.c. and among the prize-winners we see Dave Sugden taking second place in the smaller engine class, Moe Buck of Ottawa making a perfect 9:00 to win. Glider winner Al Lashway was flying an A.P.S. *Topscore*, and Jerry McGlashan took both rubber and chuck glider first placings for the organising Montreal M.F.C. Competition flyers would benefit from Associate membership of this club by having regular supply of the liveliest news-sheet in the model game. We'd be pleased to forward enquiries to Canada from those who want to share the flow of gen on sections, contest work and three-views of latest designs.

The annual New Year indoor meeting in Helsinki, Finland, held in an exhibition hall with 45 ft. ceiling, attracted no less than 80 local entries in six classes, three of them based on the popular Finnish kit "Hyttynen". Leif Englund is the indoor ace; he won two of the classes, best time being 7:47 with hand-launched stick. This is a low time for the New Year meet and was due to a flow of air through the hall. Day after the contest, Leif set up a new class record for Finland of 13:20 under a 35 ft. ceiling. Tulo Kekkonen won the "scale" class with 3:18, models being to scale only in profile, to allow for the ultra light construction. February 8th was scheduled to be an over-ice International for the three F.A.I. f/f classes, combined with the inter-city event between Leningrad, Norrköping (Sweden) and Helsinki; but it seems that the U.S.S.R. team would not be attending due to "their modellers being so busy preparing for their own competitions". This excuse seems to be wearing a little thin. Perhaps the political temperature between the respective countries has chilled enthusiasm in Moscow headquarters. Last

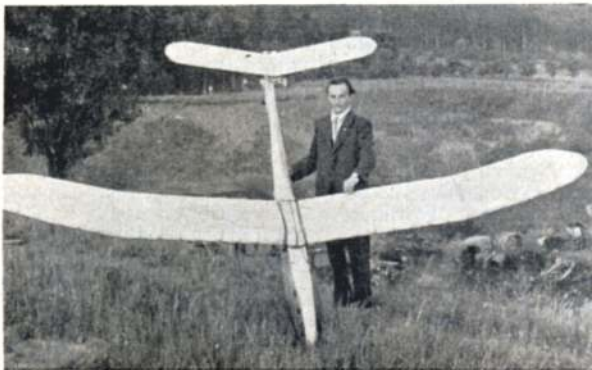


Lasslo Ordorgh's F.A.I. power design which has enjoyed considerable success in Hungary has the delightful gimmick of a face cut in the pylon leading edge. Its companion model, *Delilah*, uses Benedek airfoil B-8353b/2

year the Leningrad lads enjoyed themselves and took home most of the prizes.

Twin-engined stunters are becoming popular in Australia, not the two 1.5 -c.c. types but real hairy 1,000 sq. in. big jobs with screaming pairs of 29's. Lots of space in Australia to allow all that noise! Ron Sampson had one at the North West Champs, midway between Sydney and Brisbane, and you will see another by Neil Whymark in our report on the Australian Nats next month. Bond Baker's Wakefield victory and close-call in F.A.I. Power at the World Champs has sparked off the thought down-under that F.A.I. rules should be adopted. If this trend goes much further, we'll be at the happy state where modellers all around the world will be flying to the same rules! Just for interest, flip back three years and look at March, 1956, issue for a few opinions on those rules.

Huge glider is by Czechoslovakian modeller J. Sizek, and has radio control. At right is the Swiss power expert, Rudi Schenker, with his 1959 model held by his son. Model did nineteen maximums in as many flights during the eliminators





GOLDEN JUBILEE of Aeromodelling

A. F. Houlberg M.B.E. recalls our progress

MODEL AVIATION in the United Kingdom made its debut in an organised form with the formation of the Kite and Model Aeroplane Association in February, 1909, having developed from the Kite Flying Association.

Based in the London district it attracted a remarkable number of enthusiastic members interested in the adventure and problem of flight, and under the able direction of its hard-working secretary, Mr. W. H. Akehurst, it rapidly gained in strength and importance, numbering amongst its patrons and council members many names which have since become part of aviation history, such as Sir Charles Wakefield (later Lord Wakefield of Hythe), J. T. Moore-Brabazon (now Lord Brabazon of Tara and President of the S.M.A.E.), Frank K. McClean, Sir John Shelley (an early President), the Earl of Lonsdale, Lord Montague of Beaulieu, Le Comte de la Vaulx (Vice-President of the F.A.I. and Aero Club of France), Major B. Baden Powell (First President), S. F. Cody, Claude Graham White, C. F. Fairey (later Sir Richard Fairey), Col. J. D. Fullerton, J. H. Ledebor (Editor of *Aeronautics*), G. Marconi, A. Mortimer Singer, Herbert Chatley, Dr. A. P. Thurston

by a cup donated by Sir Charles Wakefield (as he then was). Both these cups were won by E. W. Twining who was the most sound and progressive model designer of that time and who carried out a systematic series of experiments on the basic principles of model aerodynamics, the more important results of which were published in the *Model Engineer* of that time.

The year 1910 also saw the inauguration of the K. & M.A.A. Cup, awarded for Distance and Stability, which was won on this first occasion by C. R. Fairey and two years later (in 1912) by A. F. Houlberg.

In 1912 the present Chairman of the S.M.A.E. was elected assistant secretary of the Association, and in the same year the Association was granted recognition by the Royal Aero Club as the controlling body for model aeronautics in the United Kingdom.

From this point the Association grew in strength until the outbreak of the first World War in 1914 when everyone joined the services or took up war activities. Although attempts were made to keep it going during the war period under the secretaryship of H. A. Lyche, the loss of the support of the majority of its patrons and other sources of income drove it into a state of suspended animation.

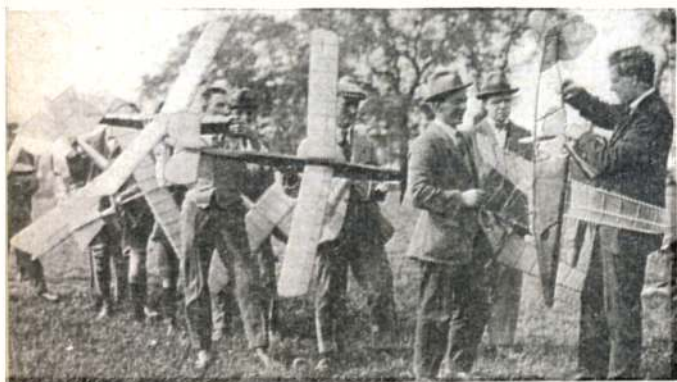
Attempts to restart the Association as a national body at the termination of hostilities met with poor support, but thanks to the work of A. E. Jones the old London Aero Models Association was revived in 1920 and gradually gathered together most of the model aircraft enthusiasts residing in the London area, such as C. A. Rippon, F. J. Camm, Harry York, Eddie Keil, W. E. Evans, B. K. Johnson, C. Burchell, D. A. Paveley, R. Langley, R. Bullock, C. Hensom, A. B. Clarke, A. F. Houlberg and others.

Although the revival of the L.A.M.A. was slow it was nevertheless steady, and thanks to the experience gained by the K. & M.A.A. it was run on sound lines, with the result that its membership grew and its finances flourished until it became well enough established to be in a position to negotiate for the acquisition of the assets and liabilities of the dormant K. & M.A.A.

The negotiation was entrusted to A. F. Houlberg (who had been appointed Chairman of the L.A.M.A.) and his unique connections with both bodies greatly facilitated the negotiations which terminated in the L.A.M.A. meeting all the liabilities of the K. & M.A.A. and acquiring as a result all its assets, including such important trophies as the Gamage Cup, K. & M.A.A. Cup, Sir John Shelley Cup, Lady Shelley Cup, Weston Cup, *Model Engineer* Cup and the Farrow Shield.

By this transaction the L.A.M.A. became the legal successors of the K. & M.A.A. and thus acquired nationwide stature and interest. On the proposition of F. J. Camm the Association's name was changed to the more embracing and less local one of "The Society of Model Aeronautical Engineers" and it extended its activities to cover the whole of the United Kingdom.

This increase in the sphere of the society soon led to an approach being made to the Royal Aero Club for official recognition by that body, and, after a meeting at the Royal Aero Club between the secretary H. E. Perrin and three representatives of the S.M.A.E., Messrs. A. P. Thurston, A. E. Jones and A. F. Houlberg,



1922 on Sudbury Hill. A. F. Houlberg at right is weighing-in a typical pusher with boomed rear fuselage and twin props by C. A. Rippon in forefront. Note the oiled silk covering and braced framework

(later President for several years), Dr. W. N. Shaw (Director of Meteorological Office), Prof. A. K. Huntingdon, T. O'B. Hubbard, E. Manville (President Society of Motor Manufacturers), W. H. Dines (President Royal Meteorological Society). In addition it received considerable support from A. V. Roe (later Sir Alliott Verdon Roe) and Frederick Handley-Page (now Sir Frederick Handley-Page).

Subscription for ordinary membership was a modest 5s. per annum, which included entry to the Association contests, which were divided between kite flying and model aircraft events.

Several commercial concerns soon indicated their interest in the Association's aims by the donation of trophies for competitions. First of these was the famous emporium Gamage who, in 1910, donated the famous Gamage Cup, which still continues to be one of the most popular trophies in circulation. This was followed



About to launch a D. A. Paveley compressed air model is the late F. de P. Green who was responsible for negotiations leading to donation of the present Wakefield International Trophy. Attending to his 15 c.c. Atom petrol engine is the late W. E. Evans, Editor of the first Aero-modelling magazine and SMAE Treasurer for many years

the council of the Royal Aero Club granted recognition for the S.M.A.E. to control model aeronautics in the United Kingdom under their aegis.

Shortly after this, in 1926, an event of the greatest importance to model aviation took place as the result of the enthusiasm and endeavour of the then Chairman of the Society, F. de P. Green, a man well on in years, but exceptionally full of energy. It was he who conceived the idea of a World Championship contest and who made the approach to Lord Wakefield (then Sir Charles Wakefield) for the donation of a suitable trophy. In this he was completely successful and international model aviation as we now know it was born. When received, the Cup proved to be a truly magnificent 50-guinea trophy and the Society was instructed with the drafting of the rules and the custody of the cup until such time as an international body was established for its administration and tribute must be paid to Sir Sefton Branker who, as Director of Civil Aviation and President of the S.M.A.E., did much to facilitate the negotiations and consolidate the rules which had been drafted by F. de P. Green and the council.

The Wakefield International Cup was first competed for in 1929 when it was won by T. H. Newall, our leading exponent of the fuselage model at that time.

Following the acquisition of the Wakefield Cup the Society lost the valuable services of its secretary, A. E. Jones, who was succeeded for the next two years by S. F. H. Crouch.



Above, right: Five compressed air models on Wimbledon Common in 1922. Note twin tanks on first model. At left: Ten years later on Blackheath in 1932, C. A. Rippon and Eddie Cosh at foundation meeting of B.M.F.C.

Unfortunately, F. de P. Green did not live to see the Wakefield Cup establish itself as the popular event into which it developed in a few years, as he died in May, 1929. He was followed as Chairman of the Society by R. M. Balston who occupied this position until the beginning of 1930, when the present Chairman, A. F. Houlberg, was re-elected to this office which he had had to relinquish on moving to Oxford in 1924.

It was at this point that the Society received one of its heaviest blows by the loss of the most energetic President which it has ever had, Sir Sefton Branker, as the result of the R.101 airship disaster in which he was an ill-fated passenger. He was followed as President by the Master of Semphill. In 1930 the secretaryship was taken over by S. G. Mullins who functioned in this capacity until 1934, a period during which the Society did much to consolidate itself, and revised rules were introduced in 1931.

One of the outstanding figures in the Society at this period was W. E. Evans who had been Treasurer of the Society almost since its inception and who had in addition edited and produced the Society's journal. (He was also first to import balsa into this country.) Whilst this was a modest publication it did much to keep the membership of the Society together. He retained this dual office with the Society until his retirement in 1936, and although he lived until September, 1956, unfortunately we saw little of him during his retirement.

In the early days of its existence the S.M.A.E. was run more or less on club lines, its members competing with the members of affiliated clubs, but as time progressed and the model movement became more wide-



spread it became obvious that the activities of the Society should be revised, and that it should confine its efforts to general organisation of the model movement and abandon its competitive role within the United Kingdom. To this end the constitution was revised in 1935 upon the appointment of E. F. H. Cosh as Secretary. There were at that time only 20 clubs affiliated to the S.M.A.E., but so rapid was the growth of the Society and model aviation that by the outbreak of war in 1939 there were more than 100 clubs affiliated to the S.M.A.E.

The Society lost the services of the Master of Semphill in 1935, when Dr. A. P. Thurston (who had been Vice-President for some years) became the Society's President.

The vast increase in the number of interested clubs made the question of representation on the council of the Society difficult and justified the inauguration of the "Area Scheme" of control and organisation which is now familiar to all aeromodellers, and enables the movement to be knitted together in a democratic body. It is of interest to note that the first Area to be formed was the North Western Area and that its first delegate



Record holder with an 89 sec. flight in 1912, young Alex Houlberg shows his twin pusher with T-frame and sweptback wings

was C. S. Rushbrooke who was responsible for much of the original conception of the scheme. Unfortunately, just as the area scheme was inaugurated the second World War broke out but, profiting by the experience gained in the first war, the Society took steps to ensure continuation of its activities by appointment of an "Emergency Committee". This functioned during the period of hostilities without a break so that the Society emerged ready to cope with the altered circumstances and continue its work, which had appreciably increased as a result of the added interest in aviation occasioned by aircraft developments in the war period.



Tommy's nose of radio fame, flew American Gordon Light's Wakefield to victory in 1935 at Fairey's aerodrome. Model went O.O.S. at 7:19, landed at Hanwell and was flown back by Moth. Design set a fashion for years, used a motor stick to relieve the light fuselage frame

As a result it was not long before the number of affiliated clubs reached the 500 mark and it became necessary not only to establish the Society on a sounder basis but to safeguard its individual members and officers. The Society was therefore formed into a limited liability company with statutory rules, and at the same time became affiliated to the Royal Aero Club along with all the other aviation bodies. The vast increase in the work of the Society also justified the establishment of a central office at Londonderry House with permanent secretarial staff, although all officers are still voluntary.



Our own 'Rusby' in '34 with his Moffat Trophy entry sent to U.S.A. for proxy flying. Wakefield rules applied to this event, 190-210 sq. in. wing, min. weight 4 oz. fuselage cross-section length squared divided by 100

Owing to his service commitments with the Royal Air Force during the war, E. F. H. Cosh was forced to resign his secretaryship and his place was ably filled in 1942 by A. G. Bell who served the Society well during a difficult period and produced a new set of rules to meet the new conditions and constitution of the Society. On his resignation, D. A. Gordon was elected secretary and functioned very efficiently during an expanding period of the Society's history until his retirement in 1957 and the election of the present secretary Major S. D. Taylor.

With the death of Harry York in 1957 the Society lost a very valuable Fellow and an indefatigable supporter of model aviation in general. For many years he functioned as a most effective Press Secretary to the Society and in addition undertook many other duties.

The Society has had many difficult periods in its history, but has gained experience and strength from each and emerged from its battles better and stronger than before. Whilst it would be trite to say that it is faultless, it is nevertheless a body which functions

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Advertisements tell their own story. At left is a page from the K. & M.A.A. programme of aviation meetings, 1913, listing 22 events for Kite and model flying. E. W. Twining was the ace of the day, having his name on all the major trophies. Gamages' advt. comes from the Aero Manual of 1909/10. Anyone want a 3/4 h.p. petrol engine weighing 7 lb. ?

reasonably well within the limitations, financial and otherwise, enforced upon it. In recent years it has developed rapidly on healthy lines and the fact that it is carrying out a useful purpose is confirmed by the high honour which it has received of being granted the patronage of his Royal Highness the Duke of Edinburgh.

