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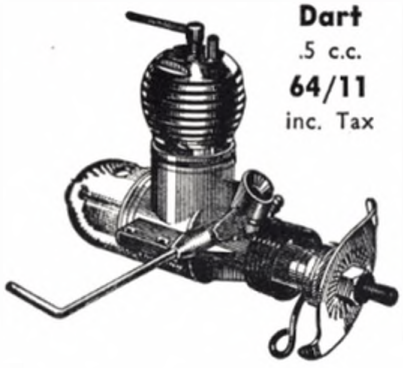

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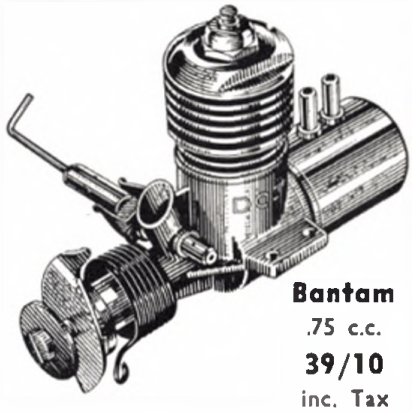

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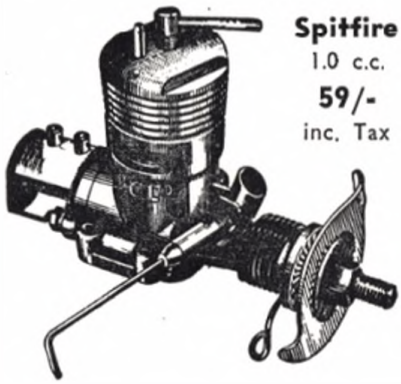

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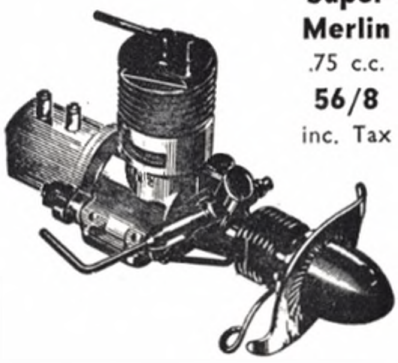

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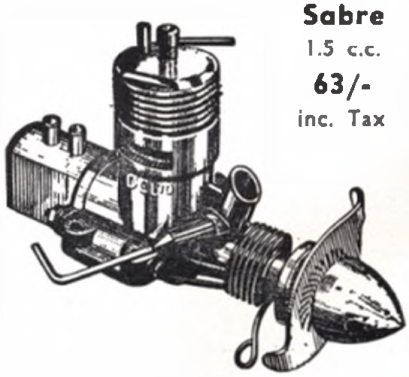

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Editorial Director
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R. G. MOULTON

other modelling angles . . .

February **Radio Control Models and Electronics** offers a very special feature on delta designs, with data on two models, one puller one pusher you can scale up straight off the pages. Citizen-Ship 6 channel is tested, details of making the Remcon Superhet Rico Neidhart's patent details on quick centring of servos and a silencer survey are just part of a great issue.

In February **Model Maker**, full size plans for a reduced scale Fairey Marine Swordsman measuring 16½ x 5½ in. form a fine subject to build and ideal for radio control too. A Czech champion electric powered boat, drawings of aircraft carrier H.M.S. Hermes three P.L.A. launches, a corvette and the Virginian liner make sure you have a bounteous issue.

February issue of **Model Cars** offers the enthusiast two magnificent constructional treats. First, description by Pete Godden of his third prize National Concours d'Elegance car, the Lotus 18 based on Stirling Moss's Monaco winner. Then we have a practical feature on building monocoque Formula 1 cars which enable even the slimmest and smallest of the modern racing machines to be modelled efficiently. Prototypes this month include a double feature on Lister Jaguars, the 1958 and 1959 cars being featured. The 1959 Cooper Climax is covered, together with the Mercedes-Benz 230SL coupe and for old-time enthusiasts we have the 1907 G.P. Itala. Other constructional features include "On with the Revells" which deals with the latest working scale car kits.

Editorial and Advertisement offices

38 Clarendon Road, Watford, Herts

Telephone : Watford 32351 (Mon.-Fri.)

CORRESPONDENCE anticipating a reply to addresses within the United Kingdom must be accompanied by a stamped and self-addressed envelope. News reports should be submitted to arrive not later than the 15th of each month for publication in the next immediate issue. Photographs should be accompanied by negatives where possible and can only be accepted for use on an exclusive basis for British copyright.

AERO MODELLER

MAP HOBBY MAGAZINE

February 1965

VOLUME XXX No. 349

contents

cover

Only thing missing from this happy shot of brothers Derek and Bernard Denial with the latter's scale de Havilland 60 Gipsy Moth is their charming accent. Taken at the 1964 British Nationals where the model placed sixth, the photo captures the sporting spirit of radio scale modellers everywhere. Powered by Merco 35, the Moth is 60¼ in. span and weighs 5 lbs. It has Derek's own construction 3 channel all transistor receiver with a Bellamatic servo for the rudder and Corporal escapement on motor control.

next month . . .

A large semi-scale stunter for .35 size engines joins A.P.S. and it is a design with a distinct difference. Having strong resemblance to the North American Aviation fighter it is called **Mustunt** and comes from ace Swedish flyer Erik Bjornwall. Winter is still very much evident in the Northern Hemisphere and thoughts turn to indoor activity. Larry Renger's **Breeze** has already gained a great reputation in the States and so we're including full size plans for others to enjoy this fine low ceiling design which will get you over the 10 minutes stage. No bracing, no curves, just clever simple lines. Details of a great new scale model contest in connection with the new **Magnificent Men in their Flying Machines** film will be given along with a pictorial feature on the fascinating re-builds and "specials" flown in the making of the film. All this and the regular articles too, at the usual price, out February 19th.

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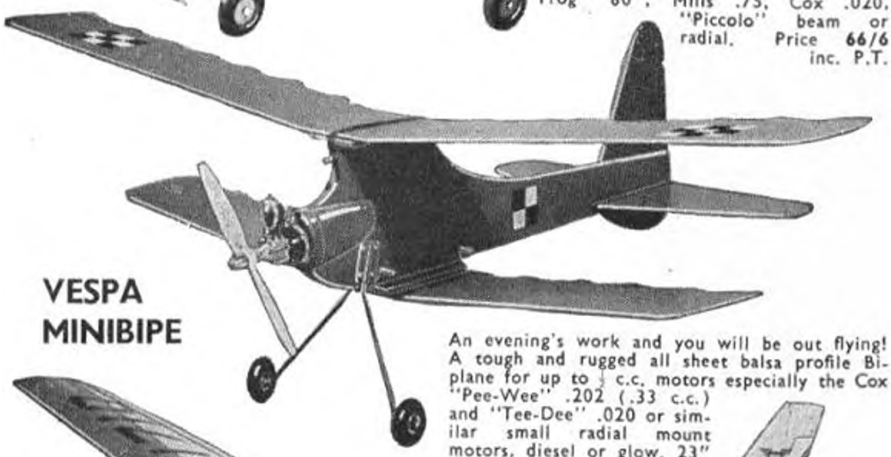

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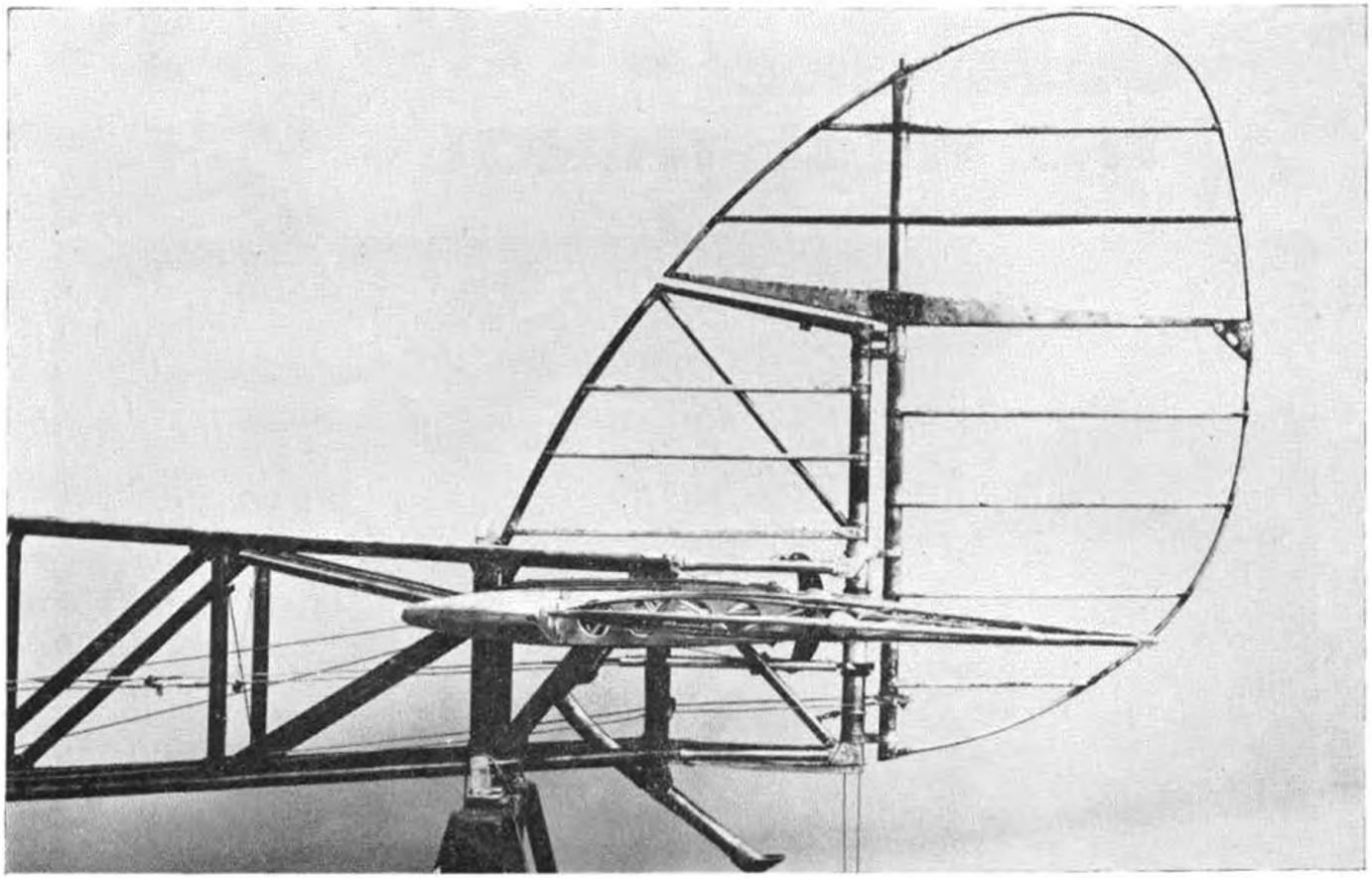

FOR DETAIL, CONSULT THE REAL THING

For getting details right on a scale model there's nothing like being able to consult the real thing. Obviously that is rarely possible for the majority of aeromodellers, so we normally have to rely on the authenticity of available plans. Considerable ingenuity may then be called for to reproduce full size construction in modelling materials. No modeller is going to sit down and reproduce this fin skeleton in welded and riveted tube !

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This insurance is the prudent thing for every modeller to take out, but it is a sad fact that until now, although the governing bodies of the hobby have offered this cover to their members, something like 90 per cent of the modellers in the U.K. have never taken up this opportunity and are operating 'without insurance protection'. Those who wish to make the most of flying and other modelling opportunities must be insured not only for their own peace of mind—accidents do sometimes happen—but also because Local Authorities, Ministers and others are showing an increasing awareness of this need for insurance and are demanding proof of adequate cover. By joining M.A.P. 'Modellers' Accident Protection' you come into the worlds's BIGGEST MODEL CLUB. For your initial subscription you obtain a lapel badge for identification and transfers to put on your model.

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Author A. R. Casebrook is joined for additional notes by David Connolly, B.Sc., who will also be wellknown to readers of "Model Maker" and "Radio Control Models". This book contains all that the beginner must—and the expert should—know.
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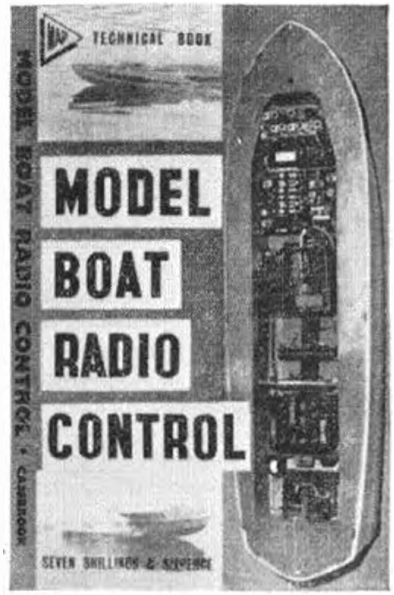
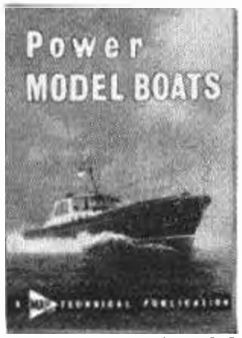


POWER MODEL BOATS

Intended for the "average" modeller, and does not pretend to advise the expert. As such it should prove a welcome source of guidance and inspiration to the beginner, the dabbler, and the not-so-expert. It is written entirely from practical experience, with a certainty that success will attend the efforts of anyone who follows the procedure described employing care, patience and common sense. 128 pages, size 8¼ by 5¼ in., printed on fine quality paper with some 250 photo-illustrations and line drawings. Bound in hard boards linson covered with gold foil title on spine. Two-colour photo dust cover. **12/6**



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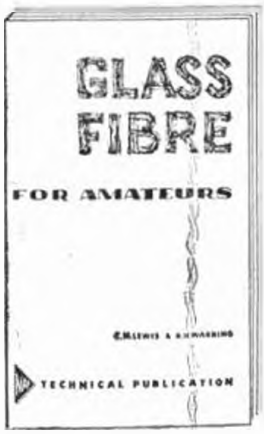

BOAT MODELLING

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Sum enclosed

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Heard at the HANGAR DOORS

Fly Without Freezing

Have you a yen for indoor model flying? Our next issue features a simple indoor model *Breeze*, the surest way of getting cheap, quick (and warm) winter flying fun. Meanwhile, we hear that Dave Platt is hoping to start a London Area indoor "Club". Any interested modellers can contact him and provided there is sufficient interest, arrangements will be made to obtain use of a suitable hall. His address is: 17 Tyrwhitt Road, Brockley, London, S.E.4, or telephone TID 1732.

Modellers elsewhere who want to locate fellow indoor enthusiasts can be supplied with the names and addresses of the nearest flyer on our register of "Indoorists", by sending a self-addressed and stamped envelope for reply, to the Aeromodeller offices.

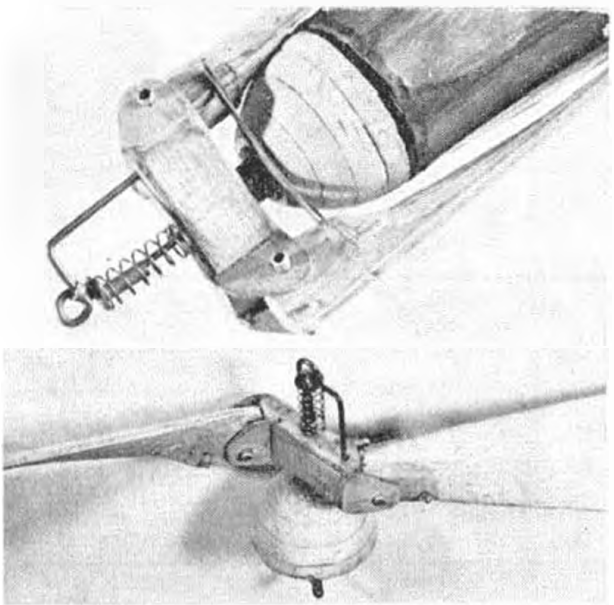
Nikolina

Readers have been quick to point out that there is a discrepancy on our full size plan given free with December 1964 issue for the Coupe d'Hiver design Nikolina. They refer to the propeller side elevation which does not agree with the pitch angle template. The error is aproximately $\frac{1}{16}$ in. in depth. In other words, the propeller blank should be carved from $\frac{3}{8}$ in. or slightly thicker block balsa.

Because a number of readers have had difficulty in interpreting the general arrangement of the staggered twin folding blades and nose block assembly, the photos on this page offer pictorial information which will clarify the general arrangement. Note in particular the tube bearings for the hinged blades and the rubber band which is used for automatic folding. Designer Oskar Ehmann also points out that the nose block parts N2 and N1 should be transposed in their identification on the plan in order to arrange a neat locking device. They retain the block in place on the fuselage with a locking action.

Modelling Ambassadors

By invitation of the Iranian Civil Aviation Club, Peter Smith (of Model Aircraft Bournemouth) and Peter Cabrol (of C & L Developments) went to Teheran on October 26th for the sole purpose of demonstrating radio control to Iranian authorities and H.I.M. Shah, Empress and Crown Prince Reza of Persia. Flying single and multi channel models, naturally all Veron kit types, the two Peters met with such a variety of experiences, modelling and otherwise during their two weeks abroad that they were able to keep their audience literally spellbound when recalling their adventures to the Esher Club on December 9th. Film and slides illustrated what must have been a wonderful experience. The Iranians in turn have fully appreciated the expert demonstrations and aeromodelling has taken on a new lease of life in that country with high level official support. Just imagine a National Airport being closed to traffic while radio models were flown, or demonstrations before a 25,000 crowd in the Amjadieh Stadium on typical football pitch area. The all-British equipment (R.E.P. Gemini and Twin Triple, R.C.S. 10, Elmic Escapements, Merco engines and C & L Servos) functioned flawlessly. When official pictures are released we hope to tell more of the fascinating story.



At left, two views of the "Nikolina" nose assembly to clarify readers' queries on the staggered boss and rubber band arrangement to aid automatic folding. Note the tensioning spring and the tube bearings for the folding blades.

Coupe d'Hiver

Dates for the Aeromodeller postal event for Winter Cup (Coupe d'Hiver) rubber driven models are now established as February 21st and 28th. All applicants have been supplied with entry forms and information but there is still time for late entry to be made. There is no charge for entry in this postal competition. All late applicants should be sent to the Editorial Offices, with stamped addressed envelope for reply.

On February 28th, the Aero Club Gaston-Caudron at the aerodrome of Chavenay, South West of Paris and our contemporary *Le Modele Reduit d'Avion* arrange their XXIst Coupe d'Hiver final. This will incorporate the Anglo-French challenge match, and being an international event on the F.A.I. calendar, will also attract entries from other countries such as Belgium, Germany, Italy, etc. This is a most fitting 21st birthday to mark the hitherto domestic contest "coming of age" and spreading its success from France to other Nations.

A team of British modellers will attend to try their best to recover the "Challenge Franco-Britannique" which has beeen retained by the French since introduction two seasons back. The beautifully carved Eagle trophy will go to the leading team of three highest scoring modellers from France or Gt. Britain.

Some idea of the enthusiasm for Coupe d'Hiver in France can be gained from the number of entries in the first major centralised event of the 1964/5 season. This was the "Coupe de la Cote d'Azur" organised on December 13th at Levens by the Nice model club. There were 116 entries (including several from Italy) and a fly-off was necessary to decide the winner between J. Bellon and G. Matherat. They finished with an extra 88 and 64 secs. respectively on their last flights. Nice and Grenoble fliers led the large result list.

S.M.A.E. Contests

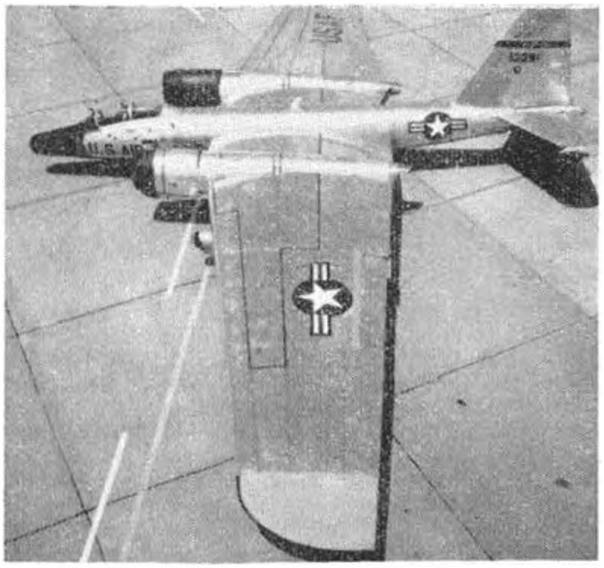
The 1964 Contest Calendar for SMAE events has now been circulated to all full members, clubs and officials. Since it has already reached those who are most concerned with the National events, we are not reproducing the calendar this year. Innovations include an all-scale meeting, most probably at R.A.F. Hemswell on May 9th, an all F.A.I. meeting on July 4th, Summer Gala on August 8th and centralised meetings for Radio Control as well as Control Line. The National Championships over Whitsun (June 6/7th) will be at R.A.F. Ouston (by permission of Officer Commanding Sqdn. Ldr. W. G. Drinkell, A.F.C., D.F.C., R.A.F.) near Newcastle-upon-Tyne. This northerly venue takes the premier event of the year within easier reach of our Scottish friends and promises to be one of the best ever through excellent ground facilities which have been offered.

Man-Powered Flights

The £5,000 Kremer prize for the first from Gt. Britain or the Commonwealth to fly a figure of eight course around pylons half a mile apart by man power still remains unclaimed. Many opportunities have been lost in the exceptionally calm conditions that were a frequent feature of 1964 but it takes quite a long time to prepare what is in effect a 93 ft. span model!

That is the dimension of the new version of the Hatfield groups 'Puffin" Mk. 2, drawn here, with enlarged fuselage profile. Melinex covering over balsa structure with light alloy parts for the propulsion mechanism brings the total airframe weight to approximately 118 lbs. The aircraft will actually fly on the thrust of a model engine of about 10 c.c. Note the new airfoil section of undercambered type which replaces the "Puffin" Mk. 1. flat based wing and is now reminiscent of model sections for glider or rubber driven types.

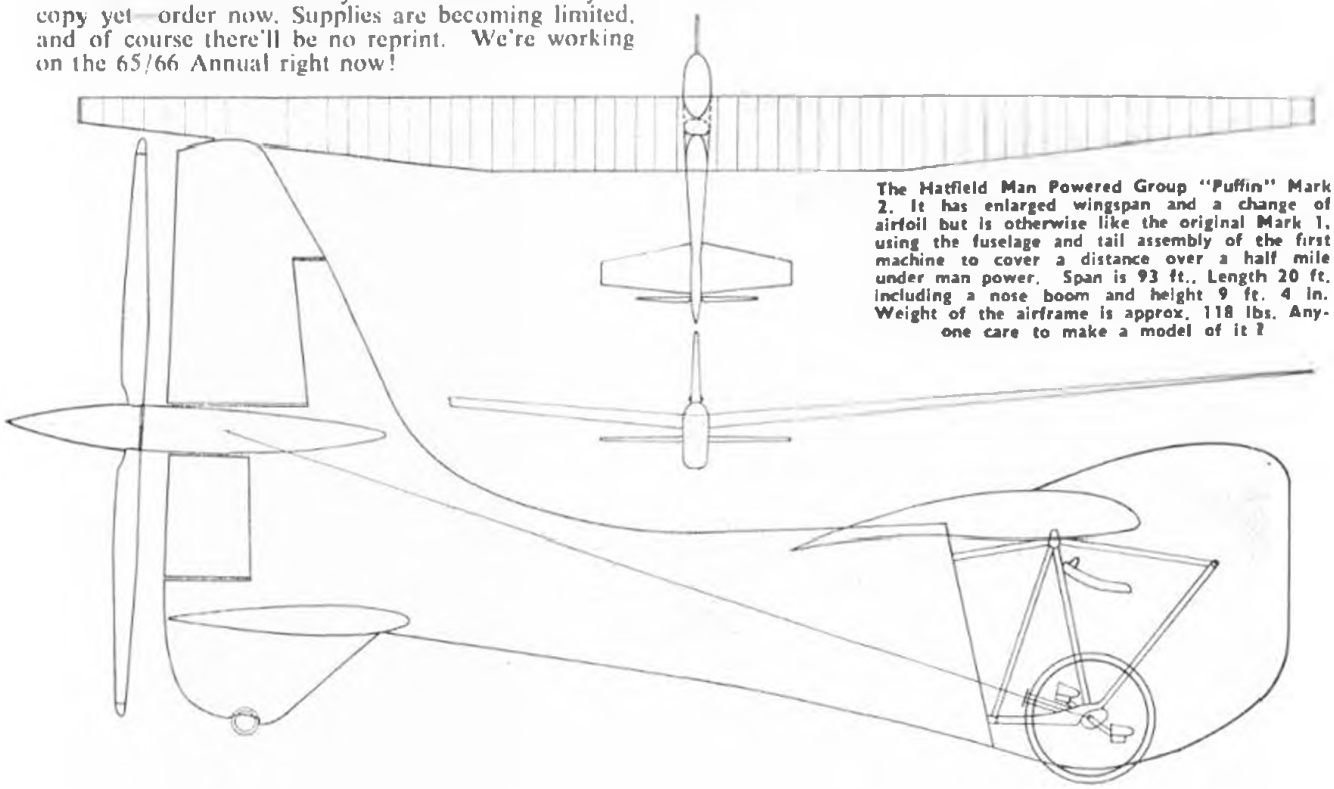
A summary of recent developments in the Man Powered aircraft field was a feature of the 1964/5 Aeromodeller Annual. If you haven't obtained your copy yet—order now. Supplies are becoming limited, and of course there'll be no reprint. We're working on the 65/66 Annual right now!



