AERO MODELLER

Special International Issue

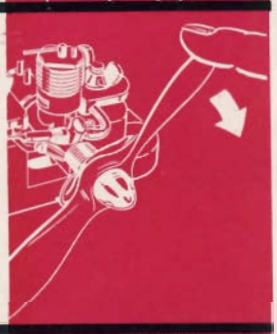
2/-

AUGUST 1960

1 **Use Quickstart Fuel** — Diesel or Glow types — for easy firing and better engine performance.

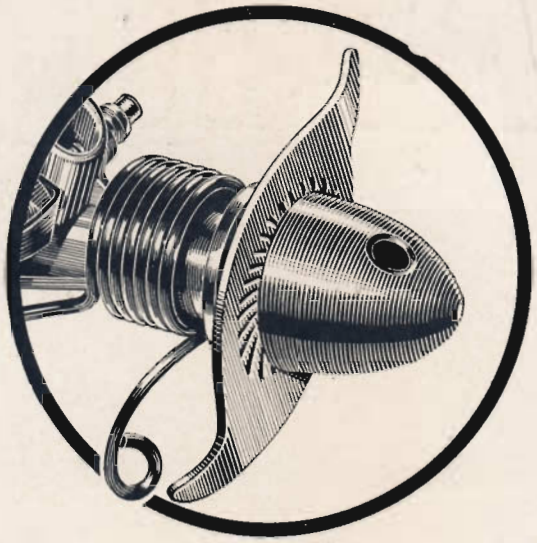
2 **Engage Quickstart Cam** with loop of spring.

3 **Turn the prop** — don't flick it — half a turn only in a clockwise direction with your right index finger.



4 **Release the blade** by drawing your finger away in an outward direction.

5 **When engine fires** adjust compression and needle setting to best running position.



New Cam QUICKSTART

makes engine starting easier than ever!

The only foolproof recoil starter in the world, the new Cam Quickstart is now fitted to all Davies-Charlton engines — Dart, Standard Merlin, Super Merlin, Spitfire, Sabre Diesels and Bantam Glowmotor. The special Cam and very short arm on the spring eliminate completely any risk of fouling the propeller.

PICTURE FOR YOURSELF HOW EASILY CAM QUICKSTART WORKS!

6 **You're airborne easily** — with the quickest starting engines in the world.

for all that's best in power flying

DAVIES-CHARLTON LIMITED

HILLS MEADOW DOUGLAS ISLE-OF-MAN

FROG SESA WINS KNOKKE TROPHY

The super detailed Trophy winner. Built from a standard FROG kit by G. Fletcher of Croydon & Dist. M.A.C. and fitted with a Frog 150 "R" engine.

This "super kit" has all balsa and ply parts accurately cut to shape, nylon bell-crank, plastic pilot, soft plastic scale section tyres and a full set of authentic insignia transfers; detailed instructions and drawings. Span 22 inches.

32/6

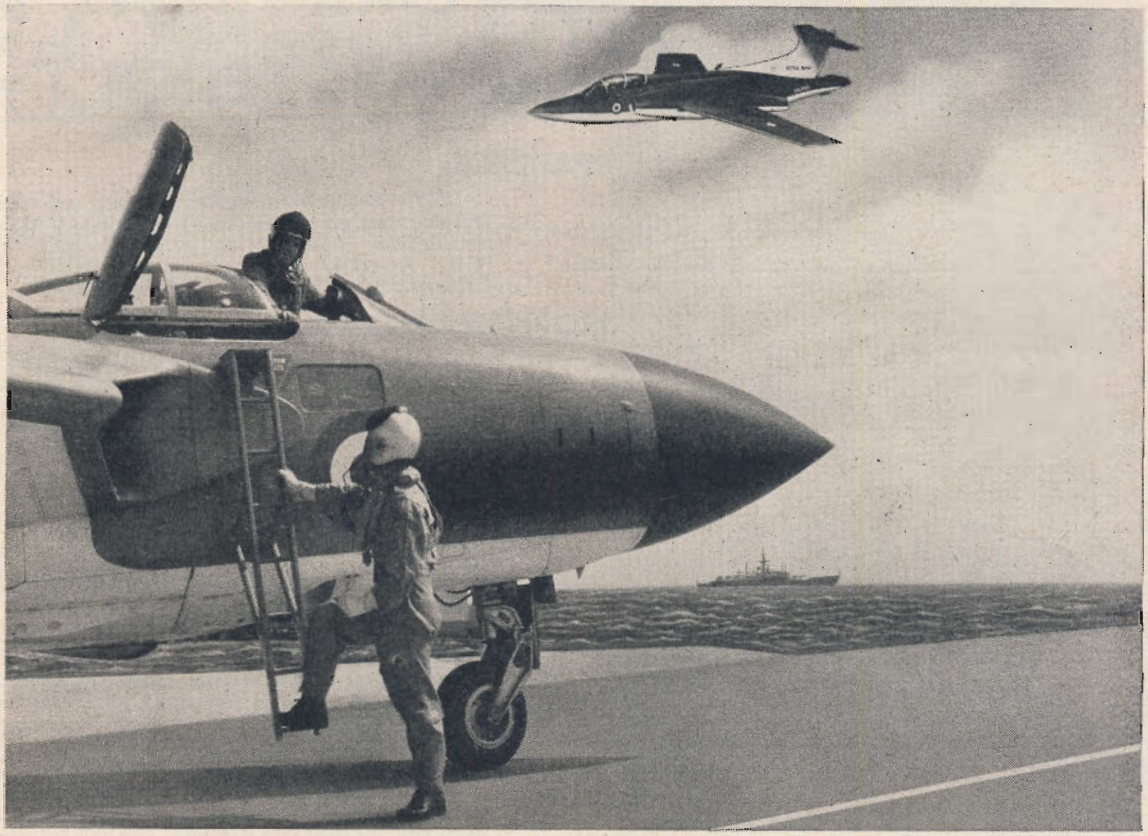
A Frog precision moulded airscrew and SHELL "POWA-MIX" fuel were used for the winning flight.

FROG TRADE MARK

Made in England by

INTERNATIONAL MODEL AIRCRAFT LTD.

MERTON, S.W.19



The crew of a Sea Vixen prepare for take-off as a Blackburn N.A.39 passes overhead.

Fly as an officer in the ROYAL NAVY

Today the aircraft carriers are the capital ships of the Fleet, and the most advanced jet aircraft are already in squadron Service in the Fleet Air Arm.

Flying superb aircraft such as the Sea Vixen and the Scimitar (and soon the Blackburn N.A.39) is a hand-picked team of officers who are among the most highly skilled pilots and observers in the world.

To be accepted for training as a Naval Officer in the Fleet Air Arm you must possess above average intelligence, resourcefulness and character, and have a spirit of adventure controlled by a strong sense of responsibility.

If you have a zest for flying and are attracted by the Naval way of life, you will find that the task of the Naval Officer in the Fleet Air Arm is exciting, exacting and singularly rewarding.

The age limits for the Fleet Air Arm are 17-23. You must have a G.C.E. or equivalent with passes at the Ordinary level in English Language, Mathematics and two other approved subjects. A high standard of physical fitness is necessary.

When qualified, pay at age 20 is £949 a year: a married officer of 25 can receive up to £1,760 a year. After 12 years' service there is a tax-free gratuity of £4,000. Selected officers serving on a 12-year engagement may have the opportunity of transferring to a pensionable career.

Special 5-year commissions for Helicoptor Pilots only.

There is a new scheme of engagement for men wishing to specialise as helicopter pilots. You join between ages 17-23 on a 5-year commission and receive £675 tax free gratuity on termination.

Send for the new illustrated booklet which will give you full details.

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Queen Anne's Mansions, London, S.W.1.

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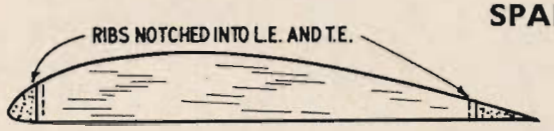
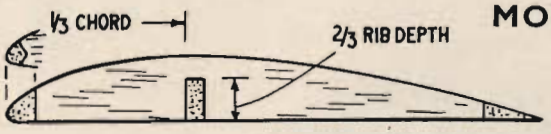
Solarbo DATA SHEET ON WING DESIGN No. 3

SPARLESS



Mainly restricted to rubber models, and especially adaptable for plug-in shoulder-wing fixing. Choose light semi-quarter grain balsa and notch ribs into L.E. and T.E. To reduce weight, leading edge section can be hollowed right out.

MONOSPAR (CONVENTIONAL)

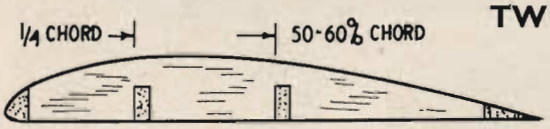


Simple construction, most suited to small models where spar, L.E. and T.E. can be laid flat over the plan for building. Spar should be straight grained and medium to hard stock. Main limitation of this design is a tendency to warp when covered.

MONOSPAR (STIFFENED)

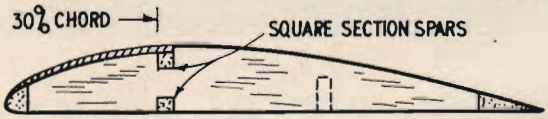
Excellent for rubber models, gliders and small power models. Sheet stiffening provides rigidity and good aerofoil entry. Spar is small section hard balsa. Choose sheet which bends readily and be sure to cement well. Suits geodetic ribs.

TWO-SPAR (CONVENTIONAL)



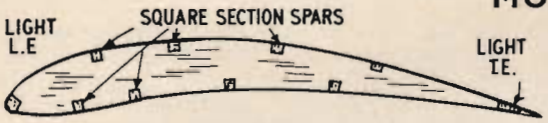
Basic layout for sports power models of all sizes, also control line wings. With symmetrical sections, spars pass through middle of rib. Choose medium to medium-hard balsa for spars and make of generous section.

TWO-SPAR (DEVELOPED)



Follows stiffened monospar construction, but with an extra spar for increased strength. Top and bottom spars with sheeted leading edge provide best layout, although bottom spar may be moved farther aft (or added as an extra spar).

MULTI-SPAR

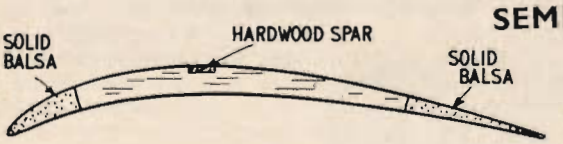


Makes a very light, rigid wing, especially suited to rubber models and lightweight power duration provided aerofoil section is not too thin. Spar arrangement must be "balanced", otherwise wing will tend to warp. Use hard balsa for the spars.

HEAVYWEIGHT (POWER-MODELS)

Generous section spars with sheeted leading edge and large trailing edge. T.E. may be lightened by built-up sections. Select medium-hard balsa for the mainspars, light-medium for sheeting and medium quarter-grain for built-up T.E.

SEMI-SOLID (THIN AEROFOILS)



Rather like a sparless wing with an added mainspar. The latter must be accommodated "flat", because of lack of aerofoil depth and is usually made of spruce. Choose medium balsa for the solid leading and trailing edges and slot in ribs.

Chocks away!

HE KNOWS THE ADVENTURE OF FLYING IN TODAY'S R.A.F.

The young men who fly in the R.A.F. would not change places with anybody. They have all the adventure of youth and, at the same time, the responsibility of men.

Giving this responsibility to young men is not merely a pleasant gesture on the part of the R.A.F. Young blood is *needed* to be a pilot or navigator today. The complexity and speed of modern aircraft demand the perfect physical fitness and split-second reactions that only young men have. But the chance to be a pilot or navigator is not given lightly. You have to be very good to be accepted in the first place. You have to be better still to get through the testing period of training—today, you *begin* on jets. By the time you get your Wings you will have earned them—a symbol to be worn with pride and a passport to a fuller, still more adventurous life. The world is at your feet. You live well (a Flight Lieutenant of 25 can earn over £1700 a year with full allowances); you are a member of the most envied fraternity in the world.

