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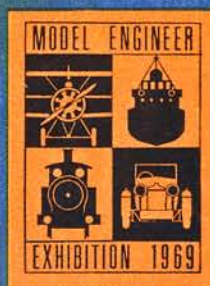
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**MODEL AIRCRAFT
DECEMBER 1968**

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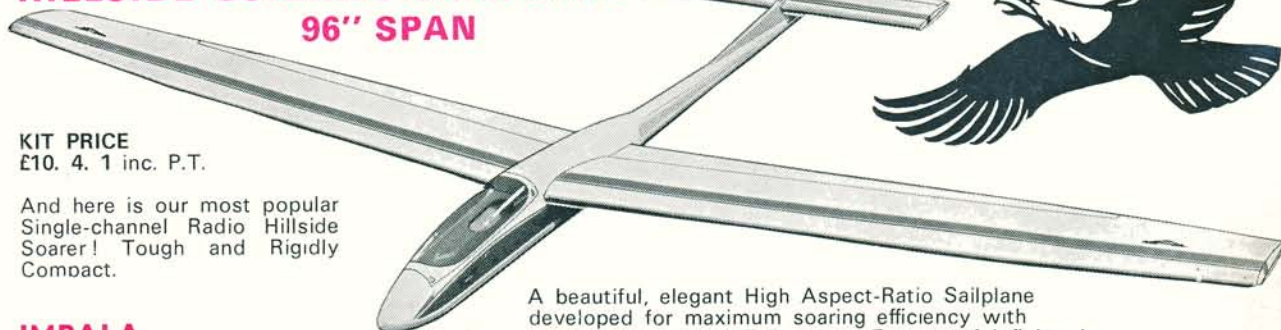


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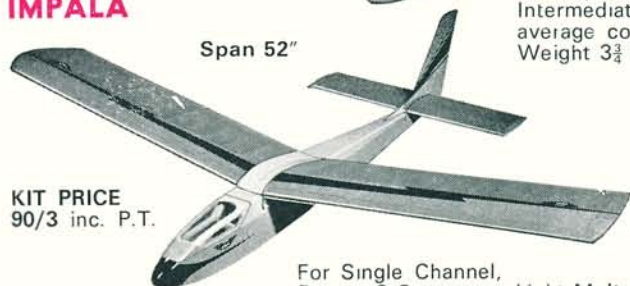
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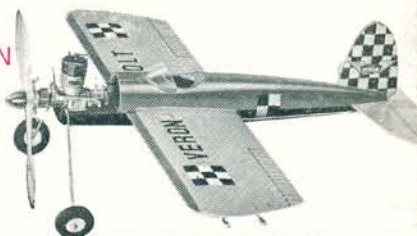
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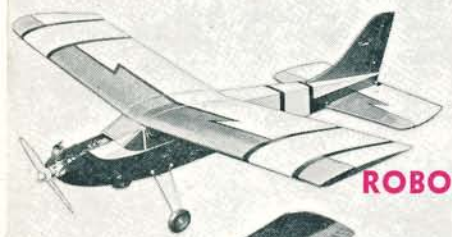
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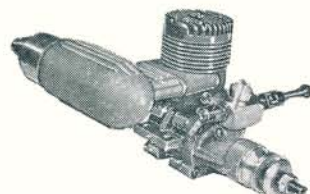
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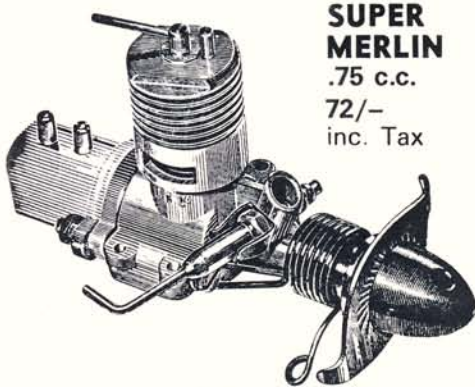
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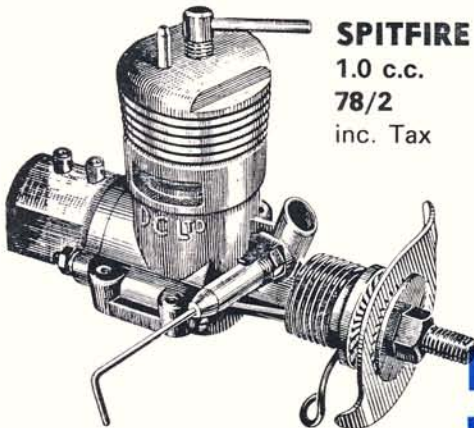
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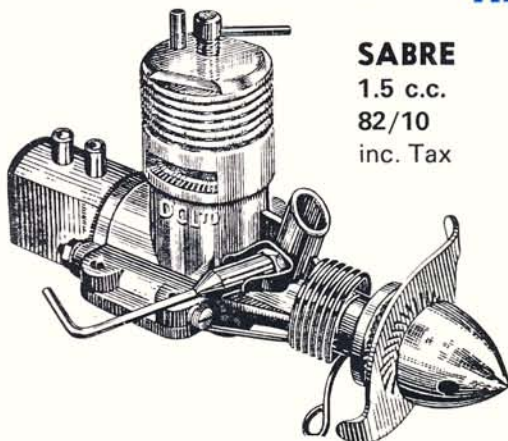
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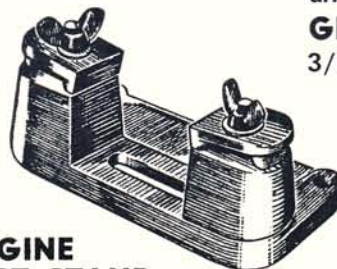


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Aero Modeller

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MODEL AIRCRAFT

December 1968

VOLUME XXXIII No. 395

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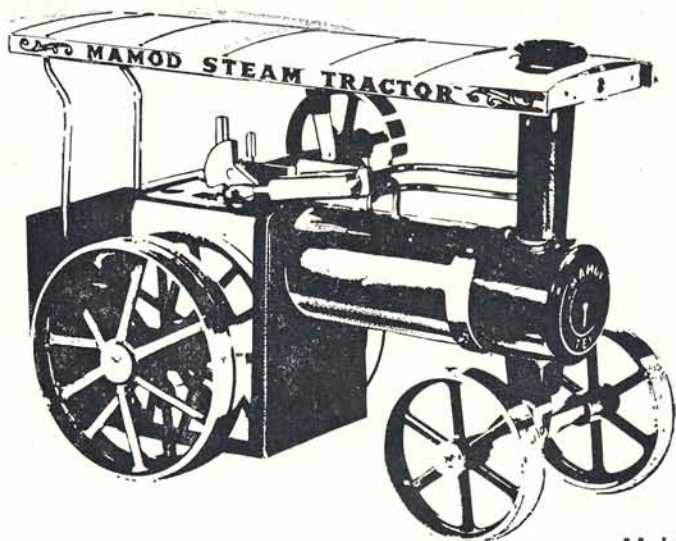
**The Editor and Staff
of Aeromodeller
send seasonal
greetings and best
wishes for a happy
and prosperous
New Year
to all of our
readers**

on the cover

Once more, artist Laurence Bagley captures the scene for our Christmas issue with dynamic W.W.II action. Unusual angle brings attention to 'tailend Charlie' the often overlooked tail gunner, blazing away to defend his Halifax as it returns with the dawn from a raid. Full data on the Halifax will be found on pages 650-654.

next month

Reflections on the past year around the World with survey of contests, models and trends. Elton Drew, British A/2 team member reveals the story behind his series of F.A.I. Glider designs. Scale news. Return of Latest Engine News and Strictly Simple, the Focke-Wulf Fw 44 Stieglitz aerobatic biplane for scale fans in Aircraft Described. George French's $\frac{1}{2}$ A Power model and regular features... Out December 20th.



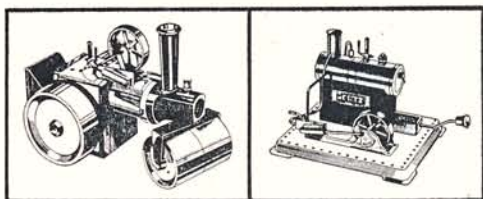
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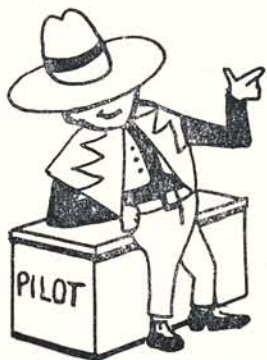
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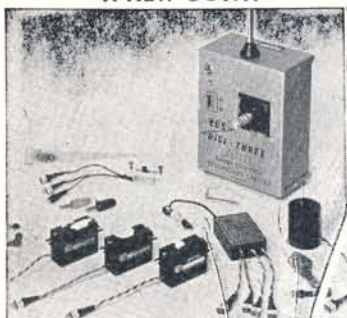
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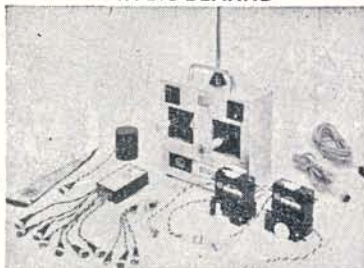
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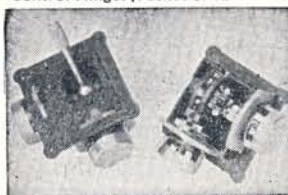
NYLON PROPELLERS

TORNADO 'A' TOPFLITE 'B'

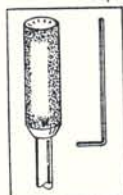
	A	B	A	B
6"x3"	3/6	3/6	9"x6"	8/6 9/11
6"x4"	3/6	3/6	9"x7"	8/6 9/11
7"x4"	4/6	4/11	10"x3 1/2"	9/6 11/-
7"x6"	4/9	4/11	10"x6"	9/6 11/-
8"x4"	6/11	7/3	11"x4"	11/6 12/6
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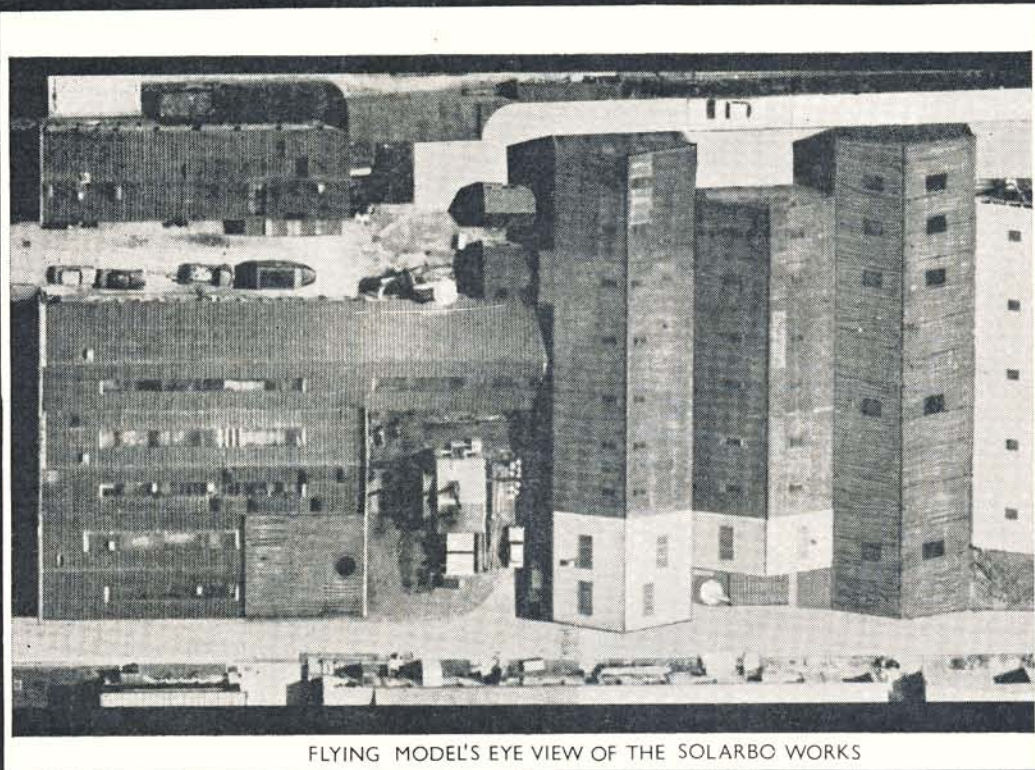
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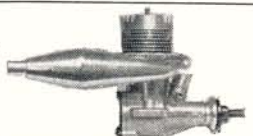
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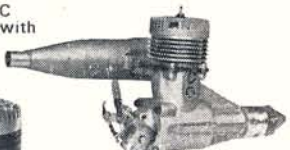
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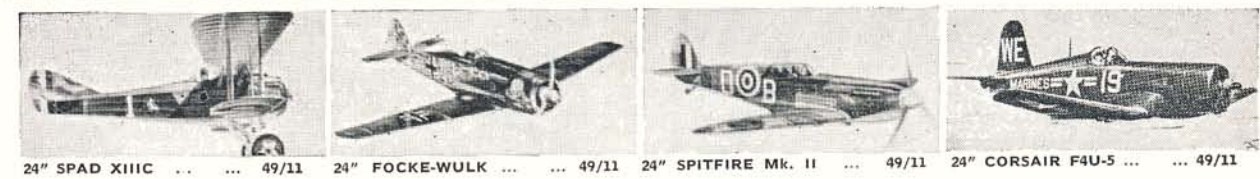
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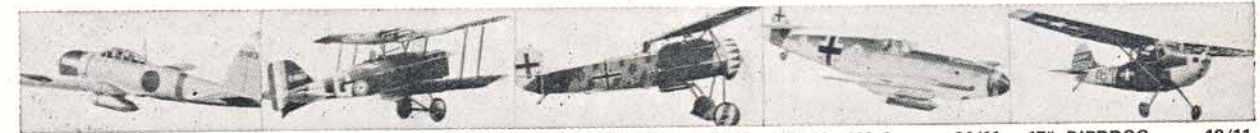
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5 Control line Kits

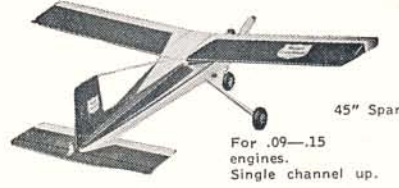
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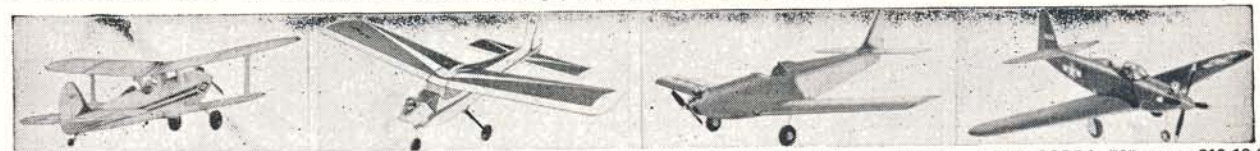
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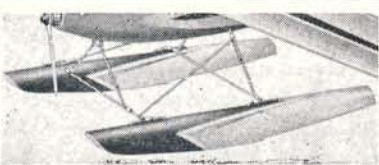
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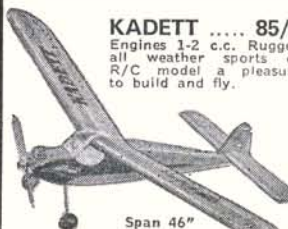
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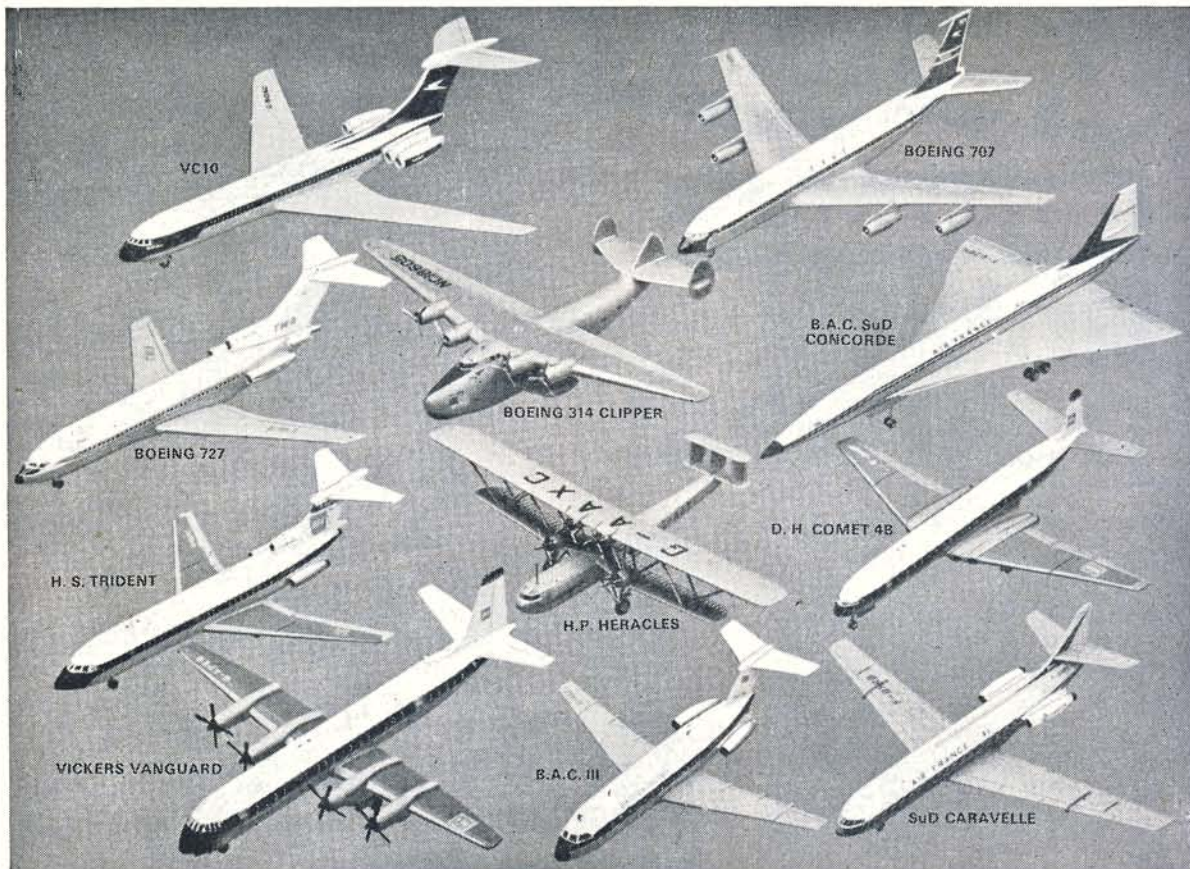
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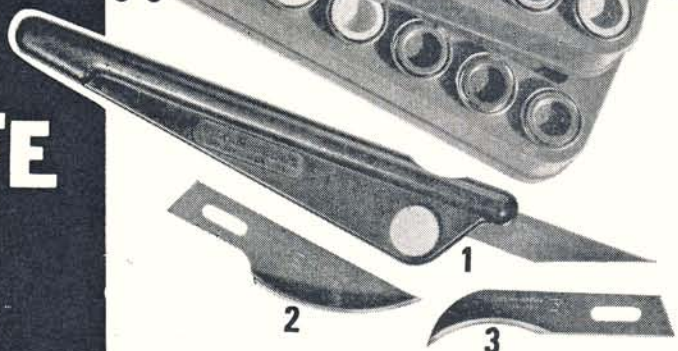
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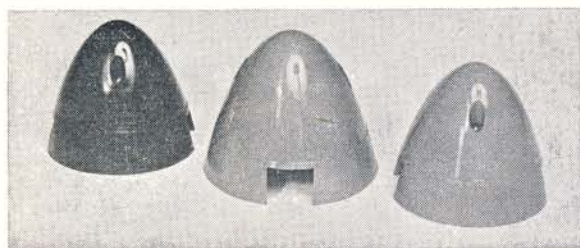
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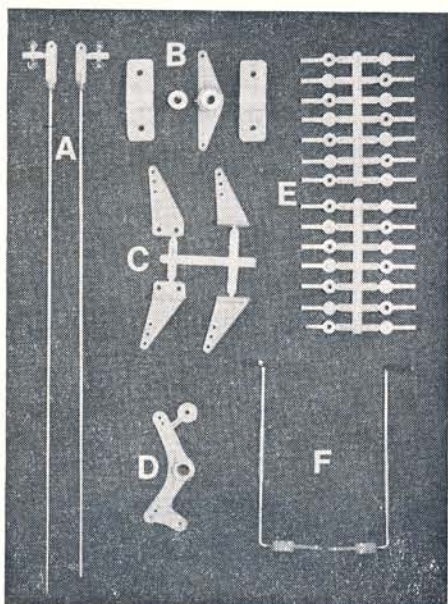
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Heard at the HANGAR DOORS

Max Coote of Ripmax took Cherokee 180C G-ATRU on a 1,600 miles business trip to Germany recently along with asst. Terry Osborn, and his Northern Rep. John McLeod. While at Kirchheim, the trio were introduced to George Martin's 5 metre (16 ft. 5 in.) 10½ lb. slope soarer, a mighty beast in anyone's language. Glass fibre fuselage is 6 ft. long, wings are nylon covered balsa sheet surfaced, tail is all-moving, each aileron has its own servo. The background is a 54,000 sq. ft. addition to the Graupner factory, now by far the largest of its kind in Europe, if not in the world.

FOR THIS MONTH ONLY we are increasing the price of your favourite magazine. Reason is the enlarged issue, with 12 extra pages *plus* free plans and our traditional variety of top line features in a 'Christmas' issue. We're sure you are not going to be disappointed with the contents and hasten to assure everyone that the price increase affects this issue only and is not indicative of a change in '69.

WORLD CHAMPIONSHIPS for Indoor models, held in the Sports Palace, Rome October 3-6th attracted nine Nations, the best yet. Regrettably there were no British participants, and in fact it seems that despite availability of the magnificent Airship sheds at Cardington, there is no interest in competitive indoor flying in this country. Individual winner at Rome was Jim Richmond of U.S.A. with two best flights of 33:40 and 36:18 out of six attempts. He was followed by Czechs, Jiri Kalina and Ed. Chlubny while Hans Beck of W. Germany (4th) and Manfred Koller of Austria (5th) also beat the 33 minute mark. The Czechoslovaks won the team prize, their third man, Jiri Sitar placing ninth out of 24 individual competitors. A report will appear next month; meanwhile congratulations to the Czechs on their magnificent showing.

CONTEST SEASON '68 was a tough one for those at the top. It must be a record: but our free flight columnist, whose name is often misquoted in deference to past performances managed to get through nine events involved in the individual free flight championship without carrying off a single trophy! John's best were a couple each 3rds and 4ths, a 5th a 7th and a couple of tenth places. Even so, his total of 109 minutes 30 secs was only 1:24 short of Wiz. Wiseman's Championship score.

BRITISH SUBJECT, Sergio 'Joe' Savini, member of the victorious free flight Power team at the last World Champs has been back in Italy for most of the year. He's not been neglecting his power flying however, and must have caused a certain degree of consternation when with a total of 900+900+900+880 in the Italian Champs series of contests he became National Champ! Congrats - and *come home Joe!*

JUNIOR CHAMP in Britain for '68 was David Plews of Cheltenham, and he'll still be in the Junior Class next season too, so fellow competitors had better sharpen their balsa knives rapidly. Second to David was P. Yospa of Sheffield S.A.

CALCUTTA M.A.C. has written to invite entries in a world-wide postal event for A/1 gliders to take place prior to December 20th. Three flights of three minutes maximum each together with a single unlimited fly-off are allowed. Send entries to P. Banerjee, 16 Surjya Sen St., Calcutta 12, India.

SHUTTLEWORTH COLLECTION tells us they have one S.E.5a and an R.E.8. excess to their needs and seek claimants. Models of course! Found after the Aeromodeller Rally in a nearby cornfield. Identification of the model will be essential prior to handing over.

BAN on model flying has hit St. Albans who want to use the appropriately named 'Nomansland' common at Wheathamstead for power flying on Sundays. Despite representations in person to the

Committee responsible for the land, the Club has failed to convince the powers that be that their ten second engine runs in free flight models are not to be confused with the ten minute runs by unattached R/C modelers. So they suffer. Official view is that flying by St. Albans Club would attract others and the ban on all power flying is upheld to avoid disturbance of residents and 'other users' of the common. Since the former are some way distant and the latter mostly nocturnal, the validity of the decision is questionable. The common can be used for fixed periods Monday-Saturday for power flying but it seems, never on Sundays.

AGGREGATE contests are generally called 'Scrambles' in Britain, and are not treated with any great seriousness. New Zealanders, who left the scramble stage many years back, find that the Aggregate event has a challenge and recent record claims for the highest score in any thirty-minute period prove the point. Paul Lagan claimed 1,338 secs. out of the possible 1,800 only to be passed by 1,451 by Peter Wheeler, Then Ross Glennly totalled 1,542 seconds in ten flights with an average pit stop time of 28.5 seconds, Just imagine, only 4 minutes 18 seconds on the ground out of 30 minutes. Trick, (apart from selecting the weather) is to have a sport design like 'Tomboy' which climbs well for a full tank of about 90 secs and is trimmed to dive through thermals, taking about 75-90 secs. to glide down again.