It is also proud to have had Lord Brabazon of Tara as its President and guide since 1945 and his interest and help over a long period.

The Society is also indebted to the Royal Aeronautical Society, who have always been a great help to the Society, particularly with accommodation for meetings over a period of many years.

The Royal Aero Club has also been a consistently generous supporter and adviser to the Society at all times, for which the Society is most appreciative and from which it has greatly benefited.

March, 1959

AIRCRAFT IN SERVICE

Number 7

Described & drawn
by G. A. G. COX



North American F100D Super Sabre

NO SUMMER LAST YEAR? Oh but there was, one afternoon in September when we went at the invitation of the Third Air Force to "get to know" NATO's first super sonic fighter—the North American F.100-D. Our hosts, hospitable as ever, not only laid on every facility (including the traditional hamburger and coffee) but also a beautiful warm sunny afternoon.

R.A.F. Wethersfield, near Braintree in Essex, is the home of the 20th Tactical-Fighter Wing, a unit which is proud of a history dating back to 1927. Originally known as the 20th Balloon Group, it was redesignated two years later, 20th Pursuit Group, flying Boeing P.12's from Mather Field, California. Right from the start the squadrons forming the group were No's 55, 77 and 79, and they have remained together ever since. One pre-war group commander was Col. Ira Eaker, who was famous for his development work on the P.12 and the first man to fly across America blind, again in a P.12. Col. Eaker was later to become commander of the Army Air Forces during the second world war.

The group later re-equipped with the P.26, flying from many different bases in the United States until in 1943 it moved to Kingscliffe in Northants. From then until they were disbanded in 1945, the squadrons flew P.38 "Lightnings" and P.51 "Mustangs" on long-range escort, ground-strafting and bombing missions. In sixteen months the group flew 312 "combat missions" and destroyed 432 enemy aircraft either in the air or on the ground. Among other targets, they destroyed or damaged 522 locomotives and scored hits on 1,651 freight and ammunition cars and 536 motor vehicles—a very impressive score.

Only a year after being "inactivated", the group reformed with F.84 "Thunderstreaks", exchanging these in 1957 for the F-100D.

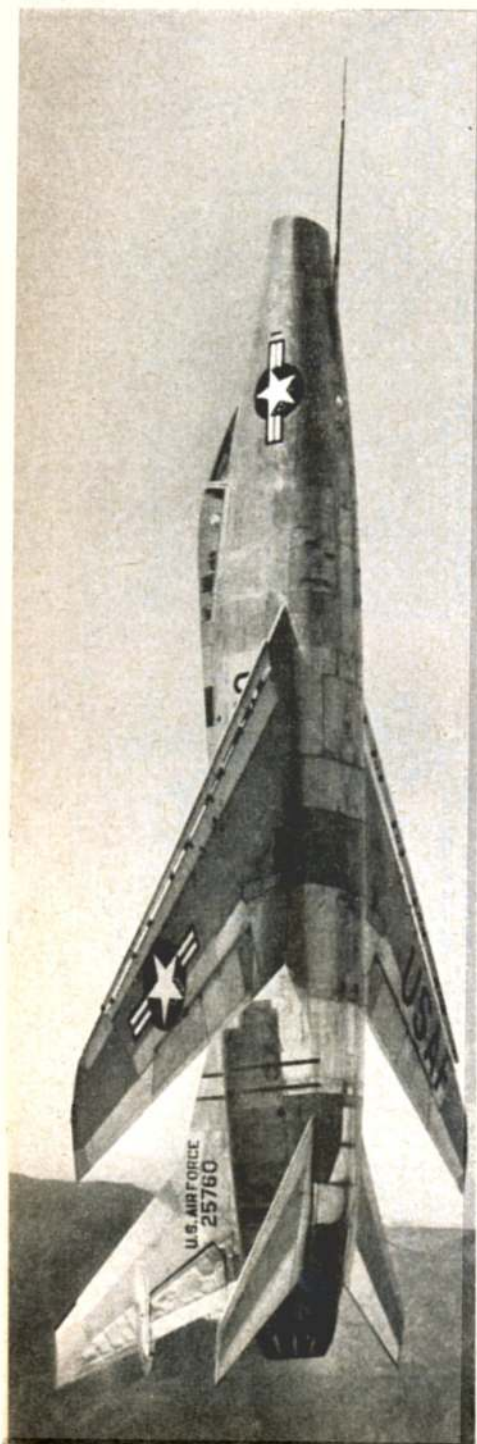
One's first impression of the "Super Sabre" is of the dramatic ugliness of its snout; nor is there one single feature which by the usual standards is pleasing to the eye yet, paradoxically, there is the same sort of functional beauty about this machine that the more sensitive people find in, say, a bridge or a ship. Even a cursory examination of the F.100 reveals its extraordinary complexity; as an example of aeronautical engineering techniques, it is as far removed from second world war fighters as the Hurricane was from the Camel. An adequate drawing of the nosewheel assembly alone

would occupy four pages of this magazine. In this respect it presents a much greater problem to the model builder but is compensated for to some extent, by the absence of surface blemishes. The F.100's surface is remarkably clean, all the rivets except those in the titanium rear fuselage, being virtually invisible, but the fastidious modeller should attempt to show the Philips screws (with a cross instead of a slot) which are used to attach all the access panels and the thick, tapered skin covering the wings between the spars.

Another unusual feature of the wings is the use of almost full-span ailerons, split to allow flexing of the wings at high speeds. With this enormous aileron area there is, only room for small flaps on the F.100D, but the leading edges carry a comparatively old device—Handley Page automatic slats, again split into sections. Under the wings is the customary phalanx of pylons, very similar to those on the F.84. The pylon carrying the finned tank however, is different from all the others in that it is curved inwards at the forward edge. This is to create a sideways airstream which deflects the tank when released; the stay on the outboard side of the tank is self-disconnecting.

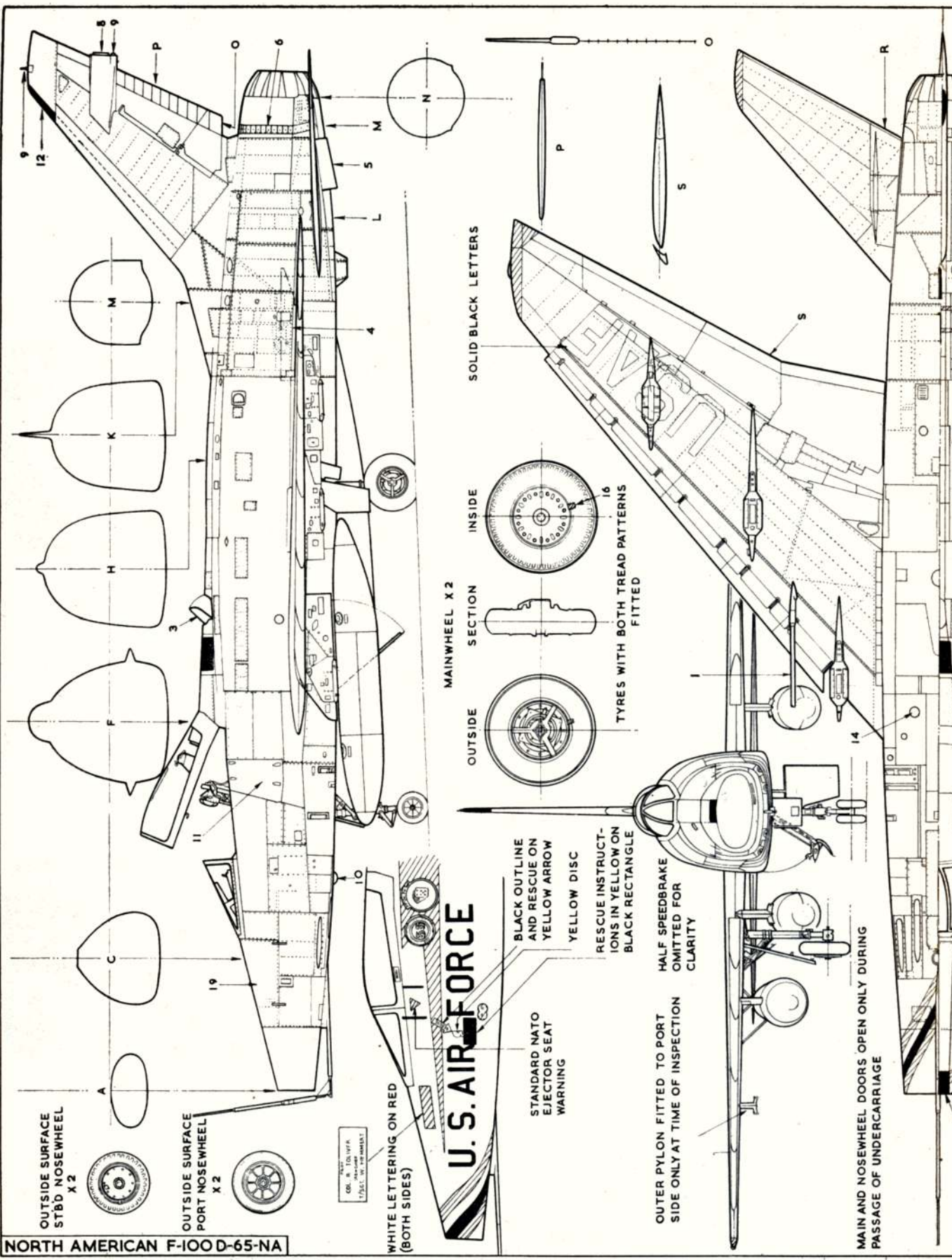
Colour scheme of the 20th Tactical-Fighter Wing is almost as striking as the aircraft itself, especially that used by the Wing Commander, Colonel Raymond F. Toliver, who kindly placed his machine at our disposal. Superimposed on the red fuselage flash are the badges of the three squadrons under his command. It was not surprising to find the perennial favourites, dice and playing cards, as emblems on two of the badges, but it was a shock to see titling in stencilled Gothic lettering—an anachronism on a supersonic fighter. Every machine at Wethersfield bears on the fin the badge of the 20th Tactical-Fighter Wing and also the red, white and blue Unit Citation awarded for the record conversion from F.84 to F.100D in fifteen months. The Super Sabre, is like most military aircraft nowadays, a lexicon of technical jargon. Instructions, warnings, labels and specifications are stencilled in gay profusion all over the airframe, and especially the fuselage. These have been omitted from the drawing rather than smother other details.

We are most grateful to the Commanding Officer and personnel of the 20th Tactical-Fighter Wing for their unstinted help and co-operation in the preparation of this drawing.

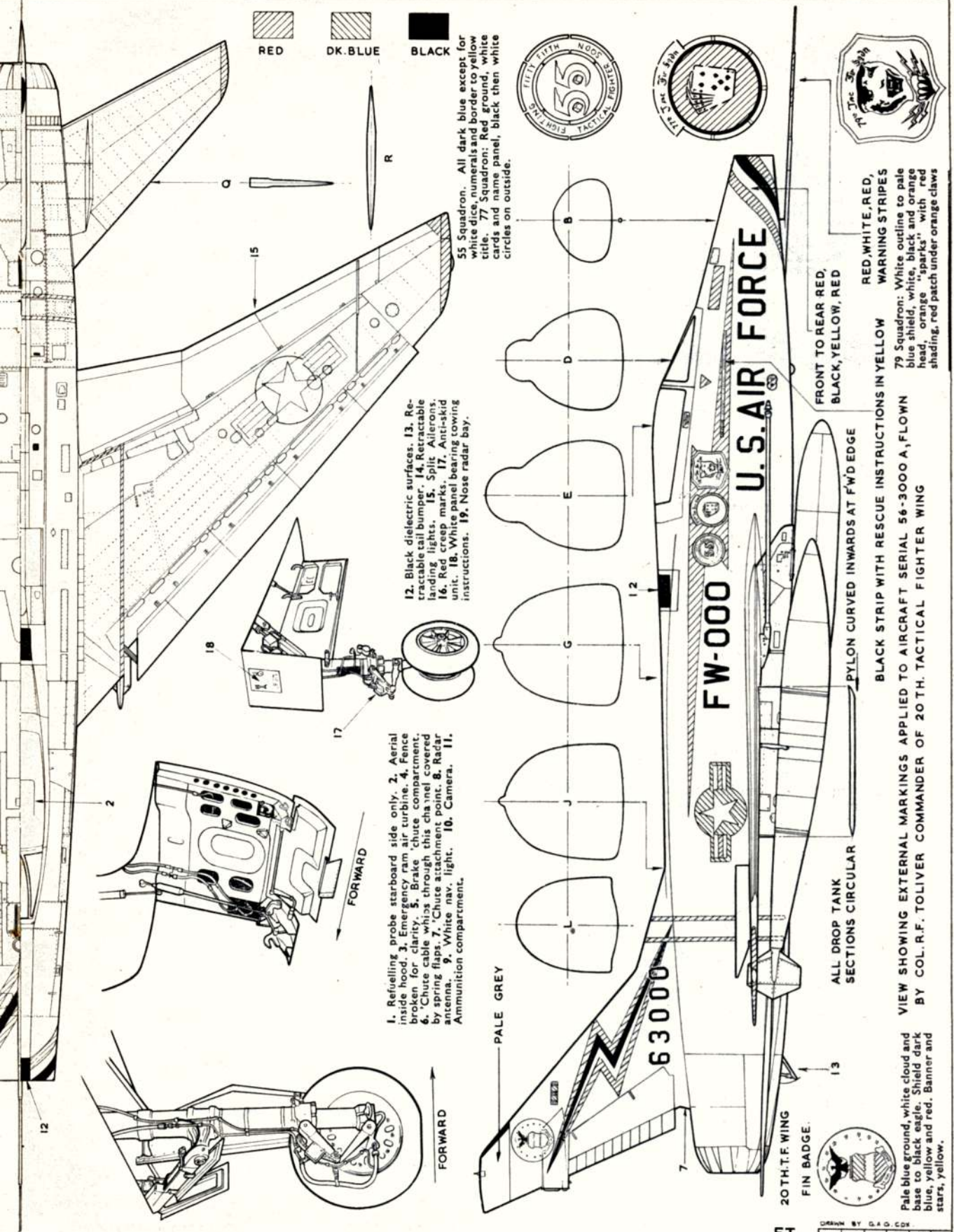


Vertical ascent of an F100C shows wing and fin differences to distinguish from the F100D above. Surely this is the most colourful of all Super Sabres. Col. Toliver waited months to get that unique buzz number





NORTH AMERICAN F-100D-65-NA



 RED
 DK. BLUE
 BLACK

55 Squadron. All dark blue except for white dice, numerals and border to yellow title. 77 Squadron: Red ground, white cards and name panel, black then white circles on outside.

12. Black dielectric surfaces. 13. Retractable tail bumper. 14. Retractable landing lights. 15. Split Ailerons. 16. Red creep marks. 17. Anti-skid unit. 18. White panel bearing covering instructions. 19. Nose radar bay.

1. Refuelling probe starboard side only. 2. Aerial inside hood. 3. Emergency ram air turbine. 4. Fence broken for clarity. 5. Brake chute compartment. 6. Chute cable whips through this channel covered by spring flaps. 7. Chute attachment point. 8. Radar antenna. 9. White nav. light. 10. Camera. 11. Ammunition compartment.

