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# MODELLER

NOVEMBER 1965

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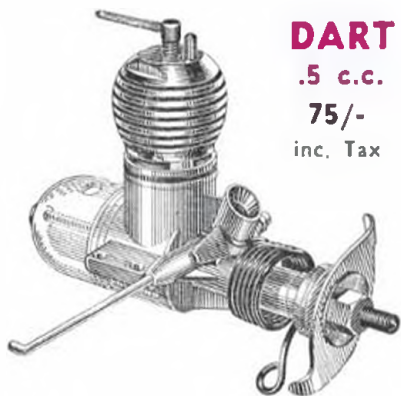
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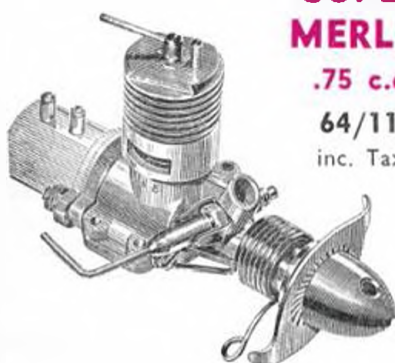


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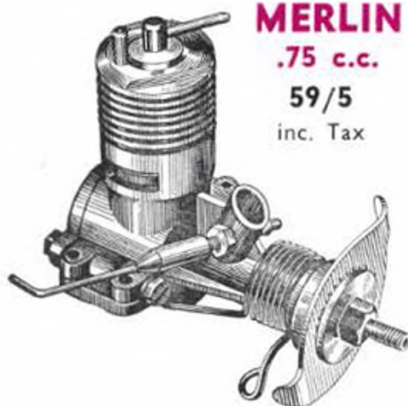
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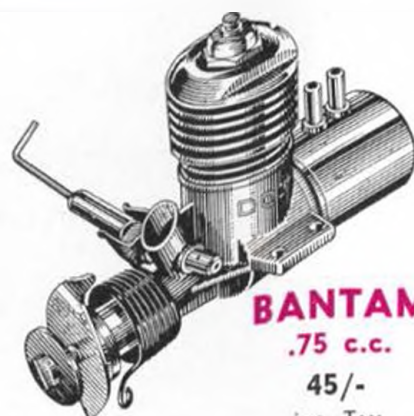
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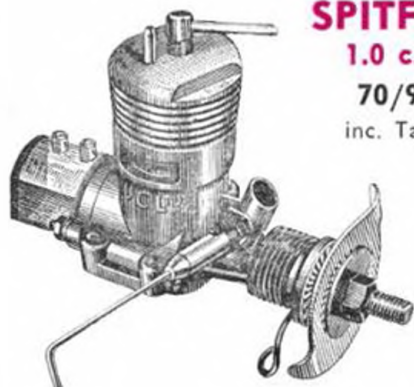


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### other modelling angles . . .

**Model Boats** November issue chief feature is a full-size plan for an attractive tug model, the "Plumgarth" which is also featured in an attractive cover painting by artist, Laurie Bagley. New beginner series on kit building gets into its stride while for the more experienced a novel sea-sled model for power boat competitions offers a new approach. Reports on the R/C speed and the Marblehead yacht championships, a simple lightweight proportional radio control system, articles on warship construction, yacht steering regattas, and the usual generous supply of drawings include a Roman galley and a Viking ship.

November issue of **Model Cars** again sports a colourful cover, of the 1921/5 Aston Martin Grand Prix car which is also a prototype feature. More Motor Tests deal with M.R.R.C. 5-pole, K Mk. I and Triang 3-pole. What's What in model shops. Henri Baigent's 250 Ferrari Berlinetta. Opening of Nordic Park circuit the first coin-operated 1/24th track. Chopping gets to work with a Simca Abarth.

**R.C.M. & E.** November edition contains illustrated report of radio control at the U.S. Nationals. Another highlight is a fully instructional feature on the use of expanded polystyrene in the construction of wings. Test reports include R.C.S. Competition Mk. II, 10 channel control system.

Please note our new address :

### Editorial and

### Advertisement Offices

13-35 Bridge Street,

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# AERO MODELLER

MAP HOBBY MAGAZINE

## November 1965

VOLUME XXX No. 358

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### cover

Control line scale Grumman YAO-1 "Mohawk", by Ralph Burnstine of Oxford, Ohio, is 5/18th scale, it took 2nd place in flying scale open class of 1964 and 1st in Open class 1965 at the U.S. National Championships. 521 in span, it was built from "American Modeller" and factory 3-views. Powered by one Veco 35 and a K & B 3a it features throttles, elevator flaps, droppable wing tanks, operating lights. Photo by Gordon Madison.

### next month . . .

A great 60 page extra Bumper issue to keep you busy reading and building—plus two free plans on a large insert. Mick Davies' 28 in. "Dominator" FAI and SMAE class combat model for 2.5 or 3.5 c.c. exactly as flown by Pete Smith to win the European Championships at Liege in August and on the flip side Dave White's Coupe d'Hiver design—the most successful such rubber model in Britain for 1965. Articles range from an introduction to magnet steering to a fantastic detailed super-accurate plan of the P.47 Thunderbolt which features on the cover. Fred Longbon's Puss Moth joins APS as a new plan and a novel surprise awaits the sport fliers. Reserve now—it's always a sell out price 2/6d. per issue, out November 19th.

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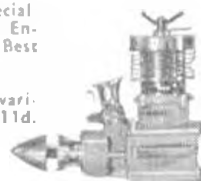


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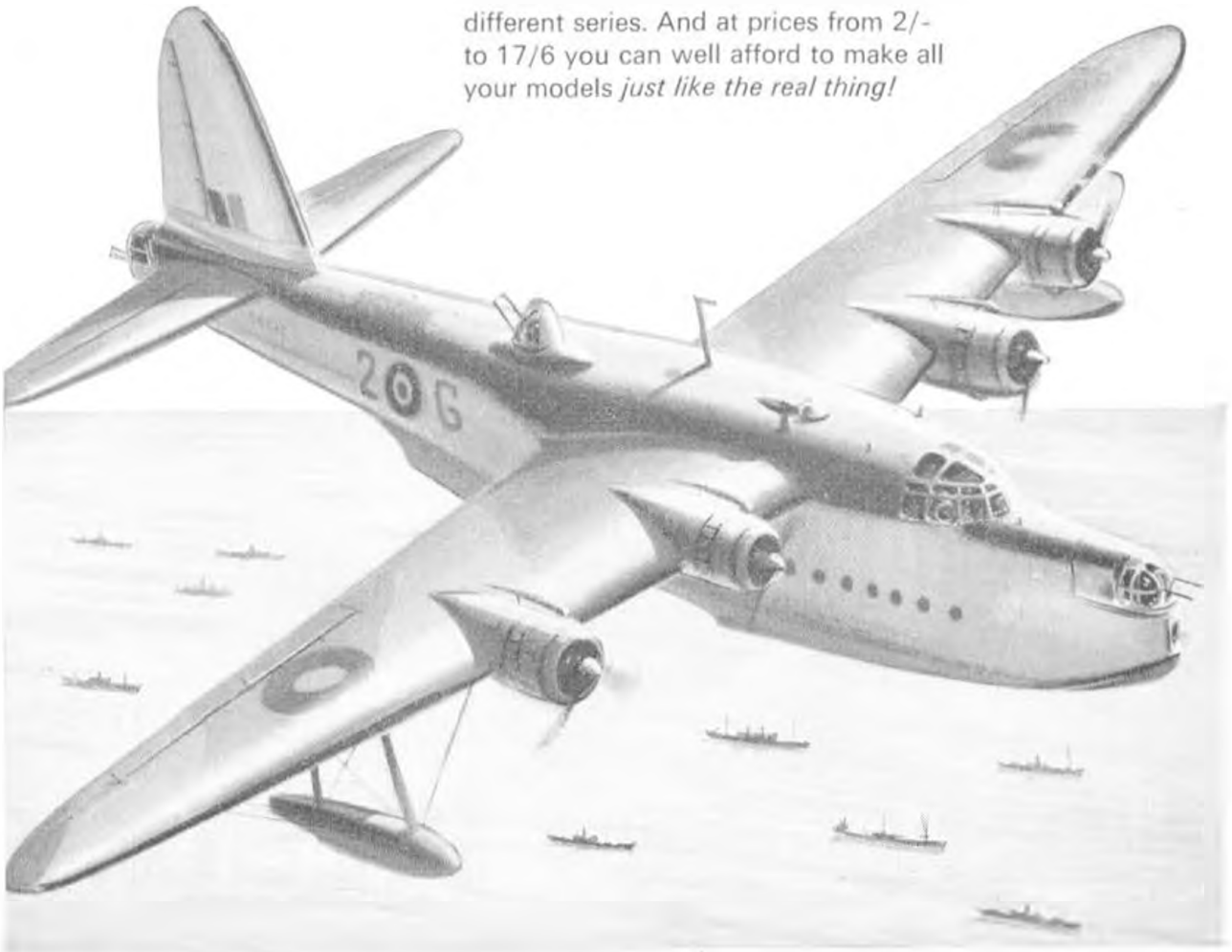
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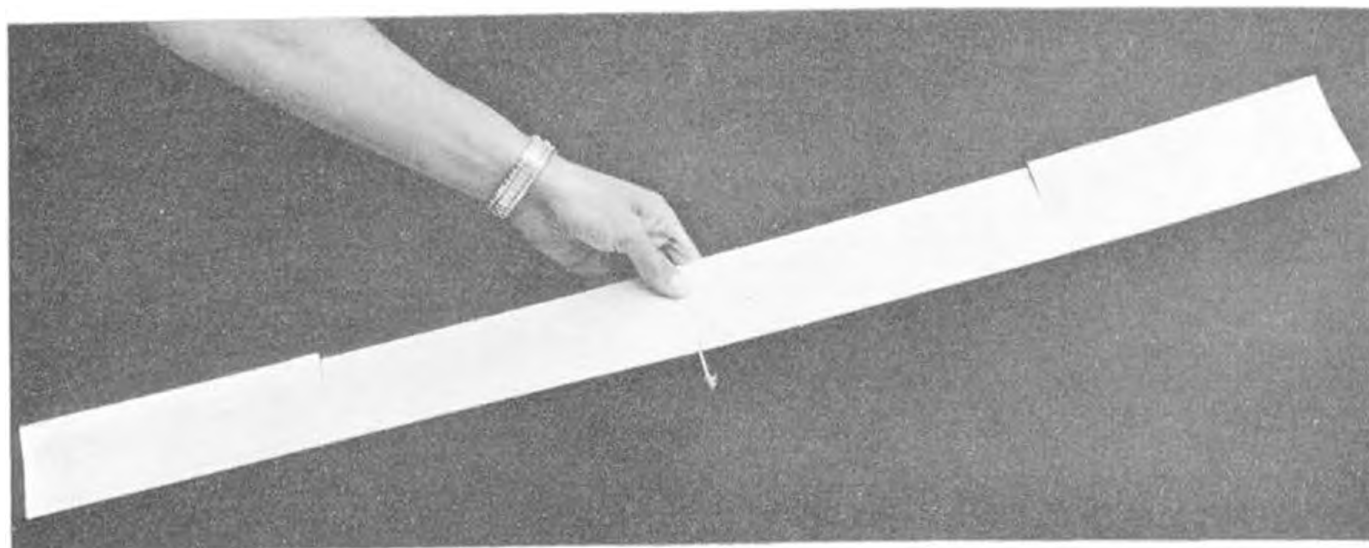
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Of course, we chose the simplest type of model—an all-sheet balsa glider. The model is, in fact, nothing more than a standard 36" sheet of 3" x  $\frac{1}{4}$ " light balsa. We made a 1" cut 8" in from each end to bend in elevons (held at an angle of about 20 degrees with a piece of masking tape each side), stuck a nail in the centre of the 'leading edge' and added a bit more weight by trial and error. The 28 seconds 'building time' included trimming !

Not perhaps a very elegant model, or one which has a particularly good performance—but it certainly flew all right. With a little more fine trimming we achieved a gliding angle of 4:1, which seems about the limit for this type of "minimal" model. You might see if you can beat this "efficiency" figure !

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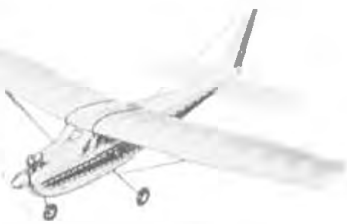
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Ferocious beast and Leslie Barker (left) with Anthony Rollinson and K-K Chief glider which saved a farmer's life — see "Some Bull!" story.



## HEARD AT THE HANGAR DOORS

### Note the Date

Annual social event for members of the Society of Model Aeronautical Engineers is the 1965 Prize-giving Dinner Dance on Saturday, November 13th — time 7 p.m., to be held at the Mecca Restaurant, Whittington Avenue, off Leadenhall Street, London, E.C.3. Admission is by ticket only, price 30 — each direct from Society Treasurer S. Lawton, 284 Park Lane, Macclesfield, Ches. Participants are promised a bright evening in the very pleasant company of Modellers.

### Change of Name

Previously known as "Aircraft Recognition Society" a new organisation has been formed in the name of "Aviation Society of London", with a regular programme of events and meetings at the Kronfeld Club, Victoria, on the third Tuesday of every month. Chairman of the new Society is none other than our old friend J. R. Vanderbeek, pioneer aeromodeller closely connected with the model industry for so many years, and a backroom boy in his time for these pioneer "Penguin Plastics" and many other plastic kits under the Frog trade mark. Further information is available from 77 Waller Road, London, S.E.14 Telephone NEW Cross 0516.

### New U.S. Records

Two radio control world records and an absolute record were set at the Naval Weapons Laboratory, Dahlgren, Virginia, on September 5th. Bill Northrop of Newark, Del., flew his "Foo Too" 7 ft. 6 in. Super Tigre 56 powered model with Dee Bee R C to an altitude of 16,690 ft., overtaking the record of 13,328 ft. set at Dahlgren in 1963 by AMA President Maynard Hill.

Bill's flight also establishes a new absolute world record, previously about 13,700 ft. set in 1947 by George Libouchkine of Russia with a free flight model. The "Foo Too" achieved the record in a 25 minute climb using 16 oz. of fuel. The flight was limited by the Radar range. The other world record was for radio controlled glider speed, a new category in 1965 for which no previous record existed. Maynard Hill and Ben Givens of Wheaton, Md., a team entry, clocked a two-way average speed of 23 m.p.h. over the 50 meter straight course using a 10 ft. 6 in. design with Sampey 404 R C.

Attempts to break the radio control power speed record of 126.9 m.p.h. were unsuccessful, the best

average time being 114 m.p.h. by Maynard Hill. The radio control glider altitude record of about 2,600 ft. was challenged but not beaten by Ray Smith of Silver Springs, Md., with flight to about 2,400 ft. Altitude measurements were made by a Radar unit provided by the U. S. Navy and the Federal Aviation Agency provided cleared airspace above the base for the altitude attempts.

### Some Bull

*"Model Plane Saves Farmer"*

*"Farmer, 63, saved from bullock by Model Plane"* were headlines in newspapers on September 21st. The story was a perfect foil for the recent mishap when a prize herd was electrocuted (these columns last month) and must certainly have secured permanent flying facilities for the two quick thinking aeromodellers.

A Keil Kraft "Chief" was being flown by two boys at Littleover, near Derbyshire, and may well have saved the life of a farmer who was being attacked by a fierce bullock.

Farmer Robert Garratt had been gored in the chest by the animal, and was on the ground beneath it "wondering why it didn't smash me to pieces", when two schoolboys aimed their 6 ft. wingspan model at the bullock and distracted it. Mr. Garratt crawled to safety with an injured chest. The boys, both keen aeromodellers, are Anthony Rollinson (14) of Prince Charles Avenue, Mackworth Estate, and Leslie Barker (14) of Twyford Street, Derby, who both attend the Noel Baker School. Anthony said after the incident: "I am absolutely petrified of bulls and cows, and felt very sorry for the farmer". The boys' model was not damaged after its successful mission, and Mr. Garratt recovering from injuries at his home, said he would see the modellers when he was up and about again, to thank them properly. As for the bullock, he intended to market it as prime beef—as soon as he could catch it.

To secure the picture of the animal, our photographer had to approach by car. "It really is a mean-looking beast", he said—agreed!

### 25th Anniversary Battle of Britain Silhouette Competition

A competition was organised by Revell (Great Britain) Ltd., inviting the public to name six silhouettes of aircraft used in the second World War. The prize

for the first 10 correct entries drawn from a mail bag received the complete range of Revell aircraft totalling 50 kits. In addition to this, 50 consolation prizes were awarded consisting of six World War II aircraft kits. Over 7,000 entries were received, and the selection of the winning entries was made by Doug Mellard, Editor of *Meccano* magazine, Norman Butcher, Editor of *Model Aircraft*, and *Aeromodeller* Editor, Ron Moulton. Entries were received from not only Britain but from abroad such as Canada, France, Germany, Norway, Sweden, Belgium and Italy. The 10 first prize winners were: R. Archer (Stanwell), P. Blackstock (Mitcham), L. Bryant (Millwall), J. Cross (North Finchley), P. Garnsworthy (Exeter), M. Hoswell (Marple, Ches.), C. Lane (Wellington, Somerset), R. Markham (Manchester), G. Peake (Hornsey), D. Smith (London, S.E.20).

Revell also commemorated the 25th anniversary of the Battle of Britain by arranging a national modelling competition with the Air Training Corps. Each squadron constructed a kit, together with a square foot of scenic background which was optional and sent the entries to Wing Headquarters where the best were selected and 51 entries judged at Potters Bar A.T.C. H.Q. The painting and construction of the models was of outstanding quality and scenic background most imaginative. The judges found great difficulty in selecting the winners as such a high standard had been set. First prize was awarded to the Middlesex Wing whose model was constructed by Cadet Burgess. The second prize was awarded to the Norfolk Wing and the third prize to the Manchester Wing. Each of the Wings will receive a silver trophy presented by Revell (Great Britain) Ltd., together with a selection of 50 aircraft construction kits.

### Blue Max News

The fleet of World War I replica aircraft mentioned last month in connection with 20th Century Fox's new film "The Blue Max" is now apparently using Casement airfield as well as Baldonwell in Ireland. As well as the S.E. 5a, Fokker D.VII and Dr. 1 plus Pfalz D.III replicas, there are Lozenge camouflaged Tiger Moths, and French Morane 230

parasols, Stampe SV4s and a pair of unusual Caudron C 272 "Luciole" made up to look like observation types. Odd things have happened to the colour schemes. The D.VII's have been repainted with Pattée crosses and practically all machines including an S.E.5 have been treated to the lozenge colour scheme for the sake of effect.

### Rules and Regulations

Contestants attending the many 1965 rallies have been served well by those hard working devotees who give so much of their time and energy to ensure the pleasure of others. However, the Northern Gala seems to have aroused strong feelings among the fliers who appear to have misinterpreted some of the regulations.

Setting aside the fact that a continual deluge of rain made flying in most classes almost impossible the main complaint seems to be directed against the ban on all vehicles using the perimeter track. There were some exceptions. These applied to officials and to a large truck which was in use the whole day as a ferry for models and owners.

Church Fenton is a Royal Air Force Jet training base, active until 6 a.m. on the day of the Gala. It was to re-activated at dawn on the morning after the Gala. In consequence the C.O. was obliged to ensure complete freedom of the perimeter from any form of litter. His minuted instructions included prevention of all Church Fenton personell from using vehicles.

When the deluge ceased, the rush to fly produced intense activity which went on until the closing hour. Several flights were disqualified because the models were not airborne before the closing signal. This has also provoked comment as some competitors were under the impression that these late flights were allowed.