If you are between 17½–25 and hold G.C.E. (or equivalent) at 'O' level in English Language, Mathematics and 3 other subjects, you may be offered one of the finest careers a young man can have.

If you are under 17½, the Air Training Corps will give you valuable training which will help you if you join the Royal Air Force.

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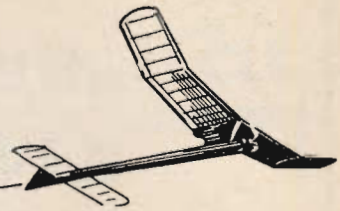

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22 in. Wingspan super-stunt model, specially designed to match the D-C "Bantam", or takes any other "049" or .5-.8 c.c. diesel. An extensively prefabricated kit, full of original **proven** design ideas. Easy to build—and top performance for its class!

SUPER PRE-FAB KIT ONLY **8/11**

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George Fuller's

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Without doubt the outstanding power-duration design of the present day—and this kit enables you to produce an **exact replica** of the model which has piled up National contest successes throughout 1957-8-9. Be a winner yourself this season—build a "Dixielander"! Takes 1.5-3.5 c.c. motors.

DE LUXE KIT

27/6

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Ask your local model shop to show you the range of YEOMAN accessories, latest additions are "**VISCOTEX**"—the new paper-fabric covering material, strong as nylon but at "tissue" price (**1s.** per 30 x 25½ in. sheet)—also **YEOMAN GLOW**—the new **fluorescent orange transfer** sheet, ideal for trim and "visibility panels". Price **1/3** per sheet.

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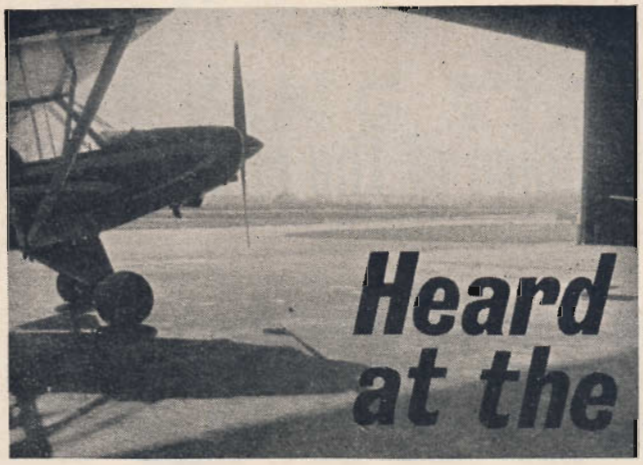

Our heading picture shows a Piper Super Cub owned by Vigors Aviation Ltd., caught at the hangar doors by the Editor on a more wintry visit to Kidlington

Heard at the Hangar Doors

AERO MODELLER

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VOLUME XXV
No. 295 AUGUST 1960

CONTENTS

ON THE COVER

Ken McDonough portrays D.H.4's of No. 227 Squadron in action over France in World War 1.

AEROMODELLER Incorporates the MODEL AEROPLANE CONSTRUCTOR and is published monthly on the 15th of the previous month by the MODEL AERONAUTICAL PRESS LIMITED.

Publishers of the monthly
MODEL MAKER
RADIO CONTROL MODELS AND ELECTRONICS

SUBSCRIPTION RATE: (Inland) 28/6, (Overseas) 27/6 per annum prepaid including the special Christmas number.

Nationals & Internationals

THIS PARTICULAR ISSUE emphasises more than any other we have published, that the spirit of aeromodelling is truly international. One cannot escape the grand feeling of camaraderie which pervades all World Championship meetings: but that is something for the select few who go to represent their Nations on such occasions.

It will be obvious that, politics apart, we are all much of the same breed. News from faraway parts is immediately interpreted in terms of minutes and seconds or miles per hour, for modelling parlance is universal. Will the Sao Paulo Brazilians have started something of a craze with their team race marathon? Will Zurad's power model, or Niemi's Pulteri become as popular as the Swiss Miss, or Dream Weaver? Will the new Moki engines from Hungary be carefully studied?

The answers are, of course, in the affirmative in all cases, for it matters not to an ardent enthusiast whence his inspirations come. He is continually seeking new ideas and details of latest developments, and we at AEROMODELLER will always make it our business to see that you, the reader, is well satisfied.

Every year, the British Nationals (from now on, the National Championships) have seen guests from other countries, usually Commonwealth countries, enjoying the contests in the grand company of British clubsters. This year we (*and* we are sure *all* the rest at Scampton) were pleased to welcome competitors from Australia, New Zealand, Belgium and the United States of America, and it will be noted in our report of the meeting how narrowly Bernard missed taking home the Davies Class A Team Racing Trophy, and Brian Horrocks missed the opportunity of winning the "Gold" for control-line aerobatics, for the second time. From America, Gus Johnson and Monoline showed the way home in 10 c.c. speed. Each of our visitors left the meeting just as impressed with our annual jamboree, as we in turn, were with their performances. The interchange of ideas on the field with fellow competitors has considerably accelerated international progress in what is often regarded as a purely national affair. Let's see more of this,—as they would say on the Continent, *Vive le Sport*!

Special!

NEXT MONTH your copy of AEROMODELLER will include a special supplement insert giving full details, photographs and results of the World Championships for Free Flight Power Duration models. Reserve your copy NOW to be sure of getting this *free extra service*, only a few days after the actual event takes place at Cranfield over August Bank Holiday week-end. Look for the World Championship Digest in September issue ! !

Good Model for the Smithsonian

THE FIRST POWERED model aircraft to be successfully guided by radio in the United States, originally built by the Good Brothers in 1935, will now be exhibited at the Smithsonian Institution after presentation was made on May 10th. Actual date of the historic event for this first R/C flight was May 1937, at Kalamazoo, Michigan. In 1939 they made a spectacular (for that time) 14 minute flight gaining one thousand feet in altitude and returning close to the judges. By so doing the model won the '39 National Championships, a feat which was repeated in 1940 at Dearborn where "Big Guff" as it was known, was specially demonstrated to the great Henry Ford. Much of the contruction of the model going on show is original. Rudder, elevator and engine are controlled by escapements using two receivers, one on 56 Mc/s and the other on 60 Mc/s. The model is a veteran of more than 1,000 flights, weighs 8½ pounds and is powered by a Brown Jr. petrol ignition engine. Today the Good Brothers are both holders of Doctors' degrees in physics and of course Walter is President of the Academy of Model Aeronautics. (*Photo at right shows presentation*).

College of Aeronautics

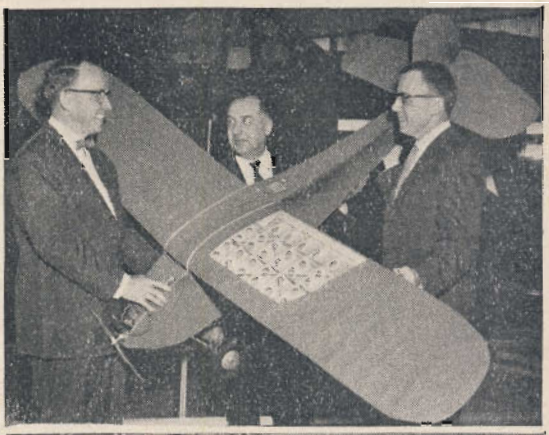
Once a year, Cranfield holds an Open Day, extending invitations to guests so that it can show some of its activities and remarkable collection of aeronautical equipment. A number of well known aeromodellers will be graduating this Summer after their extensive course in aeronautical engineering and leaving for responsible positions in the design and development side of the Aviation industry. It has been said that the College is the most advanced of its type anywhere in the world, setting the highest standards, and having the special benefit of congenial surroundings. We can readily understand how Cranfield commands such international respect having seen the wind tunnels, engine test houses and many research laboratories. In addition, the Departments of Flight and Design have airframes of outstanding interest some of which are seen in photographs (*right*) and all students are given the opportunity to attain private pilot's licences through the pilot training scheme using Aiglet trainers. It is more than a pity that international meetings for World Championships at Cranfield do not have an opportunity of seeing more of College activities.
Some of the more interesting aircraft at Cranfield in pictures at right are an Me 163, *a beautifully restored Avro Tutor, flown over from Old Warden by Cranfield C.F.I., B. Russell and the Boulton Paul P*111, *with Hawker* 1121, *Sikorsky Helicopter, and other prototypes.*

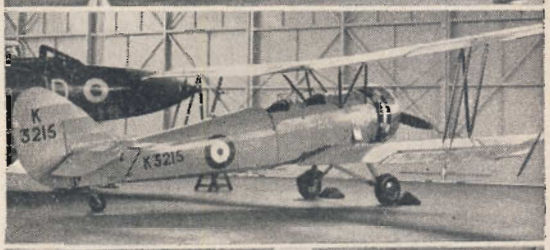
Safety Measures

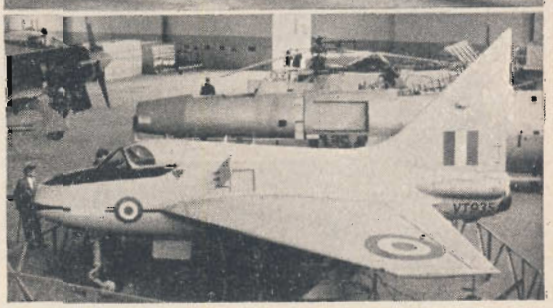
One would have thought that following an unfortunate accident at the 1959 Nationals, more extensive safety precautions might have been taken at Scampton this year round the control line circles. When a screaming 10 c.c. model starts its take off run through the line pits, destroying models in its path and when team race circles almost overlap, it is time to reconsider positioning all the circuits and also to move the general public back to the required 25 foot safety distance. We hope that the Clubs responsible for organising control line events at next year's Championships will bear this in mind.

Holiday Task ?

Want to get started in Contest Power model flying? We have something special lined up for the novice, now passing through the flight test stage and destined to appear next month under the name of "Chunky". This tough little 36 in. design for the .049 size engines has been specially created to support the increasing interest in such a power class, and publication has been timed to coincide with school summer holidays so that there'll be time to build and fly it before returning to the desk in September. "Chunky" incorporates many new, yet simple features and has been made specially easy to build, with an eye to economy, and will be described with many stage-by-stage photographs.