Don't MISS the 1969

MODEL ENGINEER EXHIBITION

December 31 - January 11, Seymour Hall, London

Full details on page 681 of this issue



SOME will consider it functional, others may think it ugly (curse them!) but the fact remains that it works. To design a single channel power model for the sole purpose of flying, functionality (that's a good word) has to take precedence over aesthetics, so nuts to cowled engine, fancy cabin, wheel spats, concealed wing fixings and the like. Sawdust is the combination of three essential components, wing, tail and fuselage, in that order. As there is nothing worse than having a fuselage only just large enough to squeeze the radio in, Sawdust has been made adequately large to accommodate all the necessary gubbins, which are, at the same time, confined within the extremities of the wing mount for both structural and practical reasons. The equipment used in the original is RCS Guidance System Mk. 3, with an AM 15 motor up at the heavy end to provide the necessary pull - both truly British inventions which have made so many trouble-free flying hours possible.

As I have a certain dislike for flying sessions being terminated by structural failure, Sawdust is so constructed as to virtually eliminate this possibility. In retrospection of over a year of consistent flying, totalling some 20 airborne hours, the only damage that comes to mind is a bent tailplane and broken engine mount. The latter was the result of fitting a deadly pointed spinner, which subsequently buried itself in the ground on landing (?) whipping the motor out at the same time. Lesson learnt is not to use a spinner with a paxolin mount.

I initially attempted to fly Sawdust using a Conquest 'bang-bang' escapement, but soon discovered that this rather unpredictable form of control resulted in more digging than flying. Thus, after a series of vicious encounters with terra firma which resulted in little more than clogging the motor with a load of Sussex crud, I reverted to a more predictable and sensible form of control, namely, the Elmic Compact selective escapement. This made life a lot easier - no more dithering around wondering which is the next signal (inevitably it turns out to be the wrong one!) - for all one has to remember is that one press is right and two is left, and that's not asking too much. Nevertheless, I didn't chuck the Conquest escapement away, but instead converted it to operate the throttle using the 'quick blip' method. After having found this extra control invaluable, I am surprised that so few 'one-button' flyers make use of it. For only an ounce of extra weight, folks, you can land the model when you wish, without waiting for the tank to run dry, make low passes (oh, yes!) and even try Limbo.

Look - NO WHEELS!

SAWDUST

**By Chris Foss for 1.5 cc.
and single channel R/C
is strictly functional**

Assemble the wing L.E., T.E. and ribs of both panels, then raise each tip $1\frac{1}{4}$ in. and cement in ply dihedral braces followed by the two $\frac{1}{8}$ in. sheet centre ribs. Add top spar and fill in the L.E. and T.E. at the centre section. Lift the wing off the building board and add bottom spar, $\frac{1}{8}$ in. gussets, vertical webbing, centre sheeting top and bottom, and $\frac{1}{4}$ in. sheet tips. Inset 16 s.w.g. wire into the T.E. and secure with nylon wrapping. Finally, cover the wing with either silk or lightweight nylon.

Cement the $\frac{1}{8}$ in. sheet nose doublers to both fuselage sides. Assemble ply formers 1 and 5 and engine bearers (already drilled) on to one of the sides, and when positioned correctly, glue the other side into place - Evostik Resin 'W' or similar is recommended for this operation. When completely set, cement former 2 on to 1 and cement formers 3 and 4 together and position correctly - adjustments may be necessary here to suit the type of clunk tank used, and should be arranged so that the tank is a push fit into the bay when completed. Add formers 6, 7 and 8 followed by the $\frac{1}{8}$ in. sq. and $\frac{1}{8}$ in. x $\frac{1}{4}$ in. supports at the tail, and finally, the upper and lower portions of former 9 - the detachable section is set aside for attaching to the rear escapement rubber hook. Line the tank bay with soft $\frac{1}{16}$ in. sheet. Cover the top and bottom of the fuselage with sheet, remembering to incorporate the $\frac{1}{16}$ in. balsa and $\frac{1}{16}$ in. ply lamination under the nose - essential when there is no U/C. If a second escapement is to be used for motor control, cut an opening in the top of the fuselage and construct a hatch from $\frac{1}{16}$ in. ply as shown. Add the $\frac{1}{8}$ in. x $\frac{1}{2}$ in. strengtheners beneath the wing mount, the $\frac{1}{8}$ in. sheet doubler behind former 6, and the escapement rails. Tap four 6 B.A. bolts into the bearers, 'Araldite' the heads to prevent them turning and block in the underside. Cement fin and rudder into place. Tissue cover the fuselage and dope well, finally add the wing and tail dowels and torque rod.

All that remains is to cut the tailplane from $\frac{1}{8}$ in. sheet, add the anti-warp inerts, round off the edges and tissue cover.

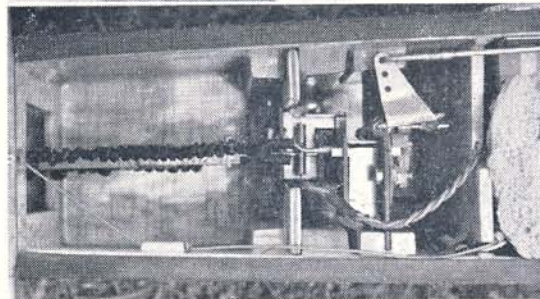
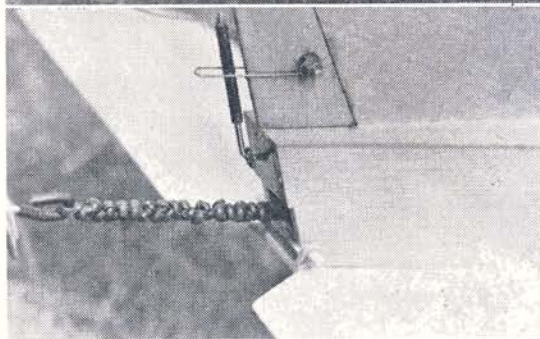
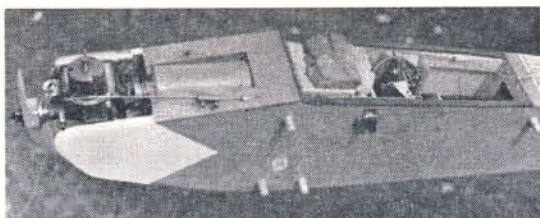
The finish on the original Sawdust consisted of clear doping followed by clear polyurethane varnish, applying up to three coats around the engine and tank bay. The general appearance of dark blue silk wings, orange tissue fuselage and fin, and white tailplane is very pleasing, even if rather simple, whilst the polyurethane has provided a tremendously tough impervious finish which has kept the model looking in good condition, despite the vast amount of use it has had to withstand.



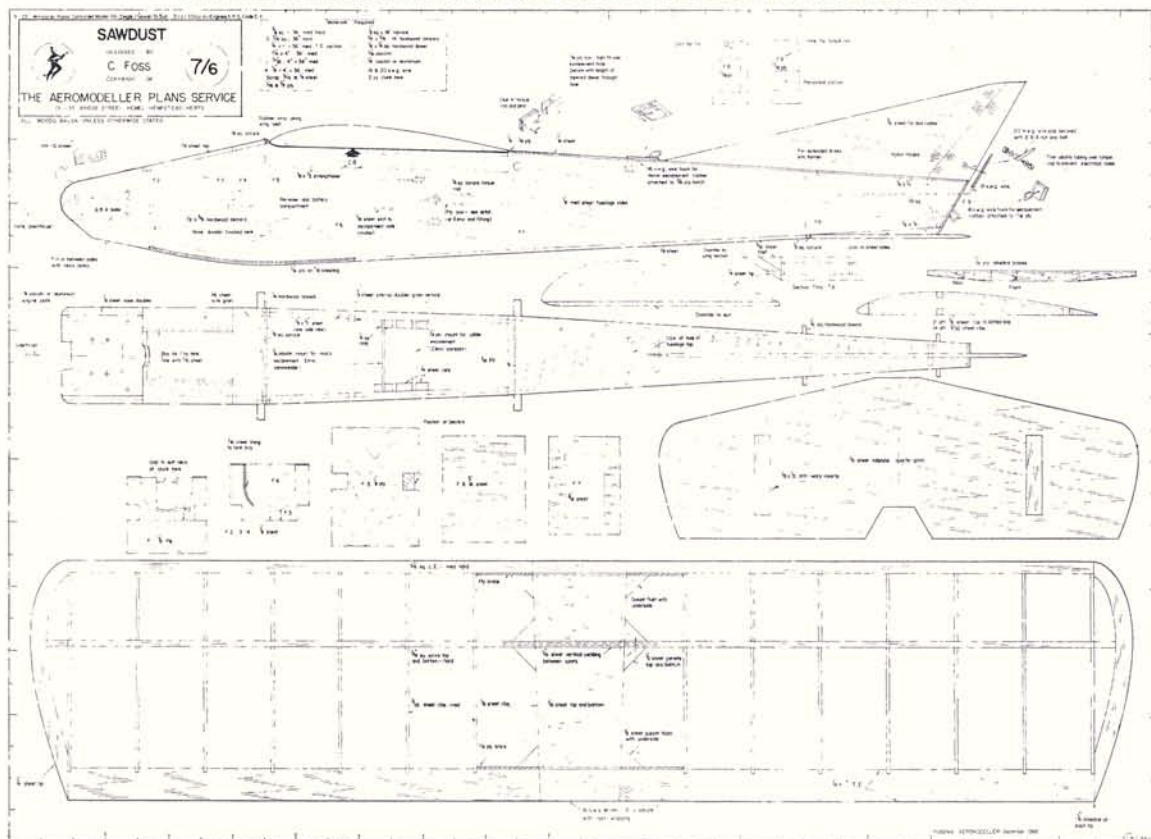
Photos opposite show designer on the way to winning the Golden Cross Single Channel event earlier in the year. It may not be beautiful, but it certainly rides a rough field well! Right, at top, the AM15 with plastic bottle tank and yes (!) dowels for earlier U/C! Centre shows the turns being piled on rudder escapement (Compact) note sleeve over torque arm to rudder. Bottom, two escapements, converted Conquest for throttle at top.

Now to the part we've all been waiting for - flying it. Provided the C.G. is where it should be, and the thrust lines are pointing in the right direction, there shouldn't be any problem. Sawdust likes to fly fast and level, trimmed away from the stall, which, in my opinion, is how a single channel model should fly, rather than following what appears to be the fairly common practice of a stalling and wallowing pattern where the model spends more time swooping up and down than actually travelling forwards.

A good heave is normally required to send Sawdust on its way and sometimes pulsing the rudder may be necessary in order to lift the nose for the climb. Now for a few manoeuvres. Well, with a rather generous total weight of 2 lb. and a tired 1.5 c.c. motor up front, loops have never quite been possible with the original - many times it has been past the vertical, but as the flying speed ceases, the downthrust has pulled it back (quite an interesting manoeuvre really, a vertical figure 'S' with a large bottom and small top!) With the use of either a kick-up elevator, a lighter model, or more power, loops should certainly be possible. Barrel rolls and stall turns are a pleasure to perform and by pulling up into the latter and applying opposite rudder to the way the model wants to drop (if you see what I mean!) it will hang on its prop for a second, then, if you are lucky, drop into a quick flick spin before recovering, and it *does* recover, don't worry!



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FREE-FLIGHT COMMENT



SEPTEMBER HAS LONG been a popular month with rally organisers as it is not only after the 'crop-season', but has also a reputation for generally good weather.

The **South Midland Area** must, in consequence, be more than disappointed with this year's Cranfield Rally. September 15th started very windy and later became very wet as well! Free flight was all but blown-out with very few of those present being prepared to fly at all. Most events were won by those who started early and were prepared to continue as and if necessary. Possession of this attitude ensured that Russell Peers won rubber and placed third in $\frac{1}{2}$ A power – although at the expense of losing three models in three flights. (The same farmer subsequently found two of them a fortnight and $\frac{1}{2}$ mile apart).

Glider was won by Martin Dilly on two flights using an all-sheet A/1. Runner up was Pete Oliver with a single thermal flight from his A/2. This returned too wet and 'floppy' to tow stably thereafter! Ken Attiwell won tailless with a single good flight from his rubber *driven* design – whilst Tony Slater placed second with an all-sheet *powered* saucer. He also won chuck glider – closely followed by two of my club members.

The most hard fought event was Open Power, won by Dusty Miller with three flights from his O.S. 15 powered 'Climax'. I was a few seconds behind with a max. (the only one of the day) early and a two minute flight in the rain from my H.P. 15D F.A.I. model.

Coupe d'Hiver had John Lorimer, Jack Allen and I contesting the top positions. John had two flights in early – but left his last flight too late through waiting to see if it was needed! $\frac{1}{2}$ A Power and Helicopter (inherited from Northern Heights Gala) were topped by John Berryman and N. Wilkins – both of Bristol and West.

The last of the season's **area-centralised events** was held on 22nd September. These were the contests originally scheduled for March, but postponed as the N.W. Area's airfield came inside a foot and mouth 'affected area'. Ironically the Northern Area, usually host to several others, found itself without an airfield. Tynemouth, flying on Newcastle Town Moor had incredible weather for just an hour, during the morning. There was plenty of lift and no wind whatsoever. Tony Cordes won the K.M.A.A. making 7 flights in 50 mins., including 3 maxs in the same thermal, whilst Ron Pollard and Brian Martin logged their rubber and power trebles. Evening fly-offs were perforce in wind, and his winning score cost Ron his 300 sq. in. model.

Both rubber event and the Frog Senior (won by Ray Monks)

had merely a handful of entrants – rather surprisingly in view of the relatively large entry in the A/2 event. Presumably, the final stage of the **Plugge Cup** was a relevant factor. After a very disinterested beginning, several clubs made an effort after finding themselves competitively placed. Final results were quite close with Croydon placing first, then Brighton, Northampton and Norwich.

The other championship involved was that for the Senior f/f title. As last months 'Hangar Doors' gave the results, I need only add my congratulations to Dave Wiseman – the first person for some time who has 'stood the pace'.

The Northern Gala had a new venue this year, R.A.F. Lindholme, near Doncaster. Although the morning was initially calm enough for trimming, this did not last until the events commenced at 10.30. Although trees could be seen stretching across the downwind end

by John O'Donnell

Typical start of a mass launch in A/2 – biggest involved over 30, most others 20 or more in one rush for a picked-out thermal at R.A.F. Barkston Heath – and this is half-way down the airfield in order to see what the upwind launches collect! In the midst, a Paraglider soars up on his line, no doubt amused by the whole business.

of the 'drome, few fliers expected recovery country quite as bad as what was found. The trees were merely a prelude to swamp, undergrowth, bushes and a peat bog!

This effectively discouraged many people from flying – and cramped the style of others. The most popular event was, surprisingly, open power, although many models were way off trim. A handful of people fought out the top places, although I was amazed that some continued after their first flights. The Hamley Trophy was eventually won (for the second year) by Russell Peers flying a couple of ETA 29 models. I was second with two flights and an over-run from my barely trimmed O.S.35 model, followed by a max with the H.P.15D F.A.I. model. Ray Monks was third after deliberately short-fusing his second flight.

Glider was won by Martin Dilly with two maxs and a third flight he would not reveal, flying one of his sheet-top-wing A/2's. Pete Southam was second with a straightforward fishing rod model. Dave Wiseman managed third with three quick flights in the last 15 or 20 minutes of the contest. His technique was to use a short D.T. on the first flight – then fly both models.

Rubber was a Russell Peers versus Dave Wiseman contest. Both had a model found for them in the woods, and both left one there. The Caton Trophy went to 'Wiz' by virtue of a few seconds lead. The only other flier to really get away was George Cameron who only recorded a single max.

Cash prizes paid out on the day followed Southern Gala practice – a distinct advance over the Nats procedure of posting them later. What a pity plaques cannot also be distributed on the field!

There is no doubt that the hardest fought f/f contests of the year were the **Trials** to select the 1969 World Championship Teams. They were held over the weekends of 7th/8th September and 5th/6th October, with flights made in a rubber/glider/power sequence throughout both the Saturdays and Sundays. To fit seven flights with each category into the available daylight necessitated 45 minute rounds.

Support for the Trials was surprisingly good, with an entry of 74 in A/2, 49 in Wakefield and 40 in F.A.I. Power. Many once-familiar faces were seen, some with very competitive models.

A fully detailed report on a contest of this size would hardly be practical on space considerations alone. To detail what happened each round, and how fortune favoured the current leaders and/or eventual winners, would demand coverage on a scale reserved (by 'Aero-modeller') for World Championship reports, and would hardly have permitted my competing.

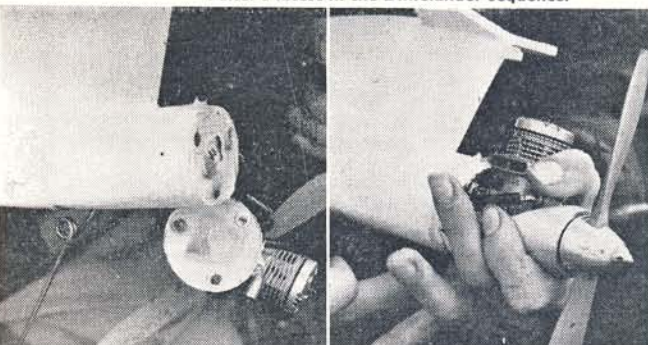
The very nature of the Trials demands more from the organisers than other contests. As events are run by voluntary officials all I will say is that certain deficiencies at the first Trials were corrected at the second. This applied to processing delays and end of round signals.

Weather conditions throughout the Trials were remarkably good, especially when compared with that experienced on adjacent weekends. Much of the contest period could only be described as calm, whilst even the *relatively* windy rounds gave little difficulty with either flying or retrieving.

Retrieving would have given *no* difficulty had the events been flown in the once-customary location of the upwind edge of the 'drome'. The Trials were flown tactically to the extent that the majority of activity occurred well downwind of control and the



Look, no pipes! But that isn't to say George Fuller, David Wiseman and Ray Monks won't try to get even more power from their G.15's before the '69 Champs. Note new tip profile on Fuller's latest in the Dixielander sequence.



It's off - it's on again! Wonders of modern quick setting epoxies were proved several times during the team trials but never so effectively than when Wiseman's power unit split away at the bulkhead on a heavy D/T landing and was fixed ready for flight again in 10 minutes.



Above, Wakefield team, John O'Donnell, Laurie Barr and Ray Monks, a combination of long experience, with three contrasting designs. Laurie Barr held first place for most of four days of contest flying. Below, Chris Batty, Tony Young and Elton Drew, top of the A/2 tacticians at the trials and as clever a trio as we can muster for the '69 World Champs. Elton starts a series on development of his designs in next month's issue. He topped the second round.



parking area. By the end of the second Trials, the popular launching spot was in mid-airfield - for Wakefield and A/2 at least. Even Power, with most models' performance being comfortably over 3 minutes, was flown tactically by many participants.

Few fliers were willing to fly 'on their own', as those who did were eagerly watched by almost everyone else. On average there were two mass launches in the Wakefield and A/2 rounds - usually precipitated by an impatient competitor or by someone test (or 'pilot') flying. By the second Trials there was an official restriction on test flying without permission. This was granted provided testing was done 'crosswind'. As drift was variable and most competitors were a considerable distance downward many 'marked' thermals were still accessible. As one example I can quote an unfortunate glider entrant who experienced a D/T timer failure whilst trimming. By the time the model reached the end of the 'drome there were 20 Wakefields in the same thermal. This was by no means an extreme case as I believe that there were 35 A/2's in an earlier thermal!

Whilst many people decry such tactics, with derisive comments ranging from 'unsportsmanlike' to 'piggy-backing', it is quite apparent that winning is dependant on finding good air on every flight (in reasonable weather). Techniques such as 'waiting for a warm breeze', flying just after the sun comes out, etc., have been accepted if only because they were far from reliable. Electronic thermister devices caused much controversy before their limitations were realised. Someone else's model in obvious lift is a much better and reliable indication as to the local air conditions. All that is then needed is patience (on the part of both flier and timekeepers) and the ability to position the launch accurately.

This situation seems to have been acknowledged and accepted in many quarters, and the Trials were certainly an example of how far this technique could be exploited. Pilot models could be and were arranged, and at least two clubs realised that there was a perfectly legal way of doing this.

However, lift can only be marked if it is present, and the late afternoon rounds on the Saturdays proved to be the undoing of several competitors. In particular none of the seven A/2 fliers with nine consecutive maxs managed a tenth - and the event suddenly became 'wide open'.

Comment on weather would be incomplete without mention of the disastrous decision to hold the fourth power round (at the first Trials) in misty conditions and resultant inadequate visibility. Models disappeared at various stages of climb or glide and this effectively eliminated several potential team members. Others reduced their engine run to ensure at least a reasonable score. They included Ray Monks and Dave Wiseman who managed *thermal* maxs under the mist off 5½ and 7 second runs respectively.

This power round caused more controversy and certainly more official protests than any other single 'happening' that I can remember. Inevitably it was ruled (by jury) that only flights made in the round period could score - and that the round, once flown, must stand. Whilst some will argue that foggy conditions prove nothing except the timekeepers' imagination, others counter with the concept that it is up to the competitor to cope with whatever conditions prevail.

There were many disappointments both amongst well-known specialists and others who were at some stage well placed. George French could do little right. His best model had the prop go loose on test and dived in during the resultant shaft run - one drawback of V.I.T. This was followed by O.O.S. trouble in the foggy round. The mist cost Pete Buskell his chances as he only dropped a few seconds over all the other 13 rounds. Mike Green looked a 'cert' for the Power team - until his model stalled all the way down on the fourteenth flight.

However, the hardest hit of all must have been Dave Hipperson in Wakefield. He started badly with a 1½ minute flight - and then flew extremely well. A mid-air collision on the 11th round, well up in lift, with my model, brought both down in a slowly revolving tangle until eventual separation. Hipperson's model, minus fin, then dived in vertically. Quick thinking enabled him to wind and launch his reserve model into the same good air. The next day the reserve failed to D/T properly, and disappeared in lift.

At this point Dave was in first place. Hasty repairs to the 'collision' model plus the official allowing of another prop. assembly gave him a model for the final round. Test flights showed the model going well. Then came disaster! The wing broke on launch on the critical 14th round, and the crash on the runway looked a complete 'write-off' Croydon club members collected the debris, and an all out repair job involving 5 minute epoxy, yards of masking tape, and a rebuilt propeller assembly then followed. The prop. was giving trouble but with time rapidly running out Dave was forced to 'chance it'. A blade came off a few feet up and effectively cancelled the 1:20 flight. There could have been few who would not have wished a happier ending after such perseverance and effort.

Drama in last moments as Dave Hipperson prepares rapidly repaired Wakefield for fatal last flight which lost his otherwise certain team place.



The Team members include those who need little introduction – and one 'unknown'. Chris Batty from Bath, in his first year of A/2 flying, managed third place with 13 maxs out of 14 flights. His tactical flying was first rate, though clearly aided by advice from more experienced Brighton clubsters. His model was very conventional and this includes the use of a fibre-glass fishing rod.

Elton Drew has had a very good season, and the only apparent novelty on his model is the use of a rear mounted fin. Tony Young flew the 'reserve' he took to Finland in 1965. This has sheet-top-wings with very flexible 12 g. wire wing-joiners, as all who watched his final 15 minute ton will vouch!

Top in Wakefield was Laurie Barr with a circular fuselage, very low pylon design with Hoener tips on both wing and tail. My models have been unkindly described as being to the same design as those flown in 1955! Ray Monks had the only 'gadgetrack' (with V.I.T. worked off a rotating rear hook) although I gather he preferred his conventional model. He certainly flew both.

Dave Wiseman recorded the only perfect score (14 maxs) with his G15 model. This is completely in the current fashion with elliptical tips on both wing and tail, V.I.T., auto rudder, and metal engine mount. The latter was nearly his undoing as a heavy D/T landing caused the whole engine, pan and bulkhead to shear off the fuselage. Quick setting epoxy saved his day. The model looks remarkably like Ray Monks' although it is dimensionally different. Ray dropped a few second through a short D/T but must feel very satisfied with his double success. He has tried ED tuned pipes on his G15's but does not personally consider the problematical performance gain to be worth the risks involved. George Fuller's model is certainly the odd one out with distinct 'Dixelander' influence and little in the way of 'frills'. It still has auto-rudder, V.I.T., etc.

Right, unlucky in 14th round, Mike Green was with the leaders for most of the way until a stall ruined his chances. It was a true trial for consistency. Below, Tail-piece: the two variable incidence tail (V.I.T.) limits on George French's



HANS SELIG "GAMBRINUS" WING AEROFOIL

One feature common to the power team is the style of wing section employed. This has a blunt L.E., very little undercamber and, being fairly thin, little topcamber. Perhaps the section off Seelig's 1967 winner will do as illustration, above.

Whether the top places at the Trials will actually represent G.B. at the 1969 finals is going to be dependent on the venue selected. There are several rumours current—and a 'N.E. U.S.A.' choice would mean an expensive trip. The situation is hardly helped by the S.M.A.E. confirmation that Team members are expected to organise their own travel—as well as paying for it!

A recent letter from Colin Pittard, winner of $\frac{1}{2}$ A power at the Nationals, explained his subsequent absence from the contest scene. He is on his way to a new job in his native Australia, via the U.S.A., and has asked me to convey his 'goodbyes' to all his English aeromodelling friends.

'LETTER TO THE EDITOR'

Dear Ron,

Although my column isn't the place to reply to 'Readers Letters', Alan Wright's mud-slinging epistle on P.597 of the November issue can hardly go unanswered.

