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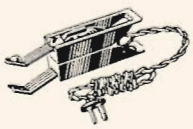

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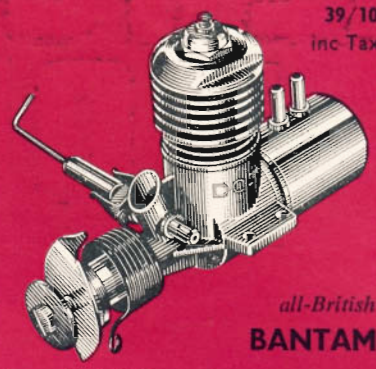

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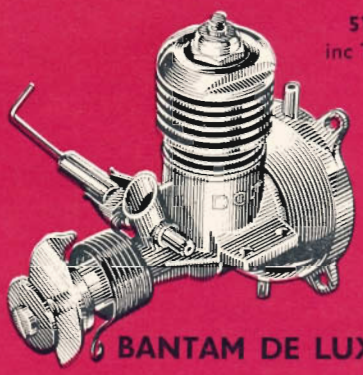

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AERO MODELLER

MAP HOBBY MAGAZINE

February 1964
VOLUME XXIX No. 337

contents

cover

Wheeling high over their native country, the unique Saab Drakens of F 13 Group in the Royal Swedish Air Force formate above solid cloud ground cover. A fully detailed set of drawings for the various marks of Draken will be found on pages 80-85 of this issue, together with a description of this fast and purposeful aircraft, strangely neglected so far by the plastic kit manufacturers.

next month...

Maurice Bodey produces another scale "twin" for control-line and it is the Fokker F-27 "Friendship" with specially simple construction and to suit smaller engines of about 1 c.c. Markings for a typically brightly coloured version will be shown in the full colour cover picture of the prototype model on the apron at Speke Airport at Liverpool. **Full-Size** plans of the month will be quite a novelty for they introduce the possibility of indoor round-the-pole combat with caricature versions of a 'Spitfire' and 'Stuka'. Eric Clutton tells how to fly them simultaneously on 6 ft. lines in the clubroom! Beginners will have special attention with the first part in a new series—"Let's go flying!" and scale fans will have their usual fill, as so will the contest men. Out on February 21st.

other modelling angles . . .

Readers who seek the unusual will find food for thought in February 'Radio Control Models & Electronics' with an article devoted to the control of Air Cushion Vehicles (Hovercraft), a series which will encourage new applications in the field of radio control. How about a transmitter to slip into your pocket, so that your hands do not freeze this Winter ? Full instructions are given for a four channel multi-transmitter which fits inside a 2 oz. tobacco tin ! There is plenty for boat enthusiasts ; the FULL SIZE plan is for a novel electric craft which may be used with single or two channel gear. It is a 22 in. Cabin Cruiser, using the Marx-Luder "Bongo" propulsion unit. Aircraft modellers can read how to design their models for the best roll characteristics. There is a simple battery charger which can be used on the flying field. Pic. Page makes a welcome re-appearance among the usual favourites such as "Gadgets & Gimmickry", "Test Reports" (this includes reviews of the new Macgregor Transistor Transmitter and the Emco Ace Transmitter-Receiver combustion), and "Commercial Developments".

Among leading features of February 'Model Maker & Model Cars' are : "Sting Ray"—a 22 in. 2½ c.c. Radio controlled boat by Philip Connolly with a 'different' constructional technique ; Full size drawings are included for a working miniature destroyer. There is a full description of an attempted Solent crossing by R/C powerboats, and a new 'A' class yacht.

On the 'car' side, drawings for the new F1 V8 Ferrari will attract slot fans, also moulding of Thermo-Plastic and a Corgi Bentley converted to slot.

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Direct subscription rate 28/6 per annum including enlarged December edition and index. U.S.A. and Canada direct rate $4. AEROMODELLER incorporates the MODEL AEROPLANE CONSTRUCTOR and is published monthly on the third Friday of each month prior to date of publication by:—

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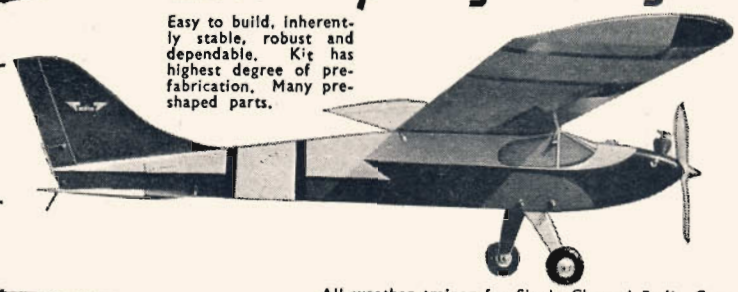

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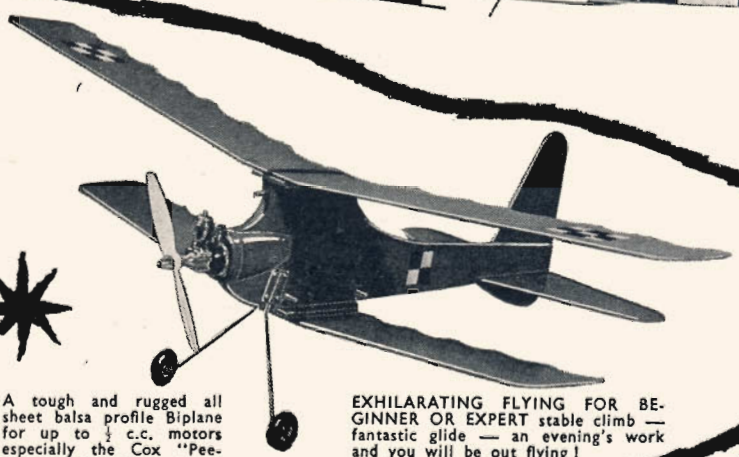

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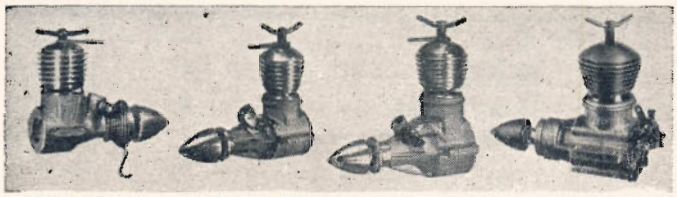

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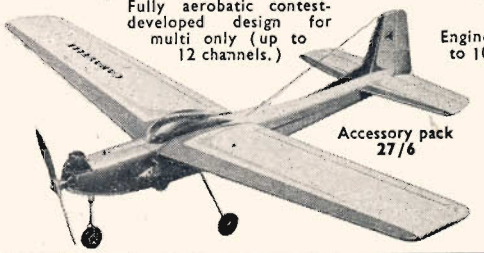

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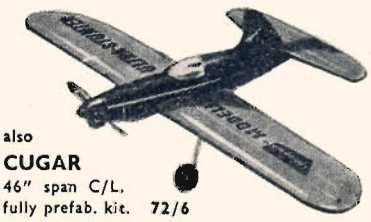

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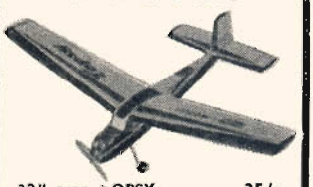

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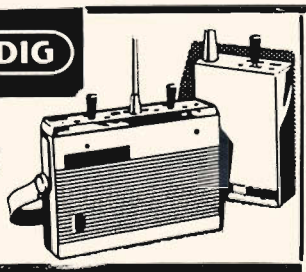

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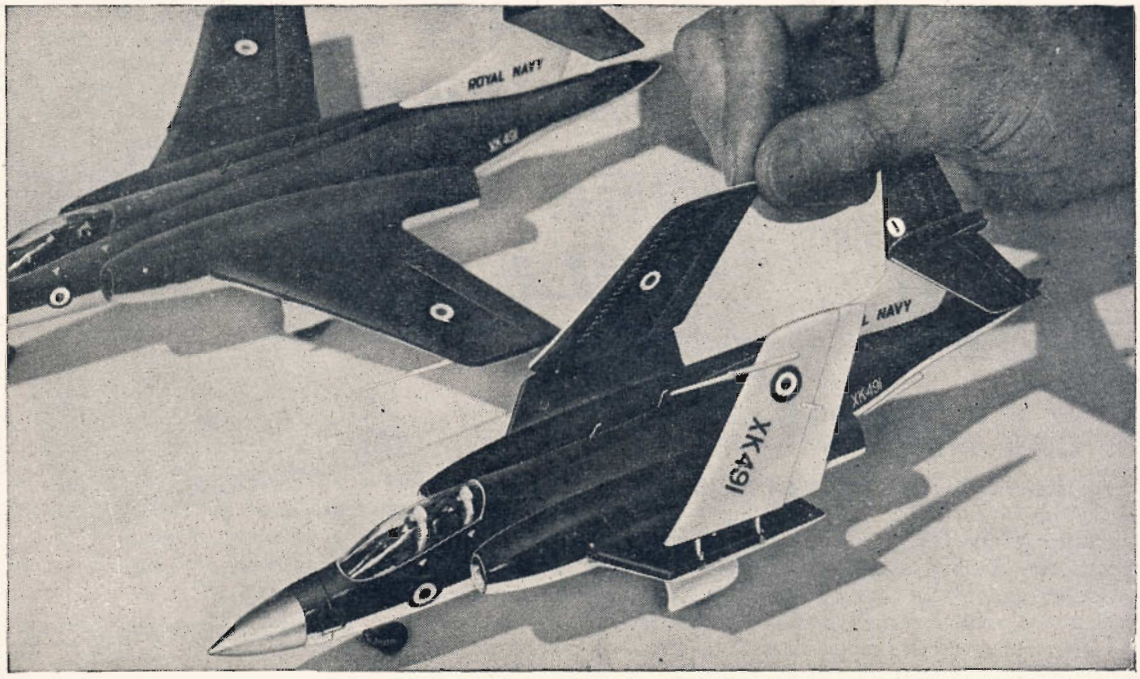

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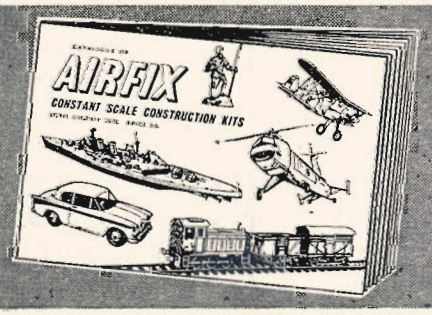

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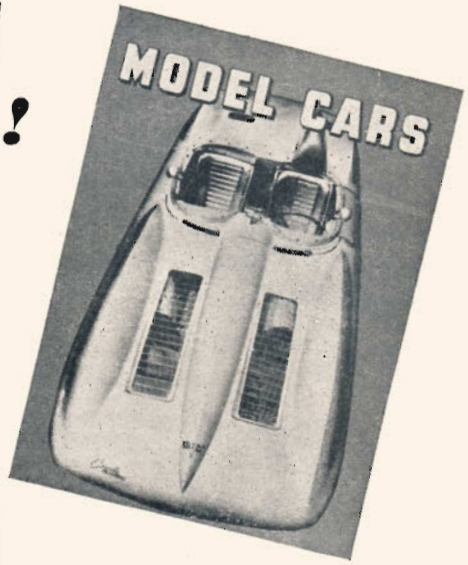

MORE MODEL PAGES

FOR CAR MEN

Look out for March 6th when first issue of our new ALL MODEL CAR monthly *MODEL CARS* comes out — this will be April issue — thereafter every first Friday of the month will bring you this mammoth car offering, same size as sister magazines *Model Maker, Aeromodeller* and *Radio Control Models*. It will contain just about everything the keen car man could want. Practical constructional articles on making electric model cars from scratch for beginner and expert : converting existing plastics to power : track construction for home and club : racing, tactics, pictures, reports : how to go faster : club reports : PLUS our own inimitable CAR PLANS of current GP and GT cars, PLUS vintage, veteran, Edwardian, antique car plans PLUS collectors' pieces, commercial cars . . . in fact cars of every size, sort, shape to tickle the model car fan's fancy. Get an order in. . . . The price? Two Shillings & Sixpence monthly, starting Friday, March 6th.

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MAP HOBBY MAGAZINES

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Cranwell

Teaches flying—and more

A 3-year cadetship at Cranwell prepares you for a future that can take you from Pilot Officer to Commander-in-Chief. When you leave Cranwell you will fly as an aircrew officer at an operational station. A few years later you could be commanding a flight or a squadron, an appointment that combines flying with executive responsibility: Cranwell trains you in the essential art of man-management. You could be appointed to NATO or SEATO committees or to the Staff of an Embassy abroad: Cranwell prepares you with lectures on history, political theory and international affairs. At 40 you could be a Group Captain in charge of a base as big as a town—responsible for the work and welfare of 2,000 men: Cranwell subjects include the theory of organisation and administration. A cadetship at Cranwell gives you a chance to develop all your talents to the full and the opportunity to prepare yourself for very high appointments later on.

Henlow

Engineering training to degree level

Just as Cranwell teaches more than flying, so Henlow teaches more than engineering. A Henlow cadetship can lead to the highest ranks in the Technical Branch and appointments like Senior Technical Staff Officer in a Command Headquarters, a position that demands an incisive mind capable of planning at the highest level.

At Henlow you can read for the Dip. Tech. (Engineering) which is equivalent to a University degree. This gives you the necessary technical knowledge you will particularly need during the early years of your commission when you will be directly concerned with the fighting efficiency of the Service—officers of the Technical Branch are engaged in the maintenance, research and development of all the equipment used by the R.A.F.—aircraft, guided missiles, electronic equipment, radar. At the same time you attend lectures in strategy, management, international affairs—the subjects you will need when you reach the higher executive appointments.

Applying for a Cadetship

During your training as an officer cadet at Cranwell or Henlow you will be well paid—and you will enjoy a high standard of living in the College Mess. To be selected for a cadetship you must be intelligent and a potential leader with a strong sense of responsibility. You must be between 17½ and 19½ on entry.

For Cranwell you must have G.C.E. (or equivalent) in English language, mathematics, science or a second language and two other acceptable subjects. Two subjects must be at 'A' level.

For Henlow you must have G.C.E. (or equivalent) in English language, mathematics (pure and applied), physics, chemistry, and two other subjects. Mathematics and physics must be at 'A' level.

R.A.F. Scholarships worth up to £260 a year are available for boys over 15 years 8 months who wish to stay on at their own schools until they are qualified to enter Cranwell or Henlow.

Next entry to Henlow and Cranwell: Autumn 1964. For full details of R.A.F. cadetships and R.A.F. scholarships, write at once to Group Captain T. W. Allan, D.S.O., D.F.C., A.F.C., R.A.F., Air Ministry, (AM 109), Adastral House, London WC1. Give your date of birth, G.C.E. subjects which you hold or expect to gain, and state which college most interests you.

The Royal Air Force

Heard at the hangar doors

Madurodam, Holland's miniature city situated on the outskirts of The Hague and erected as a memorial to war hero, George Maduro, recently celebrated its 10th anniversary. Our photograph shows part of the long runway of the Schiphol-Madurodam Airport and a Pan-American Airways Boeing 707 of 1/25th scale, about to take off. As with every other exhibit in this model city, the airport is precise in every detail and includes in its display, two hangars, a restaurant, control tower, beacons, tankers and aircraft from many famous European airways. A unique feature is the remotely-controlled K.L.M. aircraft taxiing around the apron.

Golden Wings

Response to our full page announcement of the AEROMODELLER "make 1964 **Junior Modeller's** year" Golden Wings contest has been most encouraging so far and we hope that those who missed the notice last month will make application for details now.

The contest is quite different in that the prizes (generous, of course!) will go to the leading *groups* and not the individuals. This means that entry is made in the name of a model club, youth club, school handicraft class, Air Training Corps Squadron and any such similar group activity. Models need not be the product of a single person, they can be a team effort, produced by several young enthusiasts.

In this way we hope to introduce a fresh enthusiasm for aeromodelling, where the assistance of a Group Leader can be an excellent guide, and where collective effort can be employed as necessary. Rules will be purposely simple to avoid complications and after qualifying contests at centres disposed around the country, there will be a national final for the leaders, with travel expenses paid.

Events for Rubber-driven, Control-line, Free Flight Power and Glider models will allow the widest choice for selection of your favourite class, and most certainly this will be an "experts barred" contest. Junior modellers need have no fears that their standards will be inferior for we can assure them that every encouragement is intended for the absolute young novice.

Since it will be your Club or Handicraft Class, etc., that will collect the honours, get your Club Secretary or teacher to send now for details, to the editorial offices at 38 Clarendon Road, Watford. There's plenty of time left to enter, this is a contest which will build up in interest right through the flying weather months until early September. Mark your envelope *Golden Wings* for speedy attention.

Coupe d'Hiver

Yes, it's on again this Winter, and for the more experienced modellers of France and Great Britain there is especially good news concerning the Anglo-French Challenge Trophy for the Coupe d'Hiver competition run by our friend, the originator of the class, Maurice Bayet of *Le Modele Reduit d'Avion*, and ourselves. Last year, a disagreement over the rise-off-ground requirement led to withdrawal of support from the French side of the event; but for 1964 M. Bayet has not only agreed to sponsor the French Coupe d'Hiver final and found an aerodrome, he has also extended an invitation for British modellers to attend.

Running through the list of last season's competitors, we are pleased to report that about eight have indicated willingness to make the trip and so on Sunday, February 23rd, at the Aerodrome de Chavenay near Versailles, there will be a direct international event to decide the Team Trophy holders for the year. It promises to be an excellent meeting, with several past winners of Coupe d'Hiver contests taking part in both sides, and we trust it will be the first of many, with reciprocal visits to Britain by the French aeromodellers. Should there still be C. d'H. enthusiasts who have not received notice of this event in France, and who wish to attend, they should contact the Editor quickly.

For those unable to go, the annual postal contest still takes place and entry forms are now ready for distribution on application. As before, there are two dates to allow for the vagaries of British Winter weather and they are February 16th and 23rd. The former is also the date for the Croydon D.M.A.C. contest for the class at Chobham Common, open to all and therefore a handy opportunity to "double" contest entries for Southern modellers.

Over in the extreme right column, we publish a British design from the Crawley D.M.A.C. and a photo of an American model which will give the uninitiated an idea of the convenient size of these Winter Cup designs which have become very popular in many countries of the World over the past two years, after the French have been flying them for more than a decade!

S.M.A.E. Annual General Meeting

Attendance at York on December 1st was encouragingly good on the part of the model clubs in

the S.M.A.E., though sparse as far as Area Delegates were concerned.

All progress in the initial stages of the meeting was naturally clouded by the tragic news that the Chairman, A. F. Houlberg had died that same morning and when the news that only clubs of ten or more full members *at the time of re-affiliation* were allowed a vote under the terms of the constitution became known, the atmosphere was doubly darkened. For a time there was indecision as to whether the AGM should proceed ; but it did, and efficiently so first under the Chairmanship of H. J. Nicholls until declaration of election results, and then under N. J. Butcher.

A number of items are referred back. There will be an E.G.M. to deal with accounts, to which the Auditors will be invited, and the Constitution will be amended on the question of vote qualification.

From the officers reports, it was revealed that the F.A.I. Sporting Code is now re-issued, incorporating all alterations up to December '62 and that committees have been established both in the SMAE and the Model Trade Federation to investigate application of silencers to all model engines. The date of January 1965 has been suggested for implementing a stipulation that silencers be fitted to member's models in contests but the primary need is for silencers to be used to regain lost flying sites. Through demonstration to authorities that the noise nuisance can be averted, it has already been possible to obtain permission to fly on three airfields with radio controlled models, *provided* silencers are used.

There is to be *no* change of subscription rate, and an undertaking was given that in the coming year. Full Members would receive regular copies of "Model Flying" the SMAE Newsletter. In fact, several thousand of the first new edition, covering eight pages plus the Contest Programme for 1964, were despatched for members to enjoy some reading over Christmas. The new Public Relations Officer is anxious to establish the newsletter as a mouthpiece for all sections of the Society and invites Areas and Clubs to submit regular news reports to him.

Officers elected for 1964 are:— Chairman, N. J. Butcher ; Vice-Chairman, R. G. Moulton; Competition Secretary, S. Wade ; Records Officer, J. Hannay ; Treasurer, B. A. Messom ; F.A.I. delegate, H. J. Nicholls ; Secretary, P. D. Freebrey ; Technical Secretary, R. Firth and P.R.O. K. Lindsey.

F.A.I. Models Commission Meeting

Only a few days after the meeting mentioned above, The F.A.I. reunion in Paris, December 3/4th produced a few more changes for the newly printed Sporting Code, but none which affect model specification.

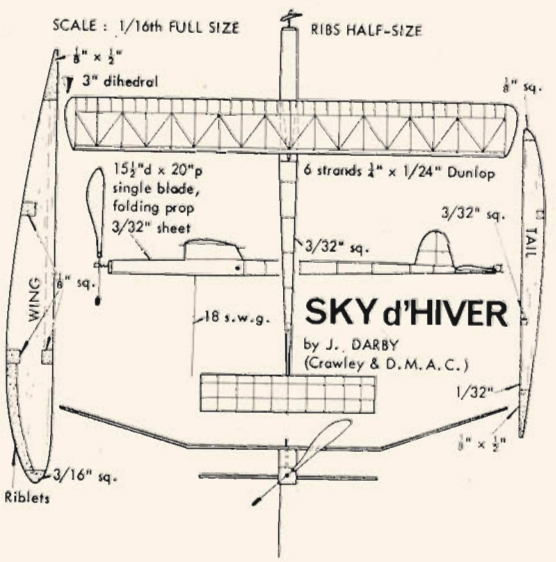
Radio control entries are to be in the name of the builder/pilot only, thus eliminating the possibility of team entry, and in the case of leading competitors who produce points totals over their better two flights which have less than 2 per cent difference, the existing third flight will be used as a decider, and *not* an extra fly-off. Scoring methods are to be investigated. The 1965 Championships will be held at a Military Base in Southern Sweden at the end of July, beginning of August.

