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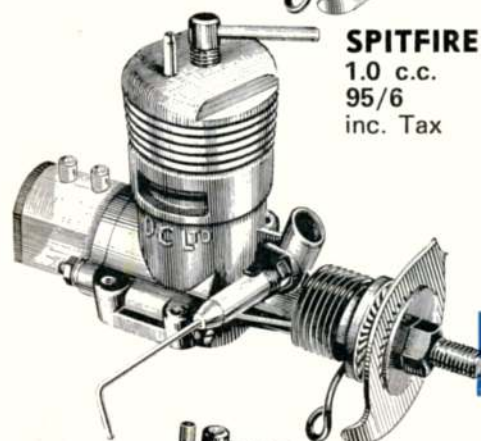




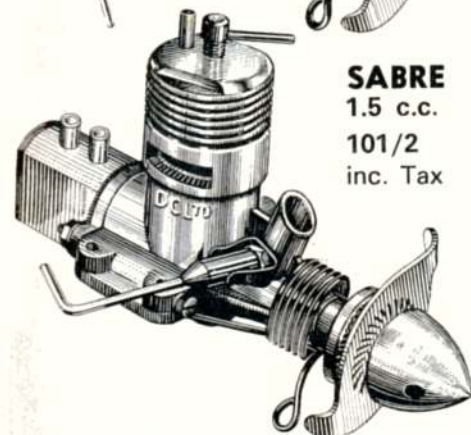
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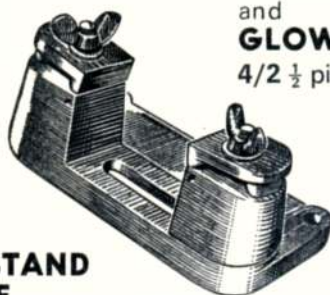
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Aero Modeller

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August 1970

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COMMENT

As specialisation inexorably progresses towards complete isolation of the free flight, radio control and control line interests from each other, the suggestion is often made that these three major categories of aeromodelling should have their own 'Nationals' at different places. The proposal has also been put forward that we should convert the 'Nats' into a genuine 'Championships' with adequate screening of all entrants who would be required to qualify for their status. Both suggestions have been rebuffed on the basis that the S.M.A.E. has to employ its profit motive at an all-embracing Nats with the provision of a spectacle that the public will pay to see. Diminishing the volume of attraction would require a rethink on the annual budget. Further diminishment by qualification of the competitors would appear to be contrary to our national characteristic of offering an open chance to any and everyone. Yet the systems advocated have been practised successfully throughout all of Europe. Where lies the difference? Having been, and seen, we can explain in two words: *State Aid*. The highly organised and specialised Championships can only be run with Government support. There is insufficient income from membership and contest fees to meet the needs of these Continental-style Champs if they are to come to Britain. In any case we're quite sure that our own annual jamboree is the better scheme anyway.

on the cover

Nationals miscellany plus our plan of the month. Top left: Dick Jackson of St. Albans and his 'ES2' power duration model, 59 in. span for Super Tigre G 15 engine. Top right is Wendy Wood, Lady Champion of 1970, using an 'Expendable'. Wendy is in Halifax MAC. Bottom right: Jean Bryant with hubbie Dennis's Rollason Condor R/C Scale Model and at left, the Scale Doyen, Harold Towner and his Avro Lancaster prototype model, as on pages 442-4 of this issue.

next month

Preview of the World Scale Championship plans for 'Double Scotch', a unique twin-engined control-line stunter for 1.5-3.5 c.c. engines. Engine News and Test plus all the regular features - on sale 21st August.



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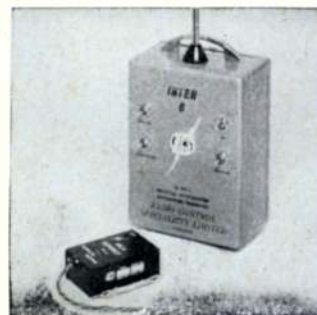
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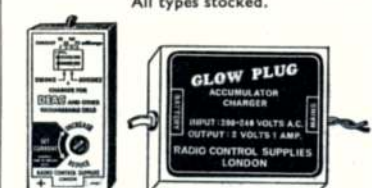
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IDEAS CHANGE ... BUT NOT Balsa

Wakefield models used to look quite different twenty five years ago, as this picture of a Dutch team of that era shows. The Dick Korda influence is pretty evident, as well as on 'streamliner'. Nobody would think of building slabiders or streamliners like that these days - except for a vintage contest. Yet these design trends were tops in their time.

Whether you build rubber, glider or power, designs have changed a lot since those days. The rubber model is no longer the most popular type, although it still sets standards for efficient, lightweight construction. Geodetic, diagonal bracing, and even the first die-cut sheet for kits all originated with rubber models - and the emphasis for choosing the right balsa for the job.

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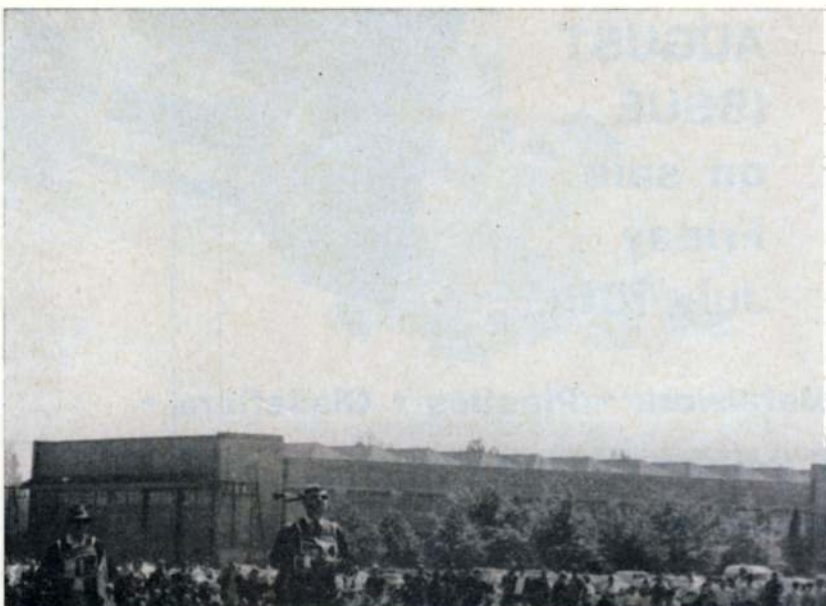


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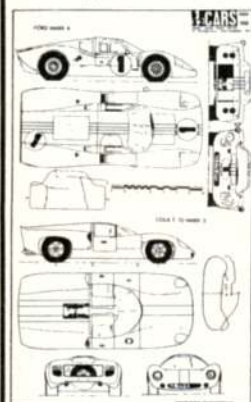
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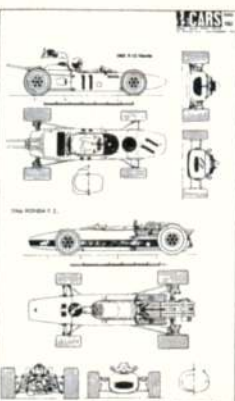
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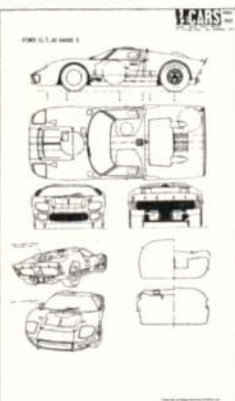
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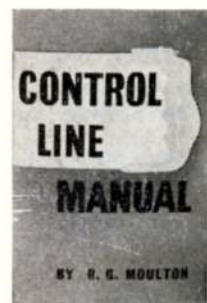
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WORLD CHAMPIONSHIPS always carry an aura of super-standards and rightly so, for they are supposed to find the very best through stringent competition regulations. But this year, we have a new World Champs classification in the Scale category. The first ever meeting of its type will be held over the Summer Bank Holiday period at Cranfield aerodrome, near Bedford. It is particularly fitting that this inaugural championship be held in Britain, and at Cranfield. In the first instance, this country has long been a pioneering leader in the field of scale modelling. The ideas of those great originators, C. Rupert Moore and Harold Towner, who long ago maintained the view (amid considerable opposition!) that model aeroplanes should be models of aeroplanes, have been carried forward to the stage where nothing now seems to be impossible for the radio control scale enthusiasts. Similarly, the all-working control-line scale model has progressed enormously. Retracting landing gear, lights, flaps, opening hatches, guns or bombs are now just part of the scene. So on August 29/30/31st at Cranfield we shall be able to see the very best from at least ten nations. Perhaps the toughest task of the S.M.A.E. as organisers will have been done long before the Championships start. This would have been the selection of the top three in each of the R/C and C/L classes. Trials at R.A.F. Little Rissington on July 12th will have produced the British Teams by the time this edition is circulated but we're sure that the results will have been among the closest fought in any modelling category. Those who miss out from being on the British Teams will be seen, just the same at Cranfield, making demonstrative flights between contest rounds.

HEARD AT THE HANGAR DOORS

All in all, coupled with a huge display marquee for models, another for the trade, and entries ranging from a Lancaster from Poland to a Ryan PT-20 from the U.S.A., the visitor is to be blessed with the opportunity of a lifetime. Radio and control-line flights will take place alternately on the same base over the three days. Models will be judged by carefully selected International personalities. For radio control, the judges are: D. Thumpston (G.B.), S. Zwahlen (France), M. Fisch (W. Germany), C. McCullough (U.S.A.), and Z. Kaleb (Czech). For control line the judges are: C. Milani (G.B.), A. Aarts (Holland), A. Tryzinski (Poland), J.-C. Lavigne (France) and Major M. Perrone (Italy). Why at Cranfield? Geographical location alone makes the aerodrome a top selection. Only a few miles from the M1 Motorway (at the A50 Junction), an hour's drive from either London or Birmingham, it is within easy reach for the greatest concentration of the population and model clubs. Cranfield also has a great tradition of association with model Championships. It was the scene of the first truly international 'Wakefield' Trophy contest in 1949, subsequently it was the site for championships in 1953, 1956, 1958 and 1960. We are confident that 1970 will be another vintage year in Cranfield history! The meeting is generously sponsored by the late Lord Wakefield's Company—now part of Burmah Oil and better known to modellers as Castrol Ltd.

FREE FLIGHT CRITERIUM took place at Marigny, near Sezanne, France on June 20/21st. The seven-round contest for F.A.I. Wakefield A/2 and Power classes were well supported by many nations and we're happy to say that a private enterprise team from Croydon M.F.C. were among them—collecting two vital 2nd places. Tony Young was unlucky by just one second in A/2 glider. Triffaut (France) scored 1211, and Tony 1210! He was in good company. Miard (Fr) was 3rd with 1188, Berthe (Fr) 4th with 1180, and Herbert Schmidt of Germany 5th with 1173. John Mabey was 8th, Jack North 13th. In Wakefield, Germain of France made 7 maxes to win outright with Ian Keynes

2nd (1191), and other British placings, Bill McGarvey 6th, John Blount 11th and Lou Burrows 18th. Power was a French 1-2-3 by Landeau, Bourgeois and Guilleoteau. Congrats to Tony and Ian for showing the flag so well!

RECENT PUBLICITY from the U.S.A. on developments in space flight have appeared so similar to the Multi Unit Space Transport and Recovery Device originated by Preston Division of British Aircraft Corporation that we were somewhat relieved to get a special reprint from *Airframe*, the B.A.C. newspaper. This puts the Spotlight fairly on the B.A.C. space activities past, present and future, making plain the claim that 'MUSTARD' with its trio of space craft clustered for launch is a British invention. What has this to do with aeromodelling? Simply that the head of the Preston Aerospace department when MUSTARD was designed was T. W. (Tom) Smith—better known to us for his *Nig-Nog*, *Fried Fritter*, etc. power models. Tom is now head of Advanced Projects at B.A.C. Preston. How refreshing it is to know that his work may yet see fruition in the N.A.S.A. post-Apollo programme and also to see Tom and his wife 'relaxing' with contest flying at the recent Nats.

A stake in SPACE

MUSTARD

Full proposals for NASA for European participation in the multi-launcher development were the brainchild of the Preston Division, designed for Army, Air and Naval needs. Despite the fact that the project is a multi-national endeavour, it is being coordinated and directed by the British.

Mustard is a multi-launcher system which is designed to launch a number of small satellites into orbit. The system is being developed by the British Aerospace Corporation (BAC) in collaboration with the French, German, Italian, Japanese and American space agencies.

The Mustard system consists of a number of small satellites, each of which is launched by a separate rocket motor. The satellites are then deployed into orbit and can be used for a variety of purposes, including communication, navigation and scientific research.

The Mustard system is being developed as a part of the European Space Agency's (ESA) programme to develop a multi-launcher system for the launch of small satellites. The system is being developed by the British Aerospace Corporation (BAC) in collaboration with the French, German, Italian, Japanese and American space agencies.

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NASA invitation arouses new interest in BAC's

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GO GLIDING

**A seasonal
description of
another great
hobby, with a
close relationship
to aeromodelling
by L. A. HILL**

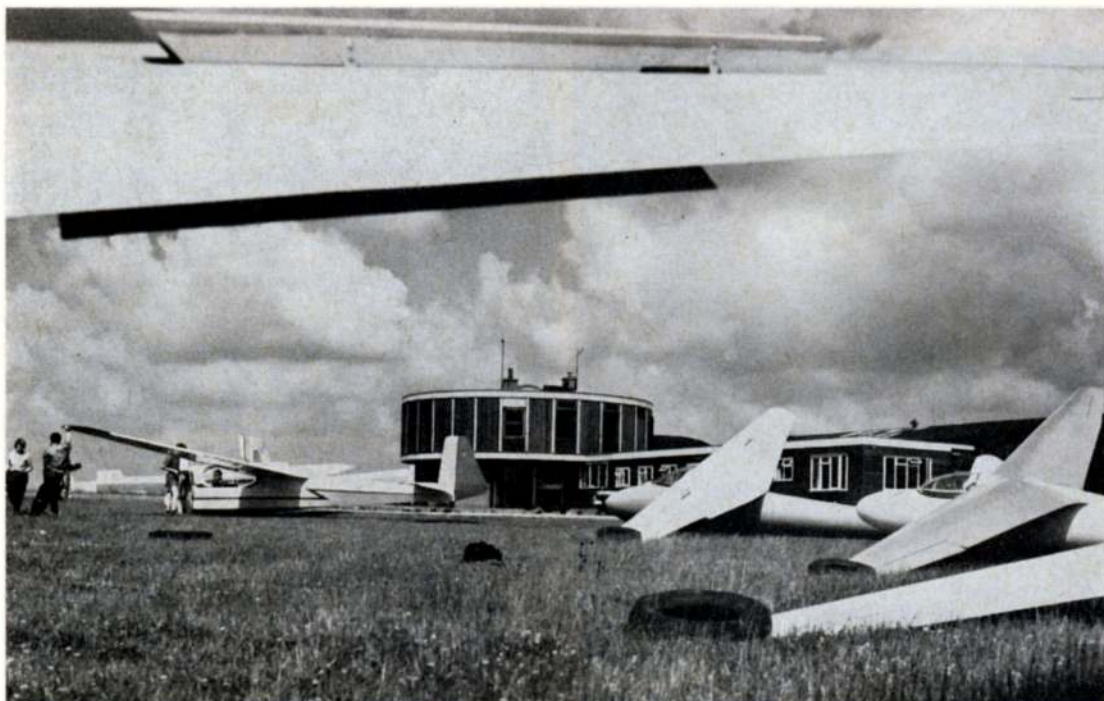
IN THESE DAYS of sleek fibre-glass sailplanes and sophisticated launching facilities, it is hard to visualise the days only 40 years ago when men assembled on the rough moorland above Sutton Bank to be catapulted in frail gliders into the hill lift.

The Yorkshire Gliding Club was started in this way by enthusiasts who were attracted to the area by the superb west-facing slopes of the Hambleton Hills in North Yorkshire. The hill soaring possibilities which brought the pioneers still attract would-be glider pilots to Sutton Bank, even though it usually means fairly long journeys from the large towns. Visiting pilots from other clubs all over the country come to sample the interesting flying the site offers.

Heading picture shows a Slingsby Skylark 4 soaring over the airfield at Sutton Bank. The White Horse of Kilburn can be seen lower right. Below the Yorkshire Club-owned Piper Super Cub gives a Slingsby Eagle two-seater an aero-tow.

With thermal soaring providing the means for cross country flights, and wave lift giving great heights, it might seem that a gliding site situated purely for hill lift is in the wrong age. This is far from the truth. The slopes of the Hambleton Hills are formed in a series of natural bowls getting shallower to the north. A mixture of smooth slopes and rough escarpments means that the pilot has often to fly through sinking air to get to the lift. The skill in soaring these slopes gives great satisfaction, and more important, can be done in any season when the prevailing wind is blowing. Pilots keep in training throughout the winter and pupil pilots can be trained with reasonably long flights - which is an advantage over clubs who are reduced to circuits on non-soaring days. The more adventurous pilots can use hill lift to move upwind from the home ridges





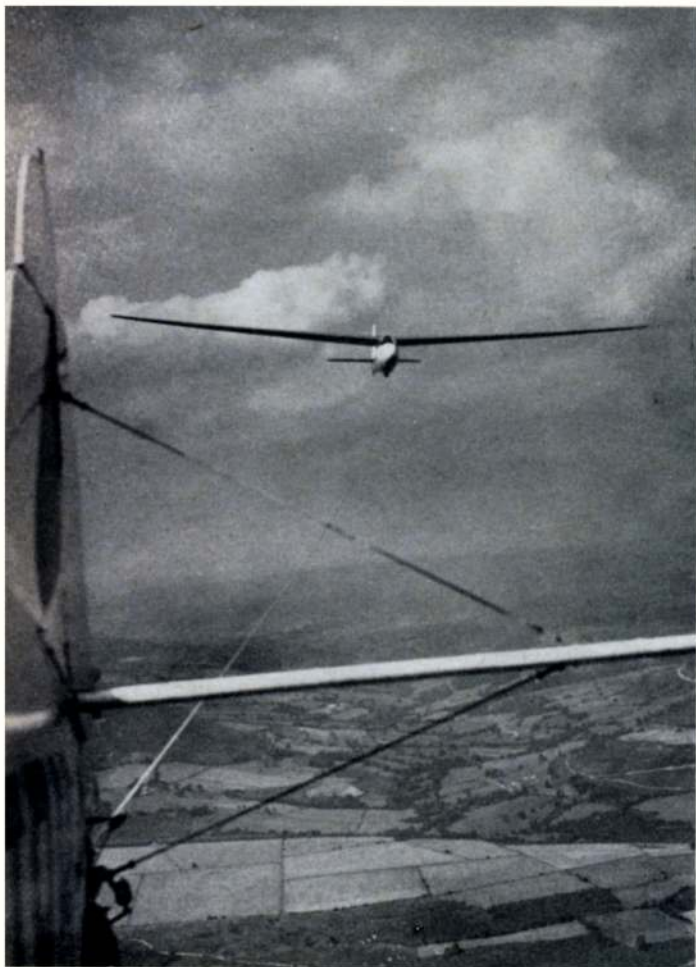
to another series which enables him to hill soar for 20 miles to the north of the club. A good judgment is needed for this type of flying because landing fields are small, and far between in this area to the north. On the return journey the glider often arrives at the southernmost tip of the forward ridges at quite a low height, and the pilot has then to hop downwind back to the home ridges. With modern gliders this is usually no problem, but some years ago one pilot attempted this in a poor performance glider and arrived back at the home ridge so low that he actually caught a wing tip in some of the trees on the lower slopes. Even so, he managed to work his way back up the ridge and landed safely at the club. On asking the chief flying instructor to inspect the aircraft it was found that several fir cones and little bits of branch were embedded in the ailerons, but otherwise there was no damage. This type of 'hairy' flying is, we hope, a thing of the past.