Apart from his fundamental error in linking the cancellations of Northern Heights Gala with that of the Airtach Rally (refer to p. 383, July issues, for the *stated* reasons for *both*) his accusations against F/F contestants (who else cycles?) would seem to be directed at such a small group of regular contestants that the result is virtually libellous.

If he and 'Aeromodeller' cannot put names into such an accusation, then it should never have been printed in the first place and should now be publicly withdrawn.

Stockport, Cheshire.

John O'Donnell

Point taken!—from *both* parties in the argument, Alan and John. Let's end the argument with better free-flight/Control-line and Radio co-operation in 1969.—Ed.

TRIALS RESULTS

A/2 GLIDER (74 entries)

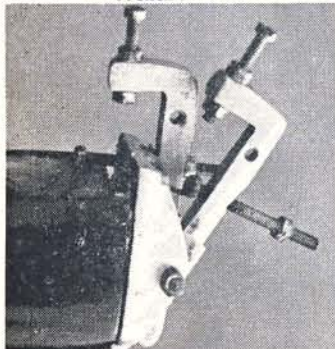
Name	Club	1st Trial	2nd Trial	Total
A. Young	Croydon	21:00	1 20:13	2 41:13 1
E. Drew	Bristol & W.	20:11	13 20:48	1 40:59 2
C. Batty	Bath	21:00	1 19:36	3 40:36 3
J. Mabey	Croydon	21:00	1 19:02	6 40:02 4
J. O'Donnell	Whitefield	20:53	9 18:20	9 39:13 5
J. Punter	Hayes	19:34	19 19:23	4 38:57 6
D. Yates	Wigan	20:17	12 18:38	8 38:55 7
J. Baguley	Hayes	20:36	11 17:59	11 38:35 8
M. Reeves	Whitefield	21:00	6 17:33	15 38:33 9
P. Perry	Birmingham	20:41	10 17:34	14 38:24 10
M. Woodhouse	Norwich	21:00	1 17:00	18 38:00 11
D. Glue	Brighton	21:00	1 16:56	19 37:56 12

F.A.I. Power (40 entries)

D. Wiseman	York	21:00	1 21:00	1 42:00 1
R. Monks	Birmingham	21:00	1 20:55	3 41:55 2
G. Fuller	St. Albans	19:40	6 20:52	4 40:32 3
B. Martin	Tynemouth	19:13	8 20:38	6 39:51 4
M. Green	C.M.	21:00	1 18:47	8 39:47 5
P. Buskell	Surbiton	17:57	13 20:39	5 38:36 6
R. Baggott	Birmingham	19:55	5 18:18	9 38:13 7
G. French	Anglia	16:47	20 21:00	1 37:47 8
R. Johnson	St. Albans	19:19	7 17:39	13 36:58 9
B. Sinclair	Liverpool	17:51	14 18:55	7 36:46 10
B. Picken	Wallasey	18:25	10 17:58	11 36:23 11
K. Glynn	Surbiton	17:49	16 18:17	10 36:06 12

WAKEFIELD (49 entries)

L. Barr	Hayes	20:20	1 19:26	7 39:46 1
J. O'Donnell	Whitefield	19:09	8 20:19	3 39:28 2
R. Monks	Birmingham	19:14	6 20:11	4 39:25 3
A. Wells	Norwich	18:50	9 20:26	1 39:16 4
R. Elliott	Croydon	18:01	17 20:21	2 38:22 5
D. Greaves	Birmingham	19:31	3 18:14	13 37:45 6
R. North	Croydon	18:25	12 19:10	8 37:35 7
D. Wiseman	York	19:51	2 17:42	16 37:33 8
D. Hipperson	Croydon	19:22	4 18:00	17 37:22 9
R. Godden	Cambridge	19:17	5 17:59	15 37:16 10
J. Blount	Croydon	19:10	7 18:02	14 37:12 11
A. Armes	Hayes	18:12	10 18:51	10 37:03 12



TOPICAL T W \ S T S

by "Pylonius", illustrated by "Sherry"

Still trying

It is not only the designs that are going all pot-bellied vintage these days; there is also a definite touch of the 1950's in some of the newly introduced contest ideas. Now I should have thought that if there was one vintage theory which was a very dead duck it was the Still Air theory.

Back in the medieval days of model flying this was regarded as a sort of Philosophers' Stone-cum-Elixir of Life, which would turn our leaden contest skies into pure gold, and restore some of the old bamboo and oiled silk spriteliness to the rather jaded five-minutes-into-the-cornfield atmosphere. Still air, of which there was reputed to be vast quantities in the Scandinavian wastes, was assiduously sought in our windswept, turbulent island. From the crack of dawn (and did that dawn crack!) until the dim, dim dusk the searchers were out looking for the elusive substance. Trouble was that, when on those rare occasions the air was quiescent, both horizontally and vertically, it was generously larded with dense patches of mist and fog. Ultimately the quest was called off as hopeless, and the theorists applied themselves once again to finding a viable system of contesting in average force five winds.

It is true, of course, that we never learn from history, but, even so, the Still-Air advocate should know from personal experience that our weather has got even worse since the balmy days of the 1950's. And, apart from anything else, the number of flyable Sundays per year has dropped from a dubious ten to a doubtful five. Accepting then that the new Still-Air theorists were too young to have been around in anything but prams back in 1950, they must have read about this still air substance somewhere, perhaps in the old model mags when ferreting out choice vintage designs - they certainly couldn't have experienced it.

Another Vintage gimmick which is being paraded as a novelty is the running of contests on organised lines as opposed to the do-it-yourself system which has been in vogue over the past years. Some of the lads, who enjoy the anarchy of competing on their own terms, such as making the first flight after 4 p.m., and then only if the wind has dropped and if the pet timekeepers are prepared to trek half a mile upwind, think that vintage style organising is taking the rigours of antiquity just a bit too far. After all, it's a big enough bind flying in contests on a self-employed basis, but to be bullied about by a lot of pernickity officials is almost as bad as bringing politics into model flying. It might be alright for these totalitarian johnnies to toe the authoritarian line (they would feel at home flying into the Chobham Tank factory), but just won't do for chaps used to a bit of democratic freedom. Next thing you know they'll be getting perfect strangers to time our model instead of one's keen-eyed pals - and that would completely destroy the social side of the hobby.

Since Recorded Time

The human animal has an insatiable lust to go one better than his fellow human being. Let someone climb a

'There goes old Fosdick, never lost one yet'

mountain. Before he has time to stick in a flag and cry, 'Look, clever me!' someone else is already half-way up an even bigger mountain, probably juggling a set of coloured balls at the same time. Let someone demonstrate the impossible by getting five minute flights from a 50 gramme motor, and before he can wind up again his achievement will have been eclipsed by an even cleverer charlie doing seven minutes on a 49 gramme motor.

Trouble with all this one-upmanship is that in certain spheres of activity the potential is all too quickly realised, further efforts being futile. Duration models, for instance, kept the record lists in a lively state from the first thirty-foot-in-a-straight-line entry to an almost impossible one hour plus super flight. After that, someone decided he'd go no more a-roaming and fitted a D/T to his model. From that time an interest in the over five-minute flight began to subside - at least in this part of the world.

Altogether, International records are so impossibly inflated you need a country the size of Russia to get the scope you need for an attempt. Even simple rubber models must waft about for hours to get within sight of a record. This means that, on this tiny island, you'd be up to your neck in water, probably hot, before you had reached maximum altitude. Perhaps the only chance we have of getting a record is to ask Sir Francis Chichester to take along a couple of radio jobs for a couple of nifty laps.

The fact that the model plane has outflown its record potential doesn't deter some of the more zealous club types one bit. If the model endurance factor is no longer testable, there is always the human endurance factor to explore. This is a sphere where C/L really comes into its own. Already the 80 lap inverted record has been notched up together with an equally arm-paralysing number of figure eight laps. We can look forward to All Night Combat, Five Day Rat Race and Round the Pole Squatting.

Retrieving the situation

Is Lady Modeller of Bognor Regis a person of title, or is it that she just flies a Baron Knight? Anyway, she gets her own back about getting her own back by citing her many heroic forays into the model consuming depths of Ashdown Forest.

As for her invitation to go to this wiry wilderness in order to see her emerge from the thorny fastnesses in a distressed and bedraggled state, I can only say that there appears to be a wide area of misinterpretation which I would not wish to be involved in.

*Down in the Forest something stirred.
Could it really be a Bird?
No such luck; 'though dim the light
It was just O. Winnall on a bike.*





Why not join this grand junior Aeromodelling Club?

Dear John,

In the twelve months that I have been an aeromodeller I have built a *K.K. Gypsy*, *K.K. Caprice*, *K.K. Snipe* and *K.K. Joker*, the latter which I am converting into a flying wing for 1 c.c. I have also an A.P.S. *Karoro* which I was given in a completed state, I was also given an A.P.S. *Scytale* which was in a half completed state and which is now nearing completion. I have four engines. They are a D.C. *Super Merlin*, *M.E. Heron*, *D.C. Sabre* and *Merco 35*. My father also has a *K.K. Super 60* and *Enya 15D Mk.II*. On Sunday I met with my first serious modelling accident when my finger slipped off the compression screw of my friend's *Sabre* into the prop arc. Although not so painful now it hurt at the time! Please could you tell me the plan number and price for the *Fairey Swordfish*.

Stranraer.

Roy Beeby
The plan for *Fairey Swordfish* is FSP/535X and the price is 9s. 6d. post free.

Always be careful with model engines as even small ones can give quite a propeller cut, whilst any of over 5 c.c. could cause severe injury. It sounds as though you've quite a hangar-full!

Dear John,

I have been aeromodelling for two years now and am thinking of getting radio. Do you think the following combination would be alright for learning: the *Veron Robot*, the *New MacGregor De Luxe transmitter* and *Mini-Minimax Receiver*, and the *Davies-Charlton Rappier 2 1/2*, also which escapement would you advise?

Middlesbrough. *G. Finkel*

The R/C combination that you suggest should be ideal to start with. I would suggest using a sequential escapement to start with such as the *Elmic Conquest*. Selective escapements such as *Elmic Commander* or *Compact* would also be suitable but a little

more tricky to use. At least if you give an incorrect signal with a sequential escapement, the next signal must be what you want, whereas with a selective escapement an error could be repeated if one's reactions are too slow.

Dear John,

I have recently finished 'Sweetheap' (Aeromodeller, September edition) and I have covered the wings with nylon. Is this likely to impede the performance in any way? It is fitted with an A.M. 10 engine.

Also on the subject of wings, I always find that the dihedral seems to increase in time. I have found that a dihedral went up an inch in a month, though it was rigged when doped etc. Please could you tell me of any way to stop this? I would point out that the wing (a tip-dihedral type) was kept out of strong sunlight.

Birmingham, 28 *Jonathan Gibbs*

Since you are using a powerful 1 c.c. motor you should have no weight problems with your Sweetheap.

One does not usually find dihedral increases with time except when using mono spar wings and very tight covering.

Dear John Bridge,

I have just returned my first flight with my *Keil Kraft Phantom Mite* but it will not take off it runs along the ground, turns in towards me, runs across the lines and subsequently tangles them and crashes. I am hoping you can tell me the fault. I am powering the Model with a D.C. Bantam.

Gillingham. *G. Birch*

I would think that the undercarriage is bent, tracking inwards. I suggest that you bend the undercarriage to steer the model away from the centre of the circle. Also check that you have rudder off set if shown on the plan and be prepared to step back to keep line tension during take-off.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the "Golden Wings Club". With this application I enclose postal order (International Money Order) for 2/6d. to cover cost of the enamel club badge, two coloured transfers and membership card.

NAME IN FULL

ADDRESS

YEAR OF BIRTH SCHOOL

NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any)

SEND TO:- GOLDEN WINGS CLUB, AEROMODELLER, 13-35, BRIDGE STREET, HEMEL HEMPSTEAD, HERTS

Dear John,

I cannot yet afford engines for my models so I concentrate on rubber driven ones. I have a lot of breakages with the rubber and this damages the fuselage.

Bradford. *D. Thomas*

A common cause of broken rubber motors is the use of a bare wire hook. Always slip a piece of neoprene fuel tubing over the hook before fitting the motor. Also you should stretch the motor during winding gradually bringing the propeller back to the fuselage as full turns are approached, and do not forget to lubricate the motor first!

TIPS OF THE MONTH

When building small scale models of the backbone fuselage type, one often finds that on removing from the building board the first half bends, giving the actual spine a curve towards the side. This is often not fully removed when the other side is completed. To overcome this, pin down the backbone outline, attach the half formers and two of the stringers. Now remove from the board, attach the remaining half formers and stringer opposite the first two aligning the spine at the same time. The remaining stringers are now added one on each side in opposite positions until complete. A straight fuselage will result.

Yet another idea for protecting your plans comes from D. J. Bailey of 'Moore & Bailey' who make the EmBee 75 diesel. A transparent material called 'Look' which is available for domestic purposes is ideal. Unaffected by adhesives this film is very economical at around 3s. for a roll 18 in. x 12 ft. 6 in.

On small control line or radio control models hinging the elevators or rudder is sometimes a problem. Sewn thread hinges are probably the best but unless neatly done can look untidy. Now available from drapery shops is a transparent thread called 'Blend' which when used for hinges is barely visible — apart from the needle holes. Donald George of Liskeard discovered this for us.

Dear John,

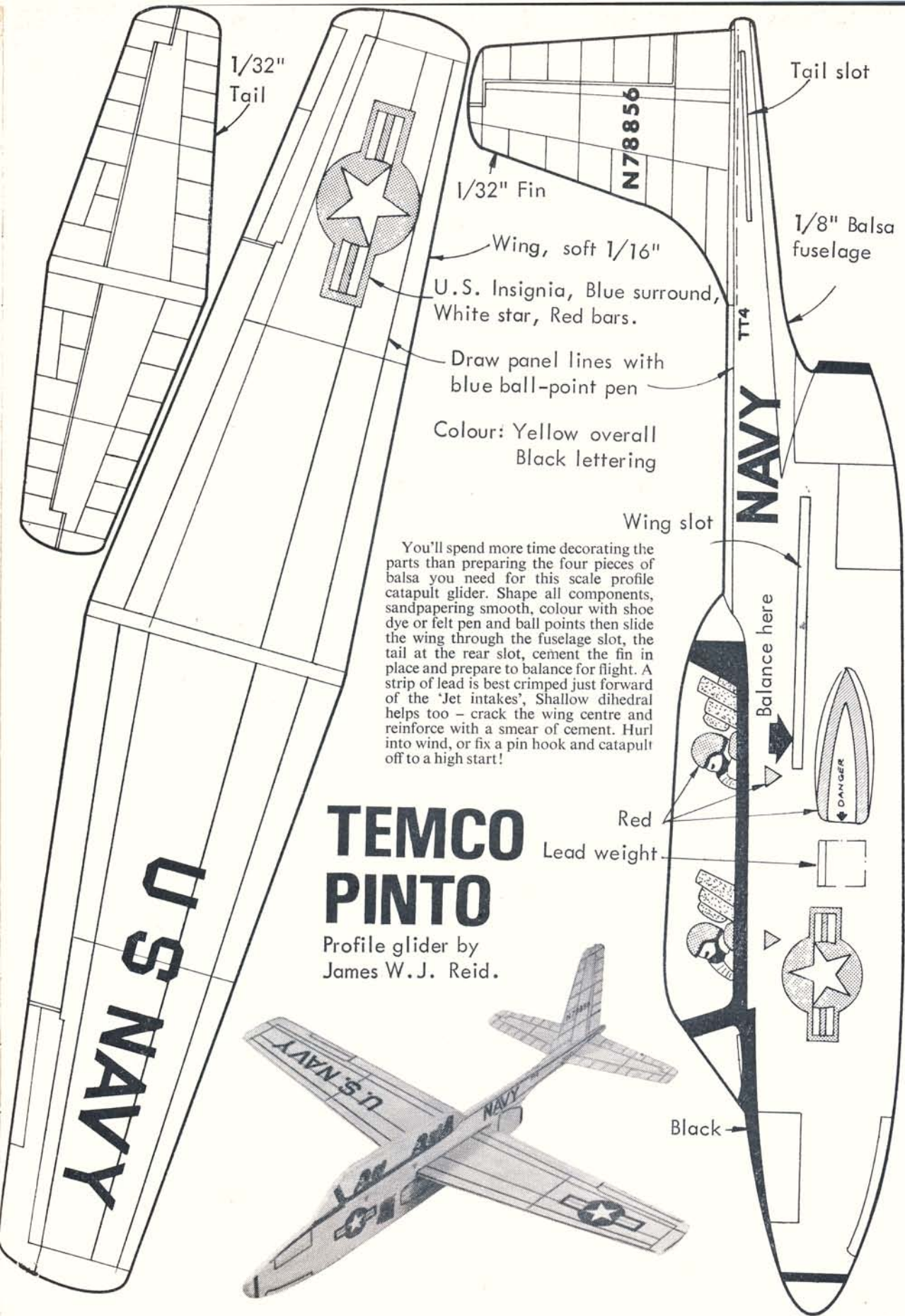
During the summer I built a *Lockheed Santa Maria* and flew it as a Free Flight model. I am now considering putting the mono-pack that was featured in January's *Aeromodeller* into it. What receiver and transmitter would you advise me to get as I'm only just beginning Radio Control.

Incidentally, I built two models, the first *Santa Maria* having decided to fly off into the distance and not return.

Beaminster, Dorset. *Andrew Finch*

There are many excellent single channel R/C outfits available at the present time. A good example of the range is the popular R.C.S. Guidance System with an *Elmic Conquest* Escapement. Others include the *MacGregor* single channel outfits, the O.S. *Pixie*, or *Futaba* series. Consult your local model shop or club for direct advice, you'll have to let your pocket help make the decision as well!

12/88
2/- in the J. Rebate
plan purchase coupon
for Golden Wing Members
G.W. No.



1/32" Tail

Tail slot

1/32" Fin

N78856

1/8" Balsa fuselage

Wing, soft 1/16"

U.S. Insignia, Blue surround, White star, Red bars.

Draw panel lines with blue ball-point pen

Colour: Yellow overall
Black lettering

Wing slot

NAVY

You'll spend more time decorating the parts than preparing the four pieces of balsa you need for this scale profile catapult glider. Shape all components, sandpapering smooth, colour with shoe dye or felt pen and ball points then slide the wing through the fuselage slot, the tail at the rear slot, cement the fin in place and prepare to balance for flight. A strip of lead is best crimped just forward of the 'Jet intakes', Shallow dihedral helps too - crack the wing centre and reinforce with a smear of cement. Hurl into wind, or fix a pin hook and catapult off to a high start!

Balance here

DANGER

TEMCO PINTO

Profile glider by James W.J. Reid.

Red
Lead weight

Black

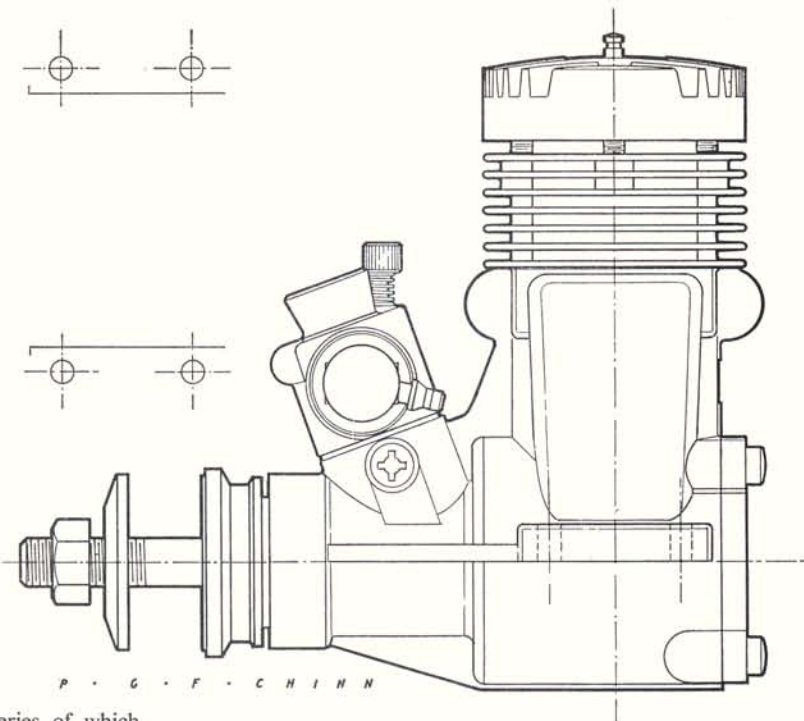
U.S. NAVY



ENGINE TEST

by Peter Chinn

O.S. MAX H.40P



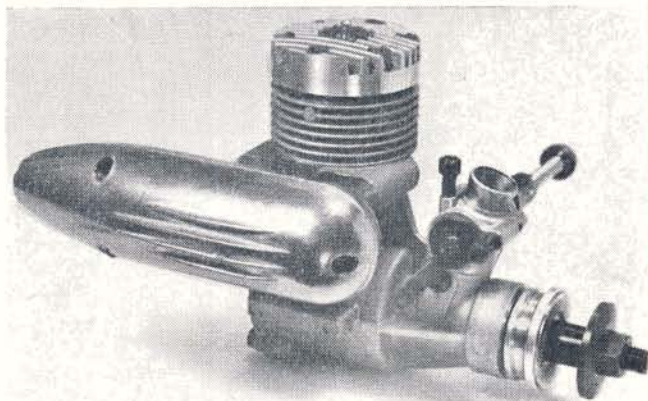
P · G · F · C · H · I · N · N

THE O.S. MAX H.40P, the first deliveries of which should have reached Keilcraft stockists by the time these words appear in print, was introduced earlier this year primarily as a power unit for Goodyear class radio-controlled pylon racing models. The performance characteristics of the 40P, however, are such as to make it rather more than a specialised engine for just one particular type of R/C model.

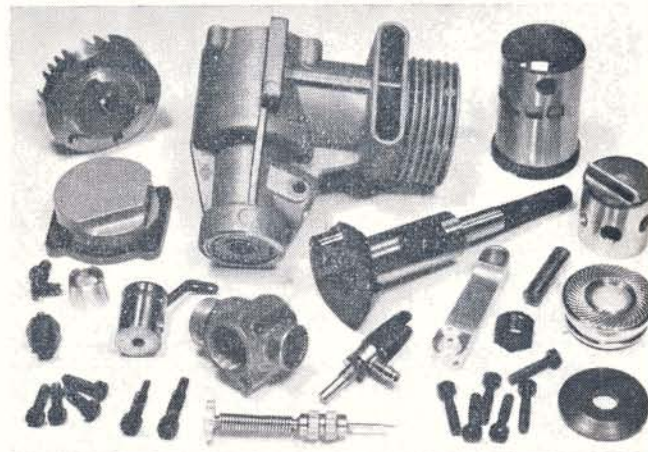
Firstly, unlike some 'Goodyear' engines, the 40P still has sufficient throttle response for regular aerobatic and scale type R/C models and it could, having a weight and fuel consumption much lower than for a typical 'sixty', prove popular for the smaller multi models made possible by the lighter proportional radio now on the market.

Secondly, with its high power and excellent throttle range, the 40P has obvious possibilities for control-line Carrier class events. Thirdly, it is possible to convert the engine into a quite formidable C/L Rat-Racing engine. Here, one can replace the R/C carburettor with an H.40-RR type intake venturi and needle-valve assembly and run the engine on a pressurised fuel supply. The H.40-RR venturi is of machined aluminium and has a bore of 11.5 mm. dia. which, even after allowing for the spraybar, gives a cross-sectional choke area of approximately 62 sq. mm. against 23 sq. mm. for the R/C carburettor. We did not test the engine so fitted, but it is reasonable to assume that on suitable fuel an output well in excess of 1.0 b.h.p. would be obtainable. In this form, incidentally, the engine is reduced to a weight of 8.7 oz.

Basically, the 40P is a development of the O.S. Max H.40 (lapped piston) and H.40-SP (ringed piston) R/C engines. Outwardly, it looks similar to these models, but it uses new or modified parts throughout. A new crankshaft is employed giving slightly extended rotary-valve timing and, instead of being supported in one ball-bearing and one bronze bearing, the shaft is carried in two ball-bearings, the bronze bushing being retained but shortened to serve as the gas seal bearing length between them. A new machined prop driver on a split taper collet is used, making the engine slightly longer. The aluminium piston is fitted with a single Dykes type low-compression ring, has skirt ports and runs in a new cylinder with modified port timing. The cylinder-head forms a wedge pattern combustion chamber and is the same as that used



Fitted with O.S. Jetstream type 'L' Silencer, the O.S. H.40P has much of its potent 'bark' tamed to tolerant level. Parts below illustrate the large shaft, carburetor assembly and Dykes ring on piston.



by the Max H.40-RR control-line rat-racing engine. The carburettor body has a larger bore and no exhaust restrictor is fitted.

The 40P is strongly built and all parts are finely finished.

PERFORMANCE

After setting up our test model 40P, we primed it, attached the plug lead and it started on the very first flick of the prop. This instant cold starting continued throughout the tests. Hot restarts, on the other hand, were poor at first, due to the lack of compression seal provided by the piston ring before the engine had become properly run-in. This difference in starting qualities between hot and cold conditions, with a new ringed engine, is not uncommon and is due to the fact that when cold, the thick oil on the cylinder walls and in the piston-ring grooves provides a better seal. Once the 40P had become reasonably well run-in and the piston-ring had 'bedded-in', hot restarts were virtually instantaneous and particularly so when the engine was not fitted with its silencer. About sixty minutes of accumulated running time were necessary to reach this point. We gave the engine about another hour of running time on various props prior to carrying out torque tests.