In *Free Flight* there are suggestions for consideration in the future should the need arise to restrict performance, and recommendation for more strict contest administration is made. In future, the World Championships are *not* to be combined with any other events.

A set of rules for international *Combat* has been approved, engine size limit being 2.5 c.c. (Russia wanted 10 c.c.!) and in *Team Racing*, solo flights over the last 50 laps are disallowed and the surviving team is re-matched. Date for the Control-line World Champs in '64 is July 28th-August 3rd at Budapest.

Scale modellers will be much encouraged by the result of long labours, in the form of a provisional set of rules to cover control-line, free-flight and radio-control scale contests. These are on trial for a year, and should prove workable as they are agreed by committee members from the U.S.A., France, Russia, Czechoslovakia, Poland and G.B.

Lyle Elyea of Illinois who has done much to promote the Coupe d'Hiver rubber model class in the U.S.A. with his model which gained 3rd individual placing in the March '63 postal international. Note change of fuselage section to triangular aft of the motor peg.



SIGN POST

A MONTHLY ENQUIRY SERVICE

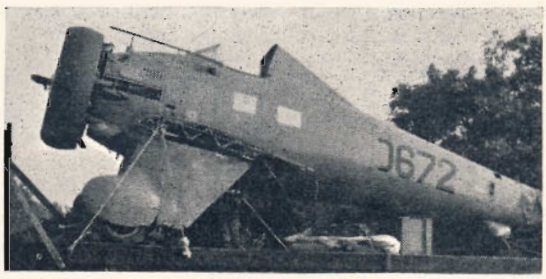
Each month, *Aeromodeller* and *Air-Britain* combine forces to answer interesting questions sent in by readers. Postcards, please, to "Sign Post" c/o Aeromodeller, 38 Clarendon Rd., Waford.

Boeing P-26A

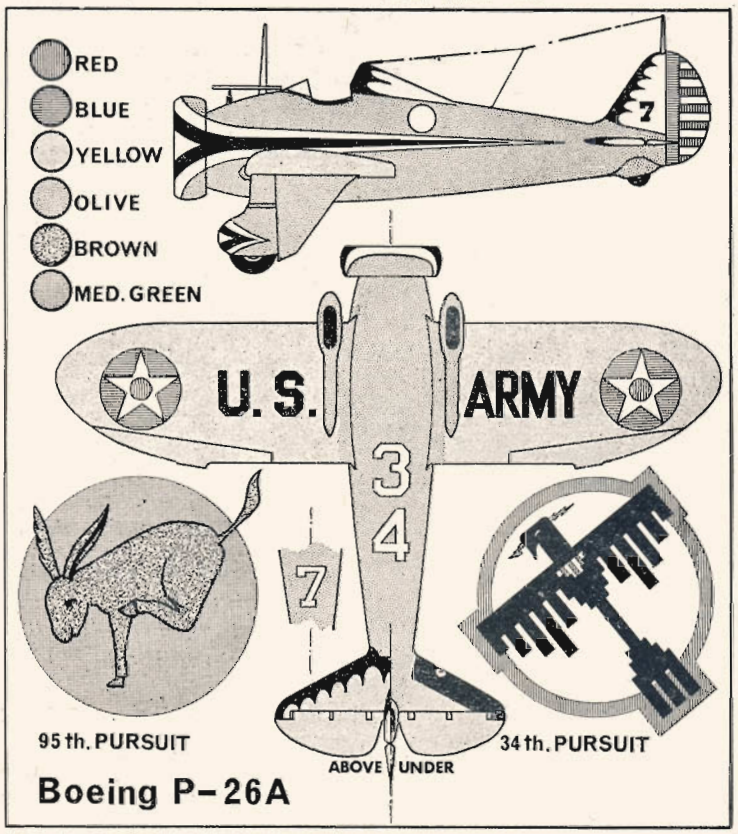
Beause several readers of AERO-MODDELLER *have queried the colour scheme of the P-26A flying model on the front cover of our June* 1963 *issue, the drawing below by Bruce Rigelsford has been prepared as a "last word" on the subject. Each month we hope to illustrate in the same way aircraft which have become the subject of controversy. Even so, there can be no such thing as complete standardisation. Once aircraft have left the manufacturers, other people get to work with paint sprays and suchlike. This is what makes the study so fascinating—every aeroplane can have its own individuality.*

Ed. Maloney whose Air Museum in Southern California is famous, sends the following interesting details of his exhibit, now to be seen at Ontario, S. Calif.

The Serial No. of the museum P-26A is 33-123. *Date accepted, June* 16, 1934. *Date delivered, June* 26, 1934, *to the* 1st *Pursuit Group,* 27th *Pursuit Selfrige Field, Michigan. Serial No. on the fin at that time was No.* 23. *Lt. Thayer S. Olds, 27th Pursuit Squadron Operations Officer nosed this P-26A over when the right brake failed on September* 21, 1934. *Little damage was done, however, and it was flying again shortly. It later saw service in Panama and was used by the A.A.F. at the time of Pearl Harbour. Later, it was one of two P-26A's sold to Panama, and still later resold to the Guatemalan Air Force. It was shipped to the Air Museum in July* 1957 *and later placed on display. It was one of* 111 *P-26A's manufactured out of a grand total of* 151 *P-26's made. It may be of interest to modellers to note the colour scheme and markings of the G.A.F. Fuselage: Silver. Wings: Med. Green. Fuselage number* 0672 *in Black. Rudder had the standard Blue-White-Blue Stripes. The insignia used was, however, the five pointed white American Star on a Blue Circle. Shortly after this P-26A was received the Smithsonian Institution received the last Guatemalan P-26A and it is now on loan to the Air Force Museum at Wright Patterson A.F.B.*



Right: Ed. Maloney's P-26A on delivery in G.A.F. colours. For details of membership to "Air-Britain"—The International Association of Aviation. Enthusiasts, send 6d. in stamps (or a 2s. P.O/Int. M.O. if sample of 24-pp. monthly journal is reqd.) to: The Hon Registrar, Air-Britain (Dept. AM), 11 Castellan Ave., Gidea Park, Romford, Essex, Eng.



Violets are Blue

The first photographs published of the Concorde-wing BAC Type 221 show it completely naked, in raw metal. Since it was originally the first prototype Fairey Delta 2 record holder, at one time painted blue overall, is the intention to leave the Type 221 in its present form? It would look very smart if it were painted in the red, white and blue colours of the Concorde model seen at the Paris air show last year.

B. T. Ruislip.

The BAC Type 221 *is indeed our old friend WG*774, *the* 1956 *world's speed record holder* (1,132 *m.p.h. Peter Twiss at the controls) which turned up at the* 1957 *S.B.A.C. Show at Farnborough in a most unusual overall "mauve" (more accurately, "spectrum violet"). The current intention is that the Type* 221 *will be finished in mirror-finish blue.*

New Transport Command Colours

Is there any truth in the rumour I have heard that Royal Air Force Transport Command is going to have a new colour scheme, and, if so, what are the changes?

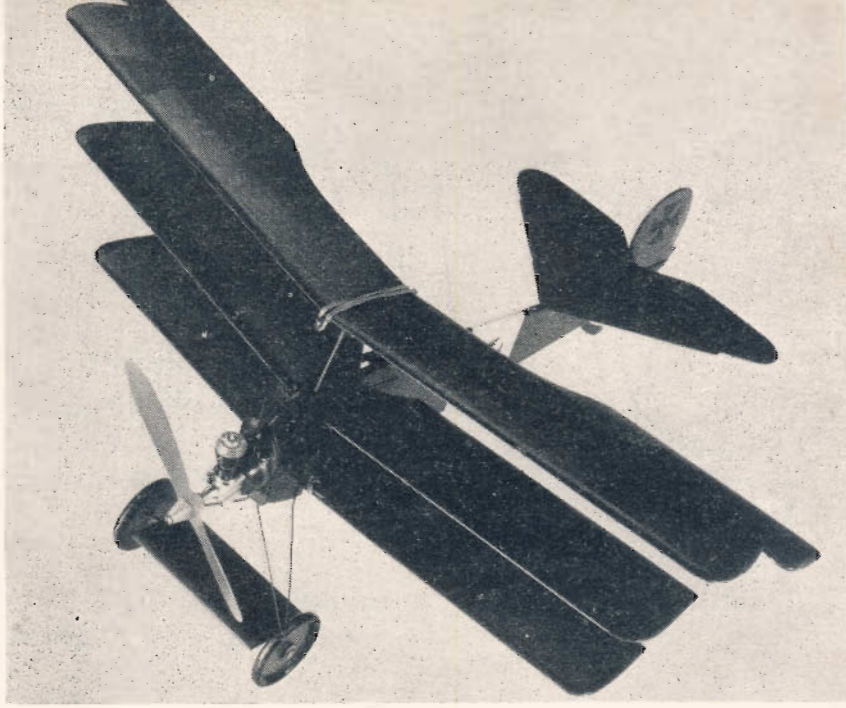
A. L. Woodford.

Before the end of the year . . .

*Yes—by the end of last year, the first of R.A.F.T.C.'s fleet of Bristol Britannias appeared in the new colour scheme. This was "Adhara" (R.A.F. serial XL*658) *which, while undergoing major overhaul at Filton, was given a "battleship grey" finish to the formerly unpainted lower and undersides of the fuselage. The familiar white top decking with blue cheat line remains. This additional grey will be applied in turn to all transport Command Britannias and the BAC VC-*10 *and Short Belfast when received. Incidentally, the first prototype Belfast, now shown with civil registration G-ASKE will eventually appear as Transport Command XR*362.

A 19 inch wingspan all-sheet balsa free flight sportster to suit any of the small engines up to .5 c.c. Designed by the creator of that world-wide favourite 'Ebenezer',

——— **Bert Striegler**



Ebenezer Triplane

Full size plans on next pages

IT WAS EARLY DAWN. The cough of a rotary engine signalled the attack! The dreaded sauerkraut ace, Baron Manfred Von Ebenezer, was about to, . . . Now *really*, this story should not fool you World War I fans!

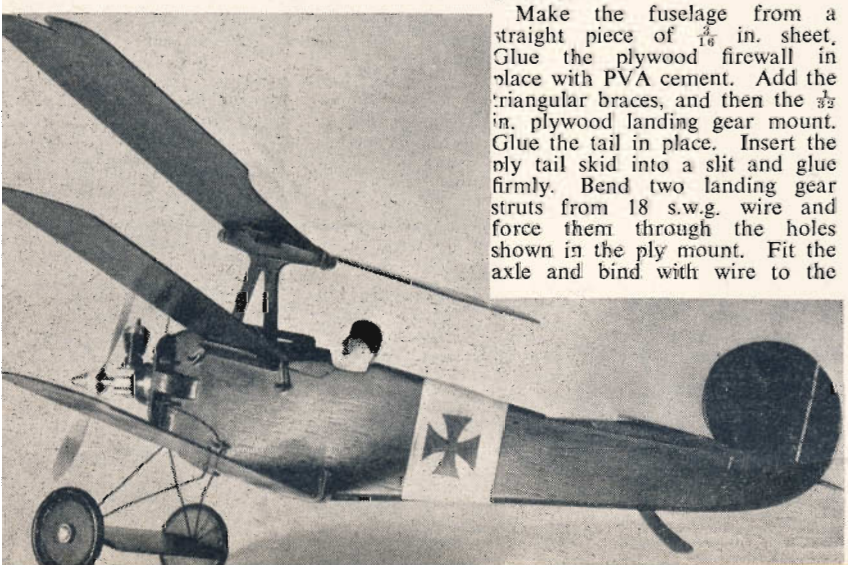
This little model will turn in some fine flights, and looks like the real thing in the air. Even if you are a beginner, its construction should present few problems. If you are an expert—have some fun for a change!

Begin construction by cutting out the wings from light $\frac{3}{32}$ in. sheet. Glue together the top wing panels with $1\frac{1}{4}$ in. dihedral under each tip. When it has dried, place a piece of waxed paper over the centre section and glue together the centre wing panels directly over the top wing. Use the same procedure for the lower wing. This method ensures the same dihedral angle for all three wings.

The tailplane is cut from light $\frac{1}{16}$ in. sheet. Note that the elevators are hinged with soft wire to allow flight adjustments.

The rudder is also cut from light $\frac{1}{16}$ in. sheet with the grain running vertical. Two doublers of $\frac{1}{16}$ in. sheet are added to the lower edge to stiffen the fin. A small trim tab is fitted with soft wire hinges, and should not be omitted.

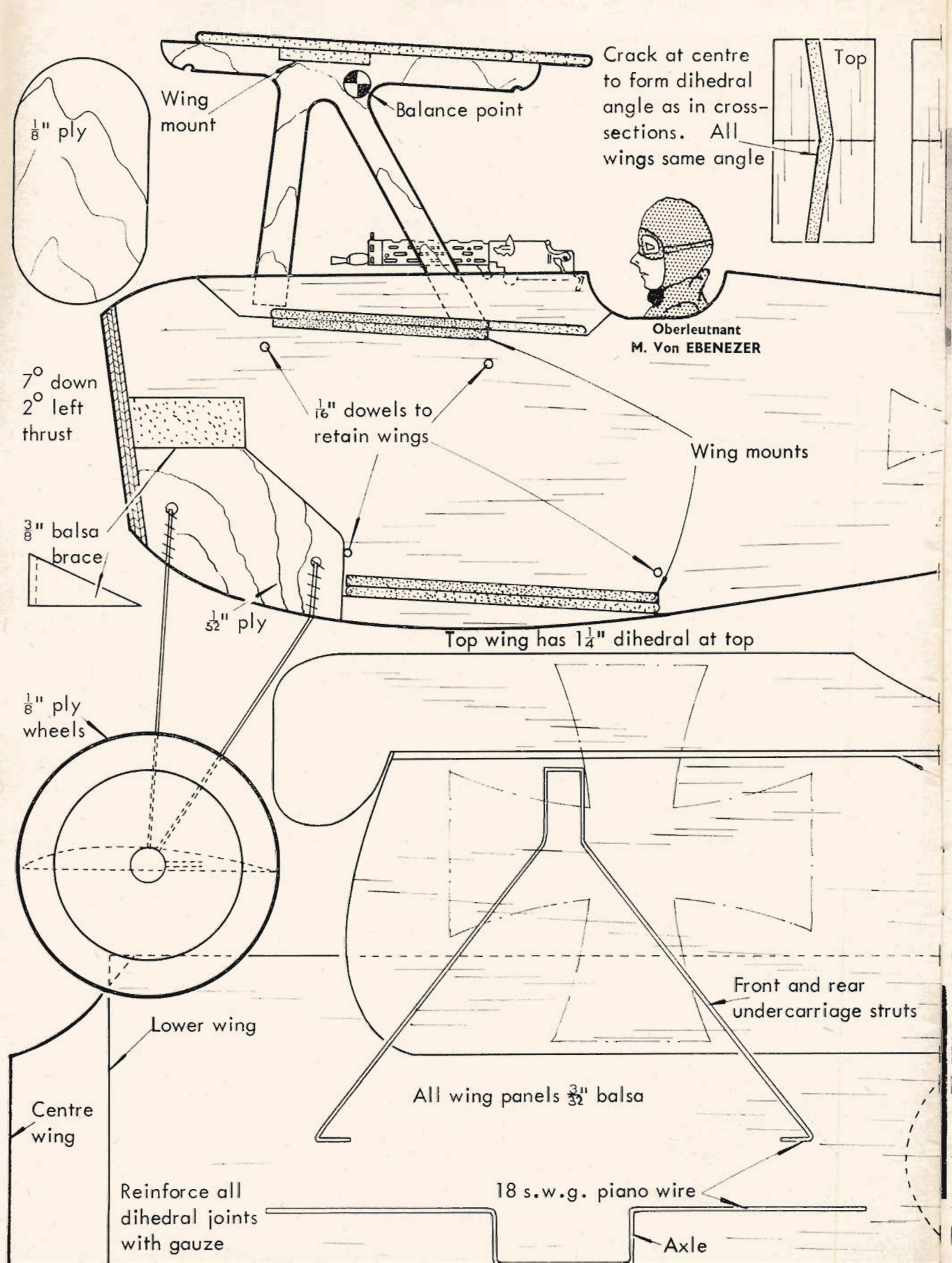
Make the fuselage from a straight piece of $\frac{3}{16}$ in. sheet. Glue the plywood firewall in place with PVA cement. Add the triangular braces, and then the $\frac{3}{32}$ in. plywood landing gear mount. Glue the tail in place. Insert the ply tail skid into a slit and glue firmly. Bend two landing gear struts from 18 s.w.g. wire and force them through the holes shown in the ply mount. Fit the axle and bind with wire to the struts. Solder firmly. Bind the gear in place with strong thread and glue. Fit wheels of $\frac{1}{8}$ in. ply. Hold them on the axle with a large washer soldered in place. This will prevent the wheels from wobbling excessively. Cut out the axle wing from soft $\frac{1}{4}$ in. sheet, and press a groove into the bottom of it that will match the shape of the axle. Glue firmly in place. Glue the wing mount plates in place. It is best to crack them at an angle to match the wing dihedral.

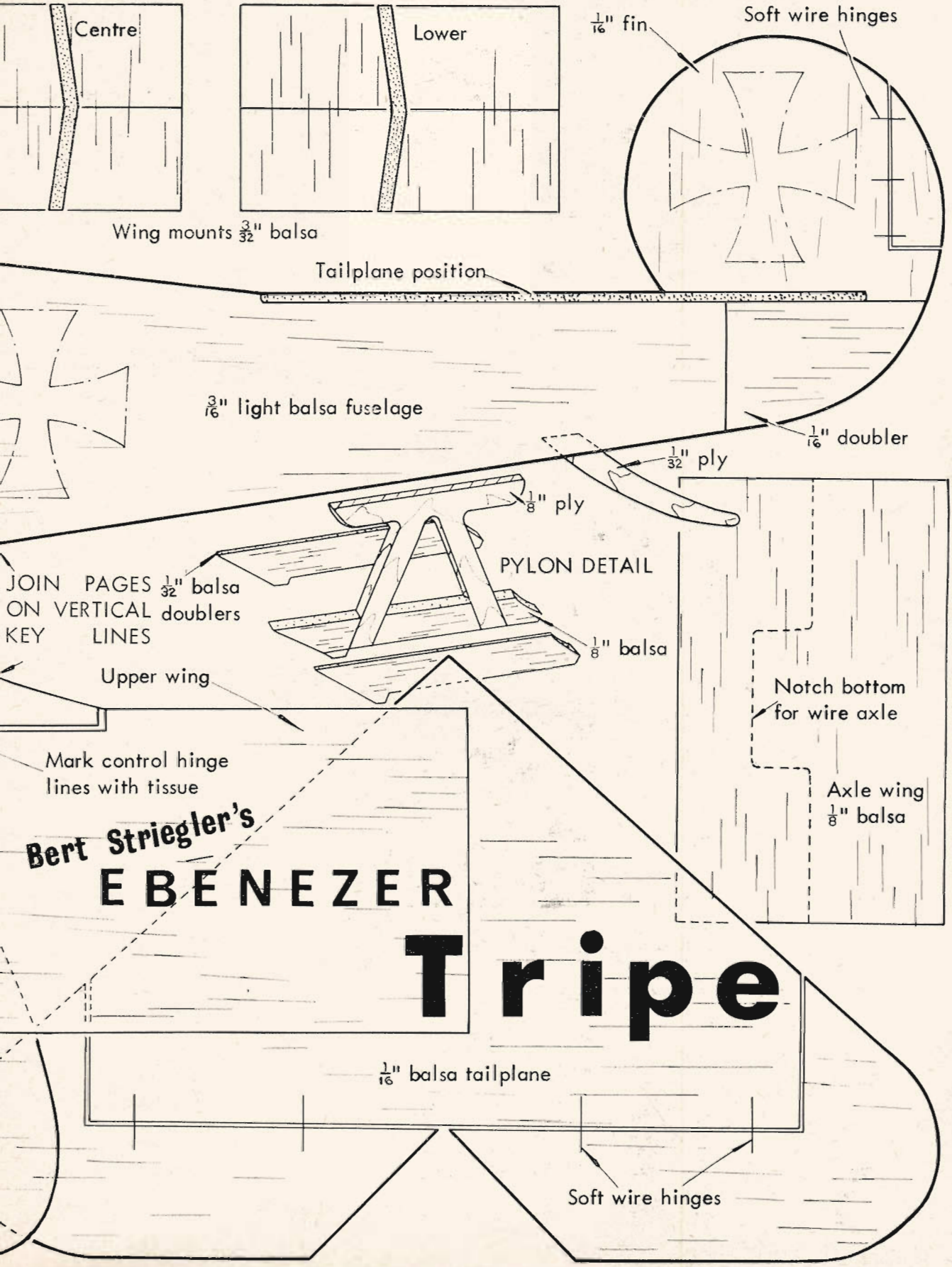


The centre section strut is made of $\frac{1}{4}$ in. ply as shown in the perspective drawing. When completed, glue it to the top of the centre wing. Be sure it is straight.

Ebenezer Tripe original was finished bright red with black tissue crosses. No one knows exactly what colours the feared Von Ebenezer used on his personal fighter, so use any of your choice.

Flight adjustments are very simple. Balance the model as shown on the plans, and hand glide to check. If it stalls, bend the elevators down slightly. If it dives, bend them up. A small amount of left thrust is called for, and the model should circle to the *left* under power. Use the rudder trim tab to prevent excessive turn. The originals have all used slight right rudder.