One disadvantage of flying from a hill site situated on the top of the hill, like Sutton Bank, is the possible build-up of orographic cloud. Under certain weather conditions with a moist westerly airstream, the air, on being raised up the hillside reaches condensation level and actually forms cloud on the edge of the hill. On such days pilots have to be careful not to be caught out with the club obscured by cloud. Although annoying, this situation is rarely dangerous to the experienced glider pilot as he can usually fly upwind out of the cloud and land in the fields below the ridge. We have certain fields which an understanding farmer lets us use if necessary.

Besides all the advantages of hill soaring, Sutton Bank has another great potential of which the pioneers had no idea - wave lift. By pure chance the club's situation, about 20 miles to the east of the Pennines, places it in an ideal situation for lee wave. This form of lift is caused by an air mass flowing over a range of hills and then undulating for many miles downwind. The air behaves like water in a

The clubhouse, dormitory and hangar as viewed from the launch point. Note the large-area air-brakes of the glider in the foreground. Below, the very graceful and aerodynamically 'clean' Schleicher K6E makes a gentle right bank towards the airfield.





A Schleicher K6cv receives an aero-tow from an ever willing Super Cruiser. The glider pilot must keep above the tail of the tug to enable the tug to climb.

stream when it passes over a large smooth stone and carries on undulating further down the stream. In summer when the wind is blowing from the west, lee wave may form in the early morning or evening. This is when the streamlining of the air mass has not been broken up due to convection, caused by the sun's heating of the ground. However, in the late autumn, winter and early spring, before the sun has much heat, wave often forms throughout the day. From Sutton Bank one can fly in the hill lift and having gained height fly out to get into the upgoing undulations of the wave. By staying in the rising part great heights can be gained. In 1969 the record height from the club was 16,000 feet and many other flights in excess of 10,000 feet were made. Once the pilot has gained reasonable height, he can jump upwind to the next undulation and in this way move over to the Pennines, or can move along the wave to the north or the south and actually make a cross-country in this type of lift. Some years ago a pilot from the R.A.F. Gliding Association Club situated at R.A.F. Dishforth made a flight in this way up to Edinburgh and back again, and was in wave lift all the time.

It is in this type of flying that the more modern, high performance glider has the advantage. With glide angles of one in thirty-five and forty, and

with low drag, they are able to fly fast through the sinking air without losing too much height. Serious wave flying from Sutton Bank has only been done in the last ten years and the keen top pilots are convinced that much greater heights are possible. One member, who flies Jet Provosts with the R.A.F., has noticed wave lift in the area at over 25,000 feet. A phenomenon with this type of flying is the smoothness of the air when established in the lift; even the noise of the normal air flow over the glider seems less. Great skill is needed to stay in the up-going part of the wave and often the pilot will be stationary over the ground for long periods to keep position. This is because the wind speed is often in the range of 40-50 knots at the heights at which they operate. In searching for wave lift the pilot may fly upwind from the ridges and then fail to contact lift. By turning downwind back to the ridges it is comforting to know that lift is there even when you arrive below the top of the ridge. The pilot works his way back up the hill in lift and is soon ready to try again for the wave. On other occasions the lowest level at which the wave is working is too high to reach from hill lift, and on these occasions aero-tows are used to reach the likely areas.

As organised now, the club sets out to train glider pilots and provide solo gliders such as the Schleicher K6 and Slingsby Swallow for club members. Many members form syndicates to buy their own aircraft which can be launched with the club's equipment. The rough moorland and wooden shed that started it all has given way to a grass airfield with a modern clubhouse and hangar. Flying takes place, weather permitting, on each day throughout the year. In summer the club organises holiday gliding courses, which give five days of concentrated flying. Each course has a maximum of ten people and with two instructors everybody gets individual attention - many of the members started their gliding careers in this way. It has the advantage of a person seeing many aspects of flying in a short time, and allows them to make a decision quickly as to whether to follow the sport or not. The training gliders used are the Schleicher K13 and K7, but later this year the club is taking delivery of a Scheibe Falke - a two-seater, motorised glider. Gliding enthusiasts in general are convinced that this type of aircraft will predominate training in the future. Freedom from queues waiting for winch launches or aero-tows means that training flights can literally be booked, instead of the waiting which so often typifies the training in the gliding movement at the moment.

The club, which has made much progress through the years, is going through a further development period which will make its facilities comparable to the National Gliding Centre at Lasham. It will have the extra advantages of hill and wave soaring possibilities, and much less restriction on air space.

The Yorkshire Gliding Club is well sited for cross-country flying - the nearest airway being 50 miles to the south. If the ridge is providing hill lift, pilots can stay airborne, sampling the thermals, until conditions are suitable to set off on their cross-country flights. On non-ridge days, pilots have aero-tow facilities to get airborne. Cross-country flights using thermal, and then later in the day wavelift, have become fairly common in recent years.



I FIRST BECAME interested in Gliding in 1917, whilst working at Vickers and when I became friendly with a Swiss National, who had some experience of gliding, his stories fired my imagination, so much so that it became my ambition to design, build and fly my own glider. Joining the R.A.F. in 1921 I made a few abortive attempts whilst in the Middle East, but success did not come until 1929 when at Hawkinge (Kent) I built and flew my first glider. My first soaring flight (1 hour) was achieved in 1931 in my *Wren* Sailplane flying above the hills that overlook Folkestone—looking back I think this was the most thrilling hour of my life. Leaving the R.A.F. in 1933, I carried on building and repairing gliders at Dunstable where I had a workshop in the town. My second sailplane, *Willow Wren*, had been completed at the end of 1932—this I brought to Dunstable and sold to a syndicate. This machine held the duration record in 1933 of 6 hours 55 mins., and, in fact, I made my last flight in this machine in 1934, when I was able to reach Whipsnade Zoo. Although this intense activity of full-size gliding took most of my time, I had always been interested in modelling, starting with solids and then progressing to 'A' frame pushers. In 1930 I was lucky to obtain a log of balsa, and from this made gliders of up to 3 ft. span. Kites had always fascinated me, even today I occasionally fly one; perhaps one day a kite section will appear in *Aeromodeller*! After 1945 I became very active in modelling again, and in 1950 decided to concentrate on radio controlled gliders. I started with an ED Mk. I set; the weight of this gear decided me to make a large machine so I built my first R/C job with 11 ft. wingspan. The radio gear of those days was not exactly reliable, nor was it made to withstand rough landings.

With the introduction of the Unitone plus a Sigma relay we began to get more reliability, although I always had a spare set when I went flying and things were so arranged that a quick change on the flying field was possible. I found that Ivinghoe Beacon was the best site as it was possible to fly whatever the wind direction. I look back with pleasure on the weekend visits I had there, sleeping overnight in the car, and enjoying the early morning session of soaring.

Heading picture shows W. L. Manuel sitting in the cockpit of his own-designed and built glider. At right, the attractive, streamlined shape of this modern glider is evident in the upper picture, whilst the lower picture simply states the facts, ignoring the 2,600 hours of labour that went into producing this fine machine!

An aeromodeller tells how he made his own glider – and not the first!

HAWK

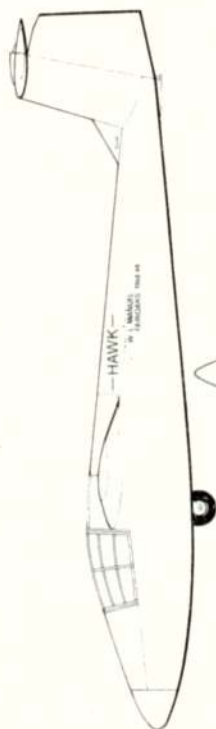
by W. L. MANUEL

who describes his interesting 50-plus years in aviation

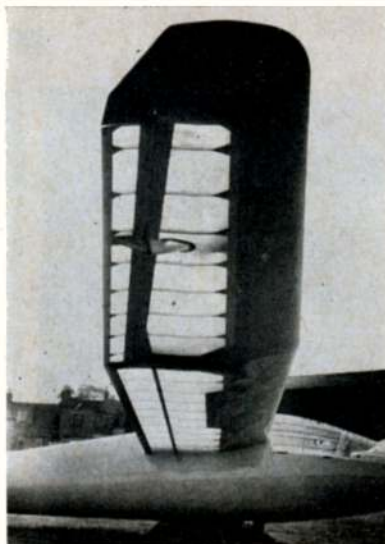
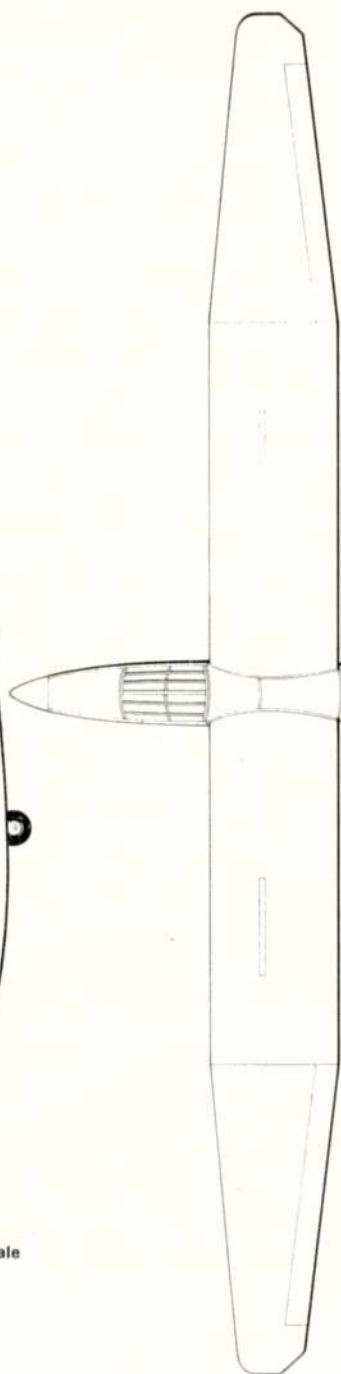
The most challenging site for slope soaring is Chobham Common; I still use this occasionally, although one has to wait for a south-east breeze for the best results, and this is not often blowing. I find that if one can produce a machine to fly successfully at Chobham then this will be O.K. for the bigger sites; the aerodynamic qualities are not so demanding for the bigger site. From my own experience of slope soaring I would say that rudder only is quite sufficient. My favourite machine is 9 ft. span, wing loading 13 oz. per sq. ft., tip dihedral 18 degrees, aspect ratio 12:1 with a rudder area of 33 sq. in.

The ideal R/C gear for this is single channel proportional. Thermal soaring is great fun; I have used 5/16 in. diameter (25 yards), rubber bungee with 500 ft. of line to operate single-handed. The model

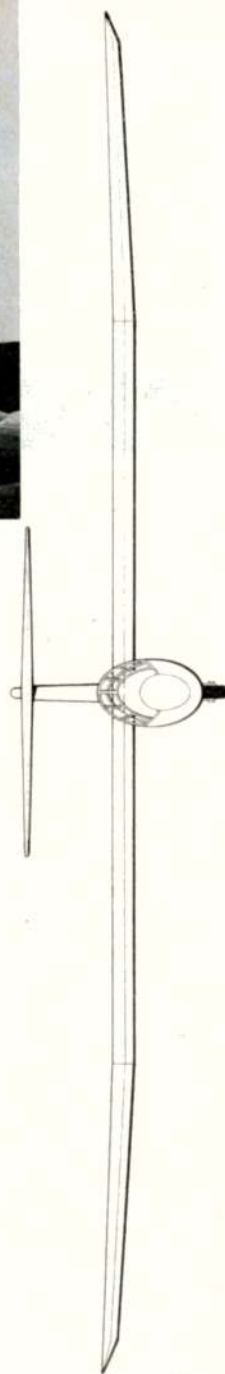




1/72nd Scale



Finished in clear-doped fabric the *Hawk* is instantly identified from its commercially-produced brothers. Attention to detail is very good - even the aileron linkages are carefully shrouded.



will go up like a kite when the wind is strong enough. This is most exciting flying.

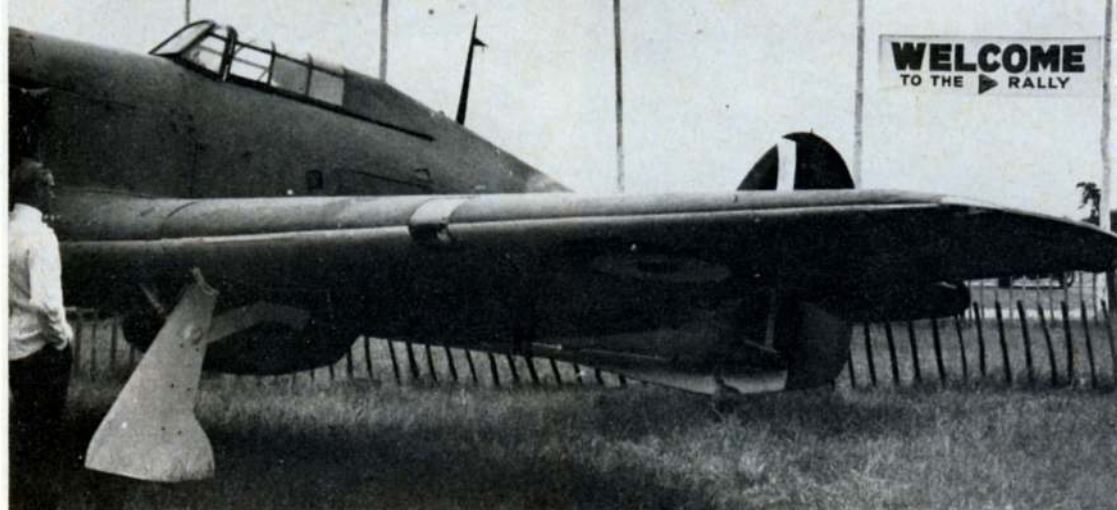
In 1961 the idea of *man* powered flying became fashionable; this made me think of trying something I had always wanted to, that is to fix some wings to a cycle and attempt to become airborne! In 1962 I finished a machine which was 25 ft. span with a small fuselage and tail, together with a propeller at the front driven from the chain wheel. This machine created quite a lot of interest; I even went on tele-

vision with it. My idea was to use this on a slope steep enough to take-off and skim a few feet above the ground, as an aerial toboggan. I have had more laughs with this than anything I have ever made.

In 1966 I knew I would be retiring, so I decided to use the first part of my retirement in making another glider. As it was 32 years since making my last glider, things had changed considerably in design,

(continued on page 455)

OLD WARDEN '70



OUR FOURTH open rally for scale modelling enthusiasts at the home of the famous Shuttleworth Collection proved to be as popular as ever, in spite of 14th June being the coldest day for five weeks! A cool breeze, which we understand was much stronger in other parts of the country may well have been responsible for the slight drop in attendance; but the turn-out was still impressive. Just over 40 different radio controlled scale models were flown, and every one of them with full proportional equipment. In this aspect, the rally has expanded considerably. No longer is there any opportunity for anything other than superhet operation, and the most strict control has to be exercised on allocation of flight order to avoid frequency clashes.

The radio side of the Rally is naturally the greatest attraction for the interested non-flying visitors, and a new take-off patch position has been established to permit more flexibility of runway

direction relative to the crowd barrier. By arranging the radio control model park and take-off patch close to an elbow in the fence line, the visitors had a much closer look than in previous years, and this made the need for control even more essential for reasons of safety. It was a pretty crowded elbow! We are sorry for those who, at the peak period found themselves behind a six-

deep human barrier; and hope for a solution next year!

As a result of the transmitter control, and constant monitoring of signals by Dick Jackson and Rex Boyer, the spectators were constantly treated to the sight of six scale models airborne at one time. On many occasions, all six were biplanes and when the Fokker and Sopwith Triplanes took the air, it was World War



Above: Hawker Hurricane (and a Spitfire plus other types) welcomes arrivals at the All Scale Rally. Right: inside the International Plastic Modellers Society Exhibition tent there were many crowded tables with fine models. Top prize went to a P-51 by Mr. Nunn. Even the keenest would be hard put to recognise all the kits in just these two pics.



Top left: Wall Cordwell of 3-Kings and Grumman Duck 40 in. model with Merco 49. Left is J. Hutsby's well-made Ansaldo and below it, Mick Staples' Avro 504, winner of the 'Shuttleworth' Trophy. It is 48 in. span and powered by Merco 35, a true replica of the aircraft at Old Warden. Above, a magnificent free flight scale Westland Wapiti by Vic Driscoll. One-twelfth scale makes it 46 in. for Marown Snipe engine, as yet untested.

One all over again. It seems hardly credible that our register of the R/C models indicates that only eleven were monoplanes. Of these, undoubtedly the most impressive was George Ford's *Spitfire IX*. The way it tucked its undercarriage up then rolled so characteristically, and cavorted in true scale style was a real pleasure to see. There were no contests as such at our rally; but Trophies and prizes are awarded to meritorious models and flight performances. The judges thought Pete Neate's *Hanriot HD.1* best of R/C, with the Spit., Norm Butcher's *Fokker D.VIII*, Jack Morton's *Fury*, Robin Lehman's *Nieuport XI*, Roy Scott's *Jodel Abeille* and Ray Brown's *S.E.5* in close order of prize qualification. In actual fact everyone deserved some sort of prize. The amount of fuel consumed and the number of landings would provide astronomic figures.

But it wasn't only radio control at Old Warden. Out on the field, a large group of free fliers made full use of the tall grass to check out models. Among them were our regular aces, making flight after flight to awe an admiring public and perhaps create an atmosphere of confidence which was rapidly dispelled when one of the less well trimmed models spiralled down. Luckily only one made physical contact and that was not too serious; but the message is clear that free flight will have to follow the example of R/C and use a public-free take-off zone in future. This will not mean complete isolation, simply that flights must be launched at a reasonably safe distance from spectators. That said, we must do the honours to Eric Coates and Terry Manley for their flights with a *Hawker Nimrod* and *Sopwith Triplane*, voted best performers, just ahead of J. Watkins with a *Thomas Morse Scout*, John Blagg and rubber-driven *Eastbourne Monoplane*, H. Fairhead with *Sopwith Pup* and the *Blackburn Mono* by Charles Essex. The proportion of own-designed scale models among free flight was refreshingly high.

Control line flyers were apparently the most

Left: control-line corner with the big stuff by Messrs. Carter and Ivans a centre of attraction.



affected by 'fall-out' but there was plenty to see – including a premature discharge of Bob Ivans' .22 blank on the *Ju 87 Stuka* while surrounded by shattered youngsters. The one in direct line of fire spent the rest of the day hiding the scorch marks on his trousers lest Mum should see! Bob subsequently fired-off whilst properly airborne; but had the misfortune to 'lose' his 'Yak' twin completely when the up line broke. A rival for this spectacle was the *Lancaster* which went sabre-dancing on its tail after 1½ lb. of lead came out of the nose! Less incident but just as spectacular flights came from Wal Cordwell's amphibious *Grumman Duck*, D. Morbin's *P-40* and J. Carter's *Pup*. Two non-flyers also were more than praiseworthy, being too fragile for the wind though magnificently made. These were Mick Staples' *Avro 504*, voted the best qualifier for the 'Shuttleworth' Trophy and J. Hutsbey's *Ansaldo*. Other non-flying exhibits in the I.P.M.S. tent were greatly admired. The degree of detailing added to standard plastic model kits and the ingenuity of modelling from plastic card was an eye-opener for the crowds that filed through the exhibition.

So another Rally passes, and with it, a resolve to do even better next time. Book the date; it's 20th June 1971 for our fifth ALL-SCALE RALLY.

Two scenes above illustrate support for R/C scale, and the predominance of biplanes. Just imagine – two *Gladiators* and a *Gauntlet* flying together. Below: lemme-get-out-of-here says Action Man pilot as he abandons George Ford's well-flown (retract gear) *Spitfire IX*.



Below, left: Terry Manley releases free flight *Sopwith Triplane*. Centre: John Blagg puts more rubber in his *Eastbourne Monoplane* as a young participant looks on with his *MacGregor Fighter* from very early 'Aeromodeller' pages (wonderful how those back numbers never seem to get thrown away!) and at right, Eric Coates gives the heave-ho to his *Bucker Jungmann*.





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

Dear John,

Balsa cement, we couldn't do without it, or could we? Maybe I couldn't, but my mother could do without it on my clothes. Do you know how I can get it off?