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 FW-000
 U.S. AIR FORCE

FRONT TO REAR RED,
 BLACK, YELLOW, RED
 RED, WHITE, RED,
 WARNING STRIPES
 79 Squadron: White outline to pale
 blue shield, white, black and orange
 head, orange "sparks" with red
 shading, red patch under orange claws

BLACK STRIP WITH RESCUE INSTRUCTIONS IN YELLOW
 ALL DROP TANK
 SECTIONS CIRCULAR
 PYLON CURVED INWARDS AT FWD EDGE

VIEW SHOWING EXTERNAL MARKINGS APPLIED TO AIRCRAFT SERIAL 56-3000 A, FLOWN
 BY COL. R.F. TOLIVER COMMANDER OF 20TH TACTICAL FIGHTER WING

Pale blue ground, white cloud and
 base to black eagle; Shield dark
 blue, yellow and red. Banner and
 stars, yellow.

ENGINE
ANALYSIS No. 57

Reviewed by
R. H. Warring

**ALAG
X-4**

PROPELLER—R.P.M. DATA

Propeller dia. x pitch	r.p.m.
9 x 4 (Stant)	7,800
8 x 4 (Stant)	10,800
7 x 4 (Stant)	11,800
6 x 4 (Stant)	14,600
8 x 4 (Trucut)	10,000
8 x 3 (Trucut)	10,700
7 x 4 (Trucut)	12,500
7 x 3 (Trucut)	14,300
6 x 4 (Frog nylon)	15,750
8 x 3½ (Tiger)	12,300
8 x 4 (Tiger)	11,000
9 x 3 (Tiger)	9,000

Fuel used: Frog "Powamix"
and Mercury No. 8.

SPECIFICATION

Displacement: 1.517 c.c. (.09245 cu. in.)
Bore: .512 in.
Stroke: .449 in.
Bore/stroke ratio: 1.14
Bare weight: 2½ ounces
Max. B.H.P.: .1225 at 14,000 r.p.m.
Max. torque: 11.4 ounce-inches at 8,000
Power output: .081 B.H.P. per c.c.
Power/weight ratio: .049 B.H.P. per oz.

Material Specification:

Crankcase: Light alloy die casting
Cylinder: Hardened steel
Piston: Cast iron
Contra piston: Cast iron
Crankshaft: Hardened steel
Cylinder jacket: Machined from light alloy, anodised red
Back cover: Aluminium anodised red
Connecting rod: Machined from dural
Intake tube venturi: Thermoset plastic
Spraybar: Brass

Trade Distributors in U.K.:
RELUM LTD., 5 Chalk Farm Road,
London, N.W.1.
Price: 49/6

THIS NEW Hungarian engine is essentially a scaled-down version of the 2.5 c.c. Alag X-3 (AEROMODELLER Report No. 43, January, 1958), with a marked improvement in specific power output and some detail improvements over the larger design. Like the X-3, it is again a very well made engine, clean and neat in appearance and extremely compact in size. Geometrically, in fact, it looks more like a 1 c.c. engine than a 1.5 c.c. size and its total weight is only a matter of 2½ ounces.

Starting and handling characteristics are exceptionally good. The contra piston is, if anything, a little loose when the engine is cold but expands to a nice tight fit once warmed up. Thus whilst there may be some tendency for the compression to work back initially, it soon "freezes" in position without becoming too stiff for further adjustment. The needle valve setting is non-critical and running is consistent and even at all speeds up to 17,000 r.p.m. plus—although setting does become more exact at the highest speeds.

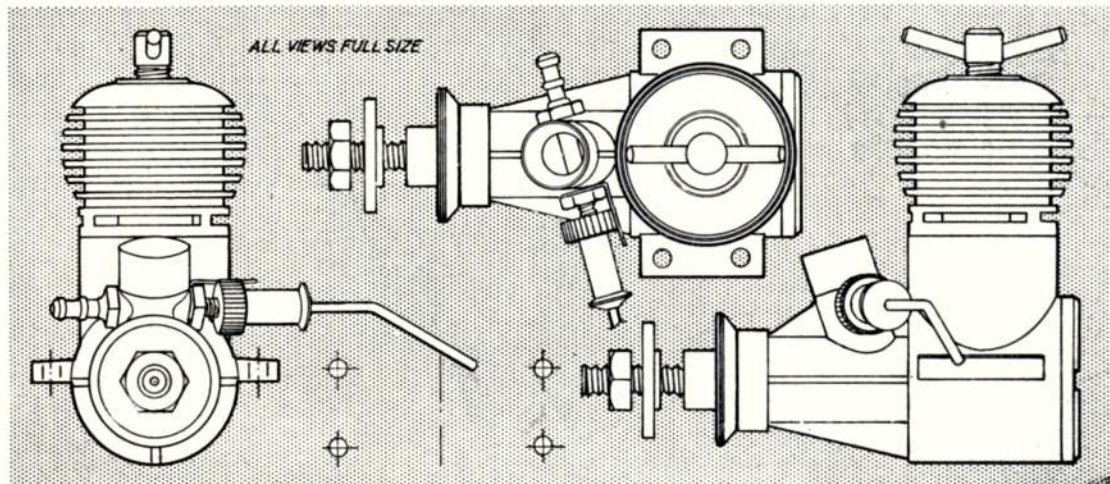
The crankcase casting is very clean and nicely finished. The only machining operations carried out on it are threading for the cylinder and rear cover, drilling and reaming for the main bearing (which is unbushed), and drilling the lugs. Unlike the larger X-3 where the front of the crankcase was definitely on the weak side, wall thickness here is substantial, which should result in

more than adequate strength. Another difference is that the rear cover is machined from aluminium instead of being of thermoset plastic as on the X-3.

The cylinder is of steel, with heavy walls, screwing into the crankcase casting on a fairly tight thread. No gasket is fitted under the cylinder flange, the flange seating directly on the casting. Three exhaust ports are milled through the cylinder flange and the transfer passages—six in number—are cut on the inside of the cylinder in the form of circular arc grooves. These finish square just below the level of the exhaust ports. The bottom of the bore is slightly relieved.

The piston is of cast iron, fairly substantial in both section and weight and very nicely finished and fitted to the cylinder. The top is slightly conical. Gudgeon pin diameter is 3 millimetres (.118 in.), being shrunk-fitted in the piston. The connecting rod is turned from dural stock with a 4½ mm. (.176 in.) big end bearing size (plain), fitting very nicely on the ground crankpin. The contra piston is solid and not hardened (presumably cast iron). The cylinder jacket is turned from light alloy, anodised red. This screws on to the cylinder, again with tight threads.

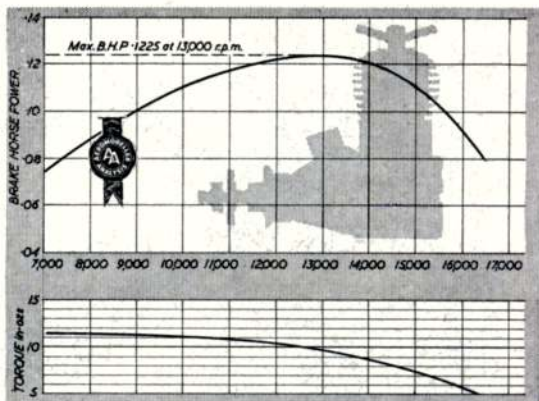
The crankshaft is .295 in. diameter (7½ mm.), tapering at the front to a .156 in. (4 mm.) threaded length. The shaft is hardened and finished by grinding between



centres. The propeller driver is of dural, forced on to the taper and machined with a .316 in. diameter boss (8 mm.). The front washer has a narrow flange of similar diameter. This, in fact, is about the only feature of the X-4 open to criticism—the necessity of drilling out the propeller hub to 21/64th in.—which does materially reduce the hub strength on some of the smaller sizes of propellers which might be used with this engine. Also the actual propeller-retaining nut seems ridiculously small for a “.5”. It would have appeared more practical to have retained a somewhat larger diameter for the front of the propeller shaft and dispensed with a boss on the driver shaft as the present 4 mm. front shaft does look a little vulnerable.

This criticism does not, however, detract from the fact that the X-4 is an exceptionally good little engine, with a power output comparable with the best of existing diesels in this class, whilst appreciably smaller and lighter than them. Good torque is maintained down to quite low running speeds, with a maximum B.H.P. of .1225 developed by the test engine at 13,000 r.p.m. Particularly pleasing was the steady running at all speeds with all types of propeller loads, and the easy hand-starting characteristics retained with the smallest sizes of propellers. All this is achieved with an engine of remarkably small size and overall weight—and at a low price.

Whilst there is some evidence that the machine tool capacity available for production is somewhat limited—

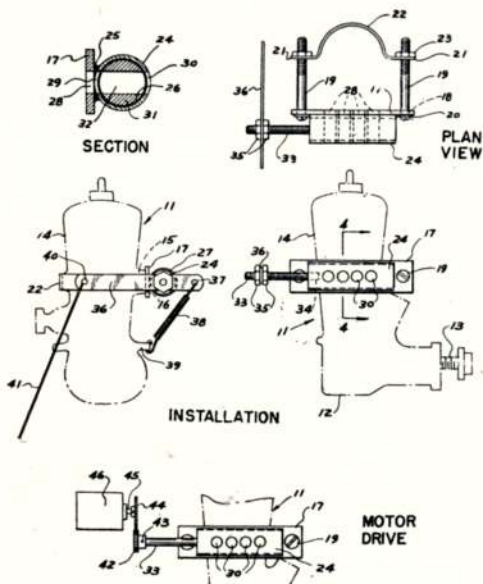


grinding the crankshafts between centres, for example—certainly the standard of workmanship was high throughout, and particularly on the parts that really matter. The crankshaft main bearing, for example, is an extremely good fit and the bearing runs quite cool, even at the highest speeds. Now that the X-4 is available in this country—a number being imported under licence—it will undoubtedly achieve a considerable demand, particularly amongst sports flyers.

IMPORTANT PATENTS No. 5

U.S.A. No. 2806458 B. Mettetal
APPLICATION DATE 12 DEC. 1955

Control of engine speed by exhaust port valve



THIS WAS ONE of the earliest patent specifications published on what is now a popular method of engine control. The invention provides a throttle control valve which may be secured to an exhaust stack extending from a cylinder casting by means of an adjustable clamp adapted to extend around the cylinder. On the outer plate of the clamp there is included or secured a ported cylinder and an internal rotary mandrel, similarly ported, which may be rotated to interrupt as required communication between the exhaust stack or port and atmosphere. The invention is worthy of close attention since it does permit simple adaptation of existing engines not provided with inbuilt control valves. Several methods of actuation are provided and are self-evident from the drawings.

HUMPHREY



Reprinted by courtesy of WOMAN

For .5/8 c.c. Engines

1/12th Scale

Edgar Percival CROPDUSTER

By George Woolls

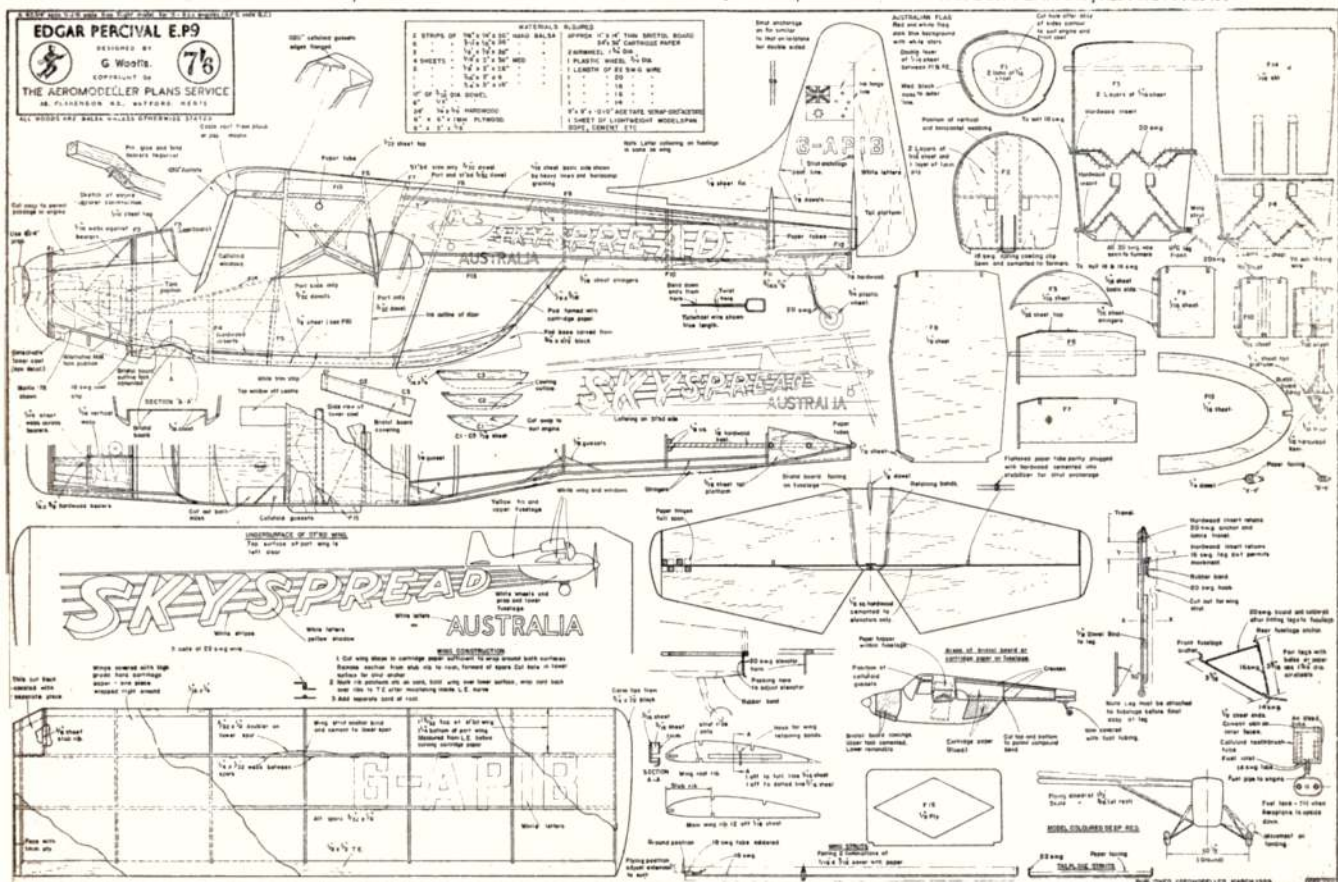


E.P.9

AS SOON AS George Woolls saw the E.P.9 "Aircraft Described" feature in our January, 1958, issue, he realised that the cropsprayer was a perfect subject for a free-flight model. Proportions looked so right that no deviation from scale appeared necessary and the bright colouring of the Skyspread version was most attractive. Yet the thought of hours of work painting the inscription on tissues which can so easily be torn, did not have much appeal, something more durable in covering was needed.

Many years ago it was commonplace to make model aeroplanes from cartridge paper, and the use of this material seemed to be the answer. Besides being a good medium on which to paint, the lack of sag between ribs provides a good simulation of the stressed-skin of the original aircraft. A test wing soon showed that there was no undue cause for concern on the weight factor and the final pair of wings complete with ornamentation weighed only 2½ oz.

FULL-SIZE COPIES OF THIS 1/6th SCALE REPRODUCTION ARE AVAILABLE, PRICE 7/6d. PLUS 6d. POSTAGE AS PLAN FSP/722 FROM A.P.S.





Underwing decor is fully detailed on plan, allows lots of scope for those handy with a brush

Cartridge paper was also used to cover the fuselage sides between the pod and stabiliser where they carry the inscription.