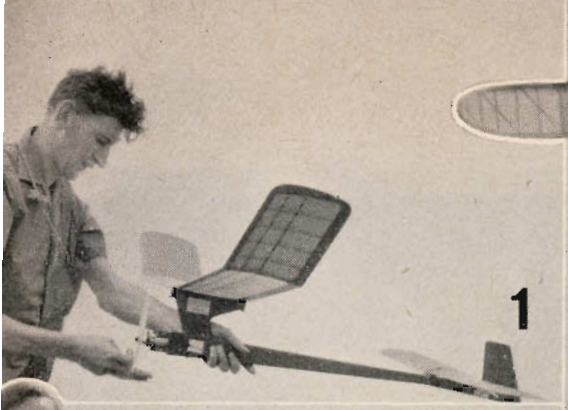




PROCESSED WORLD CHAMPIONSHIPS 1960 CRANFIELD BEDFORD ENGLAND

A clean sweep for London was the verdict after the 10 flight Power Team Section Trials at Wigsley, June 18/19th. Wind on the first day, and superb hot, calm weather on the second was a tester for everyone. Consistency decided the winners who will represent Great Britain in the World Championships at Cranfield on July 31st/August 1st. They are:—

1. "Carl" J. Simeons (St. Albans) 29:30 with a "stretched" Dixielander. 2. Tony Young (St. Albans) 28:34 with an Amazoom. 3. Dave Posner (Surbiton) 28:14 with a Dream Weaver.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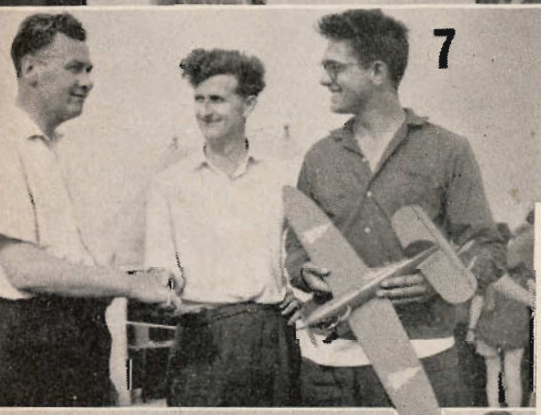
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AMONG THE WINNERS

(1) Having lost his Thurston glider winner on previous day, Geoff Dallimer, Stevenage, flew a Dixielander (as many others) in Power. (2) Tom Smith releases his missile of a model with fantastic climb rate to win Sir John Shelley Cup. (3) Geo. Fletcher of Croydon and top place S.E.5a from Frog kit. (4) F. Van den Bergh with multi winner "Sky Duster" Orbit 10, K and B 45, also topped team trials. Judges HJN and Rushy look on. (5) DHC Beaver registered JZ-PAB was B. Newman's F/F scale winner. (6) Mike Bassett with "Little Warrior" ½A race leader. (7) Bert Rivers congratulates "A" winners Mike Smith, D. Balch. (8) From U.S.A.F.E., Major Gus Johnson with 10 c.c. speed leader. (9) Kraft Bi-fly topped single R/C for G. Knight. (10) Pete Stephens takes strain prior to 5 c.c. fastest flight. (11) Ray Brown and Coy Lady led the Gold. (12) Hard working Geo. Fuller deserved a win in Payload. (13) . . . as did Ron Draper in Rubber after 11:59 in power. *On page opposite* (14) 5 watt Tx in touch with Controls, Bill Pemberton at the Mike. (15) S.M.A.E.'s Harry Barker with CDC vans which provided a nerve centre. (16) Brian Bennett at 10 watt TX inside the van in constant communication with field posts


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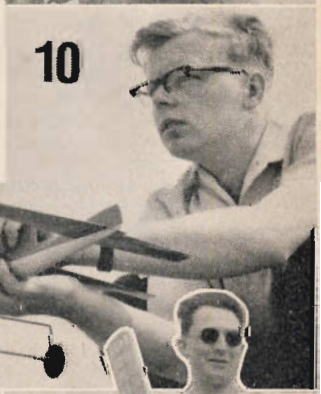
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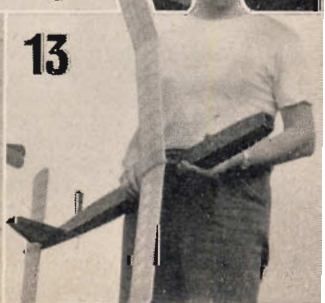
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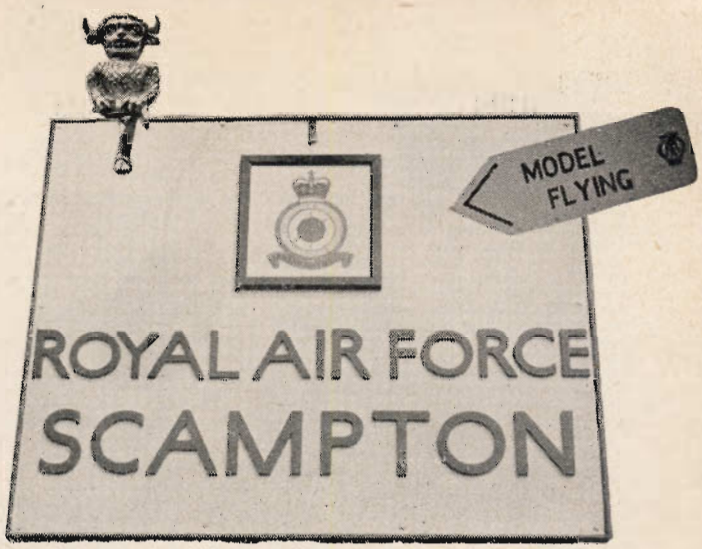
1960 BRITISH NATIONAL CHAMPIONSHIPS



BY CLOSING DATE for pre-entry in the "Nats" events, over 900 individuals had submitted fees and details to S.M.A.E. competition Secretary Sam Messom (who then had to take four days out of his holiday to return the acknowledgments). Yet there were many more who wept on *our* shoulders for having their entries rejected as "too late" and it is to the credit of the few responsible for organising this finest-ever of the annual Nats that latecomers could manage to enter those events not over-subscribed, on the actual day. In fact, the famous Churchillian phrase "Never was so much owed by so many to so few" could not have been more true on this occasion.

In the first place, the R.A.F., through Group Captain H. Burton, D.S.O., M.B.E., and the Scampton M.A.C. with Sergt. Brian Emery constantly in evidence, played the part of perfect hosts. Bounds were extended to cope with free-flight drift, mobile patrols were continually aiding the S.M.A.E. organisation, and the widely dispersed crowds numbering several thousand were ably directed by the S.P.s. So large was the attendance that the Camp site capacity was already sorely taxed within hours of opening on the Saturday. The rate of arrival exceeded the capacity of the few who volunteered to steward the cars and vans into orderly lanes and without a sense of tidyness among our fold, it was no surprise to find many a vehicle trapped in the field, unable to move for the whole week-end in the crush of canvas! Open braggartry of avoiding the tent levy through sheer dishonesty in the passing over the fence of tent receipts, permitting use of several tents on one fee, plus the nine-ton load of litter carted away afterwards, strikes a discordant note in an otherwise very happy week-end.

Beside the R.A.F., the modelling movement owes considerable thanks to the Civil Defence Corps of Lincoln, who staffed the entire administration and first aid departments. Radio communication with all contest points, direct field telephones from main control to nearest centres and a most capable field hospital were services of tremendous value to so large a meeting. At the close of activities, the score was over 40 cuts, two broken ribs, a fractured wrist and a scalded foot, plus innumerable cases of heat exhaustion. Such are the hazards of modelling which provided good exercise after the worthy cause of the C.D.C. In the radio van we personally witnessed the slick efficiency of the Corps when it became necessary to shift the F/F area to avoid a down-wind corn field. From complaint to remedy was a matter of mere minutes.

And a word, too, for N.A.A.F.I., looking after inner man so well, and to all those clubs and individuals who volunteered to run, judge, time or lap count. Theirs was the triumph for so many jobs well done and everyone who played his part, if only to time just one flight can justly be proud of contributing to a grand meeting. To those who sat and criticised we can only offer sympathy for their apparent disabilities.

The first day, Whit Sunday, was a scorcher. Even Major Gus Johnson, whose habitat is Miami, was pleasantly surprised. Peak field temperature was 82 deg. (F) and lowest that night 61 deg. (F) though a ·35-inch rainstorm did its best to cool off the camp in the evening.

In such weather, with low wind drift of never more than 10 knots, the free flight men had a glorious time, and the THURSTON CUP for open class gliders was soon well under way with St. Albans Club administrating. The wide runways were bumping off thermals regularly and even by mid-day the hardier types were beginning to complete triple maximums ready for a 6 p.m. fly-off. In all, there were ten perfect score qualifiers out of an entry approaching 300, of which many withdrew for obscure reasons. For several years the Thurston Cup has been the "property" of South Coast clubs, but this time it went to Geoff Dallimer of Stevenage who managed 6 : 52 with oversize wings on his A/2 before it disappeared from sight (and was lost before d/t'ing). But still there is a connection with the coast for previous winners Peter and Mavis Giggle ('57 and '58) are now firmly established Stevenage clubsters, so call it superstition or what you will, that trophy *always* goes to a pal of the previous winner!

Across the runway, PAA load for the 2·5 c.c. SHORT CUP class was steadily progressing with much the same entry, and models, as we have seen for season after season. The final outcome rested on third flight times, and when John O'Donnell seemed to have a chance of pulling off one victory at least, his PAW 2·5 veteran sank sadly. George Fuller's steady average (Cox Olympic) had established him in top place with a smart new design and offered him some reward for all his hard voluntary work on the Camp Site and running Glider.

Third of the Sunday's F/F events was the LADY SHELLEY CUP for tailless and, though still few in number, the entry displayed a keenness for their unorthodox choice not always evident in other events. "Josh" Marshall's rubber model was more than a match for the gliders, and he was soon in an unassailable lead. One cannot help but get the impression that the tailless types are aired too rarely and though capable of comparable performance with conventional shapes, lack the trimming experience so essential to contest success.

Half-a-mile downwind, and central in the airfield was main control and the centre for judging C/L flying scale (KNOKKE No. 2 TROPHY). Standards were very high, and with models ranging in size from a pair of A.P.S. Viscounts, a Shackleton, Cesare Milani's Bristol F2b, down to a diminutive Albatros D.III, the flying circle was to decide the winners. In our view the most outstanding model of the entire Nats was Bruce Randle's 38-inch AEW-3 Gannet which he had brought down from Hinckley. Perhaps not so well finished (in spite of neat transfers for all the stencilling) as others, the 4-lb. Gannet was unique in being true to scale even in its twin engines (piston not turbine!) driving co-axial counter-rotating airscrews.

The first inkling that many had to indicate the dual power unit was when Bruce started the O.S. 35 by flick starting the front 7-inch pitch prop, then proceeded to pulley start the second motor, an O.S.15, through a top hatch. This drives a 5-inch pitch rear prop, completely independent of the other, though the engines are coupled by throttle when flaps and arrester hook go down!

Despite such refinements however, the Gannet lost on finish points. Last year, the Trophy went to C. Milani's Taplin Twin

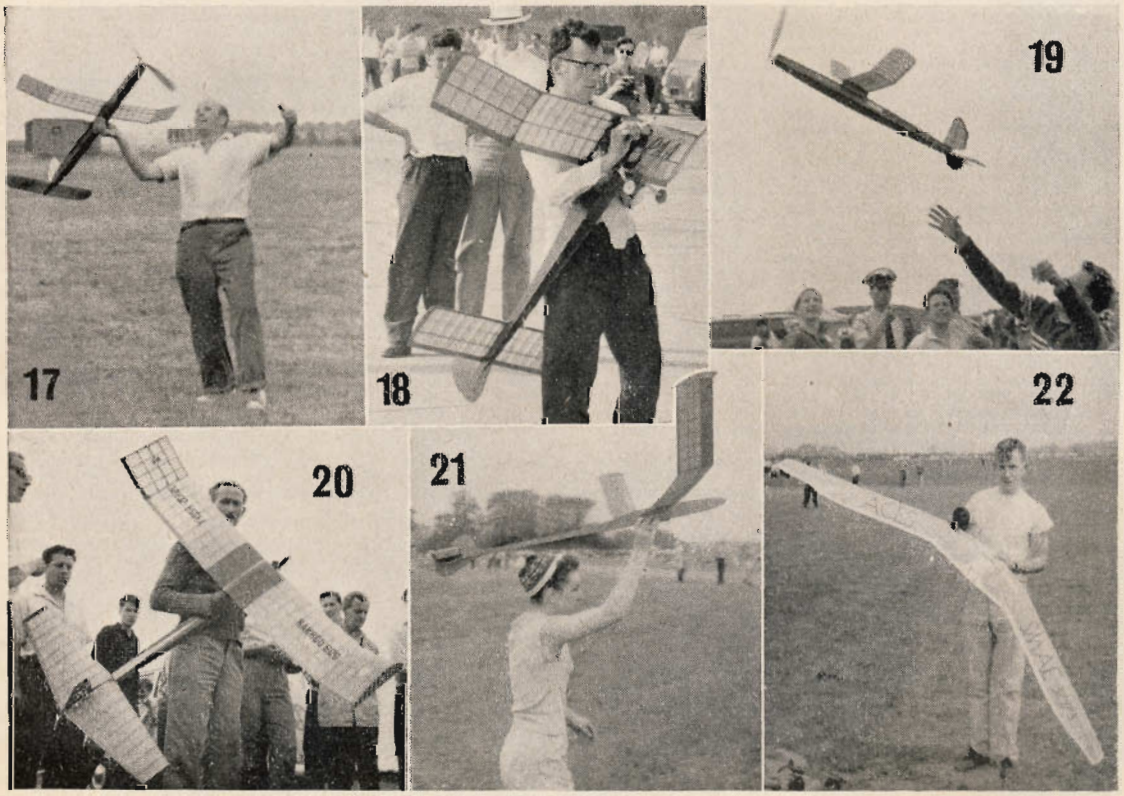
powered Fokker D VII, and the same combination very nearly won it again! A. C. Day of Wolves had actually started work on his model before the '59 event so it was no copy; but a fine coincidence. He chose the markings of the Nash Collection machine, alas not authentic but not to count against him. Cesare Milani was quite naturally well in the running, being the only perfect scorer in points for detail etc. In the breeze, his Anderson Spitfire offered realistic though not quite enough power to give a good controlled landing, and thereby he fell to 3rd place. So it was a victory for George Fletcher's neatly prepared S.E.5a, from the Frog kit, and naturally, Frog 150 powered which performed impeccably and saw off many a larger and more complex an entry. Of the multi's, C. Wheldon's Henschel 129 and Maurice Bodey's DC-3 simply beetled around on one or both engines yet fell down on landing.