Having considered the letters of complaint, and the fullest explanations supplied by the organisers we can sympathise with the maligned officials of the Northern Area. Their's was no easy task, but by working to the needs of the Service they executed their duties in an exemplary manner. We have yet to learn of a complaint about the £60 in prizes.

### Farewell to Bletchley

This is the last issue of *AEROMODELLER* to be produced by Bletchley Printers and next month your copies will come from Severn River Printing at Worcester. Though by no means the end of our happy association with friends at Bletchley we would like to take this opportunity of thanking them for producing your favourite magazine over the past two years and often helping both readers and ourselves with inclusion of last minute information.



Wing Commander Nind, Mr. D. R. Shepherd and Group Captain Tait judge models in the Revell contest for Air Training Corp members. Close-up shows an entry from the Northumberland Sqdn. with a Messerschmitt Bf 109 in realistic background.



## Scale at the 1965 Control Line and Radio Control



WILLOW GROVE NAVAL AIR STATION, near Philadelphia was the 1965 venue for the U.S. National Model Championships. Rated a great success with the best attendance in recent history, the scale events reflected a boom in the interest with a total of 159 entries, 82 of which made official flights. Broken down into the three classes, control line showed the highest entry but lowest flying rate in proportion. Whereas in Free Flight, 46 entered and 30 flew, in Control Line 93 entered but only 33 flew, while of 20 in Radio Control, all but one made flights. This significant figure of 19 out of 20 making official R/C flights is probably the best ratio yet achieved at any National Championships in any model class.

A BE-2e flown by W. W. Alexander from Grand Rapids, Mich. took first in open free flight with 131 points, leading veteran 70 year old C. O. Wright's Antoinette with 120 points and third place went to local man H. J. Schilling with an Aerona. For the junior section ten years old (yes—that's right!) M. Kuehne from Bryan, Ohio, took first with a Piper J-2 Cub accumulating 110 points for a wide lead over R. Lambert who flew a Cessna 119 Bird Dog for 86 points. Eleven years old C. Weisenbach of Cleveland was third with a Fokker Triplane.

Radio Control had Junior, Senior and Open classes combined, resulting in a win for Claude McCullough of Ottumwa, Iowa, with his unusual choice of a Douglas XBT-2D-1 powered by Merco

Above right William King, Valley Cottage, New York, had Super Tigre .60 Fleet Model 1 with Airborne Control Lab. propo. radio. Top left: "Johnny Foyle's" Stearman PT-17 by John Mandala of Bergen, New Jersey (Fox 59), in control line. Superb "Blue Angels" F11-F1 in next photo is by Joe Collis of Mount Holly, New Jersey. Dynajet powered, the C/liner hit a chair on take off. Second place radio model by Ralph Jackson of Endicott, New York, was Piper Comanche running up for take off (Super Tigre .60) with Airborne Control Lab. radio. Next, fourth in senior class control line was Cessna 310 by Harold Lambert, Forando, Virginia. Has one each K & B .35, Veco .35. Below left, intriguing Grumman S2F-1 Tracker, by Earl Matz of Wilmington, Delaware, in control line has two Johnson .36 R/C engines and wings which fold by remote switching gear. Has dummy engines, windscreen wipers and pilots. Below: Radio control Taylorcraft by Walter Burgin (Merco .61) awaits take-off preparations.





# U.S.A. Nationals

Photographs by Dale Willoughby

.61 and controlled by Bonner Digimite amassing 10,489.5 points. R. Jackson in second place flew a Piper Comanche hot on McCullough's heels with 10,355 pts. in fact he scored much better flight and operations points than did the winner, losing ground on Scale fidelity and workmanship. Bill Northrop, Radio Control Editor of *M.C.N.* placed third with his well known De Havilland Gypsy Moth at 9,646.5 pts. Bill was awarded a special prize for his performance. A quarter of the R.C. entries used Merco engines.

Control line was held in the three age groups and seems to have been a Fairchild P-19 and North American P-51 benefit. Open winner H. Bunstine took first with the magnificent Grumman Mohawk as shown on the cover. This features throttles, elevator, flaps, droppable wing tanks and operating lights. It scored 466 pts. In second place W. Boss flew a McCoy powered P-19 for 449 pts. Third man was H. Hudson with a P-51D, again McCoy 60 powered, with 430 pts. In the senior class R. Ungar gained 448 pts. with another P-51, Super Tigre .35 B.B. powered for first place. Second came yet another P-51 with a Veco .35 R.C. flown by G. E. McCall for 383 pts. and for a change, a Veco .35 R.C. powered Fly-Baby by C. R. Rich came third with 378 pts. Junior Scale found .35 powered P-19's in first and second place by E. Dickson and R. B. Love with 357 and 343 pts. respectively.

Above left, fifth place Open control-line Focke Wulf 190A-5 by William Ogden from St. Louis, Illinois has Fox .59. Spoiled by excessive panel marking and protruding cylinder head. Top right, radio winner Claude McCullough of Ottumwa with Douglas XBT 2D-1 Skyraider prototype about to take off. Note massive fin, and tip dihedral. Uses Merco .61 and Bonner Digimite propo. radio. At right Roy Tucker of Whitman, Mass., produced magnificent Northrop X-835 flying wing, took 2 1/2 years to construct, four McCoy .35s, 78 1/2 in. wingspan, 18 lb. weight and control-line. Below left, fifth place radio entry, a push-pull Cessna 336 Skymaster that eliminates torque problems by Hale Wallace of Endicott, New York, has two O.S. .49s and Kraft 12 channel radio. North American FJ-3 "Fury" Naval jet fighter is Dynajet powered. Entered in Control Line by Richard Wargo of Willowick, Ohio, it has detailed cockpit and sliding canopy, also wing tanks and dive brakes and ailerons which appear to be trimmable.



# Recommended Reading

Winter approaches in Europe—time for putting one's feet up by the fireside and enjoying the fruits of high standard aviation literature which publishers are in the habit of releasing during autumn—and this year is producing another bumper crop of books. There are so many we can recommend, that most of the imported titles will have to be held over till next month.

First choice, despite our very close connection, must of course be that favourite, the **AEROMODELLER ANNUAL**. Its 160, 5½ x 8½ in. pages are once more crammed with that particular kind of feature for which the Annual is famed and a fine selection of leading model designs. Sign of the times is a "deviation" feature on water-powered rockets, and the new fad of engine collecting gets a truly professional explanation by Doug McHard. Technical or simple, unorthodox or ordinary, novice or expert, whatever your interest or status the Annual represents another great 10.6d worth for reference shelves.

Latest in the Harleyford series is a(n) almost an "annual", for this publisher is now concentrating efforts on one title a year. **"THE LOCKE-WELL 190"** will not disappoint those who expect a lot for their 6d. This 212, 8½ x 11 in. page, well bound book is filled with innumerable photographs of the famous German fighter, its developments and equipment, so that collectors will be happy with these illustrations alone. Twenty-four toned 1/22nd scale drawings have cross sections as well as some split upper lower views to aid modellers, and 16 colour diagrams show typical camouflage and unit markings. Perspective on the latter and sundry detail on the former, particularly the undercarriage, could be improved, but the overall effect is most impressive. Heinz



Messerschmitt Bf 109. Two 190s appeared in sea's contests at the 1965 U.S. Nats. After this new book appears we see every reason for the type becoming a scale model maker's favourite.

Aircraft markings is a subject that thrives on controversy. In **UNITED STATES CAMOUFLAGE WW II**, Jay Frank Dial has restricted the text and illustrations to Official directive information only, supplemented only by two pages of Pacific Carrier ident. markings and the National insignia details. Thus here we have a book on which there should be no argument about authenticity.

## UNITED STATES CAMOUFLAGE WW II



## VETERAN and VINTAGE AIRCRAFT



Nowarra covers the history of FW and offers many a fascinating anecdote "from the other side". A chapter by Bruce Robertson lucidly explains the effect of the 190 on our own war effort. As we found when researching this subject ourselves for the APS scale drawing, the FW 190 was a complex machine with many variations. This book does much to clarify the reasons for the changes and offers the serious student of lighter aircraft an admirable companion to the previous works on the Spitfire and

The 36, 8½ x 11 in. pages give exact colouring specs., methods of application, location and special features. The result of three years' research, this book sells at \$2.50 in the U.S.A. through Scale Reproductions, 1313 W. Abrams, Arlington, Texas. It includes 20 colour chips of U.S. camouflage paints, only one of which we would dispute, and that is Indent, red, R.A.F. tone, which is presented as U.S. Insignia red—a far brighter colour. Positively recommended.

The editor's efforts to compile a Directory of Preserved Aircraft has been well and truly anticipated by Leslie Hunt's **VETERAN AND VINTAGE AIRCRAFT OF THE WORLD**. Though dealing largely with British aircraft which are retained in museums and on general display, this 80 page 5 x 7½ in. book is an amazing quart in a pint pot with many a surprise, even for an ardent collector of information. Who knew that one could find the Fairey Gyrodyne at the A.I.C. H.Q., Southampton! ... or the prototype Gnat at R.A.F. Bicester? These are two of 735 listed, with many fine illustrations. The price of 5s direct from the author at 90 Woodside, Leigh-on-Sea, Essex, is a positive bargain. Moreover, the proceeds go to a most worthy cause: October 16-23 is Muscular Dystrophy week, and the 40 lads at "Trueloves" School, Ingatestone, are to be provided with a hobby but out of the income from this book. Now's the time to buy your copy if you have any interest whatsoever in early and famous planes, plus a few feelings for those less fortunate in life.

The name of Jack Bruce is now synonymous with early aero-planes, and when Macdonald's produce the first of a series of volumes by him on **WARPLANES OF THE FIRST WORLD WAR**, it's only natural that we expect something "different". For a start, the cost is only 12.6d. For this we get 188, 4½ x 5 in. pages covering the Fighters from the AD Scout (never heard of it?)—just wait till you see the tail area!), to the Port Victoria P.V.8 Fastchurch Kitten (35 h.p., 19 ft., ultra light biplane) with 3-views, photos and an inimitable description in Bruce-style of each. Great! Vol. 2 with the "S" types covering SE5 and Sopwiths has us panting in anticipation.





An impressive blast-off seen at the Polish International meeting on left. Below, Wednesfield rocket on launching ramp. Lift off at 450 m.p.h.!

# r model c k e t r y

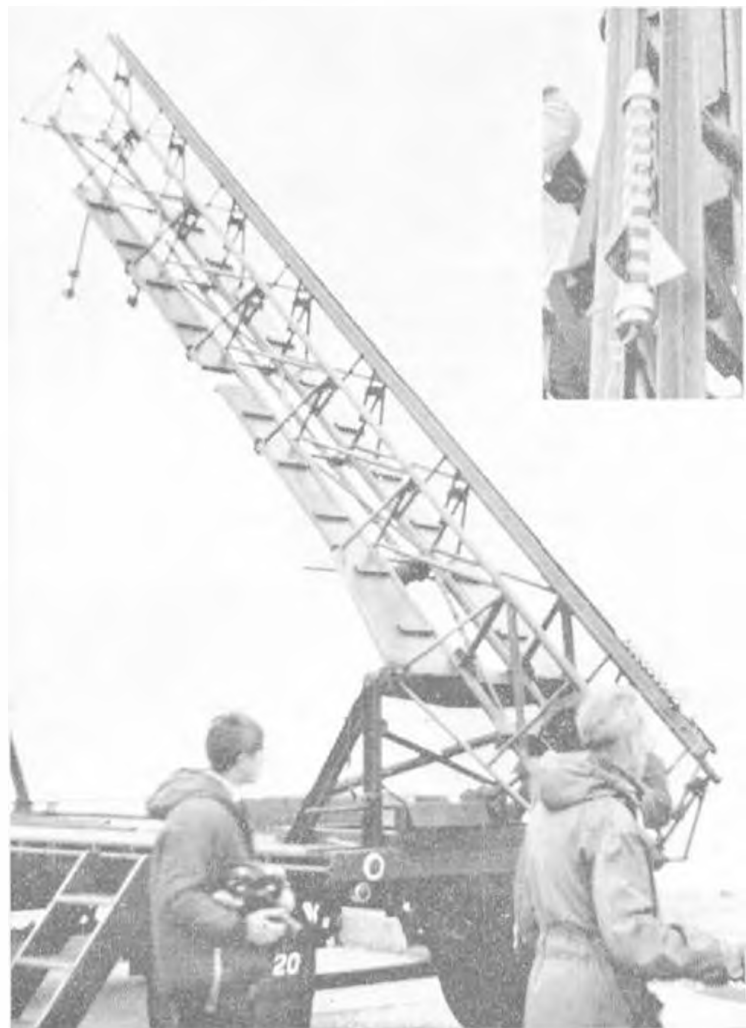


SINCE OUR FIRST ARTICLE on "Model Rocketry in the U.S.A." published in March 1963 ALROMODELLER, many requests have been received for further information about Model Rocket Clubs and official organisations. Unfortunately, at the present moment there is still no official national organisation in the U.K. The two most dynamic Groups are those at Cardiff and Wednesfield, both of whom have met with considerable amount of success in their official approach to Model Rockets.

Over the past four years a number of small groups have obtained the co-operation of the Air Ministry in launching small rockets. Originally these groups were permitted to use powdered fuels and although the actual firings were supervised by the Ministry, design and structure was left to the groups, and no testing of the rockets was done prior to firing. As a result of incorrect fuel mixtures, the firings almost without exception led to explosion of the rockets on firing or immediately afterwards. In four test firings carried out during 1962-1963 three rockets blew up on firing, and the fourth (an ambitious two

By P. Birkitt

(Wednesfield Astronautics Society)





At left three U.S. commercial rockets, top is boost-glide, whilst lower are streamer dragging and parachute descent types. Marketed by Estes Industries, with paper cones.



stage rocket) blew up when at a height of only 100 ft. Because of these failures the Air Ministry withdrew co-operation with model rocket makers in 1963.

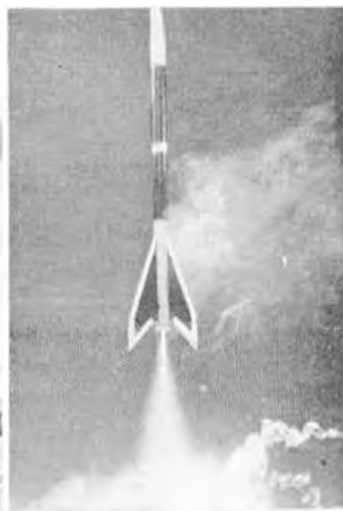
Two model rocket clubs retained interest in this type of project, and fresh approaches were made to the Air Ministry and Home Office in 1964. As a result the Air Ministry agreed to resume co-operation only if certain standards were met by the model rocket groups using a fuel tested and approved by

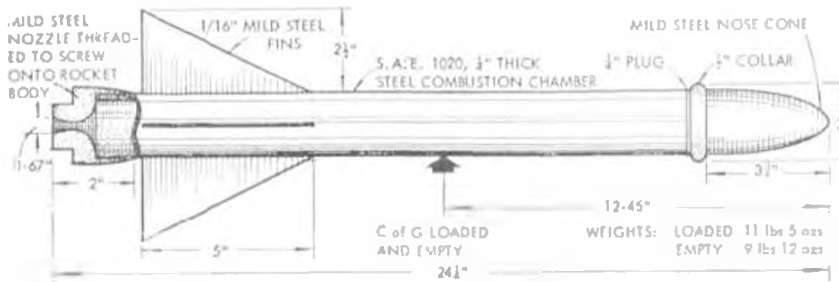
Three types of rockets seen at Polish International meeting, note crash helmeted owner at left. A nice 'true' blast off in centre and multi-stage types at right.

the Home Office. Rocket fuels generally come under the Explosive Act of 1864 which prohibits the use of such fuels by unauthorised persons. The question was to find a fuel not prohibited by the Act and yet suitable for small amateur rockets. After a series of tests by the Explosives Research & Development Establishment it was found that the special type of fuel pellet made by the manufacturers of Jetex was suitable.

The two groups at Cardiff (South Wales Amateur Rocket Group) and at Wednesfield in Staffordshire (Wednesfield Astronautics Society) had completed design and construction of model rockets 6 ft. and 2 ft. in length, by February 1965. The Wednesfield Group rocket was taken to a Research Station for static tests. At the Station the rocket was placed on a 'test bed' against a thrust measuring device within a concrete bunker. On being fired the pressure developed was sufficient to blow out the nozzle due to expansion of the rocket chamber. A month later the rocket underwent two more static tests with a new nozzle design and these tests were successful. To get official approval of the rocket for aerodynamic stability the design was checked by officials at Farnborough. The design was based in part on similar amateur rockets fired by groups in the United States, but due to the different fuel used it was necessary to redesign the nose cone to give flight stability. This having been done permission to use a Ministry Missile Range for a flight test was given after insurance had been arranged and payment made for use of the range.

Costs of fuel, insurances and charges by the Ministry for use of their range meant that both Groups had to meet considerable expenses. The Cardiff group had obtained a grant of £80 from the Cardiff Town Council, a year ago and Wednesfield group obtained a grant of £25, also receiving donations of £3 to £5 from local industries. The two groups operated under a joint insurance policy costing £15 for 12 firings. The 24 in long Wednesfield rocket has a fuel charge of 11 pellets per firing, at a cost of just under £2. Air Ministry charges can vary between £4 and £10 and for a charge of £8 the Ministry make available a high speed film of the rocket flight, plus the normal charges. Generally speaking both groups have found that a minimum of £30 is needed to cover costs.





Wednesfield rocket's pertinent structural details to guide would-be rocketeers, strictly for engineers only!

The actual firing of the Wednesfield group rocket took place on April 9th. The day before the firing the rocket was examined for structural defects by Range staff and group members were given a tour of the Range and made familiar with safety precautions, flight tracking equipment, and the 20 ft. long launching ramp set at an angle of 45 degrees. Just before the firing range staff and a group of members were taken to an observation point some 200 yards from the ramp. Fired electrically the rocket had a perfect lift off at a speed of 450 m.p.h., reached a height of 2,150 ft. and a range of 7,800 ft., during the 24 second flight time that was tracked by radar and recorded on high speed cameras.

This first successful flight by an officially approved amateur rocket earned congratulations from the range staff and the many members of the press and television attending. After the test the group members received advice and suggestions from the range safety officers regarding the firing of rockets in the future for which further co-operation was offered. The range used in this case was firing the rockets out to sea so no recovery was possible, but the tests showed that the performance was closely in line with that anticipated at the design stage. The group are currently planning to static test and eventually flight test a rocket 6 ft. long, weighing almost 20 lb. when loaded with fuel. This is to flight test the stability, as a second version is planned with a small instrument package some 9 in. long. Several smaller groups have been formed to design the instrument package, ejection explosive charge and transistorised circuits. This more advanced rocket is hoped to be fired from a range where recovery is possible, thus the groups major projects still lie ahead of them. The smaller groups have their activities co-ordinated by an elected committee who stand for six months before re-election. A similar system operates in the Cardiff group where assistance is also available from a technical college. Both groups carry out their own filming of activities and flight test. The Wednesfield group having completed a 10 minute documentary from the design stage to flight.

Much of the success achieved so far has been due to the close co-operation between the two groups and attention to rules laid down by the Ministry.