Tested with standard O.S. Jetstream 'L' type silencer, the 40P registered a maximum torque of 60 oz.in. at 8,000 r.p.m. on standard 5 per cent nitro fuel. Torque fell off at an increasing rate as load was reduced resulting in the peak power being reached at about 12,400 r.p.m. with a figure just over 0.63 b.h.p.

While this is a very good figure for a silencer equipped R/C engine of only 6.5 c.c., it does not represent a very great improvement on the performance of the original standard lapped-piston Max-H 40 R/C engine tested some three years ago - it is the equivalent, in fact, of only two or three hundred extra revs under a given load at the upper end of the power curve.

It was a startlingly different story when we removed the silencer however. On a prop approximately matched to the peak revs with silencer, the H.40P turned up an additional 1,200 r.p.m. and on the subsequent dynamometer tests, recorded a 33 per cent increase in power to 0.84 b.h.p. at approx. 14,300 r.p.m. This extremely impressive performance is an improvement of some 20 per cent on the 'unsilenced' output of the early 40 R/C engine.

Obviously, the standard unmodified O.S. silencer causes an unacceptably high power loss on this particular engine. Some improvement should be possible by removing the silencer nozzle ring and opening out the silencer inlet duct, but users anxious to take the fullest possible advantage of the 40P's exceptionally high potential, may feel it worth while to experiment with other types of silencers.

In view of the fact that, at the present time, there are no restrictions on the type of fuel used in 40 class engines for competition purposes, we also checked the 40P on a fuel containing 30 per cent laboratory grade nitromethane (equivalent to 42 per cent commercial 70/30 blended nitro). Such a fuel might, for example, be used for R/C pylon racing or for C/L Carrier and, with it, the maximum output of the 40P was further raised to 0.94 b.h.p. at 15,000 r.p.m.

Despite its outstandingly high performance, the 40P was one of the easiest handling engines that we have ever encountered in the 40 class and remained perfectly safe to hand start even on 9 inch diameter props. The carburettor was easy to adjust and, on props such as might be used for ordinary R/C work (e.g. 11x5, 10x6), would provide practical idling speeds of around 2,500 r.p.m. Running qualities were also good with a reasonably low level of vibration throughout the speed range.

SPECIFICATION

Type: Single-cylinder, air-cooled two-stroke cycle glowplug ignition with throttle control. Crankshaft type rotary-valve induction. Twin ball journal main bearing.

Bore: 20.6 mm. (0.8110 in.) **Stroke:** 19.5 mm. (0.7677 in.)

Swept Volume: 6.499 c.c. (0.3966 cu. in.)

Stroke/Bore Ratio: 0.947:1.

Weight: 9.5 oz. (10.6 oz. with Jetstream 'L' silencer).

General Structural Data

Pressure diecast aluminium alloy crankcase/cylinder/main bearing housing with detachable rear cover secured with four Phillips screws. Case-hardened steel counterbalanced crankshaft with 13 mm. dia. main journal, 9.8 mm. bore gas passage and 6.35 mm. dia. hollow crankpin. Shaft runs in one 13x28 mm. (rear) ball journal bearing and one 7x19 mm. (front ball journal bearing). Gravity cast and machined aluminium alloy piston with baffle, single Dykes type compression ring and two skirt transfer ports. Fully floating case-hardened 5.5 mm. dia. tubular steel gudgeon-pin with brass pads. Machined duralumin connecting-rod with two oil holes at big end. Hardened steel cylinder-liner located in cylinder casing by flange at top and secured by cylinder-head. Pressure diecast and machined aluminium alloy cylinder-head with cast-in brass thread insert for glowplug, recessed soft aluminium gasket and secured to cylinder casing with six Phillips screws. Pressure diecast aluminium alloy carburettor body, seating on rubber gasket and secured with two screws. Ground brass throttle barrel rotating in honed bearing surface in carburettor body. Separate idling and airbled adjustment screws. Plated brass spraybar assembly with flexible needle-valve extension. Machined aluminium alloy prop driver fitted to shaft with alloy split taper collet. Beam mounting lugs.

TEST CONDITIONS

Running time prior to start: 2 hours.

Fuels used: (a) 5 per cent pure nitromethane, 25 per cent Duckhams Racing Castor-oil, 70 per cent I.C.I. Methanol (Tests 1 and 2).

(b) 30 per cent pure nitromethane, 25 per cent Duckhams Racing Castor-oil, 45 per cent I.C.I. Methanol (Test 3).

Glowplug used: O.S. No. 7 bar type, platinum filament, medium reach.

Air Temperature: 60 deg.F.

Barometer: 29.75 in.Hg.

Silencer: O.S. Jetstream Type 'L'.

Power/Weight Ratio (as tested):

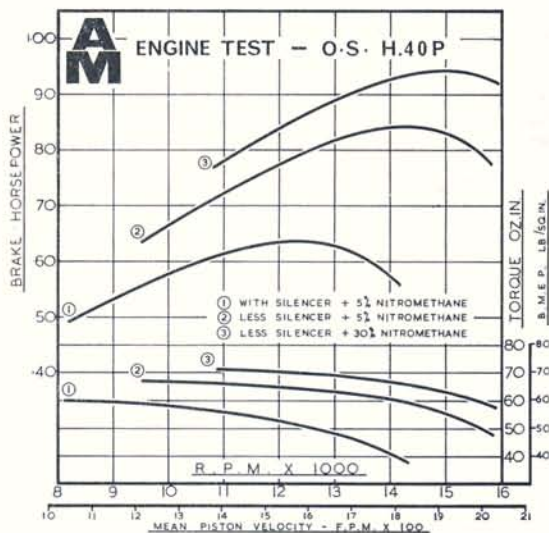
0.96 b.h.p./lb. (with silencer, 5 per cent nitromethane)

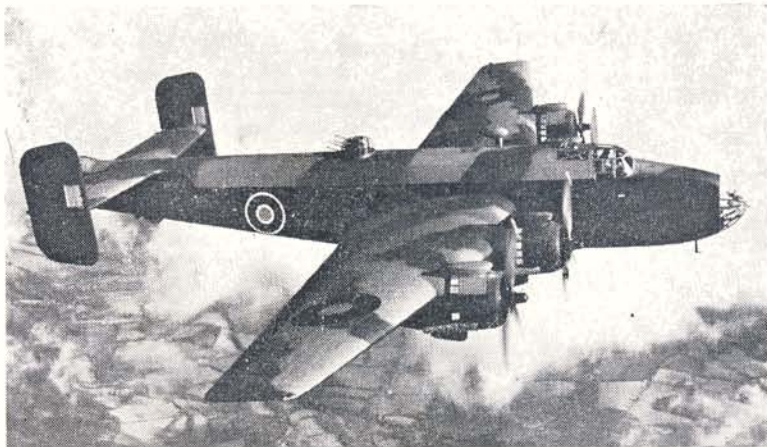
1.58 b.h.p./lb. (less silencer, 30 per cent nitromethane)

Specific Output (as tested):

97 b.h.p./litre (with silencer, 5 per cent nitromethane)

145 b.h.p./litre (less silencer, 30 per cent nitromethane)





AIRCRAFT DESCRIBED No 177

Square wing tipped B.Mk.III on factory test with clean camouflage pattern most evident. No Radar scanner on this one.

Drawn & Described by
K. A. MERRICK

Handley Page HALIFAX

THE HALIFAX evolved as a series of refinements to a specification issued in 1936, and entered service with the R.A.F. when No. 35 Sq. received L9486, the second production aircraft, on 13th November 1940. The B.Mk.I Halifax was built in three versions. The series I aircraft were equipped with Boulton Paul nose and tail turrets supplemented by twin Vickers G.O. 0.303 in. machine guns on pillar mountings in both the beam hatch positions. Early production aircraft were distinguishable by two features, a deeper window just aft of the nose turret and aileron mass balances slung underneath the wing instead of above as on all later aircraft. The series II and III aircraft were stressed for an all-up weight of 60,000 lb. as compared with the 55,000 lb. of the series I. The series III model had an increased fuel capacity and in some instances larger oil coolers were fitted which brought about a redesign of the radiator bath producing a rounder shape with a distinctive central lip.

The first production machine, L9485, was retained for armament experiments, being fitted with a Boulton Paul 'C' turret in the dorsal position and an experimental 'K' turret in the ventral position. The former was adopted for the B.Mk.II Series I which also had increased fuel tankage whilst retaining the all-up weight of 60,000 lb. Merlin XX engines fitted to some of the late B.Mk.I Series III Halifaxes were retained for the initial B.Mk.II aircraft.

1942 brought a slow but steady expansion of the heavy bomber squadrons and by early spring there were six Halifax squadrons in the line. On 10th April the first 8,000 lb. bomb was dropped on Germany by R9487 of 76 Sq. Such was the size of this weapon that it could not be completely enclosed within the Halifax's capacious bomb compartment. Aircraft carrying this type of bomb were forced to fly with the bomb doors closed against the sides of the bomb. The fact that this awkward load did not adversely affect the handling qualities was to be significant in the development of the C.Mk.VIII.

With the introduction of the B.Mk.II, the Halifax's all-up weight steadily increased due to the constant additions to the internal equipment and the airframe in general whilst engine power remained unaltered. This factor was emphasised by the increasing losses during the spring and summer of 1942 and culminated in the temporary with-

drawal of Halifax squadrons from operations for a brief period whilst the aircraft were drastically modified. The most pronounced external change was the removal of the nose turret which was replaced by a 'Tollerton' fairing. The dorsal turret was also removed and the resulting aperture faired in on most aircraft while a few were fitted with Boulton Paul 'A' turrets in raised surrounds. The bulky asbestos tunnel shrouds over the engine exhausts were also removed as they produced extremely turbulent flow over the inboard wing section. Other prominent features also disappeared, the fuel jettison pipes, the fuselage hand rail, the tear drop blisters over the nose windows, and the forward radio mast, a whip aerial appearing in its place. The rearmost mast had been dispensed with shortly after the B.Mk.II had entered service, the W/T aeriels being slung instead from the inside face of the fins. The astro dome was also replaced by a shallower type and the tailwheel aperture faired in and sealed. Special attention was paid to the application and quality of the matt black finish to the sides and undersurfaces of the aircraft. Tests had shown that a poor application was sufficient to screen most of the benefit gained from the removal of the equipment mentioned above. A smoother matt black finish was developed later and used on subsequent aircraft. It should be noted that not all of these modifications took place simultaneously and Halifaxes could be seen in various stages of the metamorphosis.

The squadrons continued to operate these partially modified aircraft, now designated B.Mk.II Series I (Special), while further tests were carried out at the A. & A.E.E. Boscombe Down. These produced the final operational derivative of the B.Mk.II line the Series I (A). The 'Tollerton' fairing was replaced by a new fuselage section which terminated in a Perspex blister mounting a single Vickers 'K' gun and increased the overall length from 70 ft. 1 in. to 71 ft. 7 in. The Boulton Paul 'A' turret was fitted in the low position and remained standard for all further bomber versions. The inadequacy of the Gallay radiators had become apparent under operational conditions and in order to keep engine temperatures at a reasonable level it had been found necessary to have the radiator flaps partially or fully open. This affected the aircraft's true airspeed and in turn the operational

ceiling. To remedy this the individual squadrons cropped the radiator flaps thus increasing the effective exit area in the closed position. A more satisfactory and final solution was the substitution of Morris block radiators, with series oil coolers. This resulted in a further redesign of the radiator bath producing a squarer shape without the now familiar central lip. Merlin 22 or 24 engines were also introduced on this series although a few of the Series I (Specials) were also fitted with these power plants.

Running parallel with the B.Mk.II series was the B.Mk.V which was externally identical in all respects except for the Dowty lever suspension undercarriage. This modification necessitated a considerable amount of redesign to the hydraulic system but proved quite successful, the new mark entering service in August 1942.

The incidence of accident rate on Halifaxes had increased during 1942 and analysis of these accidents showed a high proportion to be the result of rudder overbalance, a feature that had become apparent during asymmetric flight trials with L7245 in December 1940. A series of modifications and tests to the rudders and trim tabs produced two distinct variations, one with an increased fin area in the region of the hinge line, the other the fitting of bulbous noses to the top and bottom of the rudders. The latter modification proved the more successful and was adopted. However, the final solution lay in the introduction of a completely redesigned set of 'D' shaped fins, some 40 per cent greater in area, which completely cured the overbalance problem. The new fins were introduced onto all further production aircraft and retrospectively to existing Halifaxes. One further distinct change occurred around this time with the fitting of H₂S scanner housings.

Losses amongst the Halifax B.Mk.II and V squadrons of No. 4 Group rose sharply at the end of 1943 and an order was issued restricting them to less heavily defended targets at first but finally, in February 1944, both marks were permanently withdrawn from attacks on Germany. However, these early marks remained active with the Airborne Forces, redesignated A.Mk.II and V and with Coastal Command as the G.R.II and V. Those serving with the A.B.F. could be readily distinguished by the small fairing projecting down from the periphery of the dropping hatch and the glider towing rig underneath the rear fuselage. These aircraft also had the mid-upper turret deleted and an extra escape hatch in its place a feature common to all later 'A' marks. As with the Coastal Command versions most were equipped with four-bladed propellers.

Radial engines

Early in 1943 a new and more powerful version appeared, the B.Mk.III fitted with Hercules XVI engines and capable of operating at an all-up weight of 65,000 lb. The tailwheel was made retractable and an H₂S scanner housing or single 0.5 in. gun position were made standard fittings. The initial production series retained the original 98 ft. 8 in. wing but later aircraft were fitted with new wing tips, giving an increased span of 103 ft. 8 in. Mark II

ailerons with bulbous noses and servo trim tabs of increased chord also became standard at this time, reducing the heaviness encountered with the redesigned 'D' shaped fins.

With an eye to the Far Eastern Theatre of Operations the B.Mk.III was developed to produce the B.Mk.VI. More powerful Hercules 100 engines were fitted, the fuel system pressurised, tropical filters fitted and the fuel tankage increased. As a result of these modifications the all-up weight was increased to 68,000 lb. but there was little to distinguish this version from the B.Mk.III externally. However, a shortage of Hercules 100 engines led to the installation of Hercules XVI engines in their place and changed the aircraft's designation to B.Mk.VII. This mark entered service with 6 Group in June 1944, thus preceding the B.Mk.VI's service debut by approximately eight months.

Transport Command had also made good use of the radial engine variant under the designation C.Mk.III, C.Mk.VI and C.Mk.VII. So successful was the Halifax in this role that a special transport version, the C.Mk.VIII was developed. All turrets were removed and a tail cone fitted which increased the fuselage length to 73 ft. 7 in. The removal of the rear turret necessitated a $\frac{1}{2}$ deg. reduction in the tailplane incidence. The only other external change was the fitting of a 272 cubic foot freight pannier capable of holding 8,000 lb. of freight. A special civil conversion of this mark evolved as the Halton which could be distinguished by the large entrance door at the rear starboard side, a solid nose with freight hatch, and individual windows at each passenger position.

The final military version was the A.Mk.IX which was basically a Mark VII airframe with modified rear fuselage containing a special paratroop aperture of improved design. The bomb bay doors could be removed and the C.Mk.VIII freight pannier fitted in their place. Initial production aircraft had Boulton Paul 'D' Mk.I turrets as fitted to some of the late B.Mk.VII aircraft but most were fitted with the Mark II version incorporating rearward searching radar and automatic gun laying.

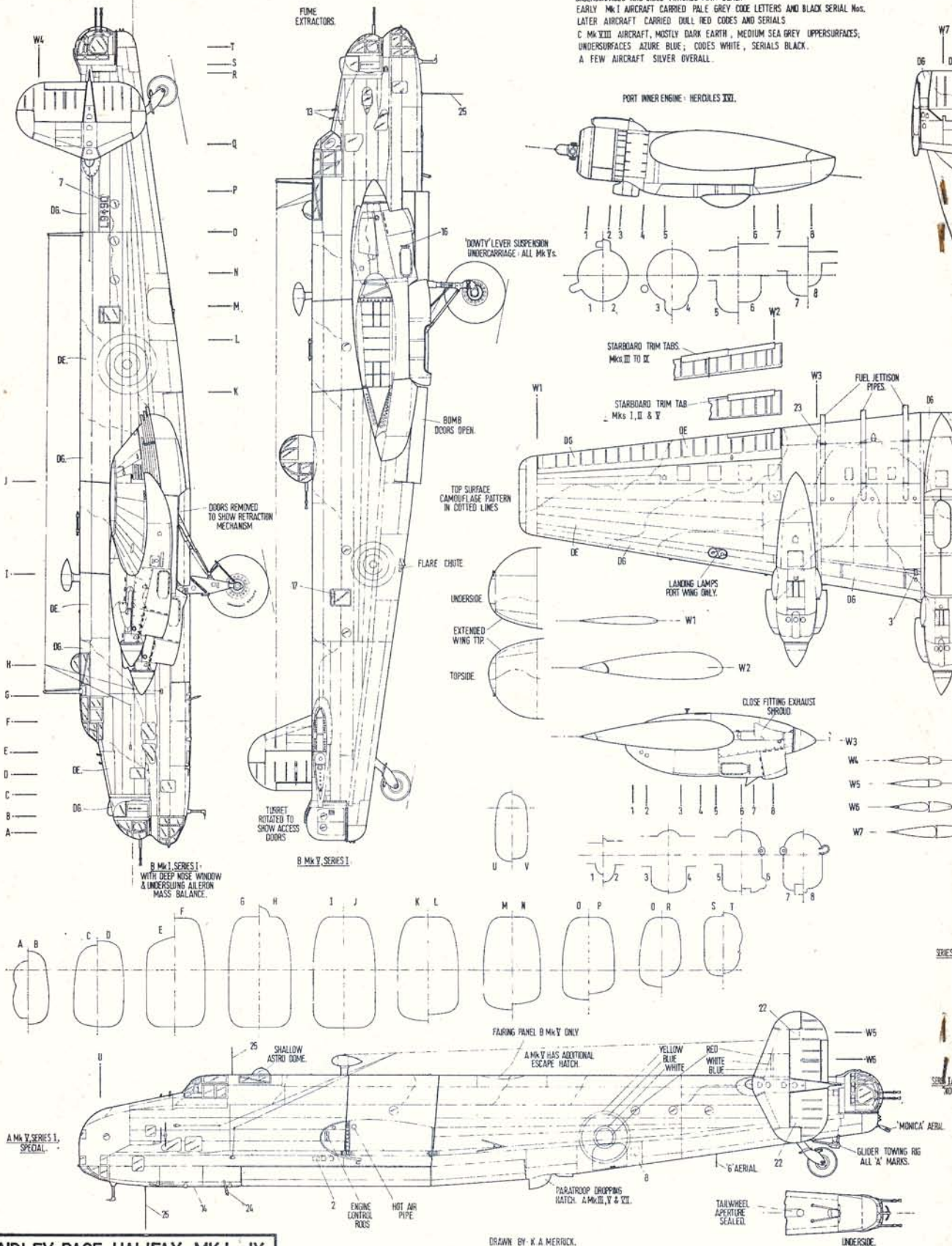
In all, the Halifax had a long and distinguished career, its propensity for adaptation producing a multitude of variants, Bomber Command using it as the B.Mk.I, B.Mk.II, B.Mk.V, B.Mk.III, B.Mk.VI and B.Mk.VII; with the Airborne Forces as the A.Mk.V, A.Mk.III, A.Mk.VII and A.Mk.IX; with Transport Command as the C.Mk.III, C.Mk.VI, C.Mk.VII and C.Mk.VIII; and with Coastal Command as the G.R.II, G.R.V., G.R.III and G.R./Met 6. Like its stablemate the Lancaster, the Halifax had an inauspicious beginning but its deficiencies were gradually overcome until it emerged as a powerful weapon in the armoury of Bomber Command and won a commendable list of battle honours.

**Dimensions vary slightly from those previously published. These are correct and have been taken from the Boscombe Down trials reports concerning the weights and dimensions of the various marks. Fuselage lengths do not include the small light fitted to the early marks.*

B.Mk.III of 77 Squadron R.A.F. (oddly enough the 'Lancaster Squadron') at dispersal showing the H₂S radar bulge, tapered tips of enlarged span and 'weathered' colour scheme.



CAMOUFLAGE—UPPERSURFACES AND FUSELAGE SIDES FINISHED IN DARK EARTH AND DARK GREEN, INDICATED BY 'DE', 'DG'.
 UNDERSURFACES AND SIDES FINISHED MATT BLACK.
 EARLY Mk.I AIRCRAFT CARRIED PALE GREY CODE LETTERS AND BLACK SERIAL Nos.
 LATER AIRCRAFT CARRIED DULL RED CODES AND SERIALS.
 C. Mk.III AIRCRAFT, MOSTLY DARK EARTH, MEDIUM SEA GREY UPPERSURFACES,
 UNDERSURFACES AZURE BLUE; CODES WHITE, SERIALS BLACK.
 A FEW AIRCRAFT SILVER OVERALL.

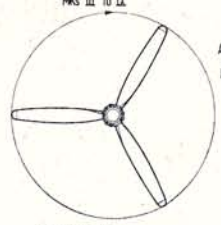


HANDLEY PAGE HALIFAX MK I-IX

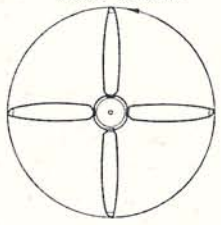
DRAWN BY K.A. MERRICK.
 TRACED BY A.A.P. LLOYD.

- NUMERICAL KEY:**
- 1/2" WIDE FRAME 4" x 5/8" WITH 2" LETTERS IN YELLOW - "TRESTLE HERE"
 - 2" x 24" - 2" NUMERALS } YELLOW.
VOLT 1" LETTERS }
 - "JACK" HERE - 1" LETTERS, YELLOW
 - "NO STEP" - BLACK.
 - 1/2" WIDE FRAME 4" x 4" WITH 2" LETTERS IN YELLOW - "TRESTLE HERE"
 - "LIFT HERE!" - 1" LETTERS, YELLOW.
 - FIGURES 8" HIGH x 5" WIDE x 1" STROKE; 1 1/2" SPACING - DULL RED ON LATER MARKS.
 - "TO OPEN PULL HANDLE" } - YELLOW AND PUSH UP }
 - 2 3/4 GALS OIL - BLACK ON YELLOW 6 1/4 GALS AIR SPACE } BACKGROUND.
 - TURRET BALANCE FLAP
 - INTERNAL FRAME
 - DIMMY STOWAGE PORT WING ONLY. (BOTH WINGS, CMK XXI & AMK IX). DULL RED SEALING STRIP AROUND EDGES.
 - WINDSCREEN DE-ICING SPRAY NOZZLES.
 - LORENZ B/A AERIAL.
 - VERTICAL CAMERA APERTURE.
 - ICE GUARDS.
 - BEAM GUN HATCH.
 - ESCAPE HATCH.
 - CABLE CUTTERS - RED
 - CABLE CUTTER RAMP
 - FUEL TANK VENT
 - BULBOUS NOISE MODIFICATION.
 - FLAP JACK SHROUD
 - TRAILING AERIAL FAIRLEAD
 - WHIP AERIAL.

DE HAVILLAND HYDROMATIC, 13" 0" DIA.
TYPE 55/18
Mks III TO IX



ROTOR - 13" 0" DIA.
R7/4B5/4, GR II & Mk V.



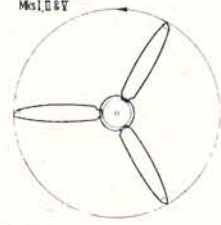
UNDERSURFACE, ST'DO TRIM TAB.
Mks I, II & V.



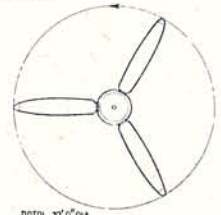
ACCESS PANEL TO LAMING LAMP.
RED. BLUE.