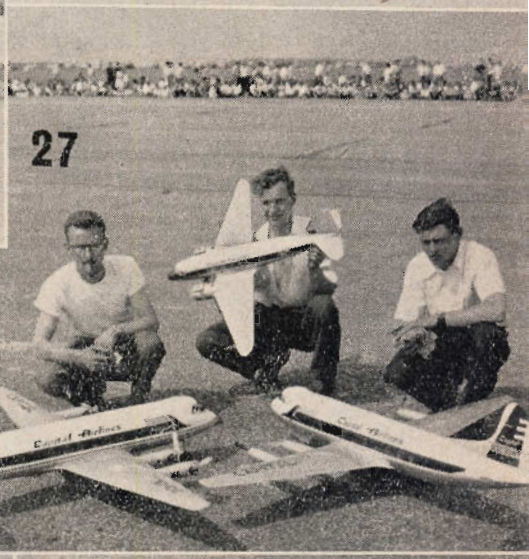
A large stone's throw (someone tells us he saw a litter lout throw a Cola bottle that far) away from control was the **COMBAT** arena. No other word could describe this centre of mass destruction, frustration and seemingly bewildering streamer chase which went on and on and . . . on . . . To the Kenton and Northwood Clubs, J. Simmance particularly, the S.M.A.E. owes a debt of gratitude. Not only did they dispense with the field of around 68 entries through countless heats, to reach a decisive final in the closing minutes of the first day: but they also wanted to cart off the pile of litter in a car. Battling through to the semi-finals were familiar names, and it was indeed Mike Kendrick with a *Black Ghost* who won over the Greenaway brothers Brian and Robin after their Rivers Silver Streak powered wing had been reduced on one side to a flapping bag of balsa. Had the Gus Johnson team known more of our rules concerning start procedure, their amazingly fast and manoeuvrable Veco 19 model would certainly have been among the finalists. Gus was doing well in the **SPEED** circle, showing how to reel off 151 m.p.h. with his modified McCoy 60 on Monoline with .028 in. wire. His "Ginmill" model is well known in the States through a six year old contest record, and we shall be seeing more of it now the Major is based on Cambridge, he went on to win with a 156·4 m.p.h. flight using a 9 x 12 in. prop. In the 2.5 c.c. class Ray Gibbs and Pete Wright were the only pair to make any speed of consequence: but a flurry of rumour had it that the Belfairs pair, Yeldham and Stephens were expected to knock 150 m.p.h. in 5 c.c. Such was not to be, though a shade under 140 m.p.h. went to Pete Stephen's credit from organiser Sid Lawton's watches, which was no mean effort. The circle was fraught with hazards. Tampled lines which later parted to send Ron Irvine's McCoy 60 spinning away just over the onlookers like a snatching salmon, and several misjudgements of line radius and safety distances kept us well and truly clear of the pylon area. It was bad enough trying to avoid the team race practice people, let alone models in an *official* circle.

F.A.I. TEAM RACE seemed to be going on everywhere. There were two contest circuits, administrated by Hayes Club, but the unusually high temperature was sending everyone off elsewhere for a check flight to get settings adjusted. Belgian visitors, Nery Bernard, with Philip Cohen pitting were way off right settings when they tested, but they set matters right when they won the fourth (out of 28!) first round heat in 5:14. Bernard's beautifully prepared model was much admired by all, and though several times shown not to be the fastest there, its efficient crew came right through to the final unbeaten. But for the fact that Mike Smith had something with ideal speed and range in the form of a Mk. II Rivers Streak around which he had hastily built a monowheel model in 3 days, Bernard would have had a clear run. Mike came through his heats in 4:52 and 4:55 then won in 4:59 to show it was no kidding. He and Balch will make a good pair to show the flag in Hungary. In a long day of race after race in the two circuits, the only real excitement came when a practising racer caught fire,—yes a diesel! The charred wing root and cowl were there to prove that a diesel can produce a flame!

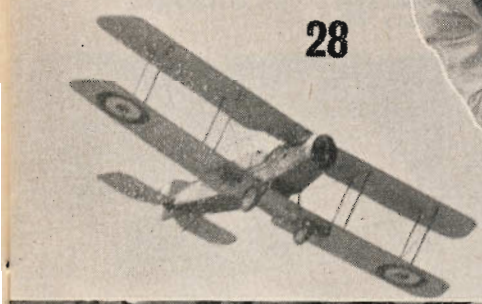
For the spectators, the most pleasing event of the day was **MULTI R/C** for the S.M.A.E. Cup. A monitor was arranged to relay tone signals over the public address, and to the uninitiated this accompaniment may well have sounded like beatnik jazz, especially when Ed. Johnson pulsed his tones. It also indicated how rarely are simultaneous signals used, even by the topliners. For all its promise, with 43 entries, multi was not quite the anticipated spectacle, though Van den Bergh's near miss when attempting the vertical eight was something to thrill the crowd. Only 13 reported to fly, and of those, only five made two reasonable flights,—where then are the remainder?

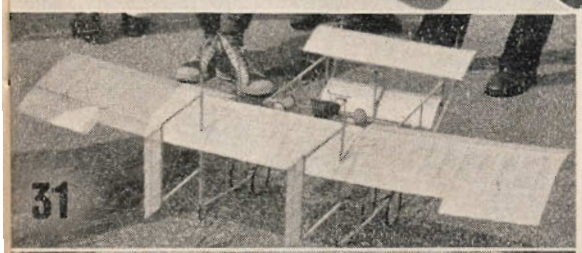
(17) After two minutes of deliberating, R. Lennox decides to risk broken longeron in rubber fly-off (18) John O'Donnell's Payloader provided his only success this time. (19) Joe Barnes of Liverpool away in rubber fly-off, timed by old adversary Sgt. Emery (in peaked cap) (20) Geo. French hiding behind Ramrod 600 before power fly-off, placing 2nd. (21) Extra dihedral on this Topscore launched by fair helper. (22) Henbow of Bristol Aces with one of several tailless gliders new to our eyes, made from Penumbra plans





(23) Bruce Randle of Hinckley and magnificent Gannett twin with OS 15 and 35 engines. (24) E. Coates and Leopard Moth which flew almostOOS! (25) J.Simmance's beauty of a Sopwith Snipe straining at the dihedral braces. (26) Stan Perry's Fury for an E.D. 346 was destined for a short life. (27) Ten engines in these multi's, all APS plans. Viscount at left has four AM 25's, by Ron Lucas of





West Essex. One at right is Geo. Miles' for mixture of AM 15, Frog and E.D. 2.5's comes from Blackheath and Halesowen. Centre is Maurice Bodey and Dakota. (28) Cesare Milani's superb Brisfit airborne. (29) M. F. Hawkins flew Albatros D III on very short lines. (30) Tony Day's 2nd place Fokker D VII. (31) Model most deserving, 1909 Valkyrie by A. W. Evans. (32) Gold Trophy families, in this view, Mr. and Mrs. O. W. F. Fisher (Coventry) (33) Mr. and Mrs. Brian Horrocks from Australia. (34) Mr. and Mrs. Tom Jolley from Whitefield

Ignorance of the rules, and pilot error seemed to be the major faults. Equipment bothers were rare indeed.

In the first round, Chris Olsen led, though his motor cut well before landing, and rules require it to keep running, then on his second flight a premature cut eliminated his chances. Frank V. d. Bergh was far better on his second than his first and was clearly ahead by a wide points margin. Over the public address, Stewart Uwins gave a fine commentary (having written off his entry on the eve of the contest!) while Judges "Rushy" and Henry J. slogged through this day and the next, which was for **SINGLE** Function models (rudder plus motor), the Ripmax Shield. Apart from ex-F/F power man Arthur Collinson Live-Wiring his way into 4th place on one flight, this was almost a Wagtails *versus* Sutton Coldfield interclub event. The many expected replicas and copies of Milt Boone's U.S. Nats winning "Charger" did not materialise, yet it was an American design which won, and a Bipe at that. D. Knight of the Wagtails (based on Kingston) was using E.D. Black Prince-6 (four channels sealed off) in a Phil Kraft *Bi-fly* to show the way home. Model of the day was however, Den Thumpston's Fokker E-1 with Wright gear. A real pleasure to watch, the Eindekker deserved more than a 3rd place, it should have orbited F/F **SCALE** for the Super Scale trophy and shown the lads there how to employ power. For that was the unfortunate fault with practically all of the F/F scale entry. Granted, they were largely old timer subjects calling for slow flight; but it was a great shame to see so many beautiful entries struggling in vain. Two models took our eye, Arthur Evan's wonderful replica of the 1909 Valkyrie with detail right to the scale wicker seat and fishplates joining the booms (alas destined to break in a real canard whipstall into the concrete) and J. Simmance's (recovered from combat) superb Sopwith Snipe in No. 4 RAAF colours which had to be hand launched and then did not quite make the full 30 secs. qualifying flight. Either model could grace a museum and shame many a professionally produced model, and moreover we know they fly well in chosen conditions. It was left to B. Newmans uniquely marked (had a pic to prove it true!) D.H.C. Beaver using its ample power reserve to survive the flight tests and win.