In the U.S.A. rocketry is still expanding with contests for **parachute duration** (time taken to return by parachute from moment of launching) **Multi stage altitude** where three motors are sometimes used with the first motor giving a blow back to ignite the second, and then the second does the same for the third. **Pay-load** (5 oz. take off weight including 1 oz. of ballast). **Scale** (Plastic kits modified to fly with an engine fitted and **Boost Glide** (1 p as a rocket then

glide to the ground). They are only allowed to use paper cased motors and solid fuel charges of tested safety. Several manufacturers are very active and their range of products and clear instruction manuals are an inducement to interest. The A.M.A. have now recognised model rocketry as an established branch of the hobby as have the F.A.I. International events have been held and more are underway. At the 4th International event held in Poland earlier this year entries were received from Hungary, East Germany, Yugoslavia, Russia and Czechoslovakia. Unfortunately for the organisers, only Poland and Czechoslovakia arrived and entered teams. In the outright altitude contest for 10 c.c. of solid fuel the winner Ing. M. Drbal (Czechoslovakia) achieved 1,152 ft. with second place by J. Czernek of Poland making 1,133 ft. In the larger class that allows 20 c.c. of fuel, O. Saffek (Czechoslovakia), reached 1,680 ft. With the Boosted glider, where the rocket glides as a conventional aircraft M. Drbal won with 2:03 with O. Saffek also from Czechoslovakia second at 1:54.

Commercial solid pellet fuel to F.A.I. specification is now marketed in Czechoslovakia and exported. Known as ADAST "RM" it is 22.5 mm. diameter, 45 mm. long, having a thrust impulse of 3.2 Newton sec. for 0.6 seconds.



Polish boost glide type rocket on launching blast deflector platform, note the spectators running in other direction.



# SKYSCRAPER

A 28 inch wingspan sports free flight or radio model for 0.5 to 0.75 c.c. engines

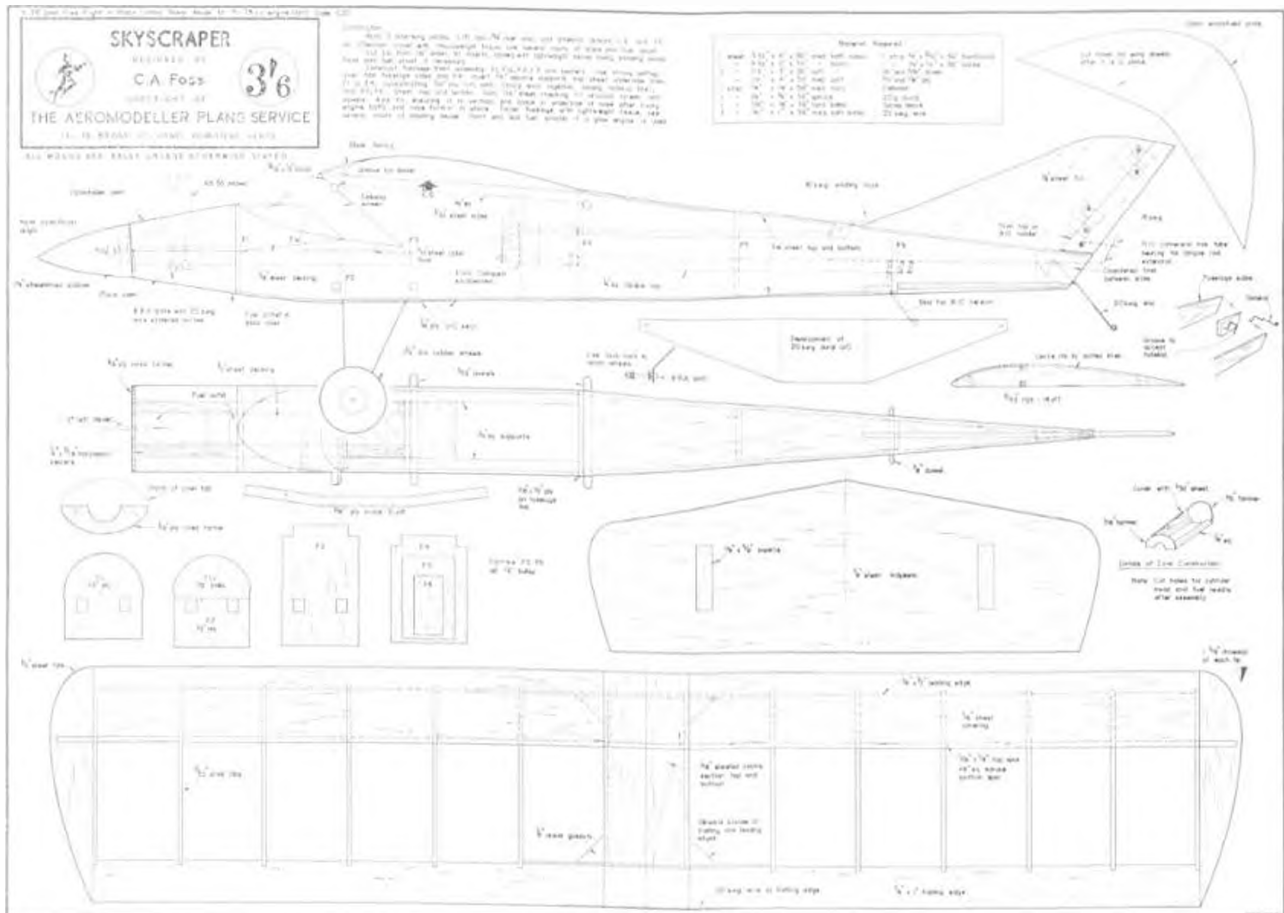
**By C. A. Foss**

POWERED by an AS-55 diesel, Skyscraper has proved itself to be a very rugged all-weather free-fighter with a lively performance that would disgrace many other sport models. At a handy and compact 28 in. span, the total weight has been kept down to 9½ oz., despite very sturdy construction.

Skyscraper is ideal for radio conversion and would easily take lightweight single channel equipment.

At left C. A. Foss holds the prototype 'Skyscraper' and from this angle clean and functional lines are clearly evident. A snappy performance is obtained with an A.S. 55 for power. Design suits all small engines.

Full size copies of this 1/5th reproduction are available price 3/6d. plus 6d. post from Aeromodeller Plans Service. Quote Plan No. PET 889

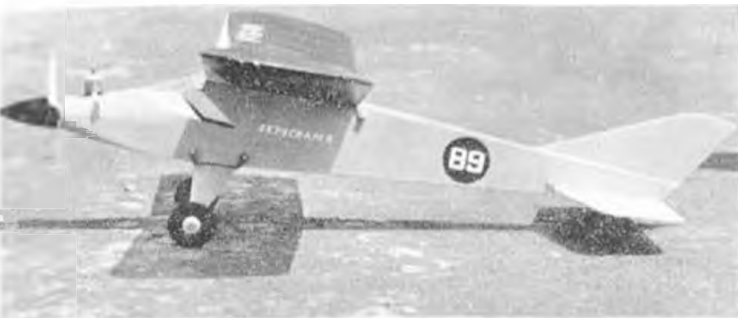




This would not be particularly recommended for a beginner in radio, as it would prove to be a fast flyer. Details are shown for a typical installation.

The original has been flown in all types of weather and has always shown very good stability. With a 5 in. x 3 in. three-bladed prop., and the motor running flat out, Skyscraper reduces itself to a tiny speck in a remarkably short time, but on the other hand, with the engine throttled back, it will quite happily potter round at low altitude.

The construction is reasonably simple, so that only brief notes are necessary.



Dural undercarriage and low mounted tailplane well clear of wing turbulence made this an ideal model for radio conversion, as shown on plan.

Firstly, commence with the wing, building the two panels in the usual manner. When dry, pack up each tip 1 in., keeping the wing roots pinned down over the plan. Now build up the centre section between the two wings with dihedral braces, leading edge spars, and trailing edge. Sheet the necessary sections with 1/8 in. balsa, and when sanded down smooth, cover with heavyweight tissue.

Start by constructing the basic fuselage assembly comprising the two engine bearers and F1, F1a, F2, and F3, using a good strong-setting glue. Cut out the two sides accurately and attach to the bearer assembly. Add F4, 1 in. sq. supports, and sheet the underside up to F4, remembering to include the fuselage. Make the tail skid a good fit as it is also 1/8 in. ply undercarriage seat. Clamp the fuselage sides together at the rear, at the same time, incorporating the chamfered fillet and tailskid, and glue. Adjust if necessary to obtain a straight and even used to retain the tailplane elastic bands. Add formers F5 and F6 and sheet the remaining areas, top and bottom, grain crossways. Add 1/8 in. sheet decking, fit nose former and block in U. side of nose, allowing for the fuel outlet. Add dowels and carry out interior decoration of the cockpit if desired. The original was finished in matt black with the top decking white, and an instrument panel on F1a. Now fit the celluloid screen. Note: It is best to fit the screen first and add the front wing dowel afterwards by making two holes in the celluloid and sliding the dowel through, loaded with cement. Cover the fuselage with lightweight tissue, use dope and sanding sealer to obtain good finish.

The prototype was finished with black heavyweight tissue wings and fuel proofer orange Humbrol paint on the fuselage and white Humbrol paint on the fuselage and white Humbrol paint on the tailplane. If a glow engine is used, use colour dope and entirely cover with fuel proofer.

Trim to fly left under power and a right turn on glide. Left thrust was found necessary to make the model turn under power (shows how stable it is!) Cement the trim tab when satisfactory and watch the fuel if full power is used or we may hear of Skyscrapers actually skyscraping!

## FUEL PROOFING A MATT FINISH

By W. Forrester

At some time or other, the Scale Modeller is faced with the problem of a Matt Finish which is fuel proof. Two methods are used by the Wanstead Scale Modellers.

The first method relies on the use of a mild diesel fuel such as would be used with Mills engines. Here Humbrol Matt paints have been used with success.

A more reliable finish is Carsons 62 Parapan Eggshell Varnish, which although in itself is fuel proof, is of a porous nature and allows fuel to seep through attacking the paint underneath. Therefore one must dope the model in the required colour scheme, then apply a fuel proofer suitable for the type of paint or dope in use and finally paint on the Eggshell Varnish. Cut down brush work to a minimum otherwise too much brushing tends to "polish" the varnish. Allow at least three days for the varnish to set before use, the effect is one, although basically Matt, does have a slight sheen, like that which normally appears on most full size aircraft. The varnish is obtainable from most Do-it-yourself type shops.

The other method is the use of Polyurethane paints, obtainable at Marine Equipment Stores, a few discriminating model shops, or direct from International Paints Ltd., Grosvenor Gardens House, London, S.W.1, approximately £1 per pint. Polyurethane paints are supplied both in colour and varnish, which does allow a choice in the finishing of the model. Either apply the varnish over a cellulose paint, or mix the desired colour and apply direct after the sanding sealer.

A high standard of finish can be obtained with this paint, which is used on Hulls of Racing Yachts, where the corrosion, caused by sea water to the hull finish could cause havoc, but even sea water has little effect. The same protection is offered against diesel and glow fuels.

Polyurethane is obtained in two packs, one the actual paint, the other the hardener.

These should only be mixed (1) At time of use only; (2) In quantities sufficient for the job. Once mixed it has to be used. Setting starts immediately, although there is time enough to work the paint correctly.

The surface will dry glossy, then, with the aid of a small pad or brush, plus a scouring powder such as Vim, one can soon arrive at a Matt finish by simple abrasion on the very tough varnish surface.

# New German Aerofoil Sections

described by Werner Thies  
(translation by H. J. Meier)

## Eppler aerofoils

Following a suggestion of the late Studienrat Ing. F. W. Schmitz\*, Dr. Richard Eppler designed a couple of aerofoils on a computer, his goal being the development of sections which promised good results within the range of Reynolds numbers (1) as experienced in model flight.

Dr. Eppler, whose study was published by Aerodynamische Versuchsanstalt Goettingen as Scientific Report 57/A/08, based his work on the assumption that it should be possible to develop model aerofoil sections featuring a very low pressure rise over a high percentage of the wing chord in the upper surface flow. This would permit creation of a condition where the laminar boundary layer, while on the verge of separating readily, still adheres to the surface, yet is so unstable as to permit timely transition

## Introduction

Very few aeronautical researchers have either time or facilities for extensive work on low speed aerofoils to suit modelling requirements. Happily, this feature, first published in "Mechanikus" (W. Germany) reveals fresh thoughts which will be stimulating for those who design their own models. Dr. Eppler's work on full-size sailplane design is internationally renowned and his opinions on aerofoils for aeromodelling to be much respected.

to turbulent flow. This helps to safely overcome the pressure rise up to a depth of 80 per cent of the wing chord.

Aerofoil sections which meet these requirements would ensure high lift and low drag coefficients at very low Re-numbers, such as occur in models with narrow chord wings. In other words: they would permit high aspect ratio wings and thus improve the potential performance. "Aerofoil sections designed after the popular zip-zip method, using any convenient French curve on hand, won't fill this need", says Dr. Eppler. "You've got to get hold of a computer and carefully calculate pressure and velocity distributions, if you want aerofoil sections which are properly matched to their specific working conditions".

## Text references

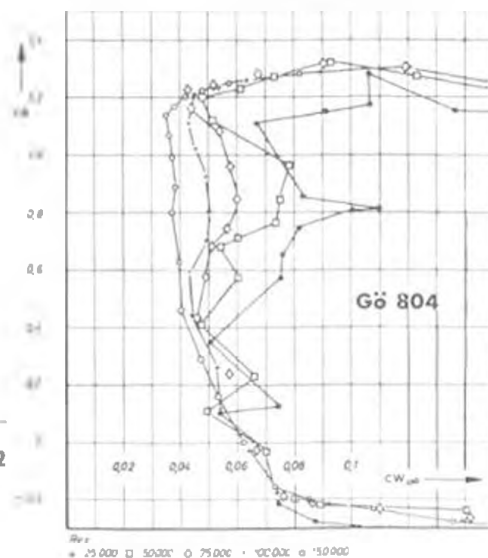
\* F. W. Schmitz's book "Aerodynamik des Flugmodells" published in 1957 by Carl Lange Verlag, Duisberg, W. Germany, and which gained the Ludwig-Prandtl prize in 1961 is still regarded as the most advanced reference work on aerofoils for models.

(1) Reynolds Number "A non-dimensional coefficient used as a measure of the dynamic scale of a flow." In plain language, the measure of air molecules which pass over the wing surface obtained by multiplying speed (feet per second and Chord (feet) and dividing by .000157. It forms a comparative factor for model and full scale research.

Figure 1 (below)



Figure 2



## Goettingen 804

In 1956/7 one of a group of sections calculated by Dr. Eppler—the FA 8(-1)-1206—was tested at various Re-numbers in the small wind tunnel of the aerodynamic research institute at Goettingen under the designation Go 804 (see fig. 1). This wind tunnel has a low turbulence factor and is thus well suited for low speed work.

Evaluation of the results indicated that the required high lift coefficient at low Re-numbers had been achieved in general. But drag coefficient figures were not so low as they ought to have been according to theory. Reason for this deficiency was found after careful scrutiny of the boundary layer and traced to a separation of the upper surface flow at a distance of some 15-20 per cent of the chord forward of the trailing edge.

The polar diagram of the Go 804 indicates two peculiarities of the section, which cannot be explained by measuring errors (fig. 2). The diagram does show a certain fanning, especially in the profile drag coefficient area, but the jumping of the maximum lift coefficient which is a typical characteristic of the critical Re-number range, does not occur. Even at Re-numbers as low as 25,000—which occur. Even at flow conditions of small A/I glider model high aspect ratio wings—there is no indication of a sub-critical condition. A hysteresis, as observed on other aerofoil sections in the critical Re-number range, is not apparent. At a lift coefficient of .8 the polar curve, especially at low Re-numbers, turns sharply to the right, indicating an appreciable drag rise. However, at a slightly increased angle of attack, lower drag coefficients are obtained.

Several years ago Werner Thies built A/I models using this aerofoil section; the performance of these models compared well with those using the standard sections of that period. Noticeable differences in performance were not observed.

## E.58

A careful re-examination of the underlying calculation principles and the application of the latest findings in the field of fluid mechanics in the low Re-number bracket led to the calculation of an improved aerofoil section for free-flight models, mainly suitable for use in A/I and A/a gliders. This is the E 58 section, with a thickness of 5.6 per cent and a centre line camber of 6.5 per cent chord length. It may be flown at lift coefficients up to approximately 1.4. The theoretical, calculated, polar diagram indicates—and practical flight tests substantiate, that this aerofoil achieves really good results only at the high lift coefficients of 1, 2-1, 3. High lift coefficients of this order can only be recommended for high performance gliders with high aspect ratio wings, and possibly for Wakefield models with their relatively high parasitic drag. Longitudinal stability will provide some problems, as centre of pressure travel is decidedly marked, while the optimum angle of attack range is very narrow indeed. Increasing the

### Text references

- 2 Zero-lift angle — angle of attack where lift is zero.
- 3 The zero pitching moment coefficient  $cm_0$  permits calculation of the position of the centre of lift for any lift coefficient  $c_l$  by the following formula

$$x_L = -cm_0 + .25$$

cm

During the glide, the centre of lift of the model with a tailplane of symmetrical section should be positioned vertically above its centre of gravity.

size of the tailplane over that normally used would therefore be a good idea. The zero-lift angle (2) of this aerofoil section is  $-9.13^\circ$ , while the zero pitching moment (3) coefficient  $cm_0$  is  $-.251$ .

## E.59

Much like the E 58, this aerofoil section has been designed for high performance models. The E.59 is characterized by a maximum thickness of 5.6 per cent of the chord length and a maximum centre line camber of 5.2 per cent at 50 per cent of the chord length. According to a computed polar diagram this section should offer excellent results up to lift coefficients of 1.1, while its drag would be less than that of the E.58 in the same range (fig. 3). It should therefore be mainly used for A/2 gliders with aspect ratios below 16 (corresponding to a mean chord of  $5\frac{1}{2}$  in. or more), or for A/I models and R/C gliders with low sinking speeds. Centre of pressure travel is not so marked as in the case of the E.58; thus longitudinal stability is not quite so critical.

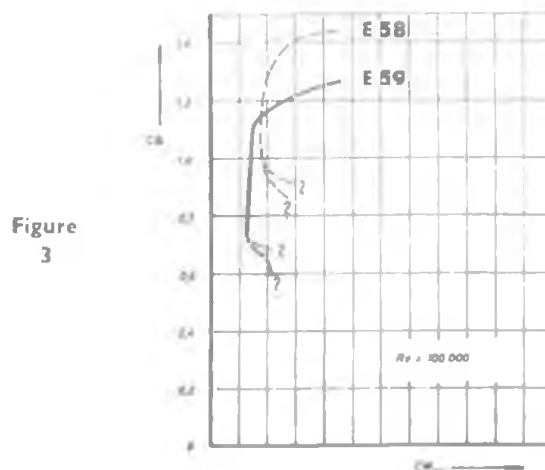


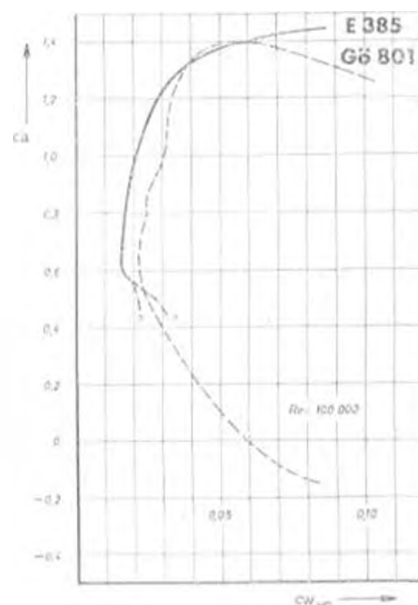
Figure 3

The theoretical polar diagram (fig. 3) is based on a Re-number of 100,000, although figures of this order apply only to the larger species of R/C gliders. This choice was made to permit a direct comparison with other aerofoils to be described later. The differences between the drag values of the two aerofoils E.58 and E.59 compared with thicker standard sections should be even greater under actual flight conditions—at Re-numbers of approximately 40,000—than at  $Re = 100,000$ . The superiority of these two aerofoils is quite pronounced, especially in the case of narrow chord small models, even when compared to model sections equipped with artificial turbulence generators (wire, strip, etc., on the upper surface or in front of the leading edge). The zero-lift angle of E.59 is  $-7.38^\circ$ , the zero pitching moment coefficient  $cm_0 = -.204$ .