Also, could you please tell me the best way of cutting out stiff card patterns to the shape on the plans, without ruining the plans.

W. Carey

Dunstable, Beds.

To save yourself from your mother's wrath, suggest you invest in a bottle of Humbrol's 'Universal Cleaner', a 3 oz. bottle of which retails at around 2/9d.

When marking out parts from a plan, the simplest method is to slip a piece of carbon paper between the plan and card, then draw round the required outline with a sharp, hard pencil. If marking the items out directly onto balsa wood etc., a more accurate outline can be obtained by pin-pricking through the plan and carbon paper, then 'joining the dots' when cutting out. This is better because balsa wood, being relatively soft and having a pronounced grain, is slightly crushed by a pencil point, causing a wide and indistinct carbon line. Pin pricks will show up as clear, bright specks.

Dear John,

I have heard that balsa cement vapour is bad for your liver, if inhaled. As a precaution I open the windows, but still find it impossible not to inhale some of the vapour. Please could you tell me whether it is dangerous or not, and if so what other glue would you recommend?

J. David Robinson

Pontefract, Yorkshire.

It is probable that the reports which you have heard concerning damaged liver, etc. resulting from inhaling balsa cement vapour, originated from the United States, where some people having indulged in deliberate 'glue sniffing' had become addicted to it to such an extent that it was damaging their nasal organs and tissue cells etc. To the normal user of balsa cement,

there is no problem whatever, but to those who must get 'high' on any available material, continual sniffing can and will, do harm. The problem grew to such an extent in the U.S.A. that several manufacturers have now developed glues containing an additive, purely to make the glue smell unpleasant at 'short range'. Fortunately, no such problems seem to exist in this country.

However, should you find balsa cement vapour unpleasant, try using one of the P.V.A. glues, which besides giving a stronger, non-shrinking bond, is cleaner to use and has virtually no smell.

Dear John,

I have a K.K. Radian powered by a D.C. Merlin on a 6 x 4 prop. I use 30 foot Terylene cord lines, but whenever I try to stunt, the lines go slack. Is there anything I can do to stop this?

David Newland

Basingstoke, Hants.

There could be several reasons for your model losing line tension, although perhaps the most likely cause is that your lines are rather long - would suggest you cut them down to 25 feet.

Other possibilities are that there is a warp in the wing, insufficient wing tip weight, centre-of-gravity positioned too far back, or lack of fin offset.

Dear John,

I have a Mercury Magna which is a few months old but I did not fuel proof it. Could you please tell me if it would be possible to fuel proof it at this stage.

Also, when about to re-cover a model what is the best way to remove the old tissue which is stuck to the structure.

Thomas K. Gooch

Epsom Downs, Surrey.

If your Magna has been flown, and has fuel on the surfaces, then clean them with a little warm water containing detergent to disperse the grease etc. When thoroughly dry, fuel proof in

the normal way. Time lapse between doping and fuel proofing is unimportant.

When removing old tissue there is no real short cut - just use sandpaper and lots of patience!

Dear John,

I have been flying C/L for about a year now and I have a K.K. Phantom with an A.M.15. As you probably know, this has a 15 c.c. standard Team Race Tank. Owing to my rather drastically steep take-offs, the engine, starved of fuel, cuts out.

I find that I can fly most aircraft using a stunt tank, so I purchased a 1/2A wedge tank, in the hope of fitting it. I have now discovered that this will not fit in the usual place. I have thought of either fitting it in the engine bearers, immediately behind the engine, or fitting it on the outboard wing, or on the starboard side of the fuselage.

Could you tell me if these methods are feasible, or if not, could you suggest some other?

Wirral, Cheshire.

Paul Wynn

If there is sufficient room to mount the fuel tank directly behind the engine, this would be the best position as the fuel tubing from tank to engine should always be kept as short as possible.

Actually, it is unlikely that the team-race tank is at fault - it should be perfectly adequate for this type of model. It is probable that the fault lies in the routing of the fuel tubing. Make it as short as possible - with no kinks or tight bends. Also, try opening the needle valve a little, it is quite possible that the engine is set too lean for flight, when it will lean out even further.

Dear John,

Could you please tell me where I can get the plans for a Nobler from. I saw one of these models at the Nationals, and it seemed to fly very well, as well as looking attractive. Is it a difficult model to build? I have built a few profile control-line models, and would now like something a little bigger.

D. Brigginsshaw

Poole, Dorset.

The 'Nobler' is probably one of the best control-line stunt models ever designed. It is not available as a plan, but is sold as an American 'Topflite' kit, imported into this country by Ripmax Ltd., and should therefore be available through their stockists. Not cheap, at around £9 7s. 6d., it is however, quite straightforward to build, and as you have previous building experience, should not present any difficulties.

Designed many years ago by George Aldrich (who designed our ever popular Peacemaker) this model has never been outdated and is constantly seen at stunt contests in this country.

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

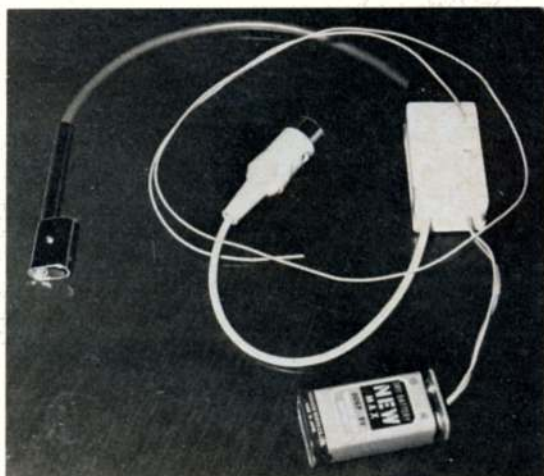
NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any)

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

8/75 2d. in the 1/- Rebate
plus purchase coupon
for Golden Wing Members
G.W. No.



At left, is shown the photo diode, mounted behind the strobe disc — the complete airborne unit being shown at right. Note the compactness of the transmitter. Below left is the digital frequency counter, on which the r.p.m. is recorded. The unit in the picture is coupled to a test strobe unit. A view of Franz Kavan's workshop shows him holding his delta speed model with pusher configuration.



R. P. M. Telemetry

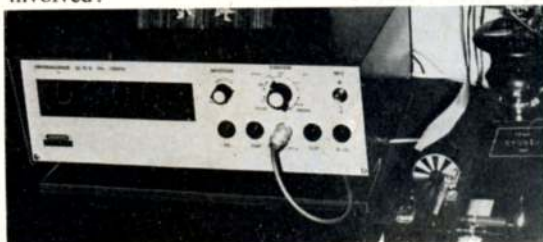
Measurement of in-flight engine speed

by radio is one of latest developments by Franz Kavan

FRANZ KAVAN, already well-known for his wide range of 'different' top quality modelling accessories, is probably unique in having developed a telemetering device, with which he can exactly determine the actual airborne r.p.m. of his engines, for the whole of the flight's duration. This equipment was originally designed in conjunction with his radio-controlled speed models, providing much valuable information on propeller performance, and is now of even greater benefit in testing and developing such items as propellers and glow plugs under flying conditions.

Engine r.p.m. is converted to a frequency signal by means of a strobe disc, painted in alternate black and white segments, fixed to the rear of the spinner and a photo diode mounted directly behind it. The light variations are picked up by the photo cell and the information relayed to the ground via a miniature transmitter mounted within the fuselage. This transmitter weighs only one ounce, yet has a range of three miles. Its information is picked up by a V.H.F. receiver, which is in turn connected to an ultra-precise digital frequency counter. The r.p.m. is then read directly off this counter, which operates to an accuracy of 1 r.p.m.

This system may well be marketed in the future, but one shudders at the thought of the total cost involved!





Your TWO RIVETS

by John Shaw...

**A pair of profile racers
for the 'Goodyear' Class.
Ideal for club events or sport flying**

THESE TWO models were designed to meet the proposed rules for C/L **Goodyear Class** models. The newly-introduced S.M.A.E. rules now allow mono-wheel (which may be fitted to the *Long Midget* if desired) and also engines of up to 3.5 c.c. (see *Aeromodeller*, July '69). Both models are to an exact scale profile of 1½ in. to 1 foot (½ full size) with no increase in tail area etc., although this is permitted. The wing area works out at a little more than an F.A.I. Team Racer, but the fuselage is considerably deeper. It is therefore essential to keep the weight to an absolute minimum consistent with sufficient strength to withstand pit stops and heavy landings, etc.

The original models were built from solid stock but the weights turned out at around 20oz. and it was thought that built-up wings and fuselages would reduce this considerably. The result is that by carefully selecting the wood it is possible to build the models down to 16½ oz. and still maintain sufficient strength where needed, i.e. around the engine, the wing roots and the undercarriage mounting. A highly polished finish also adds to the maximum speed—and appearance, but it is hard to assess the true benefit of a week's sanding and polishing.

Fuselages

Construction of both fuselages is identical. Firstly, ¼ in. sheet hard balsa is cut to the line shown and the ¼ in. x 5/16 in. engine bearers let in to suit the engine width. Remainder of the fuselage outline is then built up with ¼ in. med-soft balsa sheet to reduce rear fuselage weight. 1/16 in. ply doublers, cut to the line shown, and 1/16 in. sheet balsa sides are then added. The fuselage is then pinned flat and allowed to dry. P.V.A. glue was used for the whole fuselage for strength and to prevent warps etc. When dry, round off all corners, then drill the bearers to suit the engine used. *Long Midget* builders should then drill the undercarriage mounting holes.

Rivets Wing

Commence by cutting out and pinning to the plan the lower 1/16 in. medium balsa sheet. The 3/16 in. x ¼ in. tapered T.E. stock is butt jointed to the rear

of this lower sheet. Next, the 3/16 in. x ¼ in. L.E. is cut to shape and glued on top of the lower sheet. A 1/16 in. ply bellcrank and u/c mounting plate is then added, followed by the wing ribs and tips. When dry, remove from plan and fit the bellcrank and u/c mounting bolts. The upper 1/16 in. med. balsa sheeting can now be glued on. Sand to shape and fit into the fuselage.

Bend the undercarriage legs from 14 s.w.g. piano wire and braze to 1/16 in. mild steel mounting plates. Alternatively, 24 gauge mild steel straps may be bent round the top of u/c wire and bolted to the mounting plate. Let the 1/16 in. ply leadout guide into the lower surface of the port wing at the tip rib.

Long Midget Wing

First cut to the outline the lower 1/16 in. med. sheet balsa, and pin to the plan. The ½ in. x ½ in. L.E. and ¼ in. balsa tapered main spar are then added. Cut the ribs as rectangles and glue in position, then add ¼ in. sheet tips. Lift from plan and sand the rib blanks to section. Let in the lower 1/16 in. ply bellcrank mounting plate, then assemble the bellcrank complete with lead outs and 16 s.w.g. push rod, and install within the wing. The upper 1/16 in. med. balsa sheet may now be added in two pieces, with the join along the centre line.

Sand the complete wing to section and fit into the fuselage.

Tailplanes and Fins

Construct tailplanes from ½ in. med.-hard sheet and slot into the rear of the fuselage. A 1/16 in. ply *Rivets* fin and a ¼ in. med. sheet *Long Midget* fin may now be fitted, ensuring at least 5° offset. Add the 16 s.w.g. tailskid, and reinforce with tape.

Bend *Long Midget* undercarriage from 12 s.w.g. piano wire, and bolt to the fuselage with 16 gauge mild steel clips.

Finishing

The soft block engine nacelles and tank fairing may now be added.

Sand the whole model smooth and give two coats of sanding sealer, cover with lightweight tissue and

FREE plans

and Neil Webb's

LONG MIDGET



then apply two further coats of sanding sealer.

A scale type colour scheme in two coats of polyurethane, rubbed down with wet and dry paper (used wet) between coats is now added. Use the 'two pack' variety of polyurethane paints as they have a harder surface finish. Be careful not to add too much weight at this finishing stage.

The external controls may now be fitted to the *Rivets*. The cutout assembly is made from 24 s.w.g. mild steel and is attached to the fuselage with wood-screws. The cut-off arm, which is bound to the pushrod with fuse wire and then soldered, must be adjusted to operate the cut-off device when full down elevator is applied. This operates by pushing the spring arm out of the 'V' groove in the cut-out assembly and the tension on this arm, created by anchoring it securely at the uppermost point, pinches the fuel tubing. This enables quick pit stops to be made as the motor may be stopped at will and is also very useful if the engine goes 'off song', as a

remedy can then easily be made. This cut out assembly can also be used on the *Long Midget*.

The original *Rivets* used a round-sectioned tank (left over from Rat Race days) but a normal rectangular one, of approximately 50 c.c. may be used instead. The *Long Midget* utilises a conventional wedge tank.

As the C of G is critical on these models, ensure that it is as shown on the plan. Check that the model tracks straight to prevent running in on the circle, although slight binding of the right-hand wheel is useful to keep the lines tight on take-off. Various props have been tried ranging from 7 in. x 6 in. to 7 in. x 9 in. but best speeds of around 80 m.p.h. have been obtained using 7 in. x 8 in. propellers. However, this will vary according to the motor and fuel used. A good starting point is 48 per cent paraffin, 30 per cent ether, 20 per cent oil and 2 per cent amyl nitrite for a good quality diesel engine.

Rivets designer Bill Falck nonchalantly leans against his original low-tailed version. Some impression of the minute size of these Goodyear racers can be gained from this photo - note how the cockpit canopy is little higher than Bill's waist.



Peter Chinn's

Latest Engine News

FOX ENGINES PAST AND PRESENT

Part II

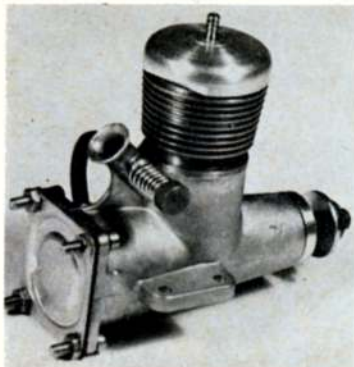
Fox 35X and 36X models

In 1962, Fox advertisements in the American model press began announcing the impending appearance of a new motor, provisionally called the 'Blue Ribbon 35', that would combine the best of many Fox contest engine features (primarily those of the twin needle-bearing Combat Special) in a motor which would be even cheaper than the Rocket-35 that had begun the Fox invasion of the low-priced medium-sized engine field.

These claims, as things turned out, were more than justified. When the promised engine, now named the Fox 35X, appeared some months later, it was two dollars cheaper than the Rocket 35 and ten dollars cheaper than the Combat Special. Performance-wise it was so good that it killed-off both these latter models soon afterwards and became the progenitor of a whole new line of Fox engines.

Outwardly (see photo June *Aero-modeller*) the 35X's connection with the Combat Special was suggested by its rectangular intake, the main difference being that the bearing housing was now integral with the crankcase. This allowed the addition of four stiffening webs and a much stronger and more rigid front end. One of the 35X's most

The first 'small' Fox, the unorthodox 1.6 c.c. Fox 09 (later Rocket-09) of 1959.



Above, Fox 29X-BB. A twin ball bearing, disc-valve engine that was marketed during 1965-1967. Right, the first 2½ c.c. Fox engine, the 15 (later known as the Rocket-15) of 1958.

impressive attributes was its versatility. In stock trim it was fitted with a venturi restrictor permitting it to be used in place of the Rocket-35 for normal C/L and F/F applications needing good fuel suction with adequate power on mild fuels. At the other end of the scale, removal of the restrictor, the addition of pressure feed and the use of fuel containing up to 50 per cent nitromethane, enabled power to be boosted to Combat-Special standards.

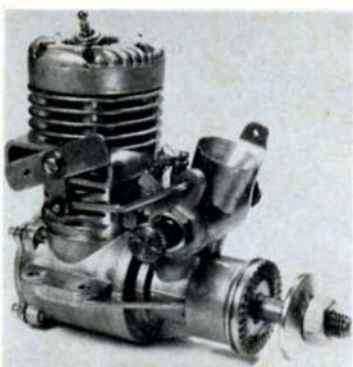
Early in 1964, in response to enthusiastic but heavy demands made on this motor by combat fiends, the 35X was given a new shaft and renamed the 36X. The new shaft was suitably strengthened around the crankpin which was also moved out to increase the stroke by 15 thou. and take full advantage of the .36 cu. in. displacement limit under American combat rules.

Towards the end of 1964, the 36X appeared with a remodelled cylinder-head, having an inclined plug, and a slightly lengthened cylinder liner, giving extended exhaust and transfer periods, was fitted. Still later, a special 'custom' version, known as the 36X-BB, was offered. This was reworked solely for combat work with modifications to the porting, a higher compression ratio, and the replacement of the single needle-bearing by a ball journal bearing.

Fox 40s

The first Fox 40 engine appeared early in 1961 and was based on the Rocket-35 casting. It was aimed at the C/L rat-racing class allowing a swept volume of .40 cu. in. maximum. To

Fox 36X R/C. Again developed from the original 35X, via the 36X, and fitted with a three-jet carburettor.

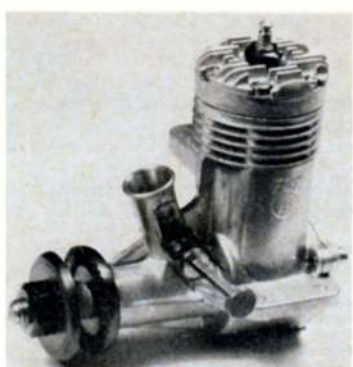


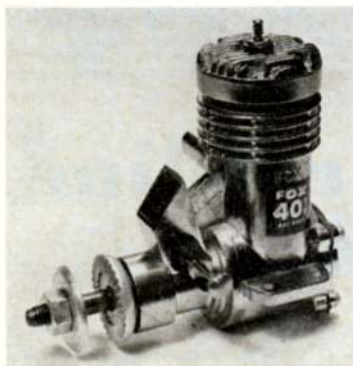
achieve this, the 35's stroke of 0.700 in. was increased to 0.790 in. giving a displacement of .397 cu. in. It remained a plain bushed-bearing engine but had a good performance, particularly in view of its modest weight which was actually slightly less than that of the Rocket 35.

In 1962 an R/C version of the 40 was announced. Our report on this engine was not too favourable and it was decided not to publish it: we could, after all, have been wrong. The 40 R/C incorporated several departures from normal Fox practice and, as things turned out, was not a success. Originally listed at \$24.95, remaining stocks were later offered at \$8.95.

No such fate awaited the next Fox 40. This was the 'Golden Fox' 40BB, introduced in 1963 and based on the highly successful 35X formula. Fitted with a rear ball bearing supplemented by a front needle bearing, the 40BB was an immensely powerful engine which the rat-racing fraternity proceeded to exploit to the full with 50-60 per cent nitro and 18-20,000 r.p.m. speeds. As a result some trouble was encountered with small-end and shaft failures. Immediately that news of these weaknesses filtered through, Duke Fox pulled in all unsold 40BBs and fitted them with strengthened shafts and gudgeon-pins. Further improvements were subsequently incorporated for 1964 and the engine collected innumerable contest wins over

One of the less familiar Fox models, the 19 which was manufactured during the mid and late fifties.





the next few seasons, before being finally withdrawn from production in 1967. An entirely new Fox 40 is now in the offing.

Other 35X Developments

In addition to the .36 and .40 cu. in. developments of the original basic 35X design, already mentioned, a 29X model appeared in 1968. This engine, like the 36X, is still in production. Outwardly, it looks very similar to the 36X except for machined head fins and a vertical, centrally-located glowplug. The reduced displacement, enabling the engine to be used in .30 cu. in. or 5 c.c. competition classes, was achieved by reducing the cylinder bore from 0.800 in. to 0.738 in. in conjunction with a .700 in. stroke. The piston and cylinder sleeve are the same as those of the Fox 29X-BB. This latter was a twin ball-bearing, rear rotary disc valve motor that was introduced towards the end of 1965, but is no longer in production. The 29X, of course, is a shaft-valve motor with a single needle-bearing like the 36X.

