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MAY 1969

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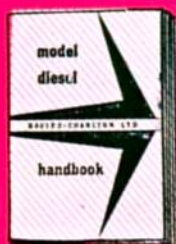
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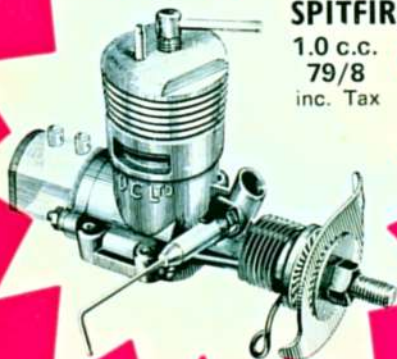
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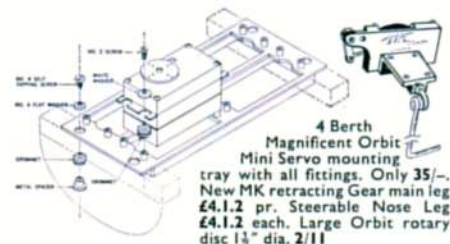
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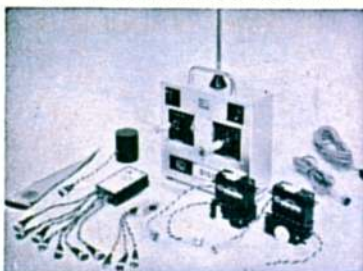
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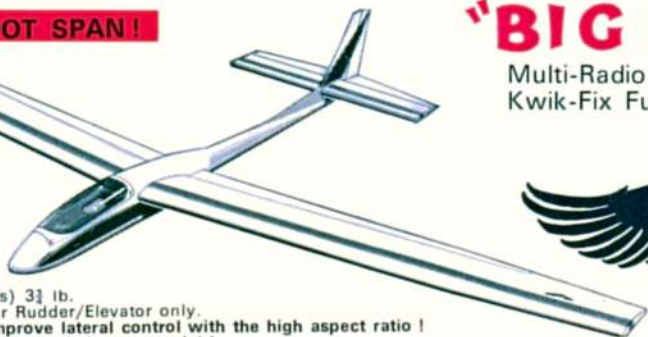
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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

May 1969

VOLUME XXXIV No. 400

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COMMENT

That old chestnut which has bedevilled all sporting activities which are controlled by unpaid voluntary officers will rear its head with vengeance this year at the Nats. The nut which is so hard to crack is the lack of administrative capacity. So far this year we have seen two of the most popular newsletters cease production for the lack of someone to pick up the job of producing them, and one cancellation of intent to run a popular rally at Easter due to a change of committee personnel who stated they had neither the time nor experience to proceed with the event. For the Nats, there is a different effect. Criticisms of crowd control and contest admin. in the past have introduced increased expenditure for which the visitor will have to pay. Regimentation has hit the R/C sidelines with a demand that Saturday test flying is taboo, and all transmitters have to be surrendered by 8.30 a.m. on Sunday, 7.30 a.m. on Monday . . . and if you are late, then you are out! It has also been made clear that without volunteers to run the camp site, there will be no camp site! Seems a great pity that with each successive year, discipline and finance seem to assume greater importance than model flying itself.

on the cover

'El Dowle', otherwise known as Frank, from Liverpool, is a maestro of the chip-chop quick reaction demanded in top contest combat performance. His 'Liquidator' design appears on pages 230/1 of this issue, and comes just at the right time for those who are still making up their minds as to what to build for the rallies.

next month

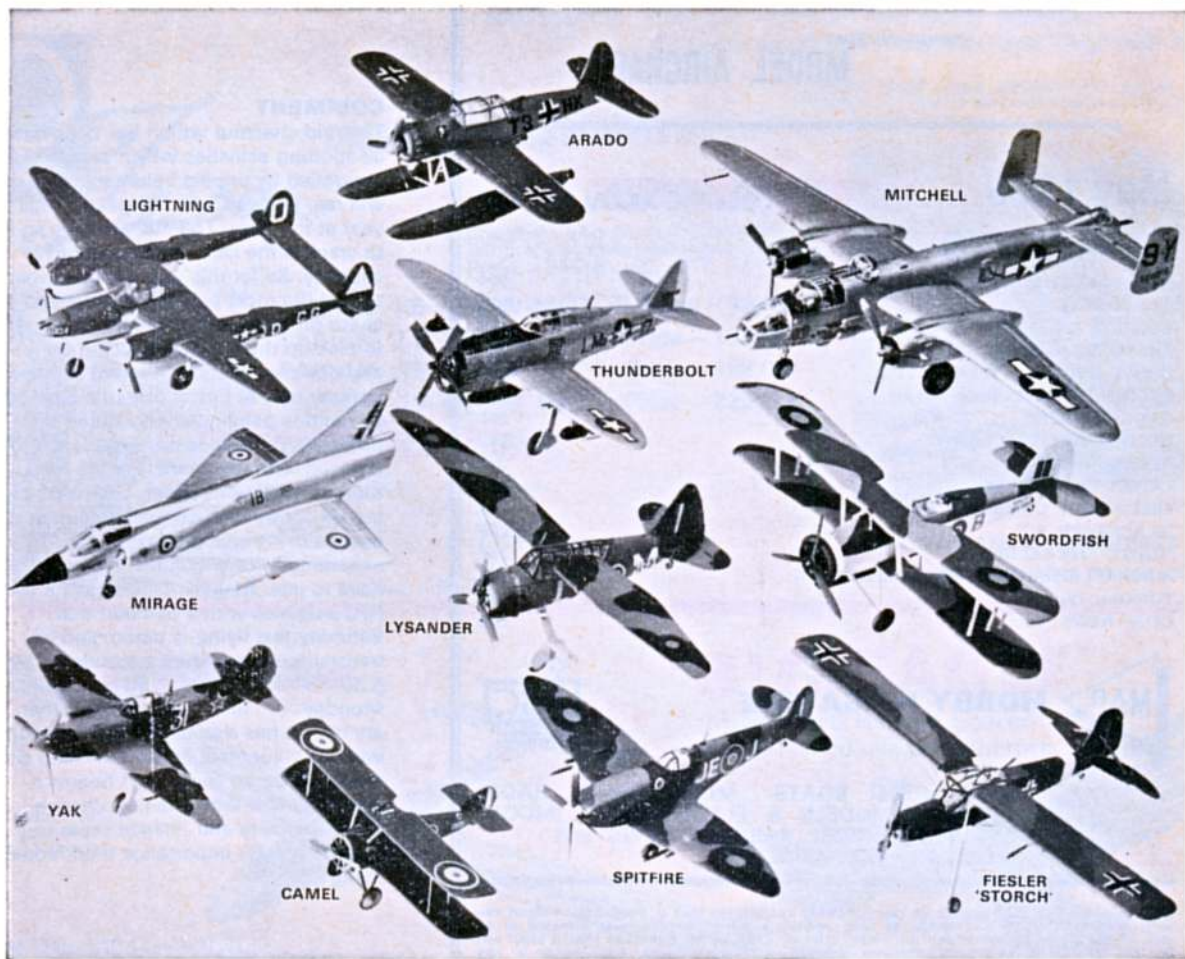
Our mid-year free plans, with two fine sports designs, a semi-scale 'Foka' glider from Poland, and 'The Hawk' a sheet free-flight power profile biplane for .049 engines, plus a novices novelty feature and an F.A.I. free-flight power design. Scale drawings, news from the Esher R/C Symposium, new plastics and control-line developments supported by regular features, out May 16th.

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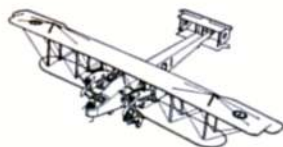
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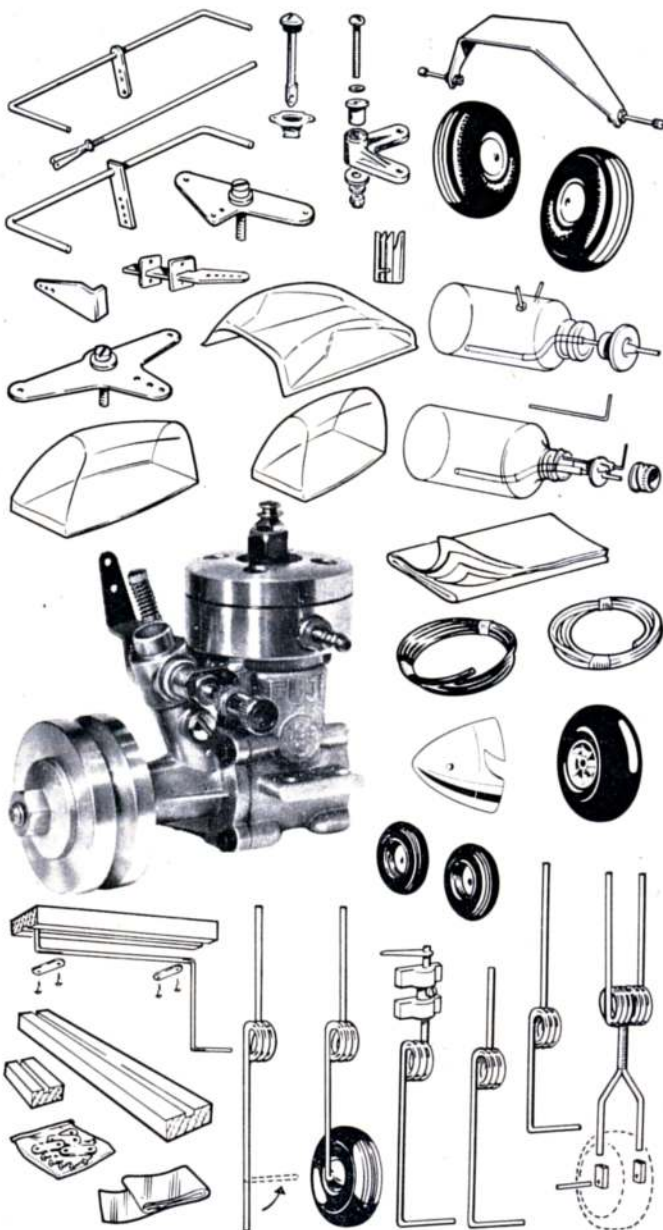
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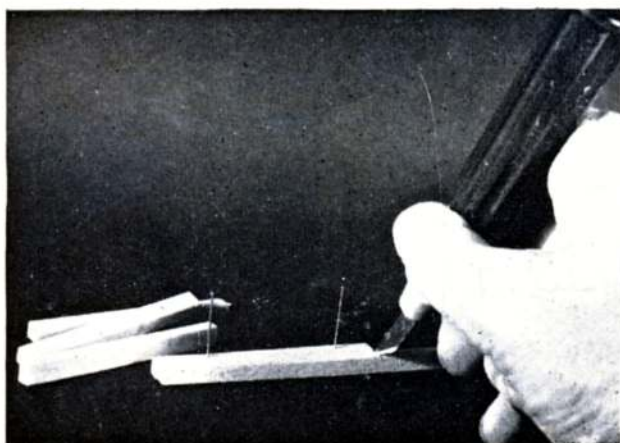


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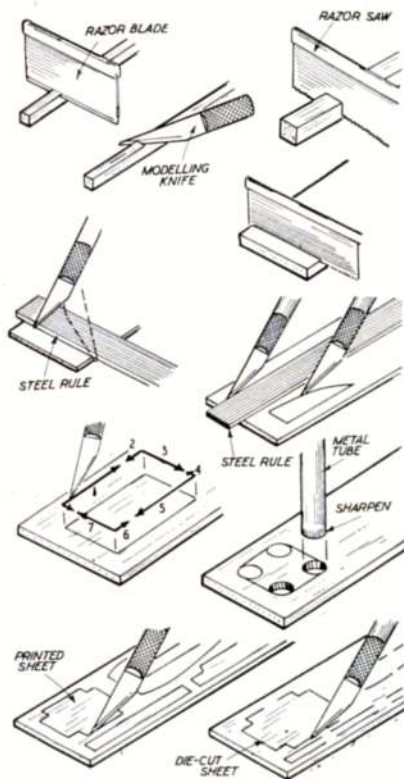
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MS3/69



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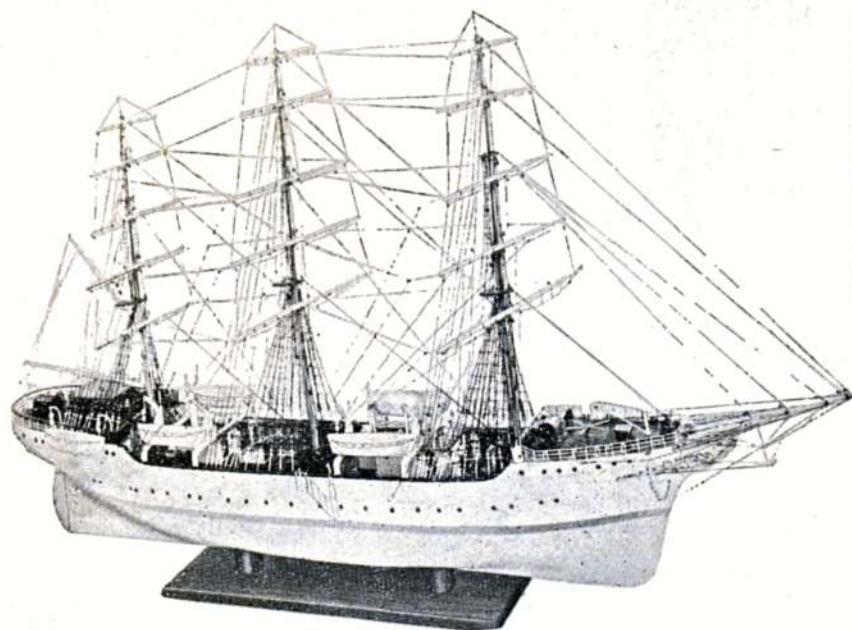
Using the proper tools makes for better workmanship, provided you have selected the right material for a start. That's why you should always work with Solarbo Balsa. Every piece has been selected for you and passed by our inspectors as the best aeromodelling material. You may go wrong in your choice and use of tools, but you won't be wrong in asking for Solarbo Balsa for all your aeromodelling jobs!

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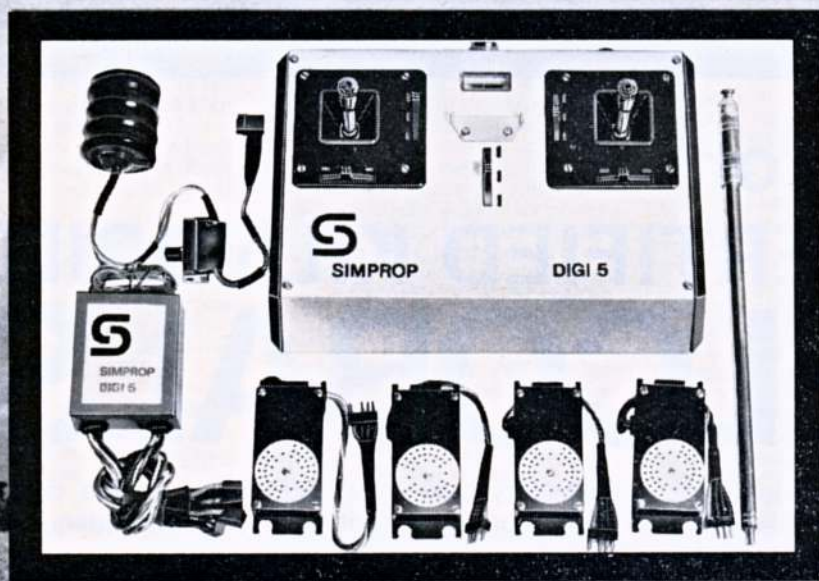
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Heard at the HANGAR DOORS

MARCH cover photo of Trevor Payne's 'Perigrination' attracted the eye of R. Lyon. The model looked remarkably like one he recovered whilst pheasant shooting on the moors at Lindholme. He was kind enough to write us, asking to be put in touch with the owner. However, we were mystified. Trevor lost his 'cover' model from Woodford in Cheshire. How did it cross the pennines to land near the airfield used for the Northern Gala? It didn't! It was a duplicate model, lost at Lindholme. Mr. Lyon has eight other models waiting claimants.

JOHN PATTON is elected President of the A.M.A. for 1969/70, gaining 36 per cent of the 4,944 votes cast in the U.S. election. This return, 19 per cent of the membership, and the keen competition for nomination (some are so anxious they persuade editors to fill pages of vilification) is in direct contrast to the situation in Great Britain.

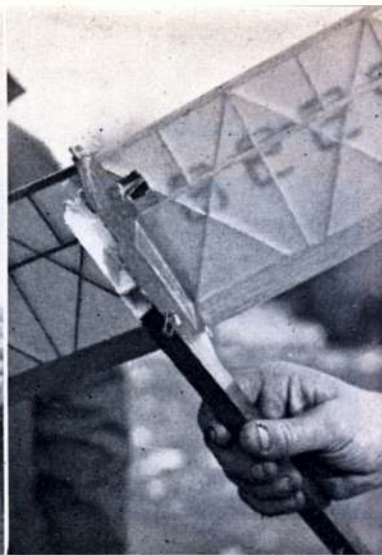
The A.M.A. also announces that tuned pipes are prohibited in free-flight except for the International F.A.I. Power category and that new line diameters for control line remove all previous C/L Speed records. New sizes are:

.049 Monoline .014 in. 2-line .008 in.
.19 Monoline .020 in. 2-line .012 in.
.29 Monoline .024 in. 2-line .014 in.
.60 & Jet Monoline .031 in. 2-line .018 in.

All line ends to be wrapped and bound.

FROG 249 BB. Price quoted in the advertisement for A. A. Hales Ltd. last month was in error by as much as £2! Correct price for this engine is extremely reasonable, £5 15s. 0d. (115/- not 155/-). In these days of escalating prices this represents extremely good value for money when one considers the competition performance of this 2.5 c.c. twin ball race diesel engine.

EIGHTH POSTAL International, run by Norwich M.A.C., was well supported and has produced a fine document of results, reports and drawings of models via Mike Woodhouse. Top club in combine F.A.I. was Thermikschnuffer of West Germany, leading Copenhagen, Southern California (SCAT) and Norwich in that order. Top rubber flier was Christer Schwartzbach of Copenhagen, in Power it was Craig Cusick



who ousted his clubmate Bill Hartill in a fly-off, while Bob van Nest came 3rd to make it a SCAT 1, 2, 3. Top Glider man was also from SCAT, Jim Trego.

GLIDER COMPETITION is being organised by the Isle of Wight Branch of the Royal Aeronautical Society with a closing date of May 31st. The contest will be judged on workmanship as well as duration, and will take place in July. It is intended as a pilot scheme for powered model contests in future. Schools and Youth clubs, local modellers are invited to contact the organiser, H. A. Pook at I. of Wight branch, R.Ae.S., British Hovercraft Corporation, Osborne, East Cowes, I.O.W.

NORTHERN AREA NEWS has ceased publication. This is not for lack of contributions, but for the simple reason that there does not appear to be anyone able to carry on the editorship after retirement of the current editor, John Pool. 'N.A.N.', with its characteristic blue stencilled foolscap sheets was always a welcome arrival. It carried a message for contest free-flight which was read all over the world. Provocative comment, or scoop release three views of contest winners were part of its regular make-up and though its circulation was nothing extraordinary, its effective influence was considerable. What a pity it is that John cannot carry on with the monthly 'burden'. He promises to produce Tailless News and other specialist literature when possible. This now seems to leave Peter Brannigan's 'The Message' out on a lonesome limb of erudite opinion on the troubled world of the contest flier.

DANGEROUS FLYING is mentioned in the Feb. '69 edition of 'The Message', and a motion was passed in the North-Western Area Committee to the effect that: 'Complaints have been received of dangerous and inconsiderate flying at recent meet-

Crookham Gala vandalism (see Club News). Pete Stewart of Crookham retrieved the remains of his 'Dixielander' after a long search - minus engine and timer! Right: The remains of D. Shepherd's 'Mini Weaver' after attention from Chobham vandals. 1/2 A. flying is expensive for juniors at this rate.

ings and, in future, authenticated cases will result in clubs and individuals being disciplined'. Specific cases mentioned were at an open day at R.A.F. Tern Hill, and the culprits were crowd buzzing R/C enthusiasts. A similar complaint reached us recently after an invited display by manufacturers and reps from two clubs was given to a crowd at an aerodrome. The manager was so shattered at the standard of flight safety he was immediately provoked into advising us of his intention to restrict model activity on his aerodrome. Checking with those involved produced strong denials and claims of absolute innocence. Yet the aerodrome manager is possibly the most experienced flying instructor and training school executive in the country. Such divergence of opinion on flight safety standards clearly indicates that the modellers are not aware of the requirements which affect full-size, and that a code of safety practice should be prepared. We hope to publish a feature on the subject in an early edition of our companion magazine, *Radio Control Models & Electronics*.