## E.88.5

Broadly speaking, the requirements for R/C flying, including R/C gliders, differ from those for free flight models, which are designed for low sinking speed in constant circling flight. Low sinking speed is achieved at high lift coefficients, which automatically means low flying speed. In the case of the R/C glider, low flying speed is by no means a welcome asset. An ideal aerofoil section would be one which permits circling flight (in thermals) at low sinking speed and

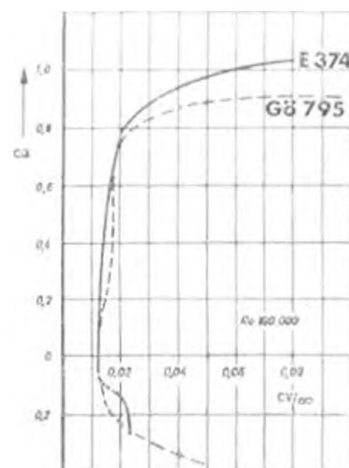
low flying speed (for tight circling), yet enables the model to fly at high speed and at very small gliding angles with very high  $L/D$  ratio in straight flight. For this particular case a special aerofoil was designed by Dr. Eppler, which bears the designation E.385. It has a thickness of 8.4 per cent and a maximum centre line camber of 5.7 per cent of the chord length. Compared to the well known MVA 301 section, wind tunnel-tested by I. W. Schmitz under the designation of Go 801, the Eppler section should offer slightly lower drag values for comparable lift coefficients. Generally speaking the performance of the E.385 should be better by about 20-25 per cent (fig. 4). The computed polar diagram shows that the section will offer good performance in the lift coefficient range between .7 and 1.2, with an optimum spot at approximately 1.1. This would provide the possibility of optionally flying slowly with low sinking speed, or fast at flat gliding angles, thus meeting the desirable requirements for radio control. This splendid performance will be obtained only at  $Re$ -numbers in excess of 90,000. Practical tests, involving the flying of several models showed promising results, which seem to confirm theory and

Figure  
4Figure  
5

### E.387

For slope soaring the lowest possible sinking speed is not of the same importance as for soaring over flat territory. Rising air currents, which are present near the slopes of mountains and hills, automatically mean headwinds. The vertical speed of these rising air currents often attains velocities of 3-10 ft./sec., depending on the steepness of the slope, its surface conditions and the force of the wind blowing towards the slope. With vertical wind speeds of this order a couple more or less inches of sinking speed of the model are of but minor importance. What is important is that flying speed must always be higher than the wind speed, or—in other words—that profile drag is low over a wide range of angles of attack (lift range). As the computed polar diagram of the E.387 illustrates, this aerofoil meets the requirement. This permits flying either slowly at high angles of attack, or fast at low angles of attack without the gliding angle becoming too steep. When compared to the Go 796, tested at the Goettingen research establishment (and described in AEROMODELLER,

calculations. Very careful construction of the wing is essential in order to achieve a high degree of similarity between computed theoretical aerofoil section and actual "finished" shape. Another requirement is adequate tail surface area. Centre of pressure travel of the E.385 is by no means small. Stalling the wing will result in relatively high altitude losses, if the tail is too small. Acceleration in a dive is about right for this kind of section, but is lower than for other sections, such as flat based Go 795 and Go 796. Thus the E.385 can neither be recommended for aerobatic flying, nor will it be suitable for slope soaring, except under near calm conditions. But for thermal soaring, over flat terrain, it will be the perfect choice and amaze the modeller with its tight circling capability, requiring but small elevator deflections for perfect trim. The zero-lift angle of the E.385 aerofoil is  $6.64^\circ$ , while the zero pitching moment coefficient  $c_{m,0}$  is  $-.69$ .

Figure  
6

Slope soaring sailplane K7 by Werner Thies with fuselage in fibre glass and wing of expanded polystyrene planked top and bottom with balsa, and glass fibre all-moving tailplane. Wing spans 6 feet and 4-channel Graupner Grundig superhet equipment is used.



February 1962) the drag coefficients of the E.387 are presumably up to 50 per cent lower (see fig. 5).

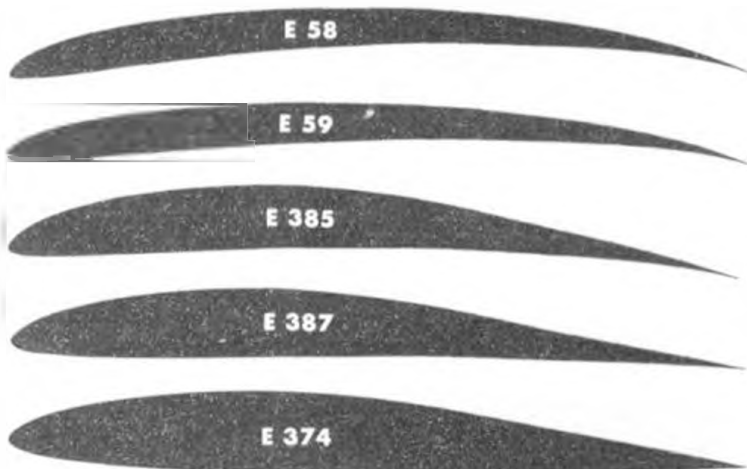
E.387 may also be used over flat terrain with good results. It is an all purpose aerofoil and should be only slightly inferior to E.385 in circling flight. It would be a good choice for flying at on-the-deck airspeeds of 5m/sec. Though by no means an ideal aerobatic section it yet permits loops, turns and other simple manoeuvres. It may even be used for inverted flight, but in this case its performance would not be particularly good. With its comparatively low centre line camber of 3.8 per cent chord length it may be assumed that centre of pressure travel will

not be very pronounced with the E.387 and that the tail surface may be safely made smaller than for the other aerofoils mentioned. With a thickness of 9 per cent it permits design of a strong, yet light wing structure.

The advantages of aspect ratios of 14 and higher are questionable. The ideal aspect ratio should lie between 10 and 12 for slope soaring models, and between 12 and 14 for flat terrain soaring types. Re-numbers generally should not be below 80,000, which corresponds to a mean chord of 6½-7 in. Zero-lift angle of this section is  $6.640^\circ$ , the zero pitching moment coefficient  $c_{m,0} = .169$ .

### E.374

This aerofoil is designed for use on very fast slope soaring gliders and for thoroughbred aerobatic R/C gliders. Its thickness is 10.8 per cent, its centre line camber max. 2.2 per cent chord length. Contours of E.374 closely resemble those of aerofoils used on fast full size aircraft (such as M6 or M12 sections). Thanks to the moderate camber of its centre line centre of pressure travel is limited, thus permitting use of small tailplanes. Torsional forces acting on the wing should be small and easy to cope with. All this, in addition to the 10.8 per cent thickness of the section, will permit the construction of light, yet strong wings and lightness is what the doctor prescribes for R/C gliders. The theoretical, that is computed, polar diagram of E.374 (fig. 6) shows a curve similar to that of the wind tunnel-tested Go 795 section. At low flying speeds E.374 should be superior to Go 795. The zero-lift angle of the E.387 aerofoil is  $-1.17^\circ$ , while the zero pitching moment coefficient  $c_{m,0} = .36$ .



### Eppler-Profile Ordinates

Station	0	1.25	2.5	5.0	7.5	10	15	20	25	30	40	50	60	70	80	90	95	100
E.58 Upper	2	3.5	4.4	5.6	6.3	7.2	8.3	9.2	9.8	10.3	10.8	10.9	10.5	9.7	8.2	5.7	4.0	2.0
E.58 Lower	-2	1.5	1.5	1.6	1.8	2.4	2.9	3.6	4.2	4.7	5.5	6.0	6.2	6.1	5.8	4.5	3.5	2.0
E.59 Upper	2	3.0	4.1	5.2	5.8	6.6	7.6	8.3	8.8	9.2	9.7	9.6	9.3	8.5	7.2	5.2	3.8	2.0
E.59 Lower	-2	1.1	1.5	1.5	1.6	1.8	2.5	2.8	3.2	3.6	4.3	4.8	5.1	5.0	4.7	3.9	3.2	2.0
E.385 Upper	2	3.1	4.6	6.0	7.1	8.0	9.2	10.2	10.9	11.4	11.8	11.2	10.1	8.5	6.6	4.0	3.3	2.0
E.385 Lower	-2	1.2	1.2	1.2	1.3	1.4	1.8	2.3	2.8	3.1	3.6	4.1	4.4	4.4	4.1	3.5	2.8	2.0
E.387 Upper	2	3.5	4.5	5.6	6.5	7.2	8.3	9.2	9.7	10.1	10.2	9.5	8.2	6.8	5.2	3.6	2.8	2.0
E.387 Lower	-2	1.2	0.8	0.8	0.5	0.5	0.5	0.7	0.8	1.0	1.4	1.7	2.0	2.2	2.3	2.3	2.2	2.0
E.374 Upper	0	1.1	2.2	3.4	4.2	4.9	5.0	6.6	7.2	7.5	7.7	7.1	6.0	4.6	3.1	1.6	0.90	0
E.374 Lower	0	1.1	-1.5	-2.0	-2.4	-2.7	-3.0	-3.1	-3.2	-3.3	-3.2	-2.9	-2.6	-2.2	-1.5	-0.8	0.40	0

AIRCRAFT DESCRIBED No. 145

# Bristol Scout D

by Peter L. Gray



ONE OF THE MOST attractive rotary engined single-seat aeroplanes, in both appearance and flying qualities, to appear during the first World War was Frank Barnwell's Bristol Scout D. It stemmed originally from the pre-war Scout A design which was developed through types B and C to the Scout D, all three latter types differing very little visibly.

Of diminutive proportions (22 ft. span) the original Scout was completed in February 1914 and flown at Larkhill by Harry Busteed (test pilot to Bristol's and who also advised on the machine's design) who attained the then phenomenal speed of 95 m.p.h. Exhibited at the Olympia Aero Show in March, No. 206 as it was then designated, was undoubtedly the most sensational machine on display. Later in the year wings of greater span (24 ft. 7 in.) were fitted which improved the handling qualities but did not detract from the maximum speed. Flown by Busteed on A.I.D. performance test at Farnborough in May 1914 a speed range of 97.5 to 40 m.p.h. was achieved.

Two more Scouts—No's 229 and 230—were built later in the year and differed in engine cowling and bracing detail. Scout B designation was applied to them as a distinction from the first machine which then became Scout A retrospectively. On the outbreak of hostilities the two Scouts B were requisitioned, allotted serial numbers 633 and 648 and eventually posted to No. 3 and No. 5 Sqdns., R.F.C. where, due to their high performance, they quickly came to enjoy the sobriquet "Bristol Bullet".

A further improved version to be known as the Scout C was ordered by the War Office on 5th November, 1914 (12 machines) followed by an Admiralty order for 24 machines on 7th December. These orders were subsequently amplified until 161 Scouts D were produced eventually, 87 going to the R.F.C. and 74 to the R.N.A.S. All the R.N.A.S. aircraft were fitted with 80 h.p. Gnome engines due to their reliability, especially for over water flying; however, due to a shortage of these engines 65 of the R.F.C. batch had 80 h.p. Le Rhones installed.

Frank Barnwell had joined the R.F.C. but was released in August 1915 to take up duties of Chief

Heading shows Scout 7053 with synchronised Vickers machine gun. Note dark (red?) wheel discs. Below left, Scout "C" at Imbros with long span ailerons and Union Jack identification marking. Right is another Scout "C" with small bomb racks between u/c legs and tip skids under interplane struts.

Designer at Filton. His first undertaking was the improvement of the Scout C in the light of the shortcomings revealed by operational usage. The oil tank was re-positioned, provision was made for better interchangeability and greater reliability of parts tending to wear quickly. Streamline Rafwires were used for rigging instead of the previous stranded cable. Fuel tank design was improved to obviate leaks caused by vibration such fuel loss having caused Fl/Lt. Freeman from carrier ship H.M.S. "Vindex" to abort an attack on Zeppelin L 17 after having registered hits on it with his Ranken darts. The fitting of synchronised Vickers guns was arranged.

Completed in November 1915 the new design, Scout D, was awarded an initial War Office contract for 50 machines and these were fitted with type C wings. Later aeroplanes had ailerons of shorter span and were rigged with increased dihedral. Two sizes of rudder were designed for the Scout D; the smaller was used with the short span ailerons and the larger with the long span ailerons. A total of 210 Scouts D were built, production being largely completed by the end of 1916, 130 were to War Office contracts and 80 (with 100 h.p. Monosoupape-Gnome engines) to Admiralty order. These Admiralty aircraft had cowlings of slightly larger diameter and there was an additional bulge on the starboard side to improve exhaust scavenging. A modified centre-section, with cut-out to provide for the installation of a movable Lewis gun was also a feature of most R.N.A.S. aircraft.

Bristol Scouts never formed the complete establishment of R.F.C. and R.N.A.S. units but were dispersed among them. The majority were unarmed when issued, especially the Scout C, and considerable ingenuity was shown by individual pilots in adapting armament so that the machines could be used offensively. Naval units often mounted a Lewis gun above the centre-section to fire over the airscrew, sometimes a Lewis was fixed to the top starboard longeron to fire through the airscrew disc both with and without Scarff-Dibovsky interrupter gear. When fitted with Vickers gun—provision for which was standardised in the Scout D—it was synchronised with Vickers-Challenger gear. The Bristol Scout was a favourite mount of Major J. B. McCudden and it was in a

(Continued on page 547)



## Specification

Power Plants: 80 h.p. Gnome, 30 h.p. Le Rhone, 100 h.p. Monosoupape-Gnome. (Also experimental 110 h.p. Clerget and Le Rhone installations.)

Span: 24 ft. 7 in.

Chord: 4 ft. 6 in.

Gap: 4 ft. 3 in.

Length: 20 ft. 8 in.

Height: 8 ft. 6 in.

Dihedral: 3 degrees.

Incidence: 2 deg. 30 min.

Weight Empty: 760 lb. (80 h.p. engine), 925 lb. (100 h.p.)

Weight Loaded: 1250 lb. (80 h.p. engine), 1440 lb. (100 h.p.)

Max speed: 100 m.p.h. at ground level, 86 m.p.h. at 10,000 feet.

Climb: 10,000 feet 18 min. 30 sec. Duration: 2½ hours.

Serial Number Allocation: Scout B. 633-648; Scout C. 1243. 1602-1613. 1244-1266. 1662-1699. 3013-3062. 5219-5327;

Scout D. 5554-5603. 7028-7057. 8951-9000. A1742-1791.

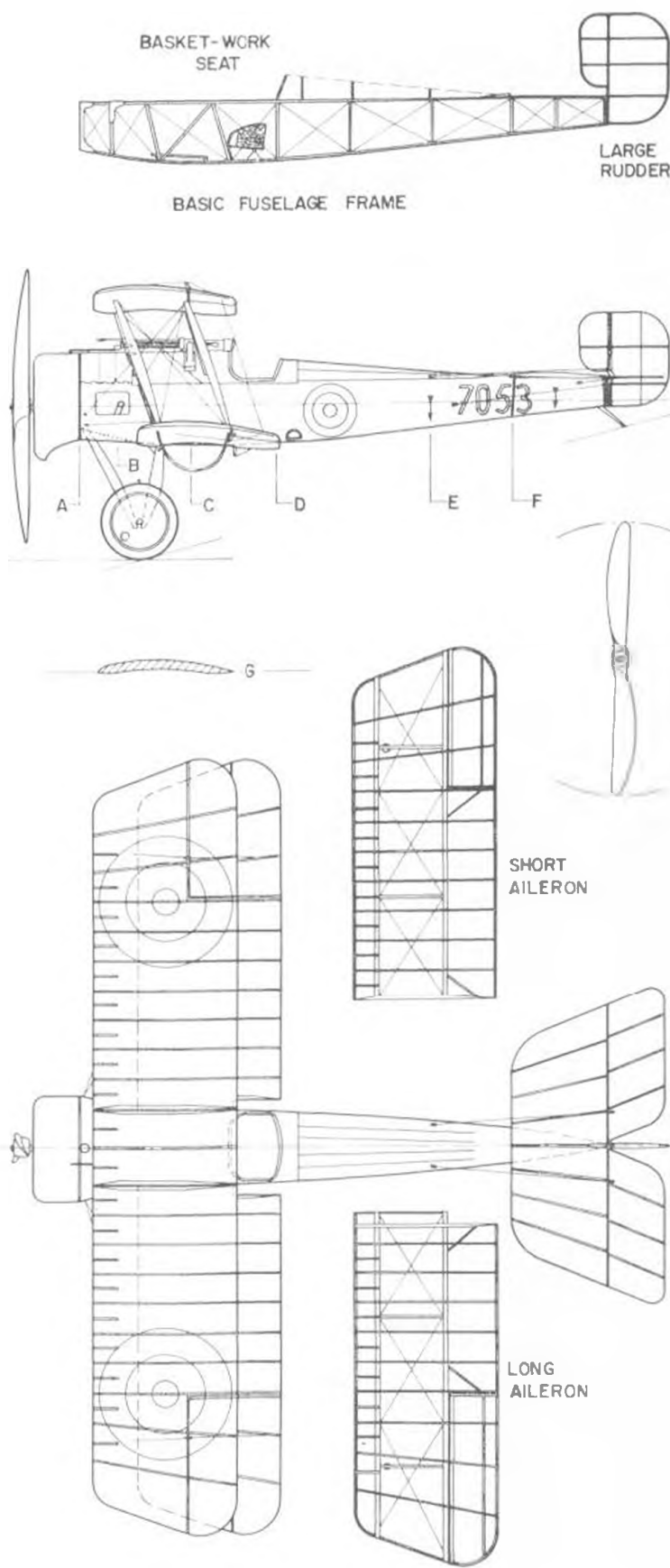
N5390-5419.

Assistance of J. M. Bruce, Esq., acknowledged with thanks.

## Colour details

The majority of Bristol Scouts C & D were uncammouflaged and remained in natural unbleached linen fabric finish which, when doped and coated with protective varnish, resulted in a darkish creamy shade. Cowling and metal side panels were natural aluminium finish; the curved ply decking was natural wood clear varnished. Likewise the centre-section, inter-plane and undercarriage struts were natural varnished spruce. Roundels of near full chord diameter were painted at all four wing tips, centred on the inboard extremity of the ailerons, sometimes narrow white outlines were applied even on the plain linen surfaces but the fuselage roundels do not appear to have been so outlined. The rudder was divided into three stripes with the blue foremost. Serial numbers were painted in black on the rear fuselage, usually in quite large size numerals.

Late production Scouts D were camouflaged on the top and side fabric surfaces with khaki-green but were left natural linen finish underneath. On these machines the serial numbers were painted in white and all roundels were narrowly outlined in white. Plywood decking of camouflaged aircraft was also painted khaki-green. Scouts C of No. 2 Wing R.N.A.S. at Imbros bore Union Jacks on the fuselage sides instead of roundels; wing roundels bore narrow white outlines on these uncammouflaged machines.