Wing mount
Balance point
Crack at centre to form dihedral angle as in cross-sections. All wings same angle
Top
1/8" ply
Oberleutnant
M. Von EBENEZER
7° down
2° left
thrust
1/16" dowels to retain wings
Wing mounts
3/8" balsa brace
1/32" ply
Top wing has 1 1/4" dihedral at top
1/8" ply wheels
Front and rear undercarriage struts
Lower wing
Centre wing
All wing panels 3/32" balsa
Reinforce all dihedral joints with gauze
18 s.w.g. piano wire
Axle


Centre
Lower
Wing mounts 3/32" balsa
1/16" fin
Soft wire hinges
Tailplane position
3/16" light balsa fuselage
1/16" doubler
1/32" ply
1/8" ply
PYLON DETAIL
JOIN PAGES ON VERTICAL KEY LINES
1/32" balsa doublers
1/8" balsa
Upper wing
Notch bottom for wire axle
Axle wing 1/8" balsa
Mark control hinge lines with tissue
Bert Striegler's
EBENEZER
Tripe
1/16" balsa tailplane
Soft wire hinges

WHAT IS AN AEROMODELLER?

Kombat Kast-off seems Kasual in Swedish launch shot at left.

DESPITE THE FACT that there are only a few Zoos in this country, one can encounter strange animals in almost any town. They come in a wide variety of shapes and sizes but all belong to the species *Aeromodellus Sub-Homo Saptens* or common aeromodeller.

What makes the modeller such a wierdy? One can usually walk down the street without becoming a sort of involuntary one-man sideshow but just let a modeller be dragged into conversation with the normals, (or masses) and immediately he is recognisable. One can admit to stamp-collecting, tandem-cycle racing or watching the television and still be "acceptable" but modelling, never!

Just as the normals do not seem to "appreciate" us, so do certain clans within the hobby not see eye-to-eye with the other clans. This makes us unsociable, but surely this is understandable? Who comprehends grown men playing with toys made from matchsticks, cigarette paper and elastic (they call them Wakefields). Then we have those types who whirl things round their heads on a piece of string (it's very non-U to use two pieces of string). The string-whirlers are further divided into sub-clans. We have the types who go in for monsters that turn sharp corners in the air — a manoeuvre which no self-respecting real aircraft would dream of doing. Then there are the speed types—the basic idea here is to squeeze the biggest possible engine into the smallest possible model then make the greatest possible noise — the actual flying of the model being a secondary consideration. Look at the way they are flown (if such antics can be called flying). In the centre of the circuit is a tall steel pole called a pylon. The idea is to get one's elbow on top of this (We know the rules say wrist, but one can't whip like that) and do a sort of one-way rotary twist round it staying at least one lap in front of the model and pulling the ugliest possible face in the process.

So the modeller is a cheat. All the clans practice cheating full-time. Look at the C/L/F/F mongrels, the "combateers," for instance who occasionally let their string mode's go free-flight to break the monotony of chopping off other peoples tailplanes. At the same time they try to sabotage the opposition in the circle centre by tweaking the opponent's down-string every now and again, or going into a clinch to further add to the confusion. Unfortunately this clinching is rarely much fun due to the small number of Komboesses.

The most professional and proficient cheats, are the team-race men. For classes of gamesmanship, one has to go back to the days when Class A was A and not this strange F.A.I. The technique was to cover the opponent's eyes, mouth and nostrils with the flying arm while applying the other not too gently to his ribs. Even more effective action could be taken by the "pit-man" who is usually seen knocking heck out of his model every time it lands. The subtlety here is to stay in the circle pit area *after* pitting one's own model, making sure beforehand to come equipped with rum boots and heavy clothing. Then, when the opponent tries to land he is met by a human wall and is faced with two possible courses of action—the battering ram method or the stall where he hopes to clear the "wall" by climbing on a dead engine. The result in both cases is matchwood and mangled metal. The solution to this technique was discovered in the vin-

Revealing exposure of the aeromodelling character—by **Kevin Lindsey**

"Wonder why my plank gets shorter each year," queries B. Bow of Bristol. "Ah well, 'tis now reduced to infinity; tailless, wingless, finless."

Even for a 16 in. tissue job you have to be artistic at indoor launching—E. Jarrett of N. Kent at Cardington.

"Got to shelter from this darned Californian sun somehow"—"Mustn't forget to let go either !"

tage year of 1960. Lots of team racers suddenly appeared with 2 in. long needle-nose spinner.

The free flight lads are highly geared-up cheats though they tend to be rather stereotyped in their approach. While the owner is busy chasing his toy across beautiful English countryside, numbers of his club-mates or cronies (no distinction between the two), equipped with high power binoculars or even astronomical telescopes mounted on car roofs, crowd round the poor timekeeper. The idea is that when, according to the Physical Laws of Optics, the timekeeper can no longer reckon to see the ever-diminishing dot, the bright boys with the lenses will keep up a steady commentary on the model's progress upwards. Of course, the rules don't allow optical aids, but just picture the poor timekeeper who has to admit he can't see the model when these other bods can still read the owner's name on the side. Best approach to these helpers when timekeeping is to tell them in Anglo-Saxon just before the flight that if one of them even speaks within 10 yards during the flight, the stop-watch will stop.

This psychological approach to cheating by club-mates can be made much more foolproof though if a number of them volunteer to act as timekeepers, and so time their own models.

There is also an author clan which contains a lot of types one never sees on a flying field or in a club room but feel qualified to write on the hobby because they were sufficiently hard-working to obtain a degree in something or other. A few years ago it was fashionable to write highly technical articles which 99 per cent of the Brotherhood claimed to understand. To guarantee success, all one had to do was to slip in a few differentials and the occasional C_L, C_D, etc. Talk of boundary layer breakaway tip vortices and the Hedral family of Ann, Cath, Dai and Polly was definitely required of the complete aeromodeller. Times have changed slightly, with the coming of incredibly powerful engines, one now needs to be an engine fancier. Not only must one know what a Mac, a Torp and a Max are, but also the difference between a Tigre and a Tiger.

"With love from me to you," says Bruce Rowe at rubber ritual, "Per.sh the thought," retorts Pat Brook.

"Open wider" Dr. (Dental) Brooke with magic black box puts fluence on distant craft.

"Of 'course' I can see it—mmm what a lovely pair of shoulders you have . . ." —M. Dilly & Mrs. French following George French's model (NOT timing !)

"Got to shelter you from this Austrian rain Hermann — you have to be dry to handle this Australian model" — proxy fliers at the World Champs.

The modeller then is also a pseudo-technical type—some even have B.Sc.'s or H.N.C.'s and girl friends — which brings us to the next side of their character—their relations with the opposite, pardon the word, sex. Occasionally these young lassies are seen at club meetings and even rallies but the inevitable result is always the same — another good man being lured away to the world of the masses.

How does one cross the border (beyond the beatle fringe, yes?) and actually become a modeller? Many years ago a knowledgeable adult said that the hobby was an obsession. So we are obsessed—they used to burn people like us at the stake in the Middle Ages. Ah, here we have the solution ; having no orthodox witchcraft to practice in these modern days we take up its present day equivalent —aeromodelling. Who can doubt that it is an offspring of witchcraft when one watches types with black boxes who simply press a button to cause a distant model to plunge earthwards — some magicians are even more skilled in the art, they don't use a black box, they simply shout *Dee Tee !*

"What a rally — came with my Messerschmitt on top of a Junkers on top of a Heinkel — and there's no scale event — ppphhhttt !"

A simple structure, high performance 45 in. span power duration design for "Half-A" engines (.049 cu. in. 0.8 c.c.)

by **MARTIN DILLY**

- 1st 1961 Devon Rally
- 1st 1962 Woking Gate
- 1st 1963 N.W. Area
- 6th 1962 Frog Sr.
- 2nd 1962 Hayes Gala
- 2nd 1963 U.S.A.F./U.K. Championships

VINDALOO

THIS MODEL has been flown in the form shown on the plan since early 1962, using a factory modified Holland Hornet ; a similar model, powered by a TD .049 and having a sheet pylon, has also had a certain amount of success.

The original Holland Hornet model, from which Vindaloo was developed, was somewhat larger and had a 275 sq. in. wing of 10½:1 aspect ratio, using the same Conover type airfoil. Whilst this model was quite satisfactory in calm conditions, it was felt that a somewhat smaller wing area would be an advantage in windy weather. Since an attempt was then being made to standardize on wings and tails, the same 5 in. chord was used, which gave an aspect ratio of 9 : 1 with a 245 sq. in. wing.

An auto-rudder was incorporated in the model from the start, and, although probably not essential, does help the power to glide transition. A modified camera timer is used on the original model to operate auto-rudder and engine, and notes on this are given later. A D/T timer is also used and this could be dispensed with if a lighter model is felt worth the effort of fuse, rubber bands and matches.

Construction is quite orthodox, with the possible exception of the tailplane ; this uses *sliced* ribs and is in fact, after 18 months, about the flattest tailplane in the designer's collection. Start by cementing $\frac{1}{16}$ in. *square* diagonals between the leading and trailing edges ; then cement the spars (use straight grained wood) in position. The upper ribs are produced as follows:— Cut a piece of 3 in. wide $\frac{1}{16}$ in. sheet slightly longer than the final length of the diagonal ribs ; then simply cut round the upper camber of the rib template, moving it down $\frac{1}{16}$ in. each time. When sufficient ribs are cut, take half of them, stack them together, skew them into a suitable parallelogram and chamfer the leading edge of the resulting block ; repeat to give an opposite handed set for the other half. Cement into place, trimming the trailing edges, as necessary ; add tips and fittings, sand and cover with lightweight tissue.

A point to watch on the wing, apart from using a straight-grained hard grade of wood for the main-spar, occurs during covering ; it has been found on these wings that if Jap tissue is used and not stuck to the ribs, extensive distortion and rib bowing takes place ; therefore, if you decide to use Jap, stick the covering to the ribs top *and* bottom. If lightweight Modelspan is used, there is sufficient dope penetration to attach the tissue during doping. In either case, steam shrink the tissue and use three coats of clear nitrate and one of fuel proofer (thinned with ordinary nitrate thinners if necessary), or else three coats of thin Butyrate (use Butyrate thinners!).

It is suggested that the wing and tailplane are completed and covered before the final fuselage assembly ; then, with all hardware and flying surfaces attached, the pylon and wing can be slid along the fuselage using a lash-up of rubber bands or pins, until the correct C.G. position is obtained. Then the pylon can be double cemented into place.

An aid to fuselage survival is to reinforce the area around the nose with nylon stuck with Araldite ; if the rest of the fuselage is then given a couple of coats of sanding sealer, and rubbed down well it will be ready for fuel proofing. An epoxy type of paint is strongly recommended ; two coats of air-drying grade "Detel" were used on the original, slightly thinned and brushed on. The reason for using Araldite, which is an epoxy adhesive, to reinforce the nose area is that the epoxy paint will bond to it, and spilt fuel will not lift or soften the paint. When fuels with 50 or 60 per cent nitro-methane are used, it has been found that epoxy or polyurethane resin paint provides the most complete protection as well as being obtainable in a variety of colours. The

fin and wing tips, incidentally, are painted with fluorescent orange poster colour and given a coat of proofer when thoroughly dry; this really does aid recovery, specially in poor light conditions.

Engine and Timer

A pressure tapping is fitted to the Holland Hornet; this consists of a $\frac{1}{32}$ in. diameter hole drilled in the bottom of the crankcase on the cylinder axis, round which is Araldited a 4B.A. brass nut. A suitable right-angled nipple is soldered, consisting on the original of parts from an old brass jet assembly. This nipple can be replaced with a 4B.A. screw to re-seal the crankcase if necessary.

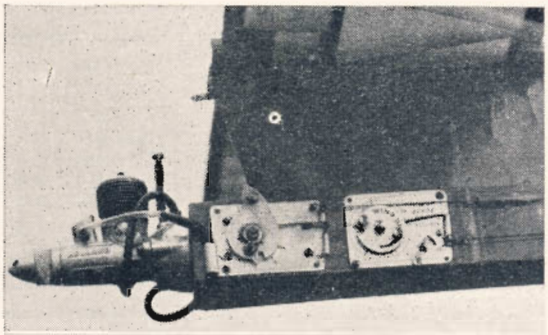
The use of a "Hornetimertank" simplifies life considerably; the isolating plunger is left in the open position, sealed after filling the tank, and the pressure feed is taken to the shorter vent pipe.

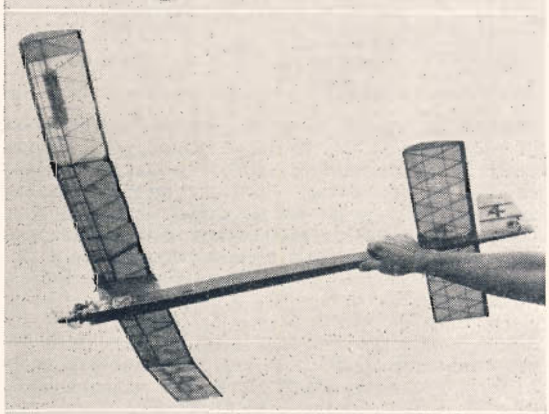
A suitable clockwork timer movement (camera or Tatone "Tick-Off") is modified as shown in the sketch; 22 s.w.g. light alloy is used for the face-plate, and the pivot tubes for the starting trigger and auto-rudder release can be either bent in situ or Araldited into place. The cam is from 18 s.w.g. light alloy, care being taken to ensure that the fuel line squeezing part really does completely trap the whole diameter of the tube, even when the tube is in an "impossible" position. The delay between rudder operation and engine cut-off can be adjusted by bending the wire trigger, and is about one-third of a second on the original model.

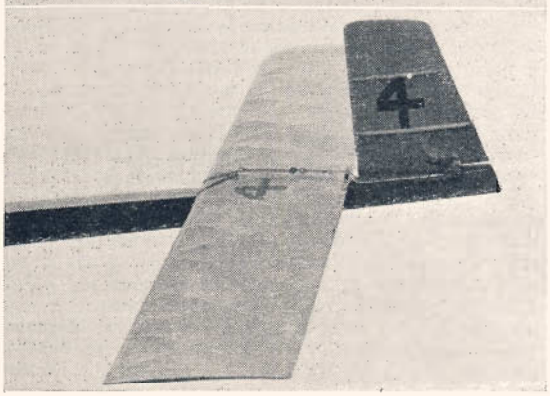
Trimming "Vindaloo" presents few problems; the pattern should be right-right, which is achieved by using about $\frac{3}{16}$ in. of wash-in on the starboard inner panel (trailing edge worked *down*), final adjustments in the rolling plane being made by yawing the wing (skew the side requiring more wash-in forward and vice-versa). *Caution*! Go easy on this at first until the effect is determined, and when all is well KEY THE WING.

Glide turn is arranged by means of tail-tilt and auto-rudder.

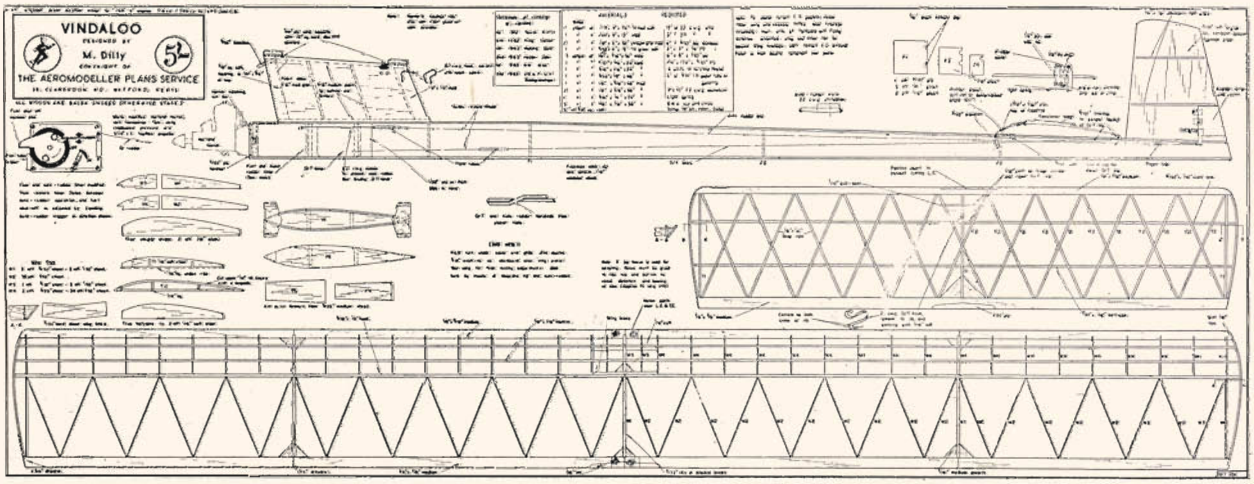
Now go surprise yourself with the rate of climb, and flat glide of this "curry-hot" model!

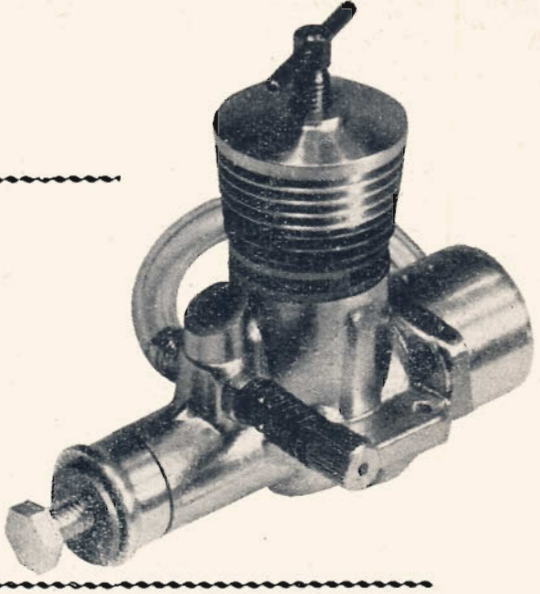






Details of this fast climbing design at right; Top, the Holland Hornet radially mounted on timer-tank ahead of shut-off timer and with dethermaliser timer at rear. Top line is to auto-rudder, lower line to tail tip. Centre, a view to show the long tail moment for stability and quick stall recovery. Bottom, tail detail shows line from D/T timer wrapped around trailing edge, passing forward to hook on top of tail. Note strakes on fin for stiffening. Full size copies of the 1/7th scale reprod ction below can be obtained price 5/6d. post incl. from Aeromodeller Plans Service. Quote Plan PET854 when ordering.





Specification

Displacement: 1.517 c.c. (.0925 cu. in.)
Bore: .511 in.
Stroke: .453 in.
Weight: 3¼ oz.
Max. power: .101 B.H.P. at 11,000 r.p.m.
Max. torque: 11.6 oz-ins. at 7,8000 r.p.m.
Power rating: .067 B.H.P. per c.c.
Power/weight ratio: .027 B.H.P. per oz.

Material specification :
Crankcase: light alloy die casting (L33 alloy)
Cylinder: mild steel, hardened.
Piston: Meehanite.
Contra piston: Meehanite.
Cylinder jacket: aluminium alloy.
Crankshaft: 3 per cent nickel steel, hardened.

Propeller—R.P.M. Figures

Top Flite	7 x 6	10,200
	8 x 6	8,400
	9 x 4	8,350
	8 x 4	9,800
	7 x 4	11,500
Trucut	8 x 4	9,600
K-K nylon	8 x 4	9,900
	7 x 6	9,750
	7 x 4	11,300
	8 x 6	7,400

Fuel: Mercury no. 8.

Connecting rod: aluminium alloy.
Crankcase back cover: aluminium alloy.
Tank: aluminium alloy.
Spraybar: brass.
Manufacturers: Gordon Burford & Co., 40 Belfast St., Grange, South Australia.
Retail Price: £3 3s. (Sterling)

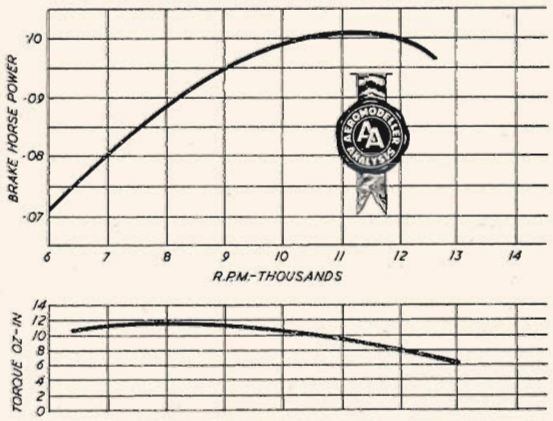
ENGINE ANALYSIS

Number 119 by R.H. Warring

THIS LATEST ENGINE from the Gordon Burford stable in Australia has been designed expressly as a robust power unit for beginners or as a general purpose engine for sport flying. Particular attention appears to have been given to developing easy handling characteristics, with a marked loss of performance at the top end of the scale as a consequence—not that this is significant for the purpose for which the engine was produced.

To keep the price down—the Taipan retails for 69/6d in Australia, or approximately 53/- sterling—the production work is done on automatic equipment as far as possible. Parts are turned on index single spindle automatic lathes and the honing of cylinders is carried out on a Micromatic electronic sizing hone, with piston and contra piston electronically mated to a particular bore. The result is a high quality production in which individual work on the engine is reduced to a minimum, with fits and tolerances comparable with 'manually fitted' diesels — and, of course, virtually the same consistency of standards ensure throughout the whole production.

The 'Taipan' is a perfectly conventional diesel of workmanlike appearance, sturdily constructed throughout. Generously sized beam-mounting lugs are incorporated on the crankcase casting whilst the rear of this casting is flanged to provide for radial mounting, if preferred. The flange under the lugs protruded over the crankcase clearance diameter which means that for beam mounting the bearers need notching slightly in order to get a sufficient width of wood under the lugs to take the bolt holes without being weakened. Filing away the flange is not possible since the i/d of the back cover opening is slightly greater than the crankcase o/d. This is one of those detail design features we find annoying on many engines with beam or radial mounts, particularly as it is not *necessary* to make it impossible to adapt the engine for 'snug' beam mounting.