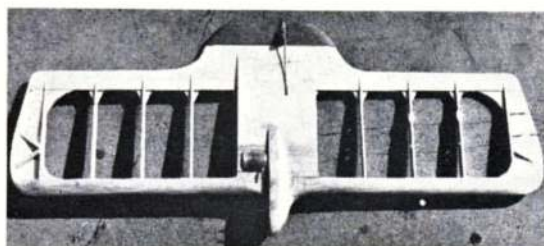
NATIONALS, details will be given in full next month; but now is the time to start planning that Whit weekend trip to the west country, and pleasant R.A.F. Hullavington in Wiltshire. Some might wish to combine the Nats excursion with an early holiday and we can think of none better than to the two aeromodelling hosts with flying facilities at their doorsteps, namely Fred Deudney at Lower Moorhayes, Cullompton, Devon, and Harry Stillings at his caravan site, reached via Box 835 of our classified dept.



THE MODEL ON THE COVER

Frank Dowling's fast, manoeuvrable, tough
F.A.I. or S.M.A.E. class Combat contest winner

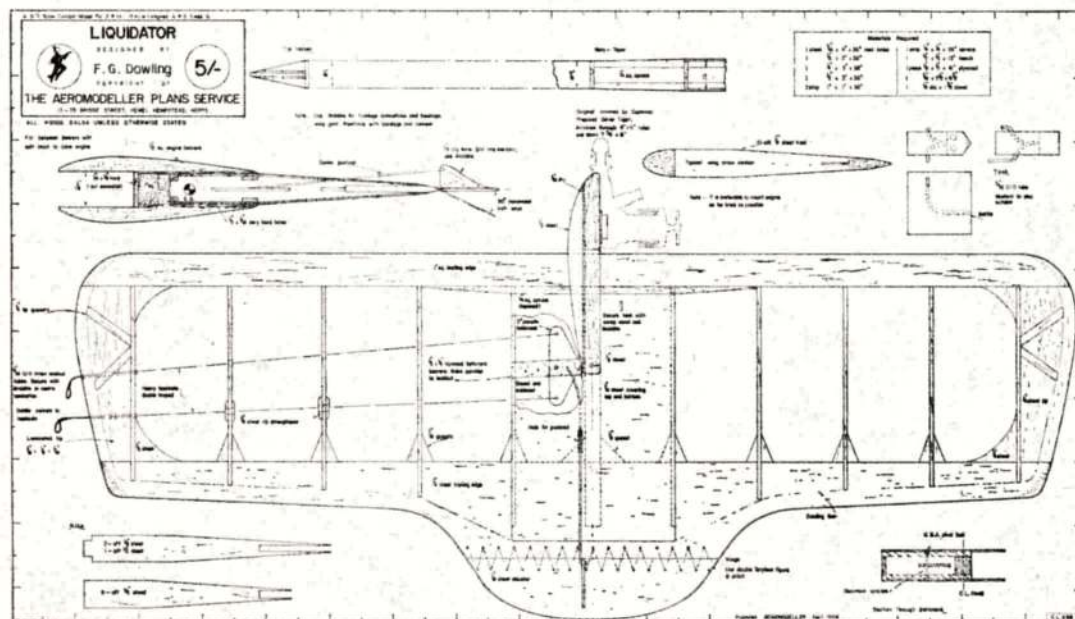
LIQUIDATOR



AFTER THE 1967 Nationals I set about designing a model that would out-perform the low aspect ratio models which were then so popular. Several models were considered before the prototype was built, these included *Warlord* (by Smith of Feltham), *Overlord* (by Jones of A.C.E.) and *Warmonger* (by Dixon of A.C.E.). With some features borrowed from these models and some new ideas the LIQUIDATOR was created.

The first LIQ was built during a working holiday in Valencia, Spain. Along with my companion and A.C.E. pitman, Len Smith, I entered it for the 5th National

Full size copies of this 1/6th scale reproduction are available through Aero Modeller Plans Service, Plan CL 998. Price 5/- plus 6d. post.



Spanish Interclub Championships. This competition gave the LIQ its first win and started a list that now includes four first places and numerous seconds and third places, flown by members of 'Amalgamated Combat Exponents' including myself, Vernon Hunt, Steve Jones, Graham Howard and John Dixon.

Commence building by cutting the ribs from medium to soft balsa. Use templates and the sandwich method. Lay the leading edge on a flat surface and glue the two tip ribs and motor rib on with 'Humbrol 66'. Sight, and adjust until they are set perfectly true. This is important because if warps are built in at this stage you will find them difficult to remove.

When the basic assembly is dry, insert all ribs and the $\frac{1}{4}$ in. balsa outboard tip plus trailing edge. The inboard tip is made of three laminations, with the lead-out tubes secured in the central lamination with epoxy. The rib gussets can now be added, along with spruce strips in the centre section.

Install bellcrank platforms and solder up the heavy Laystrate leadouts. At this stage the tank is firmly cemented in position, checking to see that it is exactly on the centre line of the model.



Cement engine bearers to 1/16 in. ply fuselage pod using epoxy. The balsa pod is also glued in the same way.

While the fuselage assembly is drying the wing is sanded; paying particular attention to the leading edge taper. The fuselage pod should be epoxied to the wing assembly with the motor as close as possible to the leading edge.

The whole model is given two coats of clear dope and sanded prior to covering until a smooth finish results.

Nylon of a medium grade is recommended for covering. Give five coats of 50/50 dope and thinners, allowing each to dry thoroughly, and finish with three coats of colour and fuel proofer.

Balance at indicated position. If the model is nose heavy, heavily fuel proof the elevator or even add weight as the C/G location is all important. Several top-line fliers have flown the prototypes and expressed their satisfaction at its airspeed and tight radius turns. In fact, they all liked it very much - how about you having a try? You'll have to watch out - this model is no slouch on the end of 50 ft. lines!

There's an awful lot of know-how in what otherwise appears to be a very simple design for Combat. Frank illustrates the 'grip' for the pitman to use in starting the Copeman modified Oliver Tiger 2.5 engine.



To the winner the spoils! Frank collects his prize at the Woodford Rally from 'Miss Aeromodelling' - and takes a bonus kiss soon afterwards. No holding these fast Combat lads!

CONTEST CALENDAR

April 20 CONGLETON MAC RALLY, Chuck Glider, Open R/G/P, C/L Aerobatics, R.A.F. Chetwynd, Newport, Shropshire, 8.0 a.m. S.M.A.E. members only.
April 20 LUTON & D.M.F.C. SLOPE SOARING CONTEST Multi, Single R/C 5/-, Magnet, Free Flight, Chuck 2/6 to C. Rudd, 38 Windsor Road, Barton, Beds.
April 27 F.A.C.C.T. COMBAT RALLY Class A Combat only 4/- to G. Johnson, 37 Oxford Road, Kirtlington, Oxon. Event at New Barn Farm, Weston on the Green, off A.43 Near Bicester.
May 4 SOUTHERN GALA, S.M.A.E. Open R/G/P, 1/2A Power, Chuck Glider, R/C Multi (Aeromodeller Trophy) 1/2A T/R, F.A.I. T/R, Combat C/L Stunt at R.A.F. Odiham.
May 11 CROYDON F.A.I. GALA R/G/P 7 rds, start 10 a.m. Chobham Common.
May 11 EASTBOURNE SLOPE SOARING RALLY 'Long Man', Wilmington, Sussex.
May 18 NORTHERN AREA VINTAGE MEETING plus R/C, C.d'Hiver, A/L Glider, Open Power (Pannett Trophy) R.A.F. Topcliffe.
May 25/26 THE NATIONALS at R.A.F. Hullavington.
June 1 SUTTON COLDFIELD R/C RALLY, Spot landing, Limbo, Spins, Pylon Racing at Fradley, near Lichfield.
June 8 S.M.A.E. CENTRALISED C/L MEETING, Speed, Rat Race, Class B T/R, Combat R.A.F. North Luffenham.
June 15 ELLIOTT M.E.C. C/L GALA, Rochester 1/2A T/R, F.A.I. T/R, Rat Race, Combat, Stunt, pre entry 2/6 to J. Broad, 37 Oakhouse Road, Bexleyheath, Kent.
June 22 AEROMODELLER/RCM & E Scale Rally, Old Warden.
June 22 NORTHERN AREA THERMAL SOARING CONTEST R.A.F. Elvington.
June 29 ST. ALBANS GALA (1) Chobham Common.
June 29 FINCHLEY D. M.E.C. C/L RALLY A & B Combat,

July 6 B Rat Race, Stunt, Silencers over 2 cc. 3/6 pre-entry to J. Goodwin, 77 Gallants Farm Road, East Barnet, Herts. Venue Gbeldands, Finchley.
July 13 CHICHESTER R/C RALLY Pylon Racing, Scale R.A.F. Thorney Island.
July 13 NORTHERN AREA R/C Multi, F.A.I. R/C/P free flight and S.M.A.E. Area Championships, R.A.F. Topcliffe.
July 13 LONDON AREA C/L CHAMPS 2nd Round F.A.I. T/R, 1/2A T/R, Combat, Chrville Lane, Hayes, Middx.
July 20 SOUTH BRISTOL SUMMER GALA F/F, Vintage, C/L, R/R & Combat R.A.F. Hullavington.
August 9/10 SOUTHERN R/C RALLY Leigh Marshes.
August 9/10 NORTHERN GALA R.A.F. Lindholme.
August 17 S.M.A.E. ALL SCALE MEETING R/C F/F, C/L, R.A.F. Little Risington.
August 24 S.M.A.E. CENTRALISED C/L MEETING F.A.I. T/R 1/2A T/R, Carrier, Stunt, R.A.F. North Luffenham.
August 24 SUTTON COLDFIELD R/C RALLY for Multi Aerobatics, 10.30 a.m. start, Fradley, near Lichfield.
August 31 R/C THERMAL SOARING RALLY 'Towner Trophy' Golden Cross, Lewes, Sussex.
September 7 NORTHERN GALA R.A.F. Lindholme.
September 7 SOUTH COAST R/C RALLY, Golden Cross, Lewes, Sussex.
September 13 FLY FOR FUN Demo's, Sywell.
September 13 S.M.A.E. C/L TEAM TRIALS, R.A.F. Upwood.
September 14 NORTHERN AREA Goodyear and Open Pylon R/C Races, R.A.F. Topcliffe.
September 21 SOUTH MIDLAND GALA, Cranfield.
September 21 SOUTH COAST GALA details later.
September 28 S.M.A.E. CENTRALISED R/C & C/L MEETING, R.A.F. Upwood.
October 5 EAST GRINSTEAD GALA All-in F.A.I. (1st rd. 10.30-11.30) A/L, C.d'H. 1/2A Power, Chuck glider, 3/6 entry, re-entry 2/6 Chobham Common.



**HISTORY IN THE
MAKING AS AN ACE
HELICOPTER PILOT
COLLABORATES WITH
AEROMODELLERS FOR:**

Air - to - Air

ON A BRILLIANT, but sub-zero temperature, February day a little piece of British radio control history was made over Sywell Aerodrome in Northamptonshire. For some time my brother Charles and I had been considering the possibilities of flying radio control models from a helicopter. This was no idle speculation because, if it could be proved to be practical to fly a model accurately and close to the helicopter, the potential with regard to film work was considerable. Having considered as many of the problems, that may have been encountered, as possible, there was only one more thing to do – go out and try it.

Fortunately Charles, who as a full size pilot had flown full size aircraft in films such as 'Villa Rides' and 'Darling Lily', was friendly with Gilbert Chomat a film helicopter pilot. Gilbert, too, could foresee the possibilities of using model aeroplanes to a greater extent in films and readily agreed to participate in the experiment as soon as he had a day to spare from his numerous filming activities. That day was provisionally booked as Saturday, 8th February. In certain respects it was an ideal day with clear blue skies and excellent visibility but to set against that was the fact that the temperature on the ground was as low as -5 degrees C. and there was a moderate, but steady wind blowing. To make things more interesting, there was also a blanket of soft white snow over the whole of the countryside. Friday night became a hectic rush to fit skis to one model and make and fit them for a second model. The skis were readily interchangeable with conventional wheels in case a sudden thaw set in overnight – I have experienced some of this perverse British weather before. All other tools, fuel, batteries, etc., were prepared for the morrow although at 10 p.m. on Friday night it seemed very doubtful if we would even be able to reach the airfield on the Saturday; warning of impassable roads were coming over the radio thick and fast.

Saturday morning we had confirmation from Gilbert that he was about to leave in his Sud Aviation Alouette helicopter so we prepared to leave for the airfield. Regrettably two of the cars refused to start causing much changing round of models and equipment but eventually we got underway and, despite difficult road conditions, also reached Sywell airport. Gilbert had already landed and we wasted no time in off-loading the models and readying them for flying. The full size aircraft hangar was, thankfully, warm and made the task of rigging the models much more agreeable; we were also able to carry out initial engine test runs indoors. The latter advantage was

more fully realised when we were undertaking re-starts outside in the extremely cold conditions – a further aid here was to use 'Instant Start' aerosol sprays available from garages.

The models to be used in this experiment were both fairly large and reasonably slow flying and would approximate well to true scale R/C models of the 1916-1930 vintage. In certain respects they were not as suitable for the experiment as the normal multi-aerobatic model, i.e., the latter type are more 'groovy' and less susceptible to wind gusts, etc., but less scale in appearance. The difference in flying speeds of models is not of great importance as, once the helicopter has formatted on the model, the relative speed between the model and the helicopter is zero.

Before attempting to fly from the helicopter the models were checked out with a normal flight (i.e. with the transmitter ground based) to make sure all systems were functioning correctly. In fact the helicopter followed the models to see whether the helicopter would cause any

David Boddington's 60-inch 'Mannock' semi-scale W.W.I Bi-plane photographed at close range from the Alouette helicopter could pass for a 'Pup' but for small detail obvious only to purists. What an experience this must have been! Situation demands high skills from all pilots involved.



radio control

... reported and photographed
by
David & Charles Boddington



David scrambles aboard the Allouette at Sywell as Gilbert Chomat keeps an eye on the model prior to lift-off. Multi language inscriptions on 'chopper' include Arabic, indicative of World-wide demand on this famous pilot who specialises in aerial film techniques and contributed enormously to the success of such films as 'Mag Men' and 'The Blue Max'.

interference to the receiver. It did not. So enthusiastic was Gilbert in following the models closely that on one occasion he appeared so close that I hardly dare touch the controls on the transmitter. The model was going further and further upwind and higher (up to 1,000 feet) and naturally the model was getting smaller to my eyes on the ground. I heaved a sigh of relief when the chopper eventually turned away from the 'Mannock' allowing us to return independently to the landing area.

On the following flight the model was flown to reasonably safe height upward and then, very gingerly, I eased my way towards the helicopter which was waiting on the ground with the engine started and rotors revolving. Crouching down to clear the rotor blades and at the same time trying to keep an eye on, and control, the model was a little tricky but, most important, was the fact that the radio equipment continued to operate satisfactorily. Because of the cold weather the helicopter was not flown with the main doors off, as would be the case with normal film work, and this meant that the transmitter aerial had to be 'fed' through a small ventilator in the door panel.

The 'Mighty Super' 6 ft. 6 in. cabin sportster on skis maintains a steady course with ex-R.A.F. jet pilot David Boddington operating Staveland R/C gear for rudder, elevator and engine controls. Bet George Redlich wished he'd had Gilbert Chomat and the Allouette when he crossed the Channel with R/C in 1954!



Sitting in the helicopter, with the model overhead and still in reasonable control, we waited for the next critical moment; the lift-off of the helicopter. Would the lack of any earthing to the transmitter affect it in anyway? Fortunately, again, no troubles were experienced and Gilbert was soon rapidly climbing away and closing on the model with Charles sitting ready with his camera to record the events. With the model climbing steadily away upwind we formed on it from the rear and slightly to the right, gradually closing in all the time. It is difficult to describe the appearance of the model from this unique position, it is a quite different view from any obtainable from normal ground flying and, because of the close proximity of the model, it is *much* more interesting. Also, there is a greater air of 'realism' created by virtue of the constant relative speeds of the model and helicopter, it is very similar to forming on the real thing. Charles was busy snapping away with his camera and I was busy trying to keep the model as steady as possible when Gilbert announced that we had exceeded 2,000 feet in altitude. Considering the temperature was about -12 degrees C. at that height, we decided not to try to go any higher, in fact, a gentle descent was agreed upon! With the engine of the model throttled back (it took a long time to get used to never hearing the engine) and a steady rate of descent, we were still doing a brisk 45 knots - surprising for a low-powered sports model. Overhead the airfield the model was maintained at a height of about 500 feet, again upwind, while we in the helicopter made a more rapid descent to the ground. From this point it was simply a matter of making my exit from the 'chopper' - remembering to undo my safety belt at the second attempt - and land the model in the conventional manner. Such a lot of excitement gives one a thirst so we all retired to the Airport bar to celebrate our first successful flight.

The final flight of the day nearly ended in disaster for the model but fortune must have been smiling on us this day. We were now taking off the model from the helicopter, (hand launches were necessary because of the depth of snow) which was easier than trying to scramble into the helicopter with the model in the air. We followed the 'Mannock' all the way up this time but as we reached about 500 feet the engine cowl suddenly parted company from the remainder of the model. On previous occasions the 'Mannock' had been flown without the cowl and for this flight it must have been attached insecurely - hence the photographs showing the absence

of the cowl. Gilbert was not sure whether to follow the model or the cowl but we quickly persuaded him that the model was not so easy to replace as the cowl. Following this event we carried on with our climb to height, followed by simple basic manoeuvres, i.e., turns in both directions, climbing and diving, etc. In crossing from right to left in front and slightly below the helicopter the 'Mannock' suddenly went into a left-hand spiral dive. All sorts of thoughts flashed through our minds as to the reason for this malfunction - Servo frozen up, batteries lost voltage because of the cold conditions, transmitter got into a 'blind spot', the whole of the radio failed. However, a quick check on the elevator and throttling the engine back proved the other two functions to be working O.K., but the model continued in spiral descent. Because we were following the 'Mannock' down in the helicopter the apparent rate of descent of the model is much less than when viewed from the ground and somehow gives one more hope of achieving a recovery. Although the left-hand spiral continued as the model turned into wind on each turn it tended to level out slightly and by judicious use of the elevator the speed of the 'Mannock' was reduced slightly. Also, with the strong sunlight and snow-covered ground, it was possible to roughly estimate the height of the model by the relative position of the shadow cast on to the ground. After circling a tree once - too near for my liking - the model came into wind again just above the ground; a touch of up elevator and she settled down for a lovely three pointer. Gilbert landed the 'chopper' next to the model, I hopped out, retrieved it, loaded it in the 'chopper' and so back to the airfield! A quick investigation showed that the wire connecting the pushrod to the servo had *fractured*, a most unusual occurrence but one that emphasised the luck we had had in getting the model down safely. The 'Mannock' has now flown, at different times, without functioning elevator and rudder and landed without damage. So ended a most exciting and instructive day's flying.

Superb Piloting by Chomat

The most important factor resulting from these experiments was the confirmation that this type of flying is practical. Having said that let me at once qualify the statement by adding that it was only possible because of the superb piloting of the helicopter. Gilbert Chomat has been responsible for piloting the filming helicopter in many notable films and must be one of the most experienced pilots for this type of work in the world - he is certainly one of the best. For filming to be carried out successfully, with models flown from 'choppers' a high degree of understanding will be called for between the two pilots and the camera man and a full appreciation of the limitations of the other man's functions. Close teamwork and complete confidence in the abilities of the fellow members of the team is essential. The scope of this type of flying must be considerable and, for film work, there are many possibilities in using the models where, either full size aircraft are not available or, in using the model in a way that would not be possible with a full size aircraft, i.e., intentional destruction. Flying close enough to the model for filming purposes presents no major difficulties, a distance of 10-12 feet can be achieved without too much practice. Although only fairly simple manoeuvres were attempted on this initial experiment, many interesting angles and shots are undoubtedly possible and will be tried in the near future. It is a great tribute to modern radio control equipment that, even with temperatures lower than -10 degrees C., the gear performed in these conditions faultlessly.