BRISTOL SCOUT TYPE D

FT

# TRADE..... .....NOTES



SINCE our last Stanley Knife review in August, this famous Sheffield firm has produced the "Slimknife 5000", which as the name implies, is slim and suitable for use with balsa and other modelling materials. The handle is in two halves that form a container for the five spare assorted shape blades. Blades lock firmly in position by locating peg and clamping action. Robustly made, this knife feels "right" to hold and is most reasonably priced at 8/6d. complete. Blades are available separately in packets of three all the same shape at 2/6d.

First packets of 1/72nd scale transfers to suit plastic models from Modelle A.B.T. of Saint Cloud, France, are No's 3 & 4 for the Focke-Wulf 190 and Messerschmitt Bf 109. Extremely well printed with "Swastikas", fuselage bands, flashes and fin markings they are double printed giving a choice for two different aircraft. The FW 190A comes in 1/11 1/2 "Richthofen" and 7 1/2 "2 Hpm. Siegl Schnell" markings. Bf 109 sheet includes 1/12 26 "Schlageter" Kdr. Adolf Galland and 9 1/2 26 "Hollenhund". Each pack has a two view tone drawing of the aircraft with colour lines, transfer position and description. Descriptions are in French-English.

A real boon to modellers is a small plane for wood carving jobs. The Ceka Mini Plane fits the bill perfectly. It can also be used for many odd household jobs. Robustly cast, the main body has a good planing surface and adjustable depth of cut from a tough steel razor blade. Two methods of use are recommended, firstly normal planing with the blade locked on the centre clamp by a wing nut. It can be used for tapering spars, carving leading edges and forming solid sheet wings. Secondly, the blade and clamp transfer to the forward position and it can be used as a cutter or scraper. Care should be taken when cutting sheet as unless in the correct position the wing nut may score the sheet. Retailing at 7/9d. including five blades, extra packets of five blades are available at 2/-. Polyurethane paints are coming to the fore and International Paints who produce a two part Poly-methane mix "708" (proof against ANY fuel, even raw Nitro) have now made available "One-O-One" Polyurethane. Submitted for testing by Henry J. Nicholls Ltd., the "One-O-One" is already for use. Brush application was easy and the Albatross Blue supplied covered very well, although it did seem to attract dust particles as it was slower drying. It was completely proof against diesel fuel and straight glow fuel. Nitromethane content of more 4 per cent attacked the finish. Sold in half pint tins at 7/- this half pint size covered a "Gnat" radio model easily giving a first class finish.

Taking advantage of interest displayed in the American Good-year Radio Control Pylon Racing event, Sterling Models won the kit race by coming out first, with Joe Martin's near-scale "Denight Special". Sterling engineered and presented the "Denight Special" in just nine weeks! The Special complies with N.M.P.R.A. rules in the U.S.A. and spans 50 in. for up to 0.40 cu. in. engines. With ample room for full house radio it so desired in the fuselage, the original only needed six channels. Our kit supplied by Enterprise Models contained good quality wood, but a little on the heavy side for a model where weight is of great importance to prevent it becoming too much of a "bomb" in the air. On the credit side, the diecutting is first class and the kit contains some very nice special items in the form of moulded plastic cowl cheeks and the wheel pants, plus clear canopy and large transfer sheet. At present we have the fuselage and one wing panel made without a hitch, helped indeed by the clear plan and building instructions. Price in Great Britain is £10.

From Scientific Model Airplane Co. of the U.S.A. through Ripmax three new 1/4 control line biplanes are released, all of 18 in. wingspan they are the Curtiss Hawk P-1; Spad and Fokker D VII. Cyril Pratt constructed the Fokker D VII for us, and reports that the pre-cut parts including the shaped wings were very clean and accurate to the plan. Recommended engine is a Cox 049 but the model can be powered by a Pee Wee if built light enough. The fuselage is built up with solid sheet wings and tail. With a pre-formed plastic cowling all parts had to be

At top left Scientific "Fokker D VII", note plastic cowl. Below Sterling "Denight Special" pylon racer and pre-shaped parts. Next, Stanley "Slimknife" with spare blades. Below Sterling "Mambo Special" intermediate model and lastly the "Ceka Mini Plane", being used for cutting.

rubbed down and sanding sealed, before the plastic cowling was cemented to the balsa wood structure, with polystyrene cement. Apply very carefully, as if too much cement is used the plastic dissolves. Although the instructions indicate strut locating holes in the top wing, this was not so and the positions had to be worked out from 1/4 in size plans. With an external bellcrank shown and leadouts passing through holes in the struts the appearance can be improved by putting the bellcrank inside the fuselage, also the wheels could be changed for a more realistic type. Other points of interest to would be constructors, cut a fuel drain hole in the plastic cowling and strengthen the wing struts if desired as the existing ones seem rather flimsy.

Distributed by Enterprise Models the Sterling "Mantis Special" from the U.S.A. is an intermediate and trainer high wing R/C model spanning 52 in. for 00 to 19 engines. The plan is excellent with step by step construction sketches both multi servo and single channel rubber escapements shown, also a flight testing section, suitable for single to six channel radio the die cast plywood and sheet balsa parts, pre-formed dural underframe bent to shape nose leg shaped block parts, and solid rubber wheels make for quick building. Blind mounting nuts are included in the hardware pack. Price in Great Britain £7.5s.

The plastics scene is all Airfix's this month, with two new kits, both imaginative choices, on the review desk. They are the "Boeing Vertol 107" twin jet 107 helicopter and WWII subject the "Mitsubishi K140" (Dinah) twin engine reconnaissance aircraft. The "Vertol 107", designated HKP4 by the Royal Swedish Navy, one of whose machines Airfix have depicted, comprises 54 parts plus stand and went together smoothly. Both rotors turn, from access doors can be fixed in either open or closed positions and rear loading doors are hinged to open downwards. Sponson type fuel floatation tanks can be removed for alternative variants and on the whole, the kit gives the impression of being very well thought out. Talking of variants and colour variations the 107 is at present in service with various airlines and the U.S. Army, U.S. Marines and the Royal Canadian Air Force and Army, so some very attractively coloured models could be built. We like Airfix's choice of Swedish Navy grey however, and coloured ours orange and green as the maker suggests. Price is 4/- and the 107 joins the "Aichi D 3A1" (Val) reviewed last month, in series 2. Also new in the same series is our second subject this month the "Dinah 55". This the most important Japanese reconnaissance aeroplane of the war and certainly one of the finest piston engine aircraft for its time, is Airfix's second new Japanese subject and shows a welcome desire for the introduction of lesser known types by these manufacturers. Again at 3/- (and of course, 1/22nd scale) this unarmed two seater goes together from 51 components plus stand and makes up into an attractive and, at the moment anyway, unique addition to any collection. Gimmick free with camera bays on the underside of fuselage a leaping tiger variant is depicted on transfers supplied in kit. Well in keeping with the Esso Ads, eh?

Aviette Kits who recently released their "President" kit for Radio Control now venture into the controversial ready made field "Sirocco" is to be the name for their ready made wings in sizes to suit the Aurora I and II, Orion and their own President. Each panel is hot wire cut from expanded polystyrene to a perfectly constant and true wing section. Covered in one piece of mahogany veneer wrapped around the leading edge this results in a warp free structure, and another good point is that the undercarriage bearers are fixed in place as well as the balsa lined aileron servo compartment. The two wing halves have to be joined together with two layers of glass fibre cloth plus the tip blocks and strip ailerons added. Wing panels cost £5.10s a pair but for those who are really lazy for £1 extra the wing halves are joined up fixed and one coat of dope applied. For this, personal collection is advised.



Above two latest Airfix plastics both unusual and imaginative choices. Top the "Boeing Vertol 107" in Swedish Navy markings. Below "Mitsubishi K 46", grey overall finish, red "Hinomaru".



At left Top-Flite "Silver Jet" ready to fly 17 in. span, a fine aluminised flier at 12/6d. from Ripmax.

Above Krick pneumatic wheels with brakes at 64/6d. and 69/6d. from R. Scott Ltd.

At right unusual self-contained drum winding, lightweight winch at 39/6d. also from R. Scott Ltd.





PART FOUR

Line of Fokker Dr. 1s in Jasta 26.

# Jagdstaffel Markings

by ALEX IMRIE

**Jagdstaffel 26***Spring 1917-Autumn 1918***Albatros D.III, D.V, D.Va,****Fokker Dr.I, D.VII**

THIS UNIT WAS FORMED at Mulhausen under Obltn. Bruno Loerzer on January 18th, 1917. Initially no unit marking was used and the Albatros D III were flown in their original finish of varnished plywood fuselages, mauve and dark olive green uppersurfaces and pale blue undersurfaces. Gradually various combinations of coloured bands and numbers appeared on the fuselages as pilot identity markings, and after a few weeks the unit marking of black and white bands completely encircling the fuselage with corresponding black and white stripes on top and bottom surfaces of tailplane and elevator came into use. Albatros D V and D Va reached the unit during the summer of 1917 and these machines were also striped from nose to tail in black and white. Pilot identity was usually marked on the white band immediately behind the cockpit, numbers, letters, and other symbols were used for this purpose.

Fokker Dr I began to arrive slowly during the winter until the unit was completely equipped with this type by the early spring of 1918. These machines also had the black and white unit marking, this, however, did not usually extend forward of the cockpit.

National insignia changes from the Cross Patée to the Balkankreuz were effected on the Triplanes in the field, and in most cases the curved sides of the old crosses still showed through the thinly applied background dope.

During the early summer of 1918, Fokker D VII replaced the Triplanes and the unit marking underwent a slight change. Although still composed of black and white bands, the chord of the stripes on the tail unit were much narrower than any previously carried.

Jasta 26 had been a component of Jagdeschwader 3 since the early spring of 1918 (other units being Jasta Boeleke, 27 and 36) the command of this formation was given to Obltn. Loerzer. He flew a Fok-



Figure 7 in this series shows the Albatros D.III, D.V, Fokker Dr.I, and Fokker D.VII in black and white finish. The Fokker noses are left in natural finish.

**Fig. 7**



Ltn. Dannhuber of Jasta 26 with Star on fuselage bands. At top, Ltn. Wewer's Albatros D III obligingly displayed. Repairs indicate he made a habit of bending wingtips. Note fig. 1 under wing. Below, Ltn. Billik and Jasta 12 Albatros for contrast.



ker D VII painted in the colours of his old Jasta 26, leaders strut streamers were carried, also the black and white stripes were displayed on the top surface of the top wing as shown in Fig. 8. Under surface of upper wing and the top of lower wing were left in the losenge pattern fabric. Under surface of bottom wing was also striped in black and white.

Ablt. Berthold also had the under surfaces of his Fokker D VII painted blue. These pilots used this display to facilitate identification of their machines in the air. They were each leaders of large formations and had a following of 30 to 40 aircraft. It was a tactical necessity for the formation pilots and

especially the component Jagdstaffel leaders to identify quickly the Jagdeschwader leader to formate on his aircraft after taking-off or combat.

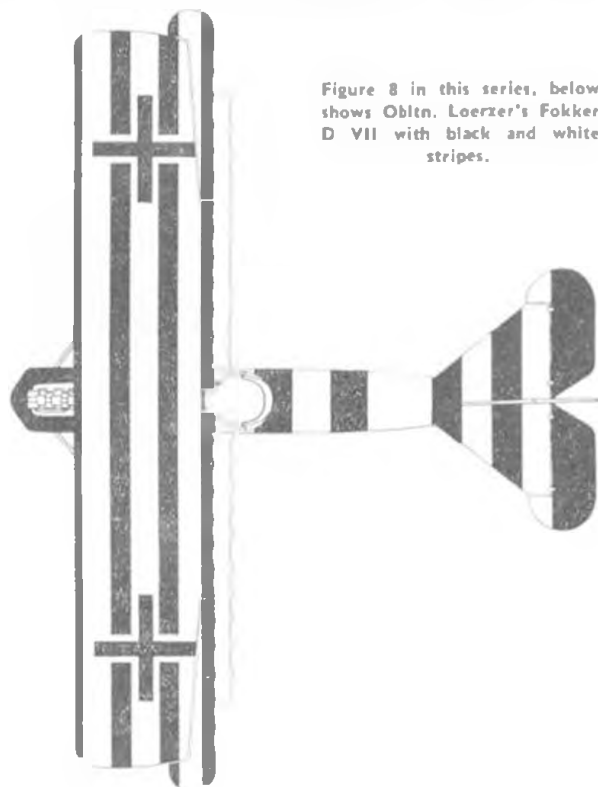


Figure 8 in this series, below shows Obltn. Loerzer's Fokker D VII with black and white stripes.

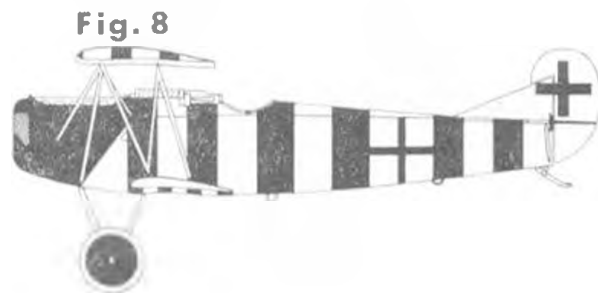
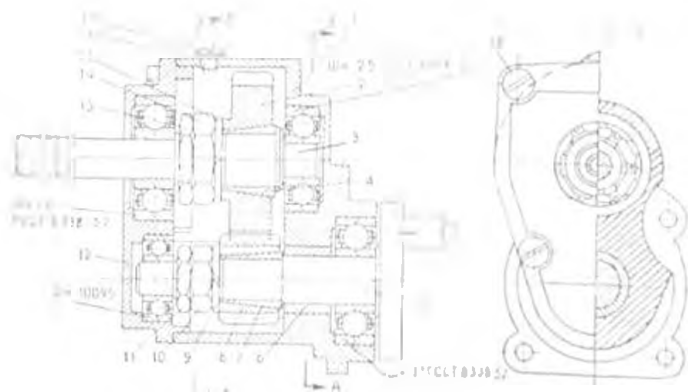


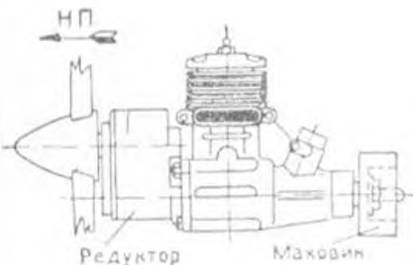
Fig. 8

# MOTOR MART

HAVING caused great interest in speed circles with the rearward exhaust M.V.S. 2.5 RL glow engine, the Czechoslovakian modelling institute has now produced a diesel version intended for team racing. Owned by Kevin Lindsey and being test flown in an I.A.I. racer by Dave Balch the example illustrated has faults, but shows potential if it can be developed. At present 95 m.p.h. for 25 laps is possible in Dave's racer with a glass fibre silencer buried inside the fuselage, which neatly joins the very convenient rear exhaust outlet. As the shaft is set up speed fashion with free-fit and fluid bearing, this is undoubtedly where the range is disappearing. The piston has a conical top with the cylinder head secured by six bolts, otherwise construc-



Unique Russian engine based on Super Tigre G.20 uses a shaft extension at rear and spur gears in a new casing to maintain high engine r.p.m. with lower airscrew speed for improved efficiency. Sketch is taken from Soviet magazine 'Wings of the Fatherland'.

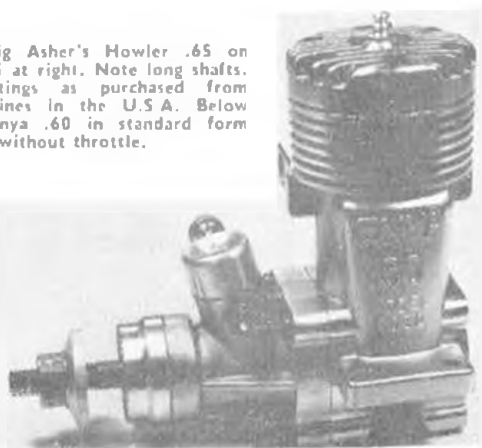


tion is the same as the glow plug version. It does not start well, unless licked gently, disliking the traditional team race type "belt". At the moment these engines are not available and even Czech team race man Milan Drazek stated he had not seen one, at the Criterion of Aces. Two interesting snippets of news from noted American engine fanatic "Doc" Nichols concern firstly the new Super Tigre .60 rear intake engines spotted at the U.S. Nationals with a contra-rotating propeller system constructed by an unknown Italian modeller. Machined entirely from magnesium the contra rotating housing carries a frictional planetary gearing system. Note the long overhang. Although not entirely practical it is a fine piece of craftsmanship. "Doc" paid a visit to Craig Asher of Ohio and found him working on his own design, the Howler .15 and .65. The .15 now sports an "ashtray" type intake like the long stroke Fox 29R of many years ago and he was working on one for his .65, which is anodised blue and green. Built in .15, .29 and .65 cu. in. since 1959 by Craig, parts in the form of rough castings and drawings for the .15 are available from "World Engines" in the U.S.A. at \$7.00 a set.

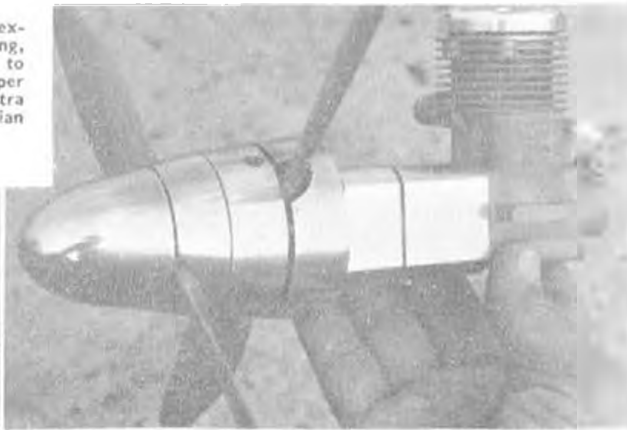
Described in September "Motor Mart", the Enya 60-11 as illustrated is in standard form and has interchangeable 8 and 9 mm. machined aluminium venturii and weighs 12.6 ozs. The ringed aluminium piston is machined from bar stock and features bronze brushed gudgeon pin bosses. Crankshaft diameter is increased to 15 mm, bringing it into line with the Super Tigre .56 and 60. Note the extremely thick front housing flange and general robust construction also deep cylinder and cylinder head fins for cooling.



Above Craig Asher's Howler .65 on left and .15 at right. Note long shafts. Rough castings as purchased from World Engines in the U.S.A. Below the new Enya .60 in standard form without throttle.



At left M.V.S. 2.5 RL diesel, experimental model for team racing, fast but rather low on laps due to loose shaft set up. At right Super Tigre 60 modified to take contra rotating propellers, by an Italian modeller in U.S.A.



# World News

**SWEDEN.** The 11th annual Championships for free flight among Nordic countries was won by Sweden on August 1st at Kungsangens, near Norrköping. Wind was very strong and results must be accepted as incredibly good in spite of the elements. Borge Hansen said it was too tough even for sailing boats! He and Kalen each snapped a wing. Same happened to Norwegian Heggelund in 4th round when leading A 2 and his reserve was off trim, he placed 2nd. Winner Wahlund of Sweden found a chance thermal after a desperate launch to clinch first place with his last round max. In Wakefield, Denmark and Sweden repeated World Champs form with perfect scores in the first round. Koster broke his prop twice, had to release with only one blade and made a 2:24 flight! Thermal indicators helped the Swedes and the "Old Fox" Hakansson won with 23 secs. lead over Danish design Nienstaedt. Power in such weather was a real challenge. Norwegian Birger Bulukin started well then developed loops, and lost models reduced the Swedes to only Rolf Hagel's model. He went on to the reserve after hitting the ground on the 4th launch, and justified his "Mr. Max" model name by topping the results. So Swedes were top in all events and in team for A 2 and Wake. The Finns won team power.