If there was any lack of power for scale models, there was equally an excess in **SIR JOHN SHELLEY** for open power duration. Each year we comment on the increasing standards and fantastic rate of climb, and this year should be no exception. Rocket like ascents with more than half the entry using glowplug showed a change in habit for British modellers. Overnight the wind had backed around 180 deg., the lads now had the full length of the field, and drift was thankfully slow. It was a surprise to us that only four, Tom Smith, last years winner George French, Don Edwards and Brian Eggleston made perfect 12 minute totals for the fly-off, Ron Draper was singularly unlucky in being credited with 11:59! Brian lost both his models, so was out, and first away was St. Albans' hope Don Edwards but his Merco was not quite on peak tune to take the *Dixielander* high as it might. Then George French sent off his *Ramrod* 600 with K & B 19 just before Tom Smith unleashed a pressure fed Eta 29. So perfect was the trajectory of his elegant missile it drew applause from what might well be considered a critical crowd. 1,000 feet in 14 seconds would be no idle claim and naturally enough, Tom emerged the winner when the watches came in. No thermal aid was evident in these fly-offs, as also for adjacent **RUBBER** models in the "Model Aircraft" trophy but during the day we had counted up to thirteen in one therma!! Result was that no less than *twelve* modellers were stretch winding to decide the event on a fourth flight. It was a Midland area eclipse of the opposition. Ron Draper almost a minute ahead to make sure, and make up for just missing the power fly-off, Then Lennox, whose launch was fraught with disaster as a longeron caved in and altered

(35) E.D. engine designer Gordon Cornell pitting (note props on forearm) with new racing diesel. (36) ½A racer with PAW 1.49 by P. N. Phin of R.A.F.M.A.A. (37) Tommy Carpenter and pal take the strain on Gus Johnson's American team racer with McCoy 29. (38) One that didn't stand the strain was Ron Irvine's 10 c.c. speedster which left the line. (39) Runners up in several events, including team trials, are David Nixon and Mick Ellis of Hinckley (Oliver Tiger) (40) Nery Bernard and Philippe Cohen over from Brussels with Nery's beautifully finished racer

Yes,—its a lot of canvas and a great big camp site that *should* but *doesn't* represent 10/- per tent for the S.M.A.E. This domestic centre was the scene, as ever, of many hilarious moments

sidethrust (to make the model climb all the better!) young D. Wright also from Leamington in 3rd., Greaves who slipped away first of the twelve to fly and avoided the photos to place fourth. Then Ray Monks' time placed him fifth and the Midlands well and truly had top five placings in the bag. Odd coincidence with sixth placer Joe Barnes from Liverpool was that by chance his appointed timer was Sgt. Emery—who had so narrowly been defeated by him at the Woodford meeting. We earn that one modeller refused the offer for Sgt. Emery to time him during the day—perhaps on the assumption that so smart a Sgt. could hardly know about models!

Back at the C/L circuits, this was the first year for ½A **TEAM RACING** (old Class A specs: with 1·5 c.c.) and an interesting variety of engines and techniques were to be seen. Long range Frog 150s, medium range but fast A.M.15s, a few Taifun Hurricanes, several E.D. Furies and a smattering of Oliver Tiger Cubs made the outcome interesting, and it was significant that the finalists were all Cub-powered. From the handsomely large entry so ably dealt with by Weston Controliners, the familiar names of Ecurie Endeavour racers Mike Bassett and Dave Dew were 1st and 2nd with newcomers Dave Nixon and Mick Ellis limping in 3rd with a variable compression setting. The latter lads, from Hinckley, appeared well up in all the T/R classes and only need to polish their teamwork to threaten the established names. It seemed to us, and fastest time of 4:40 confirms, that the ½A final was run over 5 instead of 10 miles. Why?

CLASS B. final was also questionable since one watch was apparently pushed on the return needle button and did not start, and another was stopped before the correct 140 laps were made. Everyone was out of fuel so a re-run was not possible, but enough "private" times and counters were accumulated to give an obviously acceptable result. This made Haworth's *Dalesman*, proxy flown by Wharfedale's Davy/Long/Willmott team, first; Drewell 2nd; and Horton of Wharfedale 3rd. This might not sound so exceptional it if were not known that Horton was using a Frog 500 against the Eta and Checksfield McCoy. John Horton had literally shattered the opposition with *non-stop* five mile heats! Times of 4:15, 4:17 and 4:7 were respectably faster than much more potent machinery could manage. Best heat time of the day was Drewell's 3:43 in a semi-final followed by Haworth with a 3:45. But it was not a happy day of racing and many are the tales of broken engines, false starts and tangled lines. Except for Wharfedale, it was a "blue" week-end for 5 c.c. racing.

And so down the runway to the **GOLD TROPHY** for aerobatics. Who better to judge this event than past winners Bill Morley and Peter Russell? They were at the circles, judging from viewpoints at 90 deg. to one another for the full length of the day—and then spent an hour or two after it was all over, adding up copious totals to find the winners. Standards continue to improve in flying as well as efficiency and it is notable that those who fly well always appear without having to be chased to the circle, never bother the judges, and rarely pass opinion on the flying of others. Last year it was Brian Horrocks who beat Ray Brown virtually for the sake of a bumpy landing, and this year it was exactly the reverse. Brown's first flight was a classic. One judge rated him almost perfect in most manoeuvres, and the crowd appreciated such a standard with applause. His next attempt was a tragedy, for lines were reversed, and before Ray could grasp what was happening this free flight *Coy Lady* with "down" for "up" was matchwood. On his second flight Brian Horrocks was so close to Ray's pointing it could have been anybody's trophy. Tom Jolley did well with *Nobler* rebuilt after the trials accident, and Den Day in fourth confirms his team placing admirably; as at the team trials, it was a day for big motors in U.S. style models for pattern perfection.

(41) Ray Gibbs readies his F.A.I. speed model before best flight, note pen bladder. (42) Combat went on and on relentlessly, pilots enjoy it more than spectators. (43) 2nd were the Greenaway Bros. from Harrow with a Rivers, another placed 3rd. (44) The great line up of Northwood and Kenton Club wings, mostly Razor Blades, for the combat circuit. (45) Jim Watson with a Dooling model on Lauderdale lines, placed equal second in 5 c.c. (46) Few fancy hats this year but the Toppers were out as usual


47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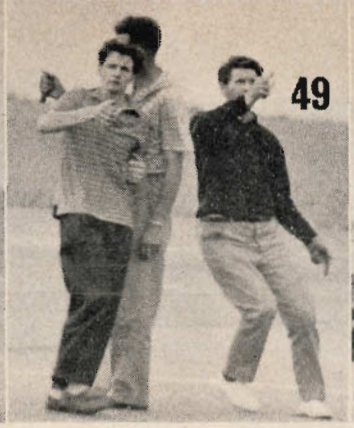
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CAMERA REVELATIONS in the T/R circles show a few techniques, acceptable and otherwise. The class ½A final in (47) looks reasonable but Bill Healey's standstill arm back pose in (48) would not last on the Continent. Is Bernard pulling in (49)? Backing up is not whipping but shortens the radius. Class B final in (50) shows two handed work by Davy,—those Dalesmen pull!! SKETCHES OPPOSITE show most interesting points we observed. Model transport frame is simple but effective. Helicopter offers new line in hinges for a twin engined project and the engine layout in the Gannet is a masterpiece of ingenuity so cleverly concealed that the Judges were not aware of it!

RESULTS (Provisional)

Thurston Cup (*Glider*) 10 in fly-off
1. G. Dallimer (Stevenage) ... 9:00+6:52
2. C. Wyatt (Ashton) ... ... 9:00+5:50
3. J. Borrill (Boston) ... ... 9:00+5:09

Short Cup (*PAA Load* 2.5 c.c.)
1. G. Fuller (St. Albans) ... 7:42
2. J. O'Donnell (Whitefield) ... 7:35
3. R. Swinden (Teeside) ... 6:13

Lady Shelley (*Tailless*) Rubber/Glider
1. J. Marshall (Hayes) 5:57
2. B. Henshall (Heswall) ... 5:15
3. G. K. Gates (Southern X) ... 4:01

Sir John Shelley (*Open Power*) 3 in fly-off
1. T. W. Smith (English Electric) 12:00+5:51
2. G. French (Anglia) ... ... 12:00+5:04
3. D. Edwards (St. Albans) ... 12:00+4:27

Model Aircraft Trophy (*Rubber*) 12 in fly-off
1. R. Draper (Coventry) ... 12:00+6:42
2. R. Lennox (Leamington) ... 12:00+5:51
3. D. Wright (Leamington) ... 12:00+5:30

Super Scale Trophy (*Free Flight*)
1. B. Newman (Bromley) *Beaver* 80 pts.
2. J. Simmance (Northwood) *Snipe* 68 pts.
3. D. Partridge (Croydon) *Bird Dog* 63 pts.

Knokke Trophy (*C/L Scale*)
1. G. Fletcher (Croydon) *S.E.5a* 86 pts.
2. A. C. Day (Wolves) *Fokker D VII* 84 pts.
3. C. Milani (W. Wayfarers) *Bristol F2b* 81 pts.

Combat
1. M. Kendrick (W. Brom.)
2. R. Greenaway (Hayes)

Team Racing

½A	1.	M. Bassett (E. Endeavour)	4:40
	2.	D. Dew (E. Endeavour)	6:10
	3.	D. Nixon (Hinchley)	7:37
A	1.	M. Smith (H. Wycombe)	4:59
	2.	N. Bernard (Guest Associate)	
	3.	T. Pasco (Thornaby Pathfinders)	
B	1.	K. Haworth (Wharfedale)	7:15
	2.	P. Drewell (West Essex)	7:25
	3.	J. Horton (Wharfedale)	8:00

Speed

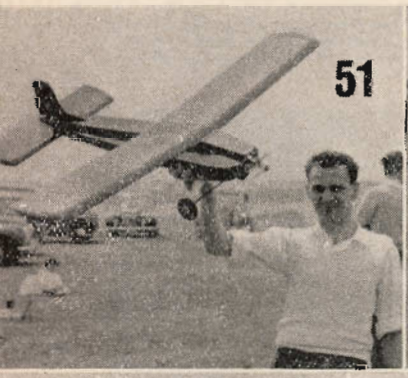
2.5 c.c.	1.	R. Gibbs (Hornchurch)	117 m.p.h.
	2.	P. Wright (West Essex)	116 m.p.h.
5 c.c.	1.	P. Stephens (Belfairs)	140 m.p.h.
	2.	J. Watson (West Essex)	131 m.p.h.
		M. Billington (Brixton)	131 m.p.h.
10 c.c.	1.	G. Johnson (Cambridge)	156 m.p.h.
	2.	P. Drewell (West Essex)	152 m.p.h.

Gold Trophy (*C/L Aerobatics*)
1. R. E. Brown (Lee Bees) ... 641 pts.
2. B. Horrocks (Wolves) ... 608 pts.
3. T. Jolley (Wh tefield) ... 540 pts.

S.M.A.E. R/C Trophy (*Multi*)
1. F. Van den Bergh (Bromley) ... 3,565 pts.
2. E. H. Coppard (Bromley) ... 2,844 pts.
3. J. Singleton (A.R.C.C.) ... 2,774 pts.

Ripmax Shield (*Single Function*)
1. D. Knight (Wagtails) ... ... 892 pts.
2. G. K. White (Wagtails) ... 618 pts.
3. D. E. Thumpston (Sutton Coldfield) 502 pts

(51) 2nd in single channel was G. White with this mono, using E.D. gear. (52) Frank Knowles placed 7th in multi with his low wing own design. 53) Den Thumpston shook everyone by rivalling the best of single R/C specialist designs with his Fokker E-1, using Wright Rx and Relaytor.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(54) Look out for Mr. Higham's Bipe ! ! Judges prepare to move to better vantage points (They tell us) as model makes a close approach. (55) Young Paul Rogers was 4th in multi, uses a novel swing aerial to have Octone Tx horizontal. (56) Ed. Johnson's Ruppert diesel on low-wing, placed 6th. (57) John Singleton up from Larkhill was 3rd with another low wing.