NOTE:- Thanks are due to Messrs. Samuelson Film Services, for the use of the helicopter and Messrs. Sywell Aerodromes for the use of the airfield.

Factual Background

Object and Purpose: To attempt to fly a radio control equipped model aircraft from, and in close proximity to, a helicopter. The reason for this experiment was to prove the feasibility of flying and filming scale model aircraft from a helicopter to standards required for film work.

Date: Saturday, 8th February, 1969.

Place: Sywell Aerodrome, Northamptonshire, England.

Weather: Four to six inches of snow over the airfield from a snowfall on the previous day. Brilliant blue skies and excellent visibility with a ground temperature varying from -3 degrees to -5 degrees C. (Coldest day of the winter.) Wind was steady and moderate from the north.

Personnel:

Gilbert Chomat - Helicopter pilot (responsible for piloting the helicopter in such films as 'The Magnificent Men' etc., and 'The Blue Max').

Brian Leslie - His mechanic.

Charles Boddington - Cameraman and 'Link-man' between helicopter and model pilot.

David Boddington - Builder and pilot of R/C models.

Dominik Fillipp - Mechanic for models.

Dave Humphrey - Local newspaper reporter.

Mike Parker - Pilot of chase aeroplane in case of fly-aways.

Helicopter: French-built Sud Aviation Alouette 2, by kind permission of Samuelson Film Services.

Models:

(1) **Mighty Super.** A 78 in. version of the K.K. Super 60 high-wing cabin model. The model was powered with an O.S.60 R/C glow engine and the total weight was in the region of 9 lb. Skis were fitted to the Mighty Super to cope with the snow and, as the model is most stable, no difficulties were encountered in taking off and landing.

Staveley four-function proportional radio control equipped the Mighty Super but only three functions, rudder, elevator and engine, were used.

(2) **D.B. Models 'Mannock'.** A 60 in. Semi-scale W.W.1 type biplane built from a standard kit. Elevator, rudder and engine control only used operated by Kraft KP6 radio control equipment. A Merco 49 R/C glo engine powered the 'Mannock' which weighed 6 lb. The model is easy to fly, despite the lack of ailerons, but is subject to wind gusts. Initially flown with skis, the model was fitted with conventional wheels for most of the test flight.

Conclusions: Problems of operating a radio control transmitter from the confines of a helicopter, from the point of view of both interference problems, were not as great as anticipated. It was not too difficult to keep the model in view of the helicopter and model pilot from the point of take off to the landing. Formating on the model allowed distances of about ten feet to be maintained between the nose of the helicopter and the model. Although basic manoeuvres only were attempted during these initial experiments (i.e. straight and level, turns to left and right, climbing and diving) it was obvious that, with practice and experimenting, many camera 'shots' would be possible.

Attaining heights of above two thousand feet should not present any technical problems thus allowing filming to take place above cloud. The greatest essential in this type of flying is a full understanding between the helicopter and model pilots and to have a helicopter pilot of the highest calibre.

The potential of using scale radio controlled model aircraft operated and filmed from a helicopter is undoubtedly very great for specialised flying films. Because of the low cost of the models relative to full size aircraft, and because of the lack of a pilot in the model, models can be 'blown up' in mid-air or crashed by design into the ground. Although models will never replace full size aircraft for film work, they can be most valuable and complementary for certain scenes that are impossible by using full size aeroplanes. By using models the choice of original aircraft types can be enlarged where it may be impractical or too costly to use full size replicas.

Undoubtedly this initial experiment proved the practicability of the filming method providing a full understanding and co-operation is achieved between helicopter pilot, camera crew and model pilot. It is most important that each member of the team appreciates the problems and limitations of the other members.

1969

Coupe d'Hiver International

Chavenay, France. February 23rd

reported & photographed
by John O'Donnell

Winner Christian Menget of Les Cheminots scored 120; 117; 120 with conventional, though large 'Devzio' design.

DUE TO DOUBTS about the holding of the well-established Coupe d'Hiver contest at Chavenay, this year's 'AEROMODELLER' party was recruited at a rather late hour from those who had been on previous occasions. This made for a very small party with a surprisingly high Northern bias. Even 'ye editor' had to miss the trip due to other commitments and hence deprived the team of its usual guide and interpreter!

Saturday, 22nd February, saw the five enthusiasts meet at London airport at an inconveniently early hour in order to catch the day's first flight to Paris. Whilst I had been able to break my journey in the Midlands, the three Northern Area members had travelled overnight. Only Rodney Kenward had managed a full night's sleep – if this term can include getting up at 6 o'clock! The flight out was on Air France's Boeing 727 F-BOJE – and we eventually returned on a similar aircraft.

We arrived at the usual Paris hotel in time for a continental breakfast and a brief siesta before an afternoon's sightseeing. It was soon realised that the 'night-spots' look much less glamorous in daylight! Perhaps this helped explain our remarkably sedate evening – and the appearance the next morning of the most sprightly group of British Coupe d'Hiver fliers that I have ever seen. (*Is this a hint that my absence was beneficial? – Ed.*)

Our early hopes of a calm contest were declining by the time we reached the airfield via the special coach provided by 'Modele Reduit d'Avion' who sponsor this contest. Nevertheless, the wind was then sufficiently light (7-10 m.p.h.) to encourage all the other British fliers to commence check (or even test) flying immediately. In explanation the preceding weeks had been extremely unhelpful weatherwise – particularly in the (literally) 'Frozen North'. Barry Lumb was unfortunate in snapping off the tail end of his new and previously unflown model – reducing him to his older model.



The contest was run in three separate rounds. The first was from 10 o'clock till noon, and was followed by 1½ hours break for lunch before two further rounds of 1½ hours. The previous practice of allowing an unlimited number of entries (with different models) was radically changed by imposing a limit of two per person. Proxy models were allowed in addition. This affected a number of the French entries who had been known to start with up to five models, and continue only with those doing well. Nevertheless, the (pre) entry list still ran to 160 models – a formidable total on any count.

The British contingent provided the only 'regular' foreign entrants although there was also representation, in person or by proxy, from Germany, Holland and the U.S.A. There was the usual percentage of feminine and junior entrants. From what I saw the latter, at least, are presumably not expected to build their own models.

A further innovation was the introduction of a six-minute limit to the time that a contestant could wait with his timekeepers before flying. This was obviously intended to discourage the more extreme tactical approach. In practice the use of a relatively small launching area, loosely defined by scattered take-off boards, seemed equally effective. Certainly there was no-one flying sufficiently downwind to be able to pick marked lift with any accuracy.

Lift was certainly present throughout the contest. However, it was rather localised, short-lived and often weak. Although it could be detected at ground level, by noting the calmer and warmer spells, the mid-afternoon breeze of 10-15 m.p.h. did not render this very reliable.

The British fliers were not lucky in finding lift, and scores suffered in consequence. Furthermore, the weather did not suit the flight patterns of some models that were inclined to loop on power burst and relied on rolling out into a spiral climb. This could and did lose much valuable height on the first turn.

Left, Michelle Leveque poses with Frank Monts' 'Chicken Coupe' which took 13th place with 120; 81; 91, flown by John O'Donnell. Right, is Christian Boulnois, a regular competitor, 22nd this time. See close-up of the propeller assembly on page 237.





Robert Lestourneaud who produces 'AirAlma' R/C Scale and other Kits placed 68th - and recovered his model 'au cheval'. Above, event producer Maurice Bayet, Editor of *Le Modèle Réduit d'Avion* presents trophies to winner Menget. Below left, Elizabeth Souveton was 28th and 29th! Consistent eh? Note rope size dethermaliser igniter.



In comparison, the most successful of the French 'short burst' exponents demonstrated almost a power model pattern in that their models could hold a steep climb with little turn and no inclination to 'go over the top'. Clearly this is the secret of getting the most out of largish models using relatively high power (8 strands of $\frac{1}{4}$ in.) and short motor runs.

Designwise the French are much less stereotyped than ourselves and Chavenay can always be relied upon to provide plenty of novelties for the photographer! Some, in fact, fly remarkably well. In general, many of the French seem to like using box fuselages with the wing mounted directly on top. Twin fins are common, as are built-up tissue covered front fuselages. Motor breakages are presumably not as frequent as I would expect! The most eye-catching layouts were certainly the pod and boom designs utilising glass-fibre fishing rods of remarkably slender proportions. These were very far from rigid and could be seen to deflect through large angles as the builder held the model prior to launch. Presumably flight loads are much less.

Another distinctive feature was the number of solo-winding-rigs in evidence. Whilst I envisaged these to be purely an aid to trimming, some were used for official flights. Helpers were even seen steadying the support!

Henry Tubbs was the busiest of the British fliers with two of his own models plus that of Tom Medley. Although he managed some reasonable flights, they were spread out over the models, producing three very similar scores. His day was completely ruined by the unnecessary breaking of his proxy model after its third flight. The 'Garter Knight' was picked up by a 5-year-old child on the instructions of a French modeller and promptly acquired a two-piece fuselage!

Rodney Kenward went solely to fly proxy - for Walt Rozelle and Dick Monts - but had little luck. Barry Lumb and Ron Firth faired much the same, although Ron was

Above left, fishing rod rear fuselage used by local man Dominique Blusson (19th), his house was within sight of launch area. Below, launch techniques L. to R.; Henry Tubbs (39th), Rudolf Kristenik (71st), Alain Landeau (4th) and young Merritte.



not helped by the failure of a soldered joint on a prop. assembly.

I had a rather mixed day – both with my own and Frank Mont's model. My own first flight seemed less than the 113 seconds recorded, the next was an easy max in strong lift, but the third was heart-breaking. It was in definite lift till near the end of the motor run, then descended as if D.T'd. I was hardly happy, even when I found the time-keepers had been generous. Frank's model had received a few strategic modifications since 1968, and managed one max and two respectable flights. One of these started well and worked into sink – the other was the opposite.

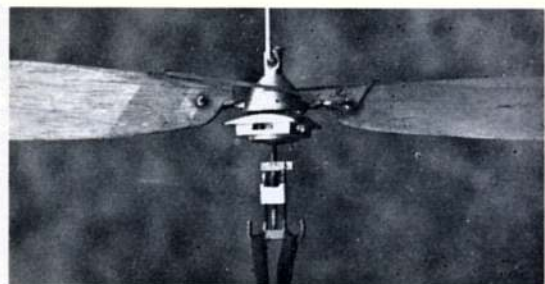
It was very difficult to follow the progress of the contest with the large entry and the complicated recording system. Sixteen maxs in the first round brought speculations about flyoffs – but there was only one double max (by J. Louis Garrigou) – and no perfect scores.

The winner eventually proved to be Christian Menget with just three seconds short of six minutes. His model was quite conventional in design, if large by our standards. It used 14 strands of 3 mm. x 1 mm. ($\frac{1}{8}$ in. x $\frac{1}{24}$ in.) Pirelli to turn a 400 mm. diameter, 480 mm. pitch propeller. It must be mentioned that he also flew proxy for American entrant, Dan McDonald.

The contest was followed by the usual speeches and prizegiving. This was a lengthy affair as there was a most impressive array of worthwhile prizes, not to mention souvenir awards extending to very low positions. Then came the usual hectic dash to catch the day's last flight from Orly back to London. The short flight time (37 minutes from R.O.G. to touchdown) made a most interesting comparison with the time spent at every other stage of the journey! And so till next year.



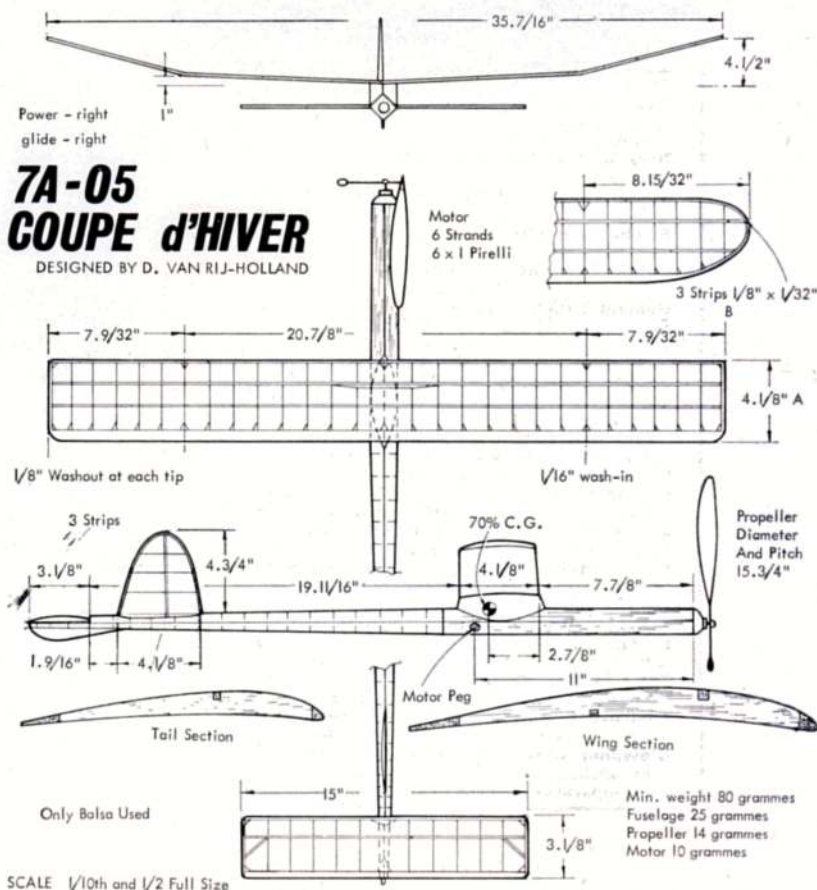
British group, standing, Ron Firth, Barry Lumb and John O'Donnell; kneeling, Henry Tubbs and Rodney Kenward. Below, close-up of propeller assembly by Christian Boulnois with aluminium hub and noseblock.



RESULTS

1, C. Menget 357; 2, L. Dupuis 347; 3, J. P. Challine 344; 4, A. Landeau 327; 5, P. Pailhe 324; 6, J. P. Templier 316; 7, J. O'Donnell 313; 8, J. Carrigou 312; 9, J. Souveton 303; 9, M. Dremiere 303; 11, R. Carrigou 297; 12, J. Soubert 292; 13, F. Monts (proxy O'Donnell) 292; 14, C. Poulin 288; 15, J. Winckel 285; 16, R. Durand 281; 17, A. Merritte 280; Subsequent visitor's placings: 39, H. Tubbs 231; 42, T. Medley (U.S.A. proxy Tubbs) 233; 44, H. Tubbs 220; 56, Dan McDonald (U.S.A. proxy Menget) 193; 60, R. Monts (U.S.A. proxy R. Kenward) 191; 63, B. Lumb 184; 70, R. Firth 163; 75, W. Rozelle (U.S.A. proxy Kenward) 158;

Total entries recorded 123. Leading Club entry Paris Air-Model. International Challenge France 6 points; Great Britain 90 points (score! against better three placings).





McCoy 40
Engine and parts



SPECIFICATION

Type: Single cylinder, air-cooled two-stroke cycle, glow-plug ignition. Crankshaft type rotary-valve induction and bushed main bearing.

Bore: 0.775 in. (35); 0.828 in. (40).

Stroke: 0.740 in.

Swept Volume: 0.3491 cu. in. — 5.721 c.c. (35)
0.3989 cu. in. — 6.537 c.c. (40).

Stroke/Bore Ratio: 0.955:1 (35)
0.894:1 (40)

Checked Weight: 214 grammes — 7.55 oz. (35)
209 grammes — 7.37 oz. (40)

General Structural Data

Pressure diecast aluminium *crankcase/main bearing unit* with sintered bronze main bearing bush. Hardened steel counterbalanced *crankshaft* with 0.437 in. dia. journal, 0.300 in. gas passage and 0.218 in. dia. tubular crankpin. Lightweight, moulded sintered iron *piston* with domed crown and low baffle. Fully floating, 0.187 in. dia. hardened tubular steel *gudgeon-pin* with brass pads. Forged aluminium alloy *connecting-rod* with plain eyes. Non-hardened steel *cylinder* with integral cooling fins and blued on non-working surfaces. Finned, pressure-diecast aluminium alloy *cylinder-head* with red enamel external finish and .015 in. soft aluminium gasket. Head attached with six screws, three of which pass through cylinder fins to secure complete cylinder assembly to crankcase. Pressure diecast aluminium alloy *backplate* secured with four screws. Pressure diecast aluminium alloy *prop driver* engaging 30 degree taper on crankshaft. Steel prop retaining washer and hexagon nut. Brass spraybar assembly. Steel needle-valve with flexible extension. Beam mounting lugs.

TEST CONDITIONS (35)

Running time prior to test: 1½ hours approx.

Fuel used: 5 per cent pure nitromethane, 25 per cent Duckhams Racing Castor-oil, 70 per cent I.C.I. Methanol.

Glowplugs used: Standard long-reach, platinum filament as supplied.

Air temperature: 58 deg.F. **Barometer:** 29.90 in.Hg.

Engine Test

McCOY 'Red Head'

OUTWARDLY, the current McCoy 'Red Head Custom Stunt' 35 and 40 models are identical. Internally, they differ only in the cylinder bore (the 40 having a .053 in. greater bore diameter than the 35) and in the dimensions of the parts immediately affected by this difference. Mounting dimensions are exactly the same for both engines and weights are only fractionally different, the 40 being the lighter of the two by about a fifth of an ounce.

In view of this close similarity, and since our installation drawing (actually made from a 35) applies equally to either engine, we are bracketing the 40 with the 35 for the purpose of this review.

These McCoy models are essentially simple designs. They have their origin in the low-priced 'Red-Head Stunt 29' and 'Red-Head Stunt 35' introduced in 1957 and are plain-bearing, shaft-valve lapped-piston engines. Twenty years ago, the original McCoy 'Red Head' motors were among the world's best racing and contest type model engines. By no stretch of the imagination can the present McCoys be classed with those famous earlier 'Red-Heads'. The current range is, of course, intended to appeal to the 'ordinary' modeller and are priced accordingly: at U.S. mail-order model supply houses, the 35 and 40 can be purchased for about \$9.00 to \$10.00 each — i.e. around the £4 mark. Hundreds of thousands of these low-priced McCoys have been made during the past dozen years.

Several improvements have been incorporated in these latest models of the 35 and 40. The main casting, comprising crankcase and shaft housing, has been strengthened by lengthening the beam mounting lugs and adding horizontal triangular webs between the crankcase and main bearing. Also, there is a vertical stiffening rib between the exhaust duct and crankcase wall. The front bolt holes in the mounting lugs are elongated to accommodate any bolt spacing between 9/16 in. and 3/4 in. In previous models the main bearing bush has been of either iron or bronze. In the latest model, the bush is of oil retaining bronze, a material having the advantages of a low coefficient of friction, high wear resistance and also a high resistance to seizure when used in conjunction with a steel shaft. The 35 and 40 shafts are of case-hardened steel. That of the 40 is a full disc pattern with a crescent counterweight. The 35 is similar but has a smaller crescent augmented by cutaways each side of the crankpin.

Pistons are sintered iron mouldings with shallow domed crowns and low baffles. The lapped area of the piston skirt extends to just below the gudgeon-pin holes and runs in an unhardened cylinder having bridged ports. The cylinder-head has the ignition plug offset forward and to the exhaust side.

Both these engines are also made in R/C versions. In addition to having throttle type carburettors and coupled exhaust baffles, they are then equipped with cylinder heads painted blue, instead of red.

Custom Stunt' 35 & 40

DOUBLE FEATURE BY PETER CHINN

Full tests were undertaken on the 35 model. The engine was a straight-off-the-shelf example and had not previously been run.

At first the 35 was a little difficult to start due to tightness at the top of the stroke. It would not bounce over TDC for more than one revolution when hand starting was attempted on the recommended prop (9x5, 9x6 or 10x5) for running-in. We therefore substituted a larger and heavier (11x6 nylon) prop in order to impart some extra 'flywheel effect'. The use of an 11x6 is by no means overloading a .35 cu. in. motor for running-in but, as a safety measure, 10 per cent extra lubricant (actually UCON LB.625) was temporarily added to the fuel at this point.

The McCoy 35 started satisfactorily under these conditions and was then given a series of short runs on a rich needle setting. Within less than 10 minutes of accumulated running time, the stiffness at TDC was eliminated. After a further series of runs totalling, in all, little more than 30 minutes, starting then became quite easy, the motor responding well to orthodox preliminary procedures. From cold, the 35 would then start readily after an exhaust prime. When warm, it simply required choking of the intake for a couple of turns of the prop before restarting.