How big can one get ? New wing for the RB-57F otherwise known here as the Canberra has a span and area double that of earlier versions. This is for high altitude air sampling. Large Fanjets replace the turbojets and supplementary jets are podded under the enormous 122 ft. span wings. Ailerons are at mid span and the wing has pronounced anhedral.

Treasure Trove

When we announced the release of an official *Catalogue* of World War I aircraft drawings in October issue, some readers seem to have been under the mistaken impression that this was, in fact, a booklet of actual drawings. To avoid further confusion, we must emphasise that the 229-page catalogue is exactly what it is titled, and no more than a complete listing of all drawing numbers and titles which can be ordered through the Ministry of Aviation.



The Hatfield Man Powered Group "Puffin" Mark 2. It has enlarged wingspan and a change of airfoil but is otherwise like the original Mark 1, using the fuselage and tail assembly of the first machine to cover a distance over a half mile under man power. Span is 93 ft., Length 20 ft. including a nose boom and height 9 ft. 4 in. Weight of the airframe is approx. 118 lbs. Anyone care to make a model of it ?

WORLD NEWS

Winning A/2 glider in the Israeli Championships was this design by Ami Teitel of Herzlia. Note the small tailplane area and the straight tapered wing with plain dihedral and multiple ribs to resist warping in the heat.

FINLAND.—Date for the World Championship for free flight models is now established as July 8th-11th, at the Finnish Air Force Station, Kauhava, approximately 60 miles east of Vaasa. This airfield was used for the Nordic countries f/f championships in July '64, so that weather conditions at that time will be of universal interest. Wind velocity varied from 5-15 knots, but there were no gusts. Thermals were weak at low altitude but strong at heights. The airfield is not large, being a single 6,562 times 197 ft. runway with parallel taxi track, but is surrounded by cornfields for miles and miles. The corn is high in July rendering recovery difficult, but organisers had military patrols directed by radio from a Saab Safir, so that few models were actually lost. Competitors were given a copy of a standard map, squared off into sectors, which was used for location of models from aerial observation.

HUNGARY.—National free flight Championships produced some surprise results. The only man to score full maximums in power was Ferenc Csizmarik (Simon third, Mecznek fourth and Frigyes sixth). Leading A/2 flyer was Ferenc Takacs with 848 secs., and in rubber, a tie for first place was held by Kiraly and Egri, each with 839 secs. Presumably, these contests will, in due course, have influence on the 1965 team, so there may be changes of faces from Hungary next July in Finland.

U.S.S.R.—National Championships of all States of the Soviet Union brought competitors over long distances, and in every event standards were very high. Many of the established well-known names from International teams can be found in the results, but a significant fact is that the actual winners were in most cases, "unknowns" to the Western world. A/2 glider went to a sixth round fly-off when Beoktsytter from Kazakhstan made the last flight of 194 secs. There were three others in the fly-off, and usual top man, Averianov, placed sixth. In Wakefield, there was another fly-off with five involved, in this case, won by Matveev who comes from Azerbaydzhan, down in the South near Iran. Ivannikov was sixth. The power class was won by Grechin of Moscow in a two-man fly-off. Most remarkable performances came in team racing, where the Zolotoverch-Kobets team made times of 4:39, 4:27, 4:27. They were not, however, the fastest because in their second heat, Gelman and Bulkin made a record time of 4:08. First four teams all completed heats well under five minutes.

Sirotkin retained his leading position in control line stunt and was only rivalled on one flight by Kondratenko. In speed, Mosyakov from Moscow made a fastest time of 229 Km/h to underline his good performance at the 1964 World Championships, and there was also a scale event, again won by Sirotkin.

SPAIN.—Fast team race times are now no exception, particularly among the aeromodellers in the Aero Club at Barcelona. Best time so far reported is 4:26 by Comas-Parramon. In speed, the official

Triple engined Caproni Ca. 133 in flight has 2.5 c.c. diesels, weighs about 6 lbs. for its span of 58½ in. and was made by Giorgio Rabaglio of Bergamo, Italy. It was the winning entry in the "Augusta Trophy" held at Milan. Next is a Polish scale entry in their National meeting, this one a PZL "Karas" and like the model above, complete with fine detail of the machine guns, cabin and engine cowling. Bottom are the three leaders in the hydromodel contest held at the Baltic Sea in the power section. They are Z. and A. Sulicz and T. Pelczarski. All use the large single nose float and twin support floats at the tail.

record stands at 211 Km/h, held by Edward Giro also from Barcelona.

FRANCE.—Pierre Marrot retained his championship title for the third successive year in the multi-channel radio control at the French championships. He was flying his shoulder wing Lucifer design and using his own home-constructed radio equipment, now marketed under the name of "Radio Pilot".

AUSTRALIA.—Tom Prossor, the well-known multi-flyer won a leading scale event with an unusual choice of subject. His Piper Pawnee is so extensively detailed, it was said to have won the event long before it left the ground. The model will execute the full stunt pattern, and if it is stressed like the real thing, should be capable of some violent manoeuvres.

Good public relations efforts have been reported during the past year, from Queensland and Victoria. One exhibition at Forest Hill attracted over 10,000 spectators. It was organised by the JayCee's to support "Operation Concern", which is the national project of the Junior Chamber of Australia to support medical relief, etc., in Hong Kong. A model engine collection, flying displays and static show not only did good work for the charity but also for the local model club. There was a time when we used to hear of many such good will displays, but regrettably, we have only learned of the Australian shows during the 12 months.

POLAND.—A National Championship for Hydromodels was held on the Baltic Sea, not recently, but last summer. This rather late news is nevertheless interesting in that people of other countries were invited and a small team from Yugoslavia attended. Another Polish speciality is scale modelling, and the National Championships produced some positively stunning and unusual entries, mainly by subjects which have flown or are still flying with Polish aviation or military registration. Winning model was a piston engined modern trainer, the Tarpan M4 by Zmidzinski and a photograph of one of the more unusual multi engine subjects appears on this page.

ISRAEL.—The 57th Conference of the F.A.I. was held in Tel-Aviv in October, with 32 countries participating. To mark the occasion, a special Concours d-Elegance was held. Recipients of the Paul Tissandier Memorial Diplomas in the aeromodelling field for 1964 were Frigyes (Hungary), Sokolov (U.S.S.R.), and somebody quite unknown to us, Mouaffak Khani (Syria).

The 12th Israel Championships held last October drew 102 modellers from 15 Clubs, covering control line and free flight with radio demonstrated, since this is still in the beginning stage in this country. The hot weather conditions have such effect on wings, rubber, etc., that they all but cancel out the advantage of thermal aid. The A/1 glider class was most popular with 40 young entries, the top time being 572 secs. Each evening there was a lecture with slides of International aspects and the whole Championships were used as a fine reunion of Israeli modellers, generally organised by the industrious Naftali Kadmon.

U.S.A.—Comparatively new techniques for unbreakable Wakefield fuselages is described in the I.M.A.C. newsletter by Frank Spearman. This is basically an untapered tube made of fibre glass cloth and 1/32nd balsa wrapping around an aluminum tube which is used only as a former. The secret is to use lightweight cloth and to thoroughly impregnate it with resin. The 30 in. length weighs between 1½ and 2 oz., and will withstand any motor burst, without damage.

Specialist U.S.A. newsletters which we continue to enjoy each month and contain an enormous amount of information are *Indoor News and Views* from Box. 545, Richardson, Texas, *Flightmasters Flying Scale News and Views* from 1200 Strand, Manhattan Beach, California, and *F.A.I. T-R newsletter* from 26622 Fond Du Lac Road, Palos Verdes Peninsular, California 90274, with subscriptions of $2 per year each, and we thoroughly recommend modellers everywhere to subscribe if they wish to keep up with the very latest in developments in these particular fields of interest.

Howard Timlin is famed for the elegance of his power designs (Saturn, etc.) and the view of him and his A/2 glider as flown in the West Coast Semi-finals to select the U.S. team shows that he carries his fine lines into all his designs. The fuselage appears to be diamond in section. Centre is an old APS favourite, the large "Mercury IV" designed by Mick Smith, now in Durban. This one is seen with Australian Geoff Tuck who specialises in big models and inherited it from builder Gerry Emery after wearing out two 8 ft. "Big Berthas". O.S. 49 provides surprisingly enough power and it has rudder only radio control, doubtless of Grundig origin according to the large fuselage lettering. Bottom is an unusual scale type, the PZL "Wicher" made by Korzkodaj for a pair of Veco 35s. Finish and detail are superb and it was first in the multi-motor class at Polish Nats.

Designer Dave White with one of the "Rolling Stone" prototypes. The design was contributory to York M.A.S. success in winning the "Model Engineer Team Trophy" last year.

Dave White's A/2 glider "ROLLING STONE"

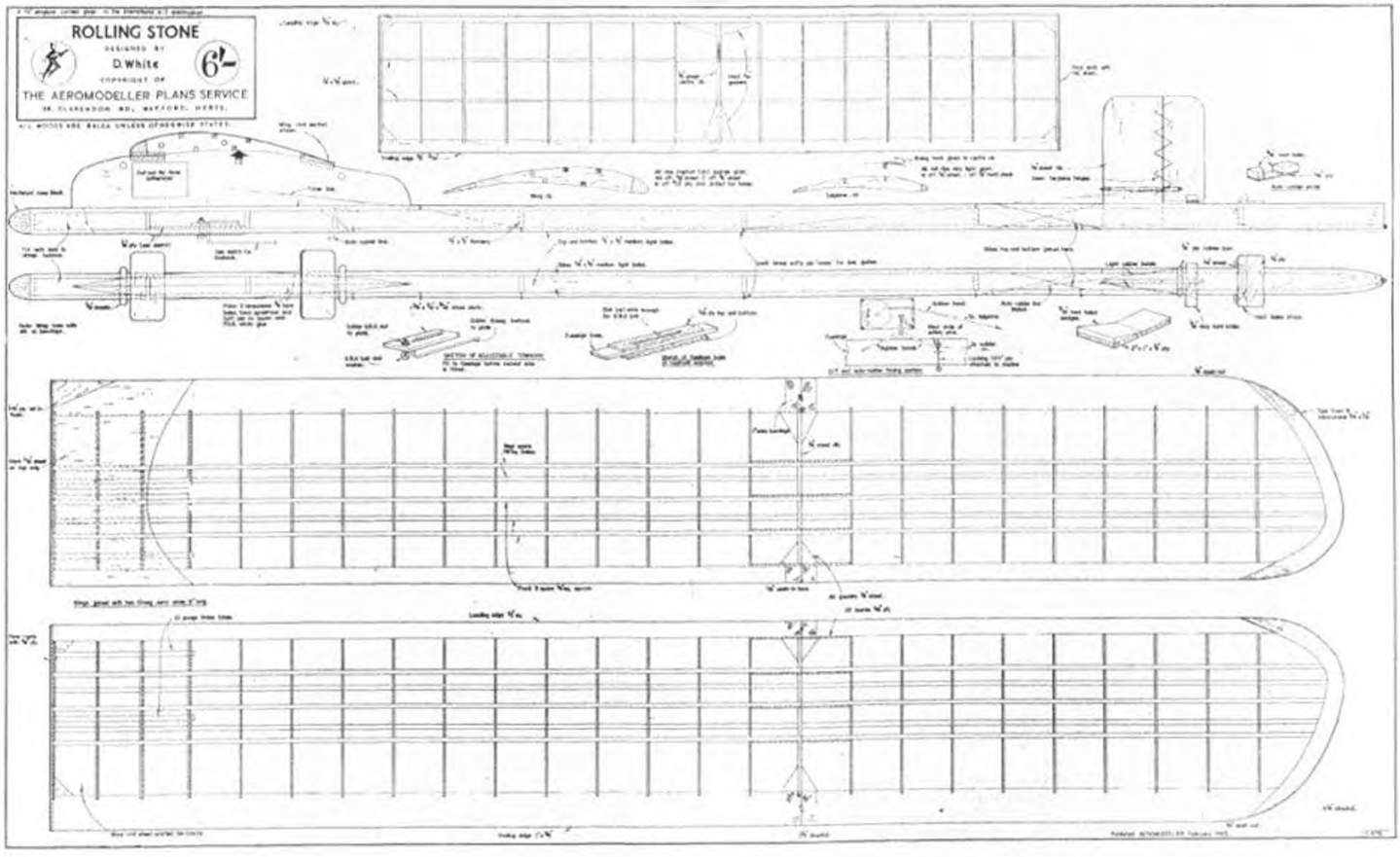
Top notch contest design with a tremendous contest record over past two years.

OVER THE PAST TWO YEARS, a quite definite design pattern has evolved for an all-weather glider to the international A/2 specification to suit the variable British weather conditions. The basic design appears at first to be very simple and devoid of the elegance to be found among, for example, designs from Finland, Germany and the U.S.A. We have already published several model designs which fall into this category, notably Al Wisher's (Wishbone). Additionally, John O'Donnell's designs have been in circulation. *Rolling Stone* was first revealed in the August 1963 edition of *Northern Area News*, and from that worthy publication we were able to reproduce its features in the current AEROMODELLER ANNUAL.

Now we are able to offer full size plans for this very successful design and by success, we mean the following impressive table of 1964 contests alone.

D. White	*D. Wiseman*
3rd Open Glider Lincoln Rally.	1st Bristol Winter Rally
2nd Woking Gala.	3rd (Fly-off) Thurston.

FULL SIZE COPIES OF THIS 1/6TH REPRODUCTION ARE AVAILABLE THROUGH A.P.S. AS PLAN G.876. PRICE 6/6d., INCLUDING POST.



4th (Fly-off) Northern Gala.
1st Model Engineer Trophy.
1st Rush Gala.
2nd (Fly-off) N.A. all F.A.I. Meeting.
3rd (Fly-off) N. West Easter meeting.
1st Model Engineer Trophy.
3rd (Fly-off) N.A. all F.A.I. meeting.

Dave would be the last to claim that this is a high time model for dead air conditions. It is strictly a "thermal model" with a normal still or average of just under two minutes. Thermal location and launching tactics now play such a part in model glider competitions that designs like *Rolling Stone* have been evolved to hold the lightest of thermal lift and take advantage of conditions.

Design Origin

Three years ago, when Dave started flying contest models in earnest (he had been at it on and off since about 1952), he built two O'Donnell *Fossils* which he found to be quite good flyers, but terribly unreliable on tow and in strong lift. Dave discussed this with J.O'D., but John could offer no reason for this as his own behaved perfectly well. The design was the best Dave had ever seen in very light lift. Recommended trim was very tight right hand circles, but John's model certainly didn't fly in what Dave calls tight circles. Fifteen foot diameter with the nose chasing the tail is what he likes, but he could not recommend this to anyone without experience of short nose models. Anyway, it was decided that the *Fossil* was not the right model for Dave, but he couldn't be convinced that the basic design was bad. The pylon A/2 "feels" right to him. Mark I *Rolling Stone* was now born and first flown in Jauary 1963. It was simply a stretched-out "Fossil" (*Benzedrine*) without underfin and with a thin Finnish section. This, in still calm air, would beat anything in the York Club at the time. The thin section, of course, warped the wing, and it wouldn't tow well. It was also hard, even impossible to tow in a wind. Although the times were well up on other A/2's around, it didn't look right and was too fast and brick-like. Then came the ideas that Dave has retained ever since. Dave deliberately ignored all performance factors and went solely for reliability on tow and in thermals. Sections became thicker and well and truly flapped. The nose became shorter and shorter, tails were under cambered and polyhedral used. The "Fossil" diamond fuselage proved to be very awkward for fitting adjustable tow hooks (which were now considered essential) and wing mounts, so the fuselage went "square". This worked instantly and the model is still just about the same as it was two years ago. A lot of people have trouble with trailing edge warping and buckling, especially as the usual stock size is 1 in. x $\frac{1}{8}$ in. This is easy to cure, and Al Wisher certainly established a good point when he originated it. At York, all the flyers use 1 in. x $\frac{1}{32}$ in., an obnoxious size to sand, but they buy it direct from Solarbo, cut from Quarter grain 8-10 lb. stock (9/- a doz.).

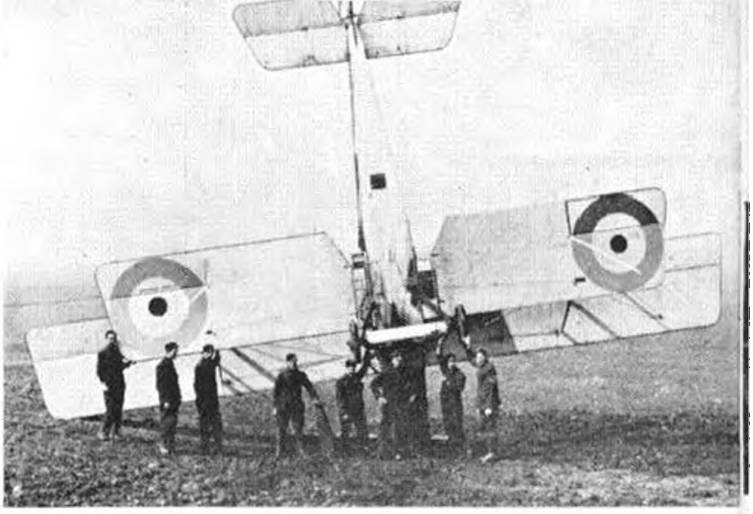
Construction Details

Construction is straightforward as the plan indicates, and familiar to all modellers with even moderate experience. The simple essentials for success include spruce spars, the adjustable tow hook and the clockwork timer actuated de-thermaliser mechanism. The latter must, in Dave's words, be "200 per cent" reliable. It is released when the pin attached to the tow line loop detaches at the point of launching, sets both the auto-rudder and also allows a spring to pull the timer to the "on" position.

Other construction advice is that the nose should be wrapped with silk or bandage. The tow hook must be fitted before the second side is put on the fuselage and use Japanese tissue covering for the tailplane. Pay attention also to the wing seating, which is quite important.

The flight trim should be with a very slight left lean at tow, having the tow hook as far forward as is tolerable. The model must turn in left circles and tighten up considerably when in lift. Make all tests on a full length line and be absolutely sure that the D/T system is reliable. Stall recovery is so good and consistent that *Rolling Stone* can be spun off to gain 20 ft. on a stretched line launch. Now get building for the first competition—it's the K & MAA Trophy on March 21st.

Vicky Firth launching her father's replica of Dave White's "Rolling Stone" last summer. The model is already very popular in the Northern Area. Note Ron has changed the fin shape slightly.



Here's the Dope

BRUCE ROBERTSON unfolds the origins of aircraft finishes

Much has been written in this magazine on colour schemes for 1914-1918 war aircraft, but how precisely the colours were applied is seldom, if ever, detailed.

Apart from plywood panels on such aircraft as the D.H.4, the main airframe covering of the period was fabric, linen or Egyptian cotton, stretched tight over the wooden framework of fuselage and planes. In order to give the maximum efficiency and to preserve both fabric and frame it was essential that air or water should not penetrate through the weft and warp of the material. Thus it was doped to provide a continuous cellulose film that would fill the interstices of the fabric as well as tauten.

A good dope would also increase the tensile strength of the fabric. In fact the name "dope" actually came from the new, seemingly false, properties that its application bestowed—using the word in its original American sense of false or confidential information. This was also apt in that manufacturers kept their production methods and ingredients a close secret. Prior to its general adoption various materials were tried, including shellac varnishes, beeswax and tapioca paste.

By 1912, the Emaillite firm which enjoyed something of a monopoly of dopes in France, had started on an English factory, with Cellon, having that year obtained Government contracts, a close rival. Early in 1914 Cellon, watching the growing interest in model aircraft, produced their No. 14 dope specially for the model market.

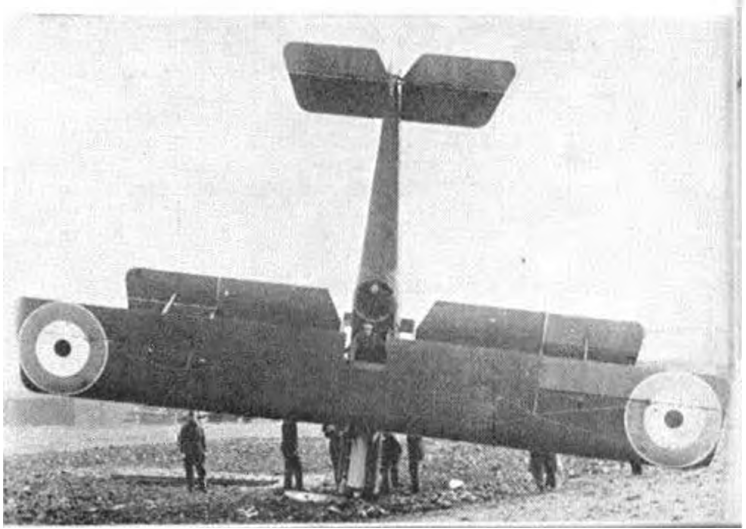
Soon after war was declared, steps were taken by the Government to conserve stocks of cellulose acetate so essential to dope manufacture. In October, 1915, the Royal Aircraft Factory, controlling the specification for their designs (e.g., B.E.2c, F.E.2b, R.E.7, S.E.4) decreed that dope to their specification D.94 would be used with a final transparent varnish Specification V.114 and invited tenders from dope manufacturers. Unfortunately, the tetracholorethane element of D.94 caused a number of fatalities. When private manufacturers produced equally effective non-poisonous dopes it was agreed that these, and a new R.A.F. non-poisonous tightener known appropriately as *Raftite*, could be used provided they met the requirements of the Aeronautical Inspection Directorate.

Each manufacturer had their recommended scheme of application. A typical factory and air park scheme was one using an initial thinned coat of three parts of dope to one of acetone, to ensure penetration to impregnate the canvas and give a better adhesion to the two full strength coats which followed.

Raftite and the proprietary dopes were virtually colourless. To give the characteristic khaki-green a preparation officially known as P.C.10—Pigmented Cellulose Specification No. 10—was used. This was nothing more than dope containing pigments, and two coats sufficed to give the camouflage colour of British warplanes 1916-1919. Produced by the various dope manufacturers, there has been much controversy over its precise shade; there is no doubt that it varied from green to brown. In the Camouflaging of Aeroplanes Trials at Orfordness in July, 1917, P.C.10 was described as khaki on one machine and as brown on another. To quote an American officer sent to British units to report on dopes: "P.C.10, this is an olive-green dope, sometimes called khaki paint". Normally it was applied to the upper surfaces and fuselage sides, leaving the undersurfaces their natural colour, but protected by two coats of V.114—Varnish to Specification No. 114—which in reality was more of a finishing dope than a varnish.