Another problem was the undercarriage. The wing strut passes very close behind the undercarriage oleo leg, the fairing of which has a "cut out" to clear the strut. Any form of backward springing seemed to carry the penalty of knocking the wing struts out of position, which was not desired. After much thought a simple system incorporating a rubber sprung "oleo" was used, which not only results in a very fair representation of the original undercarriage but seems to work well when the model lands.

A simple form of "stretching" wing strut was developed enabling a scale dihedral on the ground to increase to a safe flying dihedral in the air, where the deviation from scale is not so apparent.

Constructionally the model is orthodox except perhaps for the wings, so a few extra words of description of their construction may not become amiss.

One piece of cartridge paper is wrapped around the wing from T.E. around the L.E. and thence back to the T.E. A separate piece forward of the mainspar is wrapped around the "cut-back" at the centre section.

Start by drawing out the wing plan on the cartridge paper (reverse side) showing rib positions, etc. At the L.E. draw another line making the chord longer to allow it to wrap over the top of the ribs and meet the T.E. Reverse the paper and trace the inscriptions, registrations, aileron and flap outlines, etc., and draw them in with Indian ink. This shows through the coloured dope, and acts as a guide for your sign writing.

Make up the lower spar adding the coiled wire strut anchor, and cut a small hole in the cartridge paper for the anchor to pass through. A sheet of thick card with a hole to receive the projecting anchor is laid on the building board, the cartridge paper laid on top, and the wing frame built up cementing the paper at the L.E. to enable a smooth bend to be made and wrap the covering back over the ribs to the T.E. An accurate set of ribs and a straight L.E. spar are required for the cartridge paper will not conform to differing heights, etc., as will ordinary tissue.

Fuselage formers are cut to shape and the wire strut anchorages and front cowl clip firmly cemented and sewn on. Using Engine bearers and wing tongue to help maintain squareness the sheet basic sides are now assembled. Starting by adding stringers, nose sheet doubler against the basic sides, the complete fuselage is evolved. Top and bottom of fuselage and the sheet tailplane, elevators, and fin are covered in lightweight tissue.

One coat of thin clear dope followed by two thin coats of colour are applied all over. Signwriting and fuel-proofing the nose area complete the job.

The finished model weighed 14 oz. ready to fly and the Merlin provides ample power even with a K.K. 8 x 4 plastic prop which is scale size. A 7 x 4 Frog toothpick makes the machine really lively.

A query on the shape of airfoils



what's the answer?

Our tame theorist, Norman Denton, maintains that the shape of a wing section aft of about mid-chord is quite unimportant on models. In fact he builds models with plain rectangular section trailing edges for greater rigidity and his models do not seem to fly any the worse for it. Jim Bradfield, our club duration champ., on the other hand always maintains that a knife-edge trailing edge is essential. What's the answer?

What would YOU do in a case like this? Turn the page for the solution to the problem, printed below.



Trailing (H)edge trouble

Answer.—The trailing edge section on a model wing is probably not very important. Most of the air flow has broken from the wing well before then and probably quite a blunt section would be adequate. It does not "look" right, however, which is probably the main reason why expert modellers take pains to avoid it. There are also theoretical grounds for supposing that a fine trailing edge minimises drag from the underwing airflow.

The actual shape of the air section is important on the underside of the wing. Performance is usually improved quite appreciably on duration models by giving the trailing edge a slight downward deflection (e.g., a flap angle). This shows up best on gliders and rubber models. A flapped trailing edge can interfere with the stability and trimming of a power duration model on the climb.

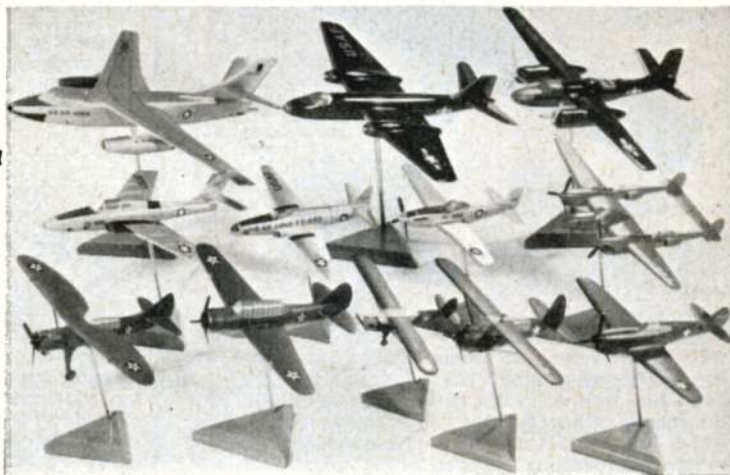


A blunt trailing edge!

MODEL

NEWS

(including three fine models from the past)



THE SQUADRON of solids in our heading photo portrays the history of the 10th Reconnaissance Wing USAF and was made as a rush order for the American unit by Doug McHard and John Darnell. Twelve exhibition-class solids in less than that number of weeks meant lots of hard work, but the result was rewarding for the impressive line-up of models. The complete range of colour schemes and U.S. insignia were used on the 1/48th scale series of reconnaissance planes. Can you identify them? See end of this feature for the list in sequence from bottom left round to top left. Full marks for those who get over ten of them right to the last letter.

Now for a flashback to a period of almost twenty years ago and a model the like of which we never see today. It's the famous H. E. White *Flying Boat* G-ANDA, a record holder in its time and more than that, a model for which many a rubber flyer of today should be most



thankful. Note those motor nacelles and their short length. Because such a model depended largely on motor run for its total duration, Mr. White devised a system of tensioning a larger length of motor than the customary distance between hooks. This was the White Rubber Rope method—or, in other words, pre-tensioning used for the first time!

Back to the present, and P. T. Pulman's *Smog Hog*—decorated with use of "Contact" as he described in January issue. Finish is red and white, weight just over four pounds, Rx is an AEROMODELLER Transistorised and the elevator is vernier adjusted for trim and later adaptation for multi-channel. Note that the nose has been re-styled after the fashion of a Lycoming cowl, for the A.M.35 diesel. "Contact" has been used for numbers under the port wing and cut for stencilling the windows and fuselage decoration. Below is another flashback, this time to around 1937 when large models were the fashion, especially in the Bournemouth area. J. M. Coxall is supporting his mammoth *Leopard Moth* scale free-flyer to give us a better view. No! We do NOT see models like this around nowadays. Twelve feet, six inches wing-span, a 30 c.c. petrol ignition engine of low r.p.m. and moderate power, an undercarriage that works like the real thing and not a rubber band in sight. Wonder what those wheels would cost to buy today!

While reminiscing, let's go back further a matter of 46 years to 1913 and the next photo shows the latest fashion of those days. This T-frame twin pusher *Hydroplane* was exhibit No. 65 at the Aero Show in Olympia of that year and a replica was ordered for Prime Minister Anthony Asquith. The builder/designer was none other than Alex Houlberg, M.B.E., Chairman of the S.M.A.E., and our stalwart enthusiastic leader in so many important events throughout these years. That rose petal fin, the swept wings and delta tail across the prop Tee bar might yet be copied for a modernised version—what about it? Above is an example of how an old-timer can perform today without inferiority and can

even claim a degree of stability that the "conventionals" do not always display.

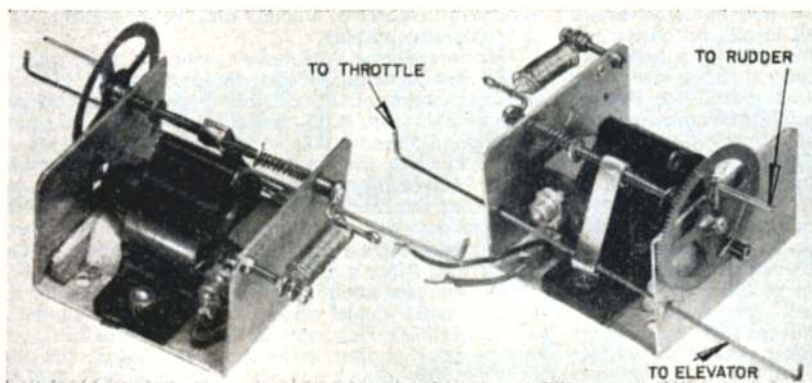
This is a *Dunne* type tailless with flat plate wings, hardly any dihedral, liberal sweep back and elevons to obtain wash-out. An E.D. 3-46-powers this enlargement of the 37½ in. A.P.S. model for .5 to .8 c.c. engines, and Peter Lovegrove takes it up regularly to heights of several hundred feet under radio control via the nose rudder. Maybe it's not the model for stunts and contest flying over the course; but for sheer pleasure, on a fine summers day with buttercups bright yellow in the grass, the skylarks singing and just the slightest breeze, the *Dunne* would take a lot of beating.

Over on this second page, M. J. Dumble shows us another radio model which will be recognised as a miniature *Smog Hog*, only 30 inches span in fact—yet still as smart a flyer as its more than twice size big brother. Weighing in at a scant 10 ounces with R.E.P. Unitone, Fred Rising escapement and a Cox Pee-Wee glow engine, the "Wee Hog" will take off ground and climb to considerable height—quite an achievement for so small an engine, and no less credit to the lightweight commercial equipment, all made in England.

Below it is another small model, this time 42 inches span for an Albon Dart and we don't have to tell you it's an *Edgar Percival E.P.9* scaled up from our 1/72nd plans in January, 1958, issue. Good show R. Hackett of Chichester! A trifle angular here and there perhaps, but a fine paint job that rivals George Woolls' efforts, seen on page 124. Below is Alan Hulme of Wilmslow with A.P.S. *Delta 707* and neat transmitter pack. The model has an AEROMODELLER transistorised receiver, Mighty Midget servo modified to the Laurie Ellis wiper system and the engine looks like an Elfin 1-8 BB.

10th Recce Wing USAF models—Bottom row: Douglas O-46, North American O-47B, Piper L-4 Grasshopper, Curtis O-52 Owl, Curtiss P-40 Warhawk, Republic RF-84F Thunderflash, Lockheed RF-80, North American P-51, Lockheed F-5 Lightning, and Douglas RB-66.
Top row: right to left: Douglas RB-26 Invader, Martin RB-57A,





J. C. Hogg's Revmaker servo from front and rear three-quarter views shows how the layshaft is arranged for driving ancillary control for engine or elevators. Provision for seeking a neutral is suggested in sketch below

Two servos for pulse proportional

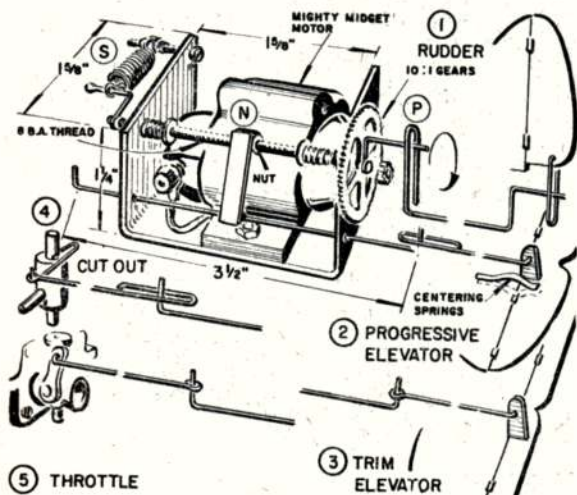
Multiplicity of servo application for the popular Mighty Midget motor is exemplified by two interesting uses which will be of interest to all radio experimenters this month. First, one for the mark/space pulse proportional enthusiasts . . .

THE TROUBLE with this flying business is that we are (praise be!) never satisfied, says J. C. Hogg of Parkstone, Dorset. As soon as we have a simple, reliable little receiver working a sturdy escapement rudder we begin to think wistfully about non-sequential systems. The escapement comes out, and in goes a proportional servo operating on mark/space. Ah! if only a spot of elevator control could be obtained—so in goes a "Galloping Ghost". Now, what about some engine control (that last flyaway was grim, especially the spiral-in as she went out of range). In no time at all we are thinking of multichannel audio and boxes of relays . . . But before you pull out that simple Rx, try this "Revmaker". It is a servo which goes with any receiver and relay. It will give Proportional Rudder and Progressive Elevator and Engine Cut-out. Or, it will give Proportional Rudder and Progressive Throttle control. In either case when "out of range" the rudder goes neutral and the engine cuts out.

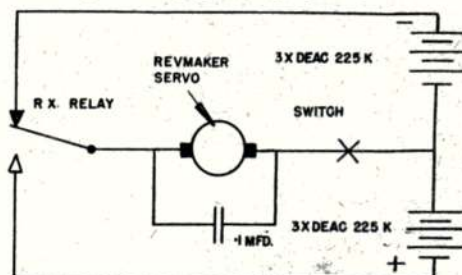
The circuit shows nothing new. The servo can be made from any reliable little motor and drives a threaded shaft via about a 10 : 1 gear. The pin "P" on the gear wheel operates the rudder via a suitable crank. This must be able to rotate completely (the rudder will waggle when this happens). A nut "N" on the screwed shaft provides the movement for the second function (elevators or throttle).

The first function (steering) operates in a conventional way, responding to mark/space. The gear wheel and crank move in accordance with the ratio, say full rudder left at 80 per cent. mark, rudder central at 50 per cent. and rudder full right at 20 per cent. BUT when a full mark is sent the gear will rotate causing the rudder merely to flap and the nut "N" to travel along the screwed shaft. A full space will rotate the gear in the opposite direction and bring the nut back. Short marks (or spaces) will of course "inch" the nut along quite steadily, thus providing a progressively controlled second function. Threads at the ends of the shaft are skimmed down to limit the travel of the nut and springs and washers fitted to help return it on to the shaft.

Four diagrammatic arrangements are sketched for linking up, but there are several other combinations including an additional control which can be obtained by fitting a snap lever or contact at the "mark" end of the screwed rod. It will be seen that a prolonged Space (=out of range) sends the nut up to the "Space" end and cuts the engine, leaving the rudder flapping, and the plane glides down without spiralling-in. Normally, however, with elevator control you centre the nut after cutting the engine and trim it for the glide-in.



Circuit for the Revmaker below with D.E.A.C. cells used to power the popular Mighty Midget



Constructional points

At the transmitter a normal Mark/Space keying device is required, either mechanical or electronic. A button for full Mark and one for full Space is also needed. The spring "S" should be quite light and should not be so strong as to pull the rudder to centre without the aid of the Mark/Space signal. It will pay to experiment with various springs to find the best suited to your motor and gear.

For over a year six small DEAC cells (Type 225 DK) have been used arranged in a block with a centre tap and these have proved ample for the servo. For L.T. another DEAC 225 DK is used. These, with the 22½ v. H.T. (for the AEROMODELLER Transistor Rx) make a compact battery pack. The batteries are fitted in a removable balsa box with a B7G socket which enables the DEACS to be re-charged without disturbing the connections. These batteries still take their charge (17 mA) well.

The main need (as for all R/C motors) is reliable self starting and low stall current. Five different motors have been tried and are satisfactory. The Mighty Midget can be readily adapted using its own gears, but the ratio is rather low for best results in the Revmaker, and a larger gear will improve its operation.

Some interesting flying has been had with the Revmaker and it behaves according to plan. The rudder is steady in action. It is interesting to see it snap back into its previous position after a second function waggles.

Transistors replace relay

Now for a transistor proportional rudder control devised by R. A. Bacon of Woking, whereby the relay is replaced by transistors.

This system was developed from the governor mechanism described by Doug Bolton in the April, 1953, issue. A two-transistor circuit gives a current gain of 400, and has proved to be very reliable. Although no temperature compensation is used, no signs of thermal runaway have occurred after quite a lot of use.