**ITALY.** The Fifth Coppa Schneider for control line scale floatplane racers was again a fine event with Nudi from Brescia leading scale pointage with his Curtiss R3. A thunderstorm provided extra water for the flying tests, 15 passing take-off and alighting requirements out of 20 entered. Silvio Faberna repeated his habit of winning overall, using a Gloster IV racer. Variety of subjects covered practically all of the full size Schneider types to make it a spectacle.

**FRANCE.** 1965 Coupe de la Cote D'Azur for Coupe

At right, Steen Agner from Denmark flew Cox .09 power model to 5th in Nordic Champs. Below left, Andrew Fullarton of Victoria, Australia, admires Jack Bone's veteran scale Avro Avian, twice size of APS plan model. 12 lb., with Fox 59 & O.S. 12 r/c. Bottom is one of 16 tailless soarers at German Wasserkuppe Nats, note tip angles.



d'Hiver models takes place at Levens near Nice in southern France on November 28th. All internationalists welcome, we'll forward enquiries.

**GERMANY.** The twelfth Walldorf International attracted 146 fliers from five nations to fly in 10 classes. Cold windy weather and surroundings did not dampen enthusiasm. Manfred Koller of Austria topped A 2 with 875 secs. and Jurgen Horn of Germany won Wakefield but the real battle was in F.A.I. power with aces Rieke and Schlosser going to the 7th round in fly-offs. Engine designer Benno Schlosser won, and in 3rd place was Hans Seelig, who proxy flew for Rieke at the Champs. So Germany made a clean sweep of power. Surprise visitor was Ron Magill in person, from New Zealand.

**YUGOSLAVIA.** The international at Varasdin for A 2 gliders and team racing drew 95 participants from Hungary, Austria, Czechoslovakia and Yugoslavia. Fastest in team race practice were Mohai and Markotai from Hungary but they pranged both model and Moki diesel so went on to the reserve. Austrians Kropf and Russ were consistent and won in the final time of 9:56. Arguments are said to have spoiled A 2 which was won by Alex Pale of Yugo. at 733 secs. over Sandor Kosurus (Hungary) at 727 and Manfred Koller at 722 for 3rd place.

**POLAND.** Thirteenth National Champs which went through no less than 11 rounds for leading fliers made Anton Sulisz the Polish National Champ for '65 and well he deserves it after that marathon. Feature of the meeting was an A 2 with slotted flapped wing by Z. Gorski who came 6th.

**UNITED STATES of AMERICA.** Selection trials for 1966 speed team resulted in Bob Carpenter, Bill Wisniewski and Roger Theobald making the speed team Reserve is Chuck Schuetle. Speeds hover around 143 m.p.h. Stunt team is Steve Wooley, Bob Silhavy and Bob Giardini.

**GERMANY.** Slope Soaring Champs at the famous Wasserkuppe in hazy conditions attracted 53 in the magner steered class alone. One had a canard! Herbert Schmidt made five maxs to win and we are not surprised after seeing his marvellous sheet A 2 at the World Champs. In R C, 63 entrants had to use a towline start as the wind dropped! Harold Neckar from Munich became the first youthful winner of the popular contest.





## Report by DICK STOUFFER

Curt Dimberg, far left, has 100 in. wing, 16 in. chord at root. Model weighs 8 lb. 14 oz. Ed. Kazmirski (right) has 95 in. wing for 9 lb. 12 oz. Both use Super Tigre 60 and Orbit proportional r/c.

# BIG STUFF

NEW U.S. TREND TOWARDS LARGER  
RADIO CONTROL MODELS & ENGINES

CURT DIMBERG of Palatine, Illinois, first conceived the idea of a large type model about 3½ years ago. At that time he used 7 ft. span with N.A.S.A. 2415 aerofoil. His present model uses a primary design by Ed. Kazmirski with "Taurus" approach to configuration.

A general impression of the flight of this model is of good stability while approaches to landing are smooth and in no way jerky, with smooth landing and roll out. The model moves at good speed through the air and certainly would have good penetrating qualities on windy days. Such large models get into better Reynolds number ranges due to size, and the larger, low wing configuration gives a better ground effect with reduced drag and lower landing speed as a consequence at the point of flare-out for a landing, resulting in a floating glide to touchdown.

Ed. Kazmirski's model is known as "Simla", not because it looks like Curt's but was named after a village in India. Ed. believes that the high drag, high power, light wing loading approach produces better performance in contest models. Drag varies with speed tending to maintain a uniform speed range for all manoeuvres in the pattern. This explains the thick wings and blunt leading edges on many of Ed's models. Another consideration in favour of the larger model was that due to its physical size it is easier to see slight trim changes much more readily than in

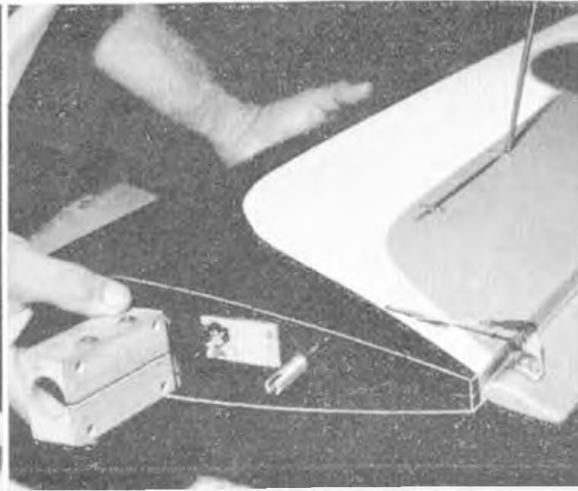
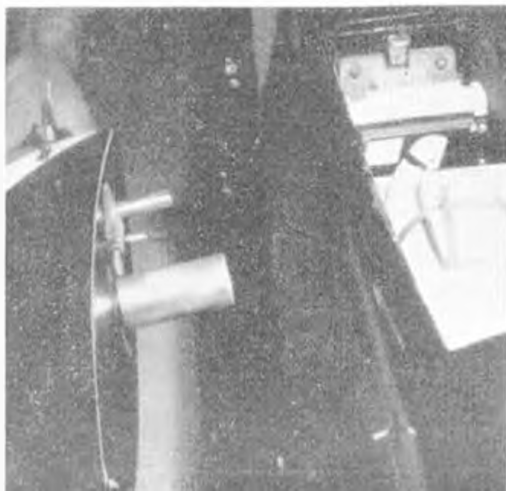
"Simla" details. Left, wing root stub and aileron key about to fit fuselage. Centre, engine and nosewheel on front bulkhead. Exhaust has set-screw idle adjuster. Right, mounting block out of fuselage. Four holes locate on special former for dihedral. Rear tube sets incidence. Aileron pick-up between.

the "smaller" 6 ft. models. This tends to make smoother flight easier to accomplish.

Ed. is quite enthusiastic over prospects for this type of model. The two piece wing makes it much easier to transport and can be placed in shoulder, mid or low configuration by changing the mounting blocks in the fuselage. Dihedral can be varied, and wing incidence is readily changed by means of a small jack screw located near the rear spar location. Structurally this wing mounting system is quite strong.

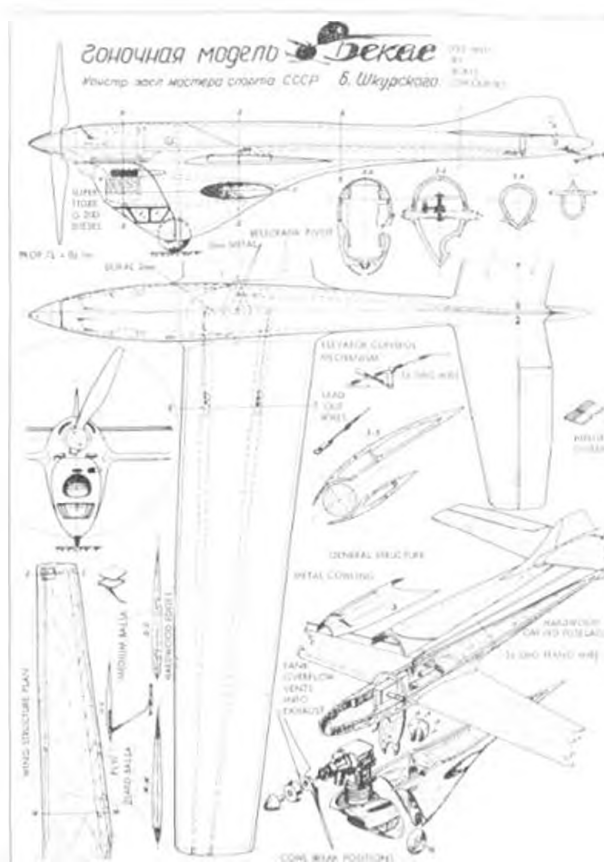
With model engine power available "Simla" is sensitive to engine performance. A loss of 800 r.p.m. made a difference between 1st and 2nd place at a recent contest. "Simla" and Ed. have achieved two firsts. One at Detroit and the other at South Bend. Two 2nds have been taken at Des Moines and Dayton.

The two piece wing is very interesting and details can be seen in the photos. Since the wing can be removed, the trim established in the ailerons must be the same each time the wing is installed. This is accomplished by using square tubing on the aileron that slips into square tubing on the aileron servo. The main weight of the wing is supported in the dihedral blocks at the centre of lift point on the profile of the chord. This is a split maple block bolted to a bulkhead and reinforced with a metal tube insert. Two long bolts are inserted on the split side of the block and tightened to grip a large dowel or tube that is mounted in the wing root and also metal reinforced. Nieuports of WWI used similar mounting for the lower wings, in the 11 and 17 series.

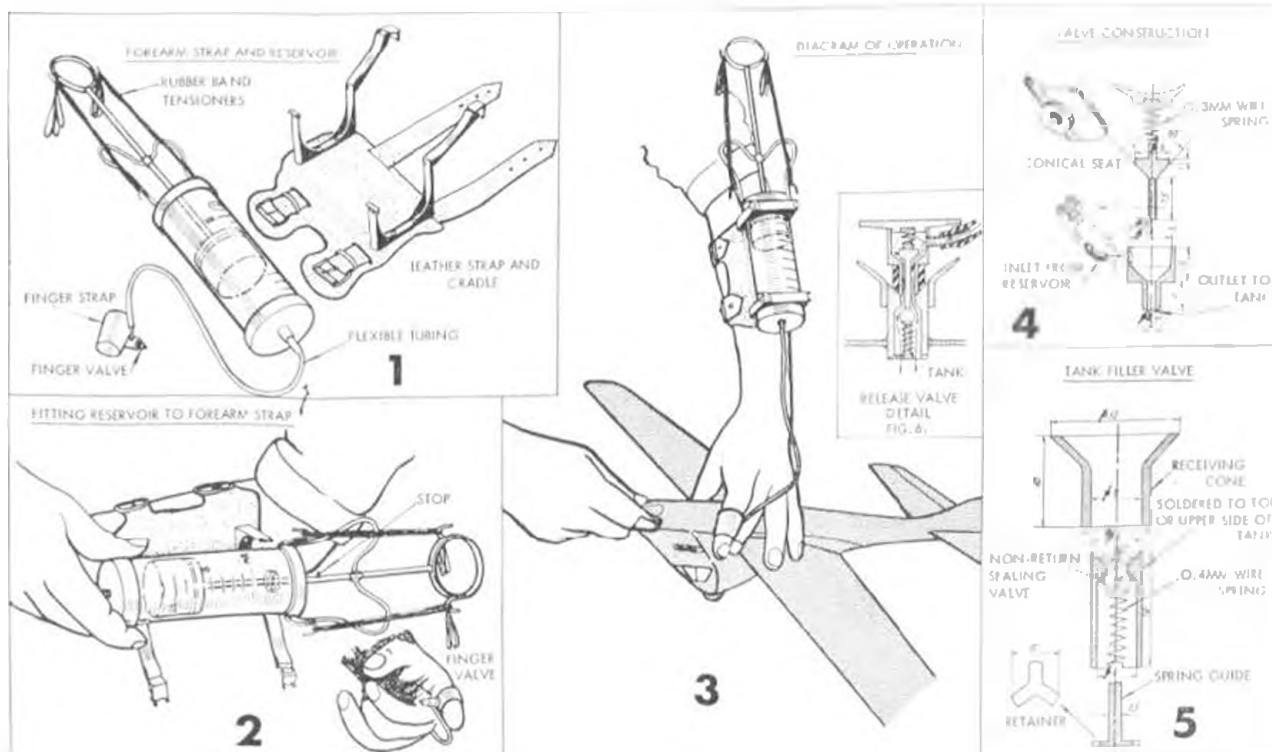


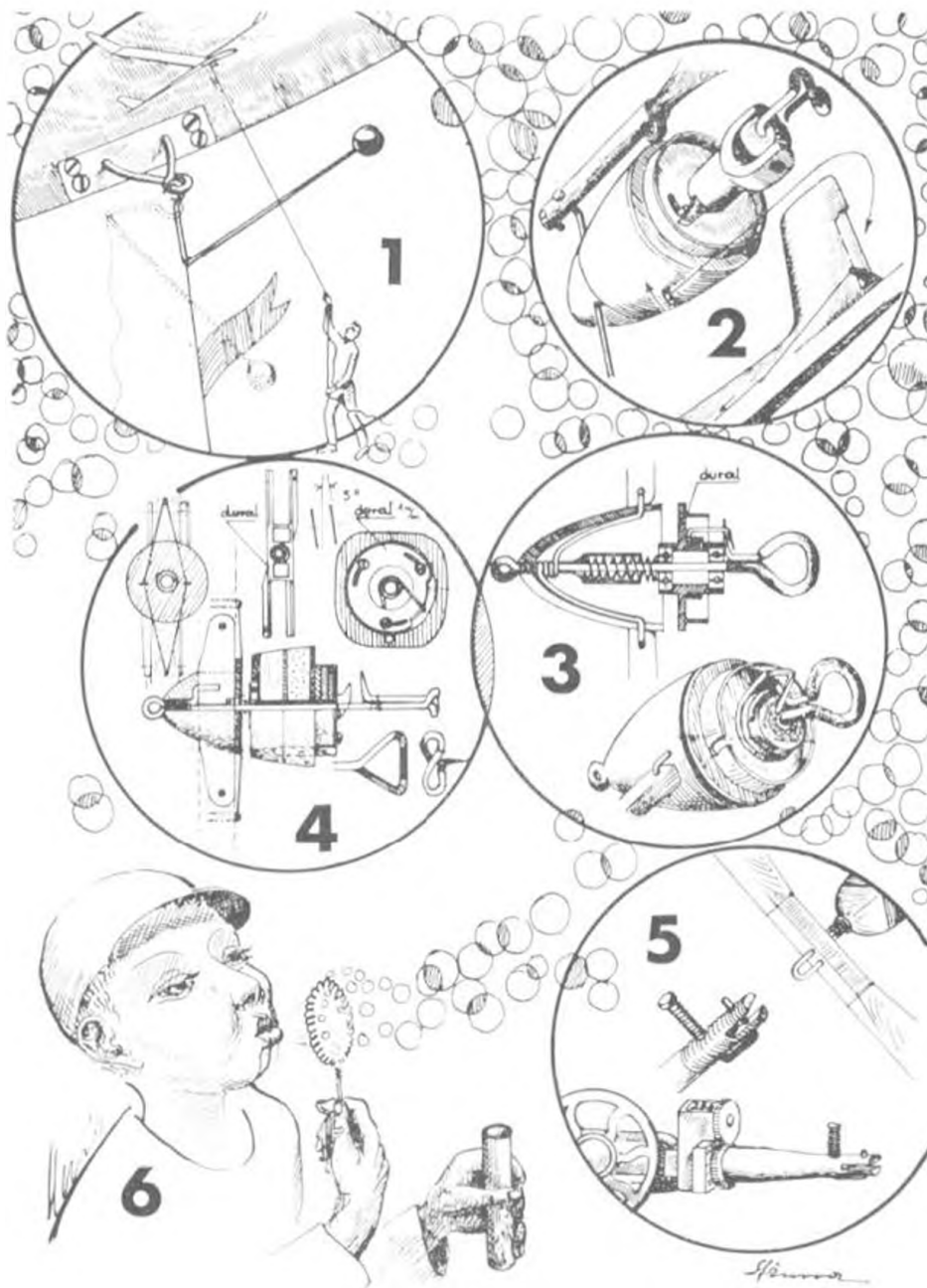
NOTED FOR THEIR fast pit stops and highly efficient F.A.I. team racers the Russians have now reached an ultimate in fuel filling at pit stops with their 'Automatic Filling System'. Used in conjunction with his "Pee Wit" racer Boris Chkourski has made 3:58 in a contest to break the seemingly impossible 4 minute barrier. Note the wheel inside fuselage, cuffed root propeller, and swept forward wing, also tailplane shape.

In Fig. 1 the basic parts of the 'Automatic Filling System' are shown. These are a leather strap and cradle that attaches to the forearm. In the cradle a ground glass syringe reservoir is fitted and is tensioned to give pressure with rubber bands. The syringe is linked by a length of flexible tubing to a finger valve. 2 shows the system being strapped in place on the forearm with the valve clipped onto the finger, note the limit stop on plunger rod. 3 illustrates the system in use with the mechanic fitting his male finger valve into the female valve in the tank so the syringe fills automatically when the two valves are open. Finger valve detailed in 4 has a conical seat and spring loaded, fluted steel plunger that allows fuel through to the tank valve. Tank filler valve shown in 5 has non-return spring loaded ball valve and receiving cone for the male valve in 4. Fig. 6 shows the two valves in the fully depressed position with the fuel flow indicated by the arrows. NOTE: All the dimensions are in millimeters.

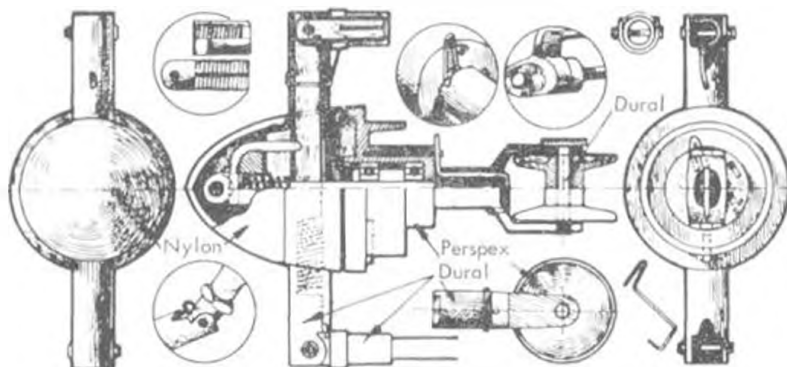


**Pee Wit F.A.I. racer by Boris Chkourski hardly meets semi scale rule has done 3:58 in a contest! Below the fast fill system described in text.**

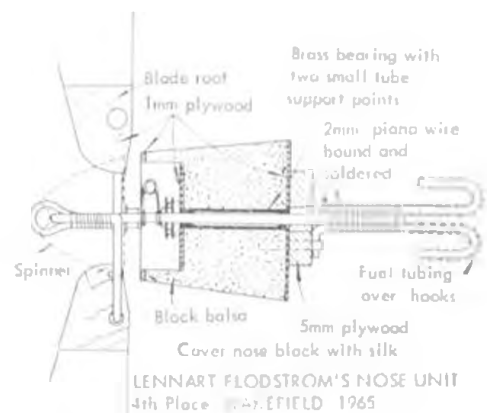




above: Sketch detail of a lightweight metal nose unit as used by two of the leading Wakefield fliers from Poland. Note that the noseblock is turned from Perspex and incorporates two ball races. The fork carrying the hobbin for the rubber motor is screw fitted to the steel shaft. Prop hub components are from Dural tube.