A coding system was instituted in August, 1916, for marking on doped surfaces in not less than 1 in. characters. Such a check system was necessary as, for example, Emaillite would not take on Cellon or vice versa. Letters were allotted for dope manufacturers as follows:

A.—"Armoid Dopes", by the Standard Collar Co.
B.—"Britannia Dopes", by Robert Ingham Clark.
C.—Cellon Ltd.
E.—British Emaillite.
N.—"Novellon", by Siebe, Gorman & Co.
R.—"Raftite", by the Royal Aircraft Factory.
T.—"Titanine", by the British Aeroplane Varnish Co.



This initial was followed by a second letter allotted alphabetically for the firm's own scheme on official acceptance. An example is BA the first scheme (A) with Clark's "Britannia" (B) dope for trainers introduced in April, 1917, which involved initial doping, a silver glaucous cover of one part silver colouring to four parts of dope and a final protective varnish. Their second scheme (BB) involved the standard doping coats, P.C.10 and V.114. The dope identity letters were in black or white to contrast, except for nitro-dopes, introduced from late 1917 due to shortages of cellulose acetate, which were marked in colours to denote an inflammable material. Aircraft so marked were restricted to non-operational areas. Two symbols were also used—a cross for a thinned dope and a triangle for full strength.

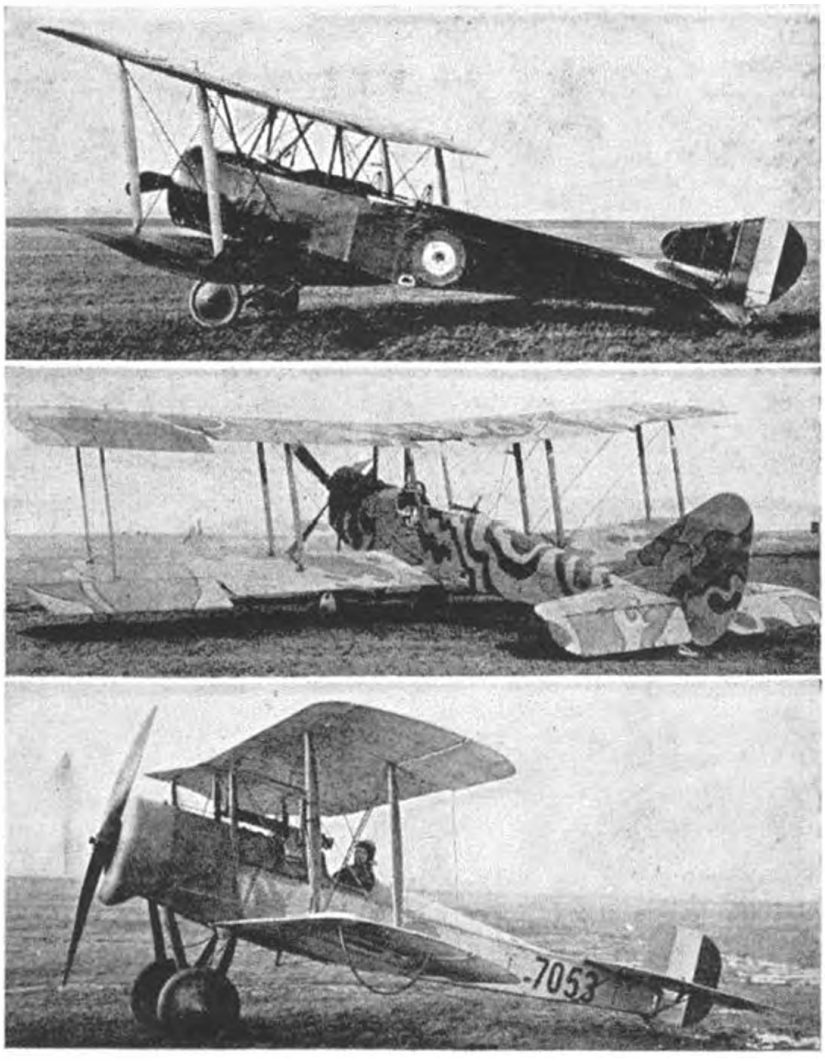
Apart from the officially approved schemes which practically all involved three to four coats of dope, two of P.C.10 for upper-surfaces and two of varnish for under-surfaces, units in the field had their own modifications to the scheme. One D.H.4 squadron, disregarding instructions to the contrary, varnished over the P.C.10 to cut down skin friction, and achieved an extra mile an hour at the cost of a reduced camouflage effect since the wings would then glint in the sun. Once so varnished, it could not be treated with P.C.10 as this would not adhere. It could be painted, but khaki-paint was not a standard issue.

Schemes varied from three coats upward; the heaviest service scheme recorded being an eight-coat scheme by No. 6 Air Park at Ochey during a shortage of Cellon, when six coats of Raftite were applied before the two of P.C.10, to the D.H.4s being processed for No. 55 Squadron. For night bombers, the Handley Page O/400s in particular, lampblack was sometimes applied to darken the shade.

On active service, the doping processes were not so easy to carry out, as to be efficient the material had to be clean and dry and the dope evenly applied in a warm atmosphere with sufficient time allowed between coatings for drying. The paint spray gun, already widely used in America, was tried for dope application, but due to clogging in trials was not generally adopted.

Pigments were supplied for roundel colours, but most of these markings were special aircraft paints, and the familiar squadron markings of white bars and circles were often of whitewash or chalk.

With all the different brands of dope and the various formulas issued by their manufacturers, small wonder that a colloquialism should have been engendered—"What's the dope"?



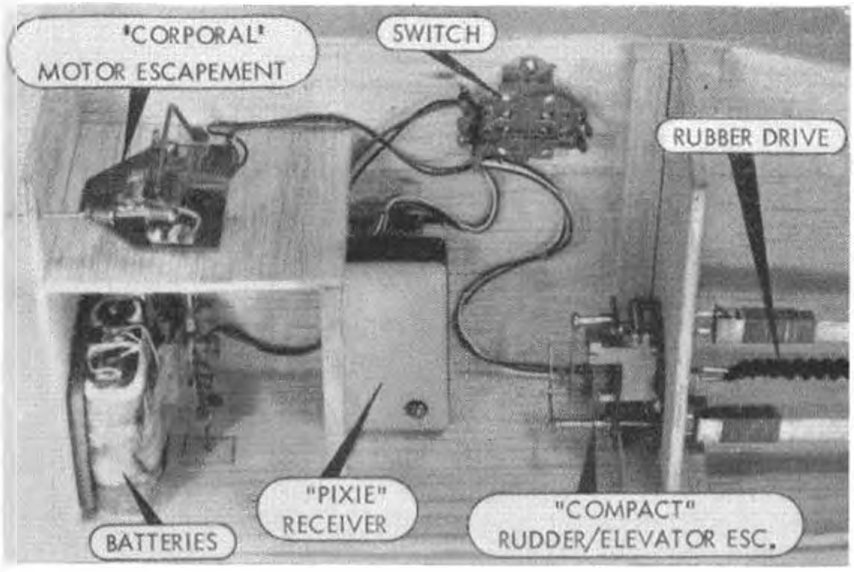
OPPOSITE: Identification markings on the vertical tail surfaces of a Sopwith Pup. C1479 is the aircraft serial number, in black on a white rectangle. Across the white stripe of the rudder, the number WS12234 signifies the part number, with W prefix for construction by Whitehead Aircraft, and on the fin the part number WS12233 is cased in a white rectangle. Beneath each, also in black lettering, are the letters CD. These signify that Cellon Scheme "D" was used for the dope finish. Unfortunate R.E.8 of No. 13 Reserve Squadron based at Dover, in 1917, is aircraft A3817, upended when being flown by Major Acland, M.C. His misfortune is our luck for it afforded these two excellent views to be taken, showing the P.C.10 upper surfaces and V.114 under-surfaces. Dope scheme details are minutely marked in the whites of the roundels. (Photos via F. Cheesman.)

VARIATIONS: At right, upper photograph shows a Sopwith 1½ Strutter with the fuselage roundel and markings on the fin partially obscured by lamp black. The metal cowling is painted black. Across the white rudder stripe is the number R.P.5415 CC to signify that the rudder was made by Ruston Proctor and the dope is Cellon Scheme "C". Centre is a camouflage experiment on an Armstrong Whitworth F.K.3. Roundels on the upper wing are unequal in size, the larger one to port, but each has the same centre point position forward of the aileron root end. All doping codes have been obscured on this "special". Bottom is a Bristol Scout 7053 with a synchronised Vickers gun. The rudder part number is marked across the central white stripe, but there is no suffix to identify what was most probably "Raftite" colourless dope on the unbleached linen covering as commonly used prior to introduction of P.C.10.

Getting started in Radio Control

PART EIGHT

USING THE COMPOUND ESCAPEMENT

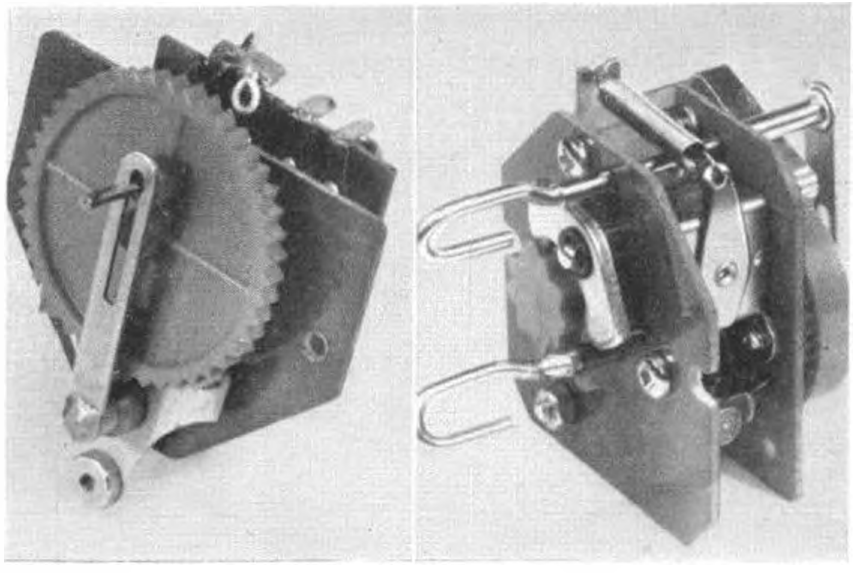


THERE IS BOUND to come a time when, his first flights successfully accomplished, the beginner is going to ask, "Why can't I use some other control as well as rudder?"

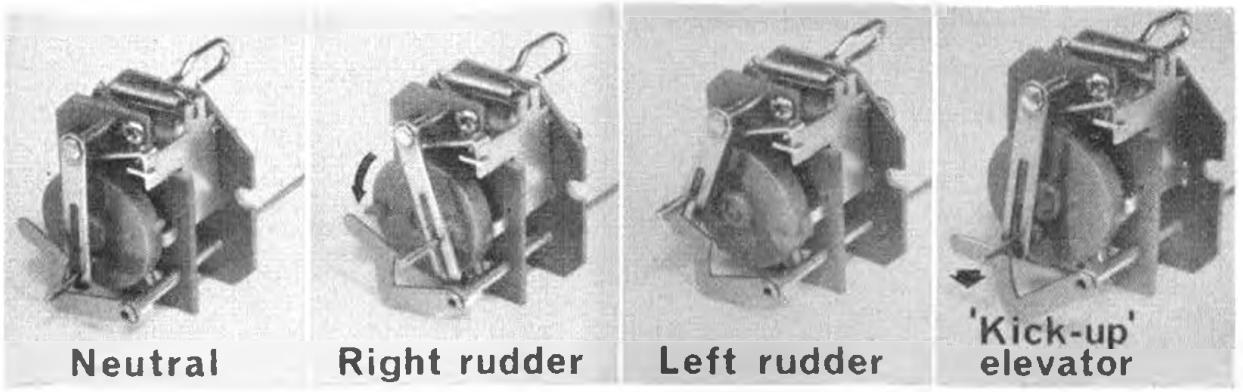
The answer is, of course, that he can. In order to achieve this goal, however, he must obviously use some extra equipment. This will take the form of one more escapement, to operate the engine speed control. It is generally accepted that if two controls are only available, they are better used for rudder and engine speed, but at the same time, this requires either a specially modified engine, or some extra work for the modeller to modify the one he is using. The ease, or otherwise, with which this can be accomplished, depends largely upon the engine, and it may well be that the tyro finds it too difficult or not practical in the model he uses. In this case, there is some reason to believe that the second control could be using the "Compound" to work an elevator, thereby increasing the number of manoeuvres that can be carried out. In practice, the machine fitted with rudder and elevator control is an extremely interesting one, allowing ample opportunity for experiments in flight patterns and aerobatics.

This idea may be enhanced by the fact that such a control is relatively simple to fit, with one reservation. Our elevator, unlike the rudder, will only work in one direction and must be self-neutralising. With a motor speed control, the tendency is the other way, because, having changed the engine speed, one would naturally want it to remain the same until the next signal, but this would produce some problems in the case of the elevator.

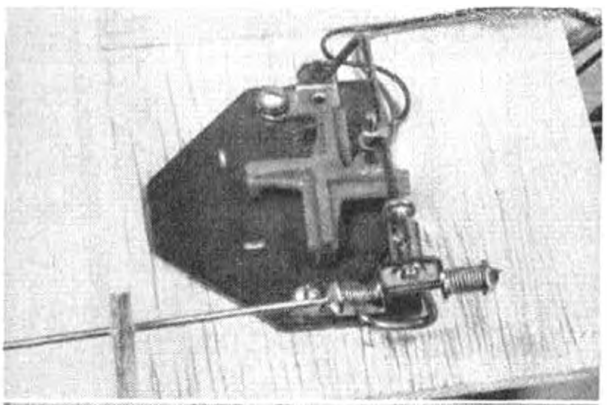
What is needed, then, is a system whereby left or right rudder, or up (or down) elevator can be selected at will, held on as long as required, and, when the transmitter button is released, all will return to neutral. This is possible, using a Compound escapement 'kick' motion. This also has built into it, a switching circuit which, when actuated, feeds electricity to another escapement, without necessarily energising its own magnet at the same time. From this it can be seen that the Compound is not only

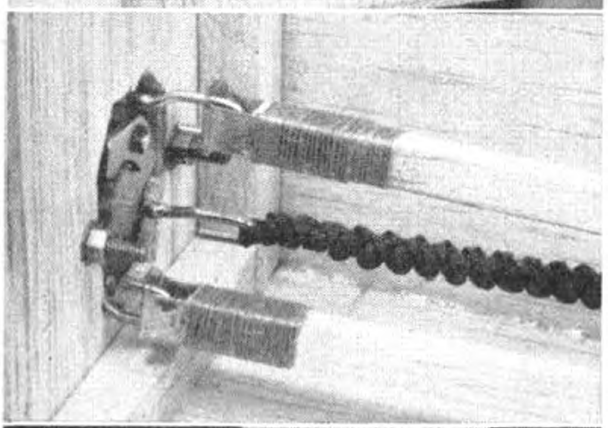


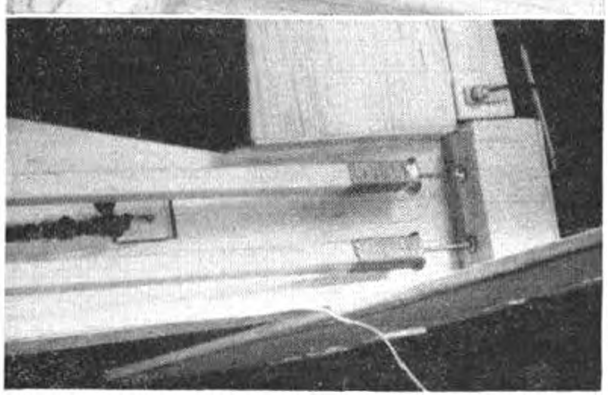
At top is our test rig, showing use of a Compound escapement with extra motor control. The compound escapement has to have a device which will regulate its operation and these two views at right of the Elmic Commander and the new "Compact" illustrate two different methods of controlling the speed. In the Commander at left, the large rotor wheel which operates directly at the rubber drive speed, being on the same shaft is intercepted by two pawls of a "rattler". This has a bob weight to control the rate. At right is the smaller rotor wheel of the Compact which is gear driven faster than the speed of the unwinding rubmotor. The "rattler" has no bob weight but is itself robust and in fact the speed can be slowed further by fitting a heavier rattler (supplied).



The four stages of operation with an Elmic Compact are seen above. Note the setting of the kicker for the elevator which must not interfere with the rudder positions. At the Left rudder position, the kick arm must have clearance.





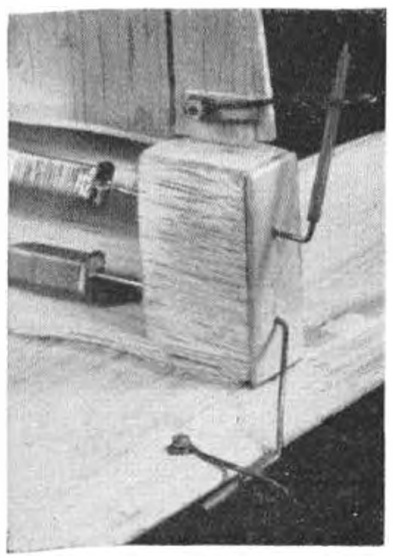


an escapement in its own right, but also a kind of relay, or remotely controlled switch, used to activate other escapements. Theoretically, one would suppose that there is hardly a limit to the number of components one could use in this kind of 'Cascade', but in practice, seldom more than three are used.

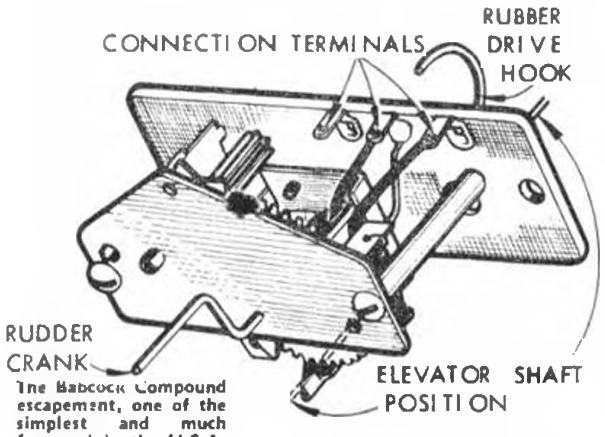
In order to have control of rudder and engine control, then the modeller must equip himself with one two position—two neutral (2P2N) escapement, plus one Compound actuator, which he can choose from the many available on the market. A look at our test rig will show the sort of layout that is practical. In this model the Compound escapement is connected, via a torque rod, to the rudder. At the same time it is wired to a simple escapement in the cabin which operates the throttle by means of a push rod. Each escapement has its own rubber motor. These can be conveniently wound by the end plugs at the tail end and below the fuselage.

Any Compound actuator should be supplied with a wiring diagram, showing how it should be connected and this must be carefully followed, although there will be nothing very complicated about it. All that will be needed, in the ordinary way, will be two extra wires, leading from the compound to the simple escapement. The soldering points will be clearly indicated, so that no problems should arise at all.

When the wiring has been completed and well checked, it should be easy to obtain the different



At left, top to bottom: The Elmic Corporal escapement arranged with the supplied shock absorbing spring dev ces for push-pull action. This is wired to appropriate contacts on the Compact. (See heading pic for general view.) Centre is a rear view of the Compact with the rudder and elevator torque rods bound to the supplied adapters to slide on the hooks. At bottom is the rear end of the fuselage with the end of the rubber motor drive exposed as it connects to a fuselage side plug, used for winding. Washer stops are soldered to the wire shafts. At right is rear with rock ng ends of torque shafts insulated to prevent receiver interference.



The Babcock Compound escapement, one of the simplest and much favoured in the U.S.A.

positions of rudder and elevator, or throttle, at will, bearing in mind that the compound escapement will move the rudder a little slower now, because of its different action, and that the throttle will be of the 'bang-bang' faster type.

Elevator Connection

The method of connecting the rudder to the compound escapement using a torque rod, has been explained, so that all that remains is the elevator. This must be connected in the same way as the rudder but, because it is operating in a different plane, it will need a slightly different type of hook-up. The photographs show the way in which this may be done, although, no doubt other methods will present themselves, according to the design of the escapement. Once again, it must be emphasised that for trouble-free operation, all moving parts must be free of bind, and kept slightly oiled. Loops and slots must be tested with the crank at the end of its travel, to give assurance that the engaging pin or spindle is not likely to stick. It must also be remembered that, the elevator being in the horizontal plane, it is now in the neutral position when the crank from the escapement is in its special positions, and not when vertical as is the case with the rudder. Adjustment is simply made by turning the crank while holding the elevator in position, before soldering. This is even more important for the elevator as it was for the rudder, because it will have a more detrimental effect if it is out of true.

When it comes to the actual operating of both controls, it will be found that a sequential system has been achieved. The details of the sequence will depend on the sort of Compound actuator used, but the sort of thing that results may well be as follows:

Selecting the Control

One press and hold (—) on the transmitter button will give, say, *right* rudder.

Two presses and hold (- —) will give *left* rudder.

Three quick presses and hold (- - —) give *up* (or down) "kick" elevator, whichever is next in sequence.

Release of the button will return all controls to neutral.

Unlike the simple escapement that was used before on the rudder (Part 5—November, 1964), this one will *always* give left rudder for the two presses, and *always* right rudder for one press, but it is best to remember that the elevator is still worked in *every* sequence. In practice, the flyer will find this very much easier to do than to talk about, and it will soon become second nature to know which pisition will come next, and to prepare the way for the next signal.

Motor Control

The secondary escapement, operating the throttle is linked electrically and made to work only by special action at the transmitter. Thus it does not cycle like the elevator and is independent of the rudder and elevator control. This is known as a **Quick Blip** action whereby the pilot gives a short, sharp tap on the transmitter button to send the quickest possible "blip" signal. A technical description of the system as applied to the Elmic units we have used in this month's illustrations, is given by the manufacturer as follows:

The Quick Blip circuit comprises two built-in switches which must both be closed to trigger the motor control escapement. By tapping the transmitter button the armature switch closes as the wiper beneath the Rotor passes the live position on the printed circuit and so, for an instant, both switches are closed. At no other time can these switches be closed together.

Circuits for various "Quick Blip" applications were given with earlier parts (May, June, July '64 issues) and illustrated how with some relay receivers and compound escapements, the relay back contact is used for the "Quick Blip". We shall be dealing with the other types of unit, having push-pull action, or motorised, in future months.

PFALZ D III (Continued from page 74)

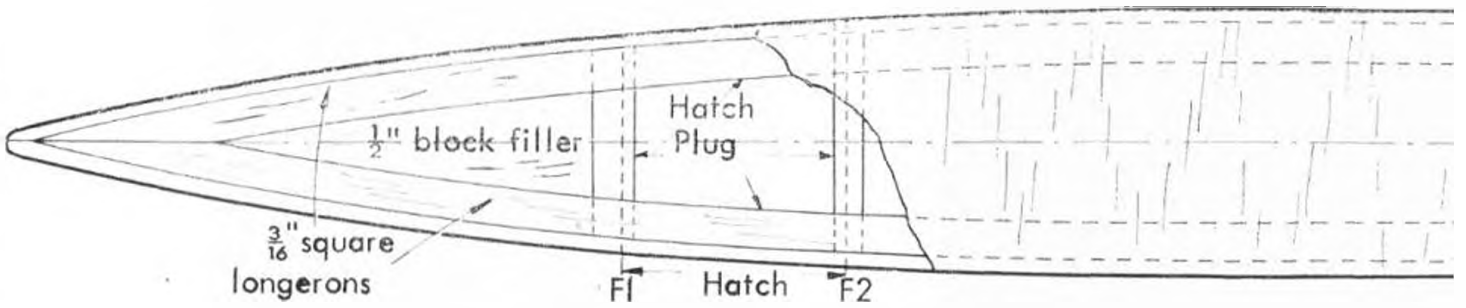
cated root fairings, integral with the fuselage, and rigged with one degree of dihedral.