ASBESTOS TUNNEL SHROUD

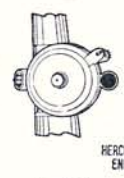
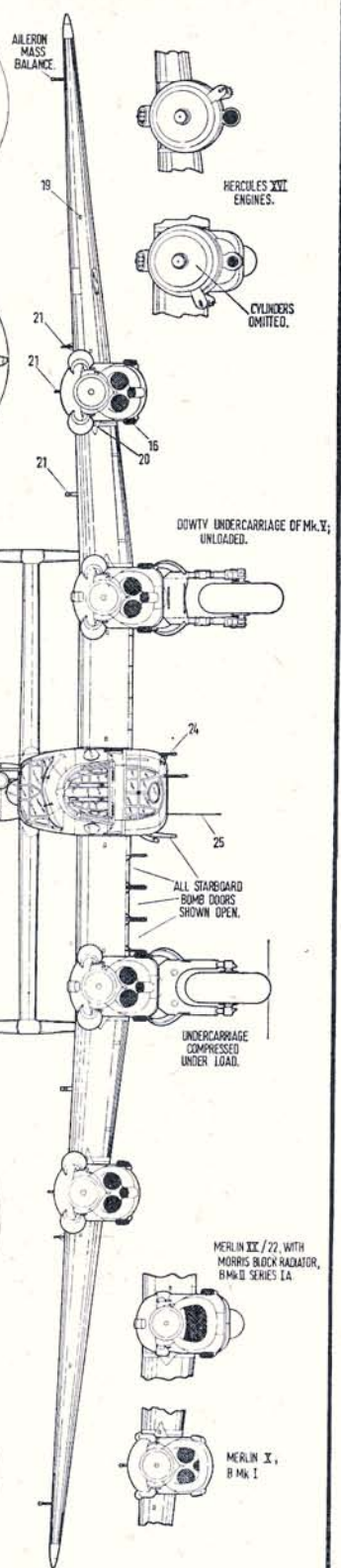
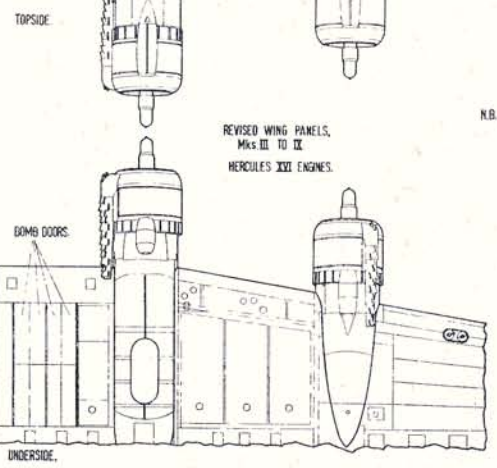
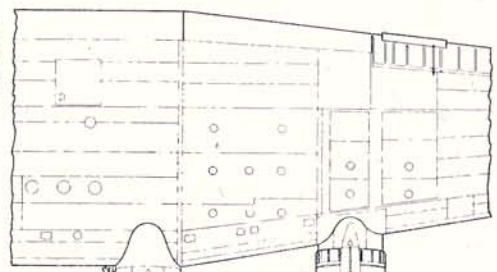
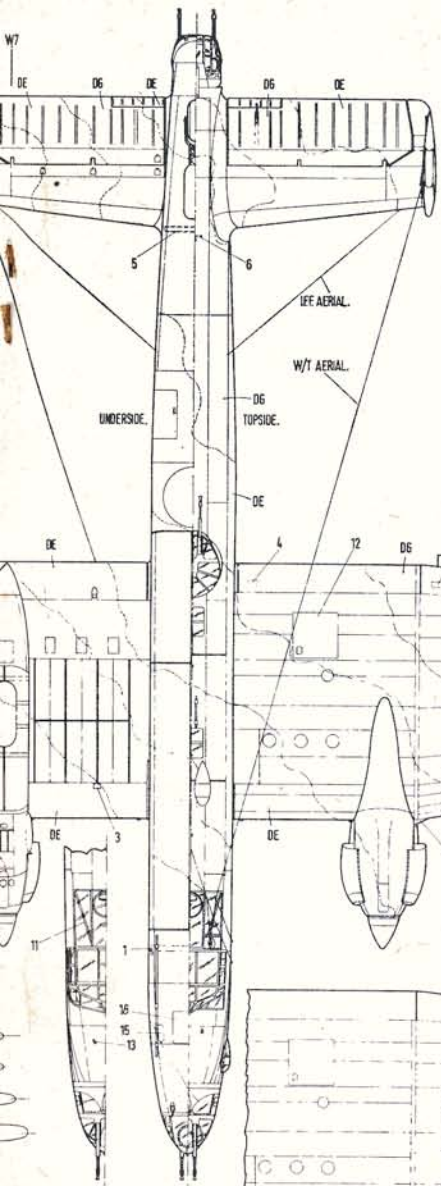
ROTOR, 13" 0" DIA.
R7/35/95
Mks I, II & V



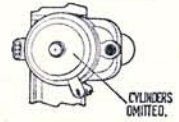
N.B. ALL PROPELLERS BLACK WITH YELLOW TIPS.



ROTOR, 12" 0" DIA.
R7/35/54.
Mks I, II & V.



HERCULES XVI ENGINES.



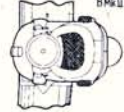
CYLINDERS OMITTED.

DOWTY UNDERCARRIAGE OF Mk V; UNLOADED.

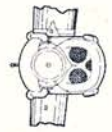
ALL STARBOARD BOMB DOORS SHOWN OPEN.

UNDERCARRIAGE COMPRESSED UNDER LOAD.

MERLIN XX/22, WITH MORRIS BLOCK RADIATOR, B Mk II SERIES 1A.



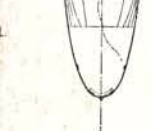
MERLIN XX, B Mk I

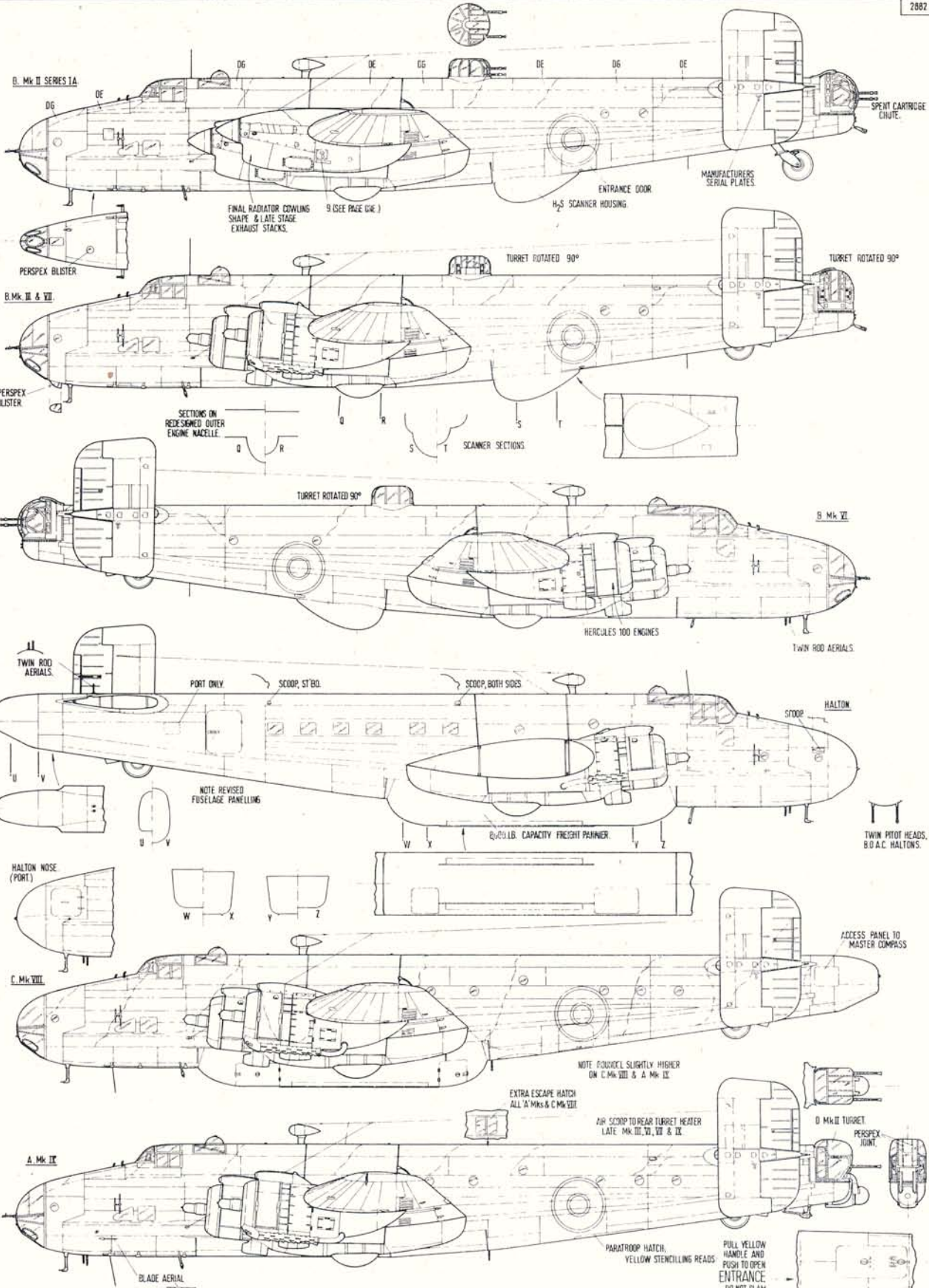


RES 10 NOISE



RES 10 SPECIAL NOISE





HANDLEY PAGE HALIFAX MK I-IX.

SHEET 2.

DRAWN BY K.A. MERRICK
TRACED BY A.P. LLOYD

SCALE FEET 0 1 2 3 4 5



1



2



3



4



5

RALLY ROUND-UP
 1. At R.A.F.M.A.A. Champs, an 'Electra' takes the air in the Scramble event, watched at left by an Air Marshal and a Group Captain. Brisk wind spoiled the day. 2. Cpl. Marley Parent over from R.A.F. Gutersloh, W. Germany, self-launches his Graupner 'Taxi' with Super Tigre G.23 engine and Simprop R/C. 3. At Vintage rally, Old Warden, Lt. Cdr. Alwyn Greenhalgh made repeated flights with M. R. Knight 'Kingley' and won one class with D. A. Pavely's 'A-Frame'. 4. Combat entries at Northern Gala, Lindholme with a double 'Knock-out' as models fall after collision. 5. F/O 'Nick' Carter of R.A.F. Manby scaled up 1/8th Sopwith 'Baby' for Grundig R/C and O.S. Max 19 to enter R.A.F.M.A.A. Champs. 6. Second glider win in September for S.M.A.E. P.R.O. Martin Dilly when he won at Lindholme in Northern Gala. At Cranfield the organisers awarded him with a lost dog as well as trophy! 7. Mick Hughes (left) and Brian Turner (right) were awarded special R.A.F.M.A.A. plaques at Lindholme by M.A.E.O. Dennis Belleini for their outstanding performance in winning 1/2 A T/R for 3 years at the NATS. 8. At last, the free flight scale contest was run, despite the wind at Lindholme - winner Eric Coates poses with his S.E.5a. 9. Smoked (by Candle see the fuselage!) Salmon, is the name for B. G. Sinclair's



7



6



9

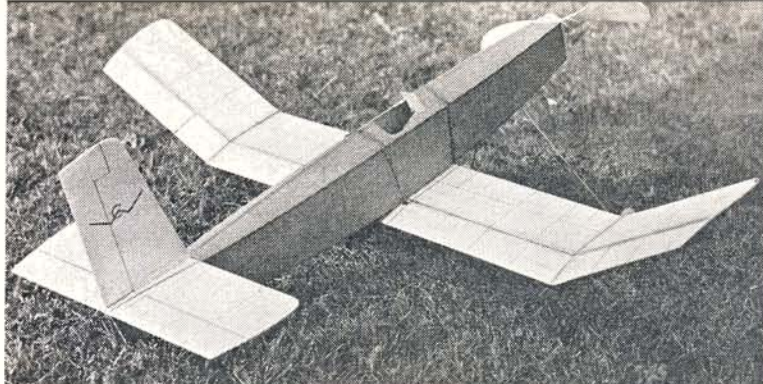
tuned pipe model, wrecked at first team trials. 10. Snatch catch! Ross makes the job look easy as he picks F.A.I. Racer out of the air at Lindholme, pressure line at the ready for rapid refuelling. Note the bottle on his arm, pressurised down to connectors on forefinger.



8



10



Your TWO FREE

Cyril West's MINI-TUTOR

IF YOU REALLY must satisfy the urge to get something flying quickly but have no wish to build anything which is too crude, Mini-Tutor is the model for you and it can be built alongside your larger project during the periods of waiting time which are bound to occur.

The whole model can be built with the aid of cardboard templates which will ensure accuracy and ease of assembly. They can also be passed on to friends who may wish to build a similar model.

Guide points for glued on features can be transferred to the sheet wood through the templates with a pin.

Fuselage

Lay up two pieces of light 1/16 in. sheet balsa with the side template on top and pin right through with two drawing pins. Cut round carefully with a thin, sharp and rigid blade. Sand the edges lightly.

Pin prick the positions of uprights and reposition the sides with the straight edges together but flat on the board to stick the 1/16 in. x 1/8 in. uprights right across both. Trim off the ends and cut down the centre to separate. Fit other details.

Glue the tail ends together and put on a spring clothes peg while fitting two card rectangles at positions 3 and 4 with rubber bands so that the cross braces can be glued in.

Cut out the top stringer in one piece and glue it straight down the centre of the upper cross braces. Fit the triangular supports oversize for sanding down.

Shape the undercarriage from 18 s.w.g. wire and sew it in position at three points with a needle and thread; finish with glue on the sewing.

After sanding the top and bottom level, fit the upper 1/32 in. sheeting with an overlap joint on the top ridge. Follow with the bottom 1/32 in. sheeting with two small nicks to clear the undercarriage wire. Trim and sand each piece as fitted.

Put in the tailskid wire with glue and a bamboo peg through the top loop, sanded off on each side. Glue on the ply nose former and lightly sand the whole fuselage.

Wings

Cut the outline with the template from 1/16 in. medium sheet and prick through the positions of the flaps and dihedral joints. Score these lines halfway through the wood against a steel rule. The flaps are scored from the top and the dihedral joints from underneath. Cut right through at the dihedral joint of the flaps only.

Pin the wing down with a piece of 1/8 in. x 1/8 in. strip under the flap line and after depressing the flap to the building board run glue along the score line. Give the flap 'washout' at each tip by inserting a 1/8 in. x 1/8 in. wedge under the corner.

When set, raise the wing tips to 2 1/2 in. on each side and glue the dihedral joints. Cut two identical wedge-shaped pieces to fill the gaps which now appear in the flap. Make the two holes in the flap on either side of the fuselage seating and glue in four bamboo pegs for the wing bands. Glue the flap line and dihedral from underneath. Finish by light sanding round the edges.

Use the same method as for the wings to produce the tailplane and sand the edges all round before glueing the fin on the centre line. Cut a small nick in the tailplane trailing edge to locate the rubber band.

Cut two identical prop. blades from 1.5 mm. ply using the template and sand them smooth as shown. Make the hub from a piece of hard balsa 1/2 in. x 1/2 in. x 1 in. cutting the diagonal slots with a piece of hacksaw blade so that they almost meet in the centre. Drill the centre hole and fit a piece of 18 s.w.g. brass tube with a ply washer at each end. Glue in the blades as straight as possible and when set, strap the whole assembly to a flat piece of wood with rubber bands. The back of the prop should be against the wood. Hold in the steam of a kettle for a few seconds until tips are almost flat on the wood and the blades are hollow at the back.

Release after a few minutes and shave off the hub corners. When completely dry, apply colour or silver dope.

Shape the nose block and fit a bush (18 s.w.g.); thread the shaft, with a square loop on the front, through the prop and bush, with cup washers in between. Carefully shape the rubber hook and slip on a piece of plastic tube.

Clip down a pin for the pivot of the 20 s.w.g. pawl which engages the square loop to drive the prop.

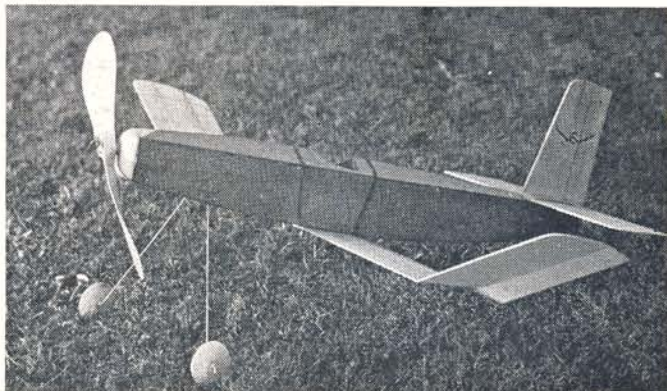
Finish

Four strands (two loops) of 3/16 in. flat rubber, making a complete motor length of 20 inches, form the power unit. This should be carefully washed and dried before lightly lubricating with pure castor oil.

Assemble the model with thin rubber bands so that the point of balance is under the centre of the wing. Test glide and correct by warping the tail assembly trailing edges. When correct, try power and pack the nose block if required to maintain proper climb.

There is no need to worry about the stall as long as the wing tip washout is correct. The prototype has been seen to come down like a slow lift from a height of about 30 ft.

This model is great fun to fly and can even be made to perform aerobatics by cutting the control surfaces and spot glueing them in the required positions; more power can be added also for this purpose. In any event it will create a diversion from the building chore on the more complicated model.



Photographs are self explanatory; but for the sake of good relations among combaters we should explain that the 'Combatklubben' held by Staffan Larsson in pic. at bottom of this page is a Trophy, and NOT standard pit crew equipment! Trio is the very successful Swedish LEN team of Ruter-Ess flyers.

PLANS

and Staffan Larsson's

RUTER-ESS

WHILST VISITING the Southern Gala at R.A.F. Odiham this year, we noticed a relatively new shape to be seen in the Combat circles. Retaining a 'standard' Combat wing the tailplane was mounted on a curved trailing edge extension as opposed to a true flying wing or the popular flying elevator type. The example examined was being flown by Richard Wilkens who showed a really tight turning capability, in fact one of the tightest yet seen. This Swedish model was apparently a 'secret weapon' as the flyer was rather loath to give much detail, apart from the engine (obvious) and name 'Ruter-ess' (on the model). Not only to ourselves was this combatteer impressive, as since Odiham we have received a steady flow of enquiries for plans. The design comes originally from Staffan Larsson and Roger Holmberg of Sweden and was imported during a tour of this country. Ruter-ess (meaning 'Ace of Diamonds') is a development of the earlier 'Spader Kung II' (Second King of Spades) and has proved extremely successful in Sweden throughout 1967 and, of course, in this country since introduction.

After much research and correspondence we now have the plan for those who have patiently waited. Although fairly conventional in areas, to knowledgeable eyes the construction is anything but usual, the wing being based on a 1/16 in. sheet full depth spar and box leading edge. Giving extreme lightness this kind of construction, when carefully carried out, is deceptively strong; but probably not quite up to 'Dominator' or 'Warlord' standards. Using carefully selected materials the original models turned the scales at 12-13 oz. all-up, which for a 2.5 cc size model makes for the crisp performance delivered.

Construction

Select the grades of wood shown and cut out wing ribs and full depth spar ensuring accurate joints for strength. Assemble ribs to spar, split trailing edge pieces and 3/16 in. square leading edge. It is suggested that a P.V.A. or similar adhesive is used so that there is time to make the wing absolutely straight. Whilst this is drying, the engine bearer assembly can be made up. Note cut out, and hole for bellcrank retaining dowel. The leading edge sheeting can now be attached pinning in position. Care here will reward with great strength. Note also that this sheeting is best made continuous from tip to tip (not as shown on the plan). Take a 2 in. metal bellcrank and fit the leadout wires and pushrod (1 in. oversize). Mount on 1/8 in. ply mount in conventional manner, thread leadouts through wings and slide bellcrank mount through left hand 1/16 in. centre section to allow fitting of engine bearer assembly. Now securely glue this into position between the two 1/8 in. ribs with the front of the 3/8 in. balsa cone squarely backing onto the spar with bellcrank mounting slots lined up. Glue bellcrank mount into slot together with the retaining dowel. Fix fuel tank behind spar (Staffan mysteriously indicates it through the spar!) and complete centre section sheeting cutting out slot for pushrod movement. Upper fin and tailplane (elevators previously assembled) can now be fitted and when secure, lower fins securely positioned where shown (broken line) on the plan. These add to the strength. A 16 s.w.g. Duralumin



or commercial elevator horn should be bolted in position. Pushrod end can finally be bent ensuring neutral elevator for neutral bellcrank position, and surplus pushrod being removed. Wing tips with leadout tubes and gussets, and fairing blocks to centre section can be added and shaped. *Finishing.* The designers suggest that silk is a better material than nylon for this kind of model, presumably due to greater flexibility. It would be advisable to give two coats of sanding sealer prior to covering, followed by three coats of clear dope and a really good coat of fuel proof. Should a combat job happen to last for a reasonable time a well-proofed model will maintain performance whereas an oil soaked one loses m.p.h. at a fantastic rate. *Flying.* Little advice can be given here as this is rather a specialist model for specialist flyers. Make sure that the C.G. is where shown and as initially mentioned, the greatest attribute of Ruter-ess is in its fantastic manoeuvrability. A slight forward C.G. position would be advisable for beginners to this kind of model, to dampen it just a little!

Competition record summary

4 first, 2 seconds, 3 third places, including Championships of Scandinavia 1967 and Swedish Championship 1967. 2 firsts in 1968 - enough?





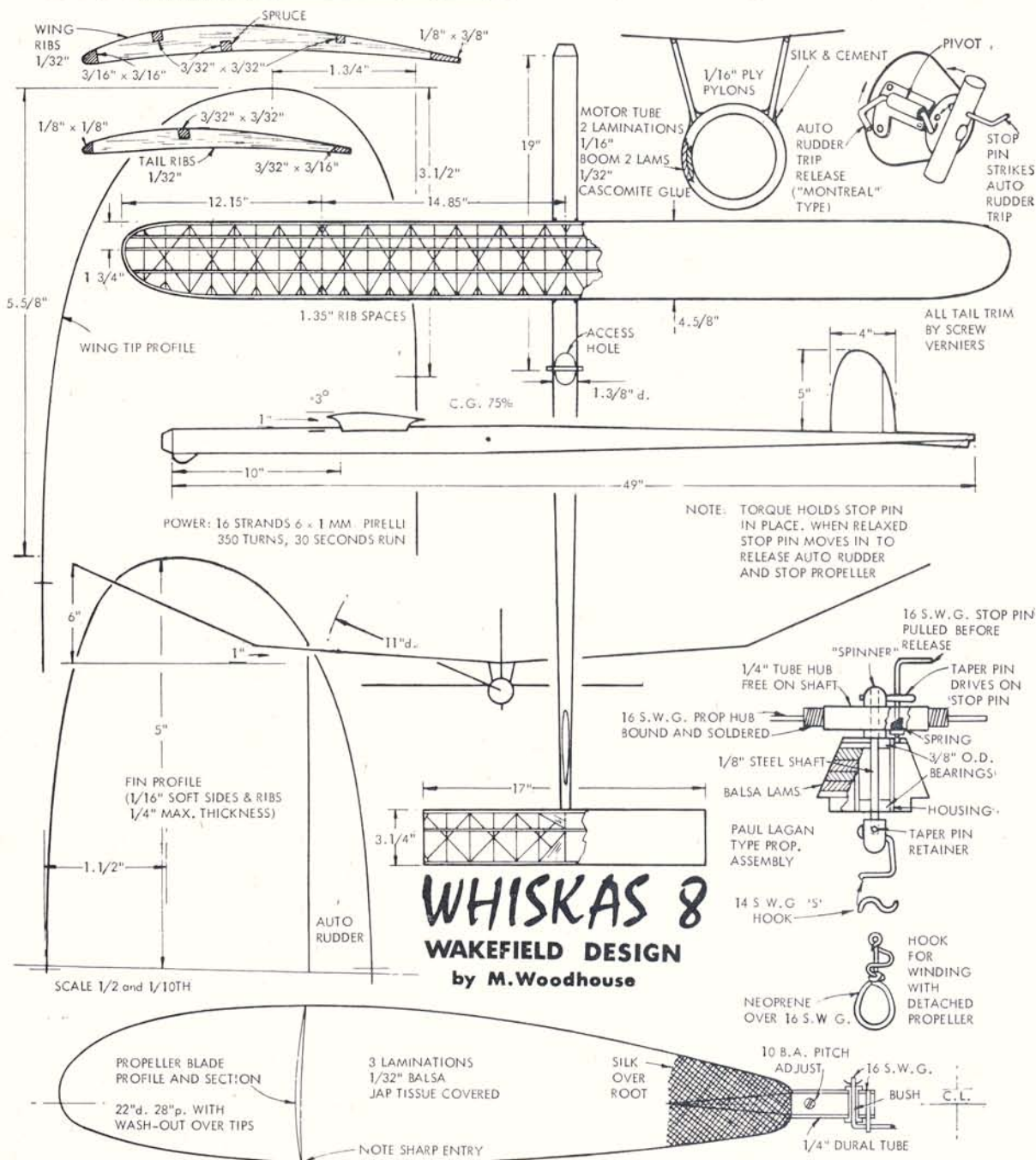
TWO DESIGNS . . .

'WHISKAS' WAKEFIELD

(Propeller assembly at left, model opposite)

MICK Woodhouse says this is the biggest Wakefield he has built.

All development modifications have been made with the usual purpose in mind - increased performance and reliability. Area has been transferred from tail to wing and a slight increase in aspect ratio to gain a few more



valuable seconds on glide. The reduction of tail area has not affected stability and, in fact, may be better than other models a tendency of earlier models was a slight 'mushing' in glide trim, not apparent on this variant, obvious thought - were the others endowed with too large a tailplane?

In an effort to reduce the rolly-polly climb turn, the dihedral has been reduced from the previous 'Banshee' proportions. This reduction, coupled with a thicker fin, seems to have steadied the climb trim and made trimming easier. 16 strands of 6 x 1 Pirelli now replace 14, this change accounts for most of the increase in performance. The change to 16 also necessitated the introduction of the 'Montreal' auto-stop, as normal spring tensioning was not adequate to consistent folding.