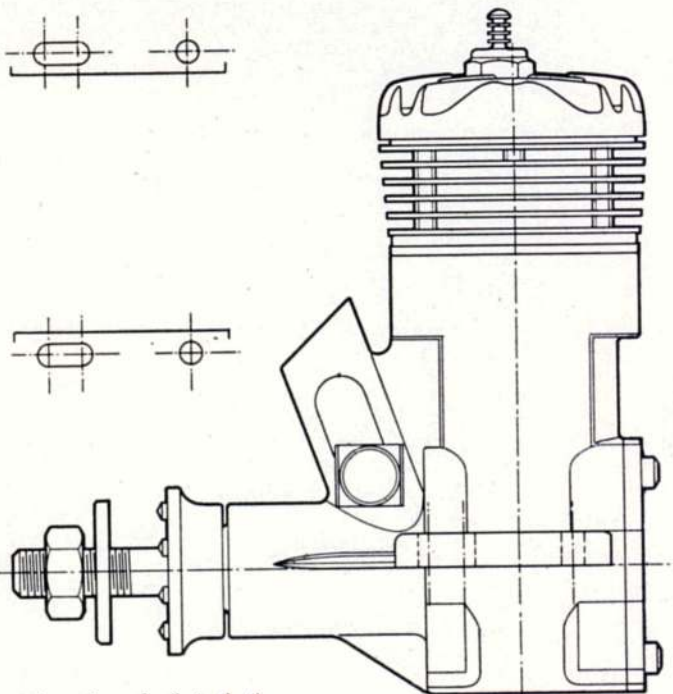
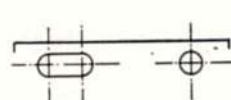
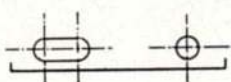
In all, the 35 was given approximately 1½ hours running time before full tests were started. By this time, running qualities were good. Particularly on props best matched to its performance, it picked up speed during the first 15-20 seconds from cold gaining, for example, about 300 r.p.m. on a 10x6.

Maximum torque was realised at between 6,000 and 7,000 r.p.m. where a figure of 43 oz. in. was indicated —

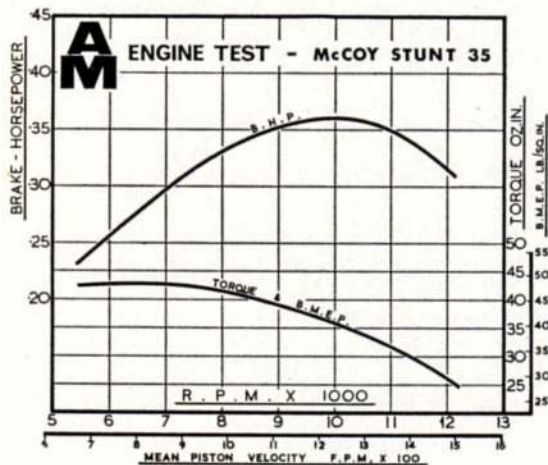
continued on page 240



McCoy 35
Test subject



P. G. F. CHINN



GADGET REVIEW

A SELECTION OF MODELLING HINTS

HERE IS the first selection of this year's useful aero-modelling ideas submitted by the readers for review. We start off with idea No. 1 from A. Healey of Burnley, Lancs., for rudder control trim on scale free-flight models. Take a piece of aluminium tube flattened at one end, and push the other end into the rudder horn. Cement two pieces of 1/32 in. ply onto the fin, leading edge to spar, and then thread an 8 B.A. or 6 B.A. bolt through the ply, through a pre-threaded hole in the flattened end of the tube, and out the other side of the ply. Cut the bolt to a suitable length, and then solder on a retaining washer. Adjusting the rudder left or right is achieved by turning the bolt.

An interesting dihedral-joint scheme is illustrated in 2. This simple but effective idea by J. van Hattum of Rijswijk, Holland, eliminates those dihedral-keepers on spars, leading and trailing edges, which take a lot of time and care to prepare and fit correctly. Moreover, these lead to a joint that is often too strong, with the result that failure may occur in the main panel of the wing. As one can see from the diagram, the joint is merely a piece of specially planed and sanded length of balsa - shaped to the angle of the wing, which is simply butt-jointed to the other half of the wing or to the outer panel, as the case may be. As the loads are carried through the ribs on either side of the 'wedge', they must be well tied in with the structure by means of gussets which should be well cemented. This method can be used on all types of wing structure, and with the proper selection of trailing edge stock, will enable one to obtain any dihedral angle.

Diagram 3 illustrates a simple gadget ideal for solo control line flying. It dispenses with the need for engine control or a companion, and is perfect for those sneaky 'off-day' flying escapades. All that is required for this gadget, designed by Phil Dunn of Stockport, Cheshire, is a strong 'U' shaped metal bracket, a 4 in. nail, a 16 s.w.g. wire pin, and a line from the end of the pin to the centre of the flying circle, where it is attached to a bobbin. For take-off, simply staple the bracket to the ground, and then to retain the model, place the pin through the holes in the sides of the bracket and through a pre-drilled hole in the tailwheel. Then start the engine. When you are ready, release the model by pulling the bobbin, and watch that aeroplane go. It is a good idea to paint the bracket bright yellow, this makes it easy to find in the grass.

A more technical version of the previous gadget is the automatic 'stooge' (4) designed by Gordon Bell of Victoria, Australia. When needed, fix the platform to the ground with four large nails. Swing the pivoted wire arm around so that its end engages in the slot in the aluminium clip. Pass the washered end of the elastic band under the wire arm, around and back over to the timer arm where it is secured by slipping the washer over the arm. The timer is a typical dethermaliser type, set to give you sufficient time to get back to your handle for take-off. When the engine is tuned, slip the clip on the elevator over the wire and then release the timer lock.

Here, for all you rough field flyers, is the ideal under-carriage for your models. Constructed by E. P. Evans from Lincoln, this simple device, shown in 5, would probably save many a model from fuselage damage or even total destruction. The materials required are two pieces of plywood, one hard-wood dowel, a piece of piano wire, and an elastic band. Assemble these together as shown, the thickness of wire and strength of the elastic band depending entirely on the size and weight of the model.

With combat being such a fast event, anything that contributes towards time saving is worthy of serious consideration. The little gadget illustrated in 6 and designed by E. J. Thompson of Stratford, London, E.15, is very handy when you have to change your streamer. Simply pull the cotton on to the attachment - no time is wasted fiddling with knots. As you can see, the attachment is made of two pieces of piano wire bound at one end by soft wire, and then soldered. The hook on the top piece allows the cotton to be slipped on easily and quickly.

Because today's modellers are so inventive, they prefer to build their models from their own specifications, and make their own modifications, rather than buying ready-made products. The spinner illustrated in 7 and submitted by Trevor Faulkner of Sheffield is, therefore, ideal, and could be of use to Scale or Wakefield modellers. The product is a Winfield Sanomatic and can be purchased from Woolworths no less! The material seems to be polystyrene, and is very light. To obtain the spinner, simply break the joint between the cap and the cartridge barrel, remove the loop from the nose and polish.

ENGINE TEST *continued from page 239*

equivalent to a b.m.e.p. of approx. 48 lb./sq. in. Torque fell off quite sharply as load was reduced and maximum b.h.p. was determined at approximately 10,000 r.p.m. where the output reached was 0.36 b.h.p.

Typical prop r.p.m. recorded included 8,000 r.p.m. on an 11x6 Top-Flite wood, 8,900 on an 11x5 Top-Flite wood, 9,200 on a 10x6 Top-Flite wood, 9,500 on a 10x6 Tornado nylon and 9,700 on an 11x4 Top-Flite wood. The 10x6 props would, we suggest, be the sizes most suitable for this engine in the majority of applications.

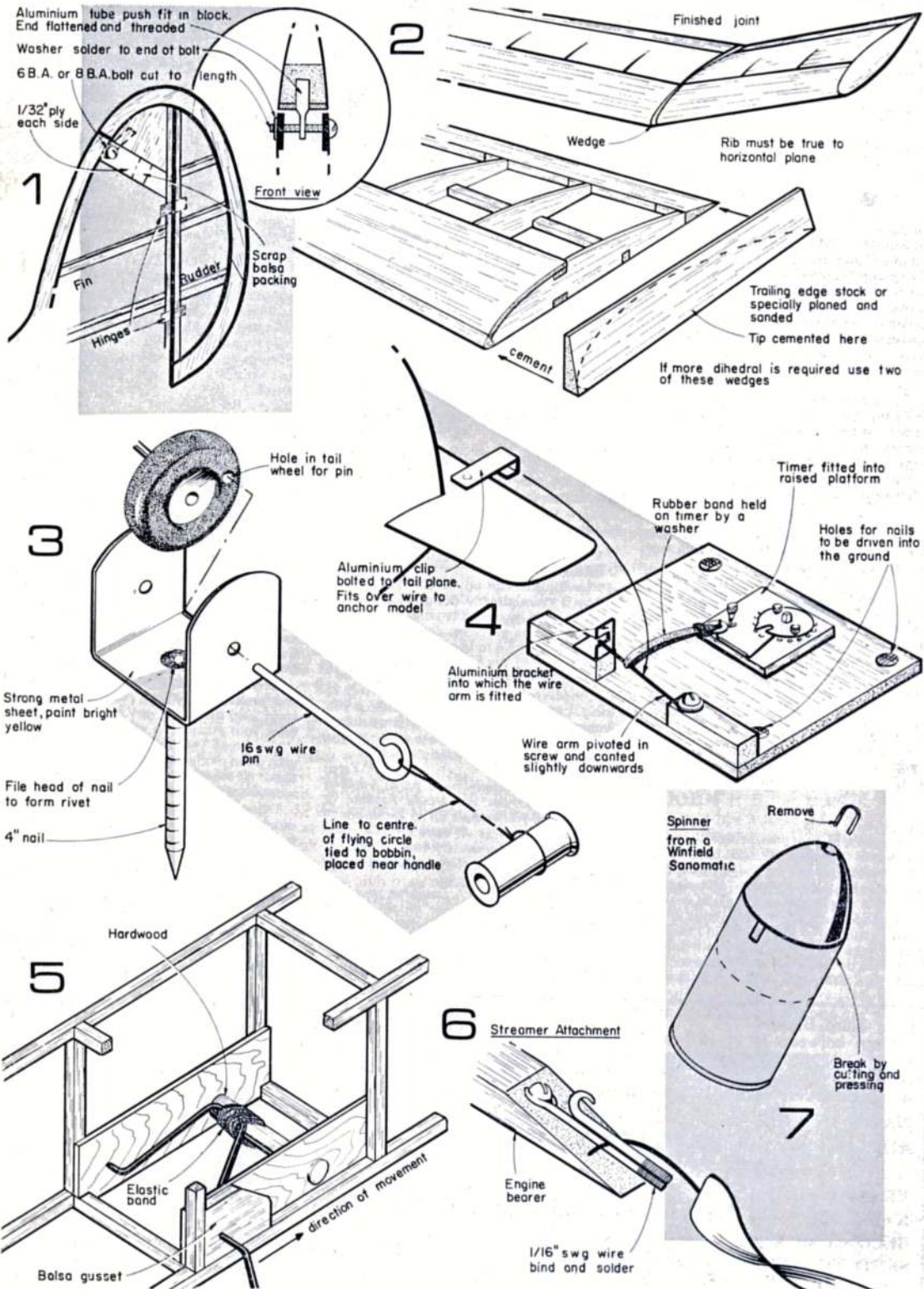
The performance indicated by both the torque tests and the prop/r.p.m. figures, is not particularly high for a .35 cu. in. engine and, having regard to the higher levels reached in tests of earlier versions of this motor, we believe that the average McCoy Stunt 35 may well be better than our test sample.

This view was reinforced by a brief series of prop/r.p.m. tests made on the 40. Using the same propellers as mentioned above (and, of course, the same fuel) speeds recorded with the 40 were 900-1,200 r.p.m. higher. Such increases indicate torque and power increases considerably above the improvement to be expected merely from the 40's 14 per cent larger swept volume.

The 40 needed about one hour of running-in time before it was adequately freed off but at all times was very easy to start.

On both engines, we found the flexible stemmed needle-valve helpful in keeping one's knuckles safely back from the prop. With the spring ratchet device carefully bent to give just the right amount of grip, the needle was easy to operate, yet held adjustments firmly once they had been set.

Power/Weight Ratio (35 - as tested): 0.76 b.h.p./lb.
Specific Output (35 - as tested): 63 b.h.p./litre.





Are you between 10 and 16 years of age? Then don't delay, join today

Dear John,

In your May 1966 issue, on page 263, it is mentioned that the *Sopwith T $\frac{1}{2}$ Strutter* and *Sopwith Triplane* are available from your plans service, in control line versions. Could you please send me the numbers, price, and if possible, what size of engine that they use? Also could you recommend a plan for a scale control-line World War 1 aircraft which would use a 1 c.c. engine. Until now I have built assorted semi-scale rubber models, and at the moment I am about to test-fly my Keil-Kraft *Phantom-Mite* for the first time. It has a detailed cockpit interior, complete with pilot, and is dark blue and red on the wings and fuselage, with light blue undersides.

Cullybackey, Co. Antrim. T. J. Kirkpatrick

Congratulations on fitting up your Phantom-Mite with a detailed cockpit, that must have been a tight squeeze!

You will find that all of our plans are listed in the master index at the rear of our Plans Handbook 1968/69 edition, this is available from the Editorial Offices, price 2/6d. and has 128 pages of sound advice for the aeromodeller. There are a large number of Sopwith designs in the range, eleven in fact, with more to come, but those you mention for Control Line are plan CL 361 for the Triplane, price 5/-, 20 in. wing span, and plan CL 651, price 7/6d. for the T $\frac{1}{2}$ Strutter with a wing span of 48 in. These designs suit 1-1.5 c.c. and 3-5.5 c.c. respectively. The Triplane is the better choice for your engine.

Dear John,

I am, at the present time, venturing into my first Radio Control model which is the A.P.S. 'Mini Comet'. In the 'Comet' I am using the MacGregor Relay 'Minimac' receiver and the length of the aerial is twice the distance from the trailing edge of the wings to the top of the fin, so do I take the aerial wire to the fin and back again or leave the excess in the receiver compartment? Castle Vale, Birmingham 35. J. B. Wincott

In cases where the aerial length is too great for the distance available from the fuselage to the wing tip or fin, the remainder of the aerial should be allowed to trail free and should never be doubled back or left in a coiled state. The best arrangement is to run the aerial along the fuselage and allow it to trail from the tail.

Dear John,

I am not a member of the Golden Wings Club but I read the letters in the Magazine. Having read the letter from Steven Rogers I feel that there may be an even simpler explanation. If his is an Elmc Conquest escapement he may well be winding it in the wrong direction. It is best to check that this isn't the explanation before trying to fiddle with the escapement mechanism. Barmby.

J. M. Shoner

Dear John,

I have just taken up Aeromodelling as a hobby. I have already designed and I am ready to build by own 8 ft. wing span glider. But I have one problem, and that is that I don't know where to use what of balsa and tissue covering because I want to get the best out of my glider, so what shall I do? The measurements of the glider are 8 ft. wing span and 7 ft. long fuselage. So if you would, will you give me some hints before I start and will you inform me of what type of balsa to use on the different parts. Newton Aycliffe.

J. Yates

My! You certainly have given yourself something to do. We would hesitate to suggest that you embark on so ambitious or so large a model as an early effort in your aeromodelling career without prior experience of design and construction of models.

We would earnestly suggest that you study the book 'All About Model Aircraft' written by Peter Chinn, which we can supply for 15/- or should be available through your local model shop. This book will give you constructional hints to avoid

the pitfalls which often beset the unwary and ambitious novice modellers.

Dear John,

I own a D.C. Merlin .76 c.c. engine. I would like to know if it is possible to fit a device for throttle control to it and if so where could I obtain it and how much would it cost.

Could you also tell me of a suitable .76 c.c. powered plane to which I could fit engine control.

Glasgow S.5

J. McGee

There is no commercial throttle to fit the D.C. Quickstart Merlin but I would suggest you use the D.C. Silencer tube and arrange a sponge pad flap to close the two outlets. Exhaust throttle is more reliable than intake on small engines, especially diesels.

Dear John,

We would like to join your club, but as we live in Rhodesia we are not able to send any money. We would like to correspond with other members of your club. My friend has got a *Stuka* dive-bomber, and *Curtiss Kitty-Hawk* and is building a *Piper Tri-pacer* R/C. He is twelve and his name is Adrian Carr. I have a *P.T.19* and a *Caprice* and I have built a *Competitor*.

We have started a flying club at our school, and have many different models. Both of us enjoy your magazine very much indeed. We think your articles are very interesting.

We would very much like to correspond with other model plane enthusiasts and hear about all the latest models and engines and ideas from England.

I'm going to build a 'Burp' rat-racer during the holidays and am going to power it with my *Babe Bee*.

My friend has ordered a *Conquest* and a few other members of the club have different gliders which all fly extremely well. Adrian is also interested in building the 'Beagle Pup 150' but he cannot find any of the equipment used to fly it.

We hope you can find some boys to correspond with.

Jonathan Atkinson (12)
and Adrian Carr (12)

'Merlin Flying Club'
Eagle School, P.B.V.7457
Umtali, Rhodesia
Central Africa

Dear John,

Can you please send me further details of 'Flying For Fun' at Sywell 19th/20th/21st August 1969. I am a sport control-line flyer. Hertford, Herts. I. P. Ruddock

Sywell is a few miles north of Northampton on the road to Wellingborough. It will be well signposted off the A43, but I must point out that the dates have changed! They are now September 13th/14th. There will be demonstrations of all kinds of aero activity, including models, and lots to see. We hope to run some special contest for 'Golden Wings'.

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

5/69 2d. in the 1/- Rebate
for Golden Wing Members

LONG JOHN



WITH RUBBER-POWERED MODELS, long flights depend a great deal on a long rubber motor capable of taking plenty of turns. Sounds like good sense doesn't it – and it is! Make yourself a *LONG-JOHN* in a couple of evenings of building fun and prove it.

Construction could hardly be easier or more straightforward. Trace two sides on to 1/32 in. medium sheets, carefully tracing in the wing position. Add 1/16 sq. strip and nosepieces as shown, join the completed sides with 1/16 sq. pieces. Drill a small 1/16 in. dia. hole for the rear peg and reinforce with discs of thin card. Cover the top and bottom with 1/32 in. sheet, after adding top and bottom 1/16 sht. nosepieces. Note fin slot and small opening underneath rear of fuselage for access to motor and rear peg. Add end piece C, and small wing dowels (1/16 in. dia.). Complete fuselage by adding 1/16 sht. cabin profile and tailskid. The undercarriage assembly needs no detailing. Complete with balsa wheels it is held to the bottom of the fuselage by 3-4 layers of doped-on tissue. Cut fin, noting grain direction, and tailplane from 1/32 sht. Reinforce tailplane with 1/32 sht. strips as shown. Cement in position and check it is at right angles to the fuselage sides. Cement fin into fin slot. Check that it is vertical. Make the noseblock from 1/4 sht. and drill accurately to take a 20 s.w.g. brass bush which may need cutting to size, using a vice and a hacksaw. The 1/32 plywood squares cemented to the front and rear of the noseblock hold the bush firmly in position. Use a 5 in. dia. K.K. plastic propellor (from your model shop). Form a winding hook on one end of the 20 s.w.g. wire drive shaft, and insert the other through the propeller, two cup washers and noseblock, finally forming the rubber motor hook as shown on the plan. A small length of valve rubber over this hook will treat your rubber motor more kindly.