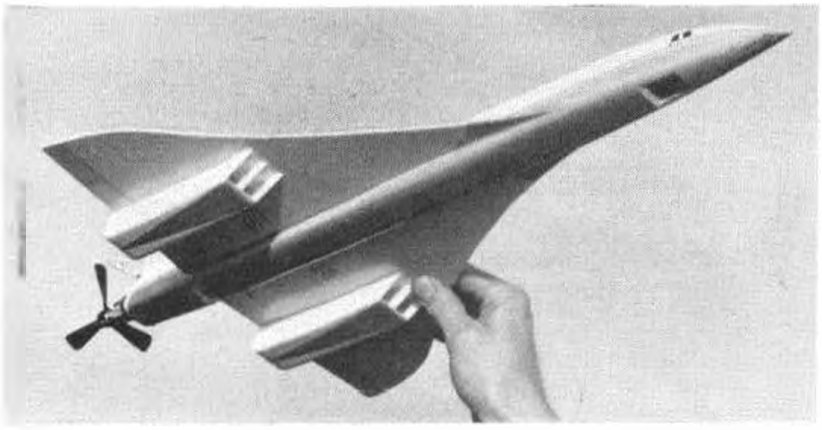
A Pfalz D IIIa with enlarged tailplane, D IIIa 8143/17. (Egon Krueger photo.)

Substantial wooden interplane and centre-section struts were of Vee and "U" pattern respectively, the former being sufficiently wide at the base to join both lower wing spars. A conventional steel tube undercarriage chassis, with axle and spreader bars enclosed in a streamlined fairing, was fitted. Wheels were sprung with elastic shock cord, likewise the "hockey stick" type tailskid, a somewhat unusual shaped fitting.

The Pfalz D IIIa which followed into production differed little visually from its forebear. An uprated engine developing some 180 h.p. was installed and the exhaust manifold was of saxophone type with the "bell" outlet adjacent to the first cylinder. Lower wing tip profile was more rounded and a tailplane of increased area and chord was fitted.

Propellers of differing type were fitted, most common was the "Axial" of 2.82 m. diameter; "Heine" of 2.78 m. diameter and "Imperial" of 2.7 m. dia.





K. J. Downton's

CONCORD

FULL SIZE PLANS FOR A 12 INCH SPAN VERSION OF THE ANGLO-FRENCH SUPERSONIC JETLINER FOR .020 POWER

WHEN WE SAW this futuristic delta flying at the 1964 South Midlands Area Rally, we tracked down the flyer and are pleased to be able to publish full size drawings for quite a remarkable little model.

A Cox "Pee Wee" engine was used on the prototype, set at an angle. This engine is most convenient because of its reed induction, which allows it to run in a clockwise direction, and thus does not need a special pusher propeller which is otherwise necessary for any rotary valve engine. Being all sheet construction, it is very tough and will withstand many a hard knock, although in fact, it is a docile model, having inherent stability.

No claim is made for it to be a true scale model. The shape of the real Concord has yet to be defined, so we will ignore the curly tips and changes of nose profile for the sake of simplicity. Here *is* a Concord that you can make to fly in 1965 and thus be well in advance of the Anglo-French supersonic jet-liner project.

Construction sequence is as follows :

(1) Cut out and slot the 1/16 in. sheet fuselage sides : glue on pre-curved (by steam) longerons and nose doublers, using PVA glue. Balsa cement F3, F4, F4A, F5, F5A and F6 square to one side.

(2) Cut out and assemble the wing from 3 in. or 4 in. wide 1/16 in. sheet (pre-cemented).

(3) Chamfer longerons at nose as per plan view and join fuselage sides by the formers erected, checking alignment.

(4) Sand the wing to shape : sand the surfaces smooth the leading edge and trailing edge, and mark the of the Jet nacelles on the under-side.

(5) Insert wing into fuselage slot, checking alignment a run a bead of balsa cement along the inside of all fuselage joints (a clean ball-point refill tube makes extension for the cement tube nozzle, necessary stage). Weight the top of the fuselage to ensure wing follows the contour of the slot. Allow this a to dry fully.

(6) Fix 10 B.A. nuts to the engine mounting bulkh with tin plate or wire, soldered to lock the head engine to the mount. Recess F7 to accept the bolt PVA the engine assembly to F7, pin in place.

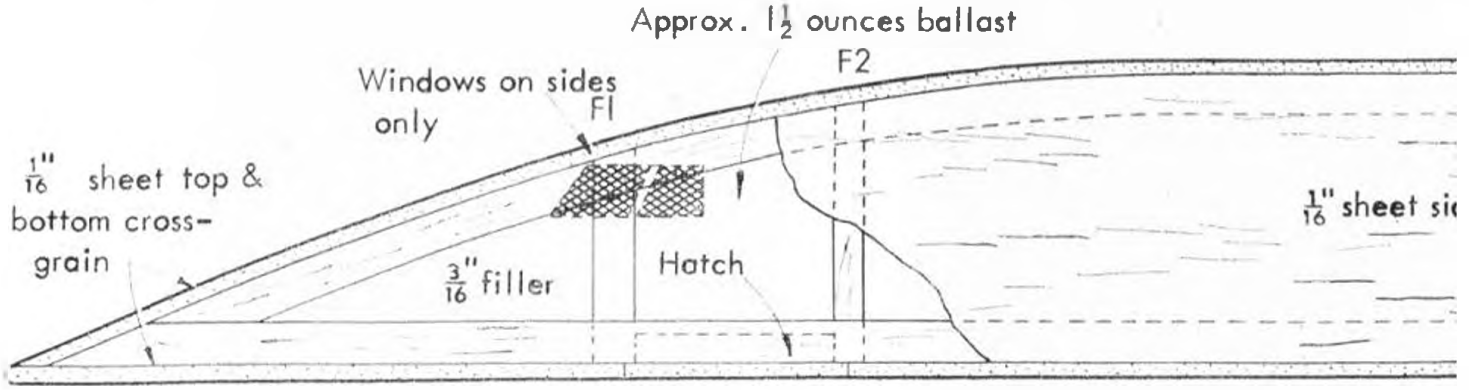
(7) Cement remaining formers: F1, F2, and F7 assemb the fuselage (twist formers to insert). Cement no pull in with rubber strip binding.

(8) Shape ½ in. sheet nose block, PVA in place (pin sides), and sand flush with longerons.

(9) Sheet fuselage top and bottom with 3 in. x 1/16 in (cross grain), except for upper rear fuselage: Temp insert 1/16 in. sheet fin, and sheet top of fuselage fr back with 1/16 in. sheet grain lengthwise ; remove F

(10) Sand fuselage corners to rounded section. (See F1 on plan.)

(11) Assemble nacelle sides and central intake dividers the wing and sheet with 1/16 in. balsa cross grain slight wrap-over at tail end.



Capt. A. R. Brown's CAMEL MARKINGS

A contradiction of the accepted decor used by Richthofen's victor

Canadian Museum photograph shows Captain A. Roy Brown with his decorated Camel and clearly indicates the width of the Vee on upper wing plus absence of fuselage roundel.

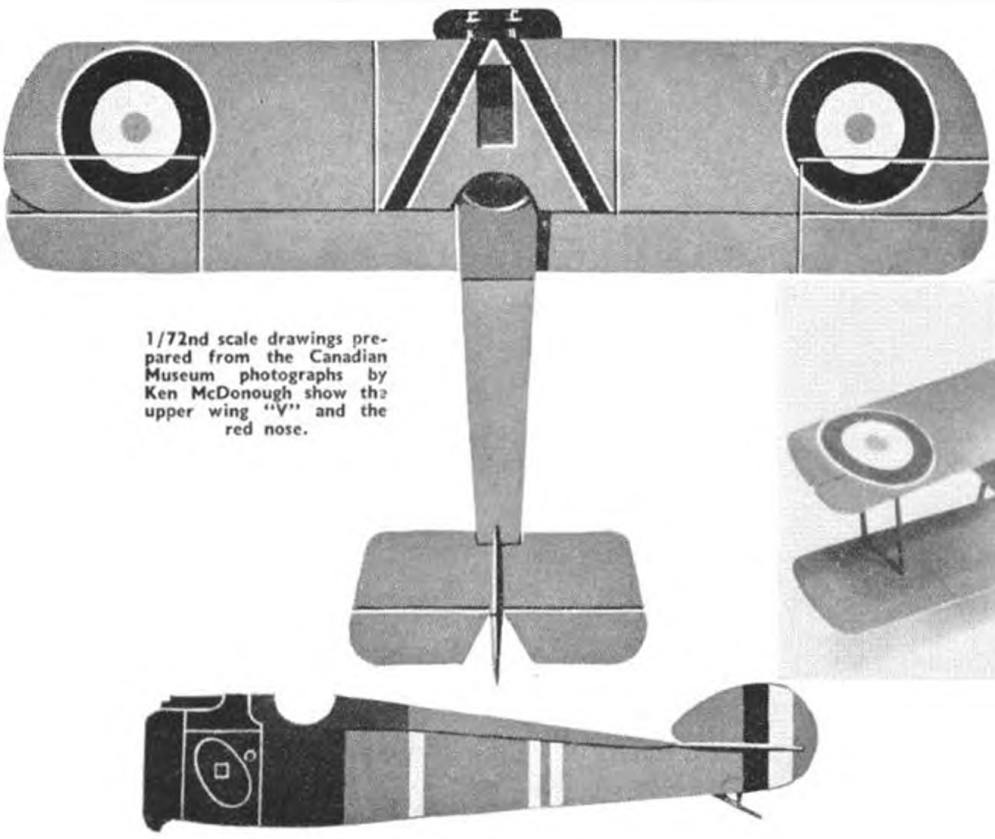
IN OUR FEATURE "Squadron Markings", Part 18, May 1964, we reproduced the markings for Captain A. Roy Brown's Sopwith Camel as detailed by Captain Brown in his correspondence of June and July, 1936. He was writing to Christy C. Magrath, Jr., in response to requests for information on the colouring of his aircraft, and he stated that the engine cowling and metal areas on the forward fuselage were red, the wheel discs were also red, and that the "V" stripes were red, outlined in white on the top plane and the top of the fuselage. Information was given with a provision that, "*It is difficult for me to recall now exactly the markings that I used . . . but if I remember correctly . . .*" The letter concluded with a statement that Captain Brown had no photographs of any aircraft he ever flew.

Soon after publication, K. M. Molson, Curator of the National Aviation Museum, Ottawa, Canada, submitted three photographs. These illustrated a line up of 209 Squadron, and two views of Captain Brown and his Camel. (One reproduced here – Ed.).

From the photographs, it was evident that none of the Camels of 209 Squadron carried serial numbers on the vertical tail surfaces, and that on the particular Camel in the photographs of Captain Brown, there was no fuselage 'V', and the upper plane 'V' was limited in width to the centre section with narrower arms than agreed by Captain Brown in the sketches which accompanied his 1936 correspondence.

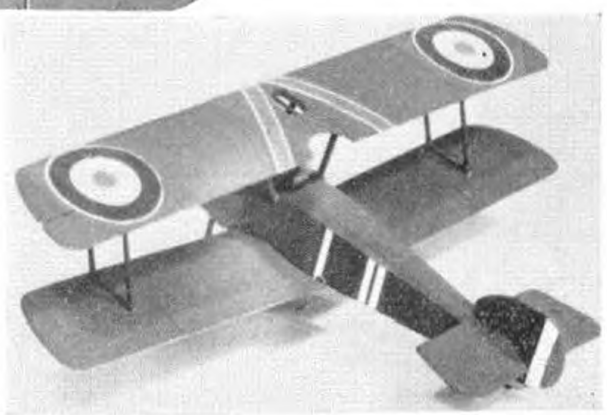
In view of these conflicting reports, one from the pilot himself, the other based upon actual photographic evidence, one can at best presume that Captain Brown had more than one machine decorated with red 'V' and nose, and at worst, one can only accept the markings which are actually substantiated by photographs.

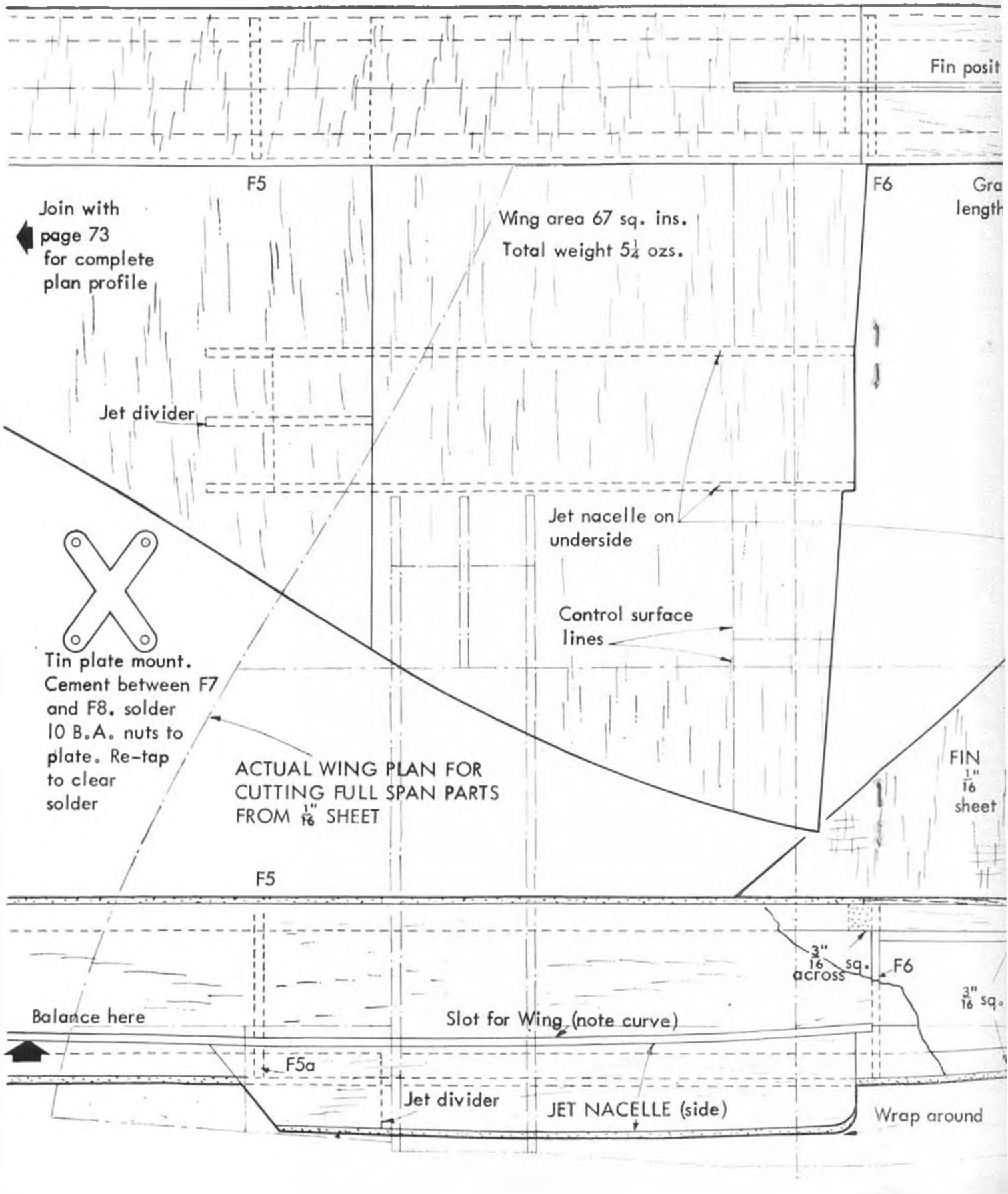
The revised drawing produced in accordance with the photographs, is reproduced here to supplement the information published last May, and our model made from the excellent Revell 1/72nd scale kit has also been altered as far as the transfers are concerned, to conform with this latest information.

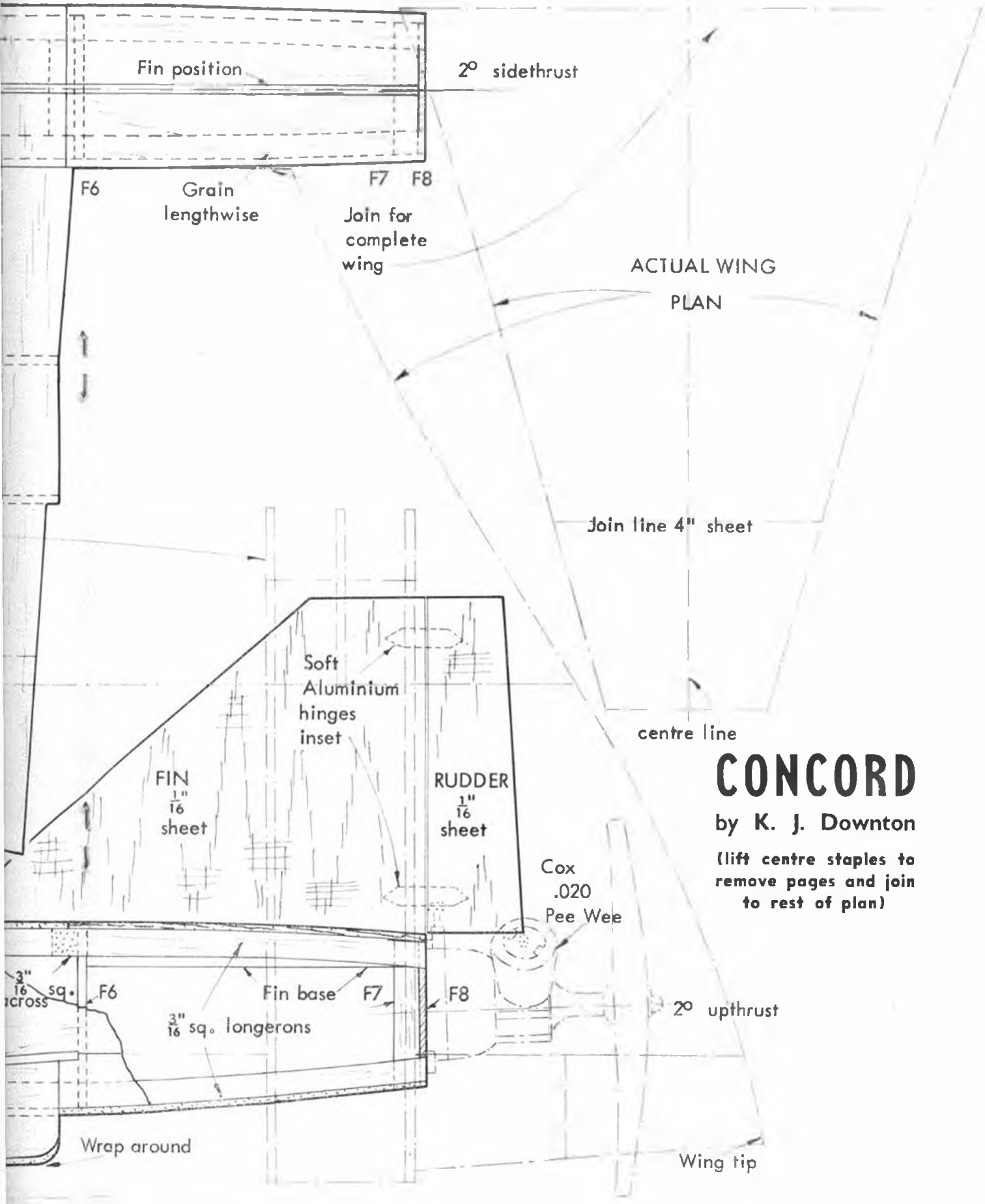


1/72nd scale drawings prepared from the Canadian Museum photographs by Ken McDonough show the upper wing "V" and the red nose.

Revell's kit to 1/72nd scale for the Sopwith Camel is one of the finest in their excellent series. It assembles easily, is very accurate and does not over-elaborate features out of scale. Note our alterations to the transfers to comply with the info on this page.




Fin posit
F5
F6
Gra
length
Join with page 73 for complete plan profile
Wing area 67 sq. ins.
Total weight 5¼ ozs.
Jet divider
Jet nacelle on underside
Control surface lines
Tin plate mount. Cement between F7 and F8. solder 10 B.A. nuts to plate. Re-tap to clear solder
ACTUAL WING PLAN FOR CUTTING FULL SPAN PARTS FROM 1/16" SHEET
FIN 1/16" sheet
F5
3/16 sq. across
F6
3/16 sq.
Balance here
Slot for Wing (note curve)
F5a
Jet divider
JET NACELLE (side)
Wrap around



CONCORD

by K. J. Downton

(lift centre staples to remove pages and join to rest of plan)

HINTS 'n tips

IT IS NOT ALWAYS necessary to have a sketch to explain an idea. What follows is a series of suggestions that have cropped up in our mail which we feel would be helpful to other aeromodellers.

First two gadgets out of the postbag concern fuel tanks. F. Skinner of Radlett, Herts, says that when making free flight fuel tanks from celluloid tooth brush containers, it is difficult to glue the end caps of celluloid in place. To make a stronger joint of these end caps, heat the main body of the tank and then press the open end on to a flat surface. This provides a flange, to which the end caps can be securely attached.

A simple valve for Reguflo type team race tanks incorporating a motor scooter tyre valve comes from J. Franklin of Woodford, Essex. Cut a ¾ in. length of ⅛ in. I.D. copper tube and ream out one end ⅛ in. The scooter valve is in two parts and has to be sealed, so coat the valve body with araldite and then screw it into the reamed out end of the copper tube. The male thread on the valve will cut its own thread in the copper tubing. Result a leakproof valve, with a rubber seating flange for only 6d., and three minutes work.

Cleaning dope jars for re-use is usually a messy job, but not with the method used by N. Rushby of Shirley, Southampton. Leave the empty dope bottle to dry for a few days, and when absolutely dry, fill with water and leave again for a few days. Then place your finger inside the bottle and rub it against the sides. The dope should then readily come off. If not leave it to soak for a little longer and try again. The bottle can then be dried and used for the storage of nuts, bolts, etc.

Two more ideas, this time from J. Tushett of New South Wales, Australia. He suggests that to ease the bending of thin walled brass tubing, pack the tube with cooking salt, plugging at each end, and then heat in a blowlamp or gas flame. Then when hot form round a wooden mandrel. The salt prevents kinks forming and can easily be washed out afterwards. A use for those disposable nylon syringes, complete with needles, is cementing unaccessible parts. Fill the syringe with balsa cement, and then cracks in spars and sheets inside the model can be cemented with just a small hole in the covering. Another use is to take the needle off and use it as a graduated free flight fuel tank.

A flexible trim tab comes from P. Lindsay of Duxford, Cambs. Brass or copper gauze should be cemented to the trailing edge and the holes filled with cement. This gives a very flexible tab that may be painted the same colour as the model. Only fine gauze should be used, as this is more flexible and the holes are easier to fill.

Two ideas come from D. George of Liskeard, Cornwall. Lightweight pilots for rubber models and small power scale models can be made as follows. Lightly grease a plastic or nylon team race pilot and apply several layers of lightweight tissue with Polycell or similar wallpaper paste. If plenty of paste is used every contour, including the face, will come out clearly. When the paste is dry ease off by slitting if necessary. Cut out goggles with a sharp pointed blade, insert celluloid inside, then dope to required colour. The tissue will be quite rigid and the finished job more realistic than its mould. The second gadget is for holding wheels on. About ⅛ in. of curtain wire makes an excellent wheel collet. Push fit the curtain wire on a 12 s.w.g. u/c leg and lock it with a small blob of solder.

Painting framework lines neatly on to canopies of scale models can be very difficult, if not impossible (especially with such types as the Lysander, in 1/72nd scale!), so to remedy this S. Cole of Brightlingsea, Essex, uses adhesive backed plastic sheet, such as "Contact" or "Fablon", cut into strips of the required width. The sheet is firstly painted to match the aircraft colour scheme, and then cut into strips with a sharp razor blade and steel edge. Backing paper is pulled away after lifting an edge with the razor blade, and strips applied to model.