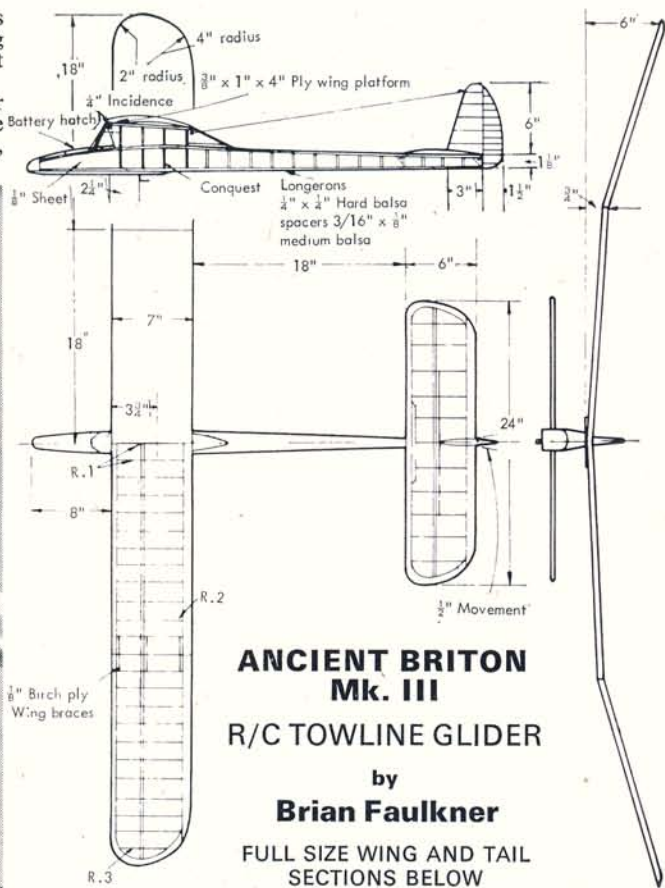
Auto-rudder is now used to aid trimming. Model is flown right/right with rudder offset and sidethrust, wing warps are 1/16 in. wash-in right inner, 1/16 in. wash-out both tips.

Mike has to be convinced of the validity of further stretching of the design. Research into gadgets is the favourite thought of the moment - variable pitch props, variable incidence tails.



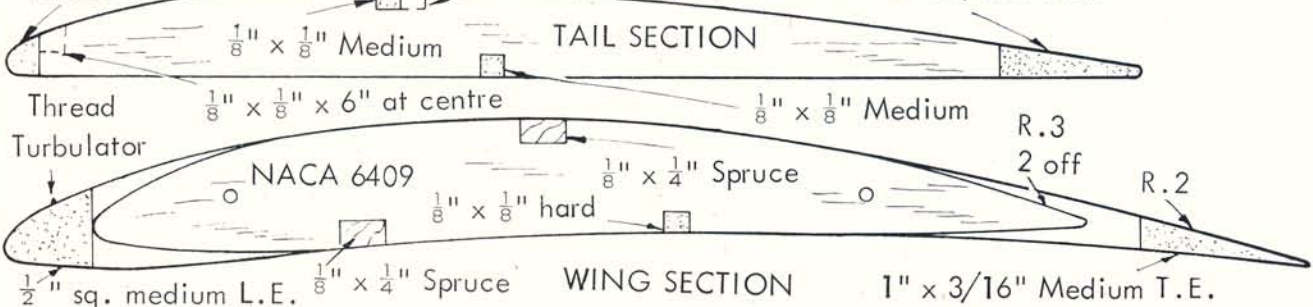
and 'ANCIENT BRITON'

Brian Faulkner's six footer for sports flying and thermal seeking with single channel radio control adopts the old favourite glazed cabin wing support, so popular in Bob Gosling's famous 'Ivory Gull'. Full size wing and tail sections, along with the general dimensions should enable the scratch builder to create a reasonable replica. Brian has been R/C thermal seeking for over three seasons and thoroughly advocates the sport, whether from a slope or tow launched over flat ground. Incidentally, the rudder is loosely hinged using 20 s.w.g. wires through Model Yacht screw eyes and the fin is permanently fixed to the tailplane to avoid any trim upset.



**ANCIENT BRITON
Mk. III**
R/C TOWLINE GLIDER
by
Brian Faulkner
FULL SIZE WING AND TAIL
SECTIONS BELOW

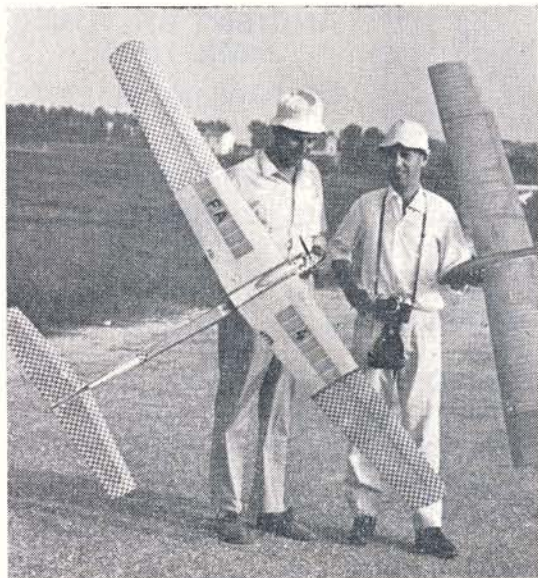
1/4" x 3/16" L.E. 1/8" x 1/8" x 9" Long at centre
Medium 3/16" x 8" Medium/soft T.E.





Suddenly . . . British modellers are becoming aware of what the Italians have been enjoying for a long time . . .

Thermal Soaring (with R/C)

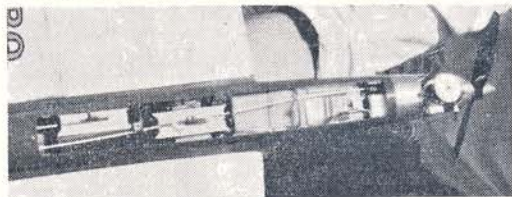


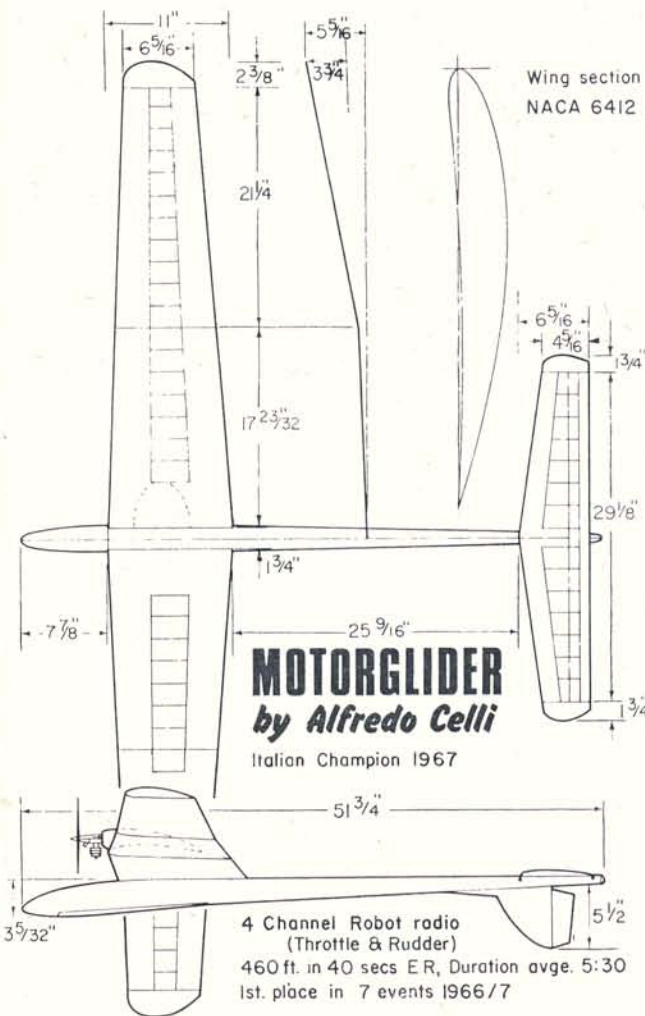
ENTHUSIASTS in the free flight field have for a long time made use of thermal currents to the extent that tactical flying is a controversial subject. On the other hand, radio controlled thermal soaring has only recently become popular and offers good results for actual skill as opposed to a deep pocket; in fact single channel can be used with as good a chance as full multi.

The first competition purely for this kind of flying in Britain was held recently at Golden Cross and despite the high wind, support was excellent. Already specialist gliders are appearing, combining 'penetration' with soaring ability. Approximately two years ahead of this country though, R/C soaring competitions have been taking place in Italy and have proved to be very popular. Two types of model are flown: (I) towline glider, (II) power assisted glider, and the diagrams show an example of each. In Italy six or seven contests are held per year and the first ten places in power and first twenty in glider are invited to fly in a grand final to decide the Champions. The following rules from Italy should serve as a useful basis for future contests here. Probably the only drawback with specific thermal soaring is the dependence on weather conditions but sufficient contests per year should satisfactorily overcome the problem. Another idea would be to combine hill soaring with thermal soaring to avoid towing/engines etc. This should relieve any monotony should the thermals die off at periods during the day as they have a habit of doing occasionally.

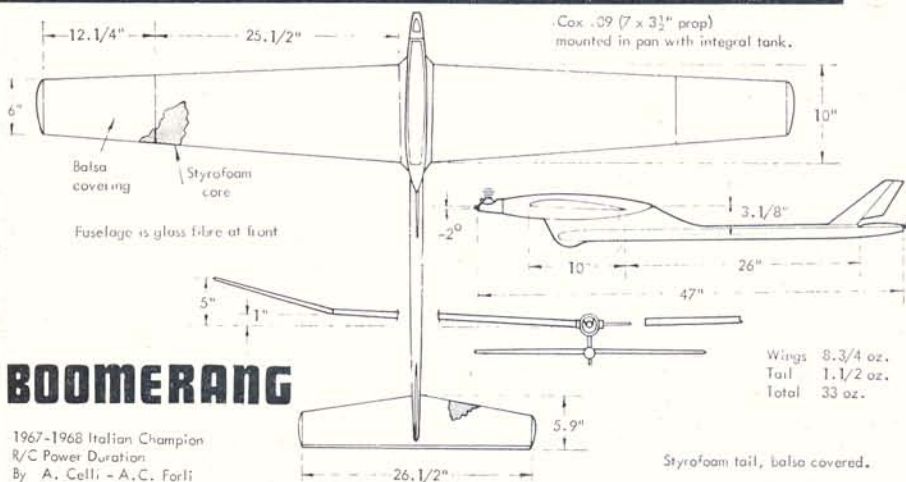
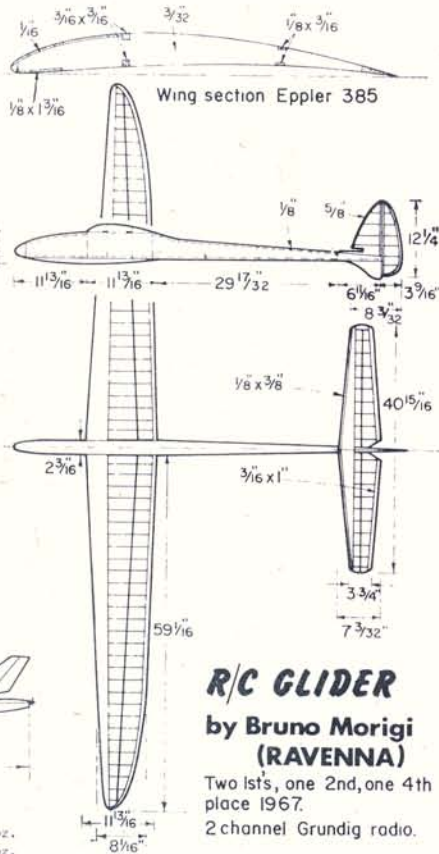
1. Models must be controlled by means other than lines or physical contact.
 2. **Glidern** - *Max. surface area* 150 dm.² (2325 sq. in.)
Max. weight 5 kg. (11.02 lbs.)
Max. loading 75 gm. per dm.² (24.51 oz./sq. ft.)
Min. loading 12 gm. per dm.² (3.95 oz./sq. ft.)
Towline 100 metres max. under 2 kg. pull test (328 ft.)
Min. pennant 2.5 dm.² (39 sq. in.)
 - Power** - *Max. engine size* 1.5 cc. (.091 cu. in.)
Min. loading 600 gm. per cc. (21.16 oz./cc.)
Max. run 30 sec.
No restrictions on fuel used.
 3. Maximum number of controllable surfaces 2.
 4. Order of flying shall be decided by a draw.
 5. Each contestant has 10 minutes during which he must complete his flight. 2 attempts are permitted within this period and 6 minutes gives a maximum score. Timing ceases at the end of 10 minutes whether 6 minutes is completed or not. Each competitor shall be allowed 3 official flights.
 6. A 45 sec. bonus is given for landing in a 50 metre diameter circle. 90 sec. bonus for landing in a 25 metre circle.
 7. Transmitters will be impounded during contests except when officially used.
- These rules are printed for interest and guidance and are not intended to detract from or better the fine effort made by the organisers of the Golden Cross event.

Bruno Morigi ready to release his taperwing as drawn opposite, left is Alfredo Celli with pylon mounted wing design and P. Dapporto. Below is the servo installation in 'Boomerang' drawn at right, servos to rudder and elevator plus throttle.



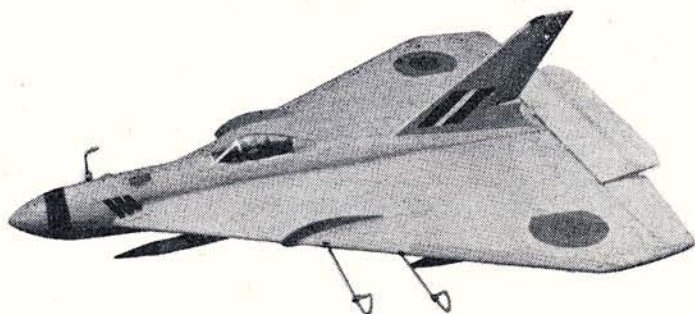


V. Mandolesi and Alfredo Celli with 'Boomerang' which earned him the title of Italian Champ in Motor Glider for second year running. Mandolesi is 1968 R/C Glider Champ of Italy.



A SMALL DELTA SPORTS CONTROL-LINE DESIGN TO SUIT .5-.8 c.c.

by R. C. Povey



Firestrike

BUILT TO INTRODUCE a 15-year-old son to C/L flying, this is an easily built dual purpose model, strong, safe, yet flexible enough to offer really lively fun. Designed for .5/.8 cc. diesel or glow, Firestrike has been given fairly strict scale fighter lines. It is felt that unless a model looks and flies like a *real* aircraft it has no place in the air (some early models have agreed with the author rather unexpectedly!)

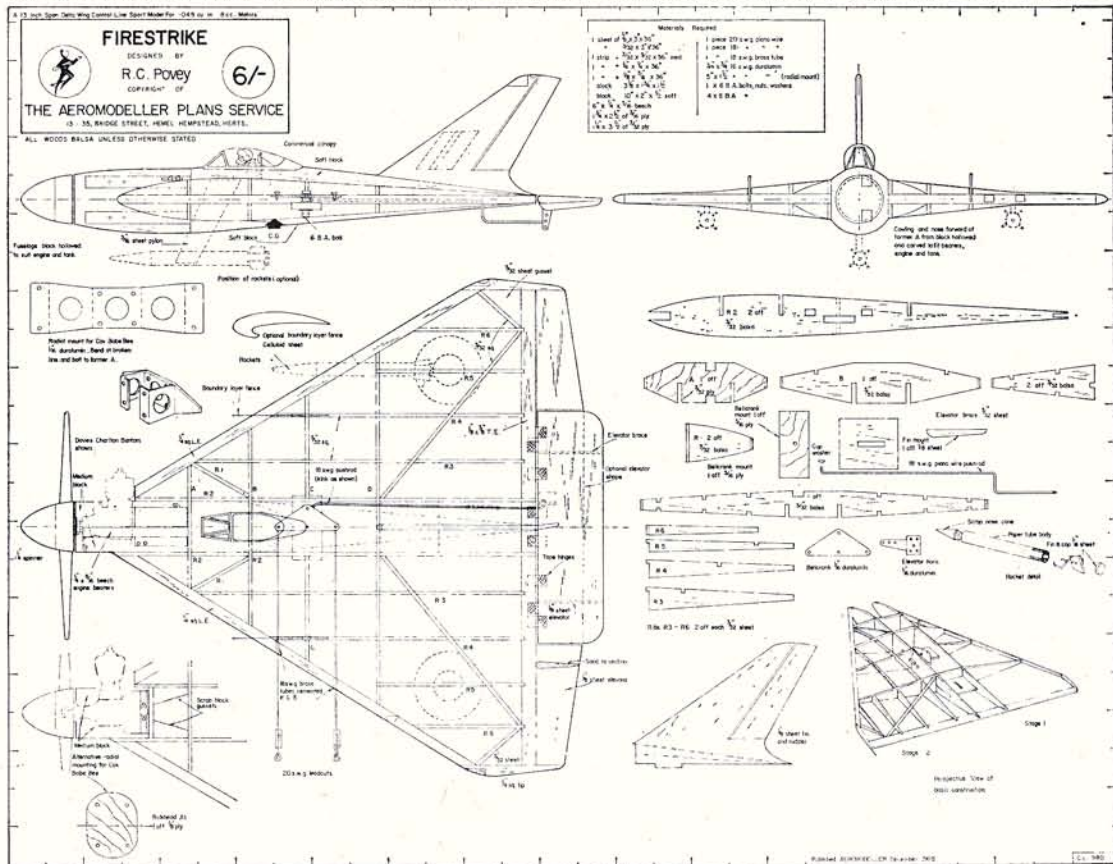
Build Firestrike - then fly it to pieces - it will take longer than you think! The original is still completely undamaged except for tissue patches after countless flights, four absolute beginners and many *very* hard landings.

Before commencing building, study the plan and instructions carefully, the delta structure is far more simple than it at first appears.

The basic step, and incidentally the one on which success depends is the assembly of only seven pieces, which should first be fitted without cement to check a good fit and without warp in the head-on view. Make up the control plate assembly of 3/16 in. ply or Perspex using a 6 B.A. bolt as a pivot and soldering the nuts to prevent working loose in flight. Next cut brace E, Formers A & B and trailing edge. Take main ribs and insert control assembly through slot, then slot in the T.E. and former A, making sure all components are in alignment after addition of brace E and former D.

Cut and fit leading edges, elevons (fixed) and wing tips (made from scrap leading edge section), again checking alignment. Now add the remaining formers and ribs in normal manner as shown in the perspective view on the

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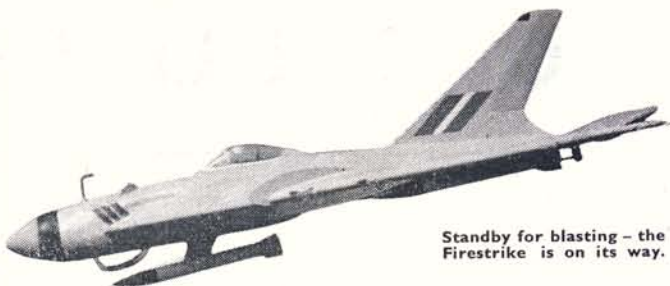
plan. Note that it is necessary to chamfer the outer edge of each former to allow for wing sweep.

Elevators may now be fitted and the control system linked up. Hinges may either be cloth, or a 'proper' hinge of piano wire and celluloid tags. When soldering cup washers to the control rod, a thin paper tear-away washer beneath them will provide clearance to prevent binding of the linkage. The horn is recessed into the elevator, with plenty of cement around the holes, and a small piece of 1/32 sheet cemented over the base. Now cut the fin from 1/32 sheet noting grain direction, sand to section, and cement in 10 deg. right rudder. Fit fin to brace E using locating tab, and checking for vertical. Cover the upper and lower centre sections with 1/32 sheet, grain running crosswise. Chamfer the edges of the sheeting to avoid a 'hard' edge for the tissue.

Fitting the engine

Due to the diversity of engines and tanks a universal method of nose construction has been adopted. Bolt the engine to hardwood bearers with bearers extending forwards of engine to provide additional protection. Position tank between bearers as close to engine as possible and pack to correct height with scrap balsa, apply cement liberally. Fit airscrew and 1 1/2 in. spinner (don't be alarmed by spinner size, it's surprising how much of a propeller is 'dead' area). Now cement block or laminated 1/2 in. sheet all around engine from spinner to a point 3 in. rearward until the whole unit is a block 3 in. x 1 1/2 in. deep x 1 3/8 in. wide. Cement this block into the space forward of former A, checking thrust line, and when dry trim to outline shown on plan, upper and lower fuselage is added in the shape of block to outline shown on plan to complete airframe. I find the cheap handy packs of block balsa very economical for this purpose. Cover wing panels with tissue, steam, and dope in usual manner. Small celluloid panels are cemented beneath wing at nose to prevent finger trouble!

The model is completed by hollowing the cockpit, making balsa pilot, and fitting hood, boundary layer fences and missiles, the latter cemented to small panels of 1/32 sheet. Originally the model flew with two rockets under each wing, but this has been amended to provide a point for a hand-hold under the centre section. The original is doped light grey and has R.A.F. decor as shown on the plan.



Flying and Trim Notes

Choice of elevator area and C.G. gives flexibility,

- Full power, larger elevator and rear C.G. gives a very lively sports model.
- Full or reduced power with either elevator and forward C.G. is ideal for training, when flight can be reduced to a slow nose high 'mush' in safety.

Firestrike can be flown in higher winds than a non-delta layout, provided quick footwork maintains line tension, but in *gusty* conditions occasionally develops an alarming 'flutter' of the starboard wing when coming upwind. This is amusing, and completely safe and harmless, being caused by your momentarily taking the starboard wing out of the flight line with resultant spasmodic flutter - control of the model is in no way affected and the symptom only occurs when sensible people would have packed up and gone home!

For Absolute beginners only

Launcher - 1) Make sure there are no bubbles in fuel line.

- Check circuit is clear.
- Signal pilot - *ready!*
- Launch - gently, level, and from as high a position as possible. Don't push, and if you *must* point it somewhere, down is better than up!

Pilot

- Step back on release and full up elevator, (you will anyway) *BUT* take up off almost immediately (you will soon know the moment - when you 'feel' the aircraft fly).
- Don't use too much up elevator when coming into wind the aircraft will tend to climb on its own.
- If you feel loss of power, try 'whipping' by turning more and drawing your arm smoothly across the body.
- If you stall, give down elevator, you'll never recover with it 'up', try to use up as little as possible - you'll learn much quicker that way.

OLD TIMERS AT OLD WARDEN

Though windy, many a fine (and genuine) vintage model was flown at the Shuttleworth Collection Airfield on October 13th. Events were organised by O. W. F. Fisher of 'Performance Kits'. Among visitors was Howard Boys (left) with two of his tailless record holders - 1938 and 1948! C. Rupert Moore has his original Viper and Tiger Moth, plus the rubber packed twin engine fighter - first seen in this magazine in 1939. Triple skeins drive the opposite hand props via Mr. Moore's system.



VINTAGE RALLY RESULTS

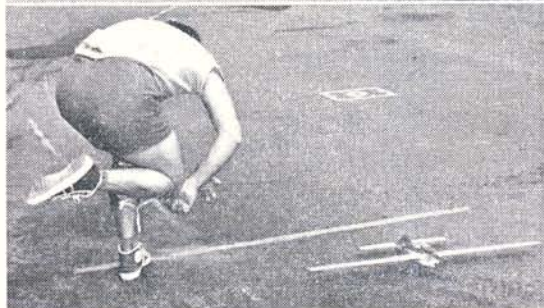
Petrol Driven F/F cabin models: L. J. Haggart (Mechanair powered Megow kit) 27 points. **Vintage powered F/F:** 1. J. R. Smith (E.D. Powered 'Black Magic') 2 flight aggregate 106 seconds. **Vintage rubber models:** D. A. Pavely (Proxy flown by A. Greenhalgh). 'A' frame twin pusher canard, flight aggregate 67 seconds. **Unorthodox:** R. Ray (1.5 cc. power driven tractor canard 'Oswald') 29 points.



ON THE LINE

with
John Franklin

JURGEN BARTELS the fibre glass propeller specialist from West Germany has just produced a new team race propeller. Called the Drazek Special, the mould was made especially for the Czechoslovakian ace Milan Drazek. He is also producing two new free flight pro-

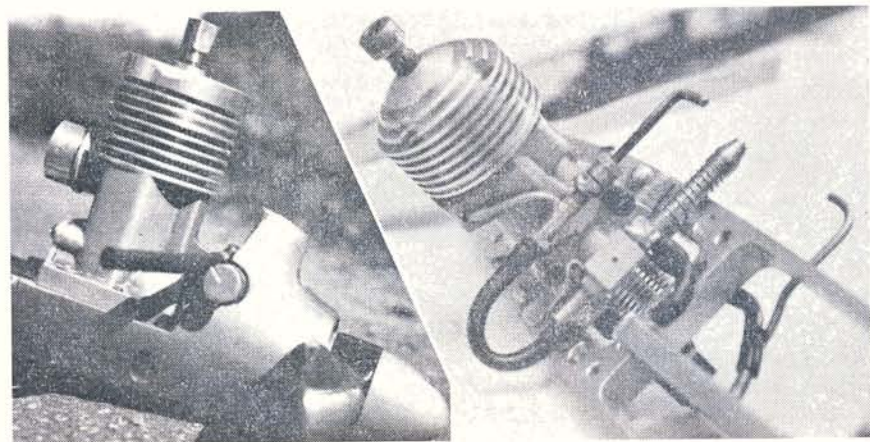


Above, Russian pit stops. Top, W. Timofeev catches his S.T. powered model in the final and lower, E. Kobets releases his deep fuselage model during a hit stop in the second round.