The circuit consists of a direct coupled two stage amplifier, a half mA anode current change in the receiver results in a 200mA current change in the motor. Method of operation is as follows: the Rx standing current of 3.5 mA, say, sets up a voltage of 1.15 v. across R₁. This is backed off by adjusting the 1 K preset potentiometer so current flowing through R₁ from the 4.5 v. supply in the opposite direction exactly neutralises this voltage. No current flows into the base

of the first transistor therefore and the standing current of the second is 350 mA, thus driving the motor at full speed and pulling on the control rod. When the Rx current drops on signal to say 3 mA, the voltage across R₁ due to this is 0.99 v. resulting in a voltage change of approximately 1.15-0.99=0.16 v. thus causing a base current of 48 mA in the first transistor, this is amplified and the output current drops to 150 mA and the motor slows down.

The setting up procedure is simple in the extreme, after adjusting the Rx to give the maximum current drop in the normal way the pre-set potentiometer R₂ is adjusted from its mid position so that the motor is revolving slowly (but reliably) ON SIGNAL and the job is done. To get fully proportional control the transmitter must be pulsed with variable width pulses, of course, a 50/50 pulse giving a mean motor current of 250 mA.

The construction of the governor can be seen from the photograph and consists of four arms of 0.015 in. brass the holes in which are ⅜ in. centres. The two weights consist of an 8 B.A. bolt, two nuts and two thick washers each and these give ample power to operate the rudder of a Junior 60 against rubber band tensioning.

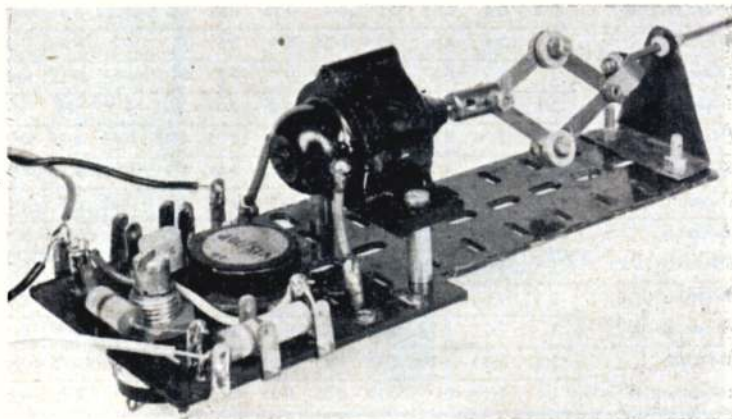
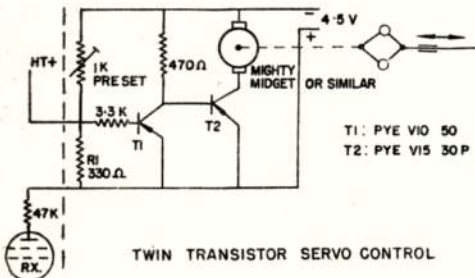
The receiver is an AEROMODELLER No. 1, but if a receiver that gives a rise on signal is being used the adjustment of the pre-set potentiometer R₂ should be made with the SIGNAL OFF, i.e., always with the Rx in the minimum current condition. The pre-set of 1 K gives sufficient range to cover anode current of 3.4 mA to 13 mA. As the anode current of the receiver was about 3.6 mA, this was suitable, but if the circuit is to be used with a receiver that takes less than 3.4 mA, a larger potentiometer should be used, say 2.5 K, which will give a range of 1.6 mA to 13 mA and should cover most requirements.

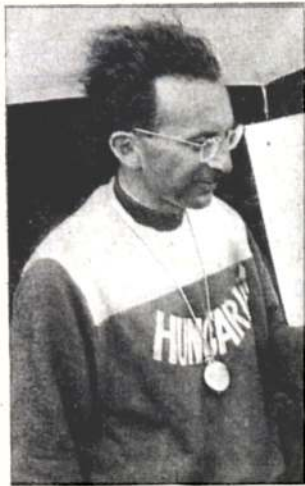
C.G. Transmitter Circuit

A few corrections are necessary for the circuit published in December issue. Firstly, the connection from the earthed line to the modulation switch should, of course, be broken below the grid condenser for the 1L4 modulator which should be 47,000 ohms and not 470,000. Then, the screen dropping resistor to the same valve should be 10 K and not 82 K, though our own test set definitely used this latter value. Finally, the screen grid by-pass condenser should be .001, not .01.

Dave McQue tells us that the 47K condenser could be 10 K fixed, and a series of 50 K or 100 K potentiometers and buttons used for multiple reed valve in this part of the circuit.

Circuit below as provided by Mr. Bacon for his Transistor servo unit employing flyball modified Mighty Midget as seen in the photograph. System replaces the relay, but tends to rely on too many variables and is an experiment worth noting for future development





Benedek's latest airfoils

Sections for competition enthusiasts from the maestro

WIND TUNNEL and laboratory experiments by the renowned Georges Benedek in the Hungarian Modelling Institute have produced a number of outstanding airfoils which have gained international popularity in the World Championship classes. In this first instalment of our summary of the more recent Benedek airfoils, we have a most useful range of fifteen sections and we make no apologies for repeating four of them which have already appeared in past issues of this magazine.

Georges developed B-8356-b and B-6356-b in the period 1943-44 and these sections have enjoyed great popularity in the A/2 and Wakefield fraternity. From these were developed B-8356-b/2 and B-8356-b/3 specifically for Wakefields and when used on his BM8, Georges set a standard by being the first Hungarian to make a perfect total of 900 seconds in a Wakefield event to the 80 gr. rule. Section B-8356-b/3 is valuable for its longitudinal stability. The next requirement was for an airfoil to suit larger models, either as gliders for radio control or duration record power models and the result was the B-8406 series which can be considered ideal for sailplanes of 7 ft. span and over.

Four sections where the highest point of the upper surface lies in 55 per cent. region were developed for A/2

% CHORD ...	0	1-25	2-5	5	7-5	10	15	20	25	30	40	50	60	70	80	90	95	100
B-6556-b ...	1	2-5	3-1	4-25	5	5-75	6-9	7-7	8-3	8-75	9-15	9-1	8-55	7-6	6	3-7	2-1	0-45
(Nose rad: 0-7)	1	0-2	0	0-25	0-4	0-7	1-2	1-75	2-25	2-6	3-3	3-75	3-95	3-6	3	1-75	0-85	0
B-6556-c ...	1	2-5	3-4	4-6	5-4	6-15	7-25	8	8-55	8-95	9-4	9-3	8-75	7-65	5-9	3-55	2	0-4
(Nose rad: 0-6)	1	0-25	0	0-2	0-45	0-75	1-3	1-8	2-35	2-7	3-35	3-8	4	3-6	2-85	1-5	0-8	0
B-6557-b ...	1	2-6	3-5	4-6	5-5	6-35	7-5	8-4	9-15	9-65	10	9-9	9-2	8	6	3-55	2	0-5
(Nose rad: 0-6)	1	0-2	0	0-35	0-75	1-1	1-7	2-4	3	3-6	4-5	5-1	5-15	4-8	3-9	2-2	1-1	0
B-8556-b ...	1-4	3	4	5-3	6-3	7	8-25	9-15	9-75	10-2	10-5	10-2	9-35	8-2	6-4	4	2-5	0-6
(Nose rad: 0-6)	1-4	0-3	0-1	0	0-2	0-4	1	1-5	2-1	2-5	3-2	3-75	4	3-9	3-2	2	1-1	0
B-8356-b/2 ...	1-8	3-7	4-6	6	7-05	7-9	9-18	10-06	10-58	10-71	10-35	9-4	8-19	6-62	4-74	2-65	1-51	0-33
(Nose rad: 1-1)	1-8	0-23	0-03	0-06	0-3	0-63	1-4	2-04	2-56	2-90	3-24	3-1	2-8	2-38	1-75	0-93	0-49	0
B-8356-b/3 ...	1-1	2-95	3-95	5-45	6-55	7-45	8-7	9-4	9-85	10	9-90	9-30	8-25	6-90	5-05	3-15	2	0-55
(Nose rad: 0-8)	1-1	0-25	0-05	0-05	0-45	0-80	1-45	1-95	2-40	2-65	2-90	2-90	2-60	2-10	1-55	0-90	0-45	0
B-8406-a ...	1-85	3-72	4-58	5-85	6-86	7-64	8-88	9-78	10-35	10-60	10-46	9-83	8-78	7-28	5-37	3-04	1-71	0-28
(Nose rad: 1-4)	1-85	0-29	0-06	0-02	0-17	0-43	1-11	1-76	2-32	2-81	3-31	3-46	3-39	3-03	2-36	1-34	0-68	0
B-8406-b ...	2-22	4-14	4-97	6-16	7-09	7-82	9	9-85	10-46	10-90	10-95	10-30	9-21	7-64	5-63	3-18	1-81	0-33
(Nose rad: 1-4)	2-22	0-5	0-18	0	0-11	0-36	1-1	1-79	2-4	2-89	3-31	3-47	3-38	3	2-36	1-33	0-70	0
B-8406-c ...	1-2	3-2	4-17	5-6	6-72	7-6	8-9	9-6	10-15	10-4	10-4	9-6	8-2	6-65	4-8	2-55	1-52	0-4
(Nose rad: 8)	1-2	0-4	0-1	0-1	0-4	0-76	1-38	1-6	2-15	2-55	3-05	3-2	2-95	2-4	1-7	0-9	0-45	0
B-8353-b/2 ...	2	3-5	4-4	5-5	6-25	6-9	7-6	8	8-2	8-2	7-8	7	6	4-7	3-8	1-9	1-15	0-4
(Nose rad: 0-6)	2	1	0-6	0-2	0-05	0	0-2	0-35	0-5	0-65	0-8	0-9	0-9	0-8	0-6	0-3	0-18	0
B-8403-b ...	2-1	3-95	4-75	5-9	6-6	7-2	7-95	8-35	8-5	8-5	8-2	7-5	6-5	5-25	4	2-3	1-35	0-35
(Nose rad: 0-9)	2-1	1	0-6	0-2	0-05	0	0-25	0-45	0-55	0-65	0-75	0-83	0-9	0-8	0-65	0-4	0-2	0
B-8452-b ...	2-3	3-8	4-7	5-7	6-4	6-85	7-45	7-8	8	8	7-6	6-85	5-8	4-65	3-25	1-85	1-15	0-4
(Nose rad: 0-6)	2-3	1-3	1	0-55	0-35	0-2	0-05	0	0-05	0-1	0-3	0-5	0-55	0-55	0-45	0-25	0-15	0
B-9304-b ...	1-5	3-4	4-5	5-8	6-8	7-6	8-75	9-3	9-5	9-45	9	8	6-95	5-5	4	2-2	1-25	0-25
(Nose rad: 0-8)	1-5	0-5	0-15	0	0-1	0-25	0-45	0-55	0-6	0-65	0-75	0-85	0-85	0-8	0-6	0-3	0-15	0
B-9403-b ...	3	4-9	5-75	6-75	7-5	8	8-6	8-95	9	9	8-65	7-85	6-75	5-5	4-05	2-35	1-45	0-45
(Nose rad: 1)	3	1-7	1-3	0-7	0-45	0-3	0-05	0	0-1	0-25	0-5	0-6	0-65	0-55	0-45	0-25	0-15	0
B-9404-b ...	1-4	3-3	4-25	5-95	6-2	8-05	9	9-6	10	10-05	9-55	8-7	7-45	5-9	4-05	2-2	1-1	0
(Nose rad: 1)	1-4	0-2	0	0-15	0-25	0-35	0-45	0-6	0-15	0-85	0-95	1	1	0-85	0-55	0-3	0-15	0

B-6556-b

B-6556-c

B-6557-b

B-8556-b

B-8356-b/2

B-8356-b/3

B-8406-a

B-8406-b

B-8406-c

B-8353-b/2

B-8403-b

B-8452-b

B-9304-b

B-9403-b

B-9404-b

work and are shown at the top of the illustrations here. B-8556-b was used on the first Rumanian A/2 model to exceed 900 seconds total and has an added advantage in its thickness to accommodate strong spars. Nos. 6556 and 6557 are variations with different thickness ratios and small changes in performance, but it should be noted that each of these four airfoils is sensitive longitudinally and require long tail moment arm designs such as are employed in A/2 gliders.

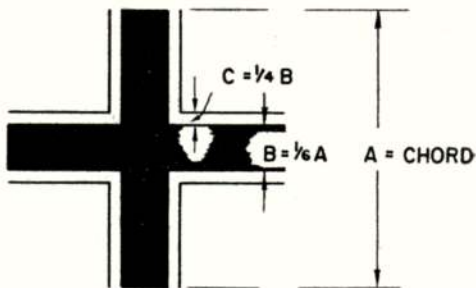
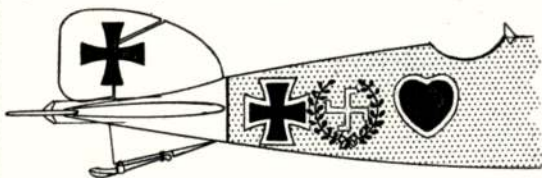
For power models, where higher Reynolds numbers are involved and a greater airspeed is required during the powered climb, the lower six airfoils beginning B-8353-b/2 were specifically developed to suit the latest and current F.A.I. power loading. They have been used by the majority of prominent Hungarian power flyers and vary largely in thickness ratio and leading edge entry. Choice is a matter of taste, many people prefer to have the higher leading edge position which does appear in some cases to reduce drag and is less prone to stalling at the end of the power run.



DECOR DETAIL

A RARE SET of markings for Bristol F2B Fighter modellers: but one that might tax the patience of the most skilled signwriter, is seen on the captured example above. Flown by German pilots in Macedonia, the inscription across the wing surfaces reads "Don't shoot! — Good people" and it seems safe to assume that the identical warnings would also appear on the undersurfaces. Sorry—no information on actual colours is available. There is an A.P.S. plan for a rubber-driven 26½-in. Bristol F2B FSR/111, 3s., and, of course, the Famous Biplane Plan, No. 2692 to 1/48th scale 1s. 6d., or 1/36th 2s. 6d.

Peter Gray has produced two sketches (below) which will tickle the palates of German World War I enthusiasts, the top one concerning the Albatros D III. Douglass Whetton produced a photograph showing much more of Werner Voss's Albatros D III than revealed in the well-known view of Voss and his machine: but the photo was not suitable for reproduction. Peter's drawing shows how the natural varnished (straw shade) fuselage had a white tail. Heart believed to be red with white outline, green laurel and narrow black outline for white Swastika. Proportions of the final German Naval cross, with thicker arms than used by the Air Force have been pointed out by Peter Grosz.





Gadget REVIEW

PAST FEATURES on the subject of Pendulum control have covered most possibilities in the form of elevator, aileron and rudder control, some of them combine the aileron with rudder to obtain more perfect turns.

I. Andrews of Stevenage, has experimented with a Rudder/Elevator combination seen in sketch A. The line of thought behind this scheme is as follows:

If we link the rudder to a pendulum hanging vertically approximately at the C.G. of the aircraft, when the machine is in a correctly banked turn, gravity and centrifugal force will balance out, holding the pendulum control and the machine will continue to circle in a stable condition, except that the loss of lift due to the reduced projected wing area may cause the nose to drop. To counter this we link the pendulum to the elevators. Any deviation from straight and level flight, or from a correctly banked turn, would cause the pendulum to move, making the necessary correction. Thus we provide elevator control needed because of the small horizontal tail surfaces on scale models, and rudder control to give turn and bank control required due to small fin and rudder areas and shallow dihedral angles.