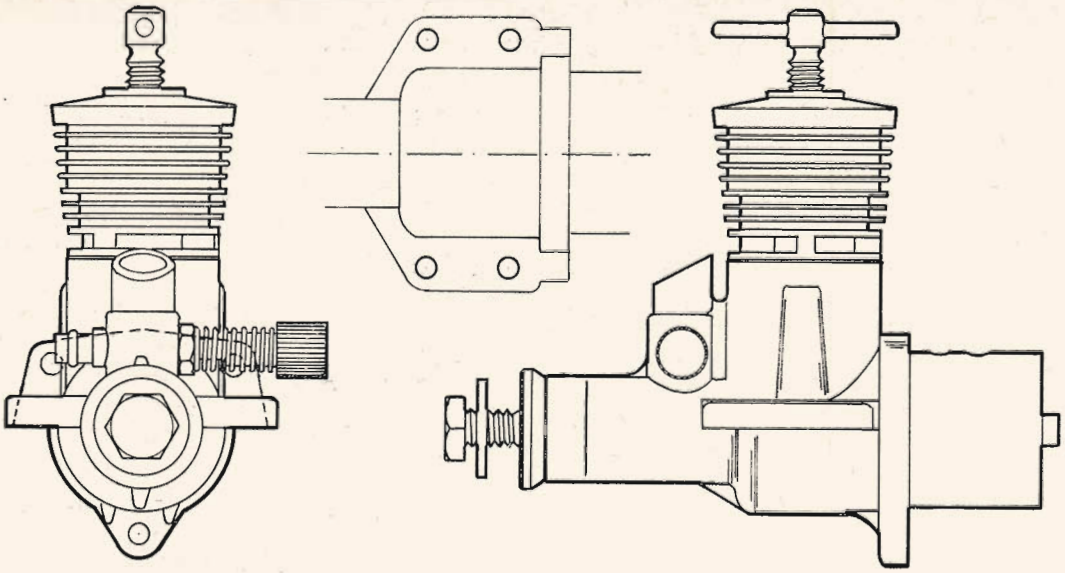


The crankcase is a particularly sturdy unit and should be well capable of absorbing the impact of crash landings without damage. To avoid possible crankshaft damage the crankshaft itself terminates at the propeller driver and a $\frac{3}{16}$ in diameter hexagon headed mild steel bolt screws into the shaft to carry the propeller. Only the bolt is likely to suffer crash damage or be bent and this is a cheap and simply fitted replacement.

Tough crankshaft

Crankshaft diameter is a very generous $\frac{5}{8}$ in., stepping down to a short $\frac{1}{4}$ in. diameter splined length immediately in front of the bearing. The dural propeller driver is forced on to this splined section butting against the shoulder and locating the shaft with about $\frac{1}{64}$ in. end float. The shaft is hardened all over and finished by grinding over the journal length and .187 in. dia. crankpin. The crank web is a circular disc. Porting consists of a $\frac{7}{32}$ in. hole down the centre of the shaft with a $\frac{3}{16}$ in. circular opening in the shaft wall. The shaft runs in a thin walled bronze bush in the crankcase casting, the finish of shaft and bush being excellent. Journal length is one inch.

The cylinder is a relatively complicated machining in steel. Below the exhaust flange the section chamfers at 45 degrees to a plain length, followed by a fairly short length of male thread. Three holes are drilled upwards through the chamfered portion to form the transfer ports, whilst the plain section immediately below (and above the threads) forms a circumferential gas passage. Connection to the crankcase is via two transfer passages machined in the sides of the crankcase casting. Above the ex-



TAIPAN 1.5 c.c.

New diesel from Australia

haust flange three fins are turned on the cylinder, followed by a male thread on a § in. cylinder o/d on to which the shallow finned dural jacket screws. Wall thickness is substantial throughout, making for an extremely strong and rigid unit. The cylinder is hardened and the bore finished by honing. For gas seal, the cylinder relies entirely on being really tightly screwed down and sealed on a narrow gasket.

The piston is machined from Meehanite cast iron and extremely accurately finished. Wall thickness is substantial and the actual piston depth is fairly shallow (⅜ in.). The top is conical. The connecting rod is machined from dural and fitted via a $\frac{3}{32}$ in. diameter silver steel fully floating gudgeon pin. Big and little end bearings are plain, without oil holes. The contra piston is also of Meehanite and well matched to the bore, being just right for 'feel' and holding the compression setting.

The spraybar is of brass and with a brass thimble on a steel needle valve. Locking action is provided by a coil spring. Spraybar diameter is relatively large, calling for the use of ¼ in. bore fuel tubing back to the tank. The tank hole for this tubing is $\frac{7}{32}$ in. diameter to accommodate the tubing tightly, which is necessary to prevent leakage with a full tank since the hole is not on top of the tank. Separate holes in the top of the tank provide for filling and venting. The tank itself is turned from aluminium with a $\frac{1}{16}$ in. wall thickness and attaches to the back cover via a single central screw. The tank seals on a gasket on the back cover when assembled. The back cover itself is a straightforward dural turning screwing into the back of the crankcase.

Good handling

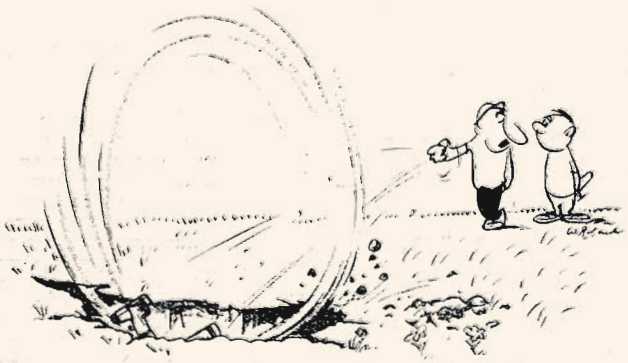
Handling characteristics we found to be very good. Both the controls are easy to manipulate, the grip afforded by the brass thimble being particularly good. Behaviour follows the 'classic' diesel pattern where the compression setting can be 'felt' for starting and the mixture setting is completely non-critical. The 'Taipan' can be flooded, but this is not likely following standard starting procedure and, once running, the needle can be adjusted two or three complete turns between too lean and hesitating, and too rich and rough running. Even the complete beginner should find adjustment simple, erring on the side of a rich needle setting for starting.

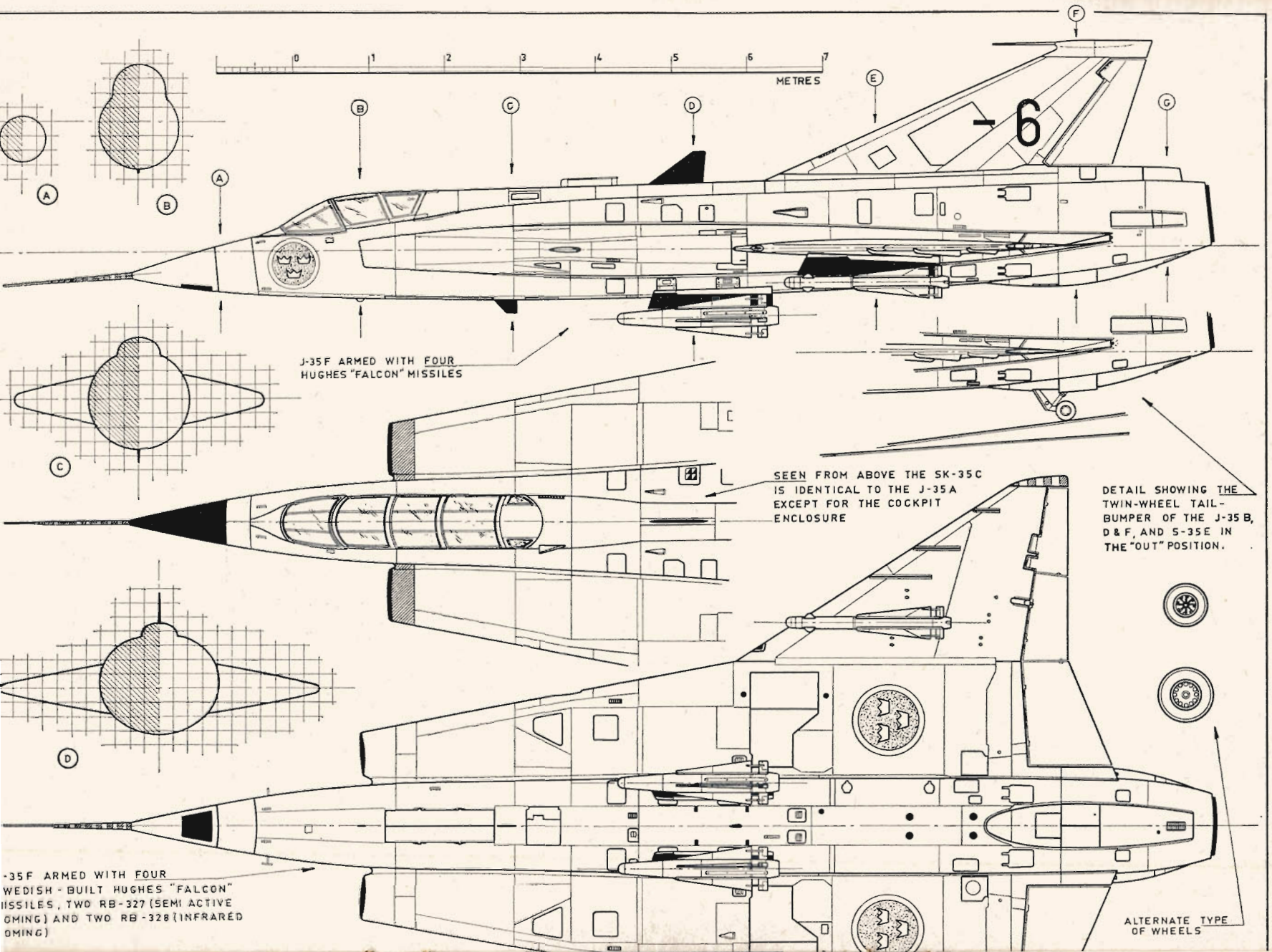
Priming through the exhaust is definitely recommended for starting — and virtually essential for quick re-starting with the engine hot. It also helps to open up the needle valve an extra turn for starting and then readjust, as required, once the engine is running. Following a prime—and provided the compression setting is within a quarter of a turn or so of the running position and the fuel line is full—starting is virtually first flick, every time.

Excellent value

Summarising, we can rate the Taipan diesel as an excellent 'value for money' sports engine, rugged enough to outlast many a model and equally suitable for either free flight or control line. It peaks at a moderate r.p.m. figure, developing just over 0.1 B.H.P. at 10,000 r.p.m. With further running in, possible this power performance could be improved. A 7 x 4 propeller seems about the right size for 'peak' power in free flight, although an 8 x 4 might well give a comparable or even better thrust. For control line a 7 x 6 propeller should be a match for any type of model.

"Tough stuff, this new plastic!"



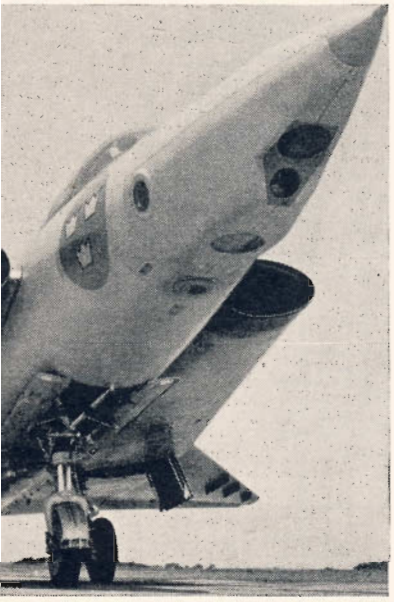


PLAN CONTINUES ON PAGE 85. REMOVE CENTRE PAGE PLANS BY LIFTING STAPLES.

AIRCRAFT DESCRIBED
Number 129

Saab 35 DRAKEN

drawn by
E. TAGE LARSEN



Above right : With Swedish built Rolls Royce Series 300 engine the Saab J 35F has Mach 2 capability and carries Swedish built Hughes Falcon air-to-air missiles.

Left : the S 35E has a forward sliding nose covering multiple camera installations for high and low altitude reconnaissance.

AS LONG AGO as 1949, planning commenced for a replacement to supersede the famous J 29 "Flying Barrel" in the Royal Swedish Air Force. The project was designated type 1250, and after initial study of a low aspect ratio delta planform, the double delta arrangement was adopted to suit the varied purposes of the aircraft. In March '52 the final project spec: was outlined for construction of a mock-up and the type became the '35'. First flights on October 25th, 1955, were followed by those of two differing prototypes in '56 and on February 15th, '58, the first production version, with revised structure and the new Rolls Royce Avon with Swedish designed after-burner took the air.

Orders followed for the J 35A, which entered Squadron Service with the F 13 Group at Norrkoping early in 1960. Deliveries of the 'A' were completed in '61 to make way for the subsequent and improved variants. The J 35B has an improved fire control system. The Sk 35C is a two seat trainer of extraordinarily simple modification standards from the normal machine. In fact the two seater front section is made independently of the rear section so that the decision as to how many aircraft shall be two or single seat could be taken at a relatively late production stage.

The J 35D represents a considerable performance advance, as was emphatically demonstrated by the 1st and 2nd Sqdns. in mock war exercise during September '62. This version has about 25 per cent more thrust, with the Swedish built Avon RM6C (RB146 with Swedish after-burner) giving effective acceleration in excess of Mach 2. Saab collision course fire control and automatic pilot systems of extremely high precision make the J 35D one of the most effective weapons systems in service.

Having a variety of quickly accessible cameras mounted in the nose, which slides forwards for access, the S 35E is one of the most versatile reconnaissance aircraft with capability of high or low altitude photography. Latest type in production is the J 35F which has been ordered in greater numbers that any other Mk. Likely to remain in production for several years, the 'F' has a new radar and fire control system and will carry Swedish built guided missiles in two versions of the Falcon type.

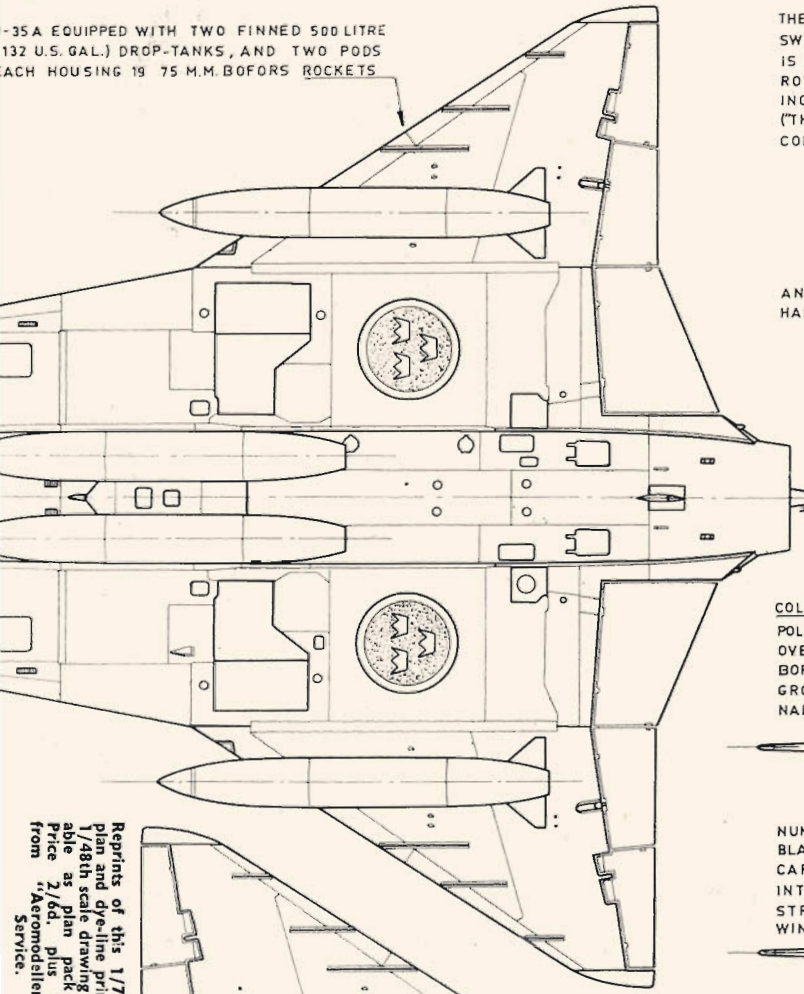
Not yet ordered but the main contender for contracts won by the Mirage for the Swiss Air Force, the J 35H export version has the standard automatic flight control system, etc., but some variation in the electronic equipment. It has a raised seat and canopy for improved visibility during the landing stage.

A product of a small country, designed specifically to meet the needs of winter operation, rapid interception and multiple duties, the Draken is an aeroplane much liked by its Swedish pilots and envied by those from other Air Forces.

One of Group 13's J 35A aircraft in typical winter conditions and equipped with Swedsh built Sidewinder missile racks. Most Drakens have the matt anodic treated natural metal surfaces, though the "D" has appeared in Dark Green and Dark Grey upper surface camouflage with grey undersides.

SAAB J.35A "DRAKEN"

-35A EQUIPPED WITH TWO FINNED 500 LITRE
132 U.S. GAL.) DROP-TANKS, AND TWO PODS
EACH HOUSING 19 75 M.M. BOFORS ROCKETS



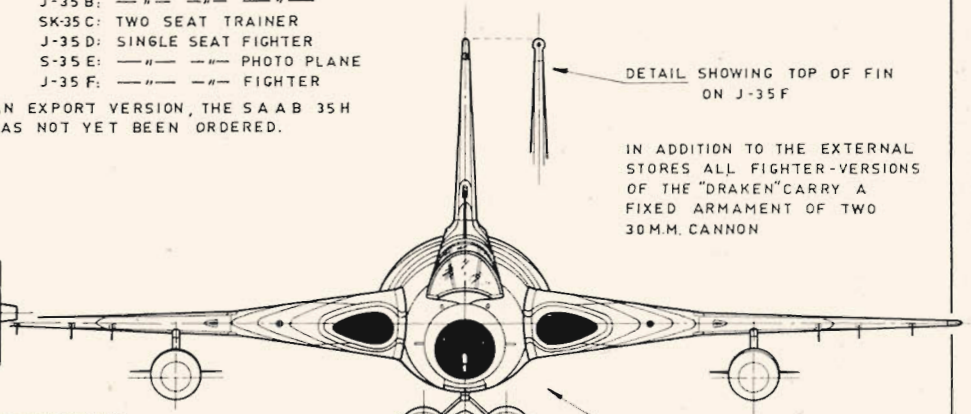
THE "DRAKEN" IS A SWEDISH-DESIGNED, SWEDISH-BUILT ALL-WEATHER FIGHTER AND IS IN OPERATIONAL SERVICE WITH THE ROYAL SWEDISH AIR FORCE. THE FOLLOWING VERSIONS OF SAAB 35 "DRAKEN" ("THE KITE") HAVE BEEN ORDERED IN CONSIDERABLE NUMBERS:

- J-35A: SINGLE SEAT FIGHTER
- J-35B: —"— —"— —"—
- SK-35C: TWO SEAT TRAINER
- J-35D: SINGLE SEAT FIGHTER
- S-35E: —"— —"— PHOTO PLANE
- J-35F: —"— —"— FIGHTER

AN EXPORT VERSION, THE SAAB 35H HAS NOT YET BEEN ORDERED.

DETAIL SHOWING TOP OF FIN ON J-35F

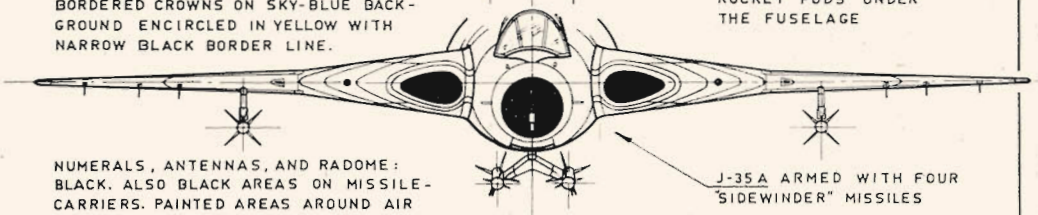
IN ADDITION TO THE EXTERNAL STORES ALL FIGHTER-VERSIONS OF THE "DRAKEN" CARRY A FIXED ARMAMENT OF TWO 30 M.M. CANNON



J-35A WITH DROP TANKS UNDER THE WINGS AND ROCKET PODS UNDER THE FUSELAGE

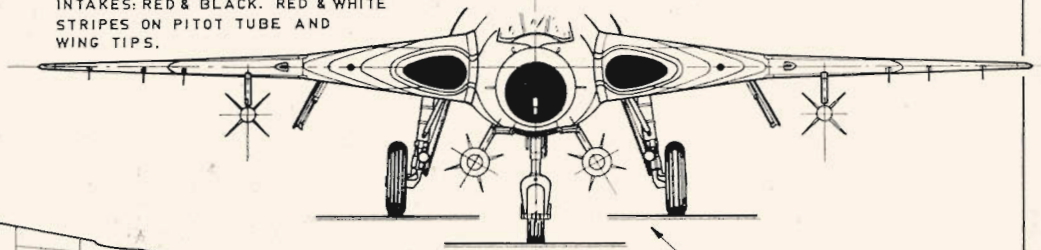
COLOUR SCHEME:

POLISHED NATURAL METAL FINISH ALL OVER. SWEDISH MARKINGS: YELLOW BLACK-BORDERED CROWNS ON SKY-BLUE BACKGROUND ENCIRCLED IN YELLOW WITH NARROW BLACK BORDER LINE.