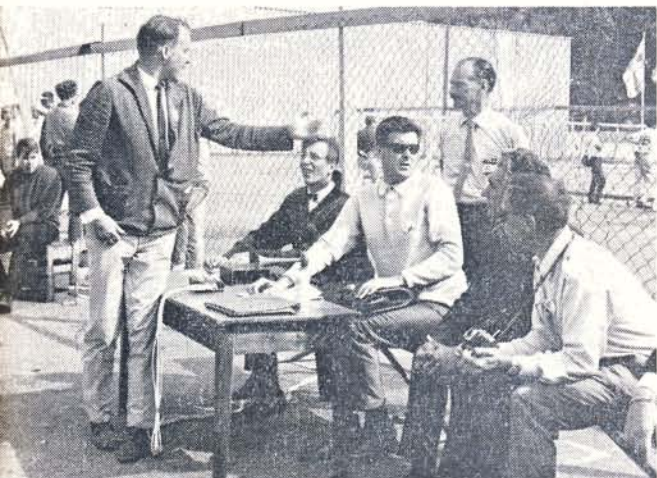
pellers, a 7x4 in. (mentioned in the Meibach/Zilleken G.15 test August *Aeromodeller*) and a 7½x3¾. Jurgen has promised us some samples for evaluation, so we will report the results in due course.

Harry Roe from Dayton, Ohio sent us some very interesting news for the next few paragraphs. At the 3rd Annual Junior Air Races held on Cleveland Airport and sponsored by several local companies, 5,000 spectators came along to see the action. Action there was, with Bill Kapfer smashing his six foot long TWIN DYNA-JET POWERED scale Lockheed YF-12A twin jet interceptor. It weighed 14 lbs. and had never flown until Bill went into the circle for his official flight. It was airborne after a lap take-off run and as it completed the second lap its nose rose sharply and with both Dyna jets roaring on full power it rose into a loop, and crashed upside down on the runway, a burning wreck. Bill smiled when the fire was put out; but his wife was still in tears an hour later at the loss of hubby's four years' work. Jet pilot Ray Redenshek had better luck with his twin jet North American Vigilante but he landed it roughly and ripped out a major bulkhead. With the jets out of action a six-year-old Stearman biplane built by Ralph Keimel won the open scale event.

At the same meeting Harry Roe turned 179 m.p.h. in class C speed and local lads Carl Dodge and Al Stegans were on Harry's tail with 175 m.p.h. from a new home-made engine in a 36 in. wingspan, 120 sq. in. wing area model. At another Cleveland meeting a few months later Jerry Roselle and Jack Fry of Dayton flew their home-made .65 engine with a tuned length exhaust pipe to record 198.17 m.p.h., to win the event. To make this a National speed record they had to make a back up flight during the same day. This time they were circulating at 202 m.p.h. but broke a crankshaft before completing the timed course!! They worked on the engine all afternoon and finally managed a 198 m.p.h. flight. George Aldrich tells me, that to overcome the 'come-in' problem of the tuned length exhaust pipe, Roselle/Fry use two needle valves. One for taking off and getting airborne and



At left, the rear exhaust team race engine is a home-made special by Boris Krasnorutsky. Note the enveloping front end of the pan. Next, the extra needle valve is for metering the amount of exhaust prime on the Hasling brothers H.P.15D. Stockton/Jehlik thought this was unnecessary when they looked at it but promptly flooded their H.P.15D in the final.



Left: The team race jury debate whether our reporter should be allowed into the circle for photography during the final in Helsinki. L-R, Kjell Rosenlund, Juhani Yalho, Rudi Cerny, Henry Nicholls (standing), Rudi Beck and Helmut Ziegler.

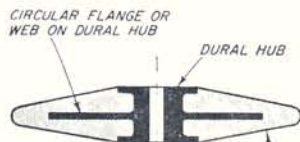
another that is set much richer and actuated by centrifugal force as the pipe starts to 'come in'. At the same meeting Chas Legg won $\frac{1}{2}$ A speed with a Cox .049 and a tuned length pipe. His speed was 119 m.p.h. on TWO LINES!! Chas also uses dual needle valves and the rich needle for high speed flight is cut in by a pin which is extracted from the model through the bottom of the pan as the model leaves the dolly. The new A.B.C. Super Tigre engines now available in .15, .29 and .65 sizes are really going. (.60 is .65 with smaller throw crankshaft) and both Harry Roe and George Aldrich are flying in the mid 180s without tuned length exhaust pipes on the .65.

From Canada Dave Kelly reports good news on the new Super Tigre R.V. 15 team race diesel. This is the one with the small exhaust port and four cylinder head bolts as mentioned in the World C/L Champs report. At the Canadian decentralised Nationals, with strong winds and 50 deg.F temperature they made 4:36 using the same model flown in Finland and a 180 x 200 min. M.V.V.S. propeller. The Canadians thought the weather really bad as British stunt pilot Geoff Higgs who emigrated last year to Niagara Falls, sat in the car most of the time! Top line Italian team race pilot Franco Marcenaro who went to Budapest in the Italian team and was at Swinderby, has also emigrated and now lives in Toronto and is hoping to get back into the team race game.

The International Control Line Contest, annually held at Bochum, West Germany, took place from 21st to 22nd September. It attracted a total number of 48 well-known entrants for Aerobatics, Speed and Team Racing from Austria (6), Hungary (3), Italy (1), Netherlands (13), and West Germany (25). The flying site, situated on a vast car park area belonging to a large shipping centre, remote from residential quarters, was nearly ideal and left ample concrete outside two contest circles for simultaneous

practice. Unfortunately, the contest suffered from cold and stormy weather conditions, rain causing frequent interruptions of the programme. Thus, results in Aerobatics (10 entries) with L. v. d. Hout (Netherlands) topping may be regarded as somewhat accidental as one round was completed only. Speed (8 entries) was of comparatively low standard, the reason being that changing air humidity made it hard to get the right settings for the engine. All competitors, including well-known fliers W. Holle (Netherlands), Mohai (Hungary) and J. Frohlich (W. Germany), had extreme difficulties getting their 'pipes' to work for long enough. Inspiring fast times, even on an International scale, were recorded in Team Racing where the H.P.15D engines once more demonstrated a marked edge, much to the pleasure of designer Paul Bugl who was an entrant in this event himself. It is felt, however, that the fast heats were to some extent due to the astonishing fact that the jury deliberately (!) tolerated the frequent practice of whipping in round two. Final, with Kropf/Nitsche (Austria), Brothers Lutkat (Germany) and, not as a surprise to many, the very promising team M. Bader/L. Kaul (W. Germany) became a duel between the two H.P.15D powered glass-fibre fuselage racers. The Lutkats lost their chance at the second pit stop when the Oliver powered 'Orion'-type model, being landed almost at flying speed, ran into the circle, the hitman having missed the catch. The remaining teams took full advantage of the situation, and winners Bader/Kaul managed to come in 18 seconds ahead of Kropf/Nitsche with a fantastic 8:55. Both the first and second-placed teams used automatic filling systems, whereas the Lutkay brothers who retired after their misfortune (64 laps having been completed) still used an orthodox filling bottle. It should be mentioned that the pitting of the winning team was very fast by any standard.

Results: Aerobatics: 1, L. V. deHout (Netherlands) 2842. 2, G. Egervary (Hungary) 2810. 3, C. Capri (Italy) 2809. Team Race: 1, Bader/Kaul (W. Germany) 4:19, 8:55. 2, Kropf/Nitsche (Austria) 4:27, 9:13. 3, Lutkat/Lutkat (W. Germany) 4:31, 64 laps. Speed: 1, G. Frohlich (W. Germany) 135.5 m.p.h. 2, Gorziza (W. Germany) 133.6 m.p.h. 3, Maikess (W. Germany) 133.6 m.p.h. Speed 5 e.c.: 1, G. Frohlich (W. Germany) 132.9 m.p.h. 2, J. Bartels (W. Germany) 118 m.p.h.

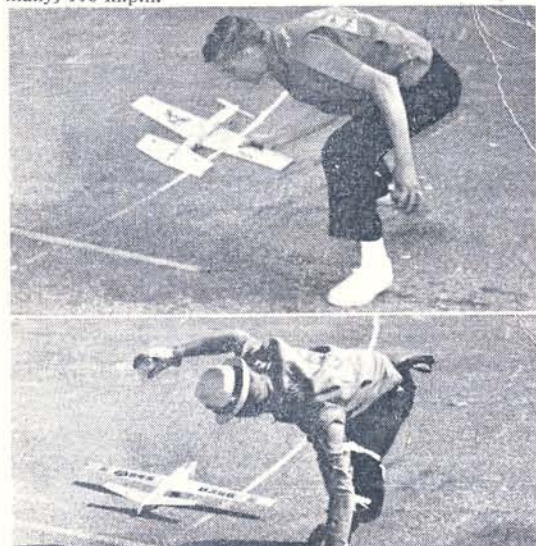


RUBBER MOULDED AROUND HUB IN SMALL HOME MADE MOULD

TEAM RACE WHEEL

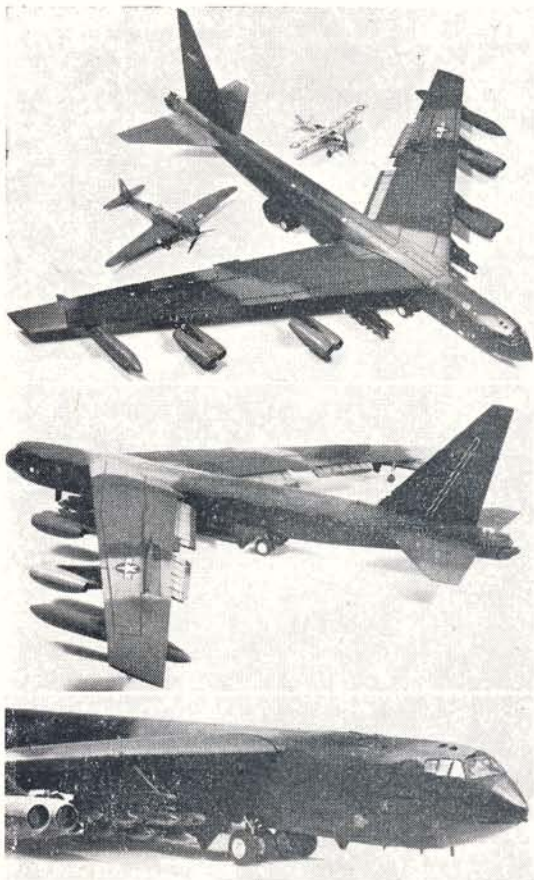
by Babichev/Krasnorutsky

Right, action stops, J. Marvin (U.S.A.) swings back with his H.P. powered Jefe. Next, J. Dunkin (U.S.A.) releases his smart S.T. powered model.





Scale specialist Dennis Bryant at the doorway of his shop in Brockley with two of his many models used to decorate interior, a Percival Gull and Gloster Gauntlet. Below, the huge (22 ins. long, 30 ins. span) Monogram B.52 compared with same 1/72nd scale Airfix Hawker Demon and Fairey Battle. Other B.52 views show extending wing flaps, spoilers, external bomb racks and ten wheel U/C. Interior is detailed with S.A.C. crew and several features operate.

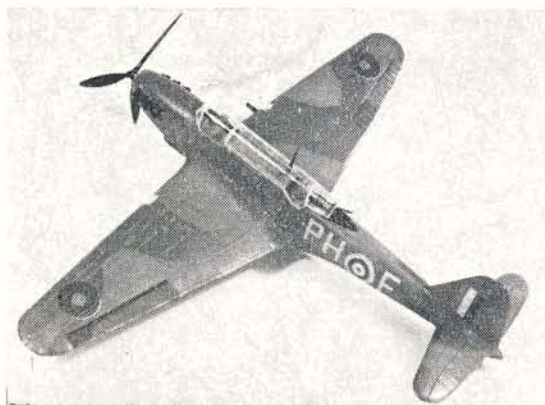


TRADE NOTES

New items in the Model Shops tried and tested by A/M staff members

THIS SOMEWHAT overdue edition of Trade Notes shows a majority of plastic kits in relation to flying models and our collection of new releases is large to say the least. Unillustrated, but interesting, are the Japanese **Tamiya** series of modern fighters which feature some extremely well moulded parts, although in the rather small 1/100th scale, which is a pity now that some other Japanese firms are getting established in 1/72nd models. This series at present consisting of the *Mig 19*, *Douglas Skyhawk*, *BAC Lightning F6*, *Mirage IIIc*, *SAAB Draken* and the *A7A Corsair* will be available from Richard Kohnstam later in the year. From Rovex Industries we have no less than nine new **Frog** kits to 1/72nd scale; *Westland Lysander*, with a nicely accurate outline, a *Phantom* with Royal Navy markings, but representative of the F4B and not the series to be seen in British colours, *Lockheed Starfighter*, *Mig 21* *Northrop F5 Freedom Fighter*, *Vought Corsair A7A*, *Canadair Sabre*, *F105 Thunderchief*, and *Blackburn Shark*. Featuring extremely nice canopy moulding the kits are in general well finished, marred in some cases by excess flash on smaller parts. The Sabre, Starfighter and Shark are at present under construction and comments to date include below average fits on Starfighter, and no U/C wells on the Sabre. Coloured drawings are featured on the back of the boxes give a variety of markings in most cases — full marks to Frog for this useful guidance.

For builders who like larger models the 1/48th scale **Monogram** *Ju87 Stuka* (tank busting version), is certainly a vindication of our own scale drawings as it follows them in all details including subsequently discovered errors! As to be expected it is a perfect moulding, but we fear they've added a needless scale foot to the nose length. Still on 1/48th there is the 'new' **Revell** *B25 Mitchell*, depicting Doolittle's Tokyo raider. Should build into a very impressive replica from a large number of finely detailed parts. During building we are finding that most parts fit beautifully, but like many 1/48th scale models the undercarriage is not retractable, also the nacelles do not fit the wing undersides closely. The long awaited and much heralded giant *B52* from **Monogram** is surely the kit of the year. Finished in Vietnam campaign colours this 1/72nd model is really huge and impressive (size can be determined by comparison with our *Battle* and *Demon* in the photograph). All flaps and airbrakes operate but not the undercarriage, and for £11 19s. 6d. a little more detail would have been appreciated. Perhaps rather gimmicky, full size sound is incorporated using a small electric motor; it certainly has a turbine wail, but of course, without the roar the full size emits. Construction is straightforward and the numerous parts are well fitting; but assembly of that long fuselage requires four hands! Neat additions are the moulded lugs for suspension — for the 30 in. model calls for hanging rather than table top display. **Airfix** have not been idle and several more kits are now available. The *Mig 15* versus *Mirage IIIc* dogfight double, have United Arab Republic and Israeli Air Force marking respectively. For 5s. a nice pair of models can be built, but the Mig fuselage mouldings are not the usual Airfix standard. Also completed are the *Fairey Battle*, in Bomber Command colours, albeit minus prop constant speed hub (shown on box), an attractive model for a modest 3s. 8d., and the *Hawker Demon* biplane fighter. Rare nowadays, this fine biplane kit arrives in the old style packet at the old style price of 2s. 8d., nevertheless a neat model with excellent transfers. A stablemate for the *Beagle Bassett*, recently reviewed, is the new *Hawker Siddeley 125 Dominie*. Like most Airfix kits this model is moulded in the basic colours. Latest of the Airfix models are the *Henschel AS 129*, *Stormovik v FW190* dog fight double, *Curtiss Helldiver* and *Douglas Skyraider*. The Skyraider cockpit interior is a poor fit and a little more



Airfix Fairey Battle recalls early days of W.W.2 and can be made in Royal Air Force or Belgian markings with subtle extra difference in nose detail.

enterprise could have provided folding wings as opposed to fixing the panels in one or other positions. Even so this model looks as though it will make an attractive replica of this beautiful and large single-piston engine fighter bomber for the price of only 3s. 8d.

Accessories

For the many Rat Race fans, **Irvine Engines** can now supply two *Veco* tanks purpose made for the class. Typical sizes are 2 oz. and 2.5 oz., these retail at 18s. 3d. each which is perhaps a little expensive, but the tanks are very well made and come firmly boxed. From the same source we have examples of *Veco* Stunt and general purpose bellcranks and a selection of control horns for both R/C and C/L. Each horn features spring curtain wire type bearings. Of note are the differential flap horns for stunt fliers; these were popular a few years back and differential flaps certainly help to keep these lines tight. The bearings and fitting of the bellcranks are one hundred per cent positive the unit being bolted tightly in place. (No finicky adjustments to obtain the right degree of movement without associated sloppiness or tightness). From **Ripmax** we have samples of the new MK low bounce wheels which are primarily for R/C models. Made from synthetic rubber they are claimed to considerably reduce height of landing bounces and the shock absorption should avoid damage to models. Ranging from 45 mm. diameter to 80 mm. the weights are from $\frac{3}{8}$ oz. and $2\frac{1}{8}$ oz. respectively. Also from Ripmax is a new range of large size leading and trailing edge 'Custom mouldings' that will save hours of sweat and toil for larger R/C and C/L models. They are particularly well shaped and hollowed.

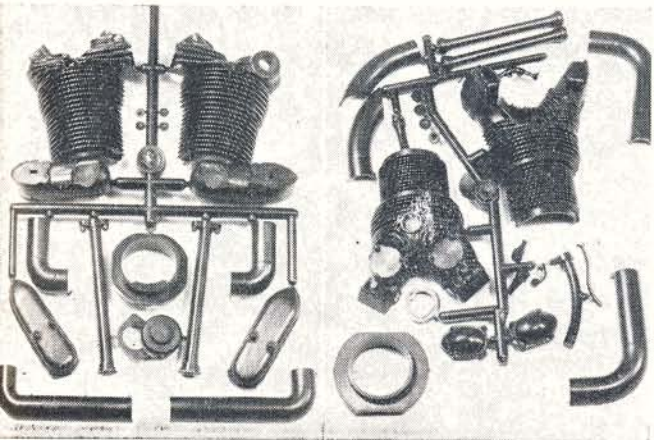
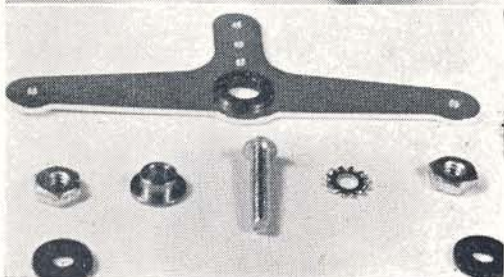
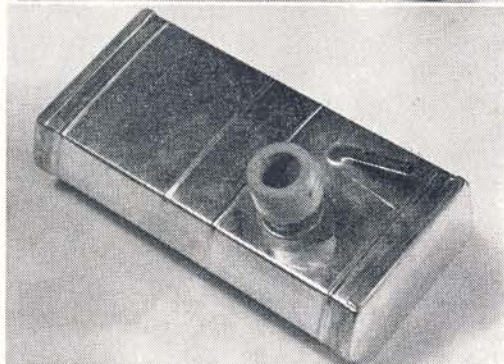
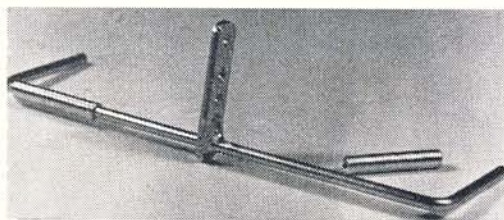
Below, the latest from William Brothers in U.S.A. is a range of 1/12, 1/8, 1/6th scale cylinders for the Whirlwind or Wasp Jr. series. Could be costly to build up a whole engine, but quality is excellent, in stock at H. J. Nicholls, the mouldings come with data for a carved crankcase. At right top is one of many bright finished horn assemblies available through Irvine Engines from *Veco*. Centre is Rat Race Special tank by Don's Model Aerobatics from *World Engines* and at bottom, the *Veco* bellcrank with centre bearing, highly recommended, also from Irvine Engines.



Hawker Demon, a welcome new biplane kit from Airfix is colourful with squadron insignia and gives opportunity to the specialists for 'Rub 'n buff' technique for picking out polished metal parts.

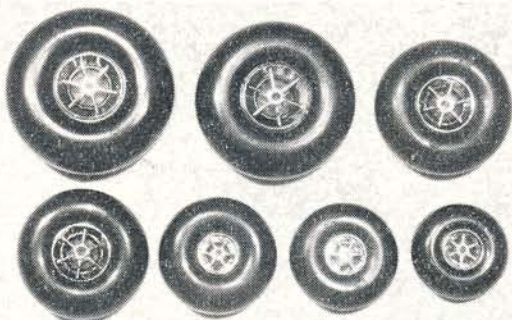
Despite the popularity of iron-on covering materials these remain comparatively expensive, and a new line in covering called Nylon cloth from **Complete-A-Pak**, at 5s. per sq. yd. should prove popular. In yellow and white with other colours to follow, an S.A.E. to Complete-A-Pak will bring a sample. Latest is in 'camouflage' green or earth tones.

From **KeilKraft** comes the new *K.K. Handbook* which is very attractive and contains ninety pages of editorial and catalogue listings. The ranges covered are from the simplest balsa models,





Top, C'mon it's cold! Mrs. R.C.M.&E. holds our test Veron Big Eagle on frozen Ivinghoe. Checked out perfectly, even ideal for beginners! Other pic. shows designer Phil Smith's power egg for the Eagle - handy hint for plainmen. Below, Cdr. Sproule's novel Gyrocopter and Floogle Kite via Solarbo offer loads of fun on windy day, they're educational too!



From Ripmax a range of semi-scale wheels with low-bounce rubber tyres by M.K. of Japan, should suit a wide range of models.

through plastics, engines to multi channel R/C models and equipment. For 2s. 6d. this book is a most worthwhile addition to any modellers' library, and should prove very useful to beginners, most phases of aeromodelling being explained. (And, of course, boat kits and parts are listed and illustrated).

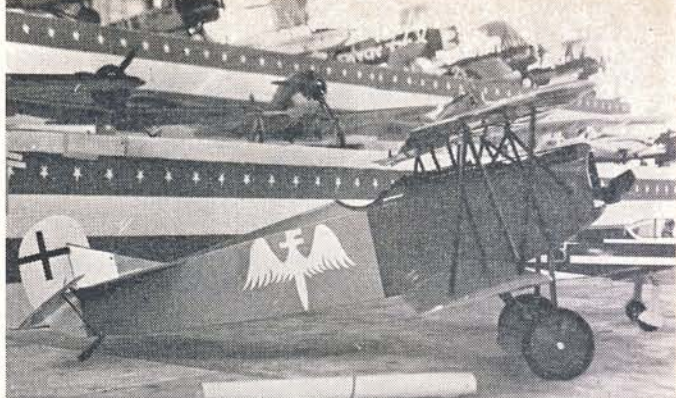
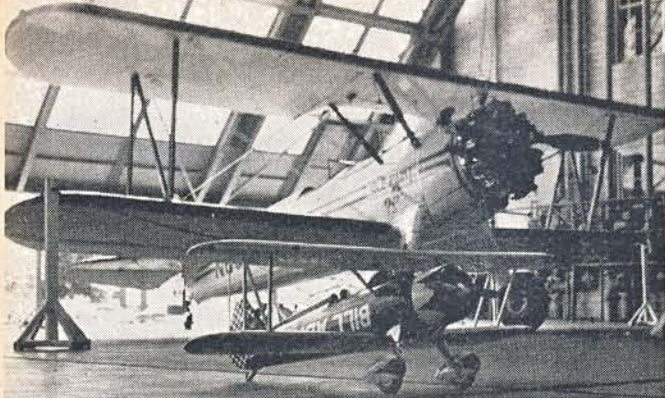
Flying Models

After much labour and several tins of dope etc. being expended our **Veron Big Eagle** is completed. As previously mentioned, the structure is straightforward, the fuselage utilizing spindle mouldings to a large degree, whilst the wings, tail, etc. are built on conventional lines. With the hazards of slope soaring landings in mind the model is covered overall with nylon, blue fuselage fin and elevators, the remainder in red, left with a natural doped finish plus trim and various motifs. Assembled, the model is really sleek and attractive, but that boom looks 'oh, so slender for an eight footer'. The ailerons are rather like flaps on a C/L stunt model but blend well into the wing shape. If the beastie proves controllable with rudder and elevators these ailerons could well be rigged as flaps/airbrakes for thermal soaring, a class which we hope becomes popular and with a hook fitted, Big Eagle must surely be of ideal proportions. However, ours has flown only as a slope soarer. Initial flights in a fair breeze at Ivinghoe Beacon shows that the model is rock steady and very impressive in the air. Gentle landings showed no weaknesses nor did loops which are graceful provided sufficient speed is attained first. (Full flying report will appear in *R.C.M. & E.* December issue).

Dick Edmonds of High Wycombe has now forsaken team racing for R/C and has kitted one of his smaller designs. Known as the **Chaser** it is 38 in. span, and should take a variety of lightweight equipment and .8 cc. - 1.5 cc. motors. The kit is on the latest lines and features moulded expanded polystyrene wings and tail panels, and vacuum formed styrene fuselage halves together with accessories. From very little effort a tough and roomy model can be produced almost overnight. Kits are distributed by KeilKraft and retail at £4 19s. 7d. We fancy it will become a very popular sports flyer in the clubs.