Thrown your fuel cans away? Pity—because those spouts are useful and can be employed in many ways for our modelling. An ideal suggestion by Tom Machin of Silksworth, near Sunderland, is to fit them as wing tip guides in control-line models, as seen in B. They can also be used to replace tubes for detachable undercarriages, fitted as neat drain holes in the base of messy cowlings, and made to simulate scale exhaust stubs. So save 'em—and be sure you throw the can in the dustbin and not on the flying field.

When an American thought up Idea C, and started making clothes peg Glowplug clips for his pals, he soon found himself caught in a production whirl making them full time by the tens of thousands! Roy Davies of Liverpool shows how we can convert an ordinary domestic peg into such a useful item, and all one has to do is to engage one side to the top of the plug and t'other to the cylinder. For K.L.G. plugs, hammer a dimple in the jaws, then they will grip the plug more firmly.

Shock absorbing undercarriages are always a problem and the radio lads who make the heaviest of landings and fly in the few events where take-off is an advantage, seem to like the *Smog Hog* gear as being most practical. Those who use a tricycle gear or who fly smaller R/C designs will find P. Hinnigan's suggestion D most useful. It can be used for the two-leg U/C as shown, or for a nose leg. Rubber pads either side of the wire will absorb a surprising amount of shock and can be tensioned for rigidity by the pressure of the retaining bolts.

Have you ever spent ages looking for an evasive washer or nut in the model spares box? We have—and the novel use of a common safety pin suggested by A. R. Knight of Felixstowe in E permits the keen flier to carry such a spares supply, in his modelling jacket pocket. Large safety pins could be used this way in the modelling den, and hung on nails for handy access. Idea F also comes from the same lad, who found a 6 B.A. bolt with two nuts made an ideal substitute for a tommy bar that chose to disappear out of the vernier screw in his diesel.

Want a realistic cockpit? Flt.-Lt. Grief of R.A.F.

Colerne uses the method in G to get a fine effect, first draw the instrument panel accurately on to a piece of m.m. ply and cut holes to the exact size and position of the instruments. Repeat the process on to $\frac{1}{16}$ in. sheet balsa cutting the holes slightly larger, then place the ply over a piece of British Scraper Board (black, from any Art Supply Store) and trace the outline of the panel and instrument positions.

Scratch the actual instruments in position on the scraper board with a very fine point. If the figures are required coloured, this can be done with either water colour or ink. Cut a piece of clean, thin acetate and sandwich the pieces as shown in the diagram. Flt.Lt. Grief prefers Bostik for sticking the pieces together, as Balsa cement does tend to come apart with any vibration. The third dimension effect of the recessed instruments is extraordinarily realistic.

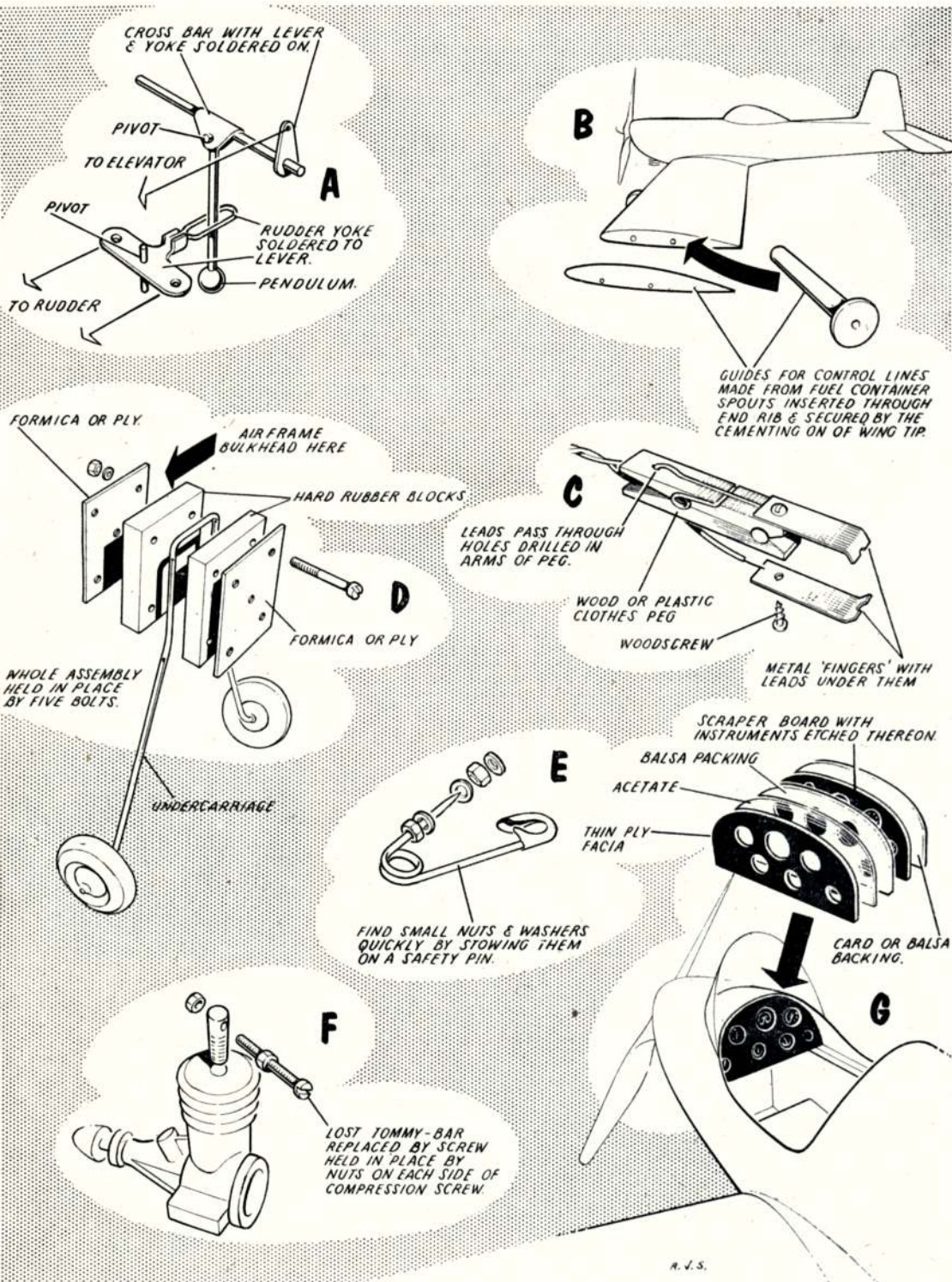
Not illustrated

Our pictures of the German Webra Bully 3.5 c.c. diesel in February "Motor Mart", prompted R. C. Scammell of Leigh-on-Sea to tell us how he used old "Sparklet" Soda Syphon refills two years ago, as silencers for an E.D. 2.46 Racer. By slotting the "Sparklet" on one side to take the exhaust stack, and then drilling and tapping two holes for locking screws, the unit was held firm on the engine (one each side) and polythene tube connected to the "Sparklet" end, led the exhaust to the rear of Mr. Scammell's Motor Launch. You know for years we've been waiting for a suggestion on how to use those things, and now we have the boating fraternity telling us what we've been missing!

Want a realistic walk-way for your flying scale model? M. A. Kelly discovered that cyclist's handlebar tape, purchased in all colours on reels, is ideal for the job and has the perfect pattern. Or do you have trouble with dull or blushed cockpit canopy mouldings. A. H. Symmons suggests a quick lick of clear dope over the plastic to render it bright and clear—it works too! Still on the subject of finishes, L.A.C. Jones of 81 PR Squadron, R.A.F. Seletar, uses Brasso to polish his plastics and so obtain "High Speed Finish". First pour out the Brasso in an old tin lid, warm it (but not near a naked flame) so as to evaporate the liquid, then add a little water to the powder and rub the model down. Brush marks are soon removed.

Want to make your own "Glass Headed" pins. Easy—just dip ordinary pins in molten sealing wax, spin the pin and hold till set. It won't be as strong as the high tensile real pins, but that larger head is handy says A. McClean of Northallerton.

To keep sawdust out of an engine when carving a cowl or sandpapering, A. E. Pearson of Redcar uses a length of discarded cycle inner tube stretched over the "pot". $1\frac{1}{2}$ in. high pressure racing type is most suitable, but other sizes fit alright. Don't forget to plug the carburettor too, with a scrap of cloth. Lastly, for a cheap, soft flat building board, G. Young of Plymouth uses a piece of compressed fibre board as sold by builders' merchants. It is $\frac{3}{16}$ in. thick, cost only 10s. for 36 x 96 in. and an odd piece, 22 x 36 in. covers most of our modelling needs at proportionately cheaper cost. Who could complain at that for a warp-free board?

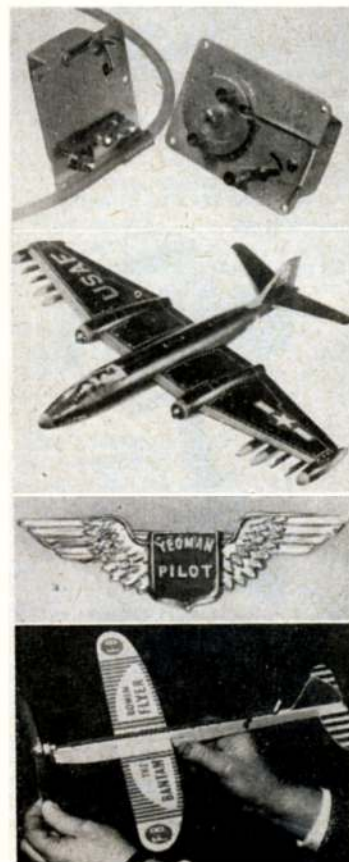




TRADE NOTES

FOR SEVERAL MONTHS now, indications in the model shops show that we in Britain are soon to enjoy the full benefit of the World's Model Market. Australia, U.S.A., Japanese, Hungarian and German engines are becoming available. Ready-to-fly plastic controliners with recoil starting .049 glow engines will soon be introducing many embryo modellers to the thrill of flying a model on lines and the profusion of larger American kitted stunt designs already appearing in the flying fields illustrates how modellers will welcome the opportunity to purchase those items of which they have so obviously read in overseas publications.

Such competition for the British manufacturer can only result in a higher standard of the home produced kit or engine, and time will tell how the old country can more than hold its own in quality and economic pricing. An example of the latter virtues is the new line of KEIL KRAFT airwheels



(at right) in five sizes, all in the same style of alloy hub bushing, plastic hub and oil-proof tyre, and so light and pneumatic (2 1/2 in. x .75 in. size weigh only 1 ounce the pair) with cycle pump adaptor provided that they set a new standard in model accessories. Sizes and prices are: 2 in. 14s. 5d.; 2 1/2 in. 21s. 7d. 3 in. 26s.; 3 1/2 in. 28s.; and 4 in. at 30s. the pair. Americans will go wild over them but K-K will have to provide bushes for larger diameter wire or 1/8 in. bolts to suit their dural u/c's. The new stunt kit, bearing evidence of the Palmer influence, is the *Spectre* sketched top right. With plastic cowl, tank and wheels provided, it is very low priced at 38s. 5d. and goes through the schedule, square loops and all, with any hot 3-5.

Among those overseas items we've mentioned are the "Tick-off" timers (top left) by TATONE PRODUCTS of San Francisco. Two types are to be available, the popular engine cut-off timer (max. 25 secs.) and the D-T version for longer runs to cope with up to six-minute settings. Watch for further announcements in our advert columns regarding supply. There is news of a *Multi-Relaytor* about the end of February, through HOLT WHITNEY who handle the renowned New Zealand Wright R/C equipment in this country. Multi-Relaytors have been in the course of preparation for the past year and offer secondary control such as elevators or engine speed as well as rudder off the same relay-less Wright Rx.

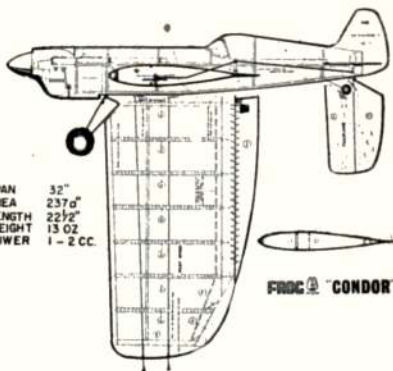
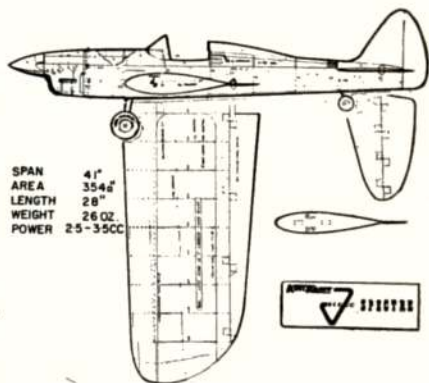
From Australia, PERFORMANCE KITS of Coventry are importing the range of *Strato* plastic coated wooden airwheels 6 in. dia. at 2s. 8d.; 7 in. and 8 in. at 3s.; 9in. and 10 in. at 3s. 7d. each, all in the most popular pitch sizes and to a standard hitherto considered the prerogative of a well-known U.S. make.

Still "down-under", the TOLTOYS *Tiger Moth* plastic mentioned last month, has made up into quite the nicest kit we've seen of this aircraft (at right). Our choice of colouring was that of ZK-ANN in silver and red, one of the first top dressing sprayers in New Zealand and operated by Aircraft Service N.Z. Ltd.

REVELL'S B.57b *Canberra* makes up into a fine model (at left), the U.S.A.F. black being set off handsomely with Red warning stripes—and here's a tip, get a Chinagraph red crayon from the art shop and rub it down the red strip recesses. Wipe off excess and the result is neat as the man moulded it! Our plastic of the month is the *Vallant* in FROG'S 1/96th series of 12s. 6d. One or two points on the wing root fitting and undercarriage need care, but the result, with silver overall and red arctic markings for the Canadian Winterisation PR. trials, nose refuelling probe and retractable u/c, is self evident in the photos above. Also from the Merton factory is the *Condor*, a light stunter for the Frog 100 and 150 series diesels at 30s., with clever flap connection and a plan with characteristic I.M.A. clarity, see sketch at right.

A healthy form of sales promotion that will quickly be appreciated by retailer and youthful customer alike, is the YEOMAN

(continued on page 136)



MOTOR MART

THE ODD THING about model engine design is that this 50th year of organised modelling brings with it a complete swing back to the multi-cylinder unit for large model power. Writing in his *Theory and practice of Model Aeroplaning*—published by E. and F. N. Spon Ltd. in 1910—V. E. Johnson stated: "So far as the writer is aware, no success has as yet attended the use of a single-cylinder motor and model aeroplane. Undoubtedly the vibration is excessive; but this should not be an insuperable difficulty. It is true that it is heavier in proportion than a two-cylinder one and not so efficient, and so far has not proved successful." Opposite his sweeping statement was the illustration taken from Gamage's catalogue of that time showing a single-cylinder engine (see top right). No means of ignition timing is seen, so we might presume hot wire for the plug, and the carburettor is evidently the early wick feed type.