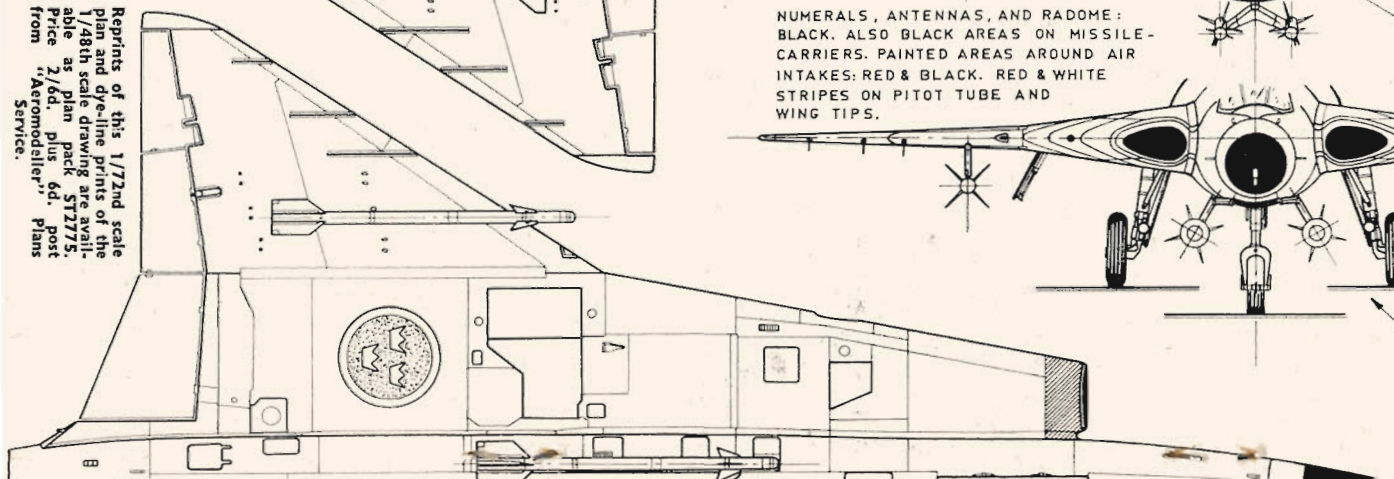


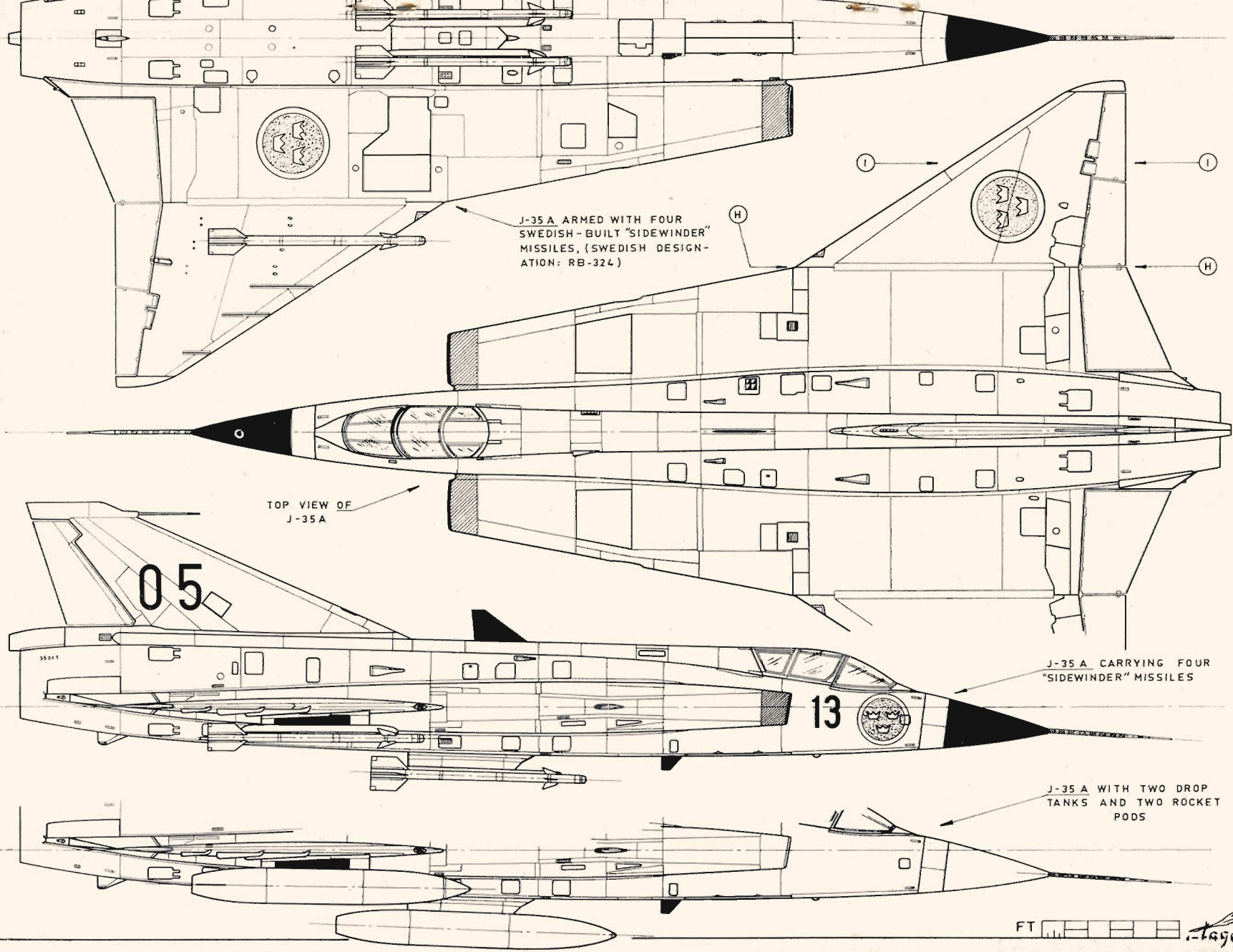
J-35A ARMED WITH FOUR "SIDEWINDER" MISSILES

NUMERALS, ANTENNAS, AND RADOME: BLACK. ALSO BLACK AREAS ON MISSILE-CARRIERS. PAINTED AREAS AROUND AIR INTAKES: RED & BLACK. RED & WHITE STRIPES ON PITOT TUBE AND WING TIPS.



J-35F ARMED WITH FOUR HUGHES "FALCON" MISSILES




J-35 A ARMED WITH FOUR SWEDISH-BUILT "SIDEWINDER" MISSILES, (SWEDISH DESIGNATION: RB-324)
TOP VIEW OF J-35A
05
13
J-35 A CARRYING FOUR "SIDEWINDER" MISSILES
J-35 A WITH TWO DROP TANKS AND TWO ROCKET PODS
FT

G. Rees clarifies a misnomer

PENETRATION

THERE IS AN INCREASING use of the word "penetration" in the field of model aeroplane aerodynamics. One hears remarks, particularly amongst radio modellers, that clearly indicate a lack of the basic knowledge of the principles of flight. The purpose of this short article is to clear up some of these misconceptions.

First of all, let us be quite clear and understand that there is *no such thing* as "penetration." If we consider a fish swimming in a tank at a speed of one knot (*Fig.* 1) and at the same time the tank is carried backwards at a speed of one knot—then the fish will remain stationary with reference to the floor.

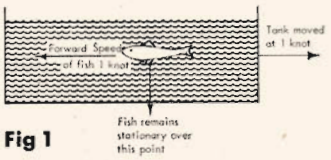


Fig 1

The air in which an aircraft flies can be likened to the water in the tank, the speed of the wind being equivalent to the speed at which the tank is carried. Let us consider an aeroplane flying at an airspeed of 100 knots. *Figs.* 2 and 3 show what happens when the aeroplane flies into wind, and with the wind. It will be seen that the aeroplane does not "penetrate" the wind ; it flies at a constant air speed and its groundspeed depends upon its heading relative to the wind.

The shape of the model and its weight makes no difference to the effect the wind has upon it in this respect. If any two models have the same airspeed they will both suffer from the same lack of groundspeed when flying into wind. Flying into wind, groundspeed equals airspeed minus wind speed. In model flying, the ground speed can easily become a minus quantity, when the model *appears* to fly backwards. If the model is not connected to the ground, its airspeed remains constant, or nearly so, and relative to the *air* is moving forwards at this airspeed all the time.

A practical application of this principle is the towing of model gliders. If, in still air a glider requires to be towed at ten knots, then, to get the same airspeed in a wind of twenty-five knots the tower must run towards the model at fifteen knots. When a glider is released in such conditions the circling pattern of the glide seems to be lost. This is because we have our feet on the ground—if the flight of the glider could be watched from the basket of a free balloon, where airspeed is nil and groundspeed equals wind speed, then the flight pattern would be seen to be the same as in still air.

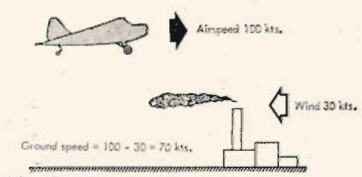


Fig 2

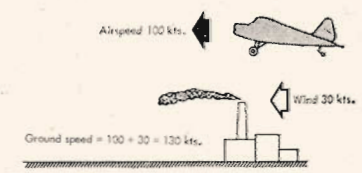


Fig 3

We must now consider models flying at an angle to the wind. When the model in *Fig.* 4 left A it was pointing at B, but there was a wind blowing from C. The track of the model over the ground became AD. The drift angle obviously depends upon the wind's speed and direction. For these headings at an angle to the wind use can be made of the triangle of velocities to determine the track over the ground and groundspeed. In using the triangle all units are plotted to the same scale and so groundspeed can be found by measurement. As an example, consider a model flying east at an airspeed of forty knots with a wind of twenty-five knots from the north-east.

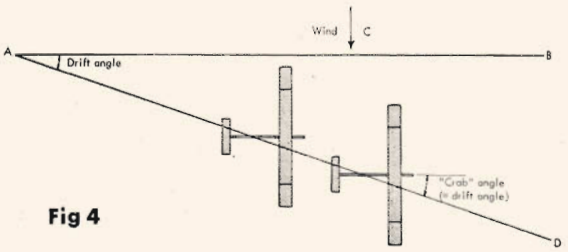


Fig 4

The triangle of velocities is the basis of air navigation and it is obvious that the same triangle applies to all aircraft flying at the same airspeed—whatever their sizes or shapes.

From what has been shown it now becomes clear that "penetration" does not exist, and it would be a good idea to drop the word completely and use the established aeronautical terms of airspeed and groundspeed. As previously stated, airspeed equals groundspeed in still air, which gives us a chance to determine the model's airspeed fairly accurately by various means.

If the airspeed of the model is not great enough to enable it to achieve a positive groundspeed in a given windspeed, as is required in a radio contest in windy conditions, then steps must be taken to increase the airspeed. This can be done in various ways, such as using an engine which produces more power, and so increasing the thrust.

Not long ago a plan of a slope soaring glider was published with a note added which said, "Add weight under the centre of gravity to increase penetration in strong winds." In correct aeronautical language the note should have said something to effect that the airspeed could be increased when required by adding the weight.

Remember, that if a highly streamlined jet propelled aeroplane loses thirty knots flying into a thirty knot wind, as it does, so will your model—whatever you do to it.

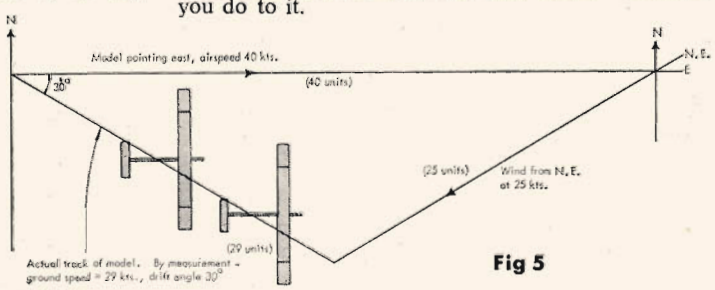
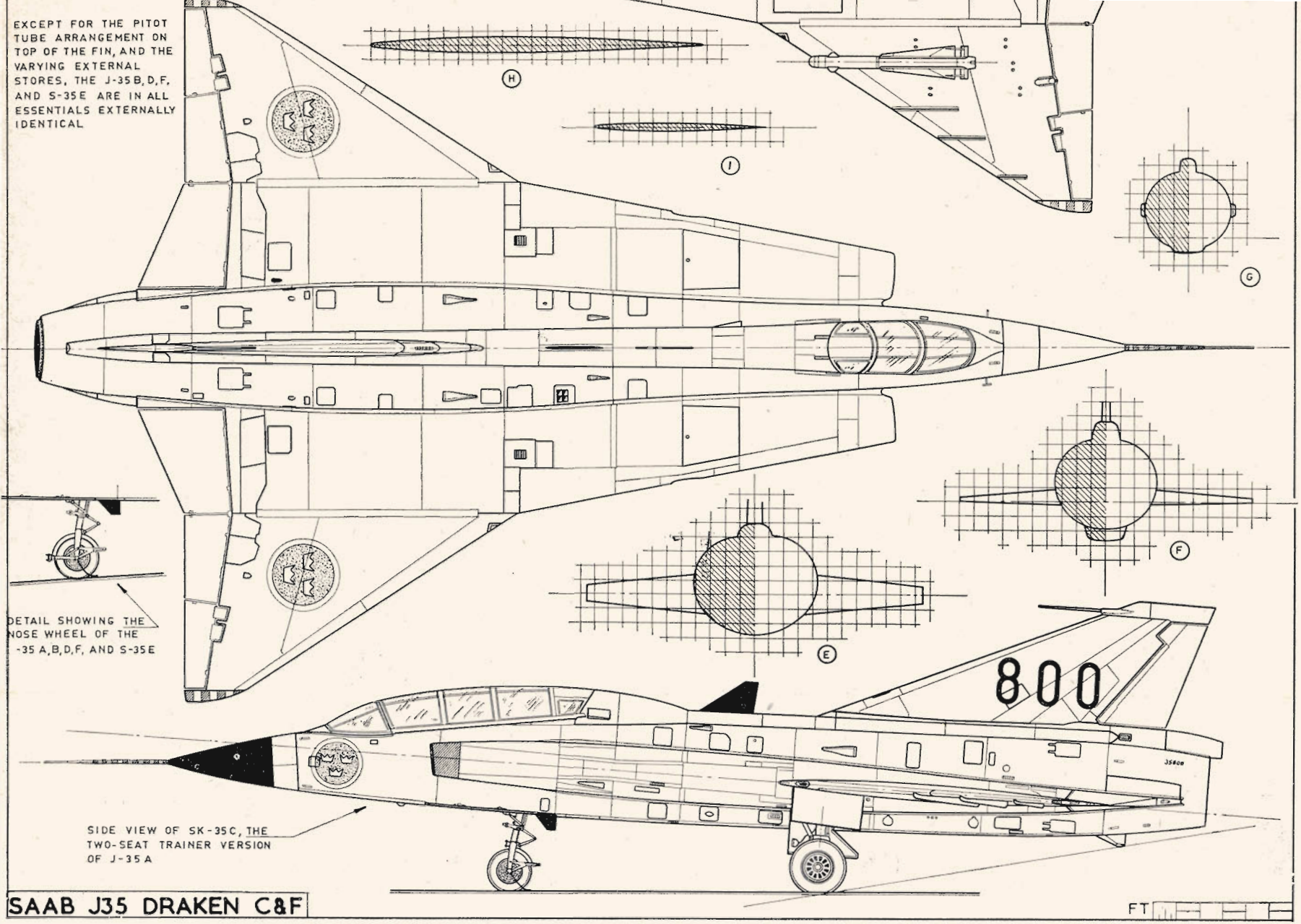


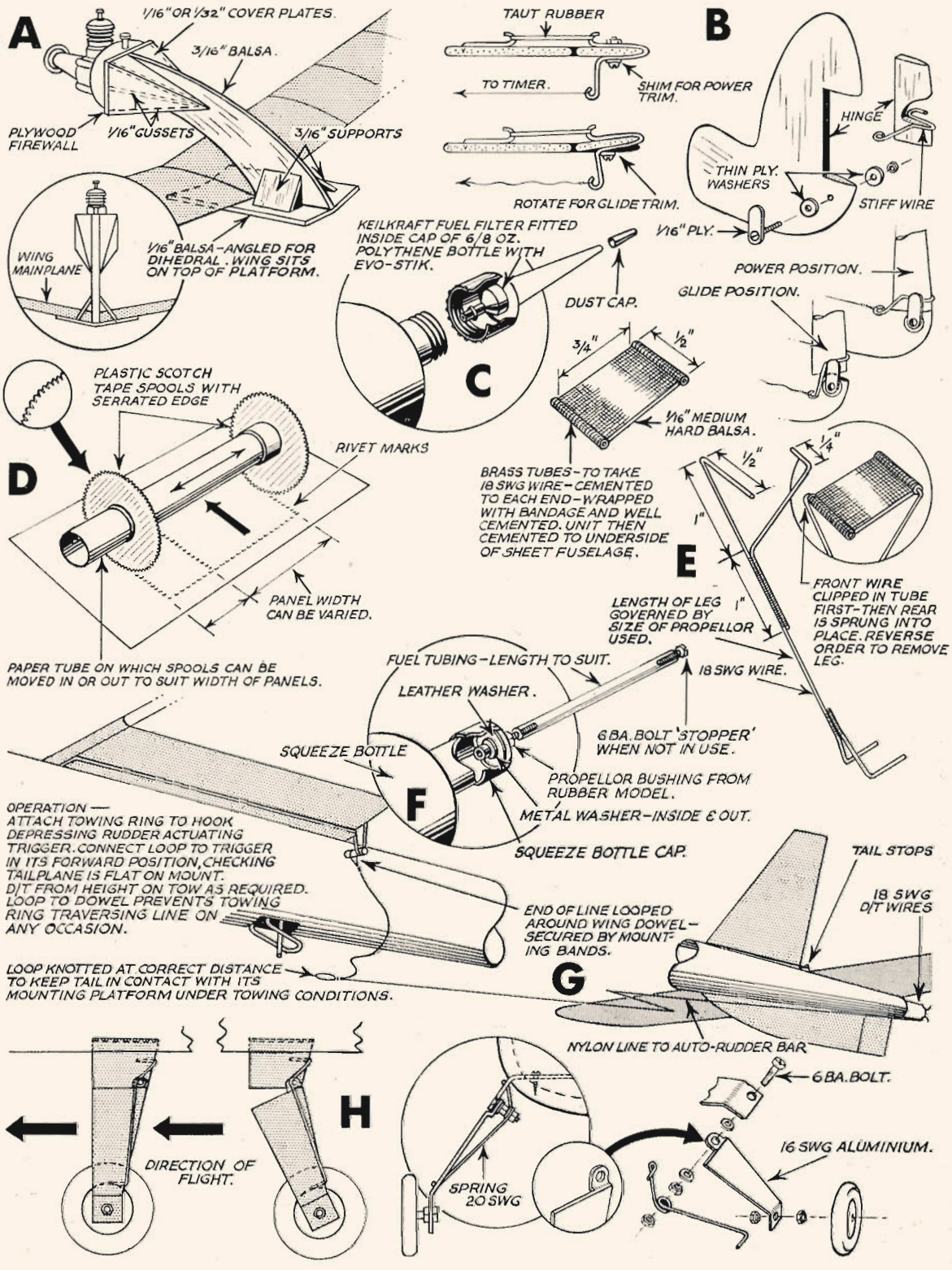
Fig 5



SAAB J35 DRAKEN C&F

FT

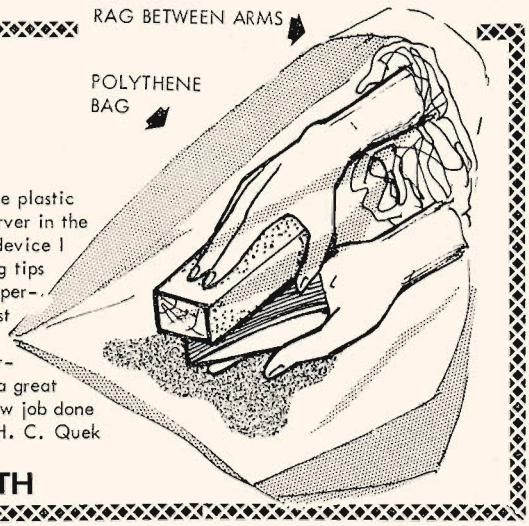
PLAN CONTINUED FROM PAGE 80.


A
1/16" OR 1/32" COVER PLATES.
3/16" BALSA.
PLYWOOD FIREWALL
1/16" GUSSETS
3/16" SUPPORTS
WING MAINPLANE
1/16" BALSA - ANGLED FOR DIHEDRAL. WING SITS ON TOP OF PLATFORM.
TAUT RUBBER
TO TIMER.
SHIM FOR POWER TRIM.
ROTATE FOR GLIDE TRIM.
B
HINGE
THIN PLY. WASHERS
STIFF WIRE
1/16" PLY.
POWER POSITION.
GLIDE POSITION.
KEILKRAFT FUEL FILTER FITTED INSIDE CAP OF 6/8 OZ. POLYTHENE BOTTLE WITH EVO-STIK.
DUST CAP.
C
3/4"
1/2"
1/16" MEDIUM HARD BALSA.
BRASS TUBES - TO TAKE 18 SWG WIRE - CEMENTED TO EACH END - WRAPPED WITH BANDAGE AND WELL CEMENTED. UNIT THEN CEMENTED TO UNDERSIDE OF SHEET FUSELAGE.
D
PLASTIC SCOTCH TAPE SPOOLS WITH SERRATED EDGE
RIVET MARKS
PANEL WIDTH CAN BE VARIED.
PAPER TUBE ON WHICH SPOOLS CAN BE MOVED IN OR OUT TO SUIT WIDTH OF PANELS.
E
1/2"
1/4"
1"
1"
LENGTH OF LEG GOVERNED BY SIZE OF PROPELLOR USED.
FRONT WIRE CLIPPED IN TUBE FIRST - THEN REAR IS SPRUNG INTO PLACE. REVERSE ORDER TO REMOVE LEG.
FUEL TUBING - LENGTH TO SUIT.
LEATHER WASHER.
18 SWG WIRE.
6 BA. BOLT 'STOPPER' WHEN NOT IN USE.
SQUEEZE BOTTLE
F
PROPELLOR BUSHING FROM RUBBER MODEL.
METAL WASHER - INSIDE & OUT.
SQUEEZE BOTTLE CAP.
OPERATION —
ATTACH TOWING RING TO HOOK DEPRESSING RUDDER ACTUATING TRIGGER. CONNECT LOOP TO TRIGGER IN ITS FORWARD POSITION, CHECKING TAILPLANE IS FLAT ON MOUNT. D/T FROM HEIGHT ON TOW AS REQUIRED. LOOP TO DOWEL PREVENTS TOWING RING TRAVERSING LINE ON ANY OCCASION.
END OF LINE LOOPED AROUND WING DOWEL - SECURED BY MOUNTING BANDS.
TAIL STOPS
18 SWG D/T WIRES
LOOP KNOTTED AT CORRECT DISTANCE TO KEEP TAIL IN CONTACT WITH ITS MOUNTING PLATFORM UNDER TOWING CONDITIONS.
G
NYLON LINE TO AUTO-RUDDER BAR
6 BA. BOLT.
16 SWG ALUMINIUM.
H
DIRECTION OF FLIGHT.
SPRING 20 SWG

GADGET REVIEW

I find the larger type of polythene plastic bag most useful as a peace-preserver in the household. Using this common device I can sandpaper ribs, formers, wing tips etc. in clear view, and (almost) perfect cleanliness. Very little dust escapes into the room to irk the wrath of those who clean up afterwards. Try one - you'll find it a great boon when anxious to get that new job done quickly for the week-end. - H. C. Quek

TIP OF THE MONTH



THE GADGET SHOWN in **A** is an ideal small engine pod for tired gliders and rubber models from R. Sefton of Johannesburg. The pod is fitted between the fuselage and the wing, so the wing clamps the pod down when the elastic holding bands are in place. Advantages are in its knock-off qualities, while it absorbs vibration and it saves propellers. An .049 Babe-Bee engine was used on a Keilkraft Gypsy Wakefield for the example shown.