The latest developments are radio-control versions of the 36X and 29X. These have a specially-designed Fox throttle-equipped carburetor with automatic fuel metering via three independently adjustable jets for high-speed, medium-speed and idling. Although these carburetors look rather complicated, they are actually quite easy to adjust and work extremely well.

Fox 09 and 15 engines

Until 1953 no Fox engine smaller than .29 cu. in. displacement had been

Left, 1962 Fox 40 R/C. One of the less successful Fox engines, it remained in production for only a very short time. At right, 1964 model 'Golden Fox' 40-BB. A further development of the 35X formula and very powerful.

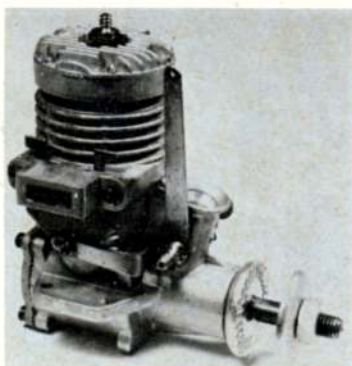
marketed but, in that year, a 19 was announced. This was an unusual split crankcase design and not many examples were actually made. It was succeeded in the following year by a more orthodox design somewhat resembling a scaled-down Stunt 35. It had a bore and stroke of 0.650 x 0.600 in. Later, this engine was produced in a 'Two-Speed' (twin needle-valve) model and an enlarged .25 cu. in. version was also offered.

Fox's first venture into the low-priced small engine market came in 1958 with the original Fox 15, selling at less than half the price of any previous Fox model. This had a bore and stroke of 0.590 x 0.540 in., giving a swept volume of .148 cu. in. or 2.42 c.c. It featured an integral-finned cylinder and a $\frac{1}{4}$ in. shaft running in a bronze bushed main bearing.

In 1959 a still smaller and cheaper engine was put on the market: the Fox 09. Never one to slavishly follow current fashion in engine design, Duke Fox produced a totally different small motor in the 09. It revived the old 3-port two-stroke layout in an entirely modern engine. Its main casting not only embodied the crankcase and main bearing, with beam mounting lugs: it included, as well, an integral fuel tank and inclined rear intake and also provided for optional radial type mounting. For the first time in a Fox engine, reverse-flow scavenging, a ball-joint piston/rod assembly and a screw-in-head with integral glow filament were used. The 09 had a bore and stroke of 0.527 x 0.450 in., weighed just over 3 oz. and was an ideal beginner's engine, being simplicity itself to operate.

Towards the end of 1959, the 15 and 09 were renamed Rocket-15 and Rocket-09 to bring them into line with the newly-announced Rocket 35 as members of the Fox low-priced engine group. However, two years later, both were discontinued in favour of new additions to the Fox line. The Rocket 09 was replaced by the Fox 10, a radially-ported shaft-valve motor that was also offered in a simple R/C version with exhaust restrictor-type throttling device. The Rocket 15 was superseded by the 15X which was offered in three different versions.

The most obvious difference between



the Rocket 15 and 15X was that the latter reverted to the more usual Fox style of a full-length casting with drop-in cylinder liner. None of the Rocket 15 parts (with the exception of the crankcase backplate) was retained on the 15X. The standard 15X cost the same as the Rocket 15 and was aimed at the sport flyer. Those who wished for more competitive performance, however, could opt for the 'XX' competition version. This had a lightened piston, machined (instead of diecast) conrod, a better quality main bearing and a higher compression ratio. These modifications, plus the use of high nitro fuel, could make quite a difference to the performance of the 15X. For example, our stock version, checked on an 8 x 4 Power-Prop, achieved 12,500 r.p.m. on Fox Super-fuel, whereas the 15XX turned up 14,700 r.p.m. under identical conditions and then reached 16,200 r.p.m. on a 50 per cent nitro mix.

The standard 15X engine, little changed, is still in production at the present time. Also available is an R/C version which has been improved over the years. As first marketed in 1962 the R/C conversion consisted of a simple 'flattened spraybar' type intake throttle coupled to an exhaust baffle. In 1965, however, this was replaced by a new model incorporating certain of the 'XX' refinements and a more complex throttle with separate idling jet. The latest model, announced a few months ago, is basically the current 15X with later type throttle, plus a semi-rotary type exhaust valve.

(To be concluded)



Left, 1962 Fox 15X R/C, a simple R/C version of the standard 15X. Current model has improved throttle system. Below 1962 Fox 15X, a low-priced 2½ c.c. glow engine that is still in production. Right, 1965 Fox 15 R/C.





Pete Smith and Frank Dowling display the latter's latest model, which features the engine recessed $\frac{1}{2}$ in. into the leading edge to overcome the C.G. problem referred to by Vernon Hunt. This enterprising pair have even managed to obtain limited sponsorship by a local Volkswagen agent!

Control-line News

above mentioned points and I think you are in for a surprise. Although this 'composition' was intended as a critical piece it also has a moral behind it—that experience plays a large part in combat flying. Adjusting to the conditions you fly in is most important; an example has been the number of persons taking off all the streamer because the windy conditions made it necessary to fly more on one side of the circle and thus a 'faster' joust results.

"You may not be aware that 'think flying' is also a good point to practice. You should notice your opponent's model capabilities in practice or in the previous round and adjust accordingly. If you find that you are slower but tighter than your opponent, then by pressured attacking you can force him to try to out-manoeuvre you. The result should be that it slows him down and in the process he hits the ground a number of times. Obviously because he is slower, or should we say, more at your level of air speed, then the cuts should come. Quite often in a season you meet the same flyer more than just the once, in which case it is best to analyse *how* you beat him or *why* you didn't, and in some cases try to out-manoeuvre you. The result should be to fly a completely different style at your next meeting.

"One of the last things to mention is the importance of the pit-crew. Time and time again it has been said that the same combination brings results and this is very important, as each man must know his job. At one time it was very important to carry spare props etc. in the heat, however, as the present FAI/SMAE rules allow three models per heat, this has simplified our problems. Having three models 'ready to fly' as good as your No. 1 is the perfect answer; it's just as simple to put a spare model up as change a prop.

Ace of A.C.E.

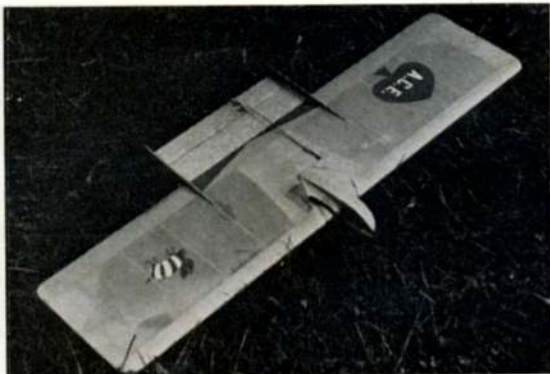
Having won innumerable combat contests over the past few seasons, including two Nationals victories, Vernon Hunt has passed on to us his impressions of this year's 'Nats'—plus much pertinent advice on flying in these events.

"My immediate thought was the lower entry at the Nats again this year, but contrary to this the model finishing and general standard of flying has improved. Lack of manoeuvrability was the biggest surprise, then again the flying wing was, and is, a prominent feature. This is a pity because, although the wing is a successful model in the hands of half a dozen people, it is not to everyone's style of flying. Besides the weight and centre of gravity problems which are rather critical, obtaining high manoeuvrability is quite a technique; let's have a few more ideas in model design.

"Many times tactical flying has been mentioned, the ability or desire to follow one's opponent at all times and in all circumstances, yet repeatedly at the Nats we saw heats flown where the flyers were more interested in their own ability as a stunt flyer than flying a combat joust. Then again the 'over-enthusiastic' went hard into battle, taking all the streamer at one go—fortunately you can get away with this sometimes, but it's a dangerous way of living! The windy conditions could be looked upon as an advantage to 'improving airspeed' and obtaining a 'tighter turn' but a minority were content to fight the laws of nature by flying into the wind, doing a series of 'yo yo' movements towards the soil—still it keeps George Copeman in business!

"Perhaps the reader may find this rather 'over critical'—however, at your next meeting look for the

Vernon's own effort to get away from the stereotyped wings; known as the 'Bumble Bug'. Although it flies fast and is very manoeuvrable, it does not suit his style, performing more like the 'Ruter-ess' design.



"Finally, I must mention the 'power sources' available to us. Recently we have heard of foreign material challenging the Tiger and though I would love to see a faster, reliable glow or diesel on the market than the present stock Tiger, one must recognise that, all in all, the Copeman Tiger Mk. IV is our answer for the moment."

Drop 'Em

Certainly the most complex stunt model seen at the Nats was Cedric Elliot's (Wolves M.A.C.) intriguing *Crusader*. This design, with scale fuselage and tail, but with a swept-back stunt wing, is some 3-4 years old. That it flies well is evidenced by Neil Billington, who has been flying this design competitively for the past couple of seasons, although Cedric's latest version differs considerably with its many refinements.

The wing, in line with current R/C practice, is bolted in place (using a wooden 'Bilofix' bolt) and has dowel locating pegs. This provides easy access to the 'works' contained within the fuselage.

A 'Mick Reeves' type of 3-line control system is used to operate the throttle and to retract the undercarriage. The stalky undercarriage legs in the *Crusader* retract forwards, as does the nosewheel, which causes many complications in the mechanics of this process. An electrically-driven servo is used to operate the gear, but the 225 ma/h. Deac pack installed is rather overworked at present—and the weight of a '500' pack is prohibitive. Although the retract system works satisfactorily on the bench, a little more development is required before it can be regarded as wholly successful in flight.

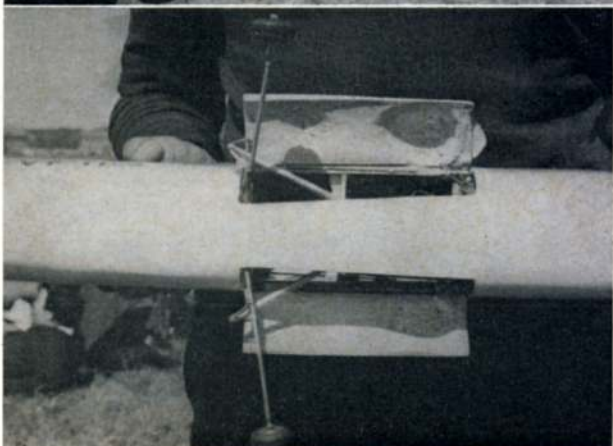
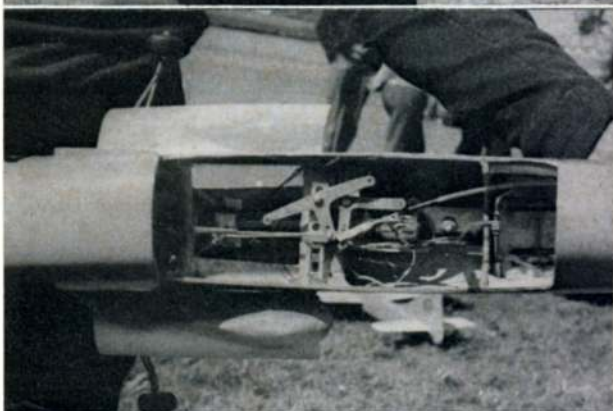
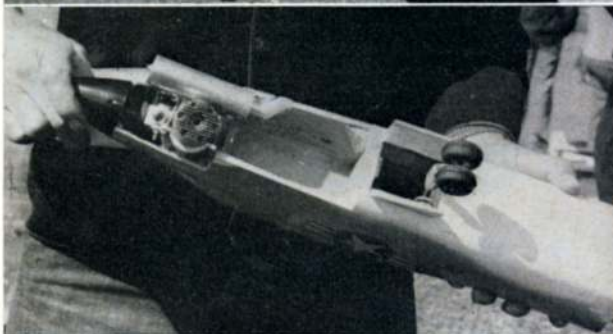
The Fox 40 is fitted with a Merco Mk. II carburettor and equipped with a home-made silencer totally enclosed within the engine cowl—thus presenting a very 'clean' and neat exterior.

The reasoning behind these features is not just to provide a 'different' model—but is aimed at producing a serious competition machine. Take-off and landing points should be increased with the wheels retracting, and the throttle control will be used during manoeuvres to provide power in bursts as and when required, rather than relying on a switching 2/4 stroke run. Also, the motor may be stopped at the completion of the schedule, rather than the usual (sometimes embarrassingly long) wait for the motor to cut.

Pipe Dream

Apparently the A.M.A. have decided that the tuned pipes developed by various manufacturers are very satisfactory as silencers, and these will be considered as such by the various rules committees. This is in order to 'compensate' the manufacturers, who, having developed pipes, have since had the use of such items banned in F.A.I. free-flight and pylon racing competitions. Now, being regarded as 'silencers' it is hoped to provide the manufacturers with an incentive to tackle the silencer problem.

Cedric Elliot's '*Crusader*' revealed. The top photo shows the extremely attractive appearance of this design—fuselage shape is scale. Below, the completely enclosed silencer is shown, strapped to the Fox 40. Noseleg retracts as well as main gear. The 'heart' of the control system nestles within the capacious fuselage—'Mick Reeves' third line control system being used. Bottom picture shows the extended, stalky undercarriage legs, which are mechanically locked in this position to withstand landing shocks.





**Produced by popular request
— HAROLD TOWNER's specially designed**

AVRO LANCASTER

**CONTROL LINE SCALE MODEL FOR 1.5 c.c. ENGINES
52 inch wingspan: 1/24th scale: simple, tough structure**

The Avro Lancaster found its niche in history as being the only bomber of World War II capable (when suitably strengthened) of carrying the 22,000lb. 'Grand Slam' bomb.

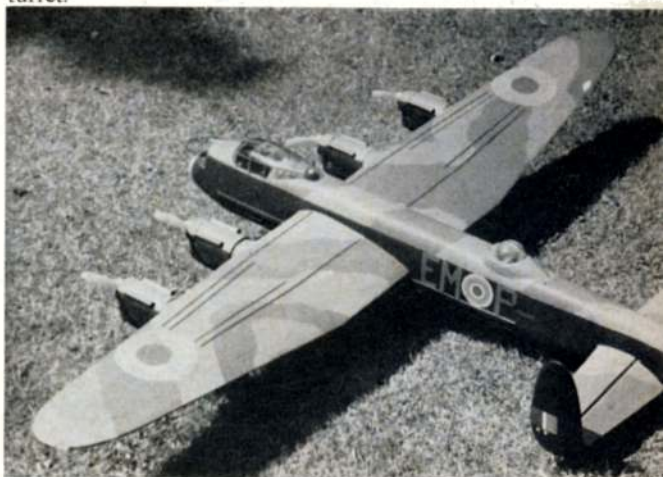
Designed by Roy Chadwick as a development of the Manchester III to accept four of the then new Rolls-Royce Merlin XX motors, it was extremely successful—total production running to 7,377. After the war, the Lancaster continued in service with Coastal Command until 1956, when it was replaced by the Shackleton M.R. Mk.2. The Lancaster retains a great affection from all who were associated with it, and as the article in *SCALE MODELS*, March 1970 described, there are many preserved in the U.K. and Commonwealth. It has been a popular modelling subject. There are several good plastic kits, but until we commissioned scale expert Harold Towner to produce a 1/24th 'simple' structure version for small engines, the demand for plans was unsatisfied. So here we have a 'mate' for the Halifax Plan CL 919 (10/-) and one which will please every builder. 'Simple' is of course a relative term, but the theme throughout has been to keep construction straightforward, and anyone with a little experience should have no difficulty in building this model.

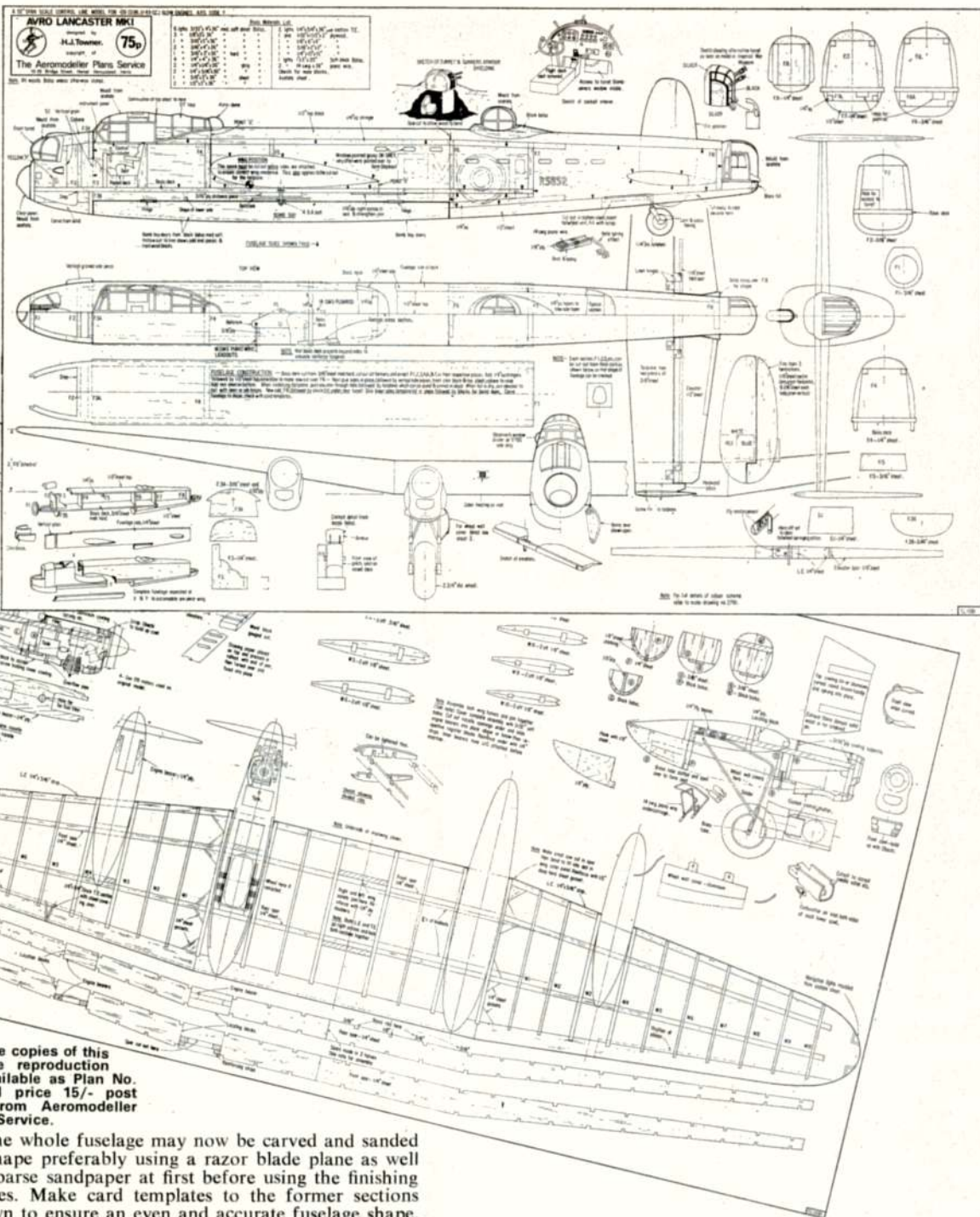
P.V.A. glue was used throughout on the original due to its high strength, low shrinkage and slower drying time—essential when glueing large areas.

Fuselage construction is clearly explained in the 'exploded' diagram. First cut-out the basic deck from 3/16 med. hard sheet, followed by all the formers. Cement these in their respective positions using a set square for accuracy. Now add the 1/4 in. sq. stringers and the soft 1/4 in. top sheeting—noting the saw cut

over F.6 to achieve the 'bend' in this block. Next cut out the fuselage sides to the outlines marked, and glue in position. The vertical side pieces, front chin block and top are then added, followed by the cabane sheeting.

Make up the tail wheel unit, then let it into the bottom sheet before glueing this in position. Mount the bellcrank on its platform, then glue in position. Add the lower fuselage sides below the basic deck, make up the undercarriage doors, and add the remaining block below the nose and beneath the rear turret.