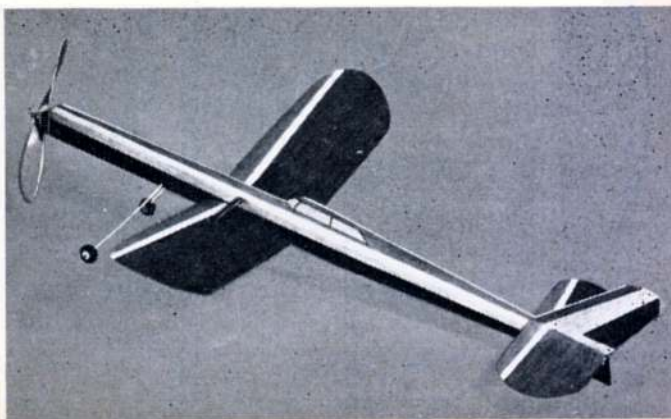
The wings are of 1/32 sht. and simple to construct. Cut out two wing panels and eight 1/16 sheet ribs. Drill a 1/16 in. dia. hole in two ribs to line up accurately with the wing dowels projecting from the fuselage sides. Put a tiny spot of cement on the front and rear bottom edges of four ribs and temporarily cement over ribs shown on plan. Take care to angle the root rib, using the root rib template as shown. Put cement on the top edge of all ribs, and holding the 1/32 sht. wing panel gently curved, pin it in place over the ribs. Leave to dry. Then slide a thin razor blade under the ribs and remove panel from board. Look along the wing panel from the tip and check for freedom from twisting. If unfortunately you have a small twist or warp hold the wing in the steam from a kettle (mind your fingers!) so that it is free from twist or

FULL SIZE PLANS OVERLEAF FOR RAY MALMSTROM'S 15 3/4 IN. SIMPLE RUBBER-DRIVEN DESIGN FOR FREE FLIGHT OR R.T.P.

warp. Remove from steam and continue to hold the wing in the correct position for a minute or two. With a sharp razor blade cut the square holes for the wing struts, make two wing panels and cement to fuselage, lining the root ribs up with the tracings you made on the fuselage sides. Check that both wings have the same incidence angle (leading edge higher than trailing edge) and some dihedral angle (upward tilt of the wings from fuselage to wing tip front view). Cut wing struts from 1/16 sht. and cement in position.

If you want to decorate your model avoid enamels or coloured dopes. Use oil-pastels. These are obtainable quite cheaply in small boxes from any art shop. Just rub the pastels on the balsa sheet and with a soft rag spread the colour evenly. Use Sellotape to get clean edges.

Make up a test motor from a 17 in. loop of 1/8 flat rubber strip. Lubricate the rubber (the new Humbrol rubber lubricant, 1/- per tube, is excellent), and install in model. You must now balance *LONG JOHN* by suspending the model from a pin and thread pushed in at the balance point shown on the plan. You may need a tiny amount of Plasticine at nose or tail to get perfect balance. Test gliding outdoors should be on a calm day over long grass. Get a straight, shallow glide from a shoulder-high launch. Launch the model by pushing it forward and letting go – *never* throw the model. You are now ready for a power flight. For outdoors you will need a 1/16 sq. strip cemented to the left-hand side of the noseblock (model viewed from rear). Downthrust is already built-in. A few hundred turns on the test motor will give you short 'hops' to see that all is well. Turns in either direction if steep, can be cured by slightly bending the fin in the opposite direction to the turn, and raising the rear edge of the tailplane approx. 1/16 in. will increase climb, and vice-versa. For indoor round-the-pole flying, cement a 1/16 sq. strip to the right-hand side of the noseblock and put a thread loop on the starboard (right) wing tip as shown on the plan. When *LONG JOHN* is flying steadily you can install the longer flight-motor – a loop 2 ft. 9 in. long of well lubricated 1/8 in. flat rubber strip. This motor must be stretch-wound with a 3 1/2:1 geared winder. On this motor, when run-in (after half-a-dozen or so flights) you can put approximately 800 winder turns (2,800 actual turns!). With this number of turns, and just using the 5 in. commercial plastic prop we have had many outdoor flights of 45 secs. plus (approaching the minute) and 35 secs. plus indoors. If you are really keen to keep *LONG JOHN* aloft, carve a 6 in. dia. wide blade balsa free-wheeling prop – and FLY! Our best time on a balsa prop to date, indoors, is 54 secs. If you get the minute please let us know – we'll be green with envy.



5" KK. Plastic
Prop.

LONG JOHN

OUTDOOR/INDOOR
LIGHT-WEIGHT SPORTS MODEL.

Balance Po



1/16 Sht.

Do Not Use Dope On
This Model Except on Noseblock (3 coats)

1/16 Sq.

Cut Out Basic 1/32 Sides
Trace On Position Of
Root Rib

1

Retain U/C With $\frac{3}{4}$ Layers
Of Tissue Doped On.

Bend

22 S.W.G.

Add 1/16 Sq. Strips to
Sides and 1/16 Sht.
Nosepieces.

2

Join Sides
With 1/16 Sq.
Crosspieces.

3

1/16 Sht.

Tissue

Noseblock Offset 1/16 Sq.
(Outdoor Flying)

Decorate Parts (See
Article) Before Assembly

Ground Line

Thin Card Discs.

Elec.

Tubing

$\frac{1}{4}$ Sht.
Wheels.

4

Root Ribs Only

Struts 1/16 Sht. 2 required

All Ribs 1/16 Sht.

Chain-Line (Starbd. Wing Panel.)

Power
Test Motor
1 Loop 17"
Long. $\frac{1}{8}$ Flat
Strip Rubber.

Duration
Motor
1 Loop 2'9"
Long. $\frac{1}{8}$ Flat
Strip Rubber

Wing
Panels
1/32 Sht.

Solid
Line
(Port Wing
Panel)

Use Medium Grade Sheet
For Entire Model.

Cut Out
For
Strut

1/32 Sht. Reinforcem

Indoor
Round The
Pole (R.T.
Loop

Point

Full Size Plan

P

1/16 Sht. Cabin Profile

A

Accurately join A-A to AA

For Complete Side. AP to AP For Cabin Profile.

1/32 Sht. Fuselage Sides Heavy Outline.

Tailplane

Skid

1/16 Dowel (Not Through Fuselage). Cement Firmly

Leave Open

1/32 Sht. Top And Bottom Fuselage Pieces

Heavy Outline

Cabin Profile

1/16 Sq.

B

Join BB to BB

Add Cabin Profile U/C And Wing Panels

Fin Slot

Open

Noseblock Details

1/16 Dia. Dowel

Tailplane Fin Assembly

1/8 Sht.

1/32 Ply

20 s.w.g. Brass Bush

Spot 1/4 Sht. Cement

Root Rib Template Plan

Loop ent.

P.)

Root Rib Angled

Fin. 1/32 Sht.

Form Hook For Motor

Skid 1/16 Sht

Prop Assembly

Cut

1/32 Reinforcing Strip
Noseblock Offset 1/16 Sq (R.T.P.) (Indoor)

Tailplane 1/32 Sht.

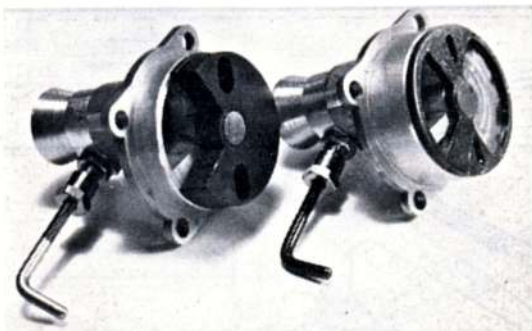
Fin Slot

Cut

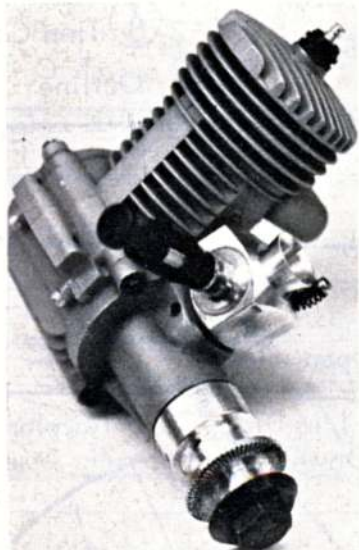
DESIGNED BY RAY MALMSTROM



The latest 'ABC' Super-Tigre G.21/29RV (left) seen, for comparison, alongside the original G.21/29RV of 1966.



Old (left) and new type G.21/29RV backplate and rotary-valve assemblies. Old valve rotor is of nylon; new one is of hardened steel.



Cox Concept FR 35 RC is confirmed as a Bill Atwood design and has chrome deposited casting - no liner.

E.D. Power-Pipe No. 2

Kevin Lindsey, designer of the E.D. Power-Pipe, reports some impressive performance figures for the new No. 2 size pipe. This is the size that a lot of people have been waiting for, as it is intended to cover the .29 to .40 cu.in. engine group widely used in C/L circles. The No. 1 pipe (for .15 to .20 cu.in. engines) and the No. 3 size (for the big .60's) have, of course, been on the market for some time. The new P.P.2 should be available very shortly.

Kevin tells us that the power increments obtained with the new pipe are the largest he has yet measured on any size or type of tuned pipe system, particularly with standard unmodified motors. He quotes the following examples of r.p.m. checks made on individually-owned engines of various types.

- (a) *Eta 29* with Kavan R/C carburettor, 9x6 PAW Trucut wood prop. R.p.m. without Power-Pipe: 11,500. R.p.m. with Power-Pipe: 12,900. R.p.m. increase: 12.2 per cent. Engine owned by Johnnie Johnson, member of team chosen to represent U.K. in the forthcoming European Championships for R/C model power boats to be held in Bulgaria.
- (b) *Merco 29 R/C*, 9x6 PAW Trucut wood prop. R.p.m. without Power-Pipe: 11,100. R.p.m. with Power-Pipe: 12,200. R.p.m. increase: 9.9 per cent. Engine owned by Ken Day.

- (c) *Super-Tigre G.21/29*, 7x9 Tornado nylon prop. R.p.m. without Power-Pipe: 16,200. R.p.m. with Power-Pipe: 18,200. R.p.m. increase: 12.3 per cent. Engine owned by Kevin Lindsey.
- (d) *K&B Torpedo 40 Series 67*, 8x9 Rev-Up wood prop. R.p.m. without Power-Pipe: 16,400. R.p.m. with Power-Pipe: 18,300. R.p.m. increase: 11.6 per cent. Engine owned by Dave Rudd.

LATEST ENGINE NEWS

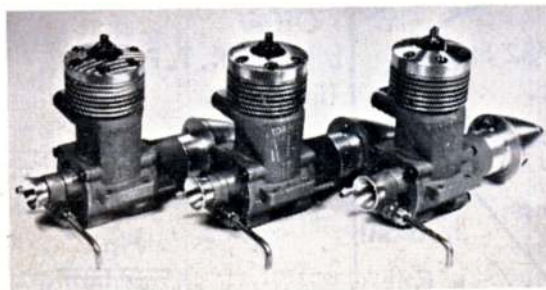
by Peter Chinn

Improved K & B 15R

Last year, it became known that K & B were going to offer an 'FAI Special' version of their well-known Torpedo 15R motor. So

Left, K & B 15R cylinder heads. Left: the original finned pressure diecast 'Series 61' head. Centre: the 'Series 64' plain diecast head with marginal squish band. Right: 'FAI Special' plain machined head with wide squish band and deep hemispherical combustion chamber.

Below are 1961, 1964 and 1969 versions of the K & B Torpedo 15R. Left: the original 'Series 61' engine. Centre: the 'Series 64' engine with revised piston and head and enlarged transfer passage. Right: the 'Series 64' with 'FAI Special' cylinder-head. The latest version of the K & B Torpedo 15R, fitted with 'FAI Special' machined cylinder-head is seen below.





far, these engines have not been on general sale, but Ron Irvine, the U.K. distributor for K&B and Veco, can now supply the standard 'Series 64' 15R fitted with the FAI Special cylinder-head which, it is believed, results in a worthwhile increase in performance.

As our photograph shows, this head, following a current trend, has a much wider squish-band and a considerably deeper, smaller diameter combustion chamber of more truly hemispherical shape. The new head closely resembles the pattern used on the current 'Series 64' Torpedo 29R and, as on the latter, it is machined from aluminium alloy bar stock instead of being pressure diecast as on the stock 15R and earlier 'Series 61' 29R's.

The Torpedo 15R is, of course, a high-performance glowplug motor intended primarily for FAI free-flight power and C/L speed work. It follows the classical racing engine formula of rear disc induction, twin ball-bearings in a separate front housing and a steel sleeved aluminium cylinder *en bloc* with barrel-type crankcase. A multi-peripheral jet carburettor is fitted and the engine includes an integral diecast and machined spinner assembly. Designed by Bill Wisniewski, it uses his internally counterbalanced full disc crank system and was, in its original 'Series 61' form, one of the first commercially built engines to feature this.

We have always found these Wisniewski-designed K&B racing engines to be particularly delightful to handle: dead easy to start, simple to adjust and very smooth running. So far as our own particular Series 64 15R is concerned, maximum power is comparable with that of a stock G.15, though it has to be acknowledged that G.15's in general have had appreciably greater international contest success. Whether the Torpedo FAI Special, or the stock 15R with FAI Special head, can narrow the gap, remains to be seen. In one respect at least, the Torpedo has the advantage and this is its lighter weight: 5.26 oz. for the 'Series 64' 15R with FAI Special head, as against 6.61 oz. for the latest disc-valve version of the G.15.

Super-Tigre G.21/29RV ABC

After the success, last year, of the Super-Tigre G.60R 'ABC' engine, the factory was quick to follow up with an ABC version of their 5 c.c. racing unit. The engine is based on the standard G.21/29RV first marketed three years ago but uses several new or modified parts.

The most obvious of these, of course, is Super-Tigre's exclusive ABC type piston and cylinder assembly in which a plain ringless aluminium alloy piston runs in a brass cylinder-liner with chromium-plated bore.

New 'GP' versions of the O.S. Max-H.60 R/C (left) and Max-H.60F R/C engines. These have new cylinder-heads, new single-ring pistons, new connecting-rods and various refinements aimed at increasing performance and durability.

The thinking behind this remarkable development was dealt with in our article on the G.60R ABC engine in the January *Latest Engine News* and will not, therefore, be repeated here. It will suffice to say that the system undoubtedly works and certainly seems to liberate more power in engines of this type than the orthodox approach of using a ringed aluminium or lapped cast-iron piston in a plain or chromed steel cylinder.

In place of the nylon rotary-valve used on the earlier G.21/29RV, the new model, like the G.60 and latest G.15RV models, uses a counterbalanced hardened steel valve disc. The crankcase, backplate and crankpin spigot have been suitably modified for use with this. The carburettor is unchanged. It continues to have a 9 mm. choke and there is provision for pressurising the fuel tank via a rotary-valve timed high-pressure outlet nipple.

Unlike the latest G.60 but like the G.15 rear-valve engine, the G.21/29RV continues to use an internally counterbalanced crankshaft. The shaft runs in a 12 mm. i.d. ball-bearing at the rear and a 7 mm. i.d. bearing at the front. The main casting has been somewhat modified. Apart from the new, flanged type exhaust duct, it has the upper vertical web moved to the centre. Formerly the web was markedly offset to the right, a legacy of the engine's development from a shaft-valve type with tangent intake. The beam mounting lugs are slightly narrower and a trifle longer.

The new exhaust flange brings the 5 c.c. G.21/29RV ABC into line with the 2.5 and 10 c.c. racing type Super-Tigres, foreshadowing the introduction of the factory's long promised tuned pipe systems. Actual port timing remains essentially 'non-pipe' in character, but we understand that, when the ST pipes appear, they will be offered complete with a replacement piston and cylinder liner, ported for piped operation. At present, the exhaust and transfer periods cover approximately 140 degrees of crank angle, but, without modification, the existing casting will allow the exhaust period to be increased to almost 160 degrees without restriction, or, with the upper edge of the port chamfered, this might be extended to about 170 degrees.

The G.21/29RV ABC retains the 19x17 mm. bore and stroke combination common to all the 5 c.c. Super-Tigres produced during the past seventeen years and weighs 289 grammes (10.19 oz.).

New McCoy 049 Engine

Very small McCoy's are not exactly new. Back in the fifties, several McCoy's in the .049 and .09 sizes were produced, both glowplug and diesel, although the last of these was discontinued some years ago. Now, however, the Testor Corporation, through whose subsidiary, the Duromatic Products Company, McCoy engines are manufactured, have re-entered the fray with the new McCoy 'Thunderbolt' .049 engine.

The new ABC version of the Super-Tigre G.21/29RV. This should be just about the most powerful of current production 5 c.c. speed-type engines.



Strictly speaking, this is not a McCoy design. A short time ago, the Testor Corporation acquired the Wen-Mac Model Division of the American Machine and Foundry Company and the new .049 is actually a development of the former Wen-Mac engine distributed in the U.K. by Keilkraft. A brief illustrated description of the motor will follow shortly in these columns.

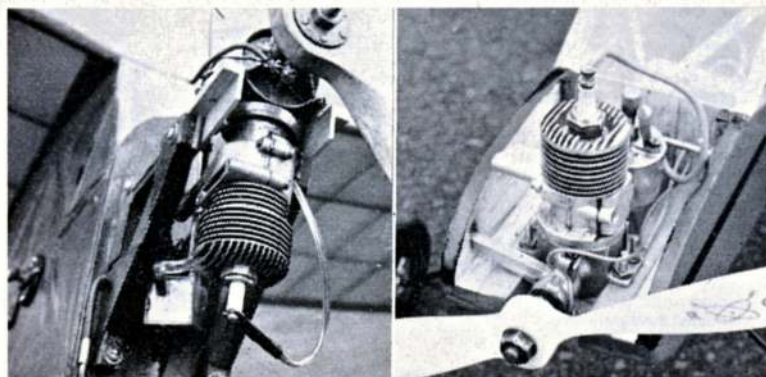
Improved O.S. 60 Engine

There are some engines which, over the years and through successive new models, have, we regret to say, deteriorated in quality. No names, no pack drill. On the other hand, there are a few manufacturers who deserve to be mentioned for their obvious efforts to make their engines better instead of worse and one of these is certainly the O.S. company. O.S. have been making model engines for more than thirty years – longer than anyone else in the business – and have reached, with their latest motors, a standard of fitting and finish that is as high as any in the industry.

This much is clear when one examines the new 1969 'GP' version of the Max-H.60 R/C and Max-H.60F R/C engines. Outwardly almost identical with the 1967-68 models, these new versions have various features aimed at making them more powerful and more durable. The piston is now machined from a specially chosen alloy, has a single ring and bronze bushed gudgeon-pin holes. The connecting-rod is bronze bushed at both ends instead of at the big end only and the engine reverts to an earlier O.S. practice in using skirt ports in the piston and cylinder liner. The piston now has a flat crown and is used in conjunction with a new machined cylinder head with wide squish-band and a hemispherical combustion chamber. The transfer passage is widened by means of machined flutes each side.

Further details of these improved Max 60's will be found in next month's *Radio Control Models and Electronics*.





FREE FLIGHT

COMMENT —MAINLY VINTAGE

By John O'Donnell

Inverted Ohlsson Gold Seal (Ron Raddon) and upright Majesco (O. W. F. Fisher) Vintage petrol ignition engines seen at S. Bristol Meeting.

RULES ARE a fundamental requirement for any organised form of competition. Their choice can make or break almost any event, and apparently innocuous changes can radically effect interest and participation. This, of course, is a two-edged weapon and rule changes can be used to advantage. But, as in many other things, the final results are never quite predictable.

When an interest arose a few years ago in what we now know as 'vintage' events, they were run on conventional duration lines. Nowadays this means three thirds, limited towline and engine run, and so on. It has become apparent that this is not really compatible with the attitude of the real vintage enthusiast who probably has an interest in either an 'old favourite' or a wider variety of designs. With a stipulated cut-off date for designs to be considered eligible, the choice of models that are really competitive is strictly limited. This is soon appreciated by the person whose interest is really competitive rather than sentimental or historical.

The result is inevitable. The winning models tend to become stereotyped and many of the original enthusiasts fall by the wayside. Vintage started off with a strong rubber/power bias with the results dependent on how the choice of mechanical power plants was restricted. If modern engines were allowed then power models were too good for the generous run sometimes allowed. If not, then the event became a rubber contest. When the allowed towline length was increased from 164 to 250 feet, gliders immediately became a contest threat.

It has been felt in some quarters that duration is perhaps not the correct criterion for Vintage. The outcome is that the **South Bristol M.A.C.** have just run a meeting on a completely different system. This event was held at Hullavington on 23rd February (the Coupe d'Hiver weekend!) and full details, photographs, etc. were supplied by John Mayes.

The event was run on precision lines, except that a fixed 'target' score was not used. Instead the contestant's first flight served as the target for his second and third. The difference between his three flight total and three times his first flight was then calculated as a percentage of the latter. Flights were required to land in sight and did not count if DT'd. There were no arbitrary limits to engine run, towline and the like, but all three flights had to be made to score.

Ron Raddon runs his 'Gold Seal' in 2nd place 'Comet Clipper' at Hullavington, uses genuine Austin airdraulic timer too.



With such a scheme consistency is obviously the aim. Short flights tend to be advantageous from this aspect, but this is compensated to some extent by the mode of computation. A bottom limit was set by the use of a 30-second 'attempt'.

The results of the 23rd February event imply some very consistent flying. Although actual flight times were not given, it appears that most were around the minute mark. Assuming this applied to winner John Berryman his 0.725 per cent error would result from a total error of 1.3 seconds. This is certainly precision.