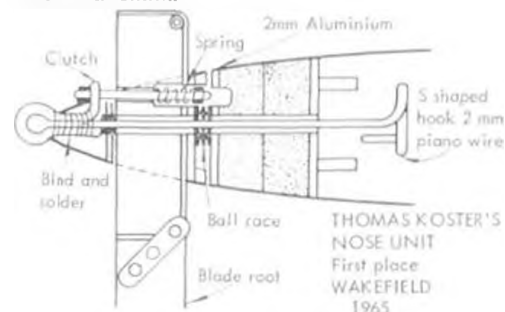
WAKEFIELD PROP HUB UNIT  
with internal folding tensioner and  
tubular centre by Stefan Bombal  
and Stan Zurad (Poland) Weight 1oz

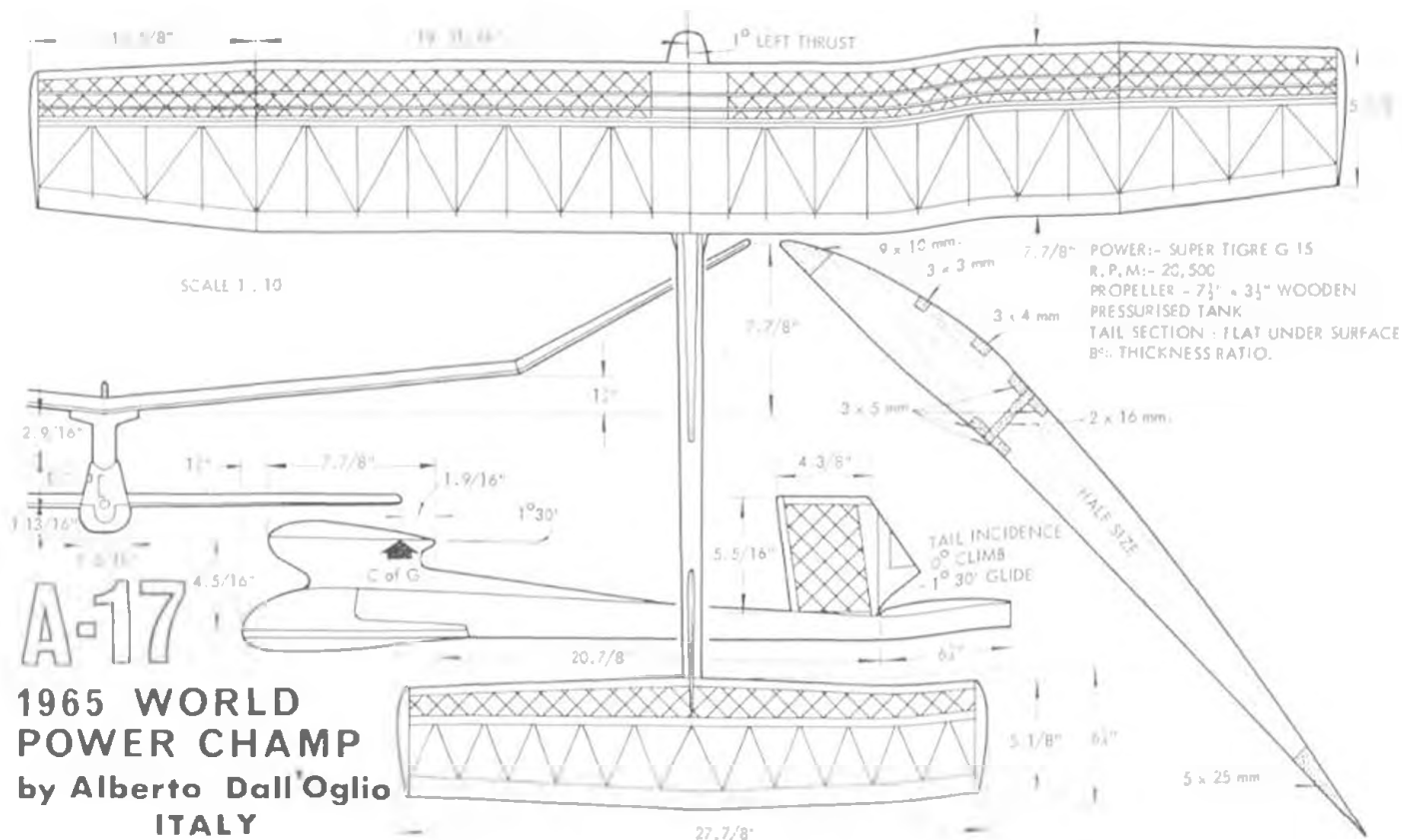


## more Champ's Technicalities

CHARGED to "Bring back details of those refined Wakefield designs, especially the nose units" before we departed for the World Free Flight Champs in Finland, we carry a high proportion of this kind of information to meet the special request from the contest fraternity in Britain. ABOVE is Swedish flier Lennart Flodstrom's arrangement, one of the simplest in the contest. He states that the wire hub is the result of urgency and that his other models in future will have hinged props. The shaft hook is as used by Lennart and Rolf Sundin since '61 and is vibration free as well as safe, while the two point plain bearing is almost free of friction. At 1111, Polish artist and Wakefield flier Stan Zurad captures more gen. FIGURE 1 is a change, it shows the French all-circulating towhook line arrangement as used for wheeling around in search of a thermal. FIG. 2 is Jerzy Kosinski's nose unit. Note the hook and the auto rudder scheme. As the prop shaft engages the stop it retracts the pin and frees the line to the rudder for setting a glide turn. FIG. 3 is Julio Meroni's Yugoslavian prop hub, very light with clever ball race mounts and internal tension spring. FIG. 4 is Vlad, Nies-toj's Polish design with blades set at an angle in the forks so that they fold flat on the fuselage. Note also the slotted backplate to automatically adjust the stop position. FIG. 5 is Frank Parmenter's auto-counting winder with the push-off clutch which is fairly widely accepted these days but which may be new to you. FIG. 6 is another common knowledge item, the most simple of all thermal detectors and "as worn" by many serious competitors and supporters.

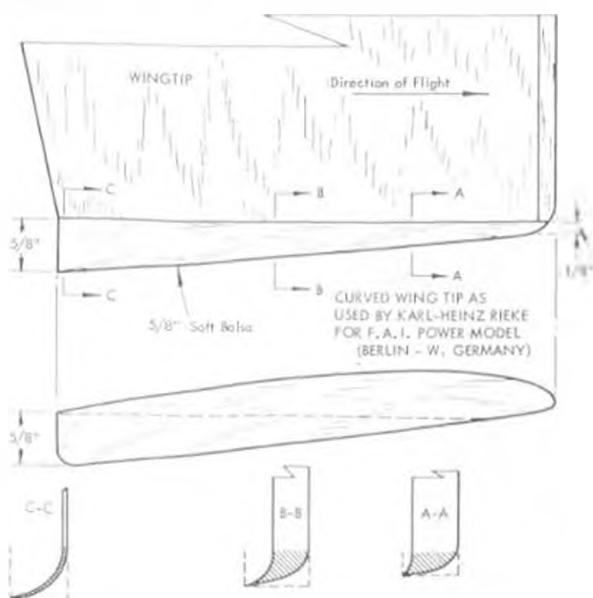
Winning Wake nose unit below indicates more simplicity and the ever useful "S" hook to prevent rubber motor bunching.





ABOVE is the Power winner's model, which differs from that in published photographs as that was the "A-18", a reserve with altered aerofoil and structure. "A-17" is larger than the "A-16" used by Alberto to place fourth in the 1963 World Championships and has the sharp leading edge type of airfoil. Note the auto-tail setting for climb and glide, the large fin and the left thrust.

BELOW is a detail which intrigued many at the World Champs. It is the wing tip used by Karl-Heinz Rieke of Berlin, Germany, winner of the Indoor Champs and always renowned for fast climbing power models. Similar tips were used by the Soviet Ace glider designer Juri Sokolov on his A/2. Wing tip design has not received a great deal of attention as it used to in past years, and the revelation that removal of the "Hoerner" type tips from the Britten-Norman BN-2 "Islander" also removed 10 m.p.h. cruising speed and 10 per cent rate of climb seems a significant comment.



BELOW Power trickery with at top, M. Bourgeois' French entry with Super Tigre G.15. The wing platform is seen set for the climb, note the gap at rear. This drops to angle of attack for the glide, as the auto rudder kicks in. Same timer also offers d/t and flood off to stop engine. Centre is the nose of ex-Champ Fritz Schneeburger's Swiss entry with a three function timer and a unique underbelly skid to absorb impact on a dethermalised landing. Bottom is the rear of same model with the tail trip and rear of auto rudder shown. The tail is pulled to positive angle for the climb, flips neutral for the glide. All done by levers! One has to be a model engineer to fly cont t power these days!



# Club and Contest News

Display of models are by North Sheffield M.A.C. in conjunction with the Sheffield Odeon Cinema who were showing 'Those Magnificent Men in Their Flying Machines' for the Northern Premier. The manager, Mr. Mann, also presented the club with a trophy for the winner of a local combat contest.

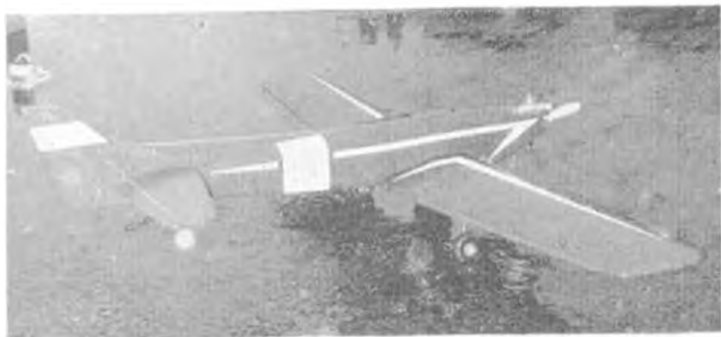
## Model Air Display

Held at Haldon Moor on September 26th the Exeter Radio Control model Flying Club 'Model Air Display' was a show for the public without any contests. Nearly 2,000 spectators enjoyed a first rate programme which included a mass parachute drop from a radio model (the children in the crowd were allowed to keep them, so about 300 youngsters stampeded for them), a delayed free fall drop, streamer towing, combat, and both biplanes and delta models. B.B.C. and I.T.V. cameras covered the event, and film was shown on television the following day, as well as write ups in the local papers. The entrance gates had to be closed to traffic soon after the start as no more cars could be accommodated and traffic jams built up for two miles on either side of the field, on the main Exeter-Torquay road. Blessed with ideal weather conditions the show was such a success that the club will make it an annual event. The rather heavy expenses were defrayed by a collecting box being passed around as there was no entry fee charged. Ed. Johnson was the star guest flier and opened the show with local stalwarts backing him up, these included Brian Rosier (Topsham), Hugh Price (Palginton), Charles Delmaur (Tiverton), Roy Allum (Pinhoe), Geoff Hoer (Exeter), Don and Roy Mann (Exeter), Gene Cutler (Exeter) and Peter Glassing (Plymouth). The Devon Regiment of the Territorial Army provided the public address system.

## Northern Gala

Held on September 5th, the Eleventh Northern Area S.M.A.I. Gala at R.A.F. Church Fenton, nr. Leeds, was ruined by the torrential rains. Unfortunately for the F.F. boys they were not allowed to use cars, and had to muck in with the communal trolley provided by the organisers for airfield transport though some types were not grateful for this even. Results show another win for John O'Donnell in Power flying essentially the same design as usual, latest version sports a Gaster re-built Veco 19, pressurised and with a flood off cut out, plus a brazed up lipstick case, silencer. Making both his max's before lunch as this was the only time to fly due to the elements John had an over run on the third. Runner up Gordon Doncaster made flights the same time as O'D. with his two year old "Black Arrow" O.S. 15 powered model using un-pressurised fuel feed and an auto rudder operating 1 sec. before engine stops. Joe Savini was a challenger but could not restart his engine before the end of the contest having waited so long. Poorly supported the Selby D.M.F.C. Concorus Trophy for F.F. scale was won by Harold Yates with a Gloster Gamecock in Finnish markings from A.P.S. that flew well with Webra 2.5 spanning 30 in. I. Manley made second with a Bristol 120 Fighter but had some trouble flying it due to stalling. Gliders that depend almost entirely on the elements for flight had a hard time out of 64 flights made only two max's were recorded. Before the rain started the experts were waiting for better weather and after the rain was over it was calm with light lift giving only extra 15-30 seconds so only top class gliders stood any real chance. I. O'D. and Urban Wannop made all their flights in the last 20 minutes. C. Wyatt (Astori) and Ray Monks both had two good flights and messed one up, and with 0.27 second

Multi Radio winner at Northern Gala by B. Purslow, "Taurus" with Orbit 10 radio, should have been a seaplane for photograph!



## SOUTHAMPTON NEWS

Most 'up and coming' member of Southampton M.A.C. is Brian Calais who after building only two contest gliders is up to Concours standard. With an A.P.S. "Floridian" he placed in the fly-off at the Summer Gala after almost rebuilding the model from damage at the East Anglian Gala. At Cranfield he was again the best club scorer, still with the Floridian design. Club P.R.O. D. R. Whitlock, also at Cranfield had both wing panels fall off his radio controlled power assisted glider when taking off from the tarmac in round one and then the fuselage (almost under control) went on to pass the marker pole to bring applause from the spectators, in the spot landing event.

Sheila Wyatt made sixth place. Ray Monks third flight was so low he did not bother to hand his card in so J. O'D. took first with 8.07 seconded by Pete Jellis at 7.03. Engine cutting was the chief cause of incomplete flights in Multi Radio Control over 50 per cent in fact. Winner B. Purslow made very good loops and bunts but could not spin his model at all, he used Orbit 10 in a Taurus and should be a threat to the "big boys" in future. 4th place Woodhouse was in his first contest and did very well with Kraft 10 near in an O.D. model using clipped Taurus wing and Merco 61. Bickerstaff, Whitaker, Brunt and Burton were just a few who had engine cuts, otherwise the standard was very high with the winner making 1611 pts. Class B team racing had no entries at all although one model was seen to fly. Only one round was possible in F.A.I. team racing and the fastest time went to Turner Hughes at 5.05 two seconds ahead of Balch King Scotsman Reid from Dunbarton made third fastest so they went forward to the final where Balch King made 10.41.2 with five stops to Turner Hughes 10.43 with three stops. Balch had good settings all the way but Reid lost his and made third with 11.03.2. A team racing was another win for Turner Hughes at 9.10.8 with a new name in second place, this being Heaton Ross of Warrington who made 9.47 to beat King Balch. Balch lost settings and on one stop caught the model, refueled and corrected settings without stopping the motor to make 10.44. Combat was rained off with soggy streamers and the winner was drawn out of the hat. Stunt had the appointed judge go home almost at the start, when fliers tried not to fly in a downpour so the competitors made up a panel amongst themselves and took turns to judge each other. Jim Mannall of Lincoln had yet another win with his Crusader at 936 pts. and was followed in second place by Tom Jolly with 931 pts. With only four entries P.A.A. load was a walkover for D. Hipperson as no one else recorded a time so he was left with first place. M. Barum won Chuck Glider at 2.55 with brother P. Barum taking second slot at 2.25, both from Lincoln.

## Woodford Rally

The North Western Area's Woodford, Cheshire Rally on August 29th was extremely well attended with 368 competitors and by 11.30 a.m. it was estimated that there were 600 cars in the car park. The meeting commenced with 25 m.p.h. winds blowing down the full length of the main runway, and just before

Free Flight Scale winner Harold Yates holds aloft his A.P.S. Gloster Gamecock in soggy condition, flew well.



mid-day heavy rain put paid to almost all activity for about an hour—but didn't stop some hardy combat types from flying and the glider control in the middle of the field was continually manned. By about 1 p.m. the weather brightened up considerably and although the wind remained strong many good flights were made. Several models were lost, notably Wiseman's 'Rolling Stone' variant which disappeared at great height towards the Pennines to be clocked off for a 2:50 on a first flight this two other flights—the last one on the stroke of six o'clock brought him out top of the glider list. Another spectacular fly-away was that of Jim McCann's high thrust line Eta 29 power model. This model, with a home-made venturi type efficient silencer and a three position variable incidence tailplane ascended to the heavens at about the same rate as the Cooper Conrad Gemini-5 spacecraft! On the last flight the model achieved 500 ft. plus on 9 motor run and, not to be content with that, entered a terrific thermal timed OOS after 4:10 probably on overlong d! The tailless event was quite well supported especially by the rubber driven variety. John Pool won this event with his 'Never Forget Me' design (see earlier AEROMODDIEUM for three views) but he was closely followed by Tidswell and Wiseman. In this class it was pleasing to see Ken Attiwell (Halifax) return to contest flying. His model, based on the Never Forget, was equipped with an ingenious double bladed folder pusher prop and a wing flap d system; a broken fuselage put paid to his chances after his second flight. 'Coupe d'Hiver' proved an easy win for Henry Tubbs (Basilton) whose model based on Jack Darby 'Sky d'Hiver', did two maxes and a 1:12. (This contest was flown hand launched). Radio competitors kept the attention of a large crowd right throughout the day and as many as three models were being flown simultaneously after the contests had been completed. Geoff Pike's 'Plain Jane' with Super Ture 56, Pike silencer and I & M Digital proportional gear proved to be the winner of the Multi event, whilst Ron Donohue's (LARGAS) 'Navigator' blue and red trim, with Veco 45 Enya silencer and Raven equipment won single channel. The scale models were a little disappointing but the Matta-Moynier 'Jupiter' was a big attraction for the crowd. There was a nicely built Halifax Mk III Control-line around and attracting quite a lot of attention in the car park were DCB flight engineer Bernard Murphy's collection of scale models. These included a United Nations DC-3, a vintage Curtiss pusher biplane from a Thimble-drome kit and

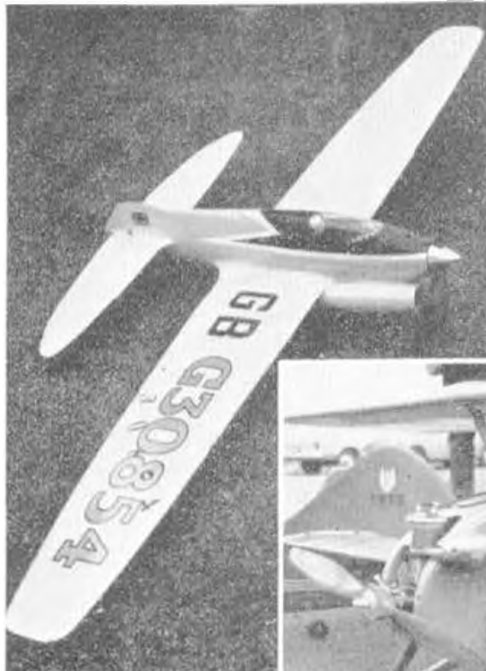
a Fokker Trimotor with a 1/D Baby power. Combat was situated adjacent to the main control tent where all the excellent prizes and trophies were on show—prizes varied from table lights, various useful electrical gadgets (trouser creasers, hair curlers, etc.), to an annual subscription to the 'Radio Control Models and Electronics'. Next to the main control tent was a display by the Air Britain and the Northern Aircraft Preservation Society. This latter society has a partially restored Avro 594 Avian 111A—G-132/N on display. This machine was first constructed at Newton Heath in 1928. Other items included a propeller from an S.E.5. Combat, 1 B. Fluckhart (Mad-Mac), 2 L. Lee (Wharfedale), 3 L. Scurfield (Tynemouth), 4 T/R, 1 Hudson Davy (Wharfedale) 10:38.8, 2 Taylor Jones (Derby) 11:54, 3 Heaton Row (Warrington) 62 laps R 1/R 1 Yates Hampson (Leigh) 1:11, 2 Skitt Harcastle (Wolves) 8:51, 3, Dugmore R. (Novocastria) 64 laps FAL T/R, 1 Wallace Laurie (Novocastria) 11:47.6, 2 Kirton Peart (Novocastria) 13:08.5, 3 Barber Morrall (Whitefield) 19:20, R/C Multi, 1 D. Read (Rolls Royce) 1734 pts., 2 R. Harveys (C.M.) 1531 pts., 3 G. Pike (Notts, R.C.S.) 1550 pts. R/C Mono, 1 R. Donohue (Larcs) 557 pts., 2 R. Campbell (Warrington) 333 pts., 3 L. Horwich (Larcs) 30 pts. C/I Scale, 1 J. Bodes (Halifax), (Heswall) 570 pts., 2 D. Day (Fokker D.VII), (Wolves) 508 pts., 3 B. Evans (Hampden), (Wolves) 490 pts. T/F Scale, 1 J. Simmance (Striper), (Wharfedale) 609 pts., 2 J. Kesall (the 2c) 543 pts., 3 J. Palmer (Sopwith), (Warrington) 524 pts. Chuck Gilder, 1 R. Roberts (Whitefield) 174 secs. (3 flights), 2 K. Robinson (Whitefield) 165 secs., 3 J. Radcliffe (Timperley) 161 secs. Coupe d'Hiver, 1 H. Tubbs (Baildon) 5:18, 2, D. White (York) 4:06, 3 J. O'Donnell (Whitefield) 3:12. Tailless, 1 J. Pool (York) 5:46, 2 G. Tidswell (Baildon) 5:35, 3 D. Wiseman (York) 5:33. Rubber, 1 J. O'Donnell (Whitefield) 8:47, 2 P. Lowe (Sharnston) 7:33, 3 B. Day (Walsall) 7:28. Gilder, 1 D. Wiseman (York) 7:06, 2 B. Spencer (Ashton) 6:11, 3 G. Lowe (Wallasey) 6:00. Power, 1 J. McCann (Tynemouth) 8:59, 2 P. Cliffe (Stockport) 8:55, 3 J. O'Donnell (Whitefield) 8:37. Rally Champion, J. O'Donnell, 20:36.