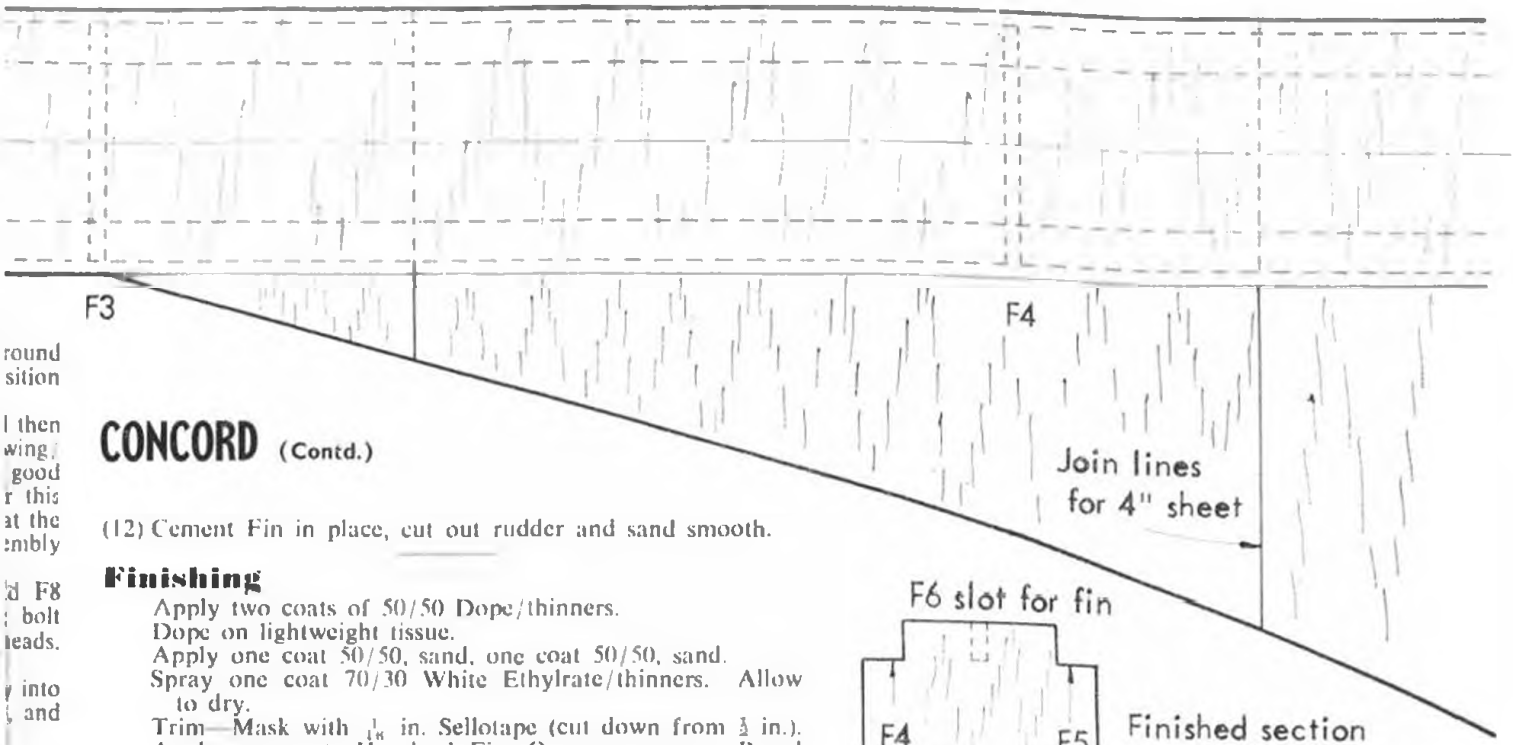
The first suggestion we have had on how to use those moulding stems in a plastic kit comes from S. Tucker of Ashtead, Surrey, who says instead of throwing them away, trim off all the stubs with a chisel and smooth with glasspaper. You then have a handy stirring rod for enamel paints. Do not use them in dope or they will melt away!

Yet another use for glass fibre, this time from P. Kenward of Aylesbury, Bucks. To make tubes to fit on odd size dowel rods, simply rub candle wax on to the dowel, and then apply a layer of glass fibre. When dry, heat gently and the tube can easily be pulled off the dowel rod.

Messy fingers are a thing of the past for M. Johnstone of Horwich, Lancs. To remove excess cement from the fingers, he rubs them with a wad of cotton wool soaked in Acetone. This cleans the dirtiest hands in no time at all. Available from chemists Acetone costs 1/3d. for a 4 oz. bottle.

A fuel proofing tip from S. Savini of Liverpool 1, on how to get the best results from Titanine fuel proofer. Use one and a half phials of hardener to every jar of proofer and never mix more than half a jar, adjusting hardener accordingly. Keep the mixture in a bowl of hot water whilst using it, as this stops it going stickly too quickly.

Bending dural parts, bearers, u/c's, etc., always presents a problem to many aeromodellers so here is another method to get good results. R. G. Procter from Weybridge, Surrey, suggests that to avoid cracks at the bend, the dural should be slowly heated over a gas flame, ensuring even heating. While being heated the job should be stroked now and again with an old match end. When the match leaves a brown line on the dural, plunge the job into cold water. It is then softened and will stay soft for about two hours. Best bending results are obtained if it is bent within 15 minutes, over a slight radius. It will self harden again after a few days.



CONCORD (Contd.)

(12) Cement Fin in place, cut out rudder and sand smooth.

Finishing

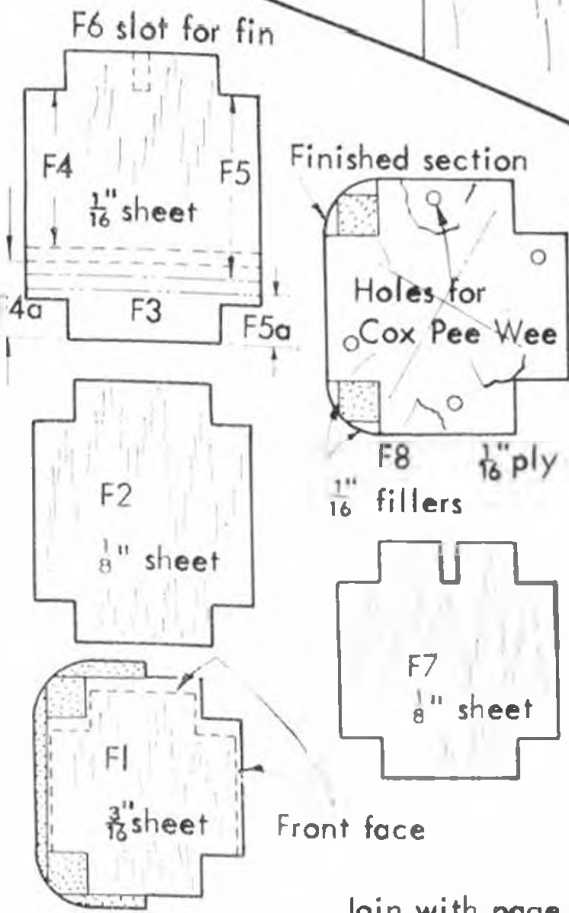
Apply two coats of 50/50 Dope/thinners.
Dope on lightweight tissue.
Apply one coat 50/50, sand, one coat 50/50, sand.
Spray one coat 70/30 White Ethylrate/thinners. Allow to dry.
Trim—Mask with $\frac{1}{16}$ in. Sellotape (cut down from $\frac{1}{8}$ in.). Apply two coats Humbrol Fire Orange, one coat Royal Blue Ethylrate 100 per cent (add rudder via aluminium tabs). Evo-Stik in place.

Flying

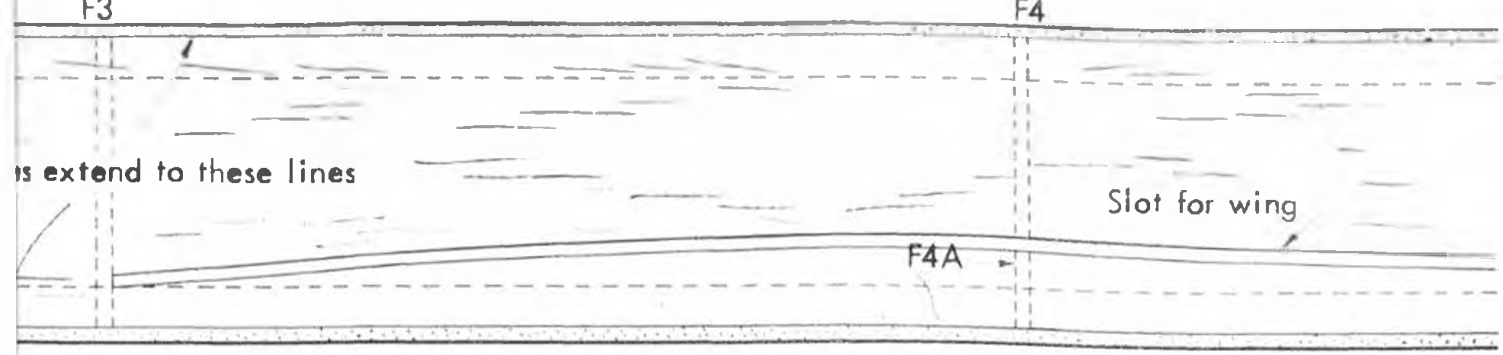
Add Ballast (1 oz. +) to nose until model balances where indicated. Grasp model by rear fuselage behind the wing. Launch hard parallel to the ground, adjust balance as required.

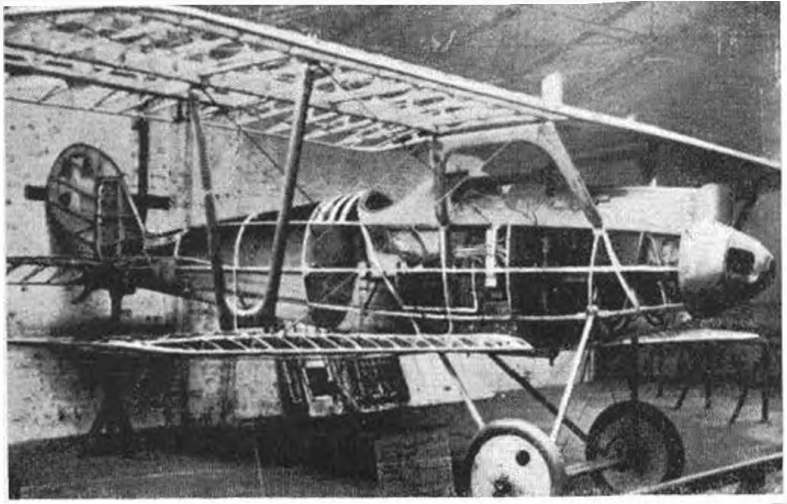
Thrust Line

Two degrees right and two degrees upthrust with C.G. at 50 per cent results in a fairly tight turning climb followed by a long, straight, fast glide.



Join with page 70





Aircraft Described No. 139

Pfalz D III

described and drawn

by Peter L. Gray

Pfalz D III 4184/17 on display with one half of the covering removed to make a neat 'cutaway' heading. Immediately above is the same machine overpainted with British roundels including one to cover the tail cross. Tail and fuselage band were brown.

DESIGNED EARLY IN 1917 the Pfalz D III was the first original biplane product to emerge from the Pfalz factory at Speyer on the Rhine (Speyer am Rhein) in Bavaria. Earlier the firm had constructed some E type monoplanes which were virtual copies of Morane-Saulnier machines which they had manufactured under licence before the war. These were followed by Roland D I and D II machines likewise licence-built. Administered by three brothers: Alfred, Ernst and Walter Eversbusch (until Walter was killed in a flying accident in June 1916) the Pfalz *Flugzeug-Werke* had been founded in July 1913 and largely financed by the Bavarian Government.

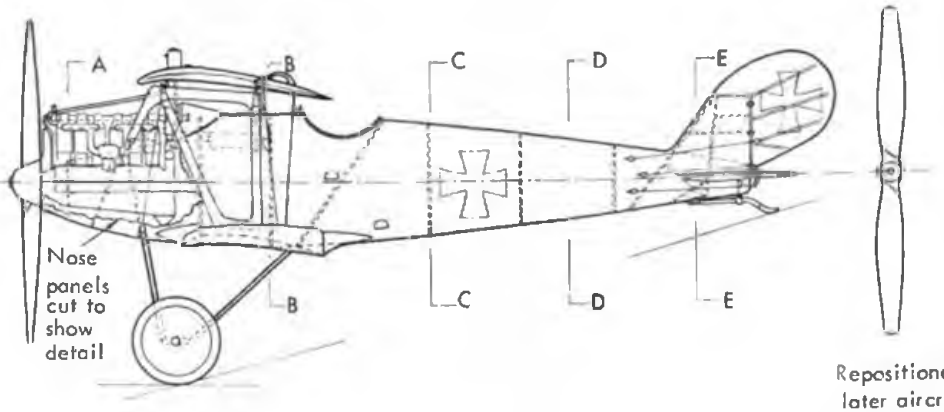
A product of the firm's chief engineer Gehringer and designers Paulus and Goldmacher, the prototype D III appeared in the Spring of 1917 and differed very little from the eventual production version. Ailerons were unbalanced and the rudder was less rounded; the leading edge and top being more straight. The lines of the aircraft were similar to the contemporary Albatros D III and D V, but more angular: the design also owed something to the French Nieuport 17, a captured example of which had been made available to the Pfalz company.

Once production was under way aircraft became available fairly rapidly. Although only three of the type had reached the Front by August 31st, 1917, there were 145 by the end of October and 276 D III and 114 D IIIa by the end of the year. First allocations were to Jastas No. 16, 23, 32, 34 and 35 which had been transferred to the Bavarian Army on July 4th, 1917, and Jastas No. 76, 77, 78, 79 and 80 which were formed as Bavarian units during the winter of 1917-1918. Invariably D IIIs and D IIIas were also to be found with Prussian and other Jastas in company with Albatroses and Rolands. Although not particularly agile and rather slow in the climb the Pfalz was an excellent gun platform and quite stable in a fast dive. Another of its virtues was its ruggedness and ability to absorb considerable punishment. It was to give a good account of itself when first introduced but by the Spring of 1918 D IIIs had largely been withdrawn from the front and re-assigned to the fighter schools. Production of D IIIs continued into 1918 in fact as many as 433 were with Jastas in April and usage continued right up to the end of the war: however, it gradually became outclassed by its adversaries and pilots were at an immediate disadvantage when opposed to the manoeuvrable Camels and S.E.5s of the Allies.

A 160 h.p. Mercedes engine was housed in the decidedly shark-like nose, enclosed in metal panels which extended up to the inlet manifolds and along the length of the cylinder block. The remainder of the fuselage was a semi-monocoque structure: the basic framework of oval ply formers and spruce stringers being covered with a thin ply shell. This consisted of two three ply layers, each less than 1 mm. thick, unusually applied in the form of spirally wound strips, about 3½ in. wide, wrapped in opposite directions, a final skin of doped fabric then being applied. Initially the twin Spandau machine-guns were housed inside the fuselage with only the muzzles protruding either side of the cylinder block. Operational experience later showed that it was more practical to locate the guns in more conventional manner on the top decking immediately in front of the windscreen: quicker sighting by this arrangement was also claimed. The fin was integral with the fuselage, likewise a stub tailplane, both being ply skinned and fabric covered. Of angular outline the tailplane and one-piece unbalanced elevator were wooden framed and fabric covered, an unusual feature being the inverse camber of the tailplane. The well rounded, balanced, rudder was framed in steel tube—the only control surface to use this medium — with fabric covering.

Although differing in span and chord the wings were the same basic shape, of constant chord with severely raked angular tips. The top wing was a one-piece structure without dihedral and based, in conventional fashion, on two box-spars. A unique feature of the construction was the insertion of a diaphragm into the box-spars at all rib stations to transmit sheer stresses. The centre-section with its shallow cut-out was ply covered and housed a gravity fuel tank in the port side, while a flush type Teeves and Braun radiator was mounted in the starboard side. Balanced ailerons were of wooden framing and operated by curved cranks actuated by cables running through the lower wings. Of narrower chord, to improve visibility for the pilot, the bottom wings were still based on two spars and in consequence did not suffer from the tendency to twist in a prolonged dive as did the single spar wings of the Albatroses. They were joined to carefully fabri-

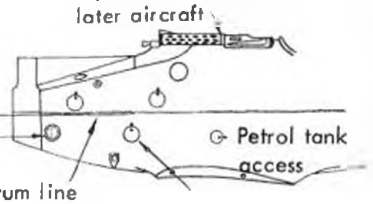
(Continued on page 67)



Colour details.—Practically the whole of D III production machines were sent to the aircraft parks finished all over in aluminium dope. Interplane and centre-section struts were natural varnished spruce; propellers were usually of walnut and ash laminations, clear varnished. Jasta aircraft were decorated with unit and individual insignia: those of Jasta 10 had complete tail assembly, nose (back to front undercarriage struts), wheel discs and struts painted a deep chrome yellow. D III 1370/17 of this unit was flown by Lt. Klein and had the fuselage cross flanked by light coloured bands approximately the same width as the cross.

Later production D IIIs had wings covered in lozenge printed fabric the remainder of the airframe still being aluminium. Straight sided Greek crosses enclosed by 15 cm. white surround were introduced April 15th, 1918; from May 16th a narrow white outline to the sides only of the crosses was ordered.

Repositioned guns on later aircraft



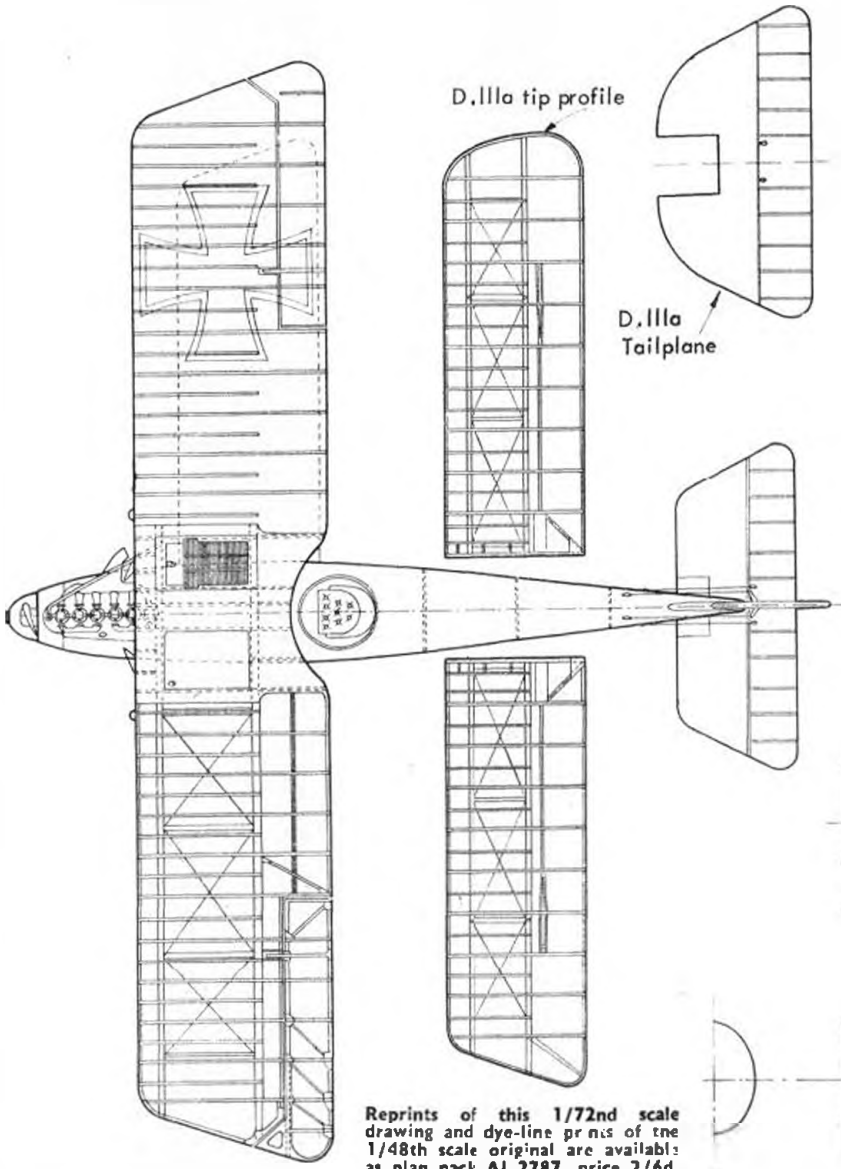
Specification

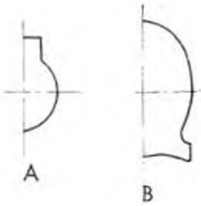
Manufacturer: Pfalz Flugzeug-Werke G.m.b.H. Speyer am Rhein.
Power Plant: 160/180 h.p. Mercedes D III.
Span: *Upper*, 9.4 m. (30 ft. 10¼ in.); *Lower*, 7.8 m. 26 ft. 8 in.).
Chord: *Upper*, 1.65 m. (5ft. 5 in.); *Lower*, 1.20 m. (3 ft. 11¼ in.).
Length: D III, 6.95 m. (22 ft. 9¾ in.); D IIIa, 7.06 m. (23 ft. 2 in.).
Height: 2.67 m. (8 ft. 9¼ in.).
Dihedral: 1 deg. each panel lower wing only.
Weight Empty: 725 kg. (1,595 lb.)
Weight Loaded: 905 kg. (1,991 lb.).
Maximum speed: 165 km. hr. (103.12 m.p.h.).
Duration: 2½ hours approx.
Armament: Twin Spandau machine-guns firing forward.

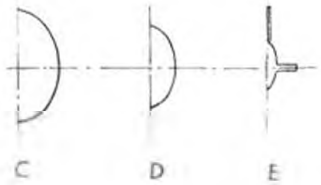
N.B.—Performance recorded on captured D III 4184/17: Max. speed 102.5 m.p.h. at 10,000 ft. 91.5 m.p.h. at 15,000 ft. Climb to 10,000 ft. in 17 min. 30 secs.

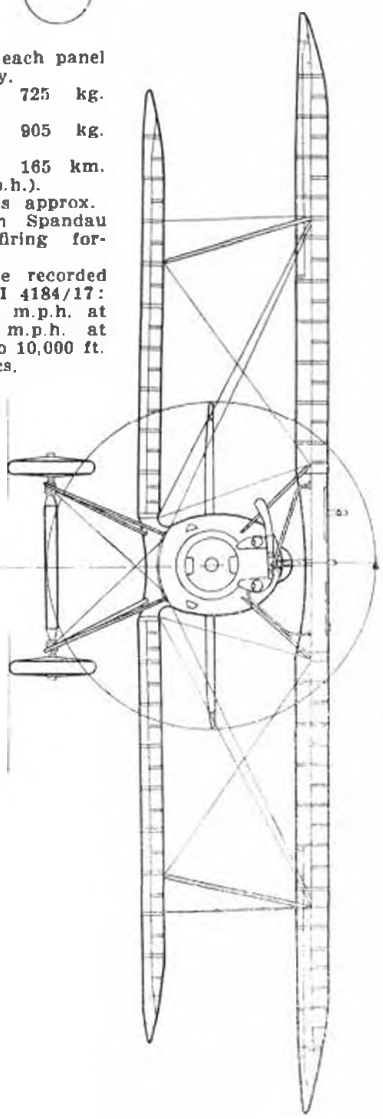
Authentic serials:
D 111. 1334/17, 1366/17, 4023/17, 4111/17, 4096/17;
D IIIa. 4237/17, 5912/17, 5944/17, 8033/17, 8190/17.

Spring loaded access doors with locating arrow – Scale x 4









Reprints of this 1/72nd scale drawing and dye-line prints of the 1/48th scale original are available as plan pack Aj 2787, price 2/6d. plus 6d. post from Aeromodeller Plans Service.

PFALZ DIII & D IIIa

Scale Feet

Silver finish with black cowlings on DB 600 engined prototype Ju 90 above, third machine at left "Bayern" was first to carry DLH livery, also shown on nose of D-ABDG the first production aircraft, below left. Photos from Lufthansa Archive.

SIGNPOST

THE GERMAN AVIATION RESEARCH GROUP of *Air Britain* answers a query with plenty of hitherto unrevealed information on one of the early four engined monoplane transports. "SIGNPOST" invites queries on scale data and markings, to be answered by *Air Britain's* expert specialists. Postcards only please, sent c/o Aeromodeller offices.

I am contemplating a 1/48th scale Junkers Ju 90 civil transport. Is it right that 10 of these machines were built for Deutsche Lufthansa? I know of the following, "Der Grosse Dessauer", "Bayern", "Preussen" and "Schwabenland". Can you give registrations, individual names, colour schemes and histories? I believe that the prototype had different engines to others.

(A. S. Corfu, Greece.)

Through the courtesy of Deutsche Lufthansa, I have had the opportunity to study certain pre-war and wartime records held in the airline's archives at Koln, and from these data the table below, left, of all known civil registrations has been produced.