Full size copies of this 1/4 scale reproduction are available as Plan No. CL1081 price 15/- post free, from Aeromodeler Plans Service.

The whole fuselage may now be carved and sanded to shape preferably using a razor blade plane as well as coarse sandpaper at first before using the finishing grades. Make card templates to the former sections shown to ensure an even and accurate fuselage shape.

The wings are built as two tip panels, and are then joined at the centre section. Cut out all the ribs, noting that they are split horizontally so as to form an immensely strong unit when bonded to the spars. Make the spars from medium hard 1/4 in. sheet, notching them to accept the ribs. Pin one half of the rear spar over the plan, then pin the front spar in position with 1/4 in. packing under it. Add half-ribs W1-10, and when dry, add the leading and trailing edges, followed by the laminated wing tips. Leave to

dry thoroughly, then remove from board and add the remaining rib halves. Repeat for the opposite tip.

When this is completed, assemble over the plan again and build the centre-section. The leading and trailing edges traverse the full length of the centre section, and the spars butt-joint at the centre-line with 1/4 in. plywood braces. Carefully epoxy the 1/4 in. plywood locating blocks for the engine mount in

The designer, Harold Towner, displays his fine model equipped with four Cox .09 cu. in. motors. Below, the impressive appearance of the model is enhanced by the fitting of the static, three-bladed props and aluminium spinners. Canopies etc. are moulded from acetate sheet, and are much easier to make than it would seem at first glance!

position—accuracy is essential here. Finally, add all the gussets and sheet cover the entire wing with medium-soft 3/32in. balsa.

Make up the undercarriage units as shown on the plans, and attach them to the plywood, inner nacelle, engine bearers. Cut out the openings for the nacelles in the underside of the sheeted wing, and slide in the engine bearers—epoxying them above and below the respective plywood blocks. Repeat for the outer nacelles. Build up the nacelles by cutting out the plywood keels and balsa formers, glueing in position, then planing with medium soft balsa. Mount either small commercial fuel tanks or make them from tinplate to suit the available space. The cowlings fronts are laminated from obechi, and cut away to clear the engines, while the under cowls are made in three pieces, and are located by a wood screw into a block immediately behind the firewall. Top cowlings are cut from tinplate, and spring into place.

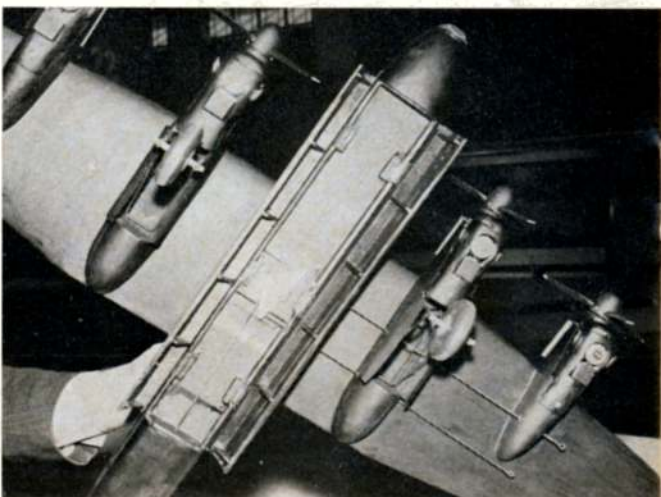
With the nacelles etc. completed and sanded to shape, the fuselage may now be added. To do this, carefully cut the fuselage in two at the points 'X' and 'Y' as indicated, and epoxy the whole unit together, making sure that the wings are square with the fuselage and that the fuselage is straight. Leave this whole assembly carefully blocked up until it has quite set, then fill in any of the joints which show with body putty or similar filler.

Shape the tailplane from two laminations of 1/4in. sheet balsa and slot through the fuselage, then cement in position, checking for squareness. Make up the elevator leading edge from 1/4in. and 1/8in. sheet, then add one half of the 1/4in. elevators to this spar. Slot through the fuselage and add the other half before hinging the unit. The fins are laminated from 1/4in. and 1/16in. balsa and may be fixed to the tailplane with woodscrews so as to make them detachable, if required.

At this stage, interior detail may be added and the cockpit etc. painted. The mouldings are all made from .025in. acetate sheet, pressed over a suitably curved male mould through an appropriate cut-out in a piece of stout plywood. If the acetate is warmed in an oven, make sure that gloves are worn. Hot oil is a better method as it gives a more even temperature. Details of cockpit framing etc. can be shown by thin strips of adhesive tape, coloured, and simply pressed in position.

When satisfied that all gaps, dents, etc. have been properly filled, cover the entire model with lightweight tissue, and thoroughly seal the surfaces with sanding sealer and dope. This achieved, the colour may be applied. The original was finished in flat black and standard camouflage, and finally fuel proofed with Kingston Polyurethane Eggshell—which gives a realistic semi matt finish and is reasonably fuel proof. Alternative colour schemes are detailed on the *Aeromodeller Scale Drawing No. 2781*—price 5/6d. including postage.

With the bomb doors open, the bellcrank is easily accessible. Note how the leadouts pass through the inboard nacelles. It would not take much ingenuity to have those bomb doors opened by a third line—and just think of the possibilities that would then arise!





Bob Hymers has his daughter well trained - here she returns on her bike after a max flight from his long, large Wakefield.

FREE FLIGHT COMMENT

by John O'Donnell

THERE IS NOT USUALLY much danger of confusing my column with *Trade Notes* - but then there are few commercial innovations aimed specifically at the free flight enthusiast. A notable exception has arisen recently, as those who study the 'Small ads' at the back of this magazine will have noticed. The goods in question are fibre glass blanks; including not only a size suitable for the popular A/2 application, but also a comprehensive selection for other uses!

At the risk of accusations of free advertising for Ron Pollard and Tony Cordes (who are running the venture), the possibilities thus opened up justify further comment. Whilst the 'fishing-rod A/2' has been very far from a novelty for some time, obtaining the necessary fibre-glass blank has given difficulty to many people.

Whilst suitable blanks were (and still are) sometimes available from fishing tackle suppliers, they were seldom a 'stock item'. It seems that the size we need, the middle section of a three-piece rod, is seldom broken and hence not usually kept as 'spares'. Furthermore, blanks from different sources could not only vary in dimensions, but, much more important, could vary widely in weight. Attempts to obtain quantities from wholesalers met with limited success - and general availability only materialised when the ROD BOX, Winchester, started to advertise suitable blanks to *Aeromodeller* readers. This source dried up and supplies were again a problem.

The situation has now improved dramatically, as the Tynemouth members have found a manufacturer who is prepared to make exactly what modellers want. Furthermore, having decided to enter the market, those involved have been both bold and enterprising in that they are providing not only the well-proven A/2 blank, but also a wide variety of sizes carefully chosen to suit other model categories. Details are summarised in the table. Mixing of fractions and decimals, whilst somewhat inconsistent, allows the information to be given in the most easily appreciated dimensions.

Stated application	Length (ins.)	Outside dia. (ins.)		Nominal weight (ozs.)	Price without postage
		Max.	Min.		
Power	48	0.8	0.5	2.2	27/-
A/2	42	0.5+	5/16 or 7/32	0.9	20/-
A/1	36	5/16	1/16	0.3	15/-
Outdoor C/G	20	7/32	1/16	0.1	6/-
Indoor C/G	18	5/32	1/16	0.05	5/-

Those who have used and weighed fibre glass blanks before will realise that the tabulated weights are low. The A/2 blank, for example, is only 0.9 ozs., whilst the lightest previously encountered were around 1.1 to 1.2 ozs. Reduced wall thickness has enabled this useful weight saving to be obtained.

'Fishing rod fuselages' for power models have been very slow to find favour - especially when compared with the situation for A/2. As the few power models so con-

Don Wyld's *Wichita* was the only model to make a full - five max score in A/2 on the 2nd day of the Nats, in fact, it went so well it took us too long to catch up with him for inclusion in the report last month.





Ah! Those were the days – real R.O.G. launches. Frank Elton brings back memories with his A.M.10 powered Slicker 42. Rather a contrast to present-day power models!

structed that have appeared are considered successful by their builders, the basic concept seems sound enough. Certainly I have been more than happy with my HP15D powered F.A.I. model fuselage utilising a 3 oz. blank. It has shown no signs of flex troubles, holds trim well, and has withstood ground level D/T's, landing in trees, and the usual wear and tear of two years' hard flying.

Such fuselages are more flexible than the usual balsa box and a certain amount of balsa stiffening might be a good insurance. My model has sheet balsa sides added at the front and tapering away to nothing about midway between wing and tail. As may be seen from the illustrations, other modellers have been less conservative and produced a more pod and boom layout.

As there will be doubtless many people trying these blanks for the first time, it might not be superfluous to repeat that epoxy glues are needed to attach even balsa to the fibre-glass. Sanding the relevant area not only improves adhesion through roughening the surface – but also removes the release agent and other grease that might be present.

* * *

Indoor free-flight has been in the news of late. Last month's *Aeromodeller* contained a short report on the recent World Championships in Romania – and remarks about our lack of representation.

The absence of a British Team at this and preceding Championships would seem to be due to a lack of interest in the category – at least at the serious contest level. Certainly Indoor F/F 'died on its feet' some six or seven years ago – with Cardington then still available as a flying site. The 'reasons why' are clearly subject to speculation, but I would maintain that the position was aggravated by the emphasis on flying in what has been described elsewhere as the 'World's best venue', without any form of supporting programme.

Cardington's size enables the best model to produce the best flight. Whilst this is fine for the expert (i.e. the hard-working enthusiast) and is what competitive flying is supposed to be all about, there are snags. The most obvious one is that the beginner finds himself outclassed by a wide margin (compared with outdoor events) and with no hopes of 'Lady Luck' being on his side. Unless willing to put in sufficient effort to improve he is only too liable to retire quietly from the Indoor Scene.

The expert, meanwhile, has a different set of troubles. Contests are the province of a small handful of fliers – and often have predictable results. For some, striving to improve one's personal best flight (or some such equivalent) might provide incentive. But there comes a time when one is forced to ask if 'the game is worth the candle'.

Around 10 years ago, the 'Indoor Nationals' held in the Corn Exchange, Manchester, attracted more support than any Cardington meeting I attended. Whilst disparagingly dismissed by some as an obstacle race, the Manchester meetings did provide events in which a fair percentage of the entrants had a chance of winning. These meetings were also held in the Winter so they did not clash with outdoor events.

Of late there has been some revival of interest in the London Area. Bruce Edwards and the Richmond Club are obviously doing their best to resurrect Indoor Flying. From what I have heard and read they are aiming at real duration as distinct from mere clubroom flying. Flying in one of the hangars at R.A.F. Chessington on Easter Sunday was reported in the June *Club News* section.

Even more recently Stan Wade's efforts to regain the use of the 'shed' at Cardington have been successful – and the first meeting was held on 7th June. As I understand that Bruce Edwards has submitted a report and photographs, I will not dwell on the actual flying. Further meetings are

Brian Martin's latest F.A.I. power job. Uses latest Tyne-mouth-marketed rod – will the pod and boom layout be characteristic of the next trend? Model has sheeted surfaces. Mount is World Engines' version of the Seelig – lack of radius between side and rear caused hairline crack, leading to excessive vibration and resonance.



Part of Jim McCann's next F.A.I. model. The much modified Culpin half-pan is followed by a circular tank, made from copper pipe. Alloy brackets give positive anchorage to the fibre-glass blank.

scheduled for Cardington throughout the Summer and should provide ample opportunity for those so inclined. I can only hope that previous experience can be utilised so as to find a way to make this type of modelling attractive to enough people to make it self-perpetuating. The Americans obviously had their bad patch some years ago – and countered it with a range of ceiling categories (with separate records), a novice's specification (Easy B), and other moves.

Simultaneously with all this activity, certain proposals regarding the World Championship Indoor Model Specifications have been made to the F.A.I. News of these come to me as a member of the F.A.I. F/F Sub Committee. The recent Championships in Rumania saw some super light (and super fragile) models, the flying of which was extremely risky. Whilst Indoor F/F at World Championship level should produce the ultimate in models, the 'all-or-nothing' approach is not to everyone's taste.

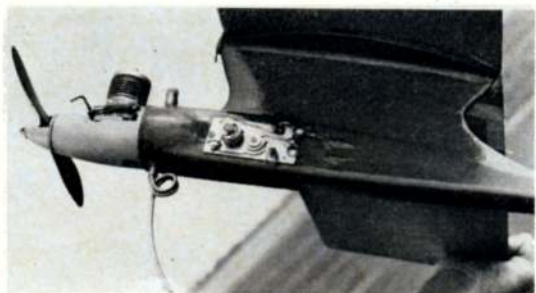
To avoid developing rules only for super specialists, to quote Sub-Committee Chairman Dr. Luigi Bovo, both a minimum airframe weight (of 1 gram) and maximum rubber weights have been proposed. To bring these ideas into perspective perhaps I could convert the units and quote examples. One gramme is almost exactly 0.035 oz. Whilst this might sound already ridiculously light to the non-indoor flier; it is much more than any model currently considered competitive. The drawing of *Kalina's Champion* (his record holder rather than his championship winner) had a quoted weight range of 0.017 to 0.022 oz. Near enough doubling the airframe weight will necessitate more power which will put the weight up further. Performance will certainly drop.

* * *

Whilst the 'weight rule' idea might sound attractive at first sight, especially from the viewpoint of encouraging the less-experienced, I am far from convinced that it is desirable. I would add that my views are shared by some of those currently promoting indoor in this country.

The arguments for restricting outdoor model performance through troubles with outlying the available facilities hardly apply to Indoor. Skill in building light structures is rewarded directly in improved performance. A weight rule will throw the accent on to the rubber motor, and I consider that torque testing rubber in an attempt to find the best available will be even less attractive than building lighter models. Good balsa, whilst scarce enough, is easier to obtain than good rubber.

At the danger of sounding harsh it does seem as if the F.A.I. delight in restricting model performance by numerically-defined specifications. Competitive minded modellers are quite versatile and have often found an answer more acceptable to themselves than to the 'rule makers'. It might be relevant to quote the history of the F.A.I. International Class power model. Increasing the required weight, shortening the engine run, using standard fuel, banning tuned



pipes, etc. have all been tried in attempts to restrain performance and make the event attractive (or at least possible) to all. In practice each rule change has merely changed the emphasis of the expert's approach. There is surely a lesson to be learned here.

If there is any case at all for an unlimited performance model, with modelling (as distinct from engineering or mechanical) skills all important - then Indoor free-flight seems the ideal event. Furthermore, if World Championships are to earn or retain the status due to such a title, they should be for experts.

* * *

The period immediately prior to and following the Nationals is always rather quiet on the contest field. Presumably this is through general appreciation of the need to prepare for, and recover from, the season's major meeting. I have even heard it suggested that fliers need the weekend after the Nats to catch up on their family commitments!

Reports of events held near the Nationals tend to suffer from the amount of space apportioned to the latter. It might, however, be appropriate to recap briefly what happened at the Area centralised meeting on 26th April.

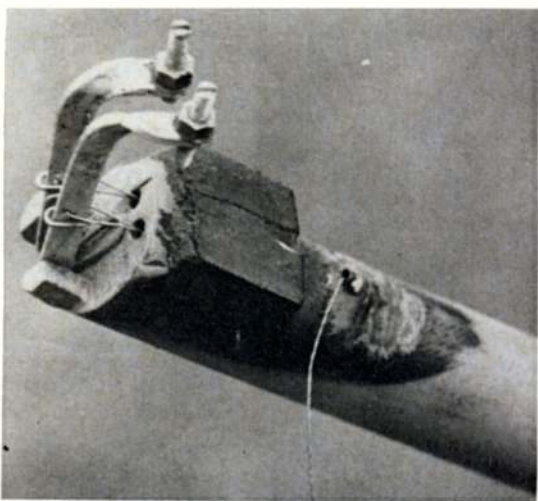
In contrast to the similar meeting held in March, the weather was generally very windy throughout the country. In particular the East Anglian Area, who provided all the winners in March, had such a wind direction and strength at R.A.F. Watton that no-one flew at all there! This obviously threw the Plugge cup position wide open.

Surprisingly, both ends of the country reported a noticeable drop in wind strength right at the last hour allowed for flying. This was particularly noticeable at Chobham - and was well utilised by Brian Chapman, who managed a very convincing 6:18 fly-off to win the open glider fly-off. The only other trebles came from Dave Greaves flying at Chetwynd, and Bert Turner at Beaulieu.

In comparison, scores in the open rubber contest for the Gamage Cup - once a premier event in the S.M.A.E. programme and now just another contest - were very low. Russell Peers won with only 8:47 aggregate - and still had a clear minute lead over Dave Miatt and E. Mottley. As is his wont, Russell flew very early, commencing right on the allowed 8.00 a.m. start, and only dropped score through a premature D/T on his second flight. His model layout is quite conventional. It started off as a Wiseman design (from *Northern Area News*), but now uses a free-wheel folder - and a flat bottom wing. As the models have become heavier with repairs and lube, the rubber has been reduced from 4 to 3 oz. so as to preserve the glide.

F.A.I. Power for the *Halifax Trophy* had a surprising number of fliers. At 24, this was almost double the *Gamage* figure! Presumably hopes of the Plugge Cup must be the governing influence. Certainly this was the reason for John West flying (and winning) in very rough conditions at Ashdown Forest. He flew with deliberately short D/T's to aid recovery, despite having much help from downwind club-members. Even so he had to fly two models - again de-piped after their visit to Zell-am-See. Ray Monks was only a few seconds behind for second place, whilst I managed third with my usual HP15D model. Both 'Wiz' Wiseman (who was fourth) and I flew at Topcliffe, and some idea of conditions can be gauged from Wiseman's usually reliable power pattern being different every flight (without trim change I should add). Wiz also caused some consternation by announcing that he was flying for Birmingham instead of York. His changing clubs, although justified by his having lived in the Midlands for the past two years, will undoubtedly be a major factor in helping Birmingham in their clear determination to win the National Club Championship (Plugge Cup) this year.

Whilst on the subject of Area centralised events, and having previously commented on the state of interest in some quarters, it seems only fair to mention fresh interest from a new region. *Irish* modellers have successfully negotiated for permission to compete in the S.M.A.E. Area-centralised events - and Belfast, at least, participated in both the March and April events. This move is directly opposed to trends in the North of England where interest is swinging to domestic events held in conjunction with the National events.



At top, Alan Moss (Whitefield) displays his new-style F.A.I. power model. Fuselage is fibre-glass, from a local fishing shop, and is somewhat overweight. In the centre is revealed the V.I.T. arms. Note the clever twist at the bend to give adequate material for screws from normal gauge sheet. Bottom photo reveals 'speed' cowl, wing hold-down bolt and home-made faceplate for the timers.



HAVING ACHIEVED considerable success in the export market, **Multicraft Omnipool Ltd.** have now redirected their attentions to the British market with their wide range of modelling tools.

The range consists basically of three knives, to which a wide variety of blades, gauges and chisels may be fitted. Added to this a 6 in. hacksaw frame (which also takes various sizes of Abrafiles) to fit the *Senior* knife. This knife is, in fact, likely to be the most useful one for the aeromodeller, as in addition to acting as the hacksaw handle, it also takes the widest range of accessories, while only costing 7/6d., at which price four blades are included, stored within the handle. The *Junior* knife, price 3/9d. is supplied with a single, double-ended blade, but will accept the gauges and Abrafiles. Designed for really heavy work is the *Worknife*, price 4/6d., which uses its own heavy duty blades, and will not accept the remainder of the range.

Below, the Camis 'Universal' wheels would grace any scale model, with their realistic tread and hub appearance. At right, the Tatone Exhaust Manifolds, in each of the three sizes available. All fittings are supplied for these adaptable units. The flange, seen in the lower picture, locates over the exhaust stub.



Left, we're not sure what the scale of this one is, but it must be authentic with those famous expressions issuing forth! Note the 'genuine' bullet holes in the hero's doghouse. The motor unit is very neat and is supplied with this Monogram kit.