However, this style of contest will also produce its own 'best' answer, admittedly very different to that required by duration events. The obvious choice is between a sports type rubber design (with turns carefully counted) or a Bowden contest-style power model with a good timer. Both would be trimmed for a *poor* glide. Towline gliders would appear a poor choice as they are much too susceptible to localised up and down draughts. A glance at the designs quoted in the results list will illustrate this analysis. Having mentioned results perhaps I should add that A.M.A. has no direct transatlantic significance, but stands for Antique Model Airplane.

The Americans use the term 'Old Timer' for their equivalent events and have a rather different approach to the problem. At least one event (the annual Texaco Trophy contest) *pre-war* rules are used.

This is the Texaco Trophy contest for pre-1939 *ignition*-powered models. Russ Johnson has just sent me details of last year's contest organised at Gardner Field, near Taft, California, by the Southern Californian Antique Model Plane Society. Scoring was on the basis of best single flight with engine run restricted solely by a fuel allowance of $\frac{1}{2}$ oz. per pound of model weight. This gave 3-10 minute engine runs! Timekeepers followed the models in whatever transportation the *competitor* could provide.

From the results they obviously have different weather and countryside to us. Winning score was 43 minutes by Don Whitacre who lost his Vivell 35 powered 'Quaker Flash' o.o.s. upwards. It was eventually found 60 miles away! A 15-minute flight was only good enough for 12th place.

Somehow I feel such a contest really requires a more expendable type of model. I can only hope that the projected motorway through Chobham doesn't give anyone any rash ideas of trying out these rules over here.

How shapes have changed - launch techniques as well! J. Down of South Bristol releases a Frog 'Stratosphere' rubber entry in Vintage event.



A more 'up-to-date' rules problem that seems to have no real solution (despite endless discussion) is posed by open rubber. I suppose that any rules restriction really invalidates the adjective 'open', but this is hardly the point.

Basically open rubber has long been in the position that power models reached very soon after their introduction. It is quite easy to produce a model that has a performance much too good for the facilities (size of flying ground) generally available. Most rubber contestants have open models capable of 5-6 minutes. A flight of this length goes a mile in a 10 m.p.h. breeze - which is calm by most standards! While contests are generally run with a 3-minute limit, flyoffs are not - and need a lot of space. Timekeeping difficulties are obvious.

Nevertheless, open rubber has survived, and surprisingly well. The people who fly it obviously like it - and are resistant to suggestions of the class being abandoned or changed radically. Many different schemes have been advanced (and even tried) for limiting rubber performance. Some are much more logical and have theoretical advantages over the 'maximum amount of rubber, minimum a.u.w.' approach typified by the present Wakefield and Coupe d'Hiver rules. But these classes are 'accepted' and likely to remain so. Another 'restricted' class is unlikely to be popular as many people consider that concentration on Wakefield is preferable to splitting effort over two similar categories.

A 'half-way' solution has been advocated of restricting merely the rubber weight and leaving the model size, design and weight completely open. To make specification Wakefields eligible and for practical considerations regarding rubber utilisation, the obvious suggestion of a 40 gram rubber limit has been advanced.

This concept has reached the stage of being a scheduled event at the Croydon Gala on 22nd June. From what I have seen and heard a specially designed lightweight structure model designed for 40 grams of rubber still has considerable potential, and 4 to 5 minutes looks quite practical. This is hardly 'restricted' performance so isn't going to solve the real problems. What it will certainly do is decrease visibility - especially on the critical fly-off.

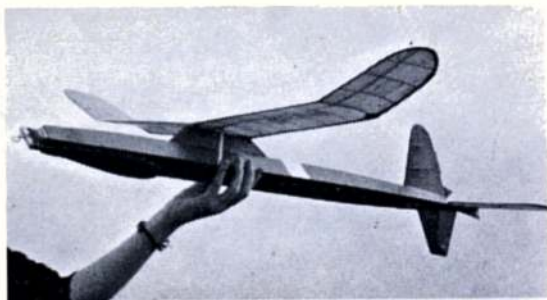
I can speak from some experience as I was once 'forced' to fly a model exactly to this 'specification'. At the end of 1963 I ran short of models - so built an 'open' fuselage for my Coupe d'Hiver components. On its first outing it won the N.W. Area sponsored English Electric Trophy event for experimental payload rubber models with about 7½ minutes aggregate - on 25 grams of rubber and carrying a similar amount of ballast! Thereafter, it was flown in open events using ex-Wakefield 40-gram motors. In half a season (till I lost it) it never managed a perfect score; but did far too many flights of around 2:45 or 2:50 o.o.s.

Western Area S.M.A.E. Vintage Precision Event Results, R.A.F. Hullavington, February 23rd, 1969

			% Error
1. J. Berryman	B. & West	'Bristol Club Contest' (R)	725
2. R. Raddon	A.M.A.	'Comet Clipper' (Gold Seal)	1-85
3. K. Horry	B. & W.	'Hep Cat' (R)	3-0
4. J. Mayes	S. Bristol	'Mini-Hogan 45' (Elfin 1-49)	4-3
5. R. Wade	S. Bristol	'Percy' (R)	7-3
6. J. Haggart	A.M.A.	'Simplex' (Forster 29)	7-9
7. J. Down	S. Bristol	'Frog Stratosphere' (R)	8-3
8. O. Fisher	C.M.	'Sunduster' (Majesco)	9-9
9. S. Spencer	S. Bristol	'Dinamite' (R)	10-3
10. J. Moseley	Baldon	'Lulu' (G)	11-3

(Proxy Mayes)

Weather, overcast, warmish, 10-knot wind maximum.



Author's 'Emergency' Open Rubber model (see text, last para.) using Coupe d'Hiver components and 40 grammes of rubber.

At Texaco Trophy, Taft, California, Don Whitacre won with a 43-minute flight which eventually went 60 miles using Vivell, 35 powered 'Quaker Flash', below. Lucky to get it back we'd say! Bottom right is Hugo Lung heaving his Super Cyclone powered 'Boehle Giant' 14 ft. 8 in. span from Zaic's '37 Yearbook. Bottom left is Cliff Silva starting what appears to be an Ohlsson 60 in a Carl Goldberg 'Valkyrie', the original pylon model.





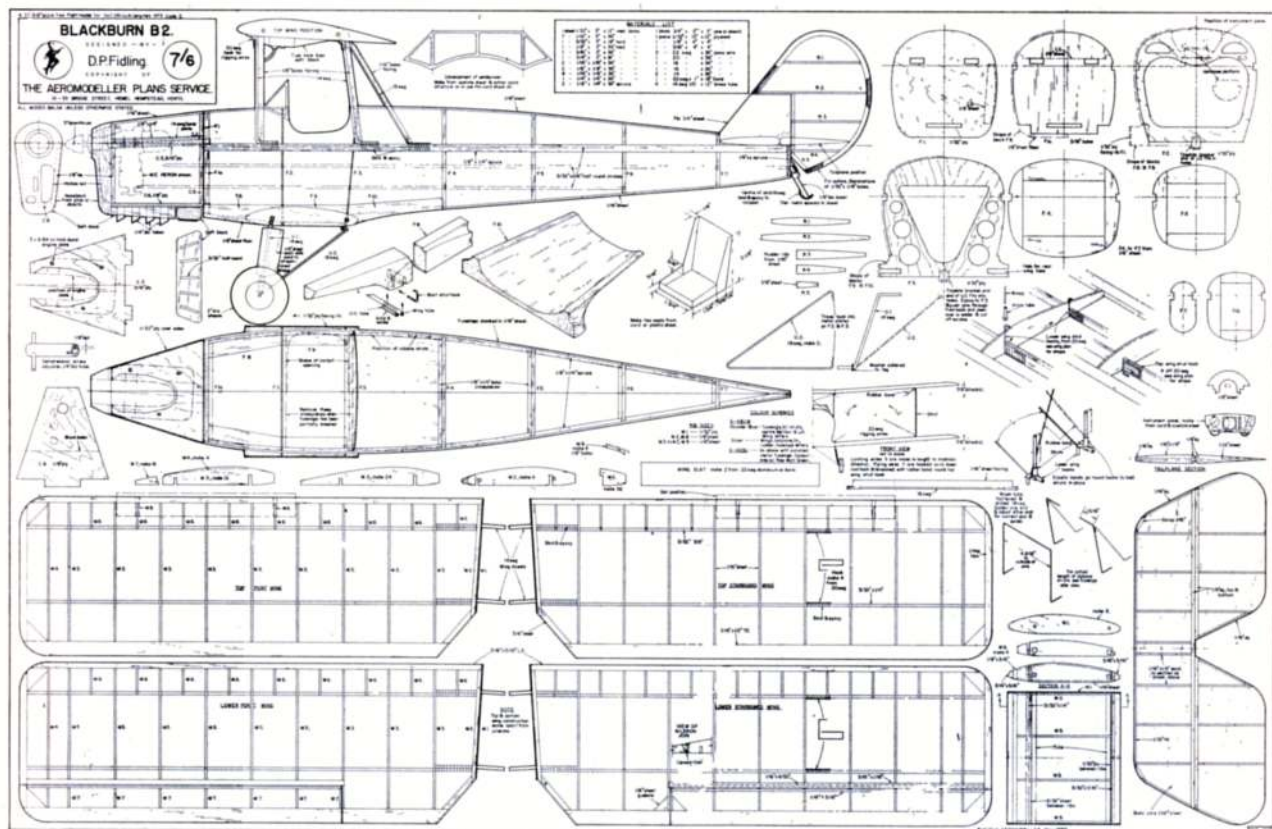
BLACKBURN B.2

A Free Flight scale biplane for 1-1.5cc. engines by D. P. FIDLING

DEVELOPED from the record-breaking 'Bluebird IV', the Blackburn B2 is a two-seat, side by side training aircraft of all-metal construction. Originally built in 1932 and the construction was quite unique for the period,

the fuselage being metal-covered and immensely strong. As a training aircraft it was quite popular, being very stable. The last survivor is in very good condition and is sometimes seen flying locally and at the Shuttleworth

Full size copies of this 1/7th reproduction are available through A.P.S. as Plan FSP1028, price 8/- inc. post.



open days. It is G-AEJB, first used as a trainer in 1936, and very much a shining example of the pre-war products of Blackburn Aircraft. It makes an excellent scale subject and has been sized to suit 1-1.5 c.c.

Construction

Commence the fuselage by laying down the $\frac{1}{8}$ in. x $\frac{1}{4}$ in. spruce crutch. Joining with balsa crosspieces - also those at F1a, F2, F3, glue all formers in position except F3. Cut blocks F8, 9, 10 to basic shape, but leave enough wood proud to butt sheet planking. Glue F8 in position and when putting F9 and F10 in place add F3 to obtain correct angle of this former. Next, bend cabane struts as per plan and bind and epoxy into position, splay feet of struts to obtain correct position on crutch as shown on plan, but maintain correct width. Bind tail skid to stem post and glue in place as planking is cemented. Plank whole of fuselage except top front and trim front end flush with F1a. The Cowling is unusual and the best approach to building is as follows: place F1, on scrap $\frac{1}{4}$ in. sheet and pin down, glue C6 in place making sure it is at 90 degrees to F1. When dry, lay C6 flat on board with F1 hanging over edge and glue C3 to F1, adding $\frac{1}{8}$ in. sq. front pieces to obtain correct angle of this item. When dry, glue to fuselage then add C5 and block under C6. Glue $\frac{1}{32}$ in. side pieces in place and noseblock. Place C1, C2 and $\frac{1}{8}$ in. x $\frac{1}{4}$ in. side pieces in position on C3, making sure that parts of cowl don't stick to adjacent pieces. Now plank top front of fuselage.

Use good, hard $\frac{3}{32}$ in. sheet for the wing spars and medium hard for the trailing and leading edges. The upper wing is a straightforward structure with no ailerons.

Lower wing is built with ailerons using hard $\frac{1}{16}$ in. sheet for the leading edge of the aileron and shroud. Sanding of the root shape is best done after ply root rib is added. These ply root ribs are made by pinning the ply blanks together and then drilling and shaping in one block to make sure they are identical.

Tips are now sanded to blend into LE and TE, strut hooks and root dowels are fitted last.

Build Centre Section but leave off $\frac{3}{16}$ in. x $\frac{5}{16}$ in. TE. When dry, place in position on cabane struts and bind front strut to front spar but don't glue it. Make sure that correct angle of incidence is maintained by cutting away rear spar. When satisfied, bind strut to rear spar and glue, also secure the front binding. Add $\frac{1}{32}$ in. ply between ribs at rear and $\frac{3}{32}$ in. sheet at front. Next, slide tube through and make up with wings to obtain correct position. When this is done bind and glue tubes in place and add TE. Sheet Centre Section and add W1 to each end and sand down to section shown.

The lower wing tubes are fitted in a similar way. Offer up wings to obtain correct position and glue in place, add rigging hooks and then glue W1 end plates in position. Now carve and sand fuselage to final shape.

Pin five laminations of $\frac{1}{8}$ in. x $\frac{1}{32}$ in. for rudder round a $\frac{1}{8}$ in. former to make the profile of the rudder, then pack up off the plan and add ribs.

The fin is made out of one piece of soft sheet and glued between two ribs on the top of the tailplane.

A basic sheet cove is cut to the tailplane profile and the structure glued on the top, sanded to shape. This is then turned over and repeated on the other side. Simple enough?

Flying

Aim for a left circle under power, giving a good engine run so the model has enough height to settle into a glide. The glide is quite fast and under power the model has the same tail-up 'sit' of the full size aircraft. It looks just like the real thing in all respects and will reward the constructor with many, happy hours of pleasurable scale model flying.



Photo of real machine on page opposite shows how true to scale is this replica of an unusual light plane. Details above and below will aid modellers. Design also lends itself to single channel radio control conversion.





OP 15 Cylinder
(Item 'B' on main drawings)

Turn to Fig. 6. Excess lengths are for removal later to ensure correct position of ports from cylinder base. Bore to good finish and lap to .311 in. dia. Scribe six equally-spaced lines on O/D of fins near top of cylinder. (Use a new 5/16 in. hex headed bolt thro' cylinder bore, locked in position with nut at other end, lining up scribe with corners of hex head). Also scribe one line on *Fix No. 1* in easily visible position. Mount on *Fix No. 1* in line with lathe centres. With clock in chuck, check for centre and parallel, rotating clock around O/D of cylinder. Swing compound slide to 45 degrees angle referring to Fig. 7, and drill transfer ports exactly at angle beneath fins, using lines on job and fixture to ensure correct spacing. Remove and square upper edge of post with small file. Or you can mount the cylinder in chuck, positioning by hand and eye, broach upper edge with small tool held in toolpost, using compound slide set at 45 degrees angle in a similar manner to a slotting machine. With a depth micrometer inside bore, check upper edge transfer port position from base, holding depth micrometer stem firmly against inside wall of cylinder, and with pencil torch or strong light shining from top of bore, look through port and adjust stem until light is cut off. Make a note of dimensions in order that exhaust ports may be correctly positioned relative to transfer ports. Replace on *Fix No. 1*



Part Four and conclusion of our series on a make-it-yourself diesel

Ten more stages of machining operations

TOPSY

.375 c.c.

Specially designed by G. Hugh
for construction on a centre lathe

and return compound slide to zero degrees. Recheck for in-line and centre, as at beginning of operation. Form exhaust ports (Fig. 8) using special cutter, similar to internal under cut tool held in chuck, and lining up to correct lines on O/D of cylinder and fixture for correct spacing. Refer to position of transfer ports measured earlier and not forgetting to allow for extension on base of component. Remove from fixture and in collet, true up and face bottom to correct dimension from ports to final drawing. Turn and screw to finish, lightly skimming face at underside of fins to provide smooth square face for gas seal. Reverse and face to overall length on main drawing. Remove burrs from bore but do not damage edge of ports or lands between. An undersize reamer will do this effectively. On mandrell turn fins complete the diameter of top two fins is larger to accommodate internal thread. (Note: Dimension .140 in. section AA cylinder on main drawing is only approximate). Aim to leave .015 in. -.020 in. lands between ports as viewed from inside bore. Make a 20 to 1 scale drawing of cross section AA to help calculate depth of cut, with tool for exhaust ports just touching O/D of cylinder blank. Deburr complete and lap to a fraction undersize on expanding lap (Fig. 9), reversing job end for end occasionally to maintain round and parallel.

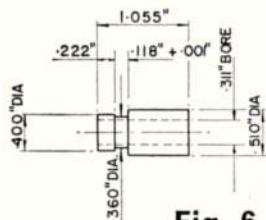


Fig. 6

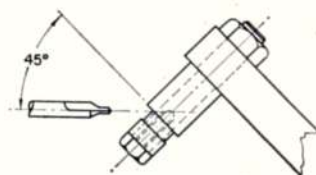


Fig. 7

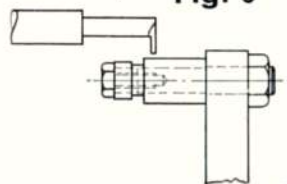
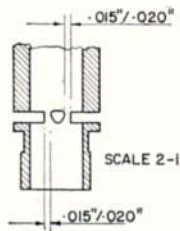


Fig. 8

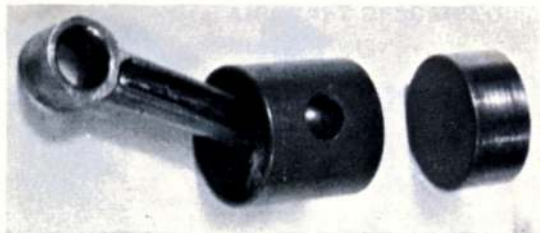


OP 16 Cylinder Base (Item 'A' on main drawings)

Make cylinder base, turning at this stage only the internal thread to suit cylinder counter bore and all diameters and faces nearest to cylinder. (Good finish on face mating with underside of lower fin.) The opposite end to be left at .600 in. dia. and $+.005$ in. long. Mount firmly to cylinder and face to $+.001$ in. from bottom face of cylinder. Mark off six holes and drill through into annular chamber, now formed by the assembly of the two parts, thus completing transfer passages. Remove base and deburr both parts. Cement base to cylinder with Araldite metal to metal adhesive. When set, face to length, removing as little as possible from base of steel cylinder. From scrap steel make a short steel mandrel $\frac{3}{4}$ in. long to a sliding fit in cylinder bore. Drill and tap 2BA for retaining screw to about $\frac{3}{8}$ in. deep. Without disturbing mandrel, mount cylinder and lock in position, with a retaining screw, with dural base towards tailstock, and finish, etc., to final dimensions. Good finish is required on flange mating with Crankcase.