Type	Registration	Fleet Name	Werk-Nr.	Remarks
Ju 90 V-1	D-AALU	—	—	Built 1937. Named "Der Grosse Dessauer". Crash (6-2-38) attributed to instability.
Ju 90 V-2	D-AIVI	"Preussen"	—	Built 1938. Crashed at Bathurst 26-11-38.
Ju 90 V-3	D-AURE	"Bayern"	—	Built 1938. Although never officially taken on charge by DLH was much photographed in company livery. Was still flying in civil markings in 1943.
Ju 90 V-7	D-ADLH	"Sachsen"	4916	Built 1939. Note significant registration D-ADLH. To Luftwaffe 1940. Returned to DLH 1941. Ferried to Dessau for reconstruction as Ju 290 V-1 (Ju 90 S) on 19-7-41.
Ju 90 B-1	D-ABDG	"Wurttemberg"	90 0001	Built 1939. To K.G.z.b.V. 172 (Luftwaffe transport unit) 1940. May have been the Ju 90 V 4. No record of previous name, "Schwabenland" in DLH archives.
Ju 90 B-1	D-AEDS	"Preussen"	90 0002	Built 1939. To DLH June 1939 as a replacement for the ill-fated "Preussen" (D-AIVI). To K.G.z.b.V. 172 in same year.
Ju 90 B-1	D-ADEJ	"Baden"	90 0003	Built 1939. To DLH May 1939. To K.G.z.b.V. 172 in same year.
Ju 90 B-1	—	—	90 0004	Possibly ZS-ANG for South African Airways. Ordered in 1938 but delivery not carried out.
Ju 90 B-1	—	—	90 0005	Possibly ZS-ANH for South African Airways. Ordered in 1938 but delivery not carried out.
Ju 90 B-1	D-ASND	"Mecklenburg"	90 0006	Built 1939. To DLH May 1939. To Luftwaffe 1943 and destroyed in military service in same year. First Ju 90 to visit Croydon, 1-8-39.
Ju 90 B-1	D-AFHG	"Oldenburg"	90 0007	Built 1939. To Luftwaffe 1943 and destroyed in military service in same year.
Ju 90 B-1	D-AHDC	"Hessen"	90 0008	Built 1939. To Luftwaffe 1943 and destroyed in military service in same year.
Ju 90 B-1	D-AHHB	"Hannover"	90 0009	Built 1939. To Luftwaffe 1944.
Ju 90 B-1	D-AVME	"Brandenburg"	90 0010	Built 1940. To Luftwaffe 1940. Destroyed at Dessau 8-11-40.

Contest

A MEMBER OF THE Northern Ohio Free Flight Association, Jim Robinson qualified first at Marysville, before going on to the Eastern Zone semi-finals which were also held at the same venue. Division of the vast U.S.A. into three zones meant that many of the prospective team members had to travel long distances and in some cases go much further to their own zone when the nearest semi-final location may have been in another zone!

At the Semi's Jim racked up a total of 1,372 seconds including six max's, a 160 and a 130 (in 2nd place George Jensen scored 1,354 with four max's in the eight flights). With Cox TD Special 15 power, the high thrustline design has a fairly high aspect ratio flat centre section wing. It was created to produce consistency with a minimum of structural complication. Power pattern is slightly to the left with a natural glide turn to either left or right according to which suits model.

Three other Ju 90s have been reported; D-AIRE, D-ACAT and D-ASNU. The latter registration is almost certainly a corruption of D-ASND, and it is possible that the first two registrations were carried for a time by the two South African-ordered machines prior to their conversion as experimental military prototypes.

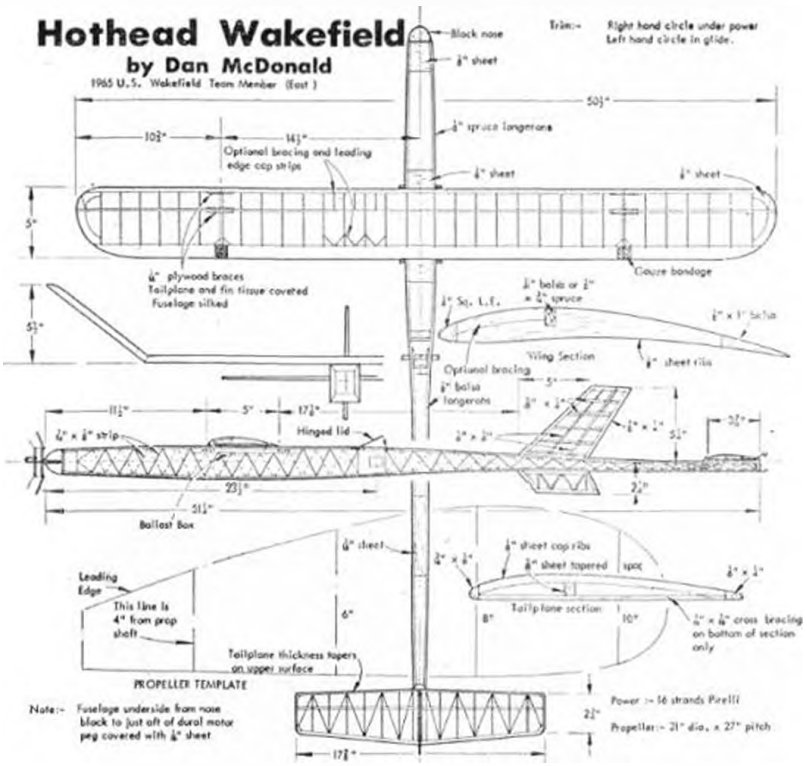
It is correct that the Ju 90 V-1 was powered by four DB C00 A of 1,050 h.p. all later machines having the BMW 132 H of only 880 h.p. The decision to re-engine the Ju 90 was taken by the RLM (German Air Ministry) though the story circulated in the technical press was to the effect that DLH were standardising on the BMW 132 for reasons of economy and increased efficiency. The adoption of this motor seriously underpowered the design, and was probably the reason why the Ju 90 did not secure orders abroad (apart from the two for South Africa) despite the skilful propaganda employed by Junkers at that time.

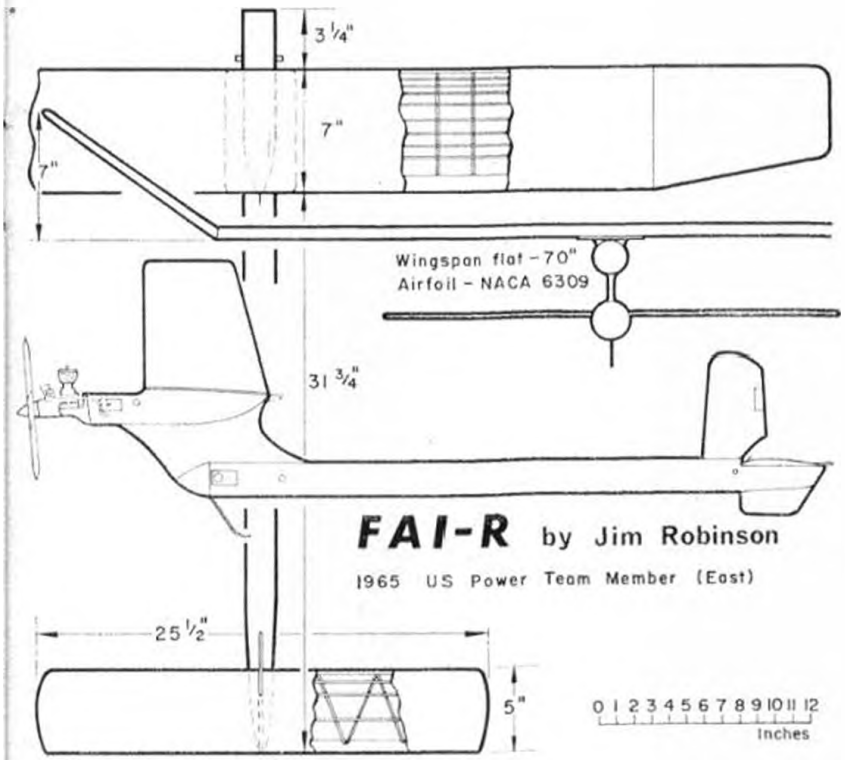
To sum up, it seems certain that the four prototypes (V-1 to V-3 and V-7) plus eight production aircraft, were the original 12 civil Ju 90s. In addition to these, were the pair of South African machines later completed or converted as military hacks. If it is accepted that these two aircraft and D-ACAT and D-AIRE were one and the same, it would appear that the total Ju 90 assembly was only 11 machines.

John Ellingworth (German Aviation Research Group.)

Two of the East Coast representatives' models in the U.S.A. Team for 1965 World Championships

Designs





Dan McDonald was another who completed his selection trial and the semi-finals at Marysville. His time to earn a place in the Wakefield team was a total of 1.419 seconds, with seven max's and a 159. This put him exactly one second ahead of veteran competitor Henry Struck to produce one of the closest ever results. The design is according to Dan's admission, a "bitza". It borrows George Reich's propeller design for fast climb, Bob Hatschek's wing plan and Frank Parmenter's tail. Dan is an exceedingly keen competitor, and will have five of the "Hothead" ready for Finland. This is besides a whole series of development models which preceded the final design. Dan also concentrates on techniques such as the javelin launch. With a hand on the rear dowel, tail almost on the ground, Dan releases the prop and follows through with a heave that can take a model to 60 or 70 ft. The length of the fuselage stems from contests which were against the Canadian McGillivary, where the majestic glide and stability made a great impression.

TRADE NOTES

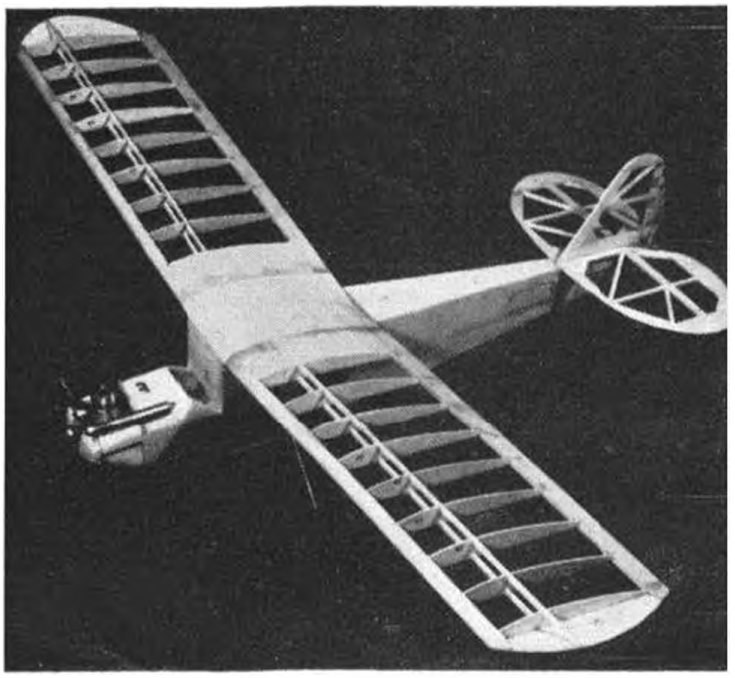
Distributed by **A. A. Hales Ltd.,** Hawk's 1/48th scale P-47D **"Thunderbolt"** (new price 27/- with the 15 per cent import surcharge) kit must surely represent the ultimate in plastic kits for the "too much trouble to paint it" brigade requiring hardly any colouring to complete. But while being a fairly quick and simple kit to build, it deserves attention from the more expert who may at first glance tend to disregard it as unrealistically flashy—which, to some degree, it is. Although extremely dazzling when complete, the idea has merit in that a clever, multi-textured finish with individual panels of different degrees of shine, is provided. This in itself, makes the kit certainly "different". Our only criticism is that the panels with the most shine are too brilliant, while the less bright panels look about right.

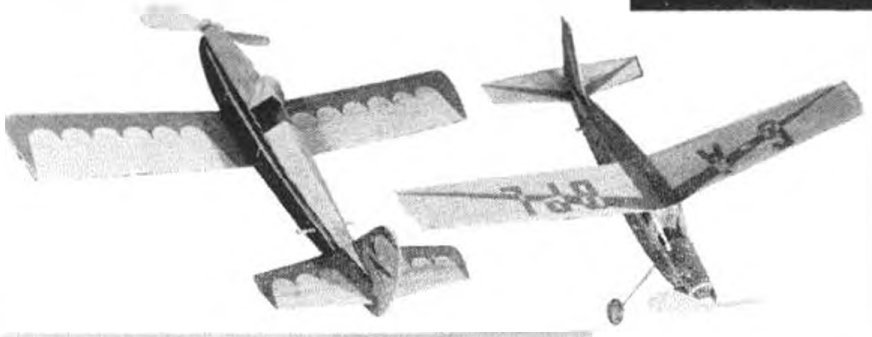
Experience showed that the vacuum plated components dulled with handling and that too much or harsh fingering removed the chrome deposit. It was also impossible to mask over the chrome with Sellotape as this lifted areas of chrome on removal.

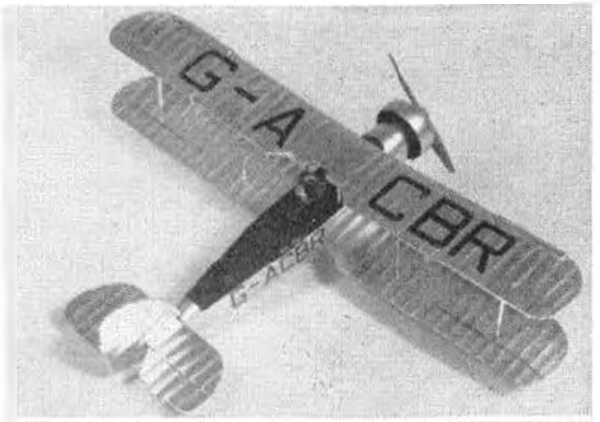
Provision is made in the kit for the construction of two versions of the P-47D,—one set of parts for Col. Glenn T. Eagleston's aircraft with bubble canopy and a further set (including transfers, etc.), for a "razorback" version of the "D".

Bubble canopy and its fillet of chromed plastic is particularly worthy of note. Transfers are good as regards colour value, density, etc., but can stain easily. When they slide from the sheet they should be rinsed thoroughly before transferring to the model. Instruction leaflet is comprehensive with ample directions for the building of both versions plus two very nice three veiws.

This provision of parts for alternate subjects is becoming more common in new aircraft plastics from the U.S.A. Latest **Monogram** 1/48th scale P-40B "Tiger Shark" can be made in U.S., Chinese or R.A.F. versions and more than maintains the excellent reputation this series has carried. The P-40B is distributed by A. A. Hales Ltd., and retails at 13/6d.





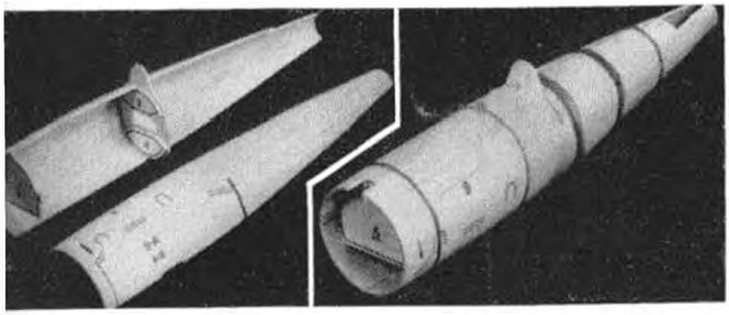


Above, with radio installed (O.S. Pixie, with O.S. Escapements) and Enya .09 glow plug engine fitted with "Spinaflo" silencer, structure of our "Frechdax" (Sausage dog) made from Schuco Hegi kit distributed by F. Allen is ready for covering and flight tests when weather improves. At left, two KeilKraft Eezebilt models, the 18 in. high wing "Sportsman" and the 16½ in. "Swallow" low wing that have passed flight tests admirably and were very easy to make. Below left, is the Frog Westland Wallace, showing rib effect in plastic moulding, and the novel Revell "Frank" Jap fighter with opened canopy.

Smaller, but no less interesting, is the first of three new **Revell** 1/72nds we have made, the Nakajima, Ki 84-1a "Frank". Up to the excellent standards set by earlier releases, this kit has special features with a removable cowling panel to show basic engine details and a snap-in sliding canopy section which can be either closed or open to show the nicely detailed pilot. A simple, quick model to make, impressive when completed. Price for the 32-part kit is only 2/11d. The "Frank" kit was produced from direct study of one of the few such aircraft still in existence, in this case at the Maloney Air Museum in California, and for that reason is specially accurate in detail. Other new Revells on the bench are the Brewster "Buffalo" and Russian I-16 "Chato".

From **Frog** this month comes the "Westland Wallace", a truly unusual and historic subject. Famous for the successful Houston-Mount Everest expedition, Frog's replica of this little known aircraft goes together beautifully from 31 parts. Registration letters G-ACBR are provided in the kit together with R.A.F. roundels and rudder flashes, so that a model of the R.A.F. version can be produced, though the "greenhouse" of a canopy is not provided. Price is 3/-. While with Frog it would be well to compliment this firm on their sensible kit box design. This, instead of comprising a lid and a base as two separate units, is all in one, with a fold along the back edge for the lid. When opened, the box folds out to provide a simple working tray from which even the tiniest plastic part is unlikely to be lost—having said that where is our port aileron for the Ryan NYP "Spirit of St. Louis"? This is another 3/- Frog release in the "Trail Blazer" series, and suffers only from an oversize cabin roof window and oversize ailerons (also a minor fault in the Wallace). More on the other plastics next month. . . .

Latest edition of the **KeilKraft** Handbook is a very full 90 page square back that is worth much more than the 2/6d. cover price. Informative articles in the first 26 page section cover a wide variety of aeromodelling subjects and problems, then we get



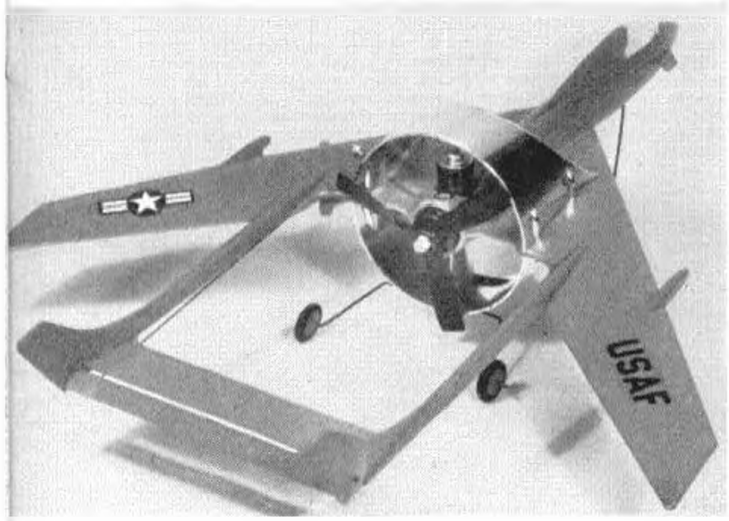
down to a solid, page after page of pics and text on the vast range of kits and accessories available from the Wickford factory in 1965. One latest item that you'll not find listed is the remarkable **Wen-Mac** "Fan-Jet" 15 in. span red plastic ready-to-fly which sells at 145/-. This futuristic device has a three-blade pusher prop. on a "Hot-Shot" .049 engine, with a chrome deposited annular shroud giving a fan jet appearance. Overall length is 20 in., and with area rule fuselage, canard noseplane and 5 deg. negative setting moulded into the tailplane this 50 deg. swept-back twin-boom "fighter" presents a most bizarre sight. Weighing 8½ oz., its high cambered wings have a lot of work to do!

KeilKraft also announce their five-colour (plus black and white) range of nylon at 8/- a yard. This is really good quality close-weave stuff that imparts tremendous strength and looks fine when clear doped.

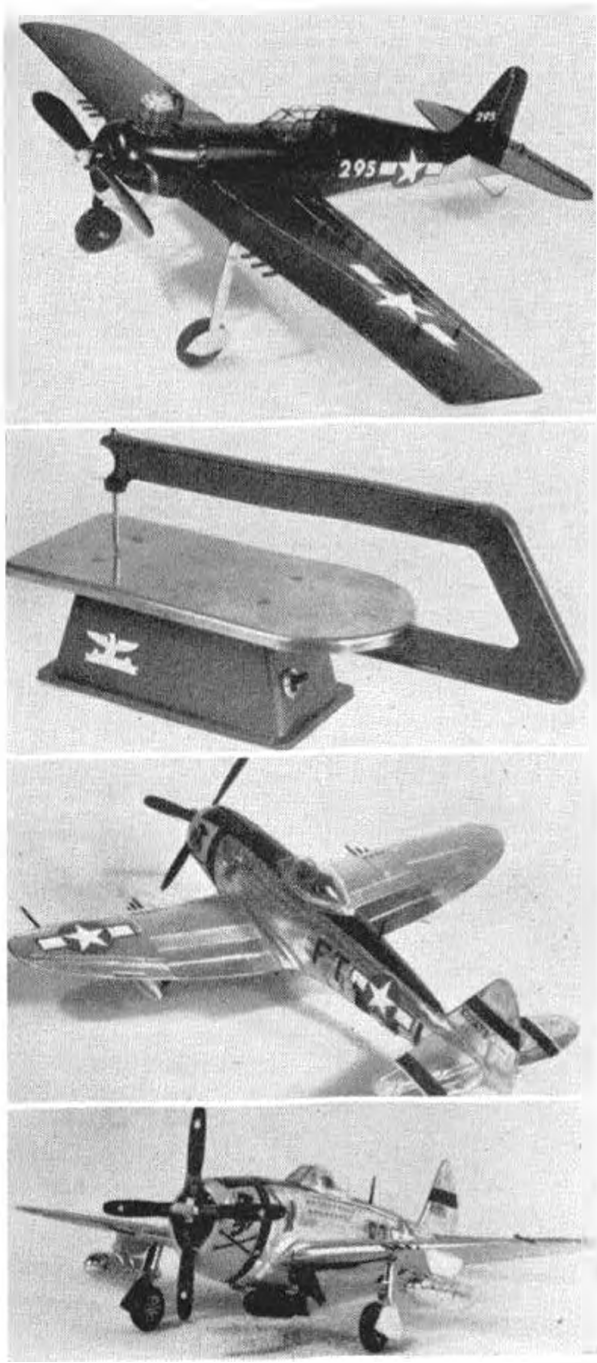
New modelling materials have constantly endeavoured to overtake balsa wood as our standard construction media; and for many purposes we must admit that they succeed. **Ripmax**, now agents for **Top Flite** in this country, introduce a new method of using balsa in the "Form Flite" series. Our choice was the "Hellcat"; others available are the "Thunderbolt" and "Zero", each at 22/6d. They span 18 in., and weigh only 5 oz. when finished, so that with an .049 "Hot Shot" they'll go like a veritable dingbat on about 25 ft. lines. All parts are die cut and pre-formed, and this is where the new idea comes. Fuselage halves are moulded into perfect monocoque shapes. All you have to do is to assemble over the formers, but here one must BEWARE! Do NOT cut the already die cut formers down to the size of the printed lines. One wonders why those lines are there. They tempted us to think that the cutting was oversize, whereas it is in fact most accurate. The only parts which are at fault are oversize slots for the "ears" on former F6. Plastic cowl and clear canopy plus all control and u/c hardware are provided, and after a coat of sealer and some colour dope the Hellcat was ready to go in very short time indeed. It's so easy one could make it on a tea tray while watching TV.

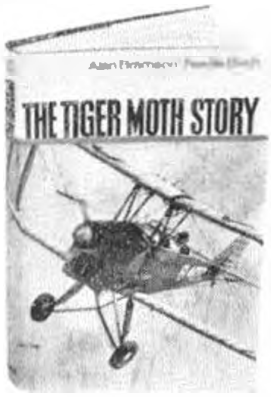
Ripmax also have an interesting lightweight jigsaw to offer that sells at £6 19.6d., and is known as the "Casige" saw. Operated from a direct source of 12 volts, it uses sections of stock fretsaw blades, and the cutter is driven up and down in a tubular guide. This gives a limitation in that it is difficult to observe the actual point of cutting, though with experience, one has ample opportunity to get reasonably accurate cutting to any profile shape and through most modelling materials. On a car battery, speed was ample. Dry cells were not good enough. Using a transformer from mains supply would be ideal. The "Casige" is no substitute for either a bandsaw or skilful use of a normal fretsaw, but it has its application in the aeromodeller's workshop for small part cutting of thin ply and balsa.