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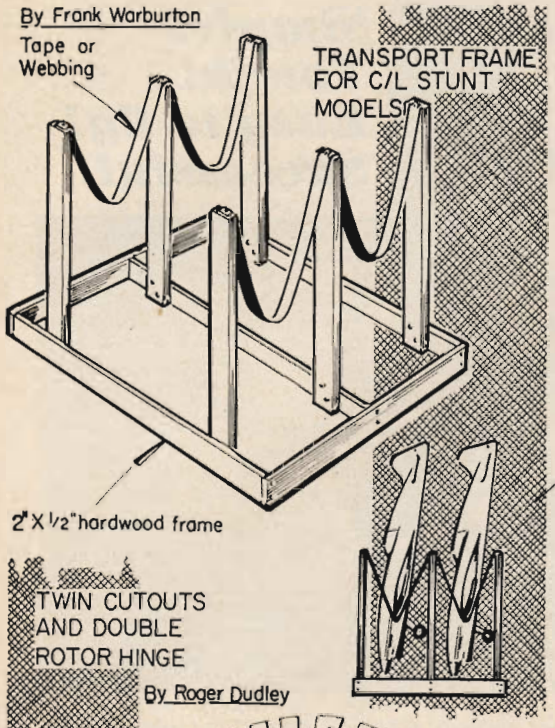
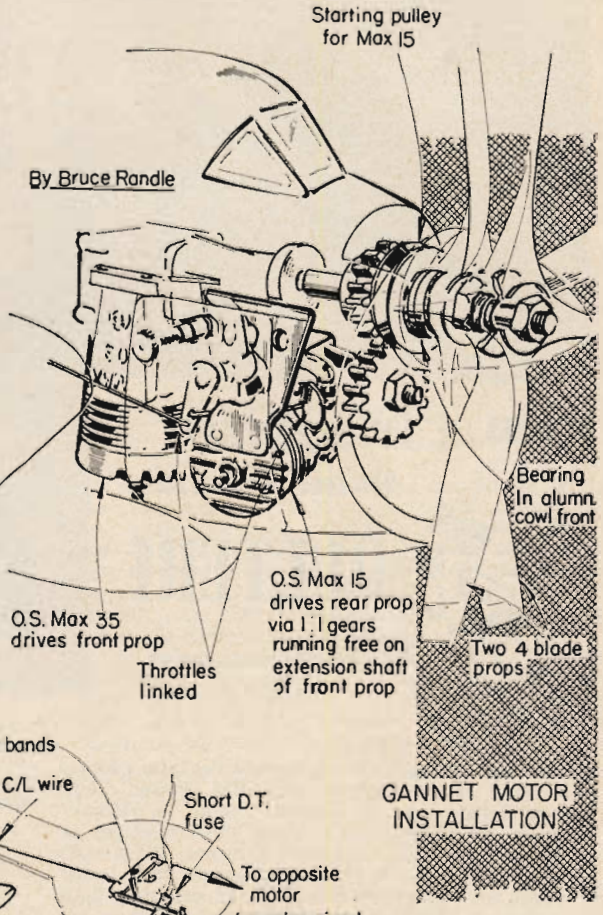
57

By Frank Warburton

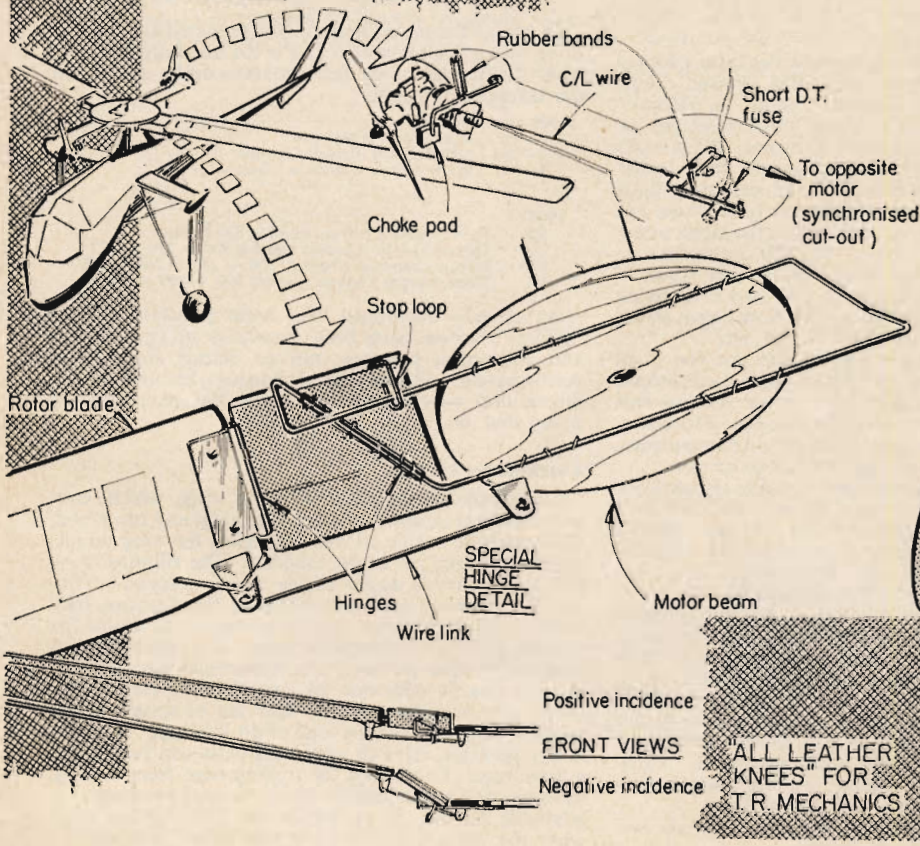


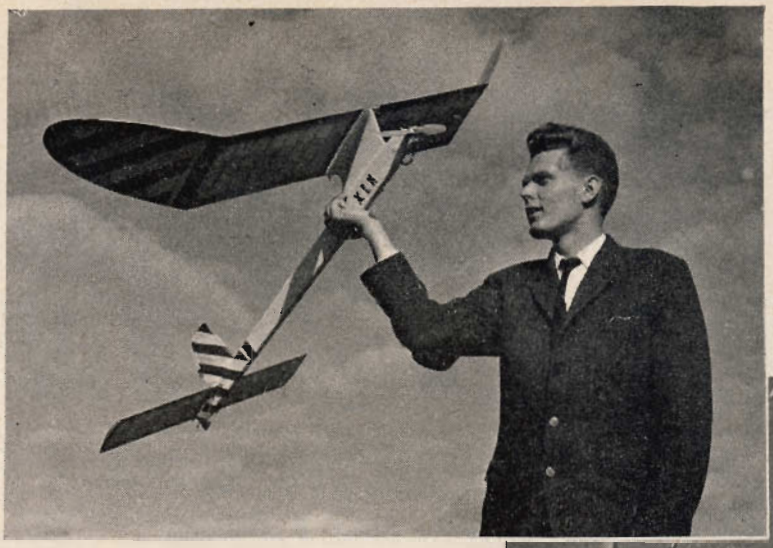
By Bruce Randle



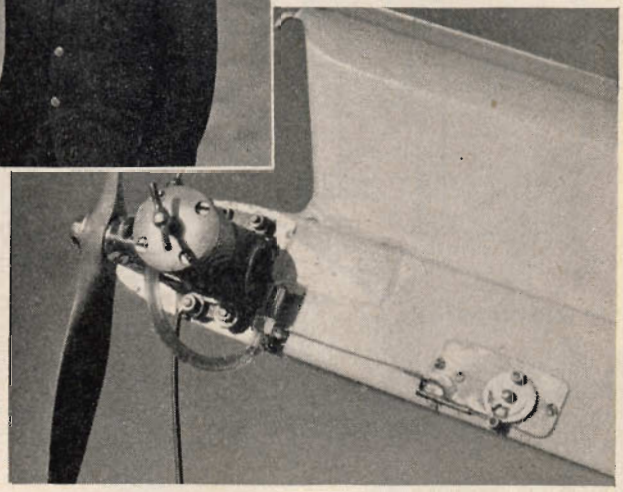
TWIN CUTOUTS AND DOUBLE ROTOR HINGE

By Roger Dudley





Simple! Tough! Easy to fly! Successful!



from FINLAND

Osmo Niemi's

PULTERI

F.A.I Power design for 2·5 c.c.

WHEN THE CURRENT F.A.I. Power rules were adopted in Finland at the beginning of 1958, Power design became divided into two different trends. In Helsinki, designers used beautifully outlined short fuselages on complicated models, whereas Tampere ("Finland's Manchester") flyers built simple models with longer fuselages and straight bottomed 10-11 per cent. thick wing sections. Now after two years the latter trend has become dominant. "Pulteri" belongs to the latter trend.

With the loading increased to 300 grammes/c.c., Osmo read somewhere that wing sections like Clark Y are to be thrown in the scrapbox. He had been flying with flat bottomed wing sections, but now began trying undercambered sections like M.V.A. 301, etc.

And the results! Climbing speed was not very high and in Osmo's opinion, the flights were inconsistent, stalling in the pull-out after the motor cutting was another bad characteristic of these models. Moreover, the glide performance was not satisfying. In consequence, Osmo built five different models for test purposes.

Something really had to be done to make things work correctly, and by working together with brother Ossi (who competed at Cranfield in 1958) the idea came of trying a thicker, flat bottomed wing section, together with a very simple construction. So the sixth "new rule" model, flew straight off the board, needing only some weight at the rear to fly correctly. All the previous trimming worries were now determined and the climb was stable and fast. In addition the glide was much better than with any of the previous five models.

Because it is very important to have two good models in a competition, Osmo made an identical reserve model with some minor improvements, *e.g.*, shorter nose and a new Japanese "Walz" camera timer instead of "Autoknips". Thus came the second "Pulteri", which flew very successfully for one year and is still flying.

**Finnish & International "BC" Cartoon Character. Copyright New York Herald Tribune.*

In March the third "Pulteri" was prepared and includes some minor improvements and is the one fully described here. Some idea of the performance can be made from the competition results.

1959 (6 competitions)

2—1st	with perfect maxs.
2—2nd	including the Finnish Champs.
1—3rd	in the Nordic Countries Champs.
1—5th	

1960

6th	First Finnish Champs. meeting 830 seconds
2nd	Second Finnish Champs meeting 900 + 210 + 272
2nd	Nordic Countries Champs. 900 + 210 + 240 + 252
1st	Third Finnish Champs meeting 900 + 300 + 356

As already mentioned, the basic principles of the "Pulteri" design have been simplicity of construction and cheapness, however, not to detract from flying performance. Hence the following features:—non-dihedralled wing centre panel and flat plate profiled pylon and fin.

Construction

Commence construction with the wing, which, contrary to usual accepted practice is straight and unwarped. To contribute to this, as well as keeping the wing simple, Osmo discarded the centre dihedral. The elliptical wing tips are profitable as far as the climbing speed is concerned. Making them as advised in the drawing, they do not take much time. Ply templates are advisable for making the ribs for the centre panel. The spars can also be inlaid in holes made in ribs to promote extra rigidity for the ribs, it does not take much extra time. The centre spar and the auxiliary spar are of spruce in the original model to take the load of d/t landings. If spruce is not available, hard or very hard balsa can be used as a substitute. To prevent the trailing edge from turning upwards, due to the tension of the finished covering, it is advisable to put $\frac{1}{16}$ in. under the T.E. leading edge when the wing is assembled to give some "flap effect."

The centre panel is assembled as one part, the tips separately, and they are then joined to the centre panel with the aid of the dihedral strengtheners. The finished wing frame is then covered with heavyweight tissue. When covering the upper sides of the wing tips the paper must be moistened to avoid wrinkles at the edges. Weight of the finished wing after doping is 6¼ oz.

The tailplane is not very large, but its effectiveness is very good. Using only balsa and covered with lightweight tissue its finished weight is 9/10 ozs.