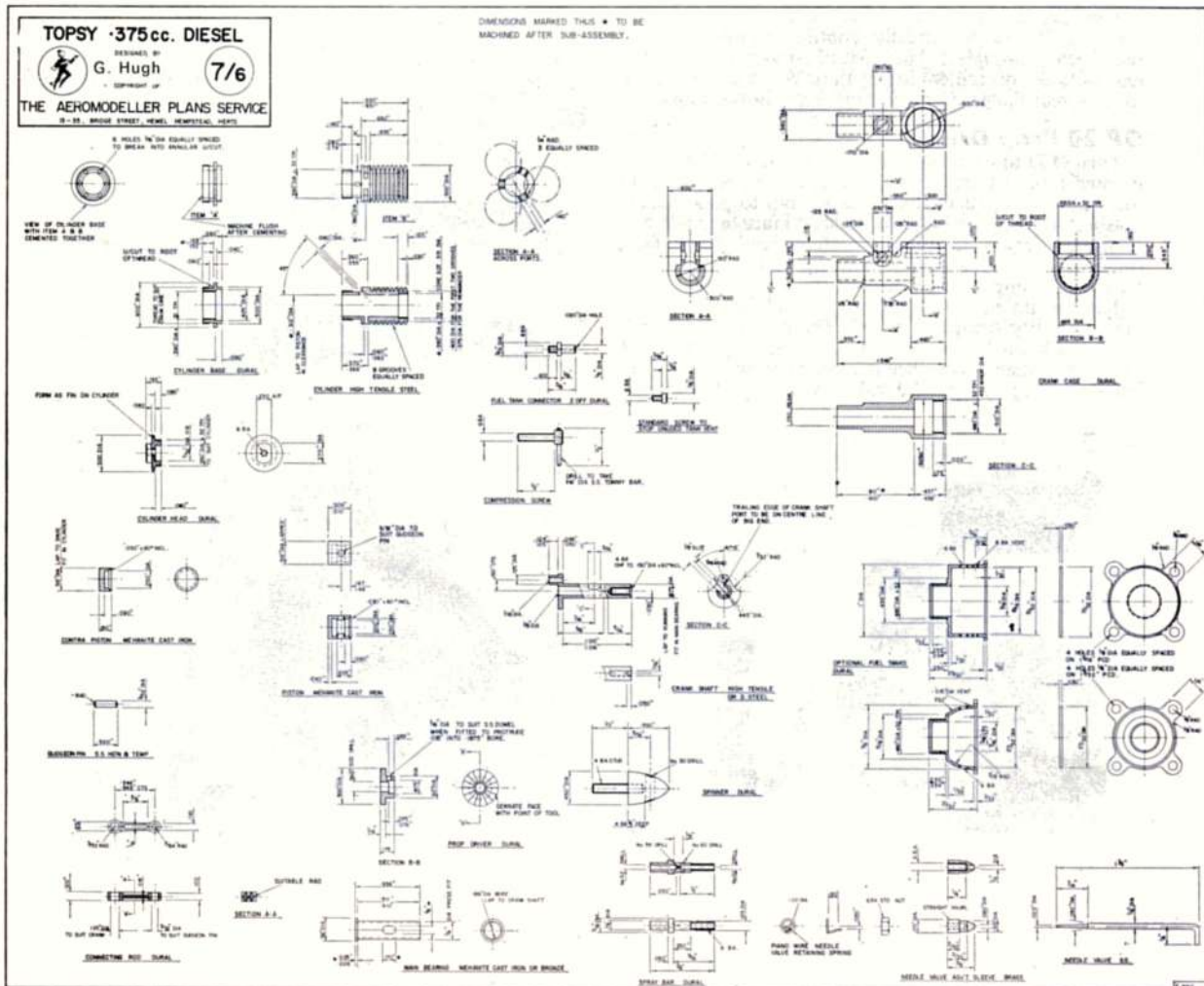
OP 17 Complete Cylinder Sub Assembly

Make a screwed bush, held firmly in chuck, to fit cylinder base, and faced square and smooth. Mount Sub-Assembly in bush and turn and screw internal thread at top of cylinder bore. Remove and relap to finish bore dimension, reversing end over end occasionally to produce round a parallel. Finish to a mirror finish with metal polish.



OP 18 Piston and Contra Piston

Turn to a length of 1 in. by .313 in. dia. Maintain round parallel and good finish. Hold in toolpost at right angles to chuck. With clock in chuck, check square, parallel and centre. Drill and ream $\frac{3}{32}$ in. hole for gudgeon pin, leaving $\frac{1}{8}$ in. plus from face to C/Line for removal later. With split cast-iron lap held in jubilee clip for adjustment, lap sufficient length to produce Piston and Contra Piston to a good finish and to a size that will just pinch in cylinder bore. In collet, face to correct dimension from base to C/Line of gudgeon pin. Bore complete and part off. Reverse, holding lightly in collet and face piston to length. Make a dummy gudgeon pin and holder and relap to size finishing off with metal polish in cylinder, mating to a good fit and surface finish. Treat Contra Piston in a similar manner but to a tight fit. You should just be able to inset it into the top of cylinder bore, by using extreme pressure with the thumb.





OP 19 Fuel Tank

There are optional tanks on main drawing. The rounded one was made later to improve the appearance of the motor. Turn and screw O/D first. Good finish is needed on faces to seal crankcase. Part off. In screwed bush with paper washer to protect gas seal face, face and bore reverse end. Fit tank firmly to crankcase and mark off all holes in correct positions. Drill all holes and tap. (In square section tank I allowed for inverted running of motor by using two vents, one of which is sealed by simply inserting a small cheese head screw. The rounded tank can be modified if need should arise. The later was also fitted, for sake of appearance, with connectors without flanges, using a short tight thread and cemented in position). Mark out and file contour around flange at rear. Deburr complete. Turn disc of dural to a 'snap' fit in rear of tank and cement in position. When set, skin flush to tank rear flange. Cement connectors in position.

OP 20 Prop Driver

Turn O/D to drawing and bore and counter bore. Use pointed tool to finish counter bore, leaving no radius to foul end of crankshaft, and face bottom to good square finish. Part off and reverse in chuck and face to length and parallel, afterwards, drawing a sharp tool across face, rotating chuck a few degrees between each cut. Drill hole for dowel, using lathe to ensure correct position.

The remaining parts need no special instructions as they are fairly straight forward. The needle valve needs good finish on taper. The straight knurling on needle valve adjustment sleeve needs to be very fine. Also after initial running in, a small dural sleeve is made to fit under

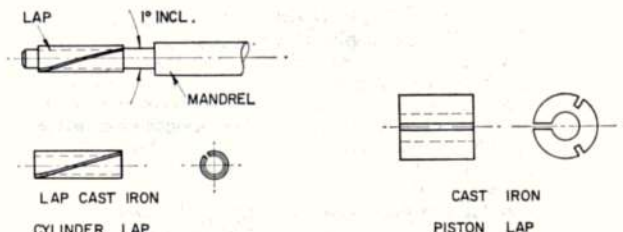
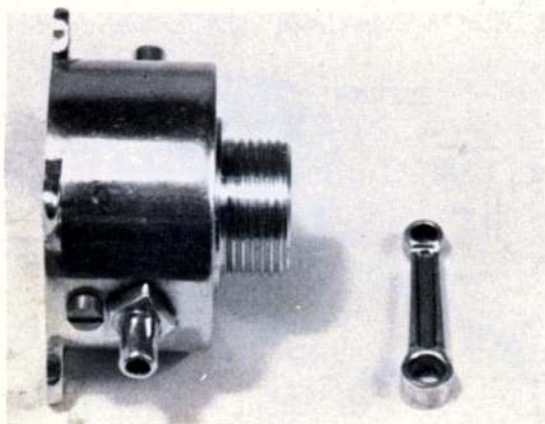
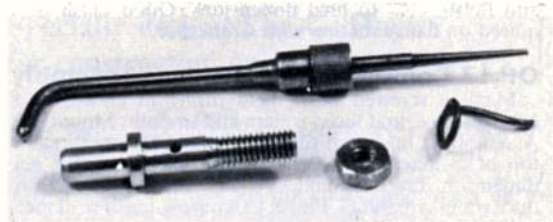


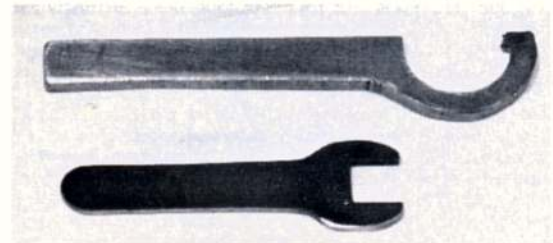
Fig. 9

the head compression screw, so as to limit the amount of movement. With the screw set to give optimum performance, the distance between underside of head of screw and top of cylinder head is measured and the sleeve made a few thou' short of this dimension.

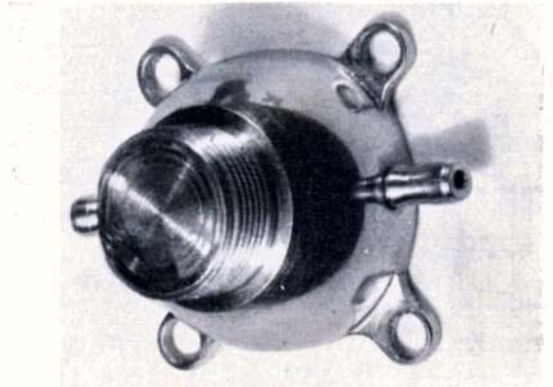


Needle valve assembly above, and cylinder lap upper left, with piston lap to the right of photo illustrate some of the varied model engineering techniques required in making 'Topsy'.

Reprints of this feature on making 'Topsy' will be available as a supplement to APS drawing E992 reproduced on previous page. Orders for the drawing of full size parts should carry reference E992 and be sent with 7/6d. plus 6d. for postage and the instruction supplement ordered as E992 (instr.) price 2/6d. Messrs. A. J. Reeves of 416 Moseley Road, Birmingham 12 are arranging to stock all metals called for on the drawing.



Useful assembly spanners above, and the two fuel tank variations below, with connecting rod for size comparison.





AIRCRAFT DESCRIBED Number 182

MARTIN BAKER M.B.5.

DESCRIBED in superlatives, ahead of its time in terms of engineering, performance, handling and pilot appeal, the Martin-Baker M.B. 5 will always remain an enigma. Only one prototype was constructed: but when it appeared to specification F18/39 for its first flight with Bryan Greensted at the unique Martin primary control unit, it represented the extreme limit of piston engined fighter development. Possibly the imminence of the jet-powered Meteor was influential in the demise of so promising and

the M.B.1. itself was not put into production.

The Martin-Baker 2 was a fighter for the 24-cylinder Napier Dagger 'H' engine, first flown in August 1938. It was the first British fighter designed for eight Browning .303 machine guns, and the first where length exceeded the span. The undercarriage was fixed in 'Trousers' fairings, and the construction such that it could have been produced quickly and cheaply. Alas, this was not to be, and the M.B.3 was next created to Spec. F4/34 for the Napier

Pilot's view in the M.B.5 was exceptionally good. At top, the wide track undercarriage, thick wing and clean cowling lines are obvious, also the camouflage 'wraparound' at leading edge and tips. Tail was camouflaged on undersides. 'P' in circle indicates Prototype. In take-off photograph at right, the wheels are about to retract in the wings, and tailwheel unit has already been contained by bulged doors.



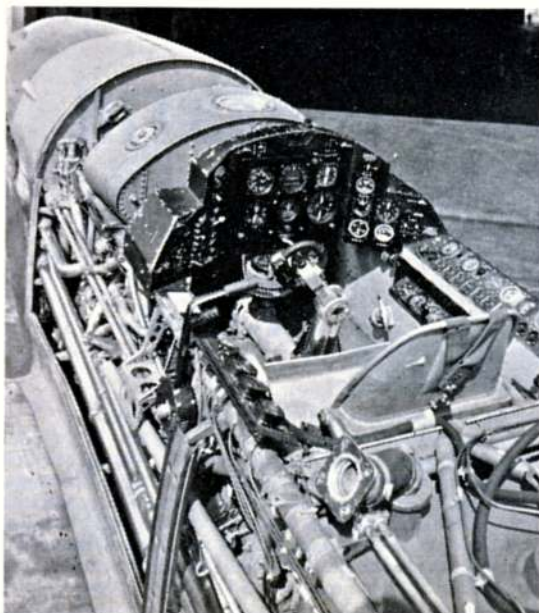
attractive an aircraft. It might also have been prejudiced by having a background less imposing than that of the Spiteful.

James Martin founded his Martin Aircraft Works at Denham in 1929. His first design was a mid-engined monoplane with extension shaft to the prop, a remarkable adventure for the year, which perished with lack of finance. Then came the M.B.1 following Capt. V. H. Baker joining the Company, and extensive use of tubular structure in the Napier Javelin powered monoplane was to establish a technique for all subsequent designs though

Sabre. It had six 20 mm. cannon, wing radiators, a pneumatically actuated undercarriage and was highly manoeuvrable. Unhappily, it crashed in September 1942, killing Captain Baker after engine failure soon after take-off from Wing airfield. Loss of the prototype was a major disaster for the small Company and the death of his partner, a tremendous blow to James Martin. But as in more recent years, the determined character of this skilled designer was dominant in a quick recovery. The M.B.4 was designed for the Rolls-Royce Griffon. This was a private venture and was dropped in favour of the M.B.5,



With radiator shutter fully open for taxiing, and sunlight emphasising the slab sides of the fuselage, the M.B.5 looks less of a beauty but is infinitely practical. Control surface areas were large and each carried generous trim tab though from all reports, the machine was viceless and flew without call for changes. All photographs from 'The Aeroplane'.



made for the same Griffon engine but to the Air Ministry Specification F18/39.

Many of the features which had made the M.B.3 so different were to be seen in R 2496, the prototype. Triangular fin and rudder, aft of a large area horizontal tail surface, and extending length greater than span, plus a high level canopy with excellent range of vision for the pilot, and otherwise angular lines immediately identified its genesis.

The Griffon 83 was driving contra-rotating DH propellers, and all coolant radiators enclosed within the rear fuselage with a common intake and controllable efflux. Wide wheel track which gave good ground stability produced a remarkably simple undercarriage contained within



Cockpit area photographs illustrate the degree of access designed into the M.B.5 through use of detachable panels, and the cleanliness of the cockpit with its floor and patented Martin control unit as well as the instrument panels which hinged for servicing. Close-up of the Port leg shows the cable which, actuated by pneumatics, unlocks the radius rod and retracts the leg against the spring. Gravity and spring combined to lower the leg. Reprints of this feature, with 1/48 scale dyeline prints, are available as plan pack A.J.2889 from Aero-modeller. Plans Service price 2/6d. plus 6d. postage.

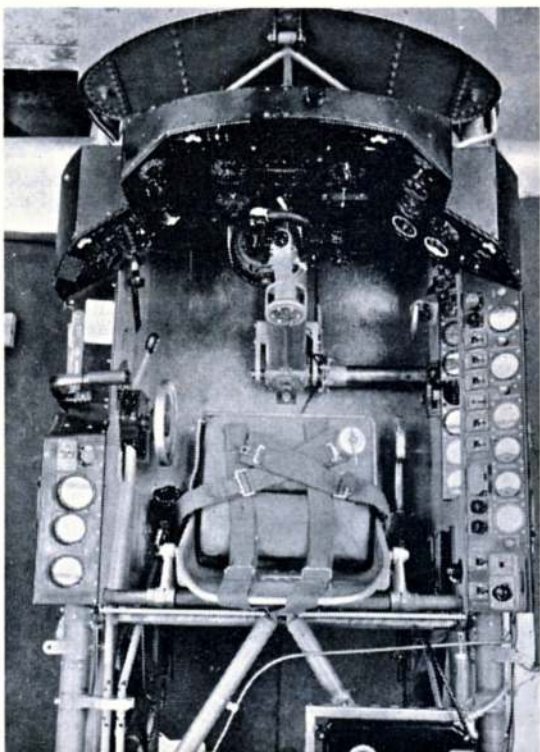
the wing panels aft of the single mainspar and tough leading edge torsion box. Tubular steel structure of the fuselage permitted large areas of access through detachable panels, possibly unmatched by any other aircraft of similar size before or since, and a key factor of the design was the ease of maintenance. This was carried through to the pilot's cockpit, where the cleanliness of layout was exceptional. Use of a floor would have appealed to all the R.A.F. mechanics (a dropped spanner in a Typhoon for example could mean seat removal for recovery – or a bump on the head for the pilot if abandoned) and the instruments were fitted to hinged panels which permitted maintenance without removal.

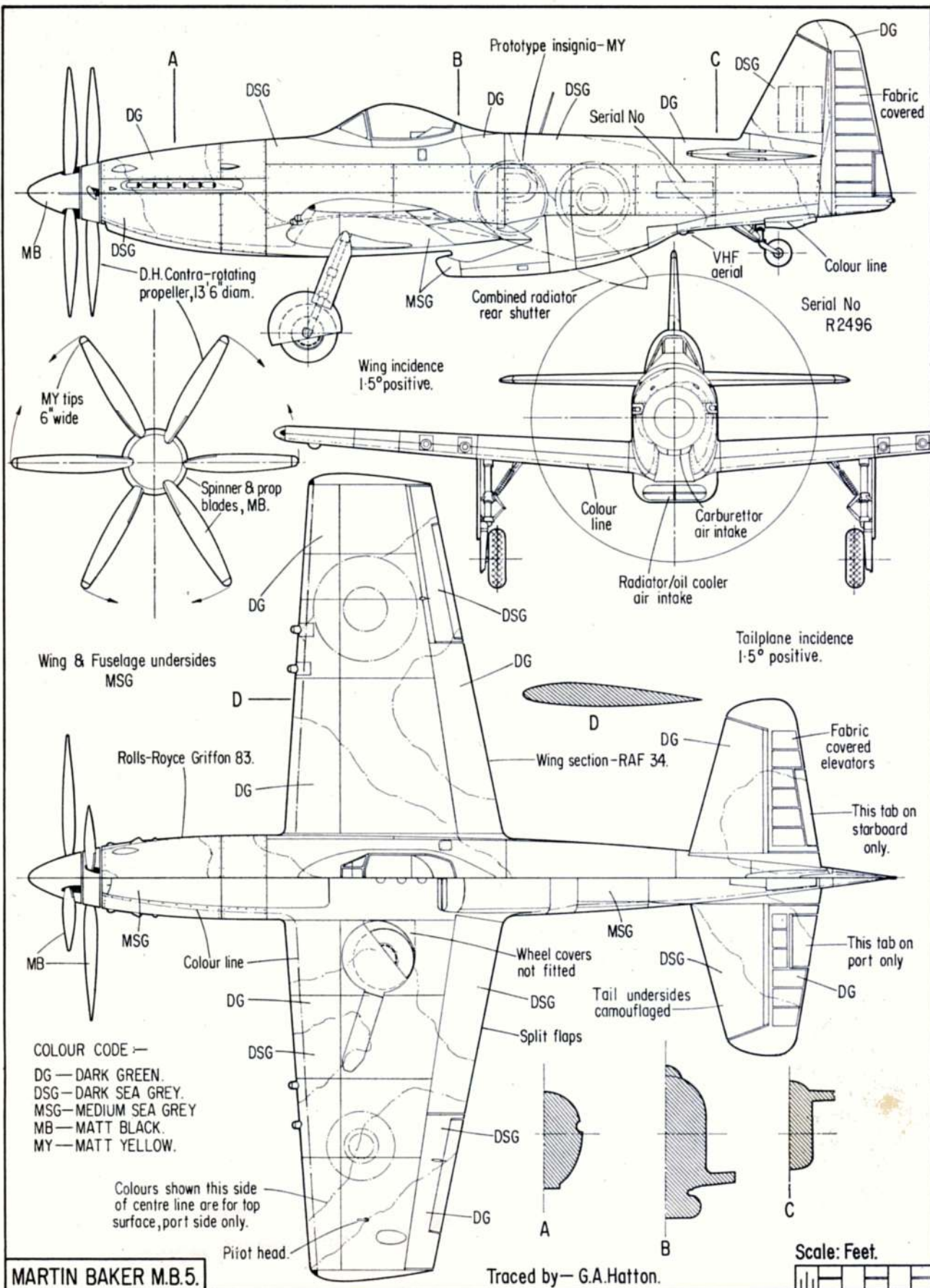
It was in fact both a pilot's and a mechanic's aircraft.

A top speed of 460 m.p.h. at 20,000 ft., the control response of a Spitfire, lack of vibration and torque effect, range of vision and tough structure would have made it more than a match for other types which entered production or remained on the factory lines well after the M.B.5 was discarded.

James Martin (now Sir James) went on to establish his World Famous range of ejector seats which have become standard equipment for many Air Forces and have to date saved over 2,000 lives. One is tempted to wonder what might happen now if he were to produce his conception of a ground attack fighter to NATO specs. Whatever the outcome, we could be sure of one certainty – that the shape would make it as ideal for a flying scale model as were the M.B.3 and M.B.5.

Span. 35 ft. Length 37ft. 9 ins. Height 16 ft. Max. Weight with ammunition, 11,500 lb. Max. Speed at 6000 ft., 425 mph. at 20000 ft. 460 mph. Stalling speed 96 mph. Service Ceiling, 41,500 ft., Range 1,240 miles.





topical twists

by 'Pylonius':

illustrated by 'Sherry



Free for All

The Free Flight world is not so much in a thermal as a turmoil. Understandably so, too, since in a restricted, intensely controlled world, free flight is about the only free thing left - apart from the carbon monoxide we breathe - and highly embarrassing has this freedom become. The question thus arises: how can we put the shackles on free flight without it hurting too much, and without the free fliers knowing what is happening to them?

The need to take all that enviable freedom out of free flight is partly due to the shortage of airfields, but more to do with their shortness. What is more, freedom means licence, and so much of it has been taken by the tactical fliers that the timekeepers these days are exchanging their watches for calendars. Gloom all round when one of the out-to-win-time-no-object boys hoves into sight hugging the long range weather forecast.

One freedom which everyone is keen to curtail except the fliers themselves, is the freedom to roam over the once free countryside. But what to do about it? Most things have now been tried: pint-sized models, miniscule rubber motors, short haul towlines and split second engine runs, but the free flight roamers have triumphed over all. They still spend most of the day outside the airfield, which, considering the inadequacy of certain facilities at most rallies, is lucky for them.