From P. Forrette of California, U.S.A., comes an ingenious auto-rudder device shown in **B**. The rudder is tensioned by a rubber band for normal glide trim. A wire lever is fixed to the rudder and a $\frac{1}{16}$ in. plywood stop is mounted on a pivot bolt on the fuselage. This can be turned to produce the desired amount of rudder movement when the timer releases, or the towhook is slipped for glide trim. Power or towing trim can be decided by shimming the $\frac{1}{16}$ in. plywood stop away from the fuselage side.

To stop dirt getting into your spraybar we can recommend the system shown in gadget **C** by H. Morgan of Kirkby. A Keilkraft fuel filter is inserted into the end of the filling spout supplied on 6-8 oz. fuel bottles as available in the model shops. The filter is fixed with Evostick.

D is a simple gadget for making those rivet marks on scale models and comes from B. Grant of Sunderland. Two Scotch tape reels with the serrated edges are removed from their plastic spools, and fitted on to a 3 in. long, $\frac{15}{16}$ in. O.D. rolled paper tube. The ends can then be moved in and out to get the desired width of panel for that scale rivet simulation.

A removable undercarriage that is springy and sturdy is shown in **E** and comes from R.F. Brownson of Timperley. A piece of $\frac{1}{16}$ in. hard balsa has two 18 s.w.g. brass tubes cemented and bandaged on to each end. When dry, cement to the underside of the fuselage and bend the U/C leg from 18 s.w.g. wire as shown. It will clip into place easily, is rigid, and as drawn, gives propeller protection as well as a double skid for take-off.

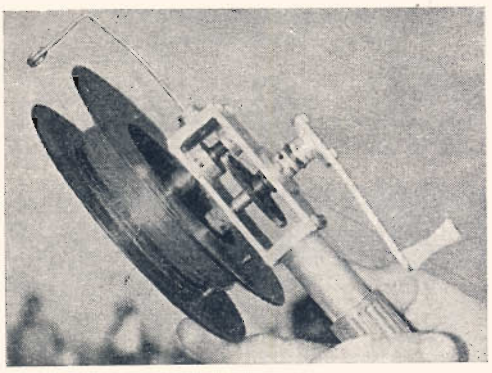
Another fuel bottle suggestion is shown in **F** from H.C Quek. This converts a standard Woolworth plastic bottle with the hard cap into a "squeeze" bottle. Drill the cap to take a rubber motor bush, using a leather washer and two metal washers. Bolt together and screw fuel tubing over the bush to act as a spout. A 6 B.A. stopper can also be used to keep the dirt out.

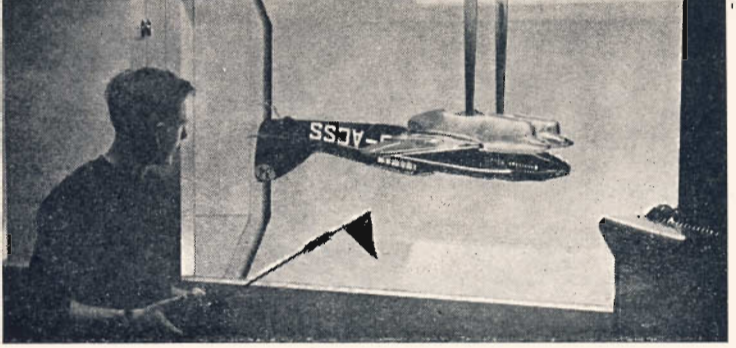
A simple towing practice device comes from T. Faulkner of Luton M.A.C. The system is shown in sketch **G**. Main virtues are that it does not require special fittings on the model, it is cheap and foolproof. By looping the nylon line from the trigger loop, around the 18 s.w.g. dethermaliser fuse wires instead of using the normal rubber bands, the attachment of the towline ring holds the tail down. Thus one can practice towing, then release the model in a dethermalised state.

H shows a spring undercarriage from J. Willats of Crawley. This has been successfully employed on a scale radio controlled *Luscombe Silvaire* without spoiling the scale effect. Take care to make the fuselage mounting strong enough to remain *in situ* when the lower leg swivels. Also be accurate in joggling the pivot area of the hinged leg so that it effectively hits the fixed section with a butt joint.

PIC TIP

When we admired this home constructed winch at the World Champs as used by Norm. Ingersoll, it turned out to be on loan from Bert C. Striegler of "Ebenezer" fame. Built up light alloy frame holds ball race supported shafts for gears. Shows what ingenuity can produce if what you need is not available commercially.





PART SIX in this series describes the unit in a radio controlled D.H.88 by R. B. Norris

Retractable Undercarriages

A TREMENDOUS EFFORT, involving no less than 1,300 hours work within a six month period by R. B. Norris of Bristol, aided by three friends, who put in another 500 hours, resulted in a magnificent 73 in. span replica of the D.H.88 Comet racer.

Regrettably, we have to talk of this model in the past tense for in spite of the individual endeavours the D.H.88 was virtually completely written off on its second flight.

Incorporated within the involved design is one of the most ingenious and realistic retractable undercarriages to be included in our series on this subject, and it is a type which could well be reproduced on many other scale aircraft.

First, a few details of the model. Enlarged 10 times from 1/72nd scale drawings, it had a wing area of 590 sq. ins., weighed 13¼ lbs. and was powered by two Eta 29 engines, equipped with pressure feed Merco carburettors, incorporating an automatic cut-off system should either engine fail. This system was so fast that the maximum delay was only 0.8 sec. The radio was Orbit 12 channel, covering all conventional controls plus progressive flaps, lights and the undercarriage. The full-size machine was studied and every endeavour made to maintain authentic detail. When completed, the model was mounted in the Bristol College of Advance Technology wind tunnel at Ashley Down, Bristol, and taken up to speeds of 120 m.p.h. Radio control was used to adjust the aircraft trim in the tunnel while lift/drag figures were obtained. The structure was proved to be sound, it closely followed full-size practice, even including beaten aluminium panels on the engine nacelles.

What a tragedy that all this effort should come to nothing!

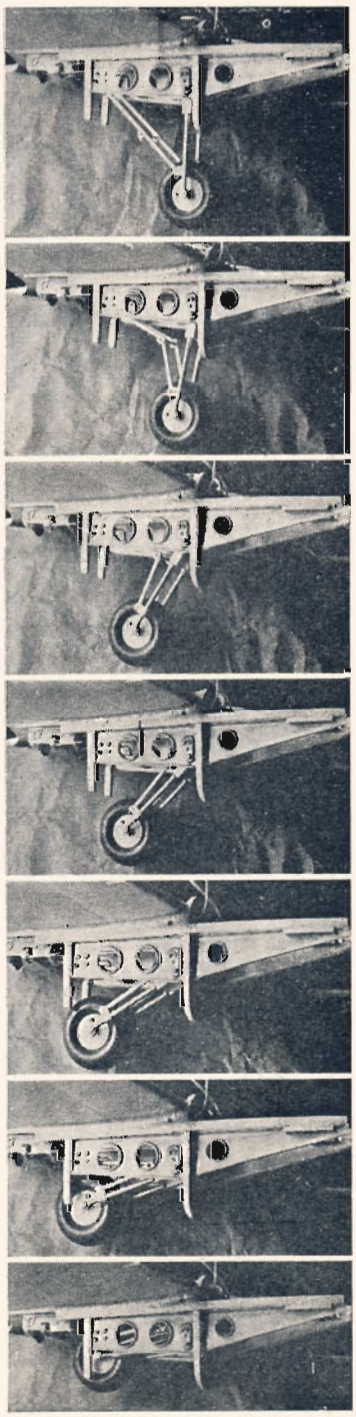
The undercarriage action is fully illustrated in sequence in next column and it was for both functional and scale interests, identical to that of the full-size aircraft.

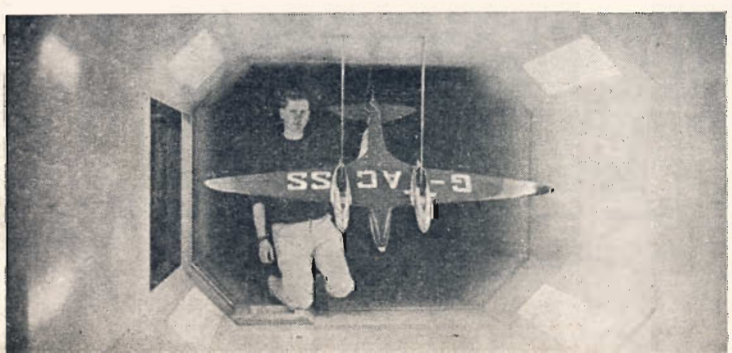
The major difficulty encountered in operating the mechanism is the large force required to move the U/C through the positions marked on the diagram. This was overcome by use of an assister spring which almost counterbalanced the weight when in this position.

No landing forces were transmitted to the servo due to the positioning of the pivot pin in the operating arm — loading forces were taken by the half locks because of the offset pin.

Construction of the unit called for a lot of filing, and a certain amount of machining was used for the original, although this could be dispensed with. The construction and especially the setting up of the unit required more accuracy than would at first appear necessary, and it was found that the relative positions of the pivot points had to be within .001 ins. for the optimum position, as the amount of power available was limited. A lighter U/C with the same servo would give greater latitude.

(*Continued on page 90*)



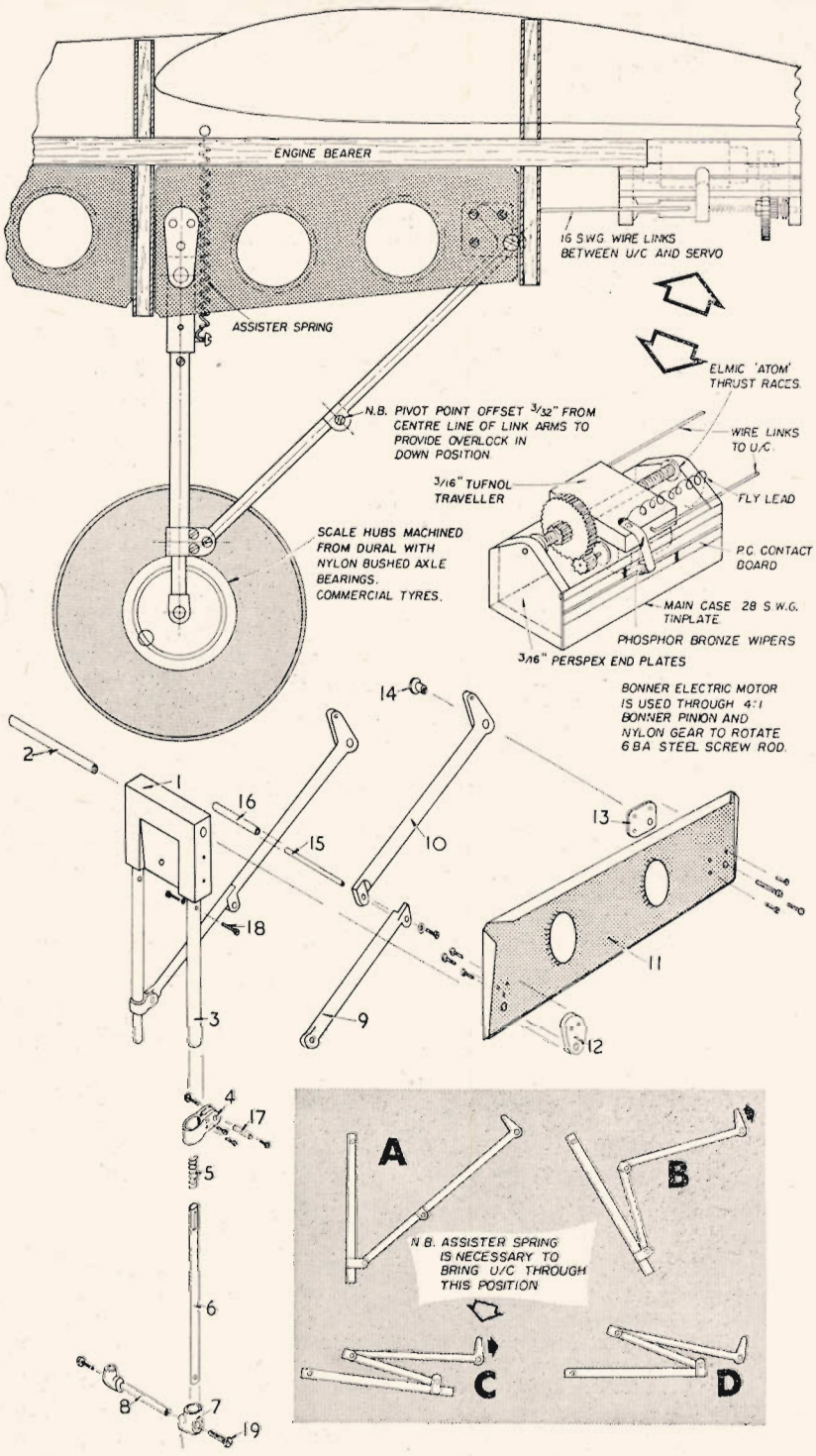


Wind tunnel views at top and left show how the 73 in. scale model was uniquely tested using radio control to prove the aerodynamic virtues of the design. At right is a photo record of the retraction sequence.

KEY TO EXPLODED VIEW

(H.T. = High Tensile)

(1) Main Block (H.T. Dural) milled from solid, drilled and reamed $\frac{1}{16}$ in. D. for pivot (2), and $\frac{1}{4}$ in. D. for legs (3). **(2) Pivot Pin** ($\frac{1}{16}$ in. Dia. Silver Steel) press fit in main block. **(3) Main Legs** ($\frac{1}{4}$ in. O.D. Stainless Steel Tube) press fitted, Araldited, and locked with 8 B.A. grub screws into main block. **(4) Lower Link Pivot Block** (H.T. Dural) filed from solid, drilled $\frac{1}{2}$ in. and reamed to clamp on to main leg (3). Clamped with two 8 B.A. screws. Drilled $\frac{1}{8}$ in. to take lower pivot bush (17). **(5) Spring** (Piano wire) Approx. $\frac{1}{4}$ in. long, 10-12 lbs. force to compress fully to $\frac{1}{8}$ in. long. **(6) Inner Leg** ($\frac{1}{16}$ in. Dia. Silver Steel) Slotted $\frac{1}{2}$ x $\frac{3}{32}$ in. at top end, to within $\frac{1}{16}$ in. of top. Retained in main leg by 8 B.A. bolt (18) passing through slot. Drilled 6 B.A. clearance at lower end to take hub assembly bolt (19). **(7) Hub Block** (H.T. Dural) Counter bored to take inner leg (6) and axle (8). Bolted to axle by assy. bolt (19). **(8) Axle** ($\frac{1}{16}$ in. Dia. Silver Steel) Tapped 6 B.A. either end. **(9) Lower Link Arm** (H.T. Dural) Filed from solid pivot points drilled $\frac{1}{8}$ in. D. **(10) Upper Link Arm** (H.T. Dural) Filed from solid, pivot point at half lock drilled $\frac{1}{8}$ in. D., upper pivot point drilled $\frac{1}{16}$ in. D. to accept pivot bush (14). **(11) Main Side Plate** (20 s.w.g. Alclad) Edges and holes flanged for stiffness. Attach to airframe with Araldite and wood screws. **(12)** Main Pivot Plate (10 s.w.g., H.T.S.) Bolted to (11) with three 6 B.A. bolts tapped into plate (12). Drilled $\frac{1}{16}$ in. D. and made good bearing fit on pivot pin (2). **(13) Spacer Plate** (14 s.w.g. Dural) Aligns bush (14) to C/L of main legs. Also provides additional strength at rear pivot point. Araldited and bolted with three 8 B.A. bolts to (11). Drilled 4 B.A. clearance for rear pivot bush attachment bolt. **(14) Rear Pivot Bush** (Mild Steel) Turned from $\frac{5}{16}$ in. D. bar. Bearing surface $\frac{1}{16}$ in. O.D. Tapped 4 B.A. internal to take attachment bolt. **(15) Link Arms Centre Pivot** ($\frac{1}{4}$ in. O.D. Stainless Steel Tube) (Tapped 8 B.A. both ends. **(16) Spacer** (10 s.w.g. I.D Alloy Tube) Fits over (15), giving correct spacing apart of link arms. **(17) Lower Pivot Bush** ($\frac{1}{8}$ in. O.D. Stainless Steel Tube) Tapped 8 B.A. both ends. Retained in (4) by an 8 B.A. bolt each end. **(18) Inner Leg Retaining Pin** (8 B.A. Bolt) Passes through slot in (6) and prevents (6) falling out when in unloaded position. **(19) Hub Assembly Bolt** (6 B.A. Bolt) Retains inner leg in hub block (7) and bolts axle to hub block.



Schematic at right, with four stages of retraction in the inset, illustrates the realism of the unit. Before and after views below tell a tragic story. Twin Eta 29 engines were arranged to counter-rotate to eliminate torque effect. Scale fans will recognise the staunch adherance to the colour scheme of the full size machine.

Retractable undercarriage *(continued)*

Springing in the "oleo" legs gave a movement of $\frac{3}{8}$ in. under a 12 lb. load, which would seem about right for an aircraft of 10 lb. A.U.W. (this calls for a total of 48 lb. to depress all four legs).

The units were mounted in flanged 20 s.w.g. Dural plates, which were formed with press tools and projected forward to the engine mounts. Alternative forms of producing these are possible. 0.125 in. steel plate was used to reinforce the areas around the main U/C mounting, and 12 s.w.g. for the rear pivot, these plates were bolted and Araldited to the flanged Dural. Engine bearers were woodscrewed and Araldited to the Dural.

The servo was built around a Bonner electric motor, and was very simple and cheap to construct. It gave about seven pounds force which for this U/C, was only marginal.

The main casing was bent from 28 s.w.g. tinplate, and the ends were of $\frac{3}{16}$ in. Perspex sheet. Elmic Atom thrust races were mounted in the Perspex to take the ends of the 6 B.A. screwed rod, and were absolutely essential for the loads taken. Gearing was calculated at being about 1000:1. Connections between the sliding arm on the servo and the U/C were of 16 s.w.g. piano wire, so as to be easily adjusted and could spring clear in a crash. The wiper contacts shown were fairly reliable but could possibly be improved. By running on the printed circuit board they enabled the servo to switch itself off at the up and down positions, and the current was switched on by a D.P.C.O. switch operated by a Bonner trim servo on the 11th and 12th channels. This servo operated an assembly giving progressive action flaps and switched the undercarriage and lights on and off in sequence at certain flap positions, as follows:

From flaps up, lights off, U/C down.
(1) U/C raised.
(2) Flaps 15 deg., landing lights come on.
(3) Flaps 30 deg., U/C is lowered.
(4) Flaps 15 deg., lights come off.
(5) Flaps fully up.

This gave an indication as to the state of the U/C, the lights indicating the position of the flap.

For power source, the aircraft carried two DEAC packs, one set which operated the radio in the normal way, while the other set operated the U/C and the lights. The U/C was on 3.6 volts, and the lights on 2.4 volts.

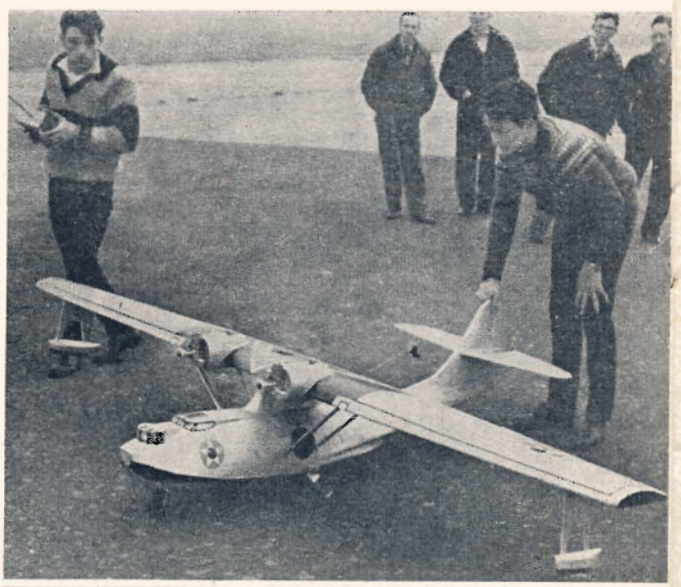
C. W. A. Scott and Tom Campbell-Black in the cockpit of the red racer ready for a "model" take off —another item to emphasise the neat detail of Roy Norris's fine model.