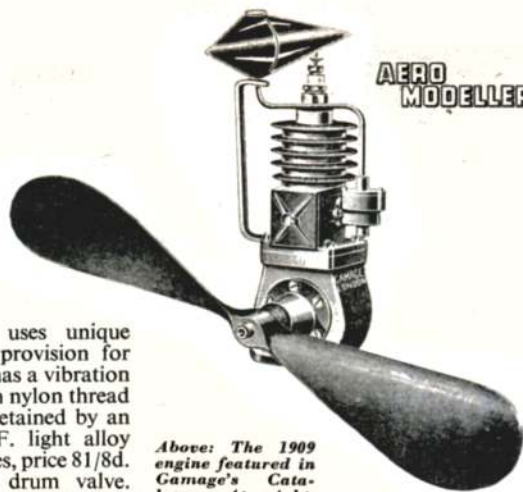
D. Stanger produced the most interesting of all successful petrol engines in those experimental years in a 70 deg. O.H.V., Vee-four with twin carbs and petrol tank weighing in at 5½ lb. and developing 1½ h.p. at 1,300 r.p.m. A lot of this weight was taken up by the large diameter flywheel. Prop was a 29d x 36p, static thrust in the region of 7 lb. and it flew (photos prove it!) an 8 ft. 2 in. biplane weighing a total of 21 lb. at no less than 16 m.p.h.

Now for the future. Frog announce the 349 diesel to meet R/C and Combat demands. It features special exhaust stack machining to take a

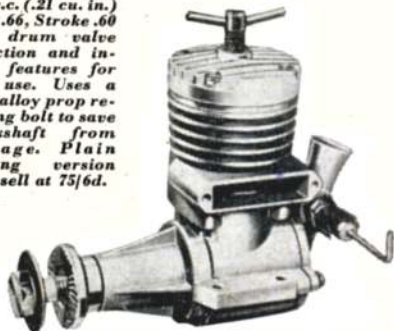
throttle or silencer, uses unique transfer porting, has provision for barrel intake throttle, has a vibration proof comp. screw with nylon thread lock and the prop is retained by an expendable ¼ in. B.S.F. light alloy bolt. Weight is 6½ ounces, price 81/8d. and induction by a drum valve. Shaft is supported by one ball race and both the head and crankcase finish is matt grey vapour-blasted.

A new name in British engine manufacture is that of A. E. Rivers Ltd., Hounslow, Middlesex, and their new product, the 2.5 c.c. Silver Streak is likely to become a contest modeller's favourite. Initial tests with a prototype are most promising, main feature being a patented uncaged 14-roller shaft bearing with remarkably free-running fit. Though externally similar in some respects to the Oliver Tiger, the internals are original, bore and stroke being equal at .578, with conical piston, tapered transfer passages and generous overlap.

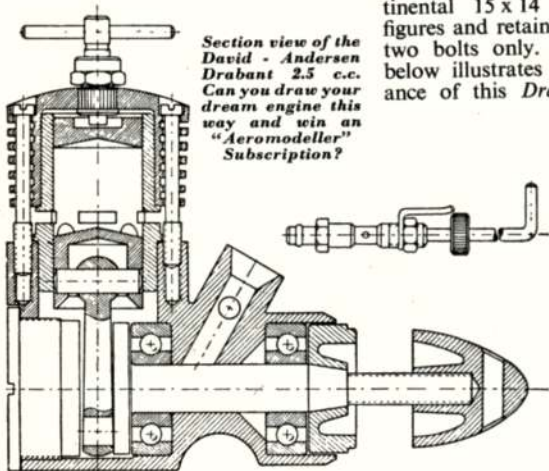
New, from Enya in Japan, is a simple .06 cu. in. 1 c.c. glow engine with Cox-style porting, reed intake of clever simplicity and a coil spring starter. This works specially well with the 7 in. and 6 in. props needed to get the motor near its peak power, and with the wire hooked around the prop T.E., it gives about three fast spins from one wind-up. Revs were not equal to our best 1 c.c. diesel figures, but for easy starting and probable cheapness, the Enya has a lot to commend it. In Norway, David-Andersen is making a 2.5 c.c. racing unit with customary Continental 15 x 14 mm. bore/stroke figures and retains the cylinder with two bolts only. Sectional drawing below illustrates the squat appearance of this Drabant 25.



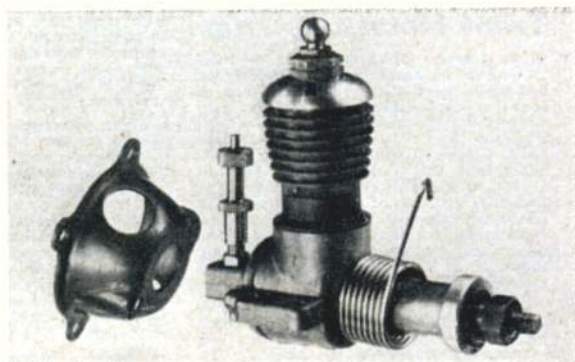
Above: The 1909 engine featured in Gamage's Catalogue. At right: Frog 349, actually 3.47 c.c. (.21 cu. in.) Bore .66, Stroke .60 with drum valve induction and in-built features for R/C use. Uses a light alloy prop retaining bolt to save crankshaft from damage. Plain bearing version will sell at 75/6d.



The Rivers Silver Streak features a new type of stepped shaft with two-stage roller bearings, angled needle valve and stout bearings. Below is the Enya 1 c.c. glowplug engine supplied with radial mounting pressing to fit over the carburettor



Section view of the David-Andersen Drabant 2.5 c.c. Can you draw your dream engine this way and win an "Aeromodeller" Subscription?



CLUB NEWS

THIS IS THE MONTH for reminiscence, nostalgia and reflection. Fifty years of Club movement, and of progress from those twin pusher A-frames to the ducted fan Delta. Yet scarcely a month has passed in all those years without someone, somewhere, losing a model. British Railways were on to us this month—telling us they have a Frog Pioneer (identified it, too, they did!) with one wheel missing. Landed on Hatch End station lines late last year. No name and address, of course! If the owner contacts me, I'll be pleased to tell him how to collect.

South Western

EXMOUTH AND D.M.A.C. are holding the Devon Rally at Woodbury Common on August 16th. Events to be F/F Rubber/Glider/Power; Combat and R/C (being organised in conjunction with the S.W. Radio Controlled Model Flying Society). On January 11th several members braved the snow for a spot of C/L and trimming. One member decided to take a look in the nearby wood for lost models, this time with luck—he found Dave Posner's *Dream Weaver* which was lost at last year's Devon Rally!

Western

A most comprehensive contest calendar has been drawn up for BRISTOL BULLDOGS M.A.C. in 1959, with all S.M.A.E. decentralised and Area contests also counting toward the club championship. This will give an added incentive for members to enter for the National contests. The club have several contests of its own to run off as well, making no less than 26 contests in which it is possible to gain points for the club championships! Competition Secretary of BRISTOL ACES M.F.C., Gordon Burney, again proved his worth by placing first in Bristol Bulldog's winter glider contest.

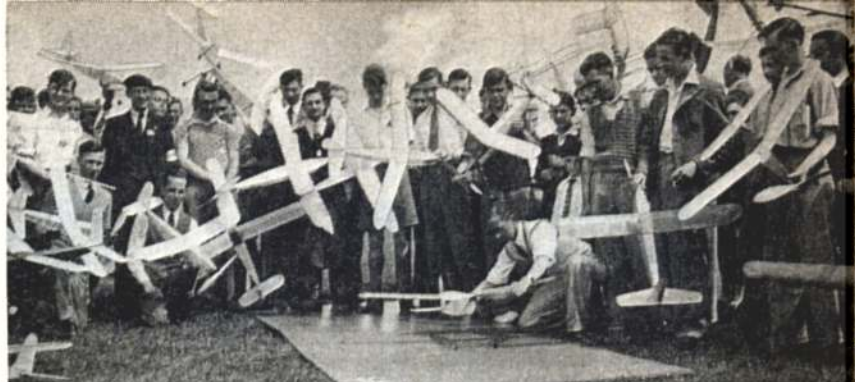
South Midland

Harsh words in NORTHAMPTON M.A.C. Bulletin regarding the increase in fees for S.M.A.E. membership, this from a club that did not attend a single Area Meeting all of last year! Too late to complain now lads! Regular flying at Pitsford and Friday night sessions at Kingsthorpe Community Centre have been scenes for recent activity well-reported in the Bulletin. ABINGDON AND D.M.F.C. is still active in spite of the shortage of a decent flying field. Main topic during the winter months in the clubroom is R.T.P. BLETCHLEY AND D.M.C. staged their Slope-Soaring Rally at Ivinghoe Beacon on Boxing Day, conditions were rather poor, but some very good times were recorded. Radio was won by Dave McQue of Bletchley with 8:14 (aggregate of test two flights, from any number of attempts). W. Godden of Cambridge was second with 7:19 and Dick

Trade Notes (Cont. from P. 134)

wings scheme. This entitles the modeller to wear pilots wings (see pic.) in smart blue and bright metal after qualification through special vouchers issued in Yeoman kits. Two vouchers are included in rubber driven kits, from the 16 in. *Piper Paer* to the Biplane 15 in. *Gloster Gladiator*, and one with each glider from the all-sheet pre-fab. *Tiger* at 1s. 11d. to the 33 in. built-up *Rambler* kit at 5s. 6d. Collection of five vouchers entitles one to claim the wings and a smart certificate. Incidentally, the *Rambler* is fine value and offers ideal opportunity for the youngster to get on to built-up kits as distinct from the throw-togethers.

Our mention of the Aerial loading coil by RIPMAX last month should have been qualified by the statement that this was specifically designed for the *Pathfinder* Tx.



Kesby of Bletchley third with 3:42. In Free-Flight Mr. Edwards of St. Albans put up a very creditable 4:29 to win, closely followed by John O'Donnell with 4:12 and G. Fuller of St. Albans in third place with 3:05. HIGH WYCOMBE M.A.C. will be holding their Annual Control Line Rally on Sunday, April 26th, at R.A.F. Booker. The events include "A" and "B" T/R and Combat to S.M.A.E. rules. Remember "A" T/R is to F.A.I. spec. All events will be pre-entry this year, and should be sent to Mr. R. Avery, 11 Roundwood Road, High Wycombe, Bucks. At 2s. 6d. per event, closing date will be Friday, April 17th. Late entry may be taken on the field at extra charge.

Twenty-two controliners have formed the ERGS Club at Bedford, flying taking place on a farm adjacent to Cardington Aerodrome. The NAPIER ENGLISH ELECTRIC CLUB also has twenty-two members, meeting on the first Tuesday of each month at the company social club, Luton. "Outside" the firm members would be welcome on these evenings when R.T.P. contests are held.

North Western

LEIGH AND D.M.A.C. had a very enjoyable trip to the East Lancashire M.A.C. Winter Rally, Roy Yates taking first place in combat with a very fast Veco 19-powered *Gravedigger* which is the Leigh Club model. Sounds like an appropriate name! BURY GRAMMAR SCHOOL M.A.C. was reformed this term. One indoor meeting was held in the school hall, when chuck gliders were flown. We like the tale of one model which would have gone further if it had not hit a wall—you can't have indoors without walls, you know! Negotiations are in progress for the LIVERPOOL AND D.M.A.S. to obtain Bursco 'drome at Ormskirk; they hope to have this field within the next week or two. With Woodvale near Southport this makes two 'dromes they can use. Any modellers who would like to take advantage of the fields will be welcome to join the club, and can obtain further information at Precision Model Eng. Coy., Whitechapel. One new member comes from Australia—Bernie Shinks (glad to have you, Bernie)—who is a keen stunt man and should help to liven things up in the coming season.

Derek Brunt won the CHEADLE M.A.C. combat comp. held in December which brought six entries. On Boxing Day, as a change from the usual scramble, a precision comp. was, held rules being: from three

Flashback to Faireys and pre-war Wakefield Trials as competitors gather to watch an R.O.G.—d'you know the slim lad at right? 'Tis none other than Bob Copland!

flights the winner is the one nearest to 3 minutes. Over 1:20 was a no-flight. One was not allowed to D/T before the 1:20. First place had 3:0; and second 2:59 sec. OLDHAM AND D.M.A.C. were most appreciative of the success of the COLNE CLUB'S Rally on December 14th. New members should note the change in clubrooms which are now at Gower Street Clinic, Friday night at 7.30 p.m.

EAST LANCASHIRE M.A.C. thank everyone who supported their Winter Rally with a special word of thanks for visitors from Lincoln, Prestatyn and Bristol. There must be something in what D. Morley of Lincoln had to say to the local press who covered the rally. "I am not interested in the prizes—but the day out and the chance to talk to other modellers."

Glider

- | | |
|--------------------------------|------|
| 1. J. Chadwick (Ashton) | 8-41 |
| 2. D. Morley (Lincoln) | 8-20 |
| 3. M. Turner (Cheadle) | 7-56 |

Rubber

- | | |
|-------------------------------------|-------|
| 1. J. O'Donnell (Whitefield) | 12-00 |
| 2. D. Morley (Lincoln) | 10-54 |
| 3. G. Roberts (Lincoln) | 10-50 |

Power

- | | |
|--------------------------------------|-------|
| 1. D. Barber (Southport) | 12-00 |
| 2. B. Talbot (Wigan) | 11-44 |
| 3. J. T. Ellison (Whitefield) | 10-56 |

Combat

Winner: R. Yates (Leigh) Veco 19 O/D
Runner-up: W. Nunnerley (Sharston)

Amco BB Peacemaker

Radio Control

Winner: W. Nield (Cheadle)
Runner-up: J. Cope (Whitefield)

SHARSTON D.M.S. Club 1958 Champion was E. Helliwell; runner-up J. Feeney and C/L Champion A. Cook. D. Nunnerley placed 2nd in combat at Colne Rally in his first competition and E. Helliwell kept up the F/F side by gaining 4th place in glider.

Current interest in WALLASEY M.A.C. is high thrust line which is receiving a lot of attention from Roger Gippy and Stan Hinds. The club was particularly pleased to see quite a few visitors from the Heswall club present at the January 3rd meeting. A talk on power models was given by John Done and "Len" Hutton who ended up with hints on construction for the juniors. Several

with single turn aerial coupling as issued in latter months. Although small, it is of optimum diameter for performance and size, giving a range increase of no less than 200% in the centre of the 4 ft. 6 in. aerial now used.

Shops please note: JAVIS MFG. CO. of Stockport, who have an impressive listing of wholesale wares for retailers and were first in this country to offer retailers a showroom for their kits and accessories back in '55, sent us their unique range of ready-to-fly printed sheet models, the 4s. 11d. 14 in. *Bantam Flyer* being illustrated. There are eight different models in this range, half of them rubber driven and all attractively packed—remembering how we were weaned on this type of ready-made at a very tender age, we consider this type of model very important to the model trade.

Another wholesaler offering showroom

service is BRADSHAW MODEL PRODUCTS at Hove, Sussex, who will be remembered for their introduction of Revell Kits and are to import many American kits and accessories enjoying great demand. Among the items due to come from them soon are *Dooling 29's*, *Topflite* props, and *Veco* kits.

MERCURY announce their 19 in. *Me. 109* to partner the Spitfire controliner, and also the availability of the 31 in. *P-38J Lightning* in two kits, standard at 58s. 9d. and de luxe at 75s. 6d. Both kits have many moulded accessories, a super transfer sheet and loads of shaped balsa parts making the kit one of the finest and most robust scale C/L models on the market. Latest in the *Minipak* series are pairs of sponge rubber wheels with treaded tyres and spoked hubs in three sizes: 1½ in., 1¼ in. and 1 in., the hubs particularly suiting the Mercury Masterbuild series of C/L scale models.

For Your Diary

April 26th

High Wycombe C/L Rally, F.A.I., B.T.R., Combat, all S.M.A.E. rules at R.A.F. Booker.

June 21st

Northern Heights Gala, all classes except T/R Stunt, Queen's Cup for Wakefields, at R.A.F. Halton.

August 2nd

Surbiton Gala, open free flight at Chobham Common.

August 16th

Devon Rally F/F Rubber Glider, Power, R/C, Combat at Woodbury Common, near Exmouth.