The fuselage is assembled in two parts. First saw the pylon from ⅛ in. ply, on the starboard side of it are cemented the engine bearers. The rear part of the fuselage is assembled straight over the board. First cut the upper and lower side of medium 1/16 in. sheet, and give them their tapering form. Then lay the medium 1/16 in. sheet on the board, draw the profiles of the fuselage on it, and then cement the preworked upper and lower sides and the 1/16 in. straight and oblique formers (3/16 in. at the forward part) are cemented in place. It should be mentioned that the formers need not be very accurate as to their extra height to the open side, for they can be best sanded to the level of upper and lower side after this frame is dry and lifted from board. Following this operation, the missing port side sheet is fitted and the rear part is nearly ready. Then the upper and lower sheet are notched to take pylon and engine bearers and they are joined to the rear part. Now some 4 ozs. of lead ballast can be cemented between the bearers and the 1/16 in. ply front starboard sheet can be cemented in its place. After this the positions of the fuel tank and timer are checked, and the 1/16 in. port front sheet fitted. The bearers are then strengthened by means of 1/16 in. dural, which is attached to bearers by means of wood screws. The dural also helps to keep the sidethrust setting secure. Hooks for wing fastening rubber bands as well as the 1/16 in. ply wing platform are cemented in place and the balsa fillets added on both sides to secure the platform. The upper sheet is also hollowed for fin fastening to the lower sheet. Being on the upper side of the fuselage the fin is saved from landing knocks, it works also as the limiter for the d/t angle. The lower fin is of 1/16 in. ply. The fuselage is then covered with lightweight tissue doped in place.

"Pulteri" has been designed around the Oliver Tiger Mk. III. For other motors the nose shape and length has to be slightly modified.

Trimming "Pulteri" is exceptionally easy, the long fuselage and the flat bottomed wing section making the climb very steady. With ballast of 5½ ozs. at the C.G., the model has a smooth transition from power to glide without any lost height. If the model is made according to the plan, its climb trim can be commenced, *provided* the C.G. is at the position shown on the drawing, beginning with low revs. and short engine revs. At this stage do not bother about the glide, using short fuses, trim the climb to 2-2½ turns to the right during the 15 secs. motor run. The model should climb at an angle of about 75 degrees. If, however, it tends to loop despite the right turn, one must pack up the tailplane leading edge. After the climb is satisfactory the glide is trimmed by moving the C.G. forwards or rearwards. Do not put weight in the extreme ends of the model. Keep the inertia of moments low. Then the desired glide turn can be attained by tilting the tailplane, this will not have a great influence upon the climb trim. The original uses a 8½ in. x 5 in. prop, do not change propeller dimensions from that used for trimming the model, for it has considerable influence upon the climb. Having a good motor and propeller one can trim "Pulteri" to obtain five minutes + flights from the standard 15 seconds engine run.

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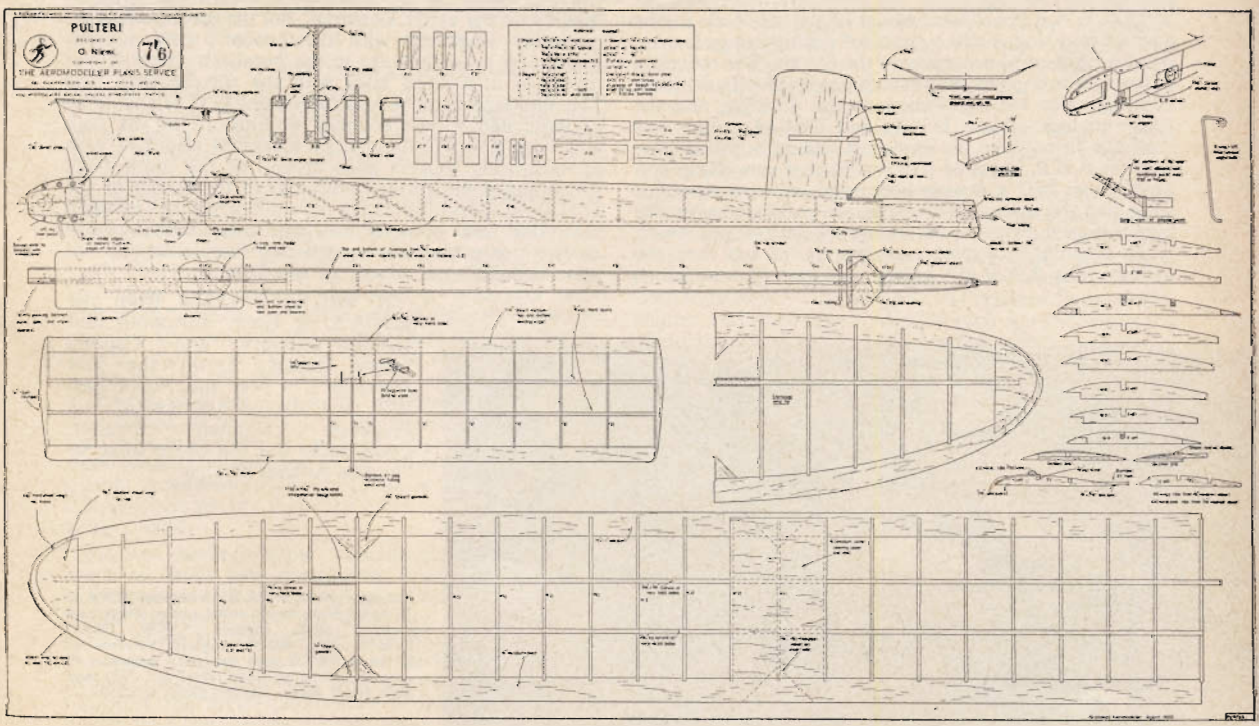


AERO MODELLER

FAMOUS BIPLANES No. 26

By G. A. G. COX

de Havilland 4

IN THE EARLY YEARS of the first war, when a flying machine was still something of a novelty, aeroplanes were designed for all-round performance and were put to a variety of uses. It was not long, however, before bitter experience demonstrated the need for specialised types which would perform specific duties. The first allied aircraft to be designed as a bomber was the D.H.4, produced in prototype form by the Aircraft Manufacturing Company of Hendon in August, 1916. The Chief Designer in this project was Geoffrey De Havilland — hence the unusual designation by designer instead of manufacturer. The first reports on the performance and handling of the D.H.4 were enthusiastic. The bomber was easy to fly and land, and had a maximum speed equal to that of the best contemporary scouts.

Originally intended to take the new 200 h.p. six cylinder B.H.P. engine (later to be known as the Siddeley Puma), the D.H.4 was soon fitted with another new engine designed by Rolls-Royce, the twelve-cylinder "Eagle". The Mark VIII version of this engine was immensely powerful for its time, delivering 375 h.p., and with this power unit the performance of the D.H.4 was outstanding. Several other engines were fitted to the bomber, including the 400 h.p. Liberty in American-built airframes (this, strangely, gave an inferior performance despite increased power); the 260 h.p. Fiat; the 250 h.p. Falcon and the 200 h.p. R.A.F. 3A. The cowlings of the two Rolls-Royce engines were very similar, the chief distinguishing feature being a right-hand propeller on the Falcon. The radiators of both these engines were sometimes fitted with shutters, although they are not shown on the drawing, and the Eagle engines of late D.H.4s and D.H.4As often had cowlings fitted over the camshaft assembly. Most production B.H.P. versions had two-bladed propellers, and again most had a simple horizontal exhaust pipe, but some had the extension to the upper leading edge on the port side as shown. The six-in-line engine, being slimmer, made possible a cowling narrower at the top than the bottom. The R.A.F. 3A engine was the only one which had a single central stack and a radiator which tapered.

The modification of the airframes to take different power units involved rather more than the designing of cowlings. The upper longerons forward of the centre-section struts had to be lowered for the B.H.P. and R.A.F. 3A, whereas with the Eagle they continued horizontally as far as the rear edge of the radiator. Probably to maintain the C.G. position, the pilot's seat and controls were shifted backwards on the Eagle-powered versions, and therefore the vertical members of the fuselage frame had to be rearranged to accommodate the front rudder bar. There was nothing radically different about the construction of the D.H.4 except possibly that it had plywood covering to the fuselage sides as far aft as the rear gunner's position. This, with perforated ply formers, rendered internal wire bracing unnecessary. The front fuselage was attached to the wire-braced fabric-covered rear portion by fishplates. The rearmost bay, under the tailplane was also ply-covered, but had two vertical struts on each side and circular access holes cut through the skin. The wings were quite conventional with spruce spars spindled for lightness between the compression ribs. This same wing design, increased in span for the D.H.9A, was still in use on the Westland Wapiti many years later. Early D.H.4s had the observer's Scarff ring mounted directly on the upper longerons, but the fuselage decking obviously interfered with the gunner's field of fire, because at an early stage in the bomber's career it was raised to a position level with the top decking. The The Westland factory built forty-eight D.H.4s and some of these had a neat rounded decking aft of the high gun ring. The Westland built machines also had twin forward-firing Vickers guns instead of the more usual single gun. One obvious weakness in the design of the D.H.4 was the positioning of the main petrol tank between the pilot and observer, making intercommunication almost impossible; it is strange that this defect was not remedied until the advent of the D.H.9A.

It was in a D.H.4 from the R.N.A.S. at Great Yarmouth that Major Cadbury and Captain Leckie brought down the new Zeppelin L70 over the North Sea. With the L70 to her destruction, went Fregatten Kapitan Strasser, Commander-in-Chief of the Imperial German Airship Service.

Top view shows a R.A.F. 3A engined D.H.4 of 18 Sqdn. Note bomb racks under wings and forward pilots cockpit. I.W.M. Photo. Q11672. Left: B.H.P. engined versions of 27 Sqdn. "E" is only one with extension to exhaust. Note polished cowl on "A" and high Scarff rings. I.W.M. photo Q12015

Soon after the armistice the military career of this great aircraft came to an end. In America, however, where there was more opportunity to operate aircraft on a commercial basis, the D.H.4 really came into its own. Dayton Wright, Fisher Body and Standard had built nearly five thousand D.H.4s. More than sixty different versions were built, all with the Liberty engine. Many surplus machines were used by the Post Office Department until 1927 converted as single-seaters with mail stowage forward of the pilot's cockpit.

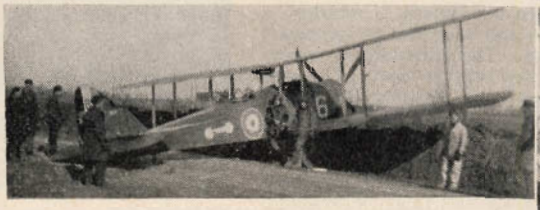
Comparative weights and performances.

	R.A.F. 3A	*B.H.P.*	*Eagle*	*Liberty*
Weight empty ...	2,304 lb.	2 197 lb.	2,387 lb.	2,391 lb.
Weight loaded ...	3,340 lb.	3,610 lb.	3,472 lb.	4,297 lb.
Max. speed at 10,000ft.	117 m.p.h.	106 m.p.h.	133 m.p.h.	117 m.p.h.
Climb to 10,000ft. ...	14min. 15sec.	24min. 36sec.	9 min.	14 min.
Absolute ceiling ...	19,500 ft.	20,000 ft.	23,500 ft.	19,500 ft.
Endurance	4 hr.	4½ hr.	3⅜ hr.	3 hr.

The writer is indebted to the Director and staff of the Imperial War Museum for access to historical records, and to Mr. G. M. Duval who kindly provided a sketch of the D.H.9A cockpit.

Reminiscences of the D. H. 4 and 9

By A. H. Curtis, A.R.Ae.S.



"Prangs" were fairly commonplace. This one in the author's Sqdn. was due to a rigging error. Author is at right in typical flying gear, beside D.H.9. Note the radiator just behind his left arm, later to be pierced by shrapnel and cause a forced landing behind the lines

Members of my old bomber squadron of the 1914-18 war still enjoy an annual re-union dinner, and conversation inevitably reverts to recollections of the war.

Posted to an F.T.S., I started training in a Maurice Farman "Shorthorn". These machines were *not* fitted with dual controls, but if the pupil was fortunate in having an instructor, he soon got the feel of this docile biplane, and was transferred to the front seat. After an hour or so of solo flying, I was posted to the equivalent of an O.T.U., to fly variations of the B.E., a stable biplane fitted with dual controls. A course followed at a fighter school where the almost fully-fledged pilot looked goggle-eyed at the fantastic skill of his instructors performing feats with the delightful Avro 504k which could not be surpassed today. How many modern pilots could cut their engines at 2,000 feet or so, effect a spin or loop on the way down and finish the landing outside and precisely facing their hangars? There were no brakes or flaps. Here I was initiated into aerobatics.