Some people, of course, believe that the future for free flight lies in even greater freedom, particularly in extending the tactical scope. The more you come to rely on tactics, goes the latest argument, the less you have to worry about the quality of the flying - a wholly democratic solution. Trouble here is that the tactical situation might escalate into open warfare. Instead of just outwitting your opponent you actively begin to attack him. There'll be decoy timekeepers, mock thermals, and even the use of pilot score cards might make it possible to win a contest without actually making a flight.

Balsa bashers

It has been said that the public image of aeromodelling would be improved by getting over the fact that it is better to bash balsa than old ladies.

Now this seems to me a dubious sort of approach. 'What', the youth is asked, 'would you be doing if you weren't flying model planes?' 'Why', replies the youth, in all honesty, 'bashing old ladies'. At which the magistrate reads out a list of offences he has committed with his 10 c.c., 24 in. span radio model, including, among other things, the prostrating of a number of old ladies.

To my mind it is rather an alarming prospect for the hobby if it is to provide an outlet for would-be delinquents. If anything is likely to hasten the demise of the

movement it is the influx of people other than highly civilised, gently nurtured beings. Just what sort of depredations the putative old lady-basher might commit within the hobby that he would find as gratifying as the bashing of old ladies, I dare not begin to think, although perhaps we have a good idea from the reaction of gun-toting farmers, and the uninhabitable state of the local common on Sunday afternoons.

For my part I take the opposite view of those who think the hobby should serve as a sort of vast, open air approved school. I propose that recruits to the hobby should be thoroughly screened by a team of psychiatrists; thus to ensure against any anti-social or delinquent elements creeping in. We could also extend the ban to those slogan shouting anarchists who partake in all manner of demonstrations except the essential one of a fly-in.

Loon-artic flying

Is there anything sinister in the fact that Colonel Frank Borman, the moon traveller, is a model flyer? Could it, we ask, be an attempt on the part of the powers that be to rid the world of the model flying menace by despatching us all to the moon?

Consolation, though. Jolly good model flying on the moon. A bit on the cold side, perhaps, like Chobham on Sunday morning. But, just think of it: your c.g., will get a six times plus charge of uplift. There'll be no wind, no thermals, no 'Keep Out' notices and no spectators. But, horrible thought, will the models fly in the thin atmosphere? And will a little green man pop out of a crater and ask, 'What on moon do you think you're playing at?'

And from lunar flying to loony flying. I refer to the sort of wild flying bloke who, if you stuck him in the middle of the Sahara desert - which is a pretty useful idea in itself - would soon have the camel men complaining of low level sorties over caravans, and Sheiks from the harems complaining of not being able to catch up on their sleep. Unfortunately, the wild ones are not getting their just deserts, but are operating dangerously around the airfield fringes. Yet it was only a short while ago that the airfield people were using radio models to frighten away the flocks of birds. Now, no doubt, they are busily training birds to drive away the flocks of model planes. You can imagine Egbert the Eagle returning triumphantly to base after a successful sortie in which he downed four multis and two singles, but got a bit singed in tackling what he took to be large, four-engined scale job.

Tail note

References to Isaac's Fury has nothing to do with biblical wrath but it is the name of a model. We now await its companion: Aspartsthe Hart.



CLUB NEWS



IT IS ALWAYS discouraging when a once healthy section of the movement begins to fall apart through lack of vital support. So often things are kept running efficiently by a few dedicated people amid a general climate of apathy and self-interest. This gives a false sense of security, which can dramatically collapse when the centre pillars are, for various reasons, removed, and there are no successors forthcoming.

Something of this situation existed in the **North Western Area**, where the inability to summon enough volunteers to form a committee almost led to the dissolution of the Area administration. In fact, at the resumed A.G.M. on the 1st February, the N.W.A. did actually cease to exist for about ten minutes, but while discussions on the procedure of the disbandment were under way, Norman Duncan volunteered for the essential post of Treasurer, thus giving the moribund body the kiss of life. All is not quite as before, however. It was felt that, by way of demonstrating that things do not happen of their own accord, but are the result of a lot of dogsbodying, it was decided not to run the usual Easter Meeting at Tern Hill. This would serve as a salutary gesture and give a breathing space in which the new committee could settle in. Perhaps the near miss to extinction and the cancellation of the Easter Meeting will bring home to clubs the vital need to provide officers and delegates and perhaps make some inroads on the take-it-for-granted attitude responsible for the present crisis.

A group of Chobham commuters who don't believe in carrying passengers are the **Crookham Contest Modellers**. The nine keen contest types are to be found on the common every Sunday, come fair weather or foul. The group is an aggregation of flyers from less active clubs who have got together to pursue a more vigorous way of life. Under intense contest stimulus the improvement in building and flying techniques became quickly noticeable, and successes in Open Power were soon to be achieved. Ambitions are now turning towards Rubber and Glider; or rather have turned, since we are told they won the L.D.I.C.C. Trophy, and are looking forward to even greater honours. Notwithstanding all the hectic building and flying the group found time to run a successful Winter Gala, marred only by the operations of down-wind vandals who smashed up a number of models to get at the valuable engines and timers. Readers are asked to inform the police if offered such gear in suspicious circumstances.

The guiding light of the **Three Kings Aeromodellers** of Mitcham is the preservation of C/L flying in the South London Area, including the provision of facilities for loners to fly models and generally commune with kindred spirits. The club also aims to improve the image of modelling in a rather violent world (as opposed to the aiming of clubs!). It is better, they aver, to bash balsa rather than old ladies. There is every intention of keeping the club flag prominently flying, or rather the very lush, gold crown transfer, at contests and displays throughout 1969. And there are many exciting projects by the 30 members under way to bolster up the effort, including a semi-scale *Mustang* and an *Autogiro*. More members welcome, but must be 18 or over. Contact the Hon. Sec., N. J. Chapman, 55 Langdale Avenue, Mitcham, Surrey (Tel. 1-640-0030).

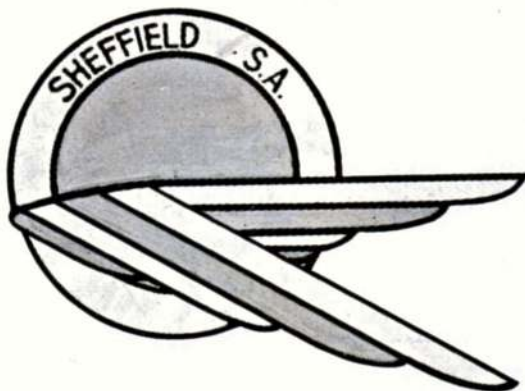
Seems the **Novocastria M.A.C.** takes objection to the idea put around by the **Tyne Valley M.A.C.** in our February issue that there are no other 'live' clubs in the Newcastle area—the Novocastrians

are still a force to be reckoned with, and increasingly so with all the keen juniors who are now flooding in. What attracts is the fine C/L flying site at Messrs. Hirwoods' car park. However, the youthful influx poses problems for the seniors: how best to help and assist them etc. Best policy seems to encourage any particular interest they might have than to foist ideas upon them. So far none have shown a predilection for multi radio *Lancasters*. Main Area interest is C/L, with F/F limited to certain Tynemouth stalwarts. Winter contests, therefore, have been mainly C/L, with Mouse Racing providing a suitable bait for the fledgling junior. To all this competitively minded activity in the Newcastle area, the recent acquisition of a large aerodrome comes as a great boon, enabling the big, all-round event to be staged. Report from P.R.O. J. Bone.

Quite how you settle subscriptions by 'trial and error' is something we cannot even guess at, unless it be that defaulters are shown the error of their ways by being put on trial, but this is the way, we are told, the **Handsworth M.A.C.** conducts its finances. Works too, apparently, for the ten or so active members now have a permanent clubroom, wherein preparations are afoot to take the top meetings by storm. All C/L stuff this, with Vernon Brown and 'Foss' Bryant averaging 27-30 laps at 90 m.p.h. with their works Oliver T/Racer. Dizzying enough, but even dizzier speeds are on the way. Negotiations are in hand for a HP15D, but at £20 a time that extra m.p.h. comes in expensive. Combat, too, is going apace, with claims of a genuine 90 m.p.h. Not so much Combat as all out warfare, particularly with the new club lightweights. These are Cox-powered and equipped with pacifier tanks. Very fast—115 recorded—but, oh, how destructible. Rich members only required. Just drive the Rolls into Perryhall Park, Birmingham, any Sunday afternoon, where B. Perryant, the acting sec. will be pleased to receive your golden handshake.

Talk of yet more affluence. Not for the gentry of the **Horsham M.F.C. (Sussex)** the old church hall once a month and a bus ride to the local cabbage patch. They have an entire building of 750 sq. ft. all to their lucky selves, plus their very own club van. Such decor that the clubroom boasts is the work of the artistically minded members, who took ten months of do-it-yourself effort to get that home-from-home look. Seems yet another C/L group, for talk is of luminaries such as George Kendrick, S.E. Area Stunt Champion, and Trevor Sayers, S.E. Area Combat champion, featuring among the 12 senior and 14 Junior membership. You may not be a champ, but you can augment these members by visiting the spendiferous club building at Three Acres, Horsham.

From way out in remotest Northumberland comes news of the **Ashlington D.M.A.C.** situated outside Morpeth, the club has a respectable sized membership of 35, but an increase is looked for. Main interest is C/L, but since R.A.F. Acklington became available a very lively R/C section has developed. Two members of which are going the whole home-built hog by constructing the Digital equipment featured in our companion magazine, *Radio Models*. Big things, too, on the C/L side, with a very authentic-looking 5 ft. span *Sopwith Camel*, powered by a Merco 61 R/C, and equipped with a third line. In spite of the scale type undercarriage on the wing the model still loops. A rebuild this, since it took off from the top of its transporting car—the one piece job was too big to go inside. A variant of the species is being equipped with a S/C Radio, but there is a distinct lack of confidence in its future. Club leader is Ray Bell,



and the club meets at the Methodist Church Hall, College Road, Ashington, each Wednesday, 7 p.m. and Saturdays at 2 p.m. You are welcome, too, at Ashington Recreation Ground on Sunday mornings. Report from P.R.O. Robert Dixon.

To this off-shore island comes yet another model club, The **Folkestone & D.M.S.**, being both airborne and waterborne in purpose and pursuits. Mostly airborne, though, and the club's own exclusive flying field, negotiated from the Ministry of Defence, testifies to the enthusiasm of the new consortium. A splendid patch, by all accounts, complete with tarmac strip. It is hoped to give it a sort of house-warming this summer by staging a large rally. Boat enthusiasts will be intrigued to learn of an Off Shore Power Boat Race to be held outside Folkestone Harbour on 31st May/1st June. Don Perry, the Hon. sec. tells us that the club meets at the Central Library, Grace Hill, Folkestone, on the second Thursday in each month at 7.15 p.m.

The usual good round up of world and home opinion and news in the last of **Northern Area News**. From expatriate Mike Cage, now deep in the heart of Texas, comes a few Wakefield pointers. Use a Turkey Buzzard as a thermal indicator. Break in your motor by stretching it to a tension of 50 lb. for ten minutes. Lube whilst stretched. Use once and re-tension. And by way of extension rather than tension, another contributor suggests that we advance the public image of the movement sportswisely by sending a block vote for an aeromodeller to the 'Sportsman of the Year' contest (perhaps some well known tactical flyer?). From a Canadian source comes the suggestion that the anarchy within our movement is just another symptom of the decadence that is undermining our soft, unauthoritative Western societies. Pass me my jack boots!

Continuing the free flight theme, we are reminded by B. Honan, the P.R.O. of the **Richmond & D.M.A.C.** that their main club interest lies in the untethered, uncontrolled sector of our hobby.



And going great guns, too. Following the successful Remembrance Day rally on Chobham, the club is to stage an all F.A.I. meeting at the same notorious venue on 27th July. Warning note: there will be processing. Free entry, though, for National Team members. If you live in this Royal Park area, why not drop in at the Waterman's Arms on Friday evenings? The model chat gets under way at 9 p.m. in the Saloon Bar.

The renaissance of the **Bolton M.A.C.** has been made possible by the merging of the survivors of the old club with the **Blue Max** and **Bolton & District** clubs. The new grouping gets away to a well-stocked start with a 40 membership, mostly with a leaning to C/L (a strong pull these days!). When the lads say 'down' it doesn't always mean elevator trim, as the clubroom, which they owe to the hospitality of the Bolton Lads Club, is a converted cellar with provision for model building. Further indebtedness to the Lads Club is the use of a flying field, where a good turn-out is seen on most



Historic model is this 10 ft. 8 in. Douglas DC-3 made by the late Fred 'Taxi' Borders over 20 years ago for R/C using only engine throttles. Each Forster 99 (16 c.c.) had Fred's own design centrifugal VP 3 blade prop to control turns. It was never flown, and is now up for disposal to a deserving historian via Jack Darby of Crawley MAC.





fine Sunday afternoons. Mr. A. Priddey, the P.R.O. says the club is actively, but not too hopefully, on the look-out for a free flight site. If the seemingly impossible is realised then a marked increase in membership can be expected.

Just a note from **The Flying Druids** to remind all intending visitors to the Nationals that operational transmitters other than those used by R/C competitors will be impounded for the duration of the contest. They further say that it will assist the organisers if they could co-opt the vigilance of the ordinary visitor in reporting any outfield transmitting.

I'd very much like to see the set of antique models owned by Lt. Comdr. Greenhalgh, which he recently exhibited at a **Buckaneers Model Club** meeting. Fascinating these old machines; often makes you feel that the discovery of balsa was a mistake, although I've made yet a more amazing discovery: supermarket polystyrene trays!

The **Stevenage Model Club** sends us recent press clippings concerning negotiations between the club and the local Council for a flying site. The political infighting is a bit involved. Would seem the issue hinges upon the club acquiring insurance against damage to the field and surrounding woodlands. Sounds a highly unrealistic demand. Very difficult to differentiate damage and normal usage. Logically, the real issue should be whether the club could provide adequate third party cover and convince the Council that they would use the site in a safe, responsible manner. Just how things might work out could only be determined by a trial period of use – say a six months probationary period. To help their efforts the club got a good write-up in the local press, which did much to assist the club's campaign to dispel the 'little boy with a toy' image. Emphasis, therefore, was on R/C and the heavy stuff. Fair enough, but likely, if anything, to stiffen the Council's attitude. I feel it better to 'sell' aeromodelling on its intrinsic aeronautical interest rather than by a display of impressive gadgetry and talk of phenomenal speeds. Anyway, let's hope the Stevenage boys get the site.

Yet another good write-up for the **Stockport M.A.C.** in the *Manchester Evening News*. But, again, too much emphasis on the model plane as a super adult toy.

Derek Small, C/L Comp. Sec. of the **Western Area** sends along a report on a 'feeler' meeting stages at Hullavington on 23rd February, to determine the 'weight' of the various C/L interests in the Area. The 'A' Rat Race attracted a field of seven, ending in a close-fought final between Small/Coote of **South Bristol** and Glevum team. The former got the edge with their Webra Mk.II in 16 mins. 15 secs. F.A.I. Combat, the other event, pulled in a field of six. Many more models at the meeting, though, but most would need much more preparation to become competitively geared. Winner was Evans of South Bristol. Derek looks forward to wider participation from Western Clubs following this initial try-out.

Who are the **STARS**? Initially speaking they are the re-fashioned **Potters R/C Club**, now known as the **Stoke-on-Trent R/C Society**. Tony Mosely, the Hon. Sec., tells us that the club has an excellent flying field at Meir Aerodrome, a substantial 27 membership and a well filled programme. New members welcome. Call in on Charles Aitkenhead at his model shop in Newcastle for details.

Wharfedale & District Aeromodellers is a name we usually associate with the hotter variety of control line flying. Imagine then what happens when they turn their talents to indoor novelty flying events – but even the most temperate of us must fly off the handle at times. This is just another of the ways the club is trying to instil interest into the monthly club meetings. It is hoped that other attractions, such as talks by leading modellers, will help to enliven future meetings.

Problems? We have our share, says the **Teesside M.F.C.** Most vexing of which is what to do about the flood of short-term, non-operational, junior members. This, of course, is not a problem limited to Teesside, and it can place an unnecessary burden on a club's administrative means. It's the sort of thing that drives the keen flyer into a closed, all-action group – and who can blame him? My



John Beer's countless hours of model flying include an age of R/C slope soaring which stood him in good stead to win the St. Albans Thermal-seeking event on March 16th with his Graupner Amigo II, Remcon Tx, Controlaire Rx and Climax servos.

CONTEST REPORTS

CROOKHAM GALA – Chobham Common 9-2-69

SOME fifty hardy souls from London and the South-East braved the snow and cold to attend the Crookham Gala at Chobham Common. Though not many maxes were returned due to the wind direction taking the models from the corner car park over the hill towards the pylons, both the rubber and glider winners managed a full house. John West dropped four seconds from completing his power hat trick to win the Crookham Power Cup with his newest F.A.I. model.

The organising club went to a great deal of trouble to ensure that this contest would be more than just another 'Chobham Do'. A floating trophy, – the 'Crookham Power Cup' – was presented for the first time and score boards were in operation throughout the contest. Timekeepers were available at control for anyone requiring one.

The day was rather spoilt by down wind vandals who smashed the engines and timers out of two power models: P. Stewart's G.15 and D. Shepherd's T.D.049. The matter was reported to a passing police patrol, but too late to be of any use.

Results: Crookham Cup. 1, J. West (Brighton) 8:56; 2, P. Stewart (Crookham) 5:15. **Open Rubber.** 1, A. Wells (Norwich) 9:00; 2, L. Burrows (Blackheath) 7:54; 3, Mrs. L. Allen (Brighton) 7:20. **Open Glider.** 1, J. Mabey (Croydon) 9:00; 2, J. Baguley (Hayes) 8:27 **1/2 A Power.** 1 M. Dilly (Croydon) 7:51; 2, G. Head (Brighton) 4:00.

ST. ALBANS THERMAL SOARING

IT WAS bitterly cold and the chilly East wind gave little help to the stalwart dozen entries who went to Nomansland at Wheathamstead for the first Thermal Seeking event organised by St. Albans Club. The turn-out was surprising in such conditions, indicative of great support in summer months, far in excess of straight multi-aerobatic contest support. A bungee launch was available but most, like John Beer and Dick Godden who actually found a pair of thermals each, employed 300 ft. of line on a winch. Result was: 1, J. Beer (Enfield) 9:04; 2, R. Godden (Cambridge) 8:16; 3, G. Fountain (Luton) 5:45 aggregate of three flights with landing required in a 'box'.

answer to the problem: the new member should bring along a model as proof of commitment and intent. Another club problem is the lack of a readily available, really suitable flying ground, although it has three on the books. The restriction applies mainly to good, level C/L facilities, which is why so many members are switching over to the wire-less form of control. Bill Kitching, the club Scale expert, recently completed a superb *Sopwith Schneider*, detailed down to the brass riveted prop plate. And, if you are a cynic who equates marriage with girl off the shelf and model gear on it, then look to Tony Oliver who produced from his love nest a R/C *BAC Lightning*. Lots of other good things in this report from P.R.O. L. Nicholson, but, alas, space prohibits.

A report from R. M. Elliott, Chairman and P.R.O. of the **Exeter C/L Club** mentions complaints of noise from one of the club's fields. As a result there is now a club rule which demands the fitting of suitable mufflers to engines of .049 upwards. Very much a young man's club this, with an average age of 16-17 years (does vertigo attack the old?), but older members are not unwelcome. The club is keen to harness some of that old C/L fanaticism that used to be around some years ago, but perhaps they have gone over to waving banners rather than handles. If you are still good for a fast turn contact the Secretary, A. Housden, 'Concord', Argyle Road, Pennsylvania, Exeter.

That's about all for this month. Sorry not to have given more space to your Newsletters.

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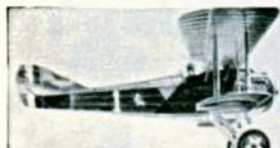
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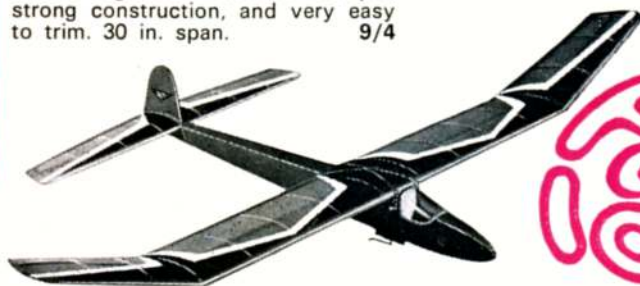
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