The **Chaser** is almost all-plastic but you do have to assemble the parts! Dick Edmonds has produced a clever 38 inch R/C Sporter at low cost for those who want quick results and a model to stand up to the rigours of tough field flying. Surfaces are specially moulded in Styrene. Flies well, takes all single channel gear.

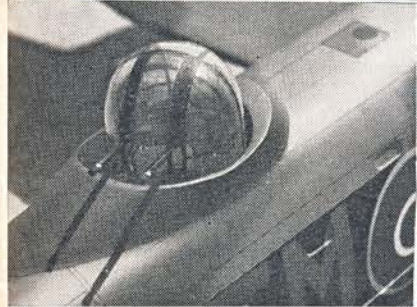
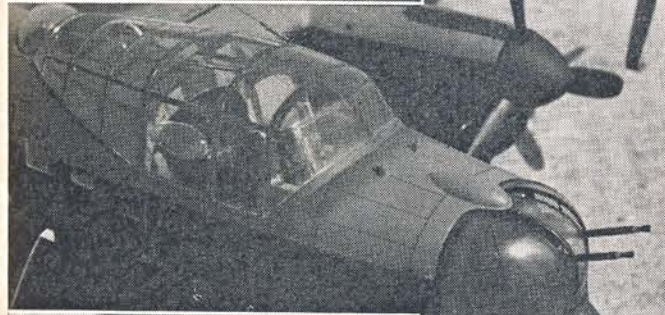




Top left, Bob Keenan of Lincoln, Nebraska entered Bill Adams' 450 h.p. Stearman replica. Model is modified from Sterling kit. Power is by O.S.60, weight 12 lbs. Logitrol 5 equipment. Real aircraft in the background. Above, Fokker D-7 by Bill Bertrand of Allen Park, Michigan. Span is giant 97½ in. Power is by O.S. Max 80, Logitrol equipment. Propeller is 20 in. diameter! Below, Douglas SBD-3 Dauntless by Dave Platt. Span 62½ in., weight 9 lbs., powered by Super Tigre 71, Kraft Gold Medal 6 equipment. Was 2nd in R/C Scale, is a complete re-design of model flown in British Nats, having more scale features.



★ **SCALE**
 ★ **STARS**
 ★ AT THE
 ★ **U S NATS**
 ★ PHOTOGRAPHED BY
 ★ **DON PRATT**



Doctor Keith's Lancaster, winner of C/L Scale deserves close up views of its transparencies, notably front, top and rear turrets. Story of flight related by Bill Hannan last month, weighs 16 lbs., powered by four Super Tigre G.23's.



Above, B-26B control-liner by Edward Shea of Columbus, Ohio. Span is 7 ft., weight is 18 lbs. Powered by two Super Tigre .50's, obviously takes some holding.

Below: Granger Williams' famous 53 in. Nieuport 28 (5½ lbs.) which won R/C Scale after a second flight. Granger and his brother produce the William Bros accessories for scale models.

Below: 1947 Aeronca 7AC Crop Sprayer by Richard Hansen of Cozad, Nebraska. Everything works including the spray rig! Span 77 in., power by Fox 74, Logitrol equipment.





CLUB NEWS

THE MODEL FLYER does not seem to have any inalienable rights where flying fields are concerned. His tenancy on any patch is subject to the continuing good offices of the authority or benefactor concerned. At any time he may be given his marching orders without any good or sufficient reason being offered. Only those fortunate clubs which are able to rent flying space can be sure of some security of tenure, although even their situation would be conditioned by the possible nuisance factor to occupiers of adjacent lands.

In very sore mood, then, the lads of the **Leicester M.A.C.**, having been rudely evicted from their farmland flying site without adequate cause. Small comfort that they got the boot through a whim of the owner rather than through members' misconduct, but at least only the club feelings were hurt, not its pride. Efforts are now under way to find a new stamping ground, meantime the last comp of the season is being held at Braunstone Aerodrome—limited albeit to non-F/F activities as the available flying area is so minuscule. O.K., for C/L and R/C denominations though. From a comfortable outdoors to the prospect of a cosy nosh-in at the Annual Social to be held on the 9th December. Tickets 12s.

Seadog, the **South East Area** bulletin, open lyrically with a reference to the 'waterlogged' 1968 season dripping to a close. 'What season', may I ask? By the time I got my goloshes on and ventured out it was all over. But so much for the tribulations; the Trials, on the other hand, wallowed in the only spasm of fine weather we've had this season. An enjoyable outing, then, for the Area boys who attended the meeting. Most successful of the entries were the two Daves of sunny (well!) **Brighton**, Glue and Welch. Which sound brings us to Chobham underfoot. Why was the South Coast Gala held on this inland lake instead of sea-encircled Thorney Island? Answer is the difference between wading and swimming. Thorney is ideal for keep-it-on-the-island Radio, though, and opportunely the **Chichester Club** has acquired its use for an R/C fly-in. All radio types invited to bring along their models, plus goggles and snorkels, just in case. Oddly enough, in spite of the vast interest in R/C flying, only four competitors turned up for the final round of the Single Channel championships at Headcorn. Weather was superb, too—the Trials week-end. Incidentally, why do Radio models come whacking in to a bouncy, acrobatic landing?

The **East Anglian** Newsletter scents danger in the increased public interest in model flying as a spectacle, citing the Nats., Woodford and Old Warden rallies as crowd drawing examples. Spectator demands are rapidly making the model flyer a second class citizen. However, if public interest is vital to our cause, let us hope a healthier balance of concern is struck than that which is the cause of this newsletter diatribe. I certainly agree that more consideration should be given to the siting of free flight launch points

NORTHERN GALA, SEPT. 29th

R. A. F. Lindholme

Hamley Trophy: (Open Power) 25 entries. 1. R. Peers (Congleton) 8:48, 2. J. O'Donnell (Whitfield) 8:17, 3. R. Monks (Birmingham) 8:03. **C.M.A. Cup:** (Open Glider) 44 entries. 1. M. Dilly (Croydon) 6:37, 2. P. Southam (C.M.) 5:46, 3. D. Wiseman (York) 5:42. **Caton Trophy:** (Open Rubber) 11 entries. 1. D. Wiseman (York) 8:57, 2. R. Peers (Congleton) 8:41, 3. G. Cameron (Baildon) 3:00. **Taplin Trophy:** (Multi Radio) 21 entries. 1. D. Hammant (North Lincs) 5:48, 2. M. Birch (Feltham 5338), 3. K. Jones (Sutton C.F.) 5:018. **F.F. Scale:** 1. E. Coates (Lee Bees) S.E.5a. 6:58, 2. T. Manley (Blackburn A/C.) Bristol Fighter 654. **Combat:** 32 entries. 1. J. Duncker (ACE), 2. G. Howard (ACE), 3. D. M. Phipps (FACCT) and V Hunt (ACE). **Stunt:** 1. J. Mannal (Lincoln) 10:58, 2. M. Mayne (Lee Bees) 9:57½, 3. S. Blake (Deltas) 9:19. **Rat Race:** 1. A. Longhurst (Feltham/Hayes) 6:30, 2. T. Lambert (Feltham/Hayes) 6:41, 3. C. Taylor (Southend) 7:26. **Budapest Trophy** (½ A T/R) 14 entries. 1. Turner/Hughes (Wharfedale) 8:14, 2. Heaton/Ross (Leigh) 8:53, 3. Place/Haworth (Wharfedale) 8:58. **Wharfedale Trophy:** (A.T/R) 29 entries. 1. Turner/Hughes (Wharfedale) 9:39, 2. Heaton/Ross (Leigh) 9:40, 3. Place/Haworth (Wharfedale) 10:15. **ETA Trophy:** (B/TR 16 entries) 1. Blair/Mackay (Esk Valley) 7:53, 2. Place/Haworth (Wharfedale) 8:03, 3. Peart/Laurie (Novocastria) 1:35 laps.



Not for nothing are the Potteries M.A.C. lads known as 'Spitfires'—that's X4590, a beautifully preserved Mk.I behind display put on at Local Museum.

We are told that, at Woodford, it was 40 seconds flying time to the C/L area, 60 seconds to the 3000 car park, and 90 seconds to the main road and hangars. This sort of thing invites in its turn a careless attitude to retrieving outside the 'drome, apart from increasing the incidence of same. When the complaints roll in from the farmers the flyers are held wholly and completely to blame. Another Woodford gripe was that the Rally Queen wasn't up to much. An absurdly shaped airfield, too. The piece ends with a witty catalogue of rally fields, past and present, and their notorious characteristics. Yes, I, too, remember those excursions on the Radlett Railway. Funny that our airfields should be like the American poor—on the wrong side of the tracks.

Unfortunately, the heading of the article in **Northern Area News**, 'What is Happening to our Hobby', is a misprint. Apparently there isn't much to get 'hep' about in this much-harassed sport of ours, but I never knew there was so much to gripe about. Here it's a case of 'Nuts to the Nats' from Alan Brocklehurst of Halifax, but much as I sympathise on certain aspects of the spectator and his car menace, he cannot be ruled out entirely. More often than not he is not just a casual rubbernecking member of the public, but someone with some interest in model flying, if only minimal. A measure of this is the amount of trade done by the field model shops, now very much part of the rally scene. Unless you give encouragement to this fringe multitude there is little point in holding large central rallies. I agree, however, that prime consideration should be given to the star of the occasion, the contest model flyer. Another item of interest is one on tactical flying. This now seems to be a world problem. Piggy backing (correctly pic-a-backing, I think) is one of the dubious plays used by the win-at-all-costs boys. The idea is to cash in on anyone's good thermal finding luck by launching up on its tail. You wait, wound up and ready down wind. Seems pretty harmless compared with the long term hogging of timekeepers, or perhaps that's involved in piggy backing as well. Question raised, should a new form of contest be introduced? One mooted here is a knock-out system, with contestants drawn in pairs, flying through to a grand fly-off final of the two emergent semi-final winners.

The contest format issue is also the subject of some info we have from Philip Francis of the **Luton & D.M.A.S.** The theme is Slope Soaring, and the occasion a meeting at Ivinghoe Beacon on September 29th. The max limit was fixed at 2 mins. on the day in order to suit that contest to the conditions. Competitors getting three maxes went on to rounds 4 and 5. The consistency factor thus having been established, maximums are extended for final rounds, thus giving scope for out and out performance without the ignominy of a post contest fly-off. Much thought altogether is going into slope soaring contest systems. I particularly like the Trevor Faulkner idea of a points carry-over system per round as a variation on the three-flight eliminator method. I remember suggesting something similar for the Wakefield almost twenty years ago; giving bonus points for a max and progressively extending maximum times over the rounds.

Among other officers due for election at the **Belfast M.F.C.'s** A.G.M., is the Chairman. It is recommended that he be level-headed, not, presumably, because of a low clubroom ceiling, but so that he **Leicester M.A.C. participation in Leisure Exhibition drew crowds and lots of interest—it pays to publicise club activities this way.**

SOUTH COAST GALA, 13th OCTOBER

SOUTH EASTERN Area were afraid that this would be 'just another Chobham 'do' so they did their best to have an interesting programme and a big award display plus better than usual organisation. The weather co-operated by not raining; but the wind was strong and a number of brushes with the dreaded 'tank factory' were reported. Entries were not as good as had been hoped for, mostly the hardened contest men attended. The **Tailless** event attracted 9 entries including John Pool down from Halifax and Josh Marshal who we were particularly glad to see flying again. **Vintage** was poorly supported, Ian Lucas making a rather spectacular event on the adjoining road with his *Banshee*, Graham Head won this with a *Mallard*. No other fly-offs were necessary, except than to determine 2nd place in open power after a tie, which points out the generally poor conditions.

The Area try vigorously to get an airfield for the Gala next year – and some pleasanter weather than experienced this year!

Results:

All-in F.A.I.		Power	
1. J. O'Donnell, Whitefield	12:12	1. P. Stewart, Crookham	8:11
2. C. Morris, St. Albans	11:47	2. M. Dilly, Croydon	8:01
3. D. Hipperson, Croydon	11:38	3. F. Chilton, Crookham	8:01
Tailless		Vintage	
Glider – D. Wylds, Crawley	2:42		
Power – G. Mills, Leatherhead	3:16	1. G. Head, Brighton	4:22
Rubber – K. Abbiwell, York	4:31		
Glider		Rubber	
1. J. Mabey, Croydon	8:44	1. E. Gravett, Brighton	7:57
2. R. Bailey, Croydon	7:29	2. R. Peers, Congleton	7:30
3. I. Worrall, Woking	7:08	3. R. Pavey, Norwich	7:28
Senior Champion – R. Peers, Congleton			
Best Junior – A. Chilton, Crookham			

might remain calm when all about him, etc. The office of Secretary and other committee seats would seem to require no other qualifications than the energy and will to do the job required – and that's asking quite enough, believe me! A bevy of boys from the South helped to amplify the entry lists for the Ulster F/F Nats, held at Bishopcourt on September 14th. Plenty of wind kept scoring low, but with the max reduced to a cautious 2 mins. this hardly mattered. Even so, Rubber had the only fly-off. This between J. Adams of Belfast and G. Fitzpatrick of Dublin. The North/South duel was not resolved until the third fly-off, both maxing out on the first 4 min. limit and the first 5 min. limit. It was Jim Adams, however, who clinched it with his Tidswell model by getting yet another 5 min. max. The same gentleman also won Glider and Power. Talk about seven league boots!

Further to the few words we had to say on Trevor Faulkner's Slope Soaring contest points system, we now have a report from him of the **Sheffield S.A.**, contest, held on Tinker's Monument, Nr. Huddersfield on 22nd September. Trouble with Slope Soaring is that the higher you go the windier it gets. And when you're braced against a face-pushing 35 mile an hourer, its tough going for your helpless free flight model. Understandably, then, that on this occasion the max limit was screwed down to 40 seconds for free flight and 60 seconds for the wind-nosing magnet models. Maxes, few at first, increased over the six round schedule. Altogether five magnets model competed, providing a good work out for this class of model in testing conditions. Alan Caunt of Gainsboro' took first place and R. Hoff second. R/C flyers were also there to brave the wind and the rain at this summit meeting. The multi boys – and there were several



Contest Calendar

December 26th Woking Boxing Day Gala. Open R/G/P 2/6 entry
2/6 re-entry. At Chobham Common.
January 5th Bill White Day. Open rubber (Bill White Cup), open
G/P, all in F.A.I. Blackheath M.F.C. At Chobham
Common.

here who really knew their stuff – were far from subdued by the conditions, using the lively air to add zest to highly aerobatic performances. Well worth the Jack and Jill trip to see. Single Channel, too, was hardly routed, the models holding against the wind extremely well. T. Marden of West Mendip was top in Multi and P. M. Lang first in single. Meritorious mention for man, or rather Master, who placed third in the single event. Although but a Junior he won the Novice Prize, a transistorised radio.

A radio schedule of an indoor rather than an outdoor flavour is listed in *Relay*, the bulletin of the **Fylde R.C.M.S.** It includes a Scale Model Nite, Discussion Evening, Auction, Bring and Natter, and a Grand Dinner. Enough clubroom entertainment to keep everyone in or out of mischief until after Christmas. Tickets for the Dinner are a quid a time, and wives, girl-friends, secretaries, au pair girls all welcome. Adding up to five quid a time for the man who leads a full life. For outdoor pleasure the enterprise and pertinacity of the Chairman and helpers has rounded up a trio of airfields for offer to the members, which is as good a way of keeping them happy as any. High spot of a Sunday meeting at Bispham was a display of aquatics by Stan Hill. After stripping down to his airtex he did a Bobbie McGregor across a pond to retrieve his P.Z.L. model. Both magnificent man's frame and the frame of his flying machine were satisfactorily dried out. A club campaign is afoot to get maximum support from non-flying members to perform those necessary but interesting duties associated with the R/C contest, such as crowd control, judging, pit-work etc. Let's wish it success.

There's a lot of exciting talk going the rounds in Ireland over the possibility of the 1969 F/F Champs being held in the emerald isle. Anyway, the Bulletin of the **Model Aeronautical Council of Ireland** is sounding out support for the project. Question is, could it summon up the necessary organisational effort? (Austria, the U.S.A. and other nations are working on the same project.) Ideal geographical site: good access from all points of the compass, but what about that uncertain weather? On this point an embarrassing amount of wind gave competitors a hectic day at the Munster F/F Championships, held at Curragh. In spite of the max limit being lowered to 2 mins. competitors were going o.o.s. with sub max scores; the contest becoming a test of eyesight rather than flyability. Usually, though, the high climbing model, flying say, to a five minute capability, will stay in sight longer than the 2 minute plus, low altitude flyer. Again this was a North/South Derby between **Belfast M.F.C.** and the Dublin Phoenix AC. The other featured club, **Cork M.A.C.**, failed to place in the top threes of Rubber, Glider and Power, but had only four members competing. Fred Jackson of Phoenix took Glider, Jim Adams of Belfast Power, and Maurice Doyle of Belfast Rubber. Even worse, though, the weather for the R/C Nationals at Baldonnell. A two-day event this, but the drome did not become available on the Saturday until 5.30 p.m. Single was flown, and only Howard Menary showed real competence combating the battering conditions. The Saturday wind proved to be but a warming up prelim for an all-out effort on the Sunday. The Intermediate, scheduled for the day previous, had to be abandoned; so it was left to the Multi boys to retrieve something from the ill-fated meeting. They did just this, with the entry of ten putting on an exciting show. John Dible won in well-practiced style.

Seems the British modeller is a respectful sort of cuss compared with his more forthright American counterpart. The editorial in Oregon's *W.M.C. Patter* claims that letters addressed to the editor usually begin, 'You dirty so and so'. However, I suspect the dear ed had his tongue in his cheek when he made this claim. (To feel for a lost tooth). Is it *fin-de-siecle* for overworked Radio in this part of the world? Report has it that one or two of the bleep experts are drifting back to chuck-it-and-chase free flight, but perhaps it's only Keep Fit week. If we have our airfield and weather worries over here, they, too, have their share Oregon way. Take the N.W. F/F Champs, for instance. Three times the promise of an airfield vanished after much assiduous chasing, then came the great day and it was swamped with 2.28 inches of rain and blasted by 30 m.p.h. winds. Yet plenty of competitors flew to return high scores.

Finally, we read in *Windssock* (West Coast, Australia), that someone is actually flying a Radio model in Vietnam. Who said it goes like a bomb?

A happy Christmas to you all.

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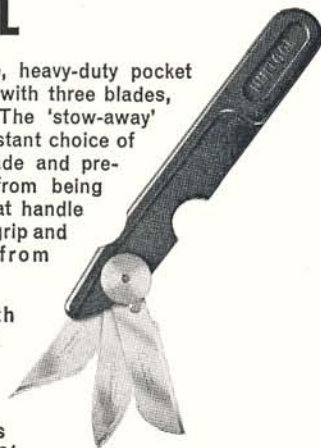


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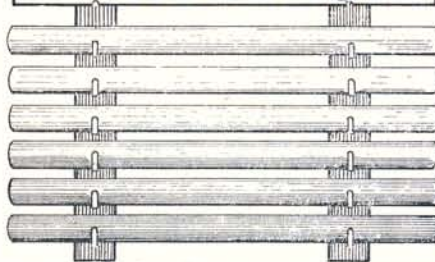
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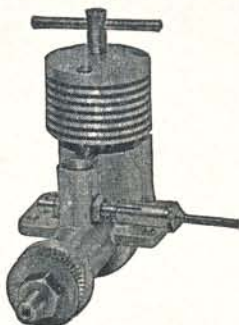
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MECCANO[®] Magazine



Slot racing car enthusiasts have a really detailed feature on how to build a Riko competition car – a Lotus Escort as depicted on the cover. There is also the superb 24 page Riko handbook given away free with this issue in addition to the usual editorial pages. Railway fans are instructed how to wire layouts up and there are simple plans for construction of an electric steaming engine. All the usual features and lots of new Meccano models are included as usual – written with the 12-16-year-olds in mind.

1st FRIDAY MONTHLY

2/6

MODEL CARS

**Model
Cars**
1968



The January 1969 issue will have drawings by Roger Taylor for the McLaren M8A and the Lola T.160 Group 7 cars, so popular with slot racers at the moment. There will be the conclusion of this month's radio controlled car article with many more drawings for those who have had their appetites whetted and would like to try for themselves, with more news on this off-shoot of the hobby from the United States. John

Veasey is back again with gen on building winning chassis and we have lined up an interesting article about Acorn Models which shows

how to build up these new models. Then there's a 1/32nd scale Cooper F.1 Model with suspension and steering for concours builders and for die cast collecting enthusiasts, good news with the return to these pages of top authority Cecil Gibson for a regular series.

1st FRIDAY MONTHLY

2/6

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aeromodelling
& radio control

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38th MODEL ENGINEER EXHIBITION

31st DECEMBER 1968 - 11 JANUARY 1969

(Excluding Sunday) 31st December open to the Public 2.30 p.m. to 9 p.m. Thereafter daily 10 a.m. to 9 p.m. until Saturday, 11th January, closes 7.30 p.m.

SEE AND ENJOY

There will be a magnificent collection of models of all sorts shapes and sizes covering locomotives, traction engines, steam rollers, ships, yachts, cars, aircraft, in fact anything which can be modelled. These entries will be competing for a wide selection of trophies, cups and other awards as individual entries. In addition this year the emphasis will be very much on the club

WORKING MODELS

The ever popular live steam exhibit will be operated by the Society of Model and Experimental Engineers and youngsters of all ages, five to seventy, will be able to have a ride behind the steam engine. A new departure this year is to provide some space for the live steam operation of steam road vehicles, model rollers, model traction engines and the like. These will be operating alongside the railway passenger track. A further movement activity will be the new competition for the LBSC Memorial Bowl where locomotives must perform a track test to qualify for their prizes. The S.M.E.E.'s own stand will also, of course, have its usual selection of models operating under compressed air. Also showing for the first time will be a number of miniature

MODEL TRADE SUPPORT

Once again we welcome members of the model trade who will be displaying their wares and in most cases selling their products. We have Auto-Models, Beatties of London, Howell Dimmock Kennions, Myfords, Traction Engine Enterprises, Historex, Peco Publications, Cromar White, Flying Dutchman, Lewisham Model Centre, Hugh Evelyn, Great Western Society, Richard Kohnstam and Model Racing Car Centre, in fact, there should be somebody to

SOUVENIR GUIDE

A very special Christmas Extra issue of Model Engineer will be coming out on 10th December. This will be the Exhibition Souvenir Handbook and Guide. It will contain Exhibition Entries, details of Stands, plus articles by experts on all aspects of modelling. Some special articles include: Clock-On sale everywhere and at the Show. If you cannot come get a copy and it should persuade you. If you expect to come read all about it first.



PARTIES

Many clubs will be organising parties to come. We shall be very happy to welcome them, give them reduced price bookings, also book up party lunches, teas or other meals well in advance.

Single and small number pre-booking tickets are available from these offices at Adult 3s. and Child 2s. Parties of more than ten - Adults 2s. 6d. Child 1s. 6d. Admission at the Pay-box is, Adults 4s., Child 2s. 6d. Any youngster at school is a child. Under five, admission free accompanied by an adult.

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aspect and not only the governing bodies but some of the larger individual clubs have come together to give a composite exhibit of their efforts.

Meccano will be displayed, both working models sponsored by some of the specialist Meccano Societies and an actual contest for Meccano model entries.

railway layouts based on some of the proprietary manufacturers including Triang, Trix and Fleischmann. We are also happy to welcome the Tramway and Light Railway Society with a working tramway exhibit.

Other special features will include an historic Dinky Toy collection alongside which will be shown the existing modern Dinky Toy range showing progress from 1934 to the present day. Another special feature will be a collection of Edgar Westbury's designs over the years. These are not E.T.W.'s own models but are representative of his designs and have been collected by well-known modeller Gerry Buck and restored by him to impeccable exhibition condition.

please the enthusiast in every angle of model making. Our own M.A.P. books will be on sale and a number of representative model governing bodies will be exhibiting including The Society of Model and Experimental Engineers, International Plastic Models Society, Model Power Boat Association, and the Model Yachting Association, all of which are National Non-territorial bodies. In addition there will be a number of club features to show what can be done.

making by Claude Reeve, Small Gauge Railways, Sixty Years of Model Flying, Radio Control Aircraft in Films, Approach to Model Car Collecting, Pairs Racing Model Boats, Hovercraft in Model Form, Meccano as Engineering. The Guide will be 72 pages, our usual magazine size and price 2s. 6d.



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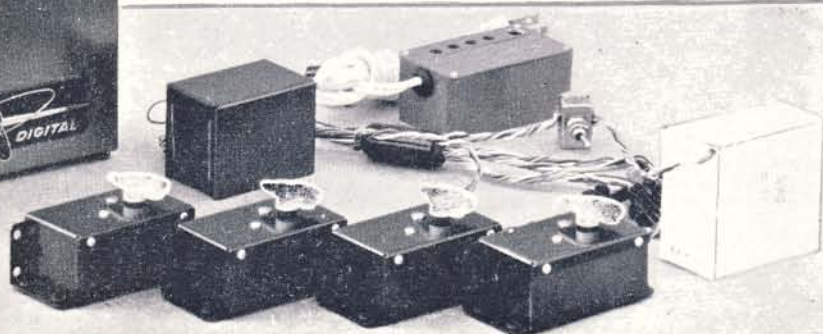
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Push rod end 5mm. pkt. of 2 2/9
Push rod end 6 mm. pkt. of 2 2/9
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Nylon spinners (plated) 2 1/2" 12/11
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