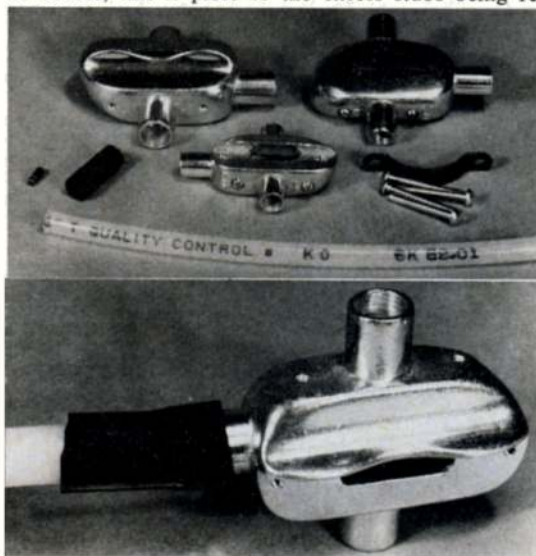
As well as being sold separately, these items are also available in a variety of sets, ranging from the modest *Aeromodellers Kit* (8/6d.), which contains the Junior knife, reversible blade, a 'U' and 'V' gauge, as well as a 1/4 in. diameter Abrafile, to the *Major*. This de-luxe set is housed within a wooden, routed case—containing the full range of blades, files, hacksaw blade, hacksaw frame, worknife and sharpening stone. A 'complete workshop' for 60/-; ideal as a gift, whether to oneself or to another!

A new line imported from the United States by **Henry J. Nicholls** and of particular interest to the scale enthusiasts, is the *Tatone Exhaust Manifold*. Designed as a compact unit to fit within cramped installations, these universal fitting exhaust manifolds are designed to muffle the engine and to lead away the messy exhaust residue. Three outlets are cast into

TRADE NOTES

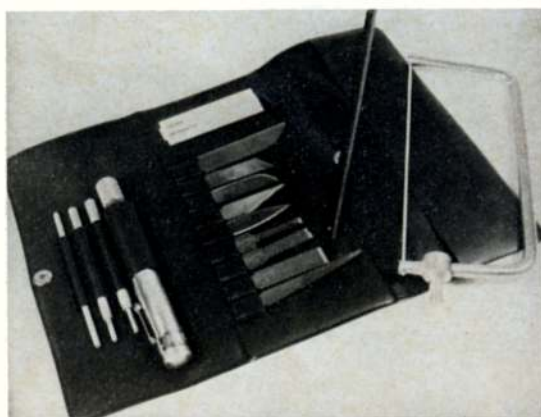
this manifold, but none are bored through. Instead the modeller decides which is the most convenient for his application, drills the hole into the casting, and removes the other two outlet stubs. A length of heat-resistant tubing is then slid over the remaining stub, and connected to a plastic tube to duct off the exhaust. This plastic tubing is rigid, but may be reshaped when boiled in water, as it then becomes pliable.

The unit is retained in place by a metal strap passed around the cylinder. The exhaust opening may have to be opened up to suit individual engines—easily achieved with a round file. Three sizes are available to suit .09-.19 engines (42/6d.), .29-.40 engines (49/6d.) and .45-.65s for 53/6d. Weights are 1 1/2 oz., 2 1/2 oz. and 3 oz. respectively—maximum, as, of course, this is prior to the excess stubs being re-





Part of the Multicraft range of tools. Above the 'Major' presentation set includes the whole range in a stout wooden chest, while at right is the 'Pocket Kit' in a P.V.C. case, at 35/- . Below are three different knives, shown with the 'Aeromodeller' kit at just 8/6d.



moved and includes the full length of tubing.

Yet another accessory that H.J.N. is importing and which will again prove to be especially interesting to the scale buff, is the range of *Camis Universal* wheels. These are of the trapped-air variety, but with a difference. The hub is supplied in four pieces, and is held together by three self-tapping screws, the tyre retaining its pressure through the seal formed by the snug assembly of the wheel halves. An interesting side benefit is that when using the wheels on a particularly heavy model, the tyre pressures may be increased simply by placing the loosely assembled units in the freezer compartment of a refrigerator, then tightening the screws before the temperature rises.

The completed wheels, moulded in a fairly 'soft' rubber and nicely treaded, look very realistic, and are available in four sizes from 2½ in. to 3½ in. diameter. Not cheap, with prices ranging from 73/6d. to 117/- a pair, they are nonetheless a very attractive proposition. The 2½ in. diameter pair that we received for review weighed a shade over 3½ ounces.

Ripmax too have a new range of wheels, these being the *P.B. Aeroscale Airwheels*, and will be available in sizes ranging from 1½ in. to 5½ in. diameter. These low-bounce wheels are unique in offering a choice of three hub styles—one may use the conventional (chromed plastic) spoked finish, or simulate a light aircraft using a 'Quick Fix' styled nylon collet or else by using a plain 'Quick Fix' collet and chromed blanking disc, a heavy aircraft wheel may be represented. The nylon collets are simply a force fit over the end of the axle—but the very clear instruction details how this can be improved by filing two nicks on the axle. Ripmax can at the moment supply just four sizes, from 2½ in. to 3½ in. diameter, at prices ranging from 19/6d. to 28/6d. per pair, but will have the remaining sizes available very shortly. The 3½ in. wheels weighed out at 4½ oz. per pair.

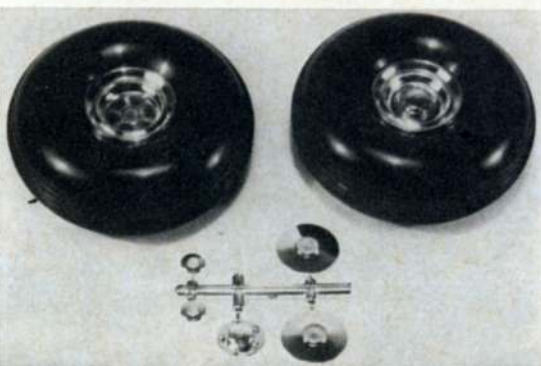
Copydex Ltd. have just produced a 40-page booklet entitled *Know How*—a publication which is packed full of information and useful do-it-yourself hints in connection with their many products—which extend

The *P.B. Aeroscale* wheels are shown at right, with the different chromed plastic hubs in the foreground. Left-hand wheel shows the standard appearance, while its partner has the 'light aircraft' collet fitted.

well beyond their well-established adhesive range. Price of this handy booklet is just 1/6d.—plus 4d. post—from Copydex Ltd., 1 Torquay Street, Harrow Road, London, W.2.

'Peanuts' fans to the fore! Designed specifically for the haters of the 'Red Baron' is the latest plastic kit from **Monogram**—Snoopy resplendent in his Sopwith Camel, flying over the inevitable dog house! This is a most unusual kit as no glueing or painting is required—all the pre-coloured parts simply snap together with the aid of the very clear and amusing instructions. Into the nose fits a 'power pack' consisting of the engine cowling/cover and an electric motor, complete with battery (not supplied). A light tap on the prop starts the motor spinning, and it is stopped simply by pressing against the prop hub—hence no switches etc. can be left on by mistake.

Although the price is not yet announced, this item should prove ideal for...eh...for...well any 'Snoopy' lover!



THERMAL SOARING AT ENSTONE

THE S.M.A.E. SOUTH MIDLAND AREA's second thermal soaring event held on 7th June at Enstone, near Bicester, Oxfordshire - brought together some 31 competitors for this rapidly growing sport.

The contest was divided into two categories, to suit single channel and multi R/C operators, and was based on the proposed F.A.I. rules. With a maximum flight duration of six minutes, competitors had to land their models within a specified area to register a score - a flight of over seven minutes being disallowed.

Despite being bright and sunny, the conditions were somewhat spoilt by a stiff breeze which lasted throughout the day, causing many problems for the lightweight models - single channel equipped versions in particular. Several competitors were content to leave their models in their cars in view of the conditions - a decision no doubt reinforced by the abrasive quality of the dilapidated runway! Lift was available for those able to both locate and remain within it, but times were, in general, disappointingly low. No maxes were recorded, although a few people managed a flight of sufficient length, then failed to land within the 'box', thus nullifying their efforts. Many of the models were lightweight jobs, which were not very suitable for the prevailing conditions, lacking the necessary penetration.

Mainstays of the organisation, Messrs. Dallimer and Dyer, managed to find the time to compete in the multi section, with varying degrees of success. Geoff was right out of luck, missing the box on both attempts in the first round, and suffering from equipment trouble in the second. Dave fared better, plac-

Tail-less devotee Pete Lang, produced this lightweight design for single channel. Uses piano wire turbulators on the leading edge.

John Dumble prepares to release his Hang Up design, featuring all moving tail-plane and pylon mounted wing.

Bungee user George Bushell uses high mounted tail, with a very narrow fuselage rear-end to reduce rear side area.

Left: Hello, the highest glider's cheating - there's a pilot inside! Paul Thorn's *Silent Knight* keeps a full-size machine company in a patch of lift. Above, Geoff Dallimer prepares to launch his *Thermal Rider* - but was destined for bad luck.

ing fourth with his huge *Magnus Tri*. This twelve-foot span model caused handling difficulties on the ground, and it never really got the opportunity to show its full potential.

J. Franco set the pace in the first round, his model landing (just!) within the box after 5:15, to put him way in front of the opposition, but he was unlucky to record a poor 2:02 in the second round, allowing C. P. Williams to win due to greater consistency. Williams found much of his lift almost directly over the landing area, with his lightweight (7 oz./sq. ft.) model, utilising a slope-soarer fuselage with extra-area wings.

The single channel class suffered badly from the wind, and only three of the eight entrants recorded times - and none returned a 'full set' of three times. Winner Neil Webb (F.A.C.C.T.) flew his large, parasol-winged, long moment arm model, recording a total of 4:45. Peter Lang again flew a tail-less design, this time using a built-up Jedelsky structure - weighing 20 oz., but it was not as successful as his similar, slope-soaring, variant.

RESULTS:

Multi (23 entries)

1. C. P. Williams (Richmond)	3:11	4:38	3:55 = 11:44
2. J. J. Franco	5:15	2:02	3:57 = 11:14
3. D. J. Dyer (Stevenage)	2:44	3:47	4:38 = 11:09

Single Channel (8 entries)

1. N. Webb (FACCT)	0:00	1:57	2:48 = 4:45
2. P. Lang (Eastbourne)	1:26	1:42	0:00 = 3:08
3. R. L. Bailey (St. Albans)	2:20	0:00	0:00 = 2:20



Topical Twists

by Pylonius, illustrated by 'Sherry'

★ ★ ★

One for All

The number of big names we have in the model sport at any one time is never very considerable. Over the years balsa may have become a household word, but ask that man in the street—who would rattle off the cup tie winners since 1895—the winner of the Wakefield Cup in 1969 and he would probably say that he didn't know since he uses Duckhams himself. Come to that you could put the self same question to the man on the flying field, although you're not likely to get a much more knowledgeable response there. He'd probably reply that he didn't know off hand but was sure he'd seen something about the chappie somewhere and remembered what nice coloured knees he had.

Back in the old days when model planes were designed by individuals rather than by consensus there were always a few names that were held in reverence, and spoken of in awe whenever talk got round to thermals and the select few who rode them. It was largely a question of knowhow. Before the expert was prepared to impart his secret to the masses he made sure he enjoyed a long and illustrious career bathed in whatever goes for limelight on the model flying field. But, then, of course, his models were so individually different, and his super contest winner would be a familiar sight on the contest field long before the design got into the pages of the model mags. Now all is different. The measurable variation between one model and the next is so slight that, to the uninitiated, they are even more alike than chinamen. And, as for getting into print, the new design, which is bafflingly similar to the old one, gets on to the magazine page long before it is ever built. In fact, after seeing it published, the designer might decide the earlier model was simpler and more practical, and Mark Two might never come into being at all.

All this seems to operate against the emergence of the talented individual, and so it suffices for us today to have a sort of package deal in which most departments of the sport: contesting, displaying, writing and organising, is done by one individual. And a single name like O. Doall is easier to remember than a tiresome list of variously gifted celebrities.

Wealth of Detail

While in other departments of life do-it-yourself is all the rage, the model flyer of today seems to have little taste for cut out capers on the kitchen table. Only the other day I saw in a shop window a complete, ready to fly, radio model. All that was needed to get airborne was the adventurous flourish of a cheque book. Then again, I noticed an advert in a model bulletin for fully engineered front assemblies for Wakefields. Such ready to fit devices naturally take much of the grief out of homespun manufacturing, however frantic the poorer modeller might get over what he believes to be a dubious interpretation of the rules.



'He says it flew straight off the drawing board.'

Neither must we forget all those other clever but expensive items like engine pans, polystyrene wings, clockwork timers etc., which make of aeromodelling less of a build it yourself hobby than a shopping romp. In fact, a fat cheque book and a comprehensive shopping guide would give you more of a fighting chance in the World Champ Stakes than high grade craftsmanship and a flair for aeronautics.

Just to clinch things for the affluent classes we read of a model contest where the entry fee was a bountiful ten quid. Ultimately we can expect the rigorous exclusion from contest flying of all those modellers living below the poverty line either through inadequacy of income or strong wifely restraint. After all, it does lower the tone somewhat to have the underprivileged milling around the select, private flying fields with their crude wire prop shafts and grubby D/T wicks. Possibly it will not be too far in the future when we will be met with this headline in the daily press:

'Oil Millionaire Model Aeroplane Flyer Wins International Trophy'

What will not be mentioned is the fact that the millionaire had set up his own research laboratory in order to produce an entirely revolutionary type of rubber strip, three times more powerful than the commercial stuff. And, of course, exclusive to his own house. In addition there would be the special frictionless prop bearing, whilst launching would be undertaken by proxy, using a specially hired javelin throwing champion.

Taken as Red

One thing we have to be thankful for these days is the way the satellite has taken over from the model plane in the world prestige stakes. At one time the aspiring new power sought to prove itself to the world by flexing its sinews on the model flying field. Ten world records on the model list was worth any number of new dams and power stations, even though the advent of the D/T has reduced most records to historic curiosities.

Perhaps the true reason for the change of emphasis is one of rising costs. It gets costlier and costlier to get anything rising, and perhaps it was easier to keep the East out of the Red by sending up a satellite than to start to import expensive modelling material.



Superb circles at Montpellier and elevated control tower make a first-class contender for any future World Championships.

CHAMPIONSHIPS —FRENCH STYLE

A visit to Montpellier reveals superb new control-line site and good modelling standards

A KIND INVITATION from the *Federation Francaise d'Aeromodelisme* asked if we would like to join the group leaving Paris by Nord N.262 for Montpellier at 6 a.m. on 30th May. Who could refuse? Only four long working days after the successful Nats at RAF Hullavington, this opportunity to compare 'ours' and 'theirs' was too good to miss.

The FFAM is the equivalent of the SMAE, except that as an official department responsible to some degree for aeromodelling and air education it has a permanent staff and office close to the Champs Elysee in the fashionable section of the city. It is able to make use of the *Service de la*



R/C aerobatic 'Motoplaneurs'—left; the French Champion Jean Rousseau, he obviously believes in aileron power—and below, Robert Lestourneaud releases his new kit design 'Fantasque'—one of the most elegant (and strongest) models it has been our pleasure to see.





Formation Aeronautique (SFA) which in return offers air transport for officials in its prop-jet Nord N262, twenty-six seater. These transport flights are part of a training programme and our particular flight was crewed by instructors. We were on our way to the Radio Control and Scale Championships at Montpellier, which was available to the FFAM as a SFA training base.

Running a Championships 'down there' is akin to placing the Scottish Nats at Culdrose in Cornwall. Average journey for participants from the north was 500 miles, so we were indeed fortunate to cruise down in comfort by air, and to see the blue Mediterranean by 'normal' breakfast-time. Arrival was greeted by Jean Ganier the Délégué General of the FFAM and with commendable efficiency, the numerous Judges were briefed on their obligations and ready for duty within the hour.

The contests were for Radio control motor gliders in the Houlberg class, and single control and full multi; plus Class 1 and Class 2 aerobatics and scale R/C and C/L. On the first day, the three glider events were efficiently despatched with reigning champion Jean Rousseau demonstrating his superior experience of this kind of model. Since the entry is by qualification through one's performance over the past year, and only the best then become eligible, the Judges had a small but high standard group to deal with.

Greatest interest centred on the aerobatic 'motoplaneurs' where 2.5 c.c. power is allowed with a 2½ minute engine run to gain altitude before the model descends via a full schedule to its spot landing. The event possesses great challenge. One has to match climb trim with aerobatic capability and to produce a very strong yet light structure. Robert Lestournaud's 'Fantasque' heralds a new approach with its near-scale appearance and use of metal and plastics. This is the first kit we've heard of for an aerobatic motoplaneur and it should sell as well as it looks. Metal spars for positive or negative load wing straining manoeuvres, plastic fuselage parts, tips and fairings plus a cowl for a Super Tigre G-15 will popularise a type that deserves attention.

Class 1 aerobatics is for the non-expert multi-flyers and is a practical approach to elevating National Standards. We have more to say about it in our companion magazine R.C.M. & E. Suffice it to note here that the leading non-experts appeared to be as good as World Championship entrants in 1969! The day terminated with R/C Scale, also

Seeing is believing - the Boeing 747 on continuous touch-and-go training only a short distance from the site of the French R/C and Scale Champs. at Montpellier - Frejorgues. Pierre Marrot's Fairchild PT 19, in foreground makes the 747 look like a model!

the team trials for Cranfield.

Only three flew - and Marrot placed top with a PT-19 he did not make, so is not in the team. This left Lestournaud with his Jodel 'Abeille' in 2nd and Max Valette 3rd flying a PT-17. All three were well flown.

After an overnight stay in one of Montpellier's many hotels, we saw the control line scale trials next morning at the Richter stadium on the way to Frejorgues airport. The French have an excellent, well qualified C/L Scale team, of Matter (DH 89 Rapide), Billon (Stampe SV4) and Faix (Breguet Alizé). They qualified on one of the two new circuits which are the best we have ever seen and which must surely be the finest in all Europe. With an enlightened Municipality, ideal facilities and a Mediterranean setting, Montpellier must surely be a site for a future World Champs in Control Line.

Each circle is almost 200 ft. diameter across the plastic coated safety mesh and the surface is black top with non-slip concrete at the centre where loudspeakers are buried below ground to warn pilots. There is adequate pit area within the barriers and in the adjacent sports stadium a vast grass centre makes an ideal site for aerobatics or combat events. One must congratulate those responsible for their enterprise. Montpellier is in the rapidly developing 'new' Mediterranean holiday zone and such facilities will naturally bring attention to the area.

Throughout the second day, 17 expert class multi-aerobatic entrants vied for the Championship but they could not take it from Pierre Marrot and his new variant of the 'Stryx'. No silencers were needed and the noise had to be

Scale beauties, left, Jacques Matter's DH.89a 'Rapide' in Automobile Association black and yellow. Centre is Robert Lestournaud's Jodel 'Abeille' R/C Model with typical French Hangar background. Right is Pierre Marrot's Fairchild PT.19 on a low pass.





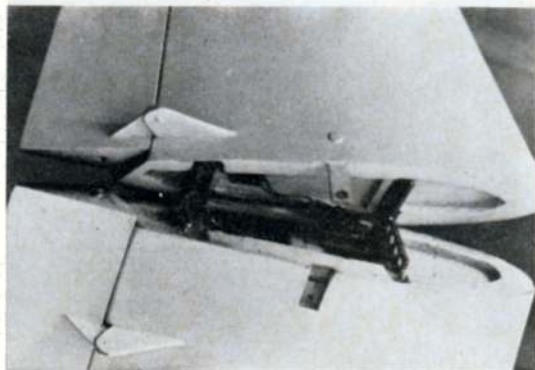
Above: the Nord N.262 of S.F.A. being invaded at 6 a.m. Left, top to bottom: Jacques Matter's D.H.89a 'Rapide' is 1/10th Scale, has two OS 15's and weighs 7½ lb. Next picture shows its underside hatch removed to reveal the 9v. system operating flaps and throttles via handle in third picture - complex eh? Fourth picture is of Claude Faix' Breguet 'Alize' airborne with radar extended and gear retracted. Pity about that exposed Rossi 60. Scale is 1/11th and weight 10 lb. Next is Max Valette's PT.17 R/C model taking off and at bottom, the Stampe SV4 by Gerard Billon with tail up ready to leave the Montpellier circuit.