## Surbiton Gala

100 plus entries were received at Chobham Common on August 30th in spite of the moderate wind strength and fly offs were necessary in the rubber glider and power events. D. R. Wootton topped the rubber fly off for the second year in succession and



At far left Woodford single chan. winning "Navigator" by Roy Donohue has Veco 45. Below, Ken Attiwell's D/T system on tailless model. Below left, Jim McCann's Eta 29 extractor silencer, in high thrust line model. Below, Mike Gaster launches at South Coast Gala, and John West does likewise below. Centre, Norman Coulting with tailless entry South Coast Gala.



Integral fibre glass type silencer on moulded extractor Turner / Hughes (Cambridge) winning FAI racer at Cranfield, won them their 2nd ETA 15 prize this year, no spare engine worries for them!



Top, that man Eric Clutton and spotty "Tadpole" (R.C.M. & E. May) entered single and Mr. Charlesworth flew Smith Miniplane in multi at S. Midland Gala. Old timer at left is one of Noel Baker's fleet. "Miss Philadelphia VI" is a 1935 design, powered by more recently made twin plug petrol/ignition Super Cyke now back in production for discriminating enthusiasts. Note old Austin timer, booster plug sockets, generous undercarriage, etc. . . . take you back, veteran flier!

this fly-off was made in both that Dave Hipperson and I. Williams returned exactly the same score. An additional fly-off was held to determine the third place, this going to Hipperson by a 1 minute margin. The combined F.A.I. event was interesting in that the top three places all went to Wakefield. I. Bailey of Bristol and West won the Gala Championships in spite of having his rubber flights discounted through not returning his flight card within the time limit. Along with runner up, Andy Cisp, he had flown in all five events. Results: **Rubber**, 1. D. R. Wootton (Hayes) 9:00, 1. 4:41, 2. M. Reeves (Le. Bees) 9:00, 1. 4:19, 3. D. Hipperson (Croydon) 9:00, 1. 3:25, 3:27. **Glider**, 1. C. Hayward (Croydon) 5:00, 1. 5:51, 2. Burgess (Western) 9:00, 1. 5:10, 3. I. Cartwright (Bristol West) 9:00, 1. 1:05. **Power**, 1. R. Monks (Bham) 9:00, 1. 4:30, 2. M. Charles (St. Albans) 9:00, 1. 1:00, 3. A. Espley (Bham) 9:00, 1. 1:00. **F.A.I.**, 1. A. Ames (Hayes) 11:45, 2. A. Wells (Hchurch) 11:30, 3. I. Allen (Brighton) 12:47. **JA Power**, 1. J. Boxall (Croydon) 8:46, 2. G. French (Essex) 8:12, 3. G. Cornell (Croydon) 8:08. **Gala Champion**, I. Bailey (Bristol & West).

## South Midland Gala

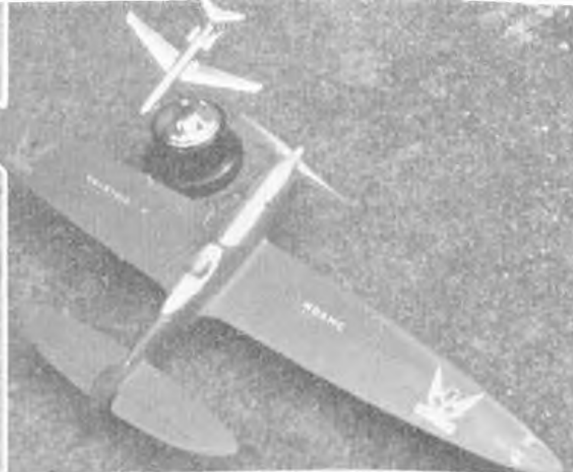
After the Church Union deluge, Cranfield the following Sunday (September 12th) was its bright and surprisingly calm self. Entries in free flight were happily higher than before but control line events appear to lack the old fire of enthusiasm. Except of course for Combat which knows no bounds. The final was conducted in darkness with the invincible Wilkins displaying "Cat's-eyes" virtuosity. Chuck Glider was a revelation and once more it was a fly-off, the Bayram Brothers showing their arm-skills to great effect. Radio was a repeat of last year's same winners from Welsh Wales but crowd appeal was less. Time for yet another change of rules! Team Race saw our own John Franklin in the lead—only to have a sadder part company with its mountaine and so disqualifying: the lesson is learned the hard way! So too did the organisers learn that the stop watch on which all of its rely implicitly is not infallible. Dave Hipperson's best of the bunch of 16 in Rubber fly-off was cut short by a stopping stopwatch—demanding duplicate watches for such events in future. Dave won a special prize as "unofficial" moral winner. Eleven qualified for power F.O. and 14 in Glider which adds up to a great day of flying. But we felt the happiest on the field was Noel Barker (Mercury IV, Miss Philadelphia, Quaker Bash, etc.) etc. His old timers dated back to '35 and flew wondrously with petrol ignition in use crackling through new-landed silencers. **Rubber**, 1. I. Allen (Brighton) 9:00, 1. 5:58, 2. R. Bailey (Surbiton) 9:00, 1. 5:47, 3. R. Monks (Bham) 9:00, 1. 5:40. **Power**, 1. M. Green (Lincoln) 9:00, 1. 6:00, 2. J. West (Brighton) 9:00, 1. 4:51, 3. P. Bushell (Surbiton) 9:00, 1. 4:34. **Glider**, 1. M. Woodhouse (Norwich) 9:00, 1. 1:14, 2. I. Dr. (Bristol) 9:00, 1. 1:50, 3. M. Smith (Norwich) 9:00, 1. 1:50. **Coupe d'Hiver**, 1. I. O'Donnell (Whitcheld) 5:28, 2. I. Burrow (Wackth) 4:44, 3. I. Bailey (Surbiton) 4:39. **Chuck Glider**, 1. P. Bayram (Lincoln) 4:07, 2. M. Bayram (Lincoln) 3:57, 3. I. Leetwood (Hornchurch) 3:55. **JA Power**, 1. R. Monks (Bham)

11:48, 2. J. Boxall (Croydon) 14:02, 3. K. Smith (Croydon) 11:05. **Combat**, 1. R. Wilkins (Sukup), 2. D. Fry (Edinham House), 3. R. Sobbad (Sukup). **D. Merose (Hearner) F.A.I. Team Race**, 1. Turner Hughes (Wharfedale) 10:35, 2. Davey Hudson (Wharfedale) 11:07, 3. Franklin Ives (Wanstead). **JA Team Race**, 1. Davey Hudson (Wharfedale) 8:48, 2. Turner Hudson (Wharfedale) 8:56, 3. A. Dell (Edinham) 9:45. **Stunt**, 1. I. Jolley (W. Essex) 2079, 2. D. Day (W. Essex) 2087, 3. M. Reeves (W. Essex) 2079. **Mono Control Contest**, 1. B. Tom (S.W.R.C.S.) 208, 2. A. Bird (M.) 212.5, 3. C. Barham (Kidderminster) 251. **viad Charnel Contest**, 1. P. I. Waters (S.W.R.C.S.) 207, 2. G. Franklin (S.W.R.C.S.) 2532, 3. I. Johnson (Bristol) 2445.

## Combined S.M.A.E. and Club Contest Calendar

- Oct. 17 S.M.A.E. Event, Area Centralised. A Power, Open rubber.
- Oct. 17 2nd Imperial College Combat Rally, College Sports Ground, Sipson Lane, Harlington (near London Airport). Class A Combat and B Rat Race.
- Oct. 17 Tony Pannett Memorial Trophy, R.A.F. Topcliffe. Open Power. Entry fee 1/6d. to J. Moseley, 7 Elmwood Ave., Watton, Nr. Wakefield, Yorks. Double fee on day.
- Oct. 17 East Angles Decentralised F.A.I. Contest. Area venues. Results of F.A.I. R/G/P. B. Bowles, Warren Edge, Brand Heath, Thetford, Norfolk.
- Oct. 24 5th S. Area F.A.I. Meeting, R.A.F. Topcliffe. R/G/P, Team Race, Stunt Combat, Team Award in F.F. Pre-entry Full senior and Intermediate 2/6d. per event, juniors 1/6d. Late entries 3/6d. to: J. Moseley, 7 Elmwood Ave., Watton, Nr. Wakefield, Yorks.
- Oct. 21 South Bristol Gala, R.A.F. Hullavington, Wiltshire. Combined F.A.I. F.F. (3 rounds) Vintage R/G/P pre 1951 F.A.I. Team Racing. Details: J. B. Mayes, 17 Northville Road, Northville, Bristol 7.
- Oct. 24 St. Albans Rally, Chesham Common. Open R/G/P, and JA Power.
- Nov. 7 Blackthorn Gala, Chesham Common. Bill White Cup.
- Nov. 14 Richmond & District 'Gossamer' M.A.C. F.F. Gala. Chesham Common. Open R/G/P, A/I Glider, Coupe d'Hiver and Chuck Glider.
- Nov. 28 Bournemouth F.A.I. Rally, Everleigh Drop-plug Zone, North Tidworth. F.A.I. Power A.R. Wakefield. Entry on day.

At left Peter Bedell's Aichi 99 Val with Frog 500 took first in scale at Irish C/L Nats.



## South Coast Gala

Held at Chobham Common on 29th August when a boisterous westerly wind spoilt what would otherwise have been a very pleasant sunny day. Entrants were obliged to fly from the car park, which with its attendant high voltage lines, G.P.O. wires, cars and sundry other obstructions wasn't altogether very satisfactory. In open glider, the Brighton Cup was won by Dave Glue of Brighton club, and open rubber the Chattri Cup went to John Oulds of Crawley. In the tailless glider event, the old maestro 'Josh' Marshall of Hayes flying a very elderly looking model won with an aggregate of 332. In power John West had the misfortune to run out of time after a long retrieve by not being able to get airborne for his third flight after two maxes. Flying in his first free flight comp, Paul Howe of Ilthous placed a very commendable fifth his third flight of only 32 secs, letting him down. At the end of the day no fly-offs were required which is some indication of the generally poor conditions. Results: Rubber, 1 J. Oulds (Crawley) 7:13, 2 J. Allen (Brighton) 7:03, 3 A. Wisler (Croydon) 6:22. Power, 1 M. Gaster (Surbiton) 8:05, 2 G. Cornell (Croydon) 7:11, 3 R. Johnson (St Albans) 6:17. Combined F.A.L., 1 J. Savin (W. Sussex) 7:26, 2 D. Hopperson (Croydon) 6:36, 3 J. West (Brighton) 6:00. Glider, 1 D. Glue (Brighton) 6:59, 2 K. Smith (Croydon) 6:48, 3 J. Burke (Norwich) 6:42. 1A Power, 1 P. Jellis (Croydon) 8:04, 2 G. Head (Lee Bees) 7:47, 3 J. Bailey (Brighton) 6:31. Tailless Glider, 1 J. Marshall (Hayes) 332, 2 H. Tonode (C.M.I.) 314, 3 L. Kay (Hayes).

## Irish C/L Nationals

Held at Baldonnel airfield on July 3rd-4th the Irish C/L Nationals were poorly supported by comparison with other Nationals and they seem to have a very high rate of pranging as well. Team racing was run most efficiently by Johnny Carroll. In the first 1A heat Paul Brennan's Oliver Cub model produced the fastest heat time of 4:20, which made him fairly certain for a final place. Heat two finished close with Peter Deane at 5:14 and Tom Molloy at 5:16. Heat two of the semi-final produced a spectacular pile in when Con Carroll's Oliver met instant annihilation on the concrete following a line snag. Following the A came the FAL, three fastest of which went straight in to the final. Gerry Hand showed the way with a heat time of 4:53.8 using an Eja mk. II and Rex Up 7 by 73 wooden prop. Final time of 9:55 by the Hand Carroll team must be about the best yet in Ireland. Class B suffered from lack of entries. Out of the six entries only four produced times. Paul Brennan's F1a 29 was well on time, turning in 4:20 in the heat. However his B Racer was also attracted to the centre of the circle and suffered disqualification. Combat had the largest entry. However two rounds of heats soon cut down the entry to six, which meant that somebody had to be given a bye into the semi-final. This was

Above right Paul Brennan's 1A T/R winner at Irish Nats.



Right display of cups and shields at South Coast gala.

soon solved when both participants of the Wilson & Molloy bout were disqualified for combat in the centre of the circle as well as around the circumference. This left Graham Dickson and Liam Maddock for the final, Liam winning after a fairly clean bout. Stunt showed a great improvement over last year with more .35 size models in evidence. First round was run in fair flying conditions, all the contestants could not complete the schedule in the allotted seven minutes (I) having to refuel half way through. P. Bedell led both rounds with a score of 4075 points flying a Mereo 35 powered o.d. He was followed by P. Deane flying a 1.2 with 3942. Noel Barrett was unlucky enough to rub his Tony in at the bottom of a square hunt and Bob Montgomery, was doing very well until he failed to pull out of the last 120 degrees of his triangle. Meanwhile MACT stunt was being flown on the grass circle. Ivan Bolton put on a good display flying his PAW 149 own design. Peter Deane flew into second place with a miniature Spacehound, again using a PAW 149. Scale took place at the end of the contest. The only twin of the meeting, a Henschel 129 piled vertically into the concrete following a wing-over immediately after take off. D. Boyd had engine trouble with his all white Spitfire and could not fly. Bob Montgomery's 1D Racer powered Lokker Triplane did continuous wing overs (unintentional) and gained him third place. Ivan Bolton flew a Brandenburg Sea Monoplane complete with launching trolley which it retained in the air for landing, and flew the best of all and even doing consecutive loops. First place in scale went to Peter Bedell's Aichi 99 Val with throttled F1a 500,

## BRISTOL SCOUT D (cont. from page 532)

Scout C that Major Lanoe G. Hawker won his V.C. when downing three German reconnaissance machines on 25th July, 1915 - the first such award for air to air combat. In addition to forming part of the equipment of most squadrons on the Western Front, Scouts served in most theatres: No's 14, 67 (Australian) and 111 Sqdns. had some on strength in Palestine, No's 30 and 63 Sqdns in Mesopotamia and No. 47 Sqdn. in Macedonia. They served with R.N.A.S. units in the Dardanelles campaign, from aircraft carrier ships and coastal stations at home. They were extensively used for training also.

A single Scout D survived the war (Serial 5570) and appeared on the Civil register as G-EAGR where it remained, under varying ownership, until scrapped in 1930.

Of conventional construction the Scouts were light

but strong machines. The fuselage was basically a braced box-girder with longerons of ash forward and spruce aft, the spliced joint being secured with copper rivets. A circular aluminium cowling housed the Gnome or Le Rhone rotary engine and metal panels blended its section into the slab-sided fuselage adjacent to the leading pair of centre-section struts. The curved top surface was ply covered to just aft of the cockpit where stringers preserved the decking curve to the tailplane. The remainder of the airframe was fabric covered which was secured in laced panels. Wings were of all wood construction and braced with duplicated flying wires and single landing wires. Tail surfaces were welded from light gauge steel tube except for the main spar of the tailplane which was of spruce. An orthodox vee type undercarriage chassis was fitted and a stout ash tailskid completed the landing gear.

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Jetex 50C with Augmenter Tube. Thrust 1 oz.  
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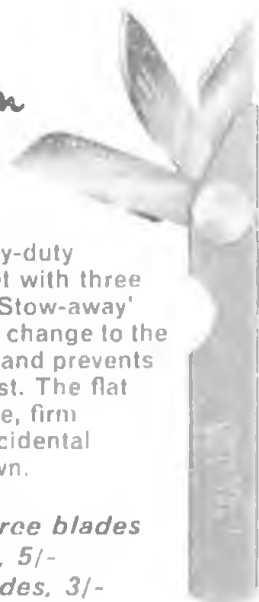
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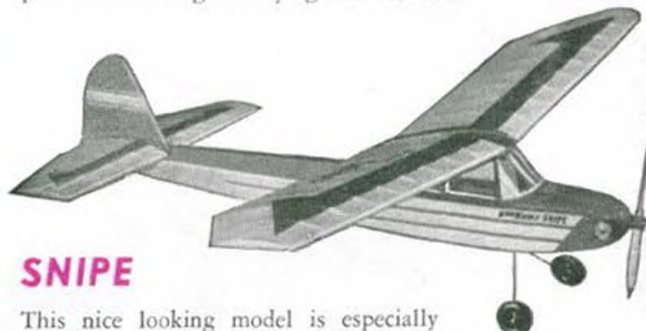


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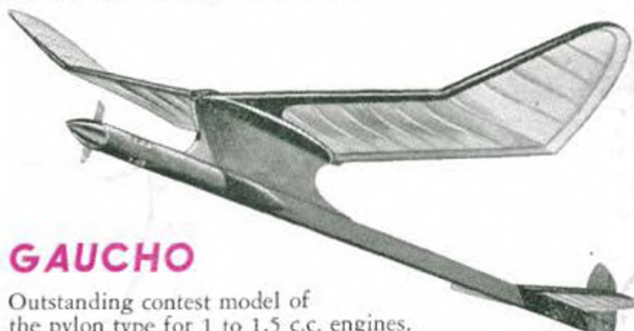
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