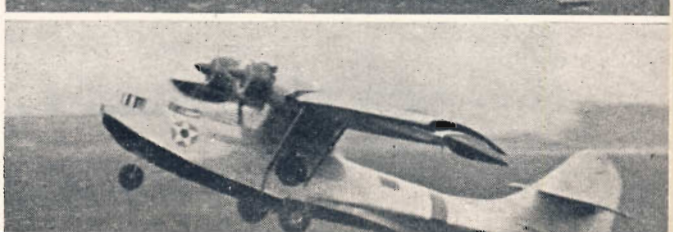
Scots Catalina

BEFORE WE HAD even completed printing of January issue, with the remarkable pair of radio controlled *Consolidated PBY Catalina* models from Rotterdam and Los Angeles featured in "Scale Model News," word came down from Paisley that Andrew McCartney had tested his similar project.

Claimed to be Scotland's largest power model, Andy's Catalina was enlarged to 127 in. span from the A.P.S. design for control-line (giving a wing chord of no less than 17 in.!) and using a pair of O.S. Max .49 Multispeed engines driving 14 x 6 in. props. Total weight is 16 lbs. and the Octone radio is used to control coupled ailerons and rudder, elevator and independent throttles. R.C.S. 12 channel gear will be installed after Andy has trained himself to use all those levers, in a 66 in. low-wing aerobatic model he had designed, using wing flaps.

A member of the Glasgow M.A.C., Andy built this mammoth scale twin in only six weeks of spare time (industrious as well as canny—these Scots!) and has made first tests at Abbotsinch. Short hops initially revealed excess wing incidence, and power was held back. Then on December 15th, came a great first long flight of five minutes after a 20 ft. take-off run. During the flight, Andy announced that aileron control seemed to be sticking, and he exercised considerable skill in bringing the amphibian (it will take-off-water too!) down with minor damage.





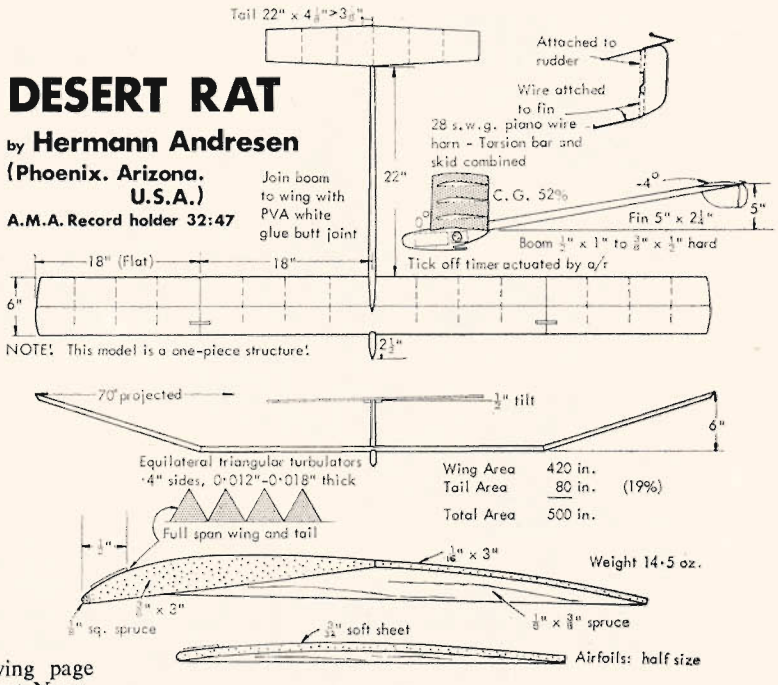
All-Balsa Construction

DESERT RAT

by **Hermann Andresen**

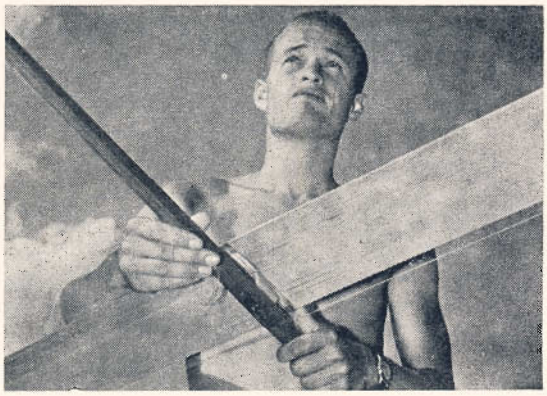
(Phoenix. Arizona. U.S.A.)

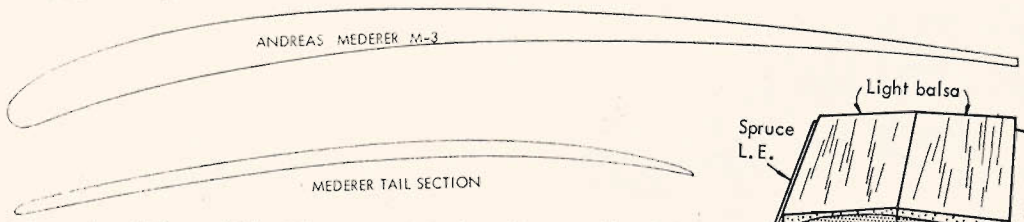
A.M.A. Record holder 32:47

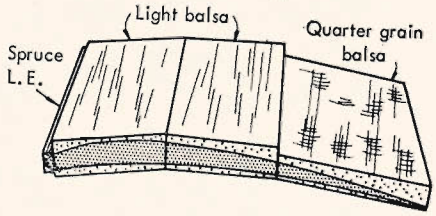


OUR MORE experienced readers will be familiar with the solid balsa construction system, first introduced by Erik Jedelsky in Austria, as we have already published many features on the subject. These included two of the most popular gliders in the A.P.S. range of designs, namely *Daeda.us* (A/2) by Otto Roser of Hungary and Finnish Reino Hyvarinen's high performance A/1, -- *Mini-Egal*. The Jedelsky wing is typified by *Desert Rat*, at right. This model held the U.S. record for about six months and had a fine contest record. Latest in the series has a tapered, swept back wing and no nose at all! Turbulators are used to aid stability, and on some, have been left off the tip panel on the inside of the left turn to provide a more thermal prone model.

The 1963 World Champion in the A/2 glider class also used a Jedelsky wing design, but only for his fifth and decisive last flight in the event. It was a more refined "Mederer" model that he chose for his first four max's (see photo, also drawing page 508, October '63 issue) and from the excellent Newsletter *"Bartabschneider"* of the Munich modelling group, we are able to reprint the M-3 airfoil and ordinates as below. As sketch illustrates, the wing is made with three strips, front pair being of lightest balsa, suggested weight being 2¼ ozs. for a 36 x 3 x ⅜ sheet. These are butt joined to a quarter grain rear section, with oversize allowance for trimming to area. There has been considerable divergence of opinion as to the best form of cutting the butting edges for good joints, which emphasises the importance of this operation. Strongest glues are advised, and stringent warnings made that when sanding to final section after rough carving, that uniformity of section and symmetry from panel to panel are essential. Sanding blocks are shaped to the airfoil, and one should start at the nose section, working aft. Talc filler and dope are applied prior to tissue surfacing, preferably red on the underside.





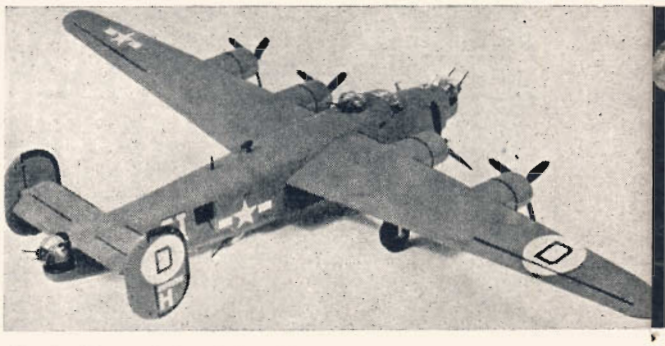


Mederer wing airfoil was slightly thickened for Erichsen's model ; but original shape and correct ordinates are given, together with tail section. Suspended nose turbulator can be seen in photo. Wing halves are joined on a short tongue, held by adhesive tape. Great advantage is freedom from warping, if sanded carefully.

	Mederer M3														
% Chord	0	2.5	5	10	15	20	30	40	50	60	70	80	90	95	100
Upper	1.4	4.5	5.7	7.2	8.3	9	9.5	9.4	8.8	7.8	6.3	4.7	2.9	1.9	0.9
Lower	1.4	0	1	2.2	3.3	4.1	5.2	5.8	5.7	5.0	4.2	3.0	1.8	0.9	0

TRADE NOTES

The **Frog** 'one-a-month' programme of distinctively "different" 1/72nd plastic scale kit subjects, plus the efforts of **Airfix, Revell,** and **Aurora** imports by Playcraft have made this month's news a veritable treasure store for fireside modellers. One wonders if the rush to produce at such a rate is the reason for inaccuracy and awkward fits evident on all these new models. Seems a tremendous shame that when the cost of launching such a kit approaches £1,500 in design and tooling alone, more effort is not made to see that the basic aeroplane is right. Establishing the true shape of any aeroplane is a tough task; but certainly not one which is insurmountable as we try to prove each month with our own drawings. It takes about 3 months research and up to six months of spare time draughting for Aeromodeller contributors to produce each of the scale plans in our range, and we don't usually commit the drawing to print until we know it matches the manufacturers component dimensions, water and buttock lines, airfoils and general data. Comparison of the two representations of the



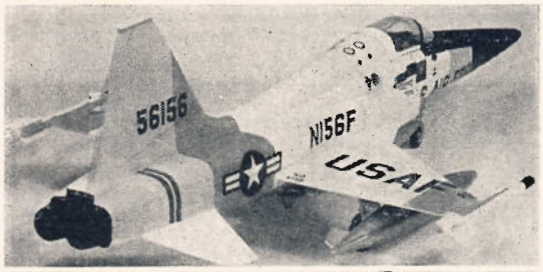
'Douglas Boston 111' will best illustrate our criticism. If each is supposed to be a true scale model, then which has the right fuselage cross section, nose shape, etc.? We can only speak from study of a fat photo file and say that each has its faults; but the deciding criteria could only be Douglas's line drawings. Unfortunately this kind of information is often no longer available.

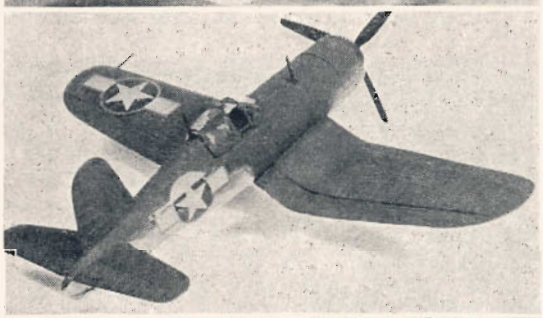
Nit-picking aside (after all, what 'should' one expect for 2/- to 7/6d.?) full marks go to Airfix for a magnificent 124 part, accurate span 'Liberator'. It needs nose weight to balance properly on the retracting undercarriage and patience in assembly since it is the most involved of all the Airfix aircraft kits, as befits the World's most 'liberally' produced heavy bomber—18,188 up to May '45. We should hate to think that the efforts of the hardworking team at Ha'dane Place were being ignored by our opening remarks; but surely the wing of this "Lib" should be a shade aft in relation to the bomb bay and upper turret?

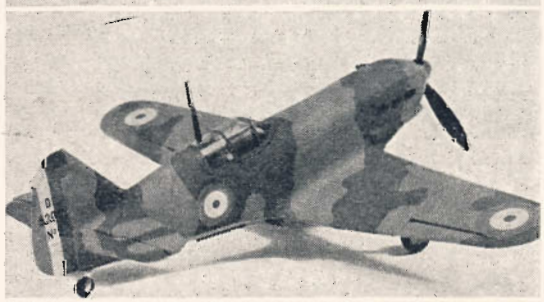
Other accolades must go to **Revell** for their 39 part 'Corsair,' just a shade over-scale though very well detailed and obviously the result of a lot of research, a'so their 38 part 'Warhawk,' complete with 112 Sqdn "Shark's mouth" markings to make it a R.A.F. Kittyhawk Ia of the Desert Air Force. Sliding hoods on each of these models tend to be bulky, but 1/72nd scale limits are restrictive here, and the enlarged scale runners, etc., are unavoidable.

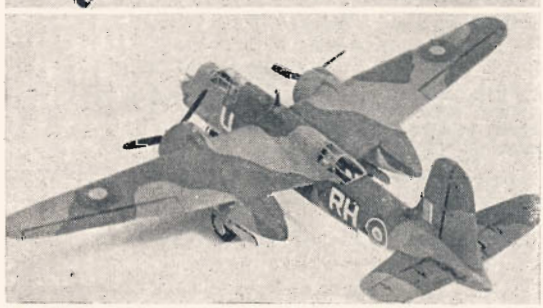
To **Frog** goes our acclaim for a most attractive pair in the 'Fokker D. XXI' and 'Macchi 202'. Each can accept extra titivation, and the Italian fighter is a shade overscale but their main appeal is that they can be decorated in so many different schemes. December's contribution to the Frog 2/- series is another Frenchman, the 'Morane Saulnier 406C1'. Confusion is bound to arise with the existing 'Dewoitine 520' kit of similar size and configuration; but this all makes for extra interest.

Aurora's 1/56 scale 'Northrop "Freedom Fighter" ' F.5 has 35 parts and prototype insignia. It is a striking model, just as the real thing is appealing to all pilots and it will lend itself to Greek and Turkish Air Force colouring if present p'ans go through. Another unusual and larger scale offering is the **Aurora** 'Boeing 727' in United Airlines insignia. Both these models are in white mouldings and this does certainly make life easier in

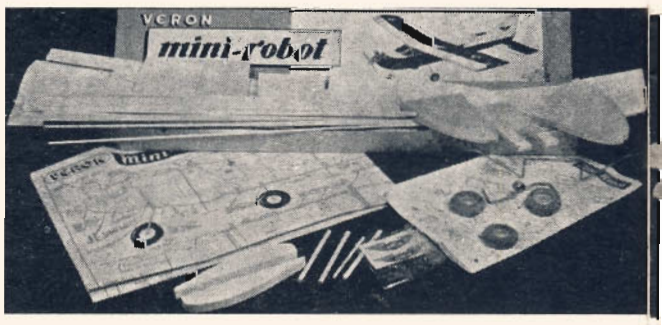


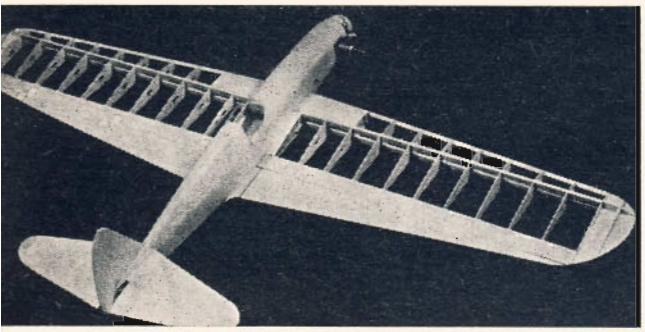






Left, top to bottom. Playcraft Aurora Northrop F.5 in white plastic, silver and Dayglo is an impressive 1/56 scale model. Next, Revell Corsair with sliding hood and specially good fabric covering representation at 2/11d. Frog Dewoitine D 520 is next, accurate in outline, and an unusual subject in the 2/- series, bottom, Airfix Douglas Boston 111 in 65 parts at 4/6d., retractable undercarriage, needs noseweight to stand level, has neat detail, as also with the Airfix Liberator at top of page, makes a most impressive model. Below is Veron's new Mini-Robot kit spilled to show prefabrication, bent u/c and wheels plus informative plan, good value at 46/-.



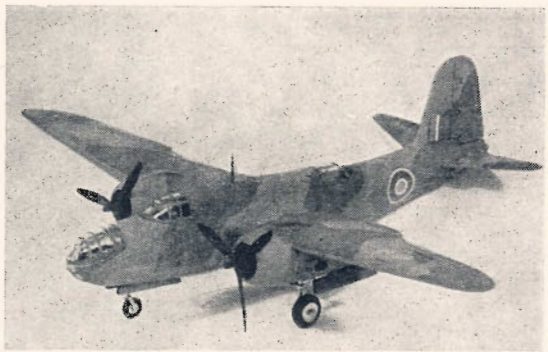


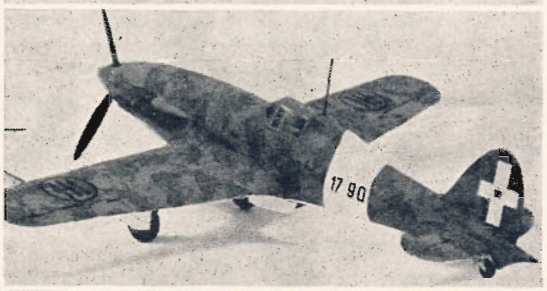
providing a uniform tone for those areas which remain that colour. Priced at 8/11d. and 17/6d. respectively, these Playcraft Aurora kits are larger and less involved than the average.

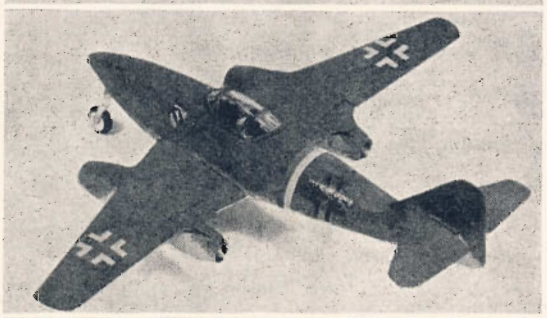
Before we depart plastics, that enterprising shop BMW (Models) who always carry difficult to obtain plastics, sent us the current issue of "HisAIRdec NEWS", a 20 page offset printed journal of the Historical Aircraft Decalcomanias Co. of the U.S.A. Each issue includes a transfer sheet. That for Dec./Jan. issue is for Airfix's B-17, and a B-26 Marauder produced from crew-member info. This is the 3rd issue, cost is 4/4d. Our wish is that the producers change their printer. American offset printing is normally renowned for superb reproduction, and we have better examples in free model shop handouts.

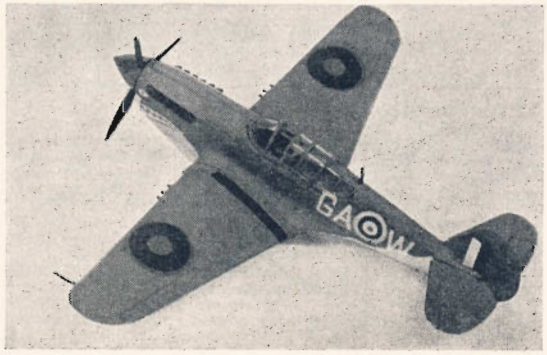
Are we neglecting the flying models? Off the bench now is the **Kookaburra** 'Swallow', which makes a most purposeful stunter for 46/9d. but the kit has a number of shortages which we are sure will be rectified (see photo above). Then, from **Veron** and now building, the 'Mini-Robot' and 'Vespa'. Each of these is an excellent production, beautifully timed to meet particular demand for single channel r/c or simple sport flying respectively. What better too, for the "Mini" than the new **Emco** 'Ace' complete r/c set at £11 5s. This has been very favourably reviewed in February 'R.C.M. & E.' and helps make an inexpensive combo. More on the Mini-Robot after flight tests have been made with a variety of equipment. The **RCS** "Guidance System" and **REP** "Gemini" are two outfits which fit easily into this very conveniently sized and tough model.

"Vespa" is a really out of the rut design from Phil Smith. All the sheet balsa parts are cut to shape, there's not even need for a plan. 16 diagrams show building stages, inc'uding suggested World War I style scalloping of the trailing edges, and for the novice, everything is reduced to utter simplicity. It's a biplane of 23 in. span, suits the little Cox engines or could be converted with beam mounts for a small diesel, and at 15/11d. can be thoroughly recommended to those who want a knockabout free flight sportster. Would be hard to find a more suitable commercial design for scramble contests!









Above; is Kookaburra "Swallow" airframe prior to covering. Fully flapped stunter for 3.5 c.c. engines makes a fine semi scale subject. Care needed in construction so that it is not recommended for novices. Right: top to bottom, Frog Douglas Boston III at 4/6d. has different style of surface detail to Airfix version, makes an interesting comparison—and NO prizes offered as to which is right!! Fokker D. XXI in Dutch markings (apologies for the wrongly applied wing markings, light segments should face aft, not inwards as wrongly shown in the instructions) by Frog has a fine cockpit fit and is 2/-. Macchi MC 202 is same price, shown in N. African Campaign markings, from Frog. Next are Revell's Me 262 and Warhawk, each 2/11d. with movable cockpit covers. Below, Veron's all sheet sportster kit, with every part pre-cut to make a Biplane.

Lincoln Aeromodellers at the S.M.A.E. Annual Dinner, York '63 with the spoils of the year. Reading from left to right: S. Foster, Sid Allen Memorial Trophy, Aeromodeller Cup; D. R. Morley, Clyde Dockyard Trophy; E. Thorpe, Caton Trophy; P. Barram, Quickstart Trophy; M. Green, Sir John Shelley Cup, Halifax Trophy, F.A.I. Trials (Power) Trophy.

Mini Flea at Cheadle

A sub miniature 1/6th scale 'model' Flying Flea (built directly off the magazine plan), has recently been flown by Cheadle members in an indoor rubber comp. It could not beat the 20 second mark, but it certainly did attack the launcher.

New Format

When we opened the 1964 revised style of "Club News" in miniature newspaper format, we anticipated a few protests from our older and very regular readers. By presenting the NEWS from Club Reports in this manner, we have made the feature of greater interest to the wide range of readers who are outside the club movement and who may now be attracted, to join a local group. Club P.R.O.'s should still send in reports by 15th each month.

CLUB and CONTEST NEWS

Contact Your M.P.