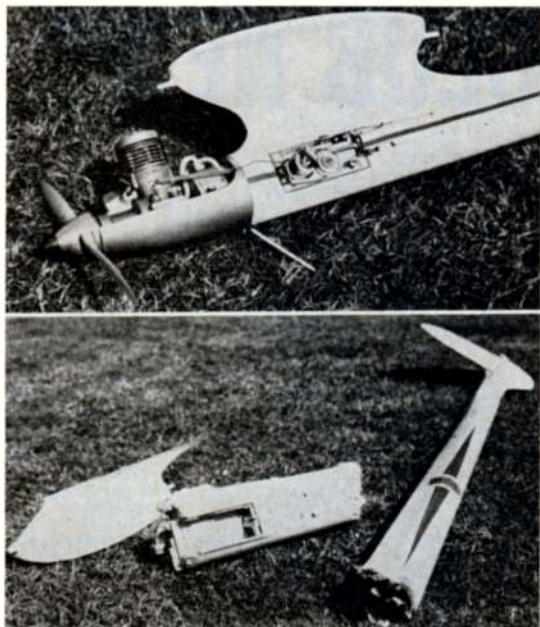
experienced to be believed. Those Rossi 60s with exhaust manifolds are the most provoking power units we've heard since the days of the Yulon 49. Speed and precision were the keynote of this Championships. Fast models and clean manoeuvres left one with an impression of an overall standard which is higher than that here.

And so to the final of four excellent communal meals, after presentation of trophies and distribution of the Vin d'honneur to all and sundry. President Moretti of the F.F.A.M. thanked the Airport Commandant, the Mayor of Montpellier, the Commandant of the Air Force at the base, (all present) and those who had helped, especially one M. Tardy, the local Chief Officer of S.F.A. who made all possible. The two who set the seal on the organisation were Jean Ganier, down from Paris as C.D. and Rene Acquier, head of the local model group de l'Herault at Montpellier. Rene is obviously the wheel behind the show.

As we filed back in darkness to the N.262, led by a student band which included God Save the Queen in its raucous repertoire, we reflected that we had witnessed a tremendous contrast within 7 days. It was a case of State Aid for an invited entry Nats where everyone is closely grouped in a family atmosphere against the private enterprise, open entry, minimum social contact Nats we run in Britain. Each has its merits - *Vive la difference!*

The Breguet Alize by Claude Faix has wings which fold for transport and bolt into flight position. It also has retractable landing gear, operated electrically and extending radar dome plus opening weapons bay.





Vandalism

Dear Sir,

The two enclosed photos show what happened to my F.A.I. Power Model at the Nats.

The model was found on top of one of the hangars minus engine, pan, prop, fuel system and Seelig timer.

If only we free flight modellers would organise ourselves downwind! To clinch my misfortune, this happened after obtaining three maxes and not getting back in time to organise my second model.

Roy Collins

Romford, Essex.

Prizes

Dear Sir,

I am surprised at the comment by John O'Donnell in your Nationals report, comparing a prizegiving for Vintage, but not for other events. I remember a Nationals at Barkston Heath where, at the instigation of Mr. O'Donnell's Area, the Council decided to award both certificates and prizes on the day, the idea being widely publicised.

As Records Officer at that time, I spent many hours in a tent typing certificates etc., as the results were available; the C.O. was on hand to

present the awards, but less than 15 per cent of the winners were there, including Mr. O'Donnell. In other words it was a dismal fiasco. Subsequently I have attended many rallies where prizes were presented at the end of the flying, but unless this is relatively early before the spectators and competitors begin to disperse, it does tend to be an anti-climax, and this at events where no-one is searching for lost models.

The inference that, as cash prizes are no longer awarded, S.M.A.E. members receive nothing, is untrue. Plaques engraved with the winner's name are awarded at the end of the season. It seemed, therefore, in comparing the S.M.A.E. and 'private' vintage events, that Mr. O'Donnell is only complaining that he will not receive money from the S.M.A.E. as well as his plaques.

N. J. Butcher
F.S.M.A.E.

Hayes, Middlesex.

Mouse Racing

Dear Sir,

I thought you might be interested to hear of my experiences in the Mouse Racing event at this year's 'Nats',

Readers' Letters

on the

'NATS'

when I was expelled from the final by virtue of not having an *expensive enough* engine!

Last year I built a profile model based on a half-scale model of a Class B rat-racer we were flying at the time. This model, powered by a standard Cox Golden Bee won the Class II event for me.

For this year's event I built a cleaned-up version of the model with box fuselage and internal controls etc. I used the same motor but this time with a few mods - mainly new piston-cylinder assembly.

I had pre-entered the Class II event and when I flew, made a time of 3:13, which at that stage of the contest was the fastest time of the whole Class I and Class II entry. I subsequently won the Class II final with a time of 7:50 despite 5 instead of the mandatory 2 pit stops (traced to a vibrating needle valve causing cutting at take-off).

Since the model was going so well, I asked the organiser if I could enter it in the open Class I event, to which they replied 'yes, if you think it's that good'. When I flew in the heats I set up the fastest time of the Class I entry with 3:02, beating all the Cox Tee-Dees with my Golden Bee. The crowd at this point had realised I was only using Class II equipment and cheered every time I overtook a T-D, booing when they overtook me! The atmosphere and interest shown was really outstanding. I suppose being the underdog everyone was rooting for me as the crowd was mostly concentrated around my pit.

Anyway, having f.t.d. I was asked to fly in the final. Just as this was to start one of the finalists pointed out to the organisers that the rules stated that Class I was not open as everyone had thought, but for motors costing £4 and over only. Everyone else there, including the two other finalists thought this highly ridiculous and wanted to fly against me, but the organisers were swayed and I was asked to remove my model from the circle, despite having been fully accepted for the heats. Surely, in the present trend of 'the one with most money to spend, wins', this is the classic case. I'm sure 'Pylonius' could think of words to say on rules that state in black and white that you have to pay a minimum of 'X' pounds for an expensive racing motor before you are allowed to compete!

C. T. Coote

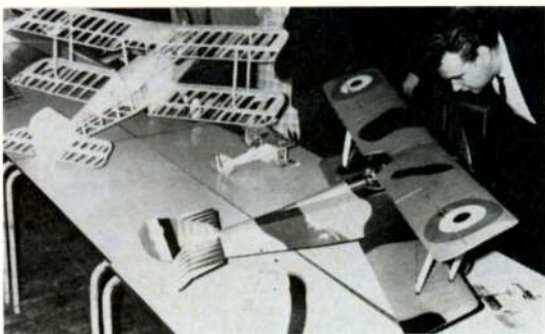
Harfield Bristol.

HAWK GLIDER (continued from page 429)

and even building materials were now up to the plastic stage. The choice of design is always proportional to your pocket when you consider the project as single-handed, so I settled for a machine made from spruce and plywood, and with a span of 42 ft. I visualised a machine that would be aerotowed and capable of aerobatics, in fact, an ordinary Club machine. I have always been fascinated with birds, particularly the *Hawk*, hence my choosing the name for my new machine. I carried on the design work in my spare time, getting the stressing done by a professional. As I progressed, I was able to arrange for a hut at Fair Oaks Aerodrome to be available for the actual building which I took over in February 1968. Thanks for this are due to Mr. Norman Jones, a great

benefactor in the light aircraft field. I was able to get my timber supplies in 1967, and all machining on this was completed in that year. I commenced actual construction in February 1968 and after 2,600 hours of sweat and toil, completed the machine at the end of June 1969. All the fittings that did not require welding were made of stainless steel.

In the early days of gliding most machines were simply varnished and the fabric clear doped; the total effect was most pleasing, so this is the finish scheme of the *Hawk*. Against present-day aircraft where paint finishes prevail, the distinction is quite startling. Up to the time of writing the machine has not yet flown; I am hoping to find a buyer for it, and look forward to the day when I see it flying around like my *Wrens* of yesteryear.



CLUB NEWS

Model exhibitions are the simplest and most effective form of external publicity a club can arrange. When the display included impressive scale models like these at the Luton D.M.A.S. show, the attraction is further enhanced.

AFTER a discouraging start to the season, with reports coming in of wind, rain and sub standard temperatures, our flying fields have taken on a more inviting air as we move from a dubious spring into a pleasant summer. My only regret is to see these flying fields so depressingly devoid of model life. What on earth has happened to the Sunday sport flyer? Venues which, at one time, would have been crowded with model flyers on any sub-tempest summer Sunday do not now seem to tempt out a single modeller, not even to fly popular Radio. Ah, well.

Since the **Lone Stars Model Club** is located in the heart of lonely Shropshire it is unlikely to have any of the Wild West connections the title might suggest. I should imagine the more likely answer is that the group is an amalgam of individual practitioners in the district who are busily welding themselves into an effective model club. At least the report to hand from Mr. T. Beaston, the Club Sec., seems to indicate a very active future for the club, with plans afoot to go competitive next year. Already some formidable craft are rolling off the stocks, including two *Handley Page Hannibals* from Mr. Beaston's own workshop; one *Hannibal Control Line* and the other *Radio*. (What a feat it would be to fly them simultaneously!) There is also mention of a *C/L Shackleton*, an *R/C Sopwith Pup* and a *Wallis WA-116 Agile*. An interesting aspect of the *C/L Scale* approach is that most jobs are converted *F/F* and *R/C* designs. This certainly opens out the possible range, although I should have thought that the strictly *C/L* design allowed for greater Scale fidelity, e.g. less dihedral, smaller fin and tailplane. Even so, we are told that the *R/C* aerobatic *Mustfire* has converted most successfully to *C/L Stunt*. Such a spectacular agglomeration of models suggests displays, and we are not surprised to learn that the club is enthusiastically committed to this purpose during the summer months.

Reference in *The Message*, the **North West Area** bulletin, of a remarkable turn out in the April Area Chuck Glider event. No frivolous interlude between bouts of big model flying here, but up to sixteen muscle boys using up all the best air in a dedicated effort to hang a chuckie on a thermal. Techniques are improving all the time. In fact, out California way the beefier bangers have been known to pitch 'em higher than an *A/2* launch. Although Barry Kershaw, the winner of the Area event—whom, we are told, is built strictly to F.A.I. weight loading—must have come mighty close to that sort of high altitudinising. Hard news from the contest front is that Woodford will definitely be available for the August Bank Holiday week-end Sunday.

A club that can stage quite an 'Oliver' spectacular is the **South Bristol M.A.C.** Stung into response by a reference in the April Club News to the Maidenhead Club's stock of eighteen *Olivers* held by a twelve-strong display team, the South Bristol boys lay claim to no less than 22 *Olives* spread over a mere seven members. Five of these prized units keep Dave Smith in good Combat fettle—he came third in the Coggeshall Rally. And just by way of variation on the Oliver theme, a number of E.T.A.'s are being put into service in a flight of F.A.I. Racers. We are advised to look out for the South Bristol name at future events.

Mooted at the **East Anglian Area Meeting** was the possibility of a telly commercial to boost the delights of organised model flying. Whoever had the flash of inspiration, however, was soon to learn what a flash it was, for to buy seven short seconds of time betwixt Ena Sharples and the Cornflake family would cost all of £20. And just think of the confusion as people rush out to buy their free gift model aeroplane cornflake packet. But from soaring prices to Soaring Radio. Growing interest in this new branch of the hobby is evidenced in the Area allotting the Joan Hooper Trophy to it. But how do these contests work out in practice? Very satisfactory from what I saw at the May St. Albans event. In spite of a stiffish breeze, the flying was well contained within the rather small field, with very

few models running out of ground space from the 495 ft. tow. My only disappointment, a mild one, lay in the fact that thermal soaring is not conducted in a series of graceful circles but in a permanent nose into wind posture.

From Yorkshire we have news of a club new to our lists: the **Morley & D.M.A.C.** Mr. R. Ashby, who is styled the Flying Secretary (trust there is no Flying Treasurer!), tells us that the club is thirty strong, and although there is an all round interest, *C/L* is the main preoccupation. Club flying field is on Driglington Common, where members foregather on any flyable Sunday afternoon. New members welcome. Please contact Mr. Ashby at 10 Belvedere Road, Mt. Pleasant, Batley, Yorks.

An item in the **South Eastern Area's Seadog** illustrates the sort of hysteria that a few alarmists can whip up over the supposed noise and danger of model planes. The Telcombe Parish Council were panicked into believing that not only were the monster, six-foot models a menace to life and limb, but presented a very real hazard to the helicopters that frequently passed low over the town. It was left to a spokesman from the Thorney Island Helicopter Station to put the whole thing in a rational perspective by saying that the model planes were accepted as a minor hazard along with kites and other aerial intruders. And to dampen the alarmist stories still more a local woman resident pooh poohed the sensationalism in a letter to a newspaper. She saw the model flying as a centre of local interest and a salutary use of leisure time as opposed to the usual aimless pursuits of our age. We could not agree with the good lady more! That off-beat Seaplane contest which the Brighton club have valiantly nurtured over the years is on again this year, we are pleased to note. But why limited to Area members only? I should have thought that such a specialised event would call for the casting of a wide net; although, at the same time, I should not like to see the contest won by an opportunist with a rigged up pair of floats.

The quickness of the action deceives the television camera—or at least baffles it. That is the story from the **Bristol Phoenix M.A.C.**, who had the Harlech T.V. camera team along to the club's annual display. Members are now keeping vigil over the goggle boxes to see what the telly team made of these cavortings, but have been unrewarded to date, but they do know that the Combat was too fast and furious for the camera to follow. And its not only the telly cameras that have failed to catch the Phoenix combat models. Old rivals, **Bristol (South)**, have been getting something of a run around from Bob Harwood. He got into the two finals, took a second place, and hopes to make a first of it next time.

The club is proud to announce that member Mr. C. R. Hart won the 3rd Halifax International Tailless. As well as being overall winner he was also top novice. Mr. Hart, incidentally, is the club's Free Flight chairman.

The club insignia of the **Bristol Phoenix M.F.C.** does not depict the dicky bird with the scorched tail feathers that you might expect from the club title but a broad black arrow pointing skywards. Ah, you say, a grim warning to observe one-way traffic, but not so, for the report tells us the insignia is symbolic of reincarnation, the direction of flight to which we aspire etc. As a point of interest, club historians have discovered that the name of Phoenix was not new to the district as there was a club with the bird that squawked 'ouch' as its symbol before the war. Anyway, the present club is going great guns, with a strong Stunt/Combat section and an expanding *R/C* interest. Mr. D. J. Coffin, the P.R.O., who has sent along a drawing of the new crest, is hopeful of the club getting way up on the contest lists this season.

The **Leicester M.A.C.** bulletin has good news to report on the flying field front. A further extension has been obtained for Wymeswold, thus making the field once again available for model flyers in that part of the Midlands. Encouraging,

CONTEST CALENDAR

- July 26th **SOUTH COAST R/C RALLY.** S/C Spot Landing (10 a.m.), Biplane/Form 1 pylon race (11 a.m.), Spins, Scale, Balloon Bursting, Demos, at Golden Cross, Sussex.
- July 26th **STOCKPORT COMBAT RALLY.** Mainstream Trophy plus £10 cash. Details: D. C. Clarkson, 14 Taplow Grove, Cheadle Hulme, Cheshire.
- July 26th **SOUTHAMPTON M.A.C.'s F/F GALA.** Open R/G/P, A/1, C d'H at Beaulieu Airfield.
- August 2nd **COTSWOLD R/C SOC. RALLY.** F.A.I., Open, Formulae 1 & Scale Pylon Racing, R/C Scale at R.A.F. Hullavington, Wiltshire.
- August 2nd **BUCKANEERS C/L STUNT COMP.** at Finmere, Nr. Buckingham. Details: S. Blake, 152 Farley Hill, Luton, Beds.
- August 2nd **HAYES F.A.I. GALA.** R/G/P - 7 flights, 10 a.m. at Chobham Common.
- August 8th/9th **SOUTHERN R/C M.F.C. RALLY.** Formulae 1 & F.A.I. Pylon Race, S.M.A.E. Centralised Multi Aerobatics, Novelty Events, at Leigh-on-Sea, Essex.
- August 9th **S.M.A.E. AREA CENTRALISED MEETING.** Team Power, F.A.I. Rubber, A/1 glider. Area venues.
- August 9th **S. MIDLAND AREA C/L RAT RACE & GOODYEAR MEET** at Turweston Airfield (off A.43) Brackley-Northampton road.
- August 16th **SCUNTHORPE M.A.C.'s COMBAT RALLY.** A & B Combat. Trophies and cash prizes. Refreshments. Pre-entry 3/6 to S. French, 9 William Street, Scunthorpe, Lincs. Venue: Central Park, Kingsway, Scunthorpe.
- August 16th **S.M.A.E. ALL SCALE MEETING** at R.A.F. Little Rissington. F/F, C/L, R/C.
- August 16th **S.V.A.S. SCALE RALLY.** Old Warden, Beds.
- August 23rd **FLYING DRUIDS RALLY.** F.A.I. Multi R/C at R.A.F. Middle Wallop, Amesbury, Wilts.
- August 23rd **BRISTOL PHOENIX M.F.C. COMBAT RALLY.** Whitchurch Airfield, Bristol. Trophy and prizes, 11 a.m. start.
- August 30th **WOODFORD RALLY.** Open R/G/P, 1/4 A Power, F/F Scale, Chuck Glider, F.A.I. T/R, C/L Goodyear, Combat, C/L Stunt, Handicap Speed, C/L Scale, R/C Free Style Aerobatics, R/C 'Eyeball' Scale. No entry fees. Woodford Aerodrome, Bramhall, Cheshire.
- Aug. 31-Sept. 4 **MANX M.A.C. 'SOAR IN'.** Details from J. Martin, Trade Winds, Mount Gawne Road, Port St. Mary, I.O.M.
- September 6th **NORTHERN GALA.** Open R/G/P, 1/4 AT/R, F.A.I.T./R, B T/R.
- September 13th **SOUTH COAST GALA.** F/F, C/L, R/C. Venue to be announced.
- September 13th **S.M.A.E. AREA CENTRALISED MEETING.** Team Rubber, F.A.I. glider, 1/4 A Power. Area venues.
- September 13th **ALL SCALE RALLY** at Middle Wallop. 10.30 a.m. Start.
- September 20th **SOUTH MIDLAND AREA RALLY.** R/C C/L and F/F at Cranfield, Bedfordshire. R/C Pre entry. Scale to R. Edmonds, 16 Telford Way, High Wycombe, Bucks. (Blue and Brown freq. only.) Multi and single surface to D. Giles, 'Derron', Station Road, Bow Brickhill, Bletchley, Bucks. (R, O, Y, G frequencies only.) Entry fee 5/-.
- September 20th **1st R/C TRIALS** at R.A.F. North Luffenham, Rutland.
- September 27th **TOWNER TROPHY THERMAL SOARING RALLY** at Golden Cross.
- September 27th **S.M.A.E. CENTRALISED MEETING.** Trials for 1971 Criterium of Aces.
- October 3rd/4th **S.M.A.E. SECOND TEAM TRIALS.** F.A.I. R/G/P, at R.A.F. Syerston.
- October 4th **SECOND R/C TEAM TRIALS.**
- October 4th **HARPOLE SECOND ANNUAL C/L STUNT COMP.** The contest with the built-in lunch! Details: I. Peacock, 41 Carrs Way, Harpole, Northants.
- October 4th **INTERNATIONAL POSTAL 1,000 LAP F.A.I. T/R EVENT.** Details D. Heaton, 41 Cedar Avenue, Sutton Weaver, Via Warrington, Lancs.
- October 11th **CONGLETON GALA.** Open R/G/P, Chuck Glider, and C/L Stunt. No pre-entry. S.M.A.E. members only. Details D. Allman, 2 Brooklands Road, Congleton, Cheshire. Venue, R.A.F. Chetwynd, Nr. Newport, Salop.

too, the report on the club's showing at the Leisure 70 Exhibition. The club display was the best ever, and there was a welcome boost to club funds from the sale of kits and the proceeds of a raffle. Recognition of the club's efforts to put aeromodelling on the local map comes with the appointment of Mr. J. Marsh as Aeromodelling Representative to the City of Leicester Sports and Recreational Advisory Council.