August 23rd

South Midland Gala, all classes at College of Aeronautics, Cranfield.

members nearly lost their wellingtons in the mud and slush at the Colne Winter Rally! MANCUNIANP M.A.C. are a new club in North Manchester. An ambitious club project being built is a "Berkeley" Privateer flying boat. With 9L lb. weight it is hoped that multi-channel radio can be fitted. A one-gallon fuel tank will feed an Enya 60. Brian Talbot of WIGAN M.A.C. gained a very costly second place at the E. Lancs Rally since he lost his O/D model with a PAW Special, Tornado nylon prop and Jap timer in the process, and it has not yet been recovered. A very noticeable trend in this club at present is that towards a more popular attitude towards glow motors. Until recently, C/L has made the most use of this type of ignition, but now an increase in free flight use is very pronounced, mainly in the .19 size, but Brian Picken has even ventured as large as the .35 size, with an OS max .35. Several members of the HESWALL M.A.C. attended the Winter Rally at Colne and a very enjoyable day's flying was had including the two members who chased after R. Angall's A.M.10 power job. They were away for two hours; after a fruitless search they reached the café by the field totally exhausted after their "strenuous" efforts only to find a small lad sitting on the wall holding the model!

Sorry!! Too late now to give details of the Indoor Nats. this publication week-end (February 14th/15th) at the Corn Exchange, Manchester. I only hope you anticipated the meeting and were sufficiently prepared to enter. Advance publicity of such important meetings should get to these offices one month prior to the month in which the announcement is required. In other words, by January 20th for a February announcement; but, remember, we appear on the 15th of the month.

East Anglian

On Boxing Day seven members of CAMBRIDGE M.A.C. visited Ivinghoe Beacon. Dick Godden's special heavyweight, anti-wind, model and "Hoverking" were both damaged in the gale which lasted nearly all day, but Dick produced yet another R/C job and came second. The other members had an exhausting day flying free flight on the Ivinghoe assault course and lost two models, a procedure repeated at E. Anglian Winter Gala when a *Lucifer* and an *Altair* went away. Clive King climbed up a long iron ladder after his *Altair* which had landed on a hangar roof and nearly passed out when reaching the roof, he saw that the ladder was hanging on only by two rusty bolts. ANGLIA M.F.C. (CHELMSFORD) are organising a club championship with contests held every fortnight at Baddow Meads flying field. On the list for future weeks are combat stunt, power F/F glider, rubber and junior combat. 1 c.c.-1.5 c.c. on 30-ft. lines with 4 1/2-ft. streamers.

Team race hopes are high (not to mention free flight) with four more reed-valve E.D. Racers, an E.T.A. 29 Mk. 6 and a reworked E.D. Bee which does 10 min. on a 1/4 A tank.

Midland

BRIERLEY HILL AERONAUTS were formed a few months ago around a nucleus of week-end sport fliers who have caught the competition bug, around 22 members are meeting weekly in a local community centre provided by the local council. The community centre canteen staff attends on club night and the cost of refreshment is very reasonable. Negotiations on behalf of the control line section led to a meeting in a secluded corner of a park. This has now been set aside for line flying for an experimental period of six months. "If the boys behave" says the council "it is yours. Later it may be fenced in for your exclusive use". The club are admitting juniors after six months probation and then only a ratio of two to one senior, thus starting the club on a firm foundation. GEE DEE OF NOTTINGHAM has just enrolled their 50th member. Contest minded members are preparing for the coming season, with two "Noblers" and various other American stunters, the stunt fanatics are hoping to win at least one contest this season. Any lone modeller interested in joining, should contact the club sec. on Sunday afternoons at the flying field at Bramcote or come to the club-room, 196 Heathcote Street, on Mondays or Thursdays after 7 o'clock.

In an effort to give control line clubs an interest in the activities of the Midland Area, OUTLAWS (CANNOCK) M.A.C. sponsoring a series of C/L Comps. to be run in conjunction with all Area centralised free flight meetings. It is hoped that by the end of the season, these will enable them to determine Area Champions in the various control line classes, and will also give the C/L types just as big an interest in Area activities as the F/F boys. Any other Area with similar "one-sided" interests or any Midland Area Club, not in the know, may obtain details of this scheme from R. Lockley, 24 Horse Fair, Rugeley, Staffs. DERBY M.A.C. are pleased now that Ernie Thorpe's 1st at Linton on Ouse Northern Gala is now ratified to add to his laurels after placing 5th in glider at the Nats. Bert Warburton was 6th in the S.M.A.E. Cup, Brian Sadler 1st in Combat at the South Midland Rally and Brian Kirman 1st in combat at Melton Mowbray. They look forward to more success in '59.

London

NORTHWOOD M.A.C. are a lively bunch and held a rousing Christmas party in the Club hut to work off steam. From what I gather in local rumour, some of the lads are engaged in an experiment of mammoth proportions—I hope they succeed—it will give the *Model News* readers quite a shock! CRYSTAL PALACE M.A.C. is active again this winter with several R/C models being built and bench tested ready for the fine weather next spring(?), whilst weekends are taken up with C/L flying at 3 Kings Piece on Mitcham Common. American and Japanese engines are very much to the fore (Fox 29's, McCoy's and O.S. motors going particularly well). On one occasion an O.S. 29 powered "1-fast" belonging to Mike Blanc, was clocking about 95 m.p.h. when an application of full "up" the elevator came adrift, and Mike broke the crankshaft! C/L Speed is now very popular in BRIXTON AND D.F.C. due to the spacious tarmac flying field available on Saturday afternoons. A pylon is standard equipment. Aeromodellers in the area are welcome. Meetings are at Rosendale Road School, Turney Road, Herne Hill, S.E.24. Another Club which would welcome new members is HACKNEY MARSH'UNS A.M.C. They have a club room at Homerton Row School every Wednesday night for modelling and discussions on control line, radio, free-flight, etc.

On Sunday, December 11th, Bob Page of ENFIELD AND D.M.A.C. visited Heston airfield and flew his F.A.I. speed model to shatter the present club record. He attained a speed of 119 m.p.h. using the M.V.V.S.

2.5 c.c. Glow. Bob thinks he can improve on this still further, but unfortunately, the model was pranged on a later attempt. Bill Morley of West Essex gave a talk on stunt flying which was appreciated by all members, including the free flight enthusiasts. The sum total of the SURBITON M.F.C. journeys to all the 1958 events save the Scottish ones, was that one member, who only comes out once a year, won the Queen's Cup. Just goes to show they don't always win! Not to be daunted however, Gaster has purchased himself a lathe to produce the motor 'o beat all motors, Buskell has thought up a dozen new excuses why his motor isn't a' the moment better than all, Jays now seems to have more Gastoves than the "expert" himself, Wisler is going to have to buy a bigger van to accommodate all his gliders, Glynn seems to be under the impression that he will come fourth in the three-man team selection and Posner is just looking for some orange silk. While all this is going on the club have decided to hold its Gala at Chobham on August Bank Holiday Sunday, August 2nd, for the usual open events. GODALMING AND D.M.F.C. has suffered a rather sharp decline in membership over the last few months. In order to boost activity, they are holding a series of contests for A.I gliders, and the response from the club is very encouraging so far. Unattached local modellers should contact C. S. West, 72 Furze Lane, Farncombe, Surrey, for more information about club activities.

South Eastern

SOUTHERN CROSS A.C. held their hand launch glider event in ideal weather, Rodney Way setting up new record time of 12:15 with a compass-controlled monster, which eventually disappeared in the haze. Sensible outing which other clubs might follow, was a visit to Gatwick airport to see how a modern air traffic system works. Did they get any ideas on use of this drome for a Nats. I wonder? EAST GRINSTEAD M.F.C. meetings are held at 7.30 p.m. every Monday at the local Grammar School. NORTH KENT NOMADS M.C. held a scramble on December 28th for a trophy presented by Col. H. J. Taplin, and also an annual cup for a junior event. Thanks also go to their Chairman and Secretary for the cups they have presented for junior events. They look forward to the occasion of their Social and Pri. giving which is to be held on March 18th. Should any old associates of the Club be interested in attending this function, then a ring to our Hon. Sec., Ray Parker, Erith 3170, will provide full details. Modellers in MAIDSTONE interested in forming a club, contact R. H. Upward, 25 Cross Keys, Bearsted.

Services

R.A.F. Station Wittering, now has a model club—contact No. 33 A.M.Q. for details if that's your next posting. Over in Germany, the 41 Field Regt., Royal Artillery, stationed at Lippstadt, Westphalia, has formed the Westphalia Rangers and anyone in the vicinity is invited to contact Sgt. Bott, the Secretary.

Ireland

BELFAST M.F.C. ran a very successful precision comp. on Boxing Day at Newtownards. Three flights were needed as near as possible to 45 secs. with a 20-pt. bonus for semi-scale and 40 points for scale models. Winner J. Wade, lost only 9 points out of a possible 175 with his D.H. Beaver. R. Armstrong was 2nd with a Piper Sniper Cruiser and D. Wilson third, leading the semi-scale fliers. Conditions were sunny with a strong breeze and no less than three models landed in Strangford Lough, but all have since been recovered. LARNE M.F.C. held also their annual "Semi Precision" Comp. on Boxing Day and the winner was Jackie McKinley, scoring 171 points, max. possible points being 2.5. N. Blair was a close second with 170 points. Weather was good and the

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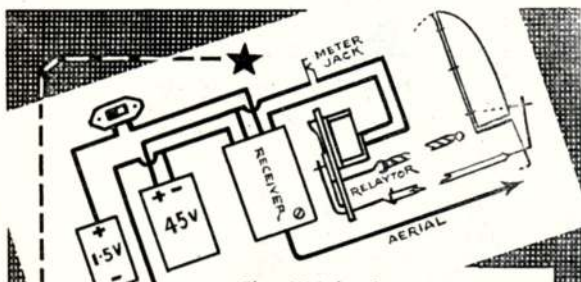
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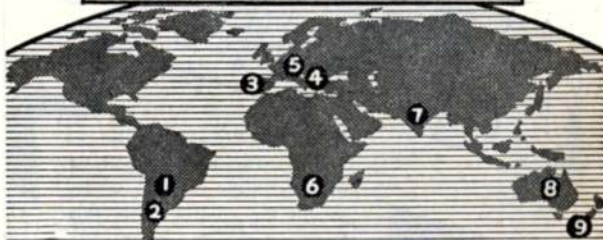
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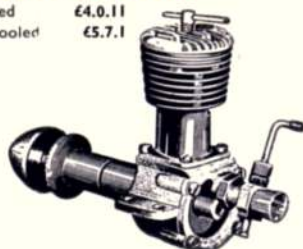
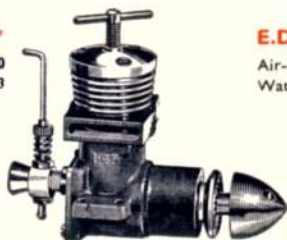
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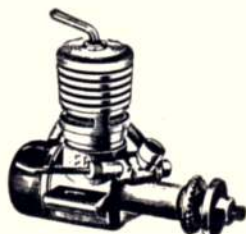
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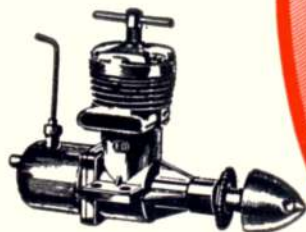
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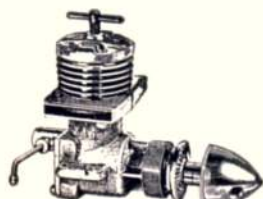
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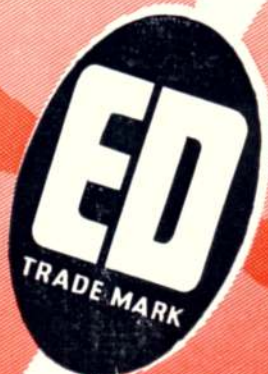
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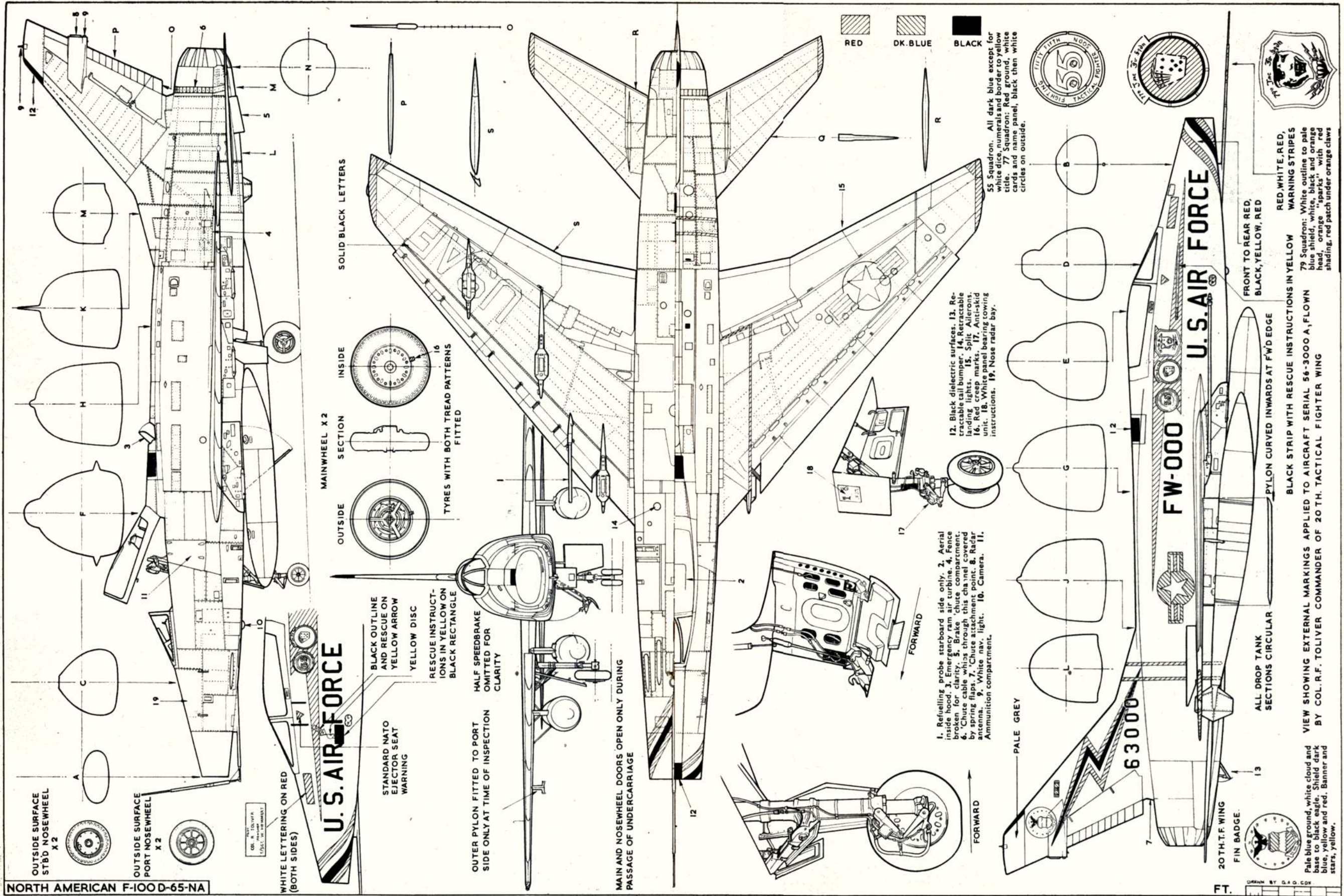
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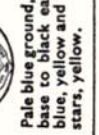
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