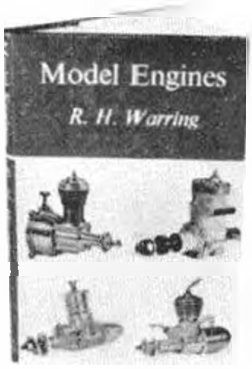
Below, the Wen-Mac "Fan-Jet" pusher with many unusual design features, moulded in red and chrome deposit. Certainly the most novel of all ready-to-fly models. To the right is another unusual plastic, Hawk's P-47, with various tones of chrome deposit to show panel effect. This is a detailed 1/48th scale effort that can be made in bubble hood (as here) or "razorback" versions.

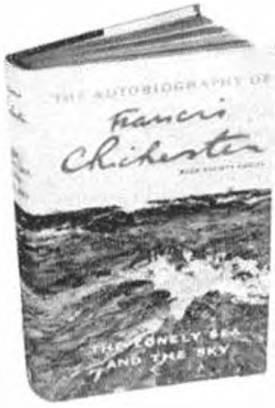


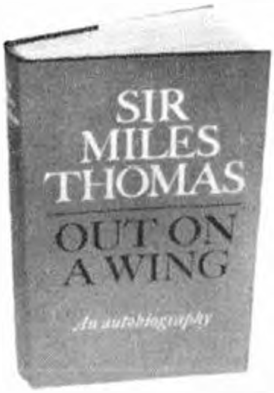
Top Flite's "Form Flite" construction at left showing fuselage shells before and after assembly with completed Hellcat below. Balsa is completely pre-shaped. Next is the Casige saw for light work, driven by 12 volts direct current.











Recommended Reading

A selection of recent and new publications reviewed

ASK ALMOST ANY ex-Royal Air Force pilot to name his favourite biplane aircraft and the answer is almost certainly to be the de Havilland Tiger Moth. Yet though thousands of the D.H. 82a were made, and they remain faithfully preserved and well used by clubs, in particular the "Tiger Club", the simple fact is that the aircraft has never received the documentation to match its fame. When George Cox produced his drawing of the machine for our "Famous Biplane" series, he found that the only way to obtain accurate data on a Tiger was to select one and then go over it with tape measure. Now two widely experienced pilots, Alan Bramson and Neville Birch have set matters right as far as the history is concerned with their 256 page book **The Tiger Moth Story** published by Cassell at 36/-. Completeness extends to a log of all registrations and serials including those made under license abroad, and uniqueness uncovers the bombers, the paraslashers, the conversions for film use, for acrobatics and the novel story of how Tigers were used to teach Turks to fly in Britain during the war. Many an anecdote makes what could well have been the dry story of an inoffensive trainer into one which is difficult to put down once started. For modellers, the radio controlled Queen Bee (nine controls selected via blip code system) is revealed as a somewhat troublesome device, left to its own for take-off and landing. The fail-safe systems which are described might well inspire aeromodellers who are turning to proportional controls. Definitely a book to have if the Tiger means anything to you. Ron Warring needs no introduction to our readers, and perhaps he is best known to them for his engine tests (alas withheld for a while pending re-establishment of a noise-proof workshop). Arco publications have issued his latest book on **Model Engines**, and as may be expected, this 113 page work is a most comprehensive and well illustrated manual covering all types of miniature engine and their various applications; 30/- is more than one ordinarily expects to pay for the info but the book is ruggedly hard bound to withstand constant workshop handling.

This batch of aeronautica include two of the finest autobiographies we have ever read and purely on the basis that it was first to be published (by Hodder & Stoughton at 30/-) we start with Francis Chichester's 352 page **The Lonely Sea and the Sky.** What inspiration for the modern teenager or even the ailing middle-ager! True adventure made more exciting than fiction, amply illustrated in photographs and maps, Chichester's travels in his D.H. Gipsy Moth ZK-AKK make today's fliers seem a very tame lot. No wonder the book has been a best seller and Book Society choice. Many will already have it for the accounts of solo sailings of the Atlantic in recent years, but for our money his account of the early '30s with many crashes, and improvisations to keep his Moth going in that incredible first solo flight across the Tasman from New Zealand to Australia is alone worth the cover price. Then Sir Miles Thomas tells his life story in **Out on a Wing**, by Michael Joseph at 30/- for 406 pages. Filled with action, this success story is another inspiration to those who yearn for promotion. Right from his youth as an engineering apprentice, through Army, R.F.C., R.A.F. service to Journalism, key positions in the automobile industry to his Chairmanship of B.O.A.C., one is treated to an extremely well written account with which even the most humble of us can at least try to identify oneself. Like Chichester, Sir Miles Thomas had no advantage of being born with silver spoon in mouth, he owes his achievements to an affinity for learning and a keen sense of purpose. Read each of these and you will find some experience which will serve you in your own future.

Many interesting books have come from the pen of Wing-Commander Norman Macmillan, and his most recent, **Great Flights,** is a 236 page collection that will not disappoint. Published by G. Bell at 21/-, it begins and ends with space flight as a concession to this supposedly modern age, but sandwiched in between are stories that we are sure will make new reading for most younger folk. Who knows of Moisant and his tremendous efforts in a Bertot? Or of the legal tussle between Curtiss and the Wrights? Or how Hanna Reitsch glided across the Alps in '37? These and better remembered tales of Lindbergh, Amy Johnson and Bert Hinkler go to make a volume that is ideal for occasional browsing when one has just enough time for a complete chapter.

From personalities to aircraft and two more titles in Len Morgan's Famous Aircraft series from the U.S.A. These are 60 page monographs, with large, 8½ x 11 in. pages, and good quality offset printing that sell for 23/6d, including post through W. E. Hersant, of 228 Archway Road, London, N.6. Covers are thin card, and in each case carry a large tone profile of the subject, the **Douglas DC-3** and the **L.Z. 129 "Hindenburg".** Each book follows the same pattern with copious illustrations and ending even in the case of the Zeppelin with pilot's handling notes. Morgan has himself written the DC-3 story, and we feel he does the job extremely well in a stimulating first person style. Somehow he avoids calling it a "Gooney Bird", and imparts a respect that reaches its zenith in his account of N21728 which to date has accumulated 81,535 hours, used up 68 pairs of engines and taxied over 100,000 miles. Modellers of the "Dak" should certainly get it. The airship story is by specialist Douglas Robinson, and has an unusual attraction through extensive details of these little known craft where engines could be repaired in flight, and the piano in the passenger lounge had to be made of aluminium. Adequate drawings are included in each book to aid the aeromodeller.

Scale drawings which already have a strong following in the aeromodelling fraternity are those by William Wylam of the U.S.A. Published in "Model Airplane News", the Wylam series have established a style of profusion in line and dimensions that makes them immediately recognisable. Over the years they have attained a somewhat mixed reputation, but whatever might be said about some points of accuracy, it must be recognised that few other aviation draughtsmen have ever attempted to include so much info in 1/48th scale multiple views. Subjects of a special collective book now selling at $2 through Air Age Inc. in the U.S.A. entitled **The Best of Wylam,** are nine aircraft, two machine guns and six engines. The 64 pages measure 8 x 11 in., all but five of them solid with drawings, making it a collection of considerable value to scale enthusiasts. Material which is entirely new and absolutely indispensible for that same scale breed starts to become available in Great Britain from January 11th. These

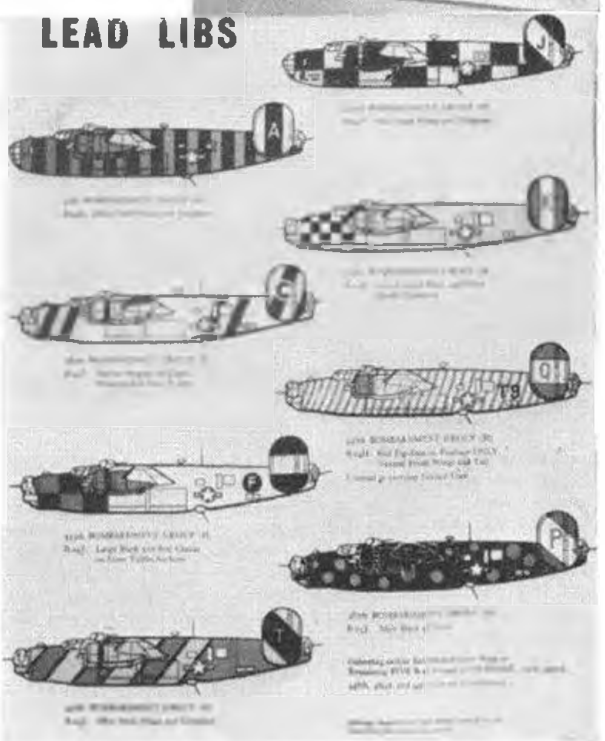
Profiles, which are a modest 2/- each and published by Profile Publications of Leatherhead, will hit the modelling world with a mighty jolt. There may only be 12 7 x 9½ in. pages, but the two inside covers are printed in most expensive full four colour line and tone letterpress with a five view scale drawing of the subject and six typical variations of side profiles with incidental markings shown in enlarged detail. The aircraft is described in about 4,000 words and tables, amply illustrated with many black and white pictures, most of them rarities. Authors are individual specialists who know most about the particular "profile" and include Peter Bowers, E. K. Mason, J. M. Bruce. First four deal with the S.E.5a, Boeing P-12, FW 190 and Hawker Hunter 6. Others follow at the rate of four per month and types in the announced first 24 range in date from W.W.1 to post-W.W.2, and there is a scheme to enable subscribers to order the era in which they have greatest interest, or the whole set. For colour info they are invaluable. Artists Peter Endsleigh Castle and R. Ward have a neat style and only the FW190 upper surface printing seems to have let them down in losing the discriminations of the greens. We miss the cross sections and hope that some of them will be reproduced to a definite 1/72nd scale in future. With those features included, these Profiles will come out of the "supplementary" category of modelling information and will be regarded more as "primary" sources for people who enlarge from such plans.

When an English Master in that Institution which suffered the misfortune of having to fill the editorial head with a slight amount of education suggested that for a holiday task we should read **Sagittarius Arising**, he was met with the usual inward groan reserved for the classics. Discovery that this was one of the finest first person accounts of aerial warfare in W.W.1 considerably raised our estimation of said Master, who was henceforth elected President of the School Aviation Society! Now the same author, Cecil Lewis, M.C., has penned another work entitled **Farewell to Wings**, published by Temple Press at 18/-. Eighty-four unusual size 6 x 7 in. pages describe a pilot's impressions of 25 aircraft from the Longhorn to the Vimy in prose, which we trust will have the same commendation among tutors of the English language as C.L.'s first work. Leonard Bridgman contributes with excellent line and tone sketches of each subject. A nicely produced book in every way. Don't expect technical data. There is some tabular data in John Pudney's monograph of the Sopwith Camel in the 64 page **The Camel Fighter** (8½ x 7½ in.), but it is mostly non-technical and very little of it original to students of the type. The book suffers from an over-airy production and large number of illustrations of things other than the main subject. Capt. A. R. Brown's Camel is the frequently used theme sketch yet it is not identified though Brown's action is described. For all that it's a good 15 bobs worth. Same could also be said of the two Macdonald publications, **The World's Fighting Planes** and **Macdonald Aircraft Handbook**. With 30/- to spend, we would be troubled to decide which of the two to buy. The former is a 216 7½ x 9½ in. handy up-to-date summary with each aircraft (including the YF-12A) beautifully three-viewed in tone, and the latter is a dumpy over 600 pages (4½ x 5½ in.) which covers everything one can think of—with silhouettes. Answer: buy both! William Green has once more compiled references we cannot do without.

Have a yen for a Bristol type to model? Then there is only one book you need have. C. H. Barnes' **Bristol Aircraft Since 1920** has over 400 5½ x 8½ in. pages crammed with facts, drawings and photographs that would take ages to digest. We fully believe the claim that this work is the result of 30 years of aviation study for here is all the history of the famous company in a fine three guineas worth from Putnam. It tells of every aircraft made by Bristol, with destinations and customers. If you want to know what D-EFOB is (a Bonanza) who owns it and what it may have been in the past, or perhaps your interest is Italian, and you fancy I-LIFT (a Viscount), then two Air Britain publications now available to members give one just that kind of gen. They are the current civilian registers of **Italy and Greece** (2/-) and of **West Germany** (3/6d.). At present for members only, they are a strong recommendation for A-B membership.

Closing on another full-size note (what a pity there are so few aeromodelling authors) we must comment on two books by Robert Pooley and published by Air Touring Guides at 20/- each. They are the **Flight Guides for Europe**, and for the **United Kingdom**. Each is 264 pages, 4½ x 7 in., and includes a fabulous amount of detail on airfields. For example, we looked up Kauhava in Finland when it was announced as the World Champs venue, and found its position, size, etc. Most useful is the U.K. guide as it has a scale map of every field! Runways are shown, approaches described, and though we may never be pilots, the Guide gives the aeromodeller lots of interesting gen, some of which might lead to establishment of model flying facilities.

For a modest 1/3d., Aviation Book Specialist J. Beaumont of 11 Bath St., London, E.C.1, introduces a colour chart of formation leading Liberators, any of which could be relied upon to stir the enthusiasm of a scale modeller. Yellows, greens, blues, reds, even polka dots make for novelty in scale markings.



Dennis Bryant's '64 entry in the British Nats was to have been his "Hawker Fury" scaled up from APS drawings to 54 in. span for 10 channel F & M radio gear. But performance in four trial flights with a Merco 49 was "staggering" in the unflattering way. Now a Merco 61 is used to drive the 12 x 6 prop and the Fury should really go. Cowl is vacuum deposited chrome over 1 oz. Glass Fibre mat, approx. 1 mm. thick, and the markings are for 43 Sqdn with Black and White chequers and Red fin. Wings are retained by large carpet snaps. Weight is 8 lbs. and the 8 s.w.g. wire undercarriage is a torsion bar set-up with rear legs as plastic dummies.

over the waves

A magnificent turn-out of models by members of the Hillingdon RCMAC and Esher MAC groups was presented at the Dominion, Southall, when we were asked to join in judging Concours d'Elegance for these radio only models. Selecting the top three was a task but the order finally came out to Bob Ringsell and his "Cardinal" (at top) and George Harvey with Spitfire from a Stirling kit in second place (Merco 61). Finish on Bob's model, which is Merlin .8 c.c. diesel powered and to have one of the new Elmic Compact Compounds was exceptional. Third spot was taken by Geoff Hazlewood and his "Executor" with OS 19.

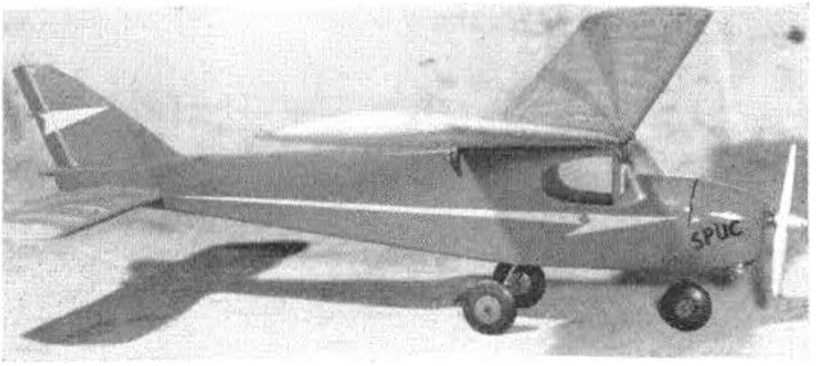
THE WORLD OF AEROMODELLING is a very small one indeed. For example, we had no sooner passed last month's issue for printing with a note in this feature to the effect that "Howard Bonner had not placed his Digimite on the market yet", when the phone rang. Henry J. Nicholls was calling to tell us bright and early that morning, that he had a visitor, namely Captain Alan Wall in his shop, from Australia via Los Angeles. What was even more fascinating was that Alan had in his possession, one of the very first Digimites to be released on sale, and he had picked it up when the release was made only two days beforehand in the U.S.A.!

Needless to say, we were hot-foot down to Holloway to see what must be the most eagerly awaited radio control system yet marketed. A first impression is of true professional standards of manufacture, and extremely high quality. As the photo on the page opposite shows, the unit comes in its own specially made expanded polystyrene transport case, completely wired with harness for a seemingly infinite number of servo systems. In actual fact, the Digimite will serve 16 functions from eight servos. Captain Alan Wall had what is likely to be the most popular choice, namely the four servo pack, and this little lot retails in the U.S.A. at $615. It is available on the five fixed spot frequencies in the 27 Mc/s band and six other frequencies in the 51-53 Mc/s band. The servos are completely new in appearance and system, having linear output and a grey nylon case. Instructions include a stern warning not to tamper! The transmitter which measures 2¾ x 6¼ x 8¾ in. has two sticks with rudder and throttle on the left side and aileron with elevator to the right. Four auxiliary functions can be triggered off by levers in a panel at the top of the front face. A 12 volt power pack can be charged in position (charger supplied) and the receiver power pack can also be charged at the same time. Instructions advise frequent receiver pack charging. The Rx measures 1⅝ x 2 x 3 in., weighs 5¾ oz. and has an 8.4 volt 600 DKZ Nicad pack. Weight of the airborne installation with four servos is in the region of 27 oz.

As for operation, all we can say at this stage is that one only had to connect the ready wired Deans plugs and Captain Wall was in business. Further information will be published in our companion magazine, *Radio Control Models and Electronics*.

Superhets

We have been taken to task by Dave McQue our generalised statement last month that "only five established frequencies are allowed". As Dave quite rightly pointed out, this only applies to the U.S.A.



From Johannesburg, South Africa, E. Subkleve sends his variant of the "Smoke Trail" which we published last year. Powered by Cox Golden Bee it has a Kraft Rx and OS escapement with home constructed transmitter. Was made in 33 hours including doping and trimming. Has three spars to avoid warps and extra ¼ in. sq. uprights to strengthen the cabin—a useful tip.

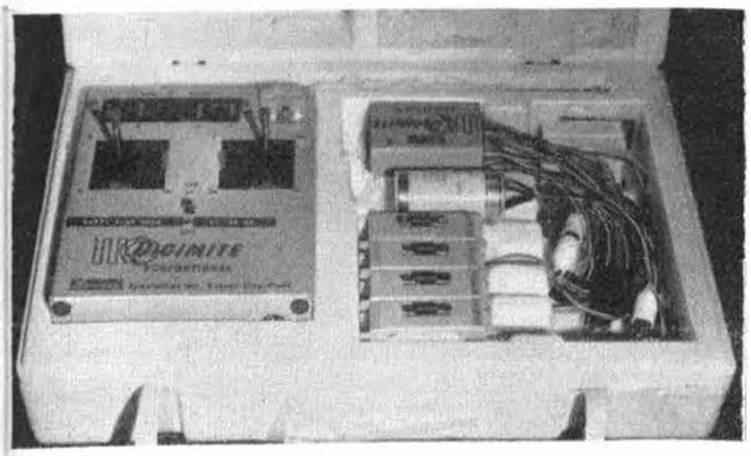
and not Great Britain, where our band is 26.96 Mc/s to 27.28 Mc/s without any fixed or protected channels. Dave also reminded us that it is 10 years since we published details of a Superhet capable of 30 Kc/s channel spacing and that there is a 13 channel Band Plan in this country using 25 Kc/s spacing, also compatible with the five fixed U.S. frequencies.

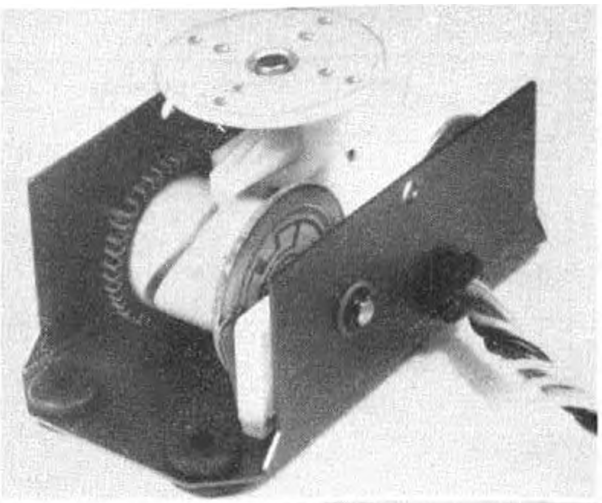
Slope soaring at Ivinghoe Beacon has been done many times on this spacing. In fact, there is a far greater call for Superhets and simultaneous flying with gliders flying with long durations than with power model flying, where modellers seem to prefer to fly sequentially.

Japanese Servos

We have been most impressed in recent weeks with samples of the servos manufactured in Japan by M. Kato, who will be remembered for his performance in the World Championship at Kenley. Photographs of the internals can be seen on this page and we must compliment M.K. for extreme originality and very clever designs. Not only are the servos fast in operation and accurate in centering, but they are also extremely powerful. This is largely due to the special Mitsumi motor which has been made for these servos by the very large Japanese electrical company. Tests of these servos will appear in *Radio Control Models and Electronics*. They are also sold in the U.S.A. under the *Royal* Trade mark, and are enjoying increasing popularity in the United States. The multi channel servo can be supplied for relay or relay-less operation, and with special mounting board to batch units in groups for compact installation and incorporating trim mechanisms. They are obviously the product of a keen flyer who demands the best for his own models.

Below, Pandora's polystyrene box reveals a Digimite ready for action—see text. Right, M. Kato's servos from Osaka, Japan. At top is the single channel movement and below the multi gear train. Both to highest standards, see reviews in R.C.M. & E.





NOISE ANNOYS

WHILST obtaining dB readings at local flying fields many questions have been asked about the background noise, weather, wind, etc., and how they affect readings.

Background Noise

At two London flying sites used for tests so far the readings have been approximately 50 dB and 70 dB. This does not matter in the least as the dB Sound Level Meter indicates only the highest noise level and not the algebraic sum of all the different noises it is picking up. It may well be (as in the case of the Mills .75 in table below) that background noise exceeds that of the model engine, but this is the exception rather than the rule. Wind affects the speed at which noise travels, so all of our readings are to be standardised in a down wind position at 15 ft. and 50 ft. distance. It must be noted that if a noisier engine is running in the vicinity of the test this may drown the test engine, so great care has to be taken. Weather also has an effect so that the reading will be higher on a crisp cold winter morning than on a drizzly autumn afternoon. Relative noise levels are quoted in our first table, which is taken from the Dawes Instrument Co. literature sent with our instrument. Note that the "accepted" level of about 85 dB for silenced engines falls into the "very loud" category and the airborne noise of a Cox .09 (second table) borders on "deafening" when unsilenced.

RELATIVE LEVELS OF TYPICAL NOISES

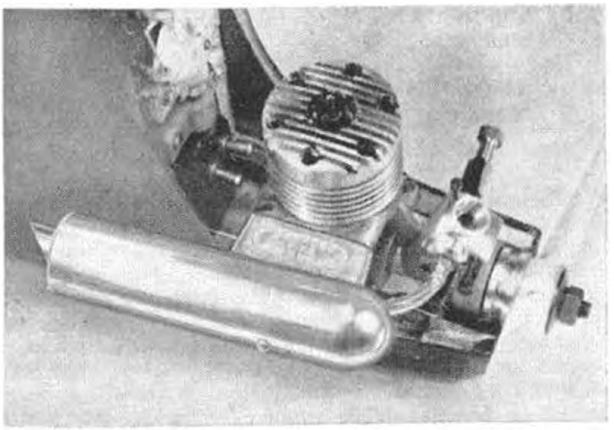
NOISE	DECIBELS	TYPICAL EXAMPLES
	120	Threshold of Feeling
Deafening	110	Jet Aircraft at 500 ft. Inside Boiler Making Factory Near Pneumatic Drill Motor Horn at 20 ft.
	100	
Very Loud	90	Inside Tube Train Busy Street Workshop Small Car at 24 ft.
	80	
Loud	70	Noisy Office Inside Small Car Large Shop Radio Set—Full Volume
	60	
Moderate	50	Normal conversation at 3 ft. Urban House Quiet Office Rural House
	40	

Above shows both assembled and disassembled Merco silencer. Note the two half baffles and offset exhaust inlet to give a swirling effect to the exhaust gases.