Goodness knows what has happened to all that much vaunted Riviera-style Cornish weather. *Droque*, the newsletter covering model activities in that corner of the world, gives a sorry recital of event after event cancelled because of impossible conditions. Skies should be calmer and clearer by now, though, and we trust the next newsletter will have livelier things to report. A few words included on the Plymouth R/C Flying Club. The club has gained impetus over the last few years as better and simpler radio equipment has become available. Plenty of impressive machines doing their stuff over the club field, which, incidentally, is given as a Winter only amenity, being farmland available to the club when not under cultivation.

Not much news to report from the Watford Wayfarers, apart from the fact that the Treasurer has gone down with mumps; and, like that grass cutting Radio model, a quick recovery is looked for.

Sending along a copy of the first newsletter of the Rotherham & D.M.A.C., Mr. E. Newton, the club P.R.O., informs us that, thanks to an energetic and enterprising committee, membership has been raised from a modest twenty to a booming seventy. Main interest outside the club fastnesses is in giving public displays. These consist of a mixed bag of C/L and R/C Stunt and Formation flying. Further evidence of organisational effort comes the nicely varied programme of club contests, covering, among other things, Speed, Open Glider, Combat and Rat Racing. There is also mention of a Chuck Glider League, and not to be left out of it, the R/C boys are still working on their contribution to the contest scene. Lastly, fiction or fact? The following advert appeared in the newsletter: 'Len's Models. Have a model built by an expert (my wings don't fold). All classes built, etc.'

If I tell you that I am about to start drilling operations into the *Squawk Sheet* of the Oily Birds of the Port Arthur R/C Club, you may or may not have guessed that I am looking for some usable comment from a newsletter coming from deep in the heart of Texas. Now, the only shots of Texas I've seen give the impression of an impenetrable forest of drilling hoists, ten gallon hats and belching stogies, but there is, apparently, the odd untapped, uncluttered patch from whence to get a Radio job into the vaporous air. Serious item in the newsletter that caught my eye suggests that there is widespread dissatisfaction with the shoddy treatment and poor service that modellers get from manufacturers and the trade generally. Trouble is, goes the American complaint, only the newsletters raise any protest; the official magazines being too dependent on advert revenue to speak up on the modeller's behalf.

Derek Walton, the re-elected Secretary of the Stenage Model Aviation and Marine Society, writes to inform us that meetings are held every first and third Wednesday of each month at the Meeting Room, Stenage Swimming Pool. New or prospective members are always welcome as, too, are any visitors from other clubs. Good internal contest system, covering all classes, with cups and prizes awarded on an overall annual points system. Mostly club nights have some entertainment to offer, although the Junk Night is not a model boat orgy but a bring and buy foray.

From *Satellite*, newsletter of the Californian San Valeers, we have news of a change of heart in the American way of handing out the hardware. Those magnificent, skyscraping trophies are on the way out, mainly due to rising costs, but also to a surfeit of same in every modelling home. In their place will come good old-fashioned gongs, fully engraved and ribbon suspended, thus to take the strain off the sideboards and put it on the neck muscles.

Sin, the newsletter of New Zealand's South Island, is very much a contest modellers affair, and would seem to cover the scene in laudable depth. Question asked in the editorial is just how important is the winning of a contest, and how do we differentiate between fair means and foul? Lots of model flyers disdain to employ thermal taming tactics or to use special detection devices, largely because they feel that winning a contest is not worth that sort of dubious effort, and also because such specialist devices

October 11th **NORTHAMPTON M.A.C. COMBAT RALLY** at Mid Summer Meadow, Northants. Pre-entry 3/6d. (Field 5/-) to C. Butlin, 190 St. James Park Road, Northampton, NN5 5EV.

October 11th **TORBAY RALLY.** Open R/G/P. All-in F.A.I. (5 flights) for Torbay Trophy. Chuck Glider. Unlimited re-entry at Woodbury Common, Nr. Exmouth.

are usually available only to the privileged few. Personally, I think that tactics and devices add spice to the contest scene, but I would not like it to lose its democratic flavour. Reminding us, however, that tactics are less important than technique, Ron Magill, writes of his British Open Rubber 'training'. He acknowledges with admiration the ability of most British Open models to max out on the three-threes to reach the all important fly-off. Concerning incidents at the 1970 Waikato Champs stress is laid on the need for keeping F/F and Radio geographically well separated at the big jamborees, though, surely separate meetings are the sensible answer.

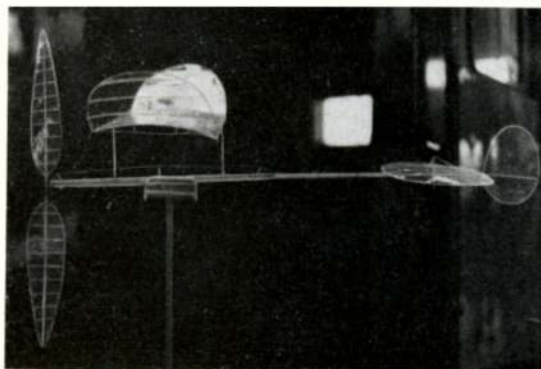
Tireless writers, these New Zealanders. Yet another well-subscribed magazine to hand, 'Torque', the bulletin of the Christchurch M.A.C. It opens with a social plug for model flying . . . what with strikes, wars, rising prices, long hair, drugs, etc., it is wonderful to get to the flying field and forget your worries . . . But that's just where my worries start!

It is to be expected that Scale models are built more for eye appeal than sky appeal, and for some perverse reason there is always a lot of de-beautifying wind about when the Scale charmers come to make those qualifying flights. This was very much the case at the Northern Ireland Scale Championships, reported in *Nitro*, the newsletter of the Belfast M.F.C., where a number of models, particularly the F/F ones, came to grief in the high wind. There are certain high fidelity Scale models which would not normally be flown in anything but ideal conditions, and it does seem hard to subject such models to rugged qualifying flights. But that's comp. business! Perfect weather, however, for the 1970 Bishops court Gala. Good flying in the A/2 event, with Colin Doyle on really good form with a full house of five maxes. L. Murtagh also did some very consistent flying to finish second. Jim Adams won Open Rubber with three cool maxes, in spite of reports of models chewed by cows. He also took Open Power even though he ruined his first flight.

Mr. A. Priddey, Hon. Sec. of the Bolton M.A.C., writes to tell us that the ever extending built-up area has reduced model flying mainly to control line. However, plenty of provision for this activity on the football pitches is available. The flying ground plus the Monday night use of a clubroom comes for a modest £30 per annum from the Bolton Lads Club.

And that's about our coverage for this month.

The Clubman.



INDOOR FLYING MEETING AT CARDINGTON AIRSHIP SHED - JUNE 7th

TO THE UNINITIATED it probably seems crazy to fly indoors when the temperature is in the eighties, but with a gale blowing outside what better way to continue flying and stay comparatively cool!!

Everything but a brass band was laid on to welcome us back to what must be considered the best indoor site in the world. Lunch was provided for those that did not have their own, and the ladies present were taken on a conducted tour and shown the workings of the meteorological balloons. The airship museum was left open for us and one could spend more time than was available studying the exhibits, the old photographs of the ill-fated R.101 being of particular interest.

Some 15 fliers attended, numbers being low due to exams, holidays and short notice. Despite the leisurely pace and high times, more flights were made per head than would be possible under normal outdoor conditions. Much time was spent chatting and gaining useful information, in fact, one of the biggest differences with this type of flying is that one does have the time to stop and help one's fellows along. Conditions were not perfect in that there was just a little too much drift for really long flights, but both Ron Draper and Laurie Barr managed flights of over 20 minutes, Ron flying a six-year-old 'heavyweight' 90 cm. model and Laurie a new 65 cm. F.A.I. 'bird'. 15-year-old Martin Shepherd put up a very creditable performance with his smaller models, showing some of his elders that at least they were not his betters.

Confirmed dates for future meeting at Cardington are 5th and 26th July, 16th August and 27th September. Manny Radoff from the U.S.A., who regularly flies at Lakehurst, will be coming over with his models to fly at the 26th July meeting. Permits, which are required this year, are available from Stan Wade, on receipt of a S.A.E., at 39 Beacon Drive, Loughborough, Leicestershire. Details required are full names, date of birth and nationality.

Left, Ron Draper's six year old 90cm. model in its 'run down stand'. Did over 20 min. straight out of the attic. Note 'picket fence' bracing on the wings. At right, Laurie Barr with his new 65cm. model which broke the 20 min. barrier. Based on Richmond's world record holding design published in the Aero Modeller Annual. Shapes in the background are meteorological balloons stored in hanger.



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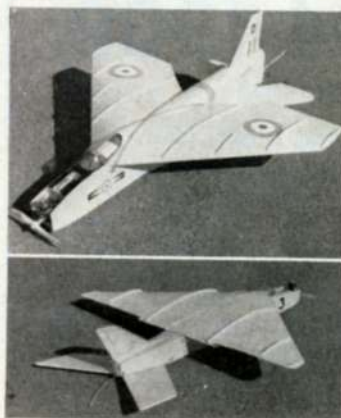
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AUGUST R.C.M.&E. carries a full, detailed report on the British National Championships, held at R.A.F. Hullavington, Wilts, May 24/25. As a follow-up to our stop-press report in July edition, we will be covering all R/C events - Scale, Multi Aerobatics and Pylon Racing in depth, with a full discussion of the competition as it took place.

This month's plans service introduction feature has double appeal in the shape of two matched, modernistic designs for single channel R/C, 'Lightning & MiG 21'. Single channel superhet R/C operators can use these designs to indulge in mock jet-fighter combat using these two, naturally antagonistic designs.

Regular features in this issue include Kit Review, which deals with something usual in the form of the Heathkit Thumbtack, and Wave Lengths returns again this month with more R/C boating news from Don Careless and Friends.

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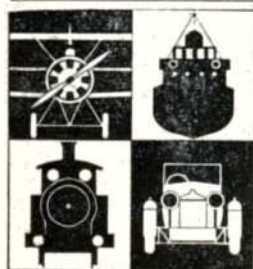
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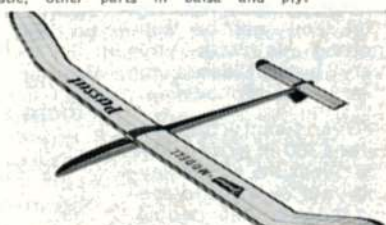
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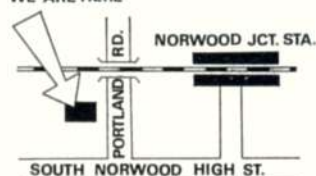
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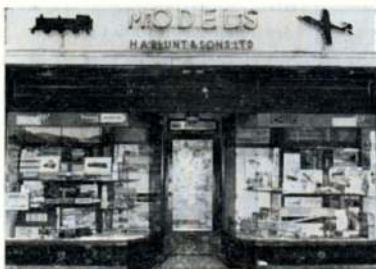
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AVRO LANCASTER

CONTROL LINE SCALE MODEL FOR 1.5 c.c. ENGINES
52 inch wingspan: 1/24th scale: simple, tough structure

The Avro Lancaster found its niche in history as being the only bomber of World War II capable (when suitably strengthened) of carrying the 22,000lb. 'Grand Slam' bomb.

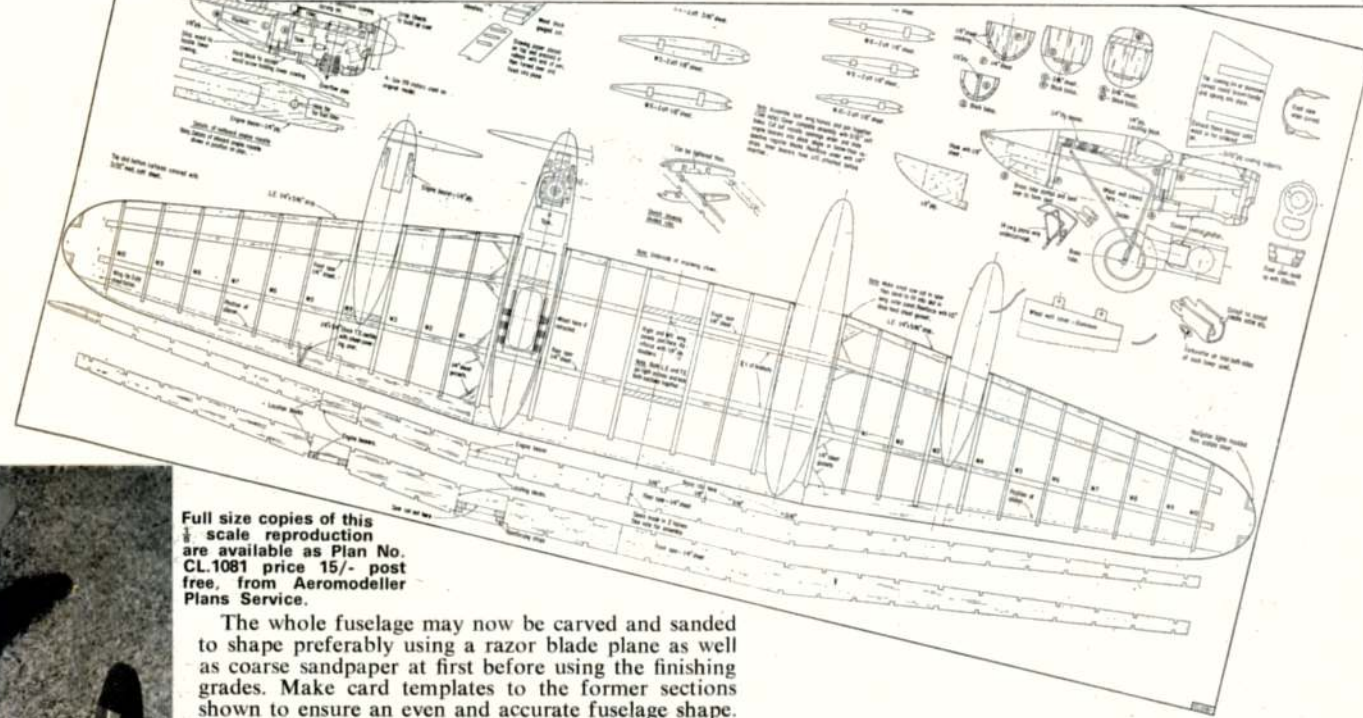
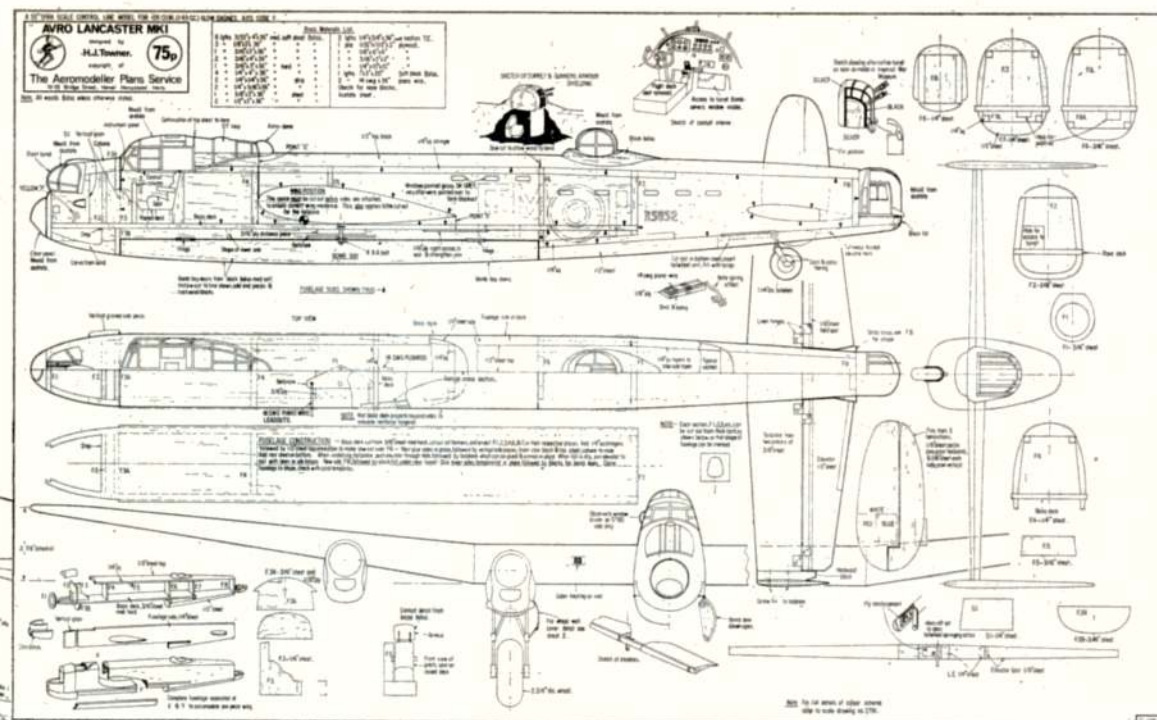
Designed by Roy Chadwick as a development of the Manchester III to accept four of the then new Rolls-Royce Merlin XX motors, it was extremely successful—total production running to 7,377. After the war, the Lancaster continued in service with Coastal Command until 1956, when it was replaced by the Shackleton M.R. Mk.2. The Lancaster retains a great affection from all who were associated with it, and as the article in SCALE MODELS, March 1970 described, there are many preserved in the U.K. and Commonwealth. It has been a popular modelling subject. There are several good plastic kits, but until we commissioned scale expert Harold Towner to produce a 1/24th 'simple' structure version for small engines, the demand for plans was unsatisfied. So here we have a 'mate' for the Halifax Plan CL 919 (10/-) and one which will please every builder. 'Simple' is of course a relative term, but the theme throughout has been to keep construction straightforward, and anyone with a little experience should have no difficulty in building this model.

P.V.A. glue was used throughout on the original due to its high strength, low shrinkage and slower drying time—essential when gluing large areas.

Fuselage construction is clearly explained in the 'exploded' diagram. First cut-out the basic deck from 3/16 med. hard sheet, followed by all the formers. Cement these in their respective positions using a set square for accuracy. Now add the 1/4 in. sq. stringers and the soft 1/4 in. top sheeting—noting the saw cut

over F.6 to achieve the 'bend' in this block. Next cut out the fuselage sides to the outlines marked, and glue in position. The vertical side pieces, front chin block and top are then added, followed by the cabane sheeting.

Make up the tail wheel unit, then let it into the bottom sheet before gluing this in position. Mount the bellcrank on its platform, then glue in position. Add the lower fuselage sides below the basic deck, make up the undercarriage doors, and add the remaining block below the nose and beneath the rear turret.



Full size copies of this
1/24 scale reproduction
are available as Plan No.
CL.1081 price 15/- post
free, from Aeromodeller
Plans Service.

The whole fuselage may now be carved and sanded to shape preferably using a razor blade plane as well as coarse sandpaper at first before using the finishing grades. Make card templates to the former sections shown to ensure an even and accurate fuselage shape.

The wings are built as two tip panels, and are then joined at the centre section. Cut out all the ribs, noting that they are split horizontally so as to form an immensely strong unit when bonded to the spars. Make the spars from medium hard 1/4 in. sheet, notching them to accept the ribs. Pin one half of the rear spar over the plan, then pin the front spar in position with 1/4 in. packing under it. Add half-ribs W1-10, and when dry, add the leading and trailing edges, followed by the laminated wing tips. Leave to

dry thoroughly, then remove from board and add the remaining rib halves. Repeat for the opposite tip.

When this is completed, assemble over the plan again and build the centre-section. The leading and trailing edges traverse the full length of the centre section, and the spars butt-joint at the centre-line with 1/4 in. plywood braces. Carefully epoxy the 1/4 in. plywood locating blocks for the engine mount in