Cotswold R/C Society advise clubs to contact their local M.P. if they are in danger of losing their flying ground. After lengthy negotiations with the Ministry of Aviation, Aston Down Airfield is available again. The club would like to thank Mr. Antony Kershaw, M.P., for his valuable assistance in their cause. Glevum M.A.C. have secured the use of Morton Valance Airfield via their M.P.

Bristol and West Silver Collection

The news of B & W winning the "Model Engineer Cup" ended a successful 1963 season which included the winning of the "Farrow Shield," "Lady Shelley," and all three Western Area Cups. Dick Cummins the "Totterdown" (open rubber), Chris Strachan the "Committee" and Elton Drew the "Bath Cup" (open power and glider respectively). The cup winners were well backed up with the top three placings in glider, six in rubber and five in power. Jim Berryman placed 1st in power at the Neath Rally on October 13th in very high winds, one flight covering a mile in 90 seconds.

London Area Newsletter

Issue number 5 features Alan Dell's well known ½A T/R. Alan recommends a simple lightweight model with a tailplane not larger than 22 per cent of the wing area. His fuel is nearly always the same for the MK 2 Oliver Cub engine. The brew is 18½ per cent Castrol M., 3 per cent Amyl Nitrite, 4½ per cent Nitro-Benzene, 33 per cent Ether, 41 per cent Paraffin. This fuel gives 15 per cent more range than Oliver Brew, and should be about 4 m.p.h. faster.

R.A.F. News in Brief

The R.A.F. Championships are to be held at R.A.F. Debden in September. A youth trophy for service youngsters under 16 is to be introduced. The R.A.F.M.A.A. is to run three regional contests, one in the S.W., another in the Midlands and the third in the North. They are also arranging an overseas contest with a U.K. R.A.F. team participating—another good reason for "joining."

Postal Contest Won by Swedish Club

Norwich M.F.C. organised and flew in their third international postal contest on October 27th. Team events were run as well as individual R/G/P. Uppsala of Sweden were the winning club with Norwich placing 7th out of the eight clubs entered from Sweden, Norway, Denmark, N.Z., Australia, U.S.A. and Canada. The Norwich No. 1 team was **Power**, Dave Oldfield (800), **A/2** Tony Abbs (719), and **Wakefield** Mike Woodhouse (770). In the second team Barry Halford made 5 maxes and 174 with his O/D **"Minute Man-2"** model. Only other contestants to make 5 maxes were Craig Cusick of S.C.A.T. (U.S.A.) flying his well known Saturn MK IV in Power, and Mike Seagrave of Montreal, Canada, with his O/D **Europa.**

Active Club at Northwood

One of London's most active clubs, Northwood M.A.C., recently ran a one design inter-club ½A Rat-Race. Winner was Pete Freebrey with a Cox T.D. engine. The combat scheduled for November 24th had to be extended to December 8th due to the large entry. Eventual winner was Pete Tribe after a very exciting final with 'Moggs' Morris.

Camera Shy ?

On December 8th an inter-Club competition of Rat-Racing and Combat was held between Cosmo, Sidcup and Gravesend Model Flying Clubs. Sidcup M.F.C. won combat. Thanks to the reliability of F. Andrews and his **'Pied Piper'**, Cosmo M.F.C. were able to win the Rat-Racing. An unusual mid-air collision came in the combat heats when J. Easter of Sidcup M.F.C. and A. Tick of Cosmo became "Camera Shy" of a Gravesend member taking a cine film of the flying, however, the Gravesend member was very pleased with his film.

MIDLAND AREA ONLY

A Midland Area Only Combat Comp. is to be held by Handsworth M.A.C. on Sunday, February 23rd. Pre Entry 1/6d. for Midland club members to G. Bryant, 61 The Broadway, Handsworth, Birmingham, 20. They beat Blackheath M.A.C. by having N. Hughes and J. Farmer in the final of a recent combat comp., N. Hughes the winner. J. Farmer is also the club Rat-Race champ. using an AM-35 to beat a pressurised O.S.19, in a recent 140 lap final. Rat-Racing is almost as popular as combat in the club with ETA 29 and Merco racers flying.

Winter Instruction

Heswall M.A.C. started the winter season with a Junior competition for the best built and finished model. Judging was by local model shop proprietor R. A. Alexander who was very impressed with the standard. M. Watson gained first place with his very well finished A.P.S. 'Stamne Monitor' powered with a Merco .35. They hope other local clubs will give them some talks on free flight to promote interest at club meetings. The Winter Club Meetings include film shows and instructional talks by a lecturer.

Illinois Win Coupe d'Hiver Postal International

2nd Anglo-American Coupe d'Hiver contest resulted in a very close match between the Crawley and Illinois clubs, Illinois winning by a mere 9 seconds. Their winning team time of 12 32 was mainly due to Chad Krough, with two maxes in his 325.3 seconds total, he flew a Jedelsky all sheet wing model. Six entered from Illinois and seven f om Crawley. The six top flyers were 1, Chad Krough (U.S.A.) 325.3. 2, Pete Cameron (G.B.) 269. 3, John Wilson (G.B.) 243. 4, Jack Derby (G.B.) 231. 5, Charles Sotich (U.S.A.) 216.4. 6, Chuck Bedwell (U.S.A.) 210.6. Team Totals were Illinois 12:32, Crawley 12:23. Still on a contest note from Crawley here are the results of their combined A/1 and Coupe d'Hiver contest held at Epsom Downs on December 8th. A/1 Glider: 1, A. Young (St. Albans) 5:22. 2, C. Morris (St. Albans) 5:06. 3, A. Wells (Hornchurch) 5:01. Coupe d'Hiver: 1, J. Wilson (Crawley) 4:11. 2, P. Cameron (Crawley) 3:45. 3, J. Darby (Crawley) 3:09. Six clubs were represented and they hope to have another contest in a few months.

Leggey Model

Chichester's Dick Emery has a brave disregard for his wife's belongings. Looking around for old nylon stockings to cover a wing, he retrieved a pair from the kitchen. Suitably fixed and doped they made an excellent covering. It was only then discovered that they were a pair placed ready for washing. Total cost of wing:— a pair of new nylons, plus wood, dope and a lashing from wife.

POLYSTYRENE COMBAT

On Sunday, November 24th, four clubs fought in combat at Congleton. The host team took first two places, third spot going to Clayton M.A.C. E. Snow (seasonal chap) flew an expanded polystyrene combat wing covered with $\frac{1}{32}$ in. balsa. It was no heavier than a conventional structure but much stronger.

Permanent Flying Site at Woking

Woking D.M.A.C. now have a permanent flying site on Horsell common, thanks to the Horsell Common Preservation Society. Two circles have already been cleared after lots of hard work. Control line Stunt is this club's main interest, stunters include 3 *Crusaders*, 3 *Spectres*, a *Thunderbird*, *J.D. Falcon*, and *Attacker*. Combat men mainly use P.A.W. 19's, ETA 15's and Veco 19's. Dooling 29 and Fox 59 speed models have just been flight tested. New club members are welcome and should contact Mr. Bancroft, 1 Walton Road, Woking.

M.A.C.I.

This stands for Model Aeronautics Council of Ireland whose news sheet is in its first issue. The M.A.C.I. was founded in 1936 to further the interest of model aviation in Ireland on a national and international scale and is a corporate member of the Irish Aviation Club, affiliated to the F.A.I. and the controlling body for model aviation in Ireland. At the Leinster C/L champs, John O'Sullivan's Oliver Cub powered ½A T/R was doing 85 m.p.h. for 40 laps using a 6 x 9 Italian Supersonic Nylon prop, aspect radio is 13.5:1 for a wing span of 36 inches. The wing is laminated, a butterfly tailplane and Edmonds T/R tank are also used. Cork, Mallow, and Belfast M.A.C.'s all report an increase in membership of recent months. A C/L flying site is being procured at Cork Airport through the help of the Air Rianta Educational Service. R. G. Dickson recommends facing the hardwood crutch of a T/R or speed model with formica to stop the span crushing the wood.

Colchester in the News

Following a string of fairly high placings, Colchester club members were surprised to hear that J. Bartlett won a prize for making the fastest 1.5 cc. speed flight of last year, he also holds three club speed records, all with Cox engines. Neighbouring clubs should contact M. Radcliffe, 4 Ireton Road, Colchester, Essex, for friendly contests.

Scottish News

The Scottish Gala taking place on June 21st will have ½A T/R in place of multi radio. **S.A.A. insurance is now increased to third party cover of £50,000 for 2/6.**

Seasonal Contest

The Worthing Bald Eagles report the approaching climax of the "Gallon of Beer" Slope Soaring Contest at Wilmington. Best time so far is 51:36 by Tunbridge Wells. No Bald Eagles have flown near this time yet. Club membership now stands at 40, most new members being juniors. The first of the South Eastern Area Indoor R.T.P. contests was a great success.

Baz Bombs

Picture above shows Wanstead Warhawks members L-R, Roger Jarvis, Basil Murley, George Penington, Terry Rounce, Brian Dickens, John Palmer. They all fly "*Baz Bombs*" designed by Basil Murley, who thinks model aircraft are only useful as receptacles for radio gear, when one has built too many, televisions, radio's, etc. Power plants range from T.D. 0.09's, Oliver Cub's to an O.S. 15 (with silencer). Congratulations are due to John Palmer (*at extreme right*) for winning the overall prize and first place in the recent National Aviation Art Competition. His picture "Ice Patrol" depicted a lone Catalina on patrol. Interested locals should phone J. Franklin WAN 2168 for club details.

New Flying Ground

East Grinstead have gained four new members, despite low attendances at their flying displays. They include a new lady member. The club have been without a flying field for a year and they hope the new large field in a farm near Smallfield will produce a harvest of well trimmed models for the coming season. One member reported finding a lone aeromodeller in Khartoum recently, so he spent a few afternoon 'helping' him to fly a proportional rudder powered glider in the desert.

NEW CLUBS

Bisley M.F.C. have just been formed with thirteen members who are mainly in the 11-16 age group. It is affiliated to a youth club under the control of the Rev. A. B. Allen. Meetings are held EVERY night at present. All aspects of modelling are indulged in including solids C/L, R/C, and F/F. They say "AERO-MODELLER" and A.P.S. are a constant help to them in their efforts. Bradford D.M.A.C. has been formed to meet the needs of the average modeller, and deal with all aspects of the hobby. They meet every Tuesday evening from 7 p.m. to 10 p.m. in the room over the model shop in Manningtom Lane (opp. Belle Vue School). They hope to hold an A.1. contest on Baildon Moor on January 26th. Further details from the club.

Contest Calendar

January 19	*Northern Area Winter Rally.* POSTPONED. Pending availability of airfield to February 23rd.
January 26	*South of Scotland Rally.* Abbotsinch Airfield. R/G/P, ½A, A, and B T/R 2/6 field Entry.
February 2	*Bristol and West Winter Rally.* Blakehill Farm Airfield. Open R/G/P, ½A Power, All F.A.I. event (R/G/P combined) Pre Entry 2/6 to Mr. B. F. Bow, 2 Vimpany Close, Hembury, Bristol.
February 16	*Croydon D.M.A.C. Winter Gala.* Chobham Common. A/1, ½A Power & Coupe d'Hiver.
February 23	*South of Scotland All F.A.I. Meeting.* Abbotsinch Airfield. R/G/P, T/R Stunt, Speed (No pylon available) 2/6 field Entry.
February 23	*Northern Area Winter Rally.* Open R/G/P/½A and Combined F.A.I. classes event.
March 22	*G.M.A.C. Hornets Rally.* Abbotsinch Airfield. R/G/P, ½, A and B T/R, Combat.
May 31	*Barnstormers/Kirkaldy Rally* Abbotsinch Airfield. R/G/P, ½A, A, and B, T/R, Combat.
June 21	*Scottish Gala.* Abbotsinch Airfield. R/G/P, ½A, A and B, T/R and Combat.
July 5	*S.A.A. Gala.* Abbotsinch Airfield. R/G/P, ½A, A, and B, T/R and Combat Pre-entry 2/6 to K. Johnston, 113 Kinarvie Road, Glasgow, S.W.3.
August 23	*Scottish Festival of Modern Aviation.* Pre-entry 2/6 to K. Johnston, 113 Kinarvie Rd., Glasgow, S.W.3.

S.M.A.E. Contest Programme

March 22	*K.M.A.A. Cup (A/2 Glider); Frog Senior Cup (Open Power); F.A.I. Rubber. At S.M.A.E. Area Venues.*
April 19	*Gamage Cup (Open Rubber); Pilcher Cup (Open Glider); F.A.I. Power.* Area Venues.
April 19	Centralised C/L events at N.W. Area Venue.
April 19	Multi Control Radio. *Centralised*.*
May 3	F.A.I. Control Line Trials *Centralised.**

* Locations to be announced to S.M.A.E. members.

Pen Pals Wanted

Wanted by Stephen Hull, 20 Wentworth Avenue, Papatoetoe, Auckland, N.Z. Aged 14. Greg Pemberton of Main South Road, Geraldine, South Canterbury, N.Z., age 14½, interests are F/F Sport and Scale also C/L Stunt. Zdenek Titz, Krizikova, 1 Olomouc, Czechoslovakia, would like to exchange plastic kits, magazines, photos, etc. Age 34.

Attention R.A.F. Modellers

Here's a list of R.A.F.M.A.A. Officials. If you've not contacted the Service organisation to help you with your modelling facilities, make use of this list by getting in touch with your Command Representative as detailed below:—

Command Reps: Bomber Command, Fl. Lt. N. Parker, R.A.F. Waddington, Lincoln; Fighter Command Squadron Leader A. Coutts-Smith, R.A.F. Valley, Holyhead, Anglesey; Transport Command, Fl. Lt. R. J. Lawrence, R.A.F. Odiham, Basingstoke, Hampshire; Coastal Command, Fl. Lt. K. Rock, R.A.F. Ballykelly, Limavady, Co. Derry, N.I.; Flying Training Command, Fl. Lt. R. Gould, R.A.F. Oakington, Cambridge; Technical Training Command, Fl. Lt. P. G. Hiscock, R.A.F. Melksham, Wiltshire; Maintenance Command, Squadron Leader W. Anderson, A. and A.E.E. Boscombe Down, Amesbury, Wiltshire; Signals Command, Fl. Lt. H. V. Gillan (Secretary Signals Command Sports Board), H.Q. Signals Command, R.A.F. Medmenham, Bucks.

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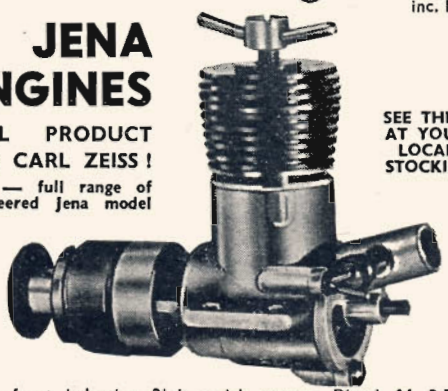

SEE THEM AT YOUR LOCAL STOCKIST

JENA 1 c.c. Air cooled, front induction 2b.b. quick starter. Diesel	£4. 3.7
JENA 1 c.c. Water cooled, with exhaust, as above	£5. 5.8
JENA 2 c.c. 2 ball bearings, rotary	£5. 2.6
JENA 2.5 c.c. Diesel—small cylinder head	£5. 5.8
JENA 2.5 c.c. ditto—normal cylinder head	£5. 5.8
JENA 2.5 c.c. Diesel—reed valve—normal cylinder head	£5.12.0
JENA 2.5 c.c. ditto—small cylinder head	£5.12.0
JENA 2.5 c.c. Diesel Watercooled	£6.12.6
Flywheel & Clutch	19/1d.
JENA R/C THROTTLE for 2 c.c. and 2.5 c.c.	£1.16.3

NB : All Jena engines can be water or aircooled; all parts are interchangeable. Prices include PT.

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5-ch. Tx **£43. 0. 5d.** inc. tax
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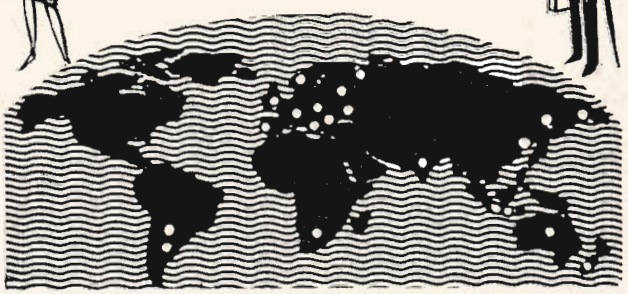

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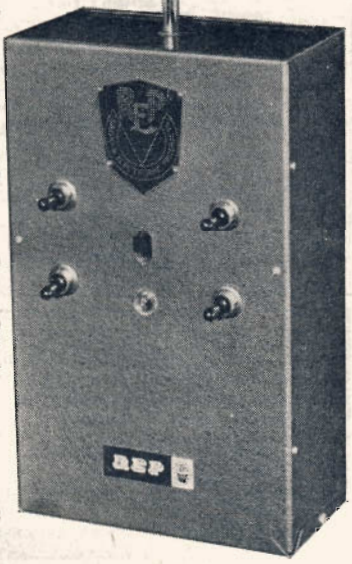

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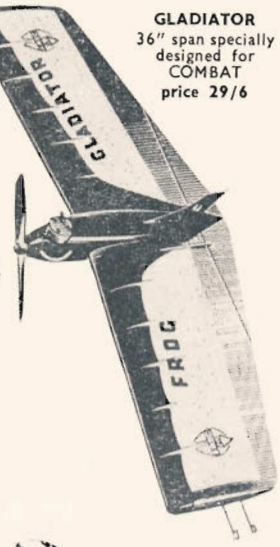

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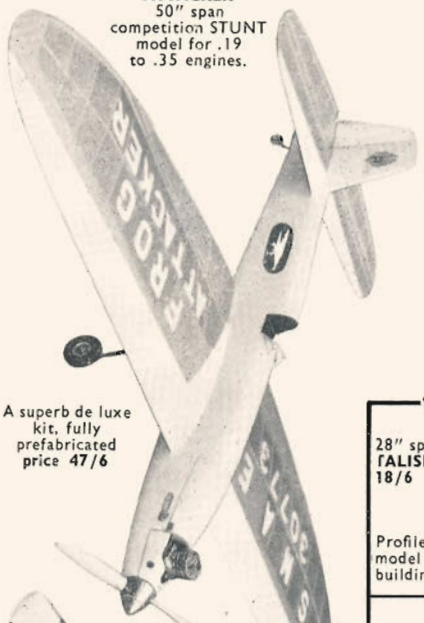

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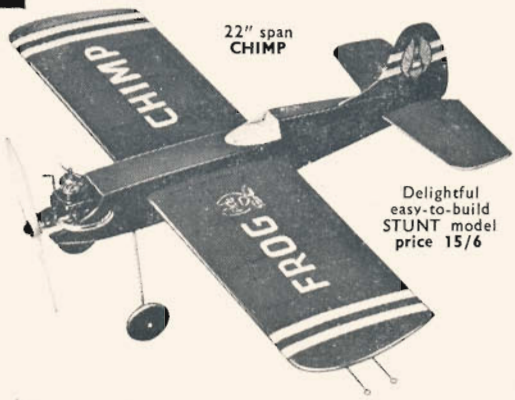

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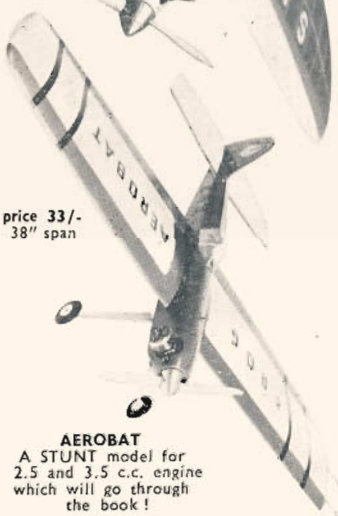

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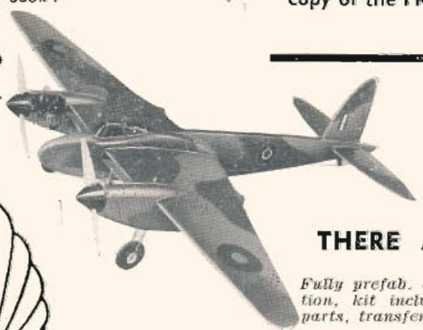

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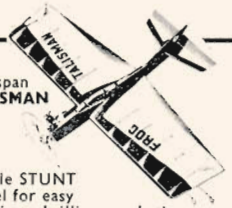

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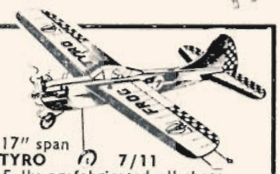

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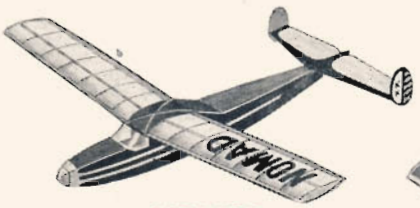

NOMAD

Beginners model with fuselage parts, tailplane and fins in pre-cut, decorated sheet balsa. 20" span.

5/6

GEMINI

Duration model with all fuselage parts, tailplane, and fins in pre-cut, pre-decorated sheet balsa. Wingspan 22".

9/2

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16/3

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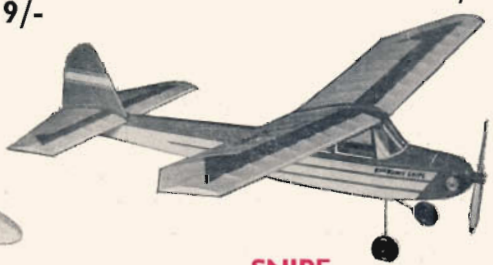

SNIPE

This nice looking model is especially suitable for beginners as it is so straightforward to build and easy to fly. Kit contains die-cut parts and has been specially designed for .5 diesel and .8 glow motors. Wingspan 40".

22/1

ROBIN

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9/8

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