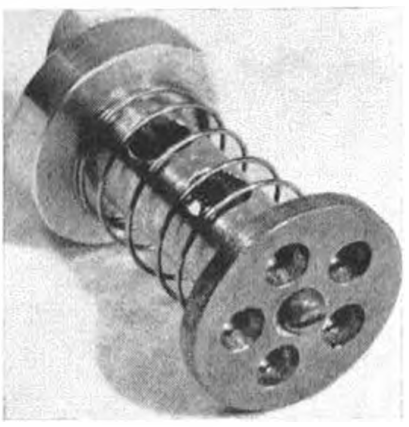
New Silencers

Merco now have silencers to fit the whole range (.29, .35, .49, .61) of their glowplug engines. The basic silencer is similar to the O.S. type, but incorporating baffles cast at an angle to each other, with a two part cast light alloy body. One half is held against the engine by a 12 s.w.g. wire hoop threaded on both ends, which is bolted through and fixed with small nuts. The remaining outer shell is fixed to the inner shell with three screws. This method has been extensively flight proven and is superior to the retaining system used on prototypes. A restrictor ring fits in the rear outlet and is removable to increase the outlet area if

(Continued on page 86)



Above and below views illustrate the good finish and sturdy construction of the Gee Dee Pike silencer. The shim valve plate is seated behind the valve seat and held in place by a spring as shown below. The one screw fixing shown above proved to be in need of extra locking when test flown in a "Norseman" multi R/C model, but until then it reduced noise to a murmur on a Merco .61.



Model type	Engine type	Silenced	Background Noise at site	Test dB readings 15 ft.	50 ft.	In air
Multi R/C	Merco .49	No	77	97	94	96
Multi R/C	Merco .35	Yes	78	89	83	91
Multi R/C	Merco .35	No	78	92	86	92
Stunt C/L	Merco .35	No	76	96	90	96
Stunt C/L	O.S. .29	Yes	48	81	79	82
Combat C/L	A.M. 3.5	No	80	98	91	94
Single R/C	O.S. .19	No	78	84	80	90
Combat C/L	PAW .19D	Yes	78	90	83	96
Combat C/L	Oliver 2.5	No	76	92	86	88
Single R/C	O.S. .15	No	78	96	90	94
Combat C/L	Oliver 2.5	Yes	50	81	78	80
Power F/F	Sup. Tigre .15	No	48	98	95	96
T. Racer C/L	Eta 2.5	No	48	93	89	97
T. Racer C/L	Oliver 1.5	No	47	84	82	86
Combat C/L	Cox TD .09	No	48	98	94	99
Sports F/F	A.M. 1.5	No	76	84	80	86
Sports F/F	A.M. 1.0	No	76	83	79	85
Single R/C	Cox TD .049	No	76	97	90	97
Sports F/F	Wen Mac .049	No	76	86	80	83
Sports F/F	Cox Babe Bee	No	76	84	76	86
Sports F/F	Mills .75	No	77	77	77	77

These dB readings were recorded at two well known London flying sites. Note that background dB readings fall into two groups, 48 and 75. The higher reading is due to a busy main road within 100 yards of one site, and simultaneous model aircraft flying. For all tests the dB meter was held down wind from the models, facing the noise source about 5 ft. above ground level. Cold weather (40) deg. F.) conditions with slight drizzle prevailed.

Heading picture at left shows three R.A.F. Geilenkirchen members, l. to r., Jnr. Tech. Taylor with A.P.S. Razor Blade, F. O. Johnson with A.P.S. Gasser (note silencer) and S. A. C. Plumb with his winning Rat Racer. Trophies won at the R.A.F. Germany Championships, are displayed in foreground.

R.A.F. Geilenkirchen

Three entries, five placings, that was the happy result of the R.A.F. Geilenkirchen M.A.C. efforts in the R.A.F. Germany Championships, held on October 11th. F/O Johnson placed first in Concours event and second in rubber, S.A.C. Plumb placed first in rat-race and Jnr. Tech. Taylor first in combat and second in the rat-racing. The winning concours model was a beautifully finished multi radio control Gasser design, which was on its first outing. During the course of the day's flying, The spectators were treated to a display of radio control flying by joint World Champion in R/C Fritz Bosch, who included R/C combat in his performance, just to liven things up. While on leave in G.B. Mick Taylor attended the R.A.F.M.A.A. Championships held at R.A.F. Debden, where he made fourth place in the rat-race. The club have been trying desperately to attract new members with an advertising campaign, offering building and flying facilities, free tools, cheap materals, etc., but all to no avail, so they want to know where they go to for the next move.

AIRTECH R.T.P. MEETING

The rubber powered team race held in the Airtech clubroom on December 6th, attracted some 40 people of whom 15 entered at least one model. The race was flown over 50 laps on 6 ft. lines and the timing commenced from the start of winding until the completion of 50 laps. The other rules used were the same as those printed last month with the plan of Dick Godden's indoor racer. A great battle developed between Neil Webb and Dick Godden with Neil coming out on top with a time of 2:12, an Airtech meeting record. In third place team race flier Alan Dell made 2:14. Both the winner and second place models used geared propeller drives. The meeting finished with a brilliant demonstration of billiards by the Feltham/Hayes team. Results: 1, N. Webb (Buccaneers), pitman J. Stevens (Airtech) 2:12. 2, R. Godden (Cambridge), pitman L. Pimm (Airtech) 2:14. 3, A Dell (Feltham/Hayes), pitman D. Fry (Feltham/Hayes).

Crawley Winter Rally

Held on December 6th at Chobham, Crawley Winter Rally was graced with fine weather conditions, apart from a blustery wind. The entries surpassed all expectations with 22 in A/1 Glider, 15 in Coupe d'Hiver and seven in ¼A Power. Plaques were given to the winners and cash to the runners up. Processing was carried out by weighing all models when entered and checking the A/1 areas before the prize giving. In the A/1 event many competitors had trouble getting their models off the tow line due to the gusty wind and lack of lift. The lack of lift was shown by the fact that only four people made the 2 min. max. A. Turner (Southampton) made 4:42 and Al Wisher (Croydon) 4:20. Coupe d'Hiver had a good showing R.O.G.s were in some instances rather "hairy" but did not present much trouble. Conditions did not allow any 2 min. max.'s to be recorded, although the winner V. Taylor (St. Albans) snatched first place with his last flight of 1:50 to total 3:55. Second man P. Bailey (Bristol and West) made 3:38 with an extremely elegant and well built model. The smallest entry was surprisingly in ¼A Power. Maybe the rate of drift was too high for them. The winner was M. Brown (Maidenhead) with 6:30 followed by J. Boxall (Portsmouth) 5:59. It should be noted that due to an error, Dave Hipperson's last flight was not recorded, depriving him of the top spot. By the time this was observed all had departed, but luckily Dave accepted the situation in a very sporting manner.

NEWS SHEET ROUND-UP

We're very happy to report that month by month the number of news sheets and letters sent to Clubman seem to increase. Some of these news letters can be purchased from clubs and S.M.A.E. Areas, but for those who are 'not in the swim' and do not see them here is a round up of recent highlights.

The **"Elliott" M.F.C.** Newsheet is published by the members of Elliott M.F.C., who are a Company sponsored club from Rochester, Kent, with their own plans service which is free to members, who at the moment number just over 30. They have a tarmac flying site large enough for six control line circles and are negotiating with the local council for a radio flying site. The control line site facilities include hot water for washing, toilets, soldering iron power points, tea, coffee and cigarette machines and no noise complaints. They also include novices hints and tips in their news sheet and run local contests. (Phew, some club!)

"Blueprint" is the bulletin of Liverpool and D.M.A.S. and is in its first issue this month. Very well written by P. H. Branigan, it includes editorial surveys of the latest U.S. and British modelling magazines, a good feature on how to obtain selective left and right rudder from the Elmic Conquest or other SN escapements without having to modify them in any way. Also included is latest club and S.M.A.E. news to fill out. **"Seadog"** the South Eastern Area S.M.A.E. news letter has mainly local contest news and the news from Area clubs. A plan of Neil Tidey's "Paladin" combat model which placed second to "Stoo" Holland's Flingel Bunt at the 1964 Nationals is this month's free plan, although not a very clear drawing to work from. The "Red Cap" is published twice a year by the Sheffield S.A. and includes a bounty of four plans, three F/F and one C/L. **South Wales R/C Society** news sheet includes an editorial on silencers and a report on the first radio control trials, with a detailed run down on who was flying what. Circuits for servo amplifiers and how to obtain a reliable slow idle go to make this a specially interesting news sheet. **Leicester M.A.C.** publish a bulletin every month composed mainly of club happenings and future activity dates. The club balance sheet is an example to all on how things should be run, and shows them to be a very wealthy club. Jack Marsh's Chairman's Report notes that their junior membership is at its lowest for years and that the £400 bank balance is mainly due to receipts from displays held by the club, he also significantly comments that there is no lack of subscription payers, but few people really try to get their money's worth in club activities. **"Scottish Aeromodelling"** edited by W. N. Cliff, for the South of Scotland S.M.A.E. contains a report on the free flight team trials and five plans of which one is for C/L, and the others for F/F. Printed in three colours of ink it also contains plenty of local news and the relevation that there are at least nine separate clubs within half an hour of Glasgow nearly all highly independent of each other. **"Hornets and Glasgow M.A.C."** Newsheet is a combined effort by two Glasgow clubs, that do help each other. Latest issue includes rally reports and the news that a G.P.O. detector van visited R.N.A.S. Abbotsinch to try and trace interference reported by the modellers. An excellent class "B" team race write up concludes their latest issue together with chicken hopper tank drawings by Donald Gordon. For those who like their Newsheets in a lighter vein we recommend **"Eagles Beak"**. Published each month by the Worthing Bald Eagles M.A.C. this contains the normal club news and many weird engine tests on Mad Dan Creations, Inc., products. Also included is an exclusive scoop on how to become a world champion by staff reporter Emil Burst as related by Rudi Mucksslinger in person. . . . We cannot leave this fascinating pile of duplicated matter without a mention of **"Northern Area News"** who once again come up to their usual very high standard with three plans and plenty of free flight news of special interest to the contest fraternity.

Models Found

Veron Mini-Robot, A.M. 10 powered with Minimac receiver, found near Molesworth. Owner should contact Mr. D. Miller, Plot 77, Whitwell Way, Coton, Cambs. 1 c.c. diesel engine found at Ivinghoe Beacon on 9th November, contact Mr. J. O. Younghusband, 16 Downs Road, Luton, Beds.

NORTH SHEFFIELD EXPANSION

From inactivity to a flourishing membership of over 30 has been the North Sheffield M.A.C.'s main achievement over the last 18 months. Interest is 100 per cent control line, and their speed stalwarts are now regular visitors to the Hayes Circuit, their last visit being enlivened by a forced stay at a very seedy hotel, make your own bed, and cook your own breakfast type. The main emphasis at all their club contests is safety, aided and abetted by Technical Officer Gordon Farnsworth, who continues to be most unpopular. His eagle eye takes in every connection to handle and model, and all the lines are subjected to the club's new "Toy", a 112 lb. spring balance. Wrist straps are of course all the fashion for all speed flights. Other interests in the club are combat, team race, rat-racing and stunt. Already the committee are receiving bookings for displays at Work's Sports Galas, in and around the city for next summer. Other projects in hand are several social events, a coach to the Nationals and a smaller party to Belgium for the Criterium d'Europe in '65. Meetings are held in comfortable surroundings on alternate Wednesday evenings, and anyone in the area wishing to simple some hospitality, should contact the Secretary, Mrs. Freda Shirt at 46 Hunsley Street, Sheffield, 4.

Southern Area Winter Rally

Held with strong winds blowing on 17th November, the Southern Area Winter Rally attracted 55 entries in the four events. The only fly off was in rubber with P. Bailey ending up just 8 seconds behind A. Wells. New Brighton club member George French came out tops in 1A Power with 8:22, followed by J. Boxall from Portsmouth with 8:03. Results: Glider, 1, P. Newell (Surbiton) 8:22. 2, T. Williams (Portsmouth) 7:07. 3, A. Turner (Southampton) 6:26. Rubber, 1, A. Wells (Hornchurch) 9:00 - 5:30. 2, R. L. Bailey (Reading) 9:00+5:22. 3, A. Wisher (Croydon) 9:00+4:26. Power, 1, J. West (Brighton) 9:00. 2, P. Manville (Bournemouth) 8:15. 3, G. Cornell (Croydon) 8:01. 1A Power, 1, G. French (Brighton) 8:22. 2, J. Boxall (Portsmouth) 8:03. 3, D. Hipperson (Croydon) 7:45. Rally Champion J. O'Donnell (Whitefield).

Contest Calendar

Feb. 14 St. Albans Veteran and F.A.I. Rally. Chobham Common. Starts 10 a.m. F.A.I.: Rubber, Glider and Power. Veteran (pre-'51 designs and engines): Glider, Power. Both classes are "all in events".

April 4 Rolls Royce Pylon Race. Thulston (on B.5010 5 miles south of Derby off A.6). Events include single channel pylon racers and multi relay race. Enquiries to: Mr. P. Clarke, 70 Brisbane Road, Mickleover, Derby.

CONCOURS CONTEST

A Concours contest was held by Leicester M.A.C. on August 16th and 16 models were entered by club members, of whom 23 attended. Judging proved more difficult than at first thought, so for other clubs' guidance here are John Randell's comments as a judge at this event. "If the contest had been judged purely on the quality of the high gloss finish seen on some contestants' models, the results would have been completely different. However, the judges looked through the gloss, to the surface over which it had been applied, and found a different picture. It would seem that the majority of the contestants have never heard of that magic word sandpaper. Balsa wood manufacturers claim that their wood is sanded, but usually the saw-cuts can still be seen, and so they could on a lot of the models. Construction-wise, the judges looked for good joints, nicely faired in wings to fuselages on control-line jobs, and clean edges on wings, tailplane, etc. Regarding covering, poor joints show up remarkably well on built up structures, so emphasising poor building. Most contestants lost points for poor edge finishes, tissue curling up, or not meeting. On this point, the winning model could not be faulted, the judge wished he could finish off his leading edges, and trailing edges, in such superb manner. Attention to detail, especially on the scale, and semi-scale models, was noted, but few points were gained or lost on this score, as the contest was strictly concours, and not scale". Results: 1 D. Neal (Forster-Wickner Waco) F/F Scale. 2 B. Bray (Gipsy Moth) R/C Scale. 3 I. Robinson (Mustang) C/L Stunt. 4 K. Norman (New Devil) C/L Speed.

ANGLIAN MONSTER

Anglia M.F.C. have recently had a surge of interest within their club, centred around the club's latest project, a 12 ft span radio control glider. They hope to finish their monster before the next flying season starts in earnest. All the building takes place in the club's own room above Harveys shop at 46 Duke Street, Chelmsford, Essex. If any local aeromodellers would like to join in the club's activities they should present themselves at the clubroom any Sunday afternoon around 3 o'clock.

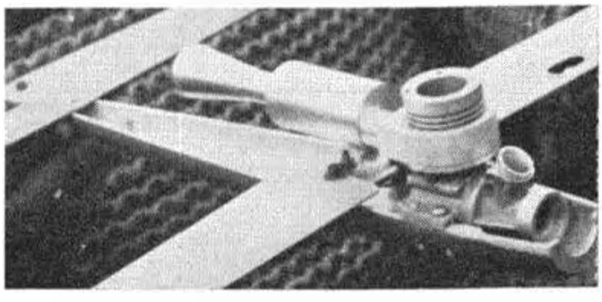
NOISE ANNOYS (Continued from page 84)

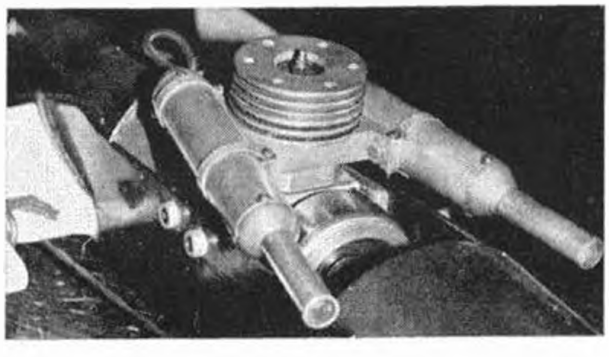
required. The whole silencer weighs just under 2 oz., and a very neat and simple answer to our problem. An adaptor is also supplied for the .49 and .61 versions to bring the silencer chamber further away from the cylinder head, and to adapt the .35 size exhaust slot to fit the .49, .61 size. Price is £1/6/7d. On outward appearance the Gee Dee Pike silencer, developed by well known proportional R/C flier Geoffrey Pike, looks much the same as many others, but once taken apart the subtle difference is revealed. The main expansion chamber body is an alloy extension plugged at one end with a solid dome. A cast adaptor (to fit the Merco .49, .61) is bolted between the expansion chamber and exhaust stack. At the rear section is a spring loaded slim steel valve, backed up against a ground face on a cast valve plate. This looks very much like the intake system of a pulse-jet, and works on the principle that the exhaust gas will build up pressure in the expansion chamber and then force the slim valve away from the cast plate so releasing the gas to escape through two holes and out of the turned rear outlet. The manufacturers claim that a 3 per cent r.p.m. loss with no overheating and better idle will result when fitting their silencer together with a noise reduction of up to 75 per cent and a fuel saving of 60 per cent. Price including tax is 59/6d. Our flight tests had practically proved these points when the unit fell off in the air. We advise a safety strap of some sort to assist the single retaining bolt supplied. The O.S. type L—R/C silencer incorporates a butterfly valve that operates **inside** the expansion chamber by interlinking with the throttle control. This can still be used with an exhaust extension piece in place and is only noticeable by the protrusion of a cranked linkage arm.

Experiments

Some years ago the K.B. factory built several experimental "silencers" that improved power output, rather than effectively reduced the noise level. These units were loaned out for tests and never returned, so no more has been heard except that John Brodbeck (the "B" of K. & B.) replaced his V8 car silencer with one made to similar design, and it was said to be effective. At the North London S.M.E. exhibition we spotted several hydroplanes equipped with interesting silencers. One of the most involved is shown here. The engine is a hand-made large racing glowplug type, of more rugged construction than generally seen in model aircraft. The double sided silencer is designed to alleviate any back pressure problems by cleaning both sides of the cylinder. Note the firm support straps and general robust lines. The "machine gun" type silencer shown is Gordon Farnsworth's (North Sheffield) answer to speed model silencing. A stripped down Super Tigre G-20 is shown with the cylinder head turned to accept the silencer manifold. Note the offset manifold entry into expansion chamber and the long bell'mouth outlet. Fuselage top half fits around the unit in the normal manner.

Below, Gordon Farnsworth's home-made Super Tigre G-20 silencer in his mono line speed model. At right, twin expansion chambers and outlet pipes on racing hydroplane intended to relieve back pressure.





CLASSIFIED ADVERTISEMENTS

PRESS DATE for March issue, 1965, January 25th, 1965.

ADVERTISEMENT RATES :
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Box replies to be sent care of Advertisement Department, Model Aeronautical Press Ltd., 38 Clarendon Road, Watford. Copy received after first post on 25th January, 1965, will be held over until the next issue, unless cancelled in writing before 20th of following month.

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Oliver Tiger III, excellent condition, recently serviced by Olivers, £4 10s. o.n.o. D. Bandet, 80 Moorfield Rd., Exmouth, Devon.

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E.D. Transmitter and Telecommander receiver, £5. Tuned A.M. 25, 40/-. Frog 150, 30/-. A.M. 35, 45/-; all perfect. Alan Bishop, 27 Roxy Ave., Chadwell Heath, Romford, Essex.

E.D. P.C.C. C.W. transmitter and E.C.C. 951A receiver £6. Conquest escapement, 15/-. A.M. 15, 25/-. E.D. Baby, 20/-. M. Tutman, 64 Hamilton Avenue, Pyrford, Woking, Surrey.

R.C.S. 6 channel Tx, 12 channel Rx, £28 o.n.o. R. Underdown, Chapel Row, Matfield, Tonbridge, Kent.

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Single channel Tx, Rx, Escapement. R.C.S. or similar in working order. Bramley, 27 Elsinore Ave., Stanwell, Middx. Phone: Ashford 55824.

Quadratone set wanted (Rx, Tx, etc.). Deacs if possible. Ready for installing and flying. State age, condition, price. Michael Nock, 1 The Mount, Virginia Water, Surrey.

Aeromodeller Flying Scale Airspeed Horsa Glider Plans, any condition. State price. A. Witherup, 15 Newton Park Road, Newton, West Kirby, Wirral, Cheshire.

TRADE

Rossi 60, 10 c.c., £17; G.20 Super Tigre Rossi, modified, £8; G.21 5 c.c., modified, £10; Speed pan for G.20 with spinner, £1; G.21 pan, £1 5s.; G.20, etc., team race pan, 13/-; four grades glow plugs, 4/- each; Vulcan jet, £12; 6 x 8, 6 x 9, 6 x 10 speed props., 3/-; 7 x 8, 7 x 9, 7 x 10, 3/2d. Rossi, Via Pace 13, Brescia, Italy.

Ex-Government Stop Watches, 45/-. Illustrated leaflet on request. Charles Frank, 67-73 Saltmarket, Glasgow, C.1.

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American Magazines. Year's subscription "Model Airplane News", 46/6d.; "American Modeller", 35/6d.; "Air Progress", 39/6d. Full catalogue free. Willen Ltd. (Dept. D), 61a Broadway, London, E.15.

MODEL NEWS (Australia) — published Bi-monthly, 12/- per year, sterling posted direct, covers all Australasian Aeromodelling in pictures, features and plans. 11 West King St., Southport, Queensland, Australia.

Model-Avia, the model magazine that covers the world of model flying. Edited in French. Send for free specimen and subscription details: Model-Avia, 31 rue du Printemps, Bruxelles 5, Belgium.

"SAILPLANE & GLIDING"—Published every alternate month. Send stamped addressed envelope for descriptive leaflet; or 4/- for current copy; or £1 4s. for a year's subscription to British Gliding Association, Artillery Mansions, 75 Victoria St., London, S.W.1.

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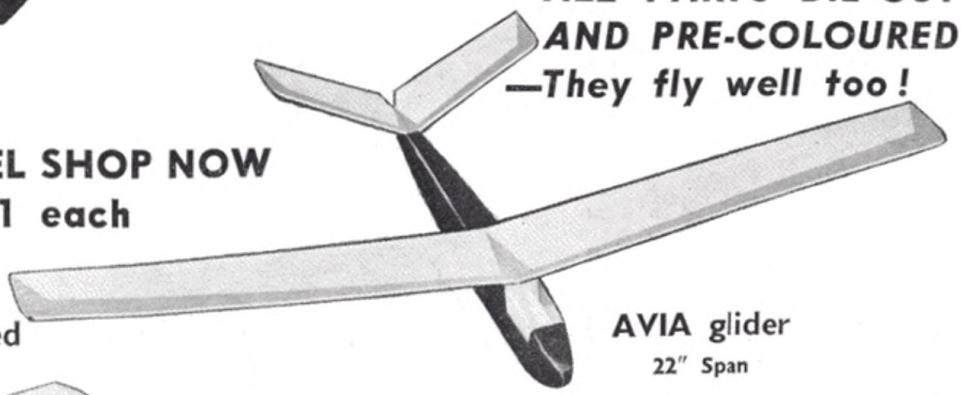

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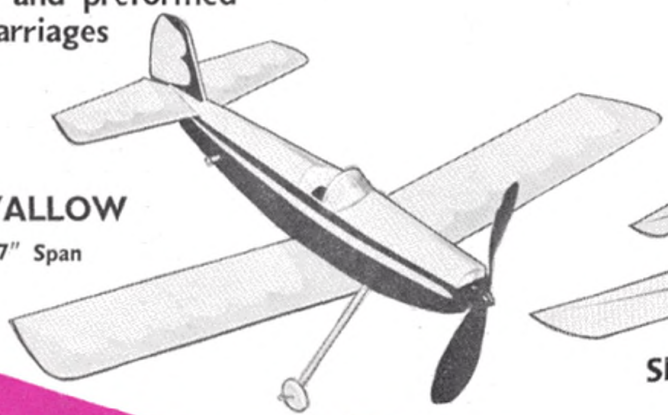

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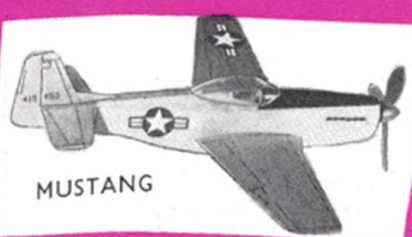

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