Back at my O.T.U., the trainee graduated after passing various bombing, cross-country and front gun tests (I recalled that residents around Staines reservoir were by no means enthusiastic about the latter). The coveted award of Wings marked the closing training phases with the aircraft type in which he was destined to meet the enemy — in my case, the well-known de Havilland 4.

My R.F.C. squadron was formed with D.H.4s at Dover and went overseas for immediate active service. Little time was available to gain a knowledge of local landmarks but some long-suffering observers were instructed to guide the pilots near the enemy lines and on a few tours around to acquaint them with the terrain. Prangs, though not known by that name, were fairly commonplace and then a squadron casualty meant that a reserve pilot (as I was at the time) found he was detailed for the next bombing formation with an observer who was to become his regular companion. Observers were sometimes referred to as "ballast", which could qualify as the understatement of that war, for most pilots would admit readily that they owed a great deal to this gallant band.

Perhaps the first "show" was the most difficult of all events to recall. Instructions were drilled into the pilots to keep station at all costs. A pilot was to return if his engine lost power and not try to tag along below the others where he would attract immediate attention from the enemy. Vague memories come back of struggling to maintain station from the moment of take-off and of following the flight commander to 15,000 feet or so, higher than ever before. During this early period, being based in northern France, the sea was glimpsed but trying to follow instructions precluded any knowledge of the track.

Following this stage came black bursts in the sky, some perhaps uncomfortably close and audible but, on this first show, regarded somewhat contemptuously. Then of pulling a handle to release two 112 pound bombs or a cluster of incendiaries, following those from the leader and colleagues in the V-formation. Finally, after about two-and-a-half hours, a Very light announced surprisingly that the formation was over base and that the pilots were to break formation and land. Still more surprisingly, one learned on landing that several enemy aircraft had been seen but avoided.

In more modern language, it was, in fact, a "piece of cake", but the last show with that squadron presented a very different picture.

Replacements in the squadron had, of course, been plentiful but those pilots who had survived had become almost incredibly experienced in the few intervening months. The formation take-off and climb were much the same but, for these pilots, actual flying of the aircraft (now D.H.9's instead of D.H.4's) seemed a secondary matter and they knew what to look for and where the Hun was likely to lurk. As bomber pilots they had a healthy respect for the German scouts and, by now, no contempt for their anti-aircraft gunners who were very accurate. The Hun was superior numerically and neighbouring Bristol Fighter crews could not provoke a fight unless they hunted in pairs and were vastly outnumbered.

On this last show the target was reached and peppered in a silence only broken by the rhythmic sound of one's own engine. If the crews could have communicated with each other, only the newcomers would have needed a warning that absence of anti-aircraft fire meant that their fighters must be in the vicinity. Observers warily scanned the sky, particularly in the direction of the sun. A lot of cloud was about but apparently nothing else. A fight had come to be expected. No longer, except to the new hands, was an aircraft the object of awed inspection if it returned with about thirty jagged holes

(Continued on page 418)

Reminiscences of the D.H.4 & 9

(Continued from page 417)

in the airframe. No great surprise if so-and-so failed to return, but only perhaps the difficulty of finding another pianist or other entertainer to function in the mess. It was only the silence now which was uncanny.

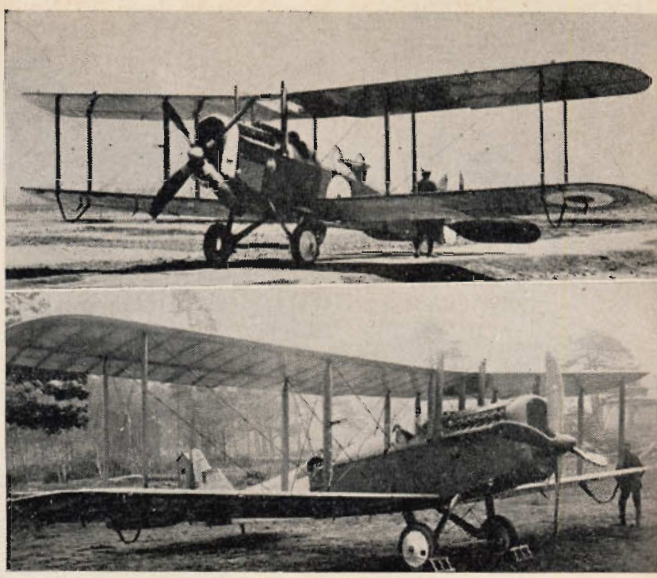
Then, literally out of the blue and through the clouds—"Crrrump" and the picture changed abruptly. "Crrrump", a second one much too close to be pleasant and to the experienced, suggestive of things to come. A flat turn quickly, for the third, and there would be three for certain, could come directly in our path. "Crrrump"—we could have been there—and then things happened in a hurry and unforgettably. The anti-aircraft ceased. Out of the sun came Richthofen's circus—forty of them—Fokker, Pfalz, Albatros and other fighters. Diving in pairs, the Hun sought to wipe out our formation and would have done had their shooting been of the quality of their flying and our observers been inferior only in quantity. Our formation kept close stations and concentrated fire caused more casualties than we received. Then, for reasons unknown to me at the time, almost the worst happened. It was not the Hun aircraft but the shrapnel from one of the three sighting shots that did the damage.

Gradually, our engine began failing. I did not realise what was happening; I tried petrol cocks, throttle settings, everything, but all to no avail. I was at the rear of the formation of five. Our compatriots on the other side turned slowly over upside down, smoke pouring from their aircraft. I knew that we could not help them and felt, too, that we could not help but share their fate.

In was apparent that our gravity tank had been holed by a fighter, fortunately without a fire, but that could not be the case of the trouble. Our engine shook, as if with the ague. It had to be run as flat out as possible for the Hun was closer, his guns were audible and though, thankfully, we had little time to think, things were becoming hectic. We dived, far in excess of the safe maximum, until we looked back and saw two tailplane streamline bracing wires flapping in the breeze as a result of machine gun fire; discretion won and caused an easing off of the speed. Weaving was out of the question, for with a failing engine and a headwind we might not make our own lines. Moreover, owing to the shape of the front line, it was vital to approach our side at the right spot. Then the engine chose to seize solid; I shall never know why it did not leap from the bearings. We were now about 2,000 feet up and not exactly "keeping station". In fact, we were alone and (although we did not know it at the time) regarded as "missing".

At this moment, too, my observer's gun jammed. Still standing and facing the enemy, he fired a few bluff shots with his Very pistol and, if I had had time to think, the word "ballast" would not have been included in my thoughts. It was soon after this that we could well have been thankful that the R.A.F. fighters had by now reached supremacy on the Western front. To us, it seemed like a miracle for, though our D.H.9 was a "sitting duck", we knew we had reached the lines because the Hun turned round and flew for home. So that, although an aileron compensating cable was severed, the landing seemed rather like an anti-climax and having accomplished this quite easily, the cause of the trouble was at once apparent. Caused by shrapnel, there was a very large hole in the radiator and, in consequence, there was no water.

After that, I led a flight in another squadron and with time I realised even if I only admitted it to myself, that nerves were not so good as they were on that first show. Others, who had survived as long, must have felt the same way . .



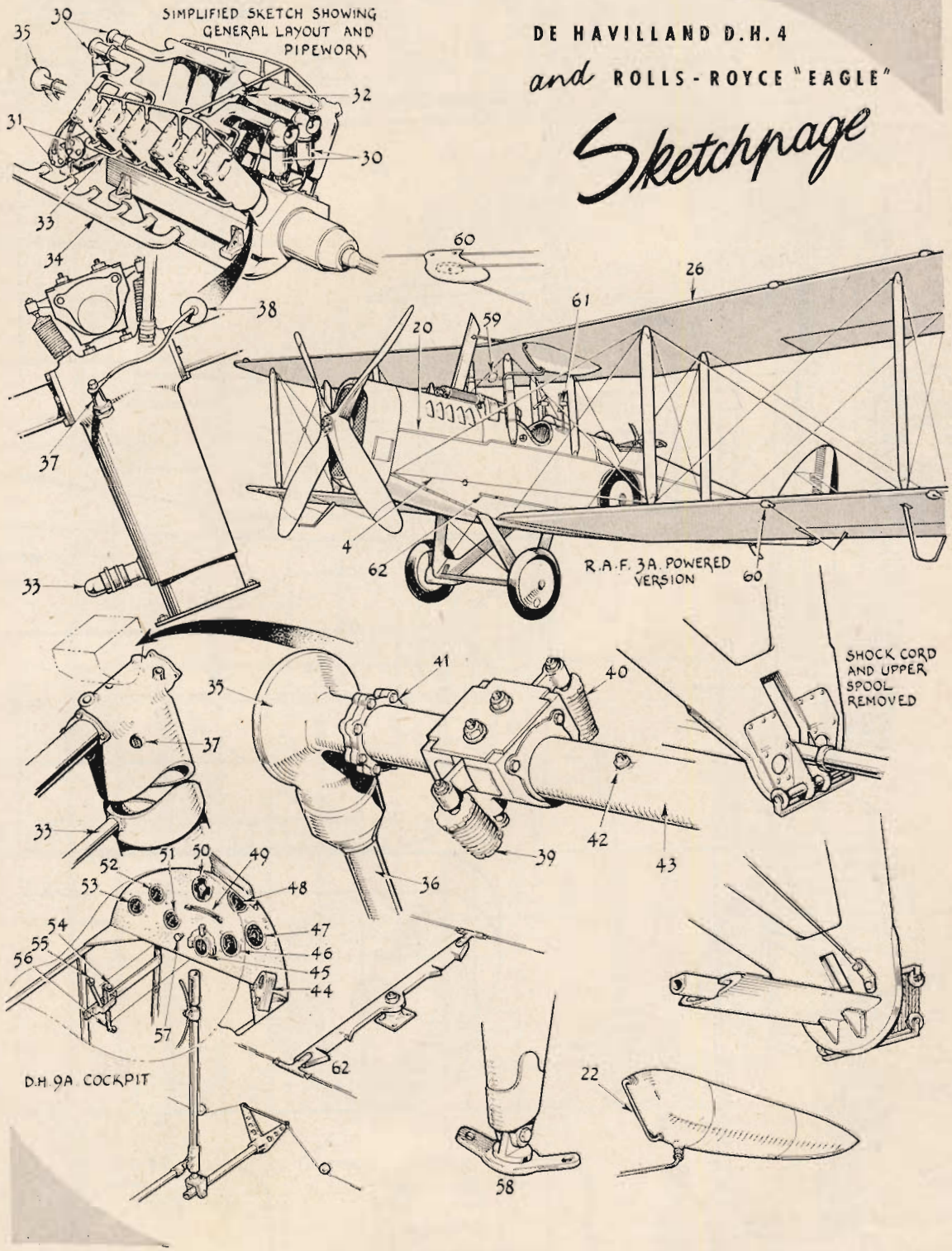
A Westland built machine is seen at top, note the clear panel in the centre section. I.W.M. photograph Q66789. Below it is a machine straight out of the factory, actually the subject of the drawing by the author, A 2152. The finish with clear varnish on wings is distinctive. I.W.M. photo. Q57582

KEY TO DRAWING OPPOSITE

(1) B.H.P.-engined versions of 27 Squadron had the same rear fuselage as the R.A.F. 3A model. **(2)** Letter "E" in white, the same way up on both port and starboard wings. **(3)** Extension to exhaust on a few machines only **(4)** Extra wire to lower end of interplane strut **(5)** Extra wire on some Eagle-engined machines. **(6)** Centre-section wires crossed on B.H.P. and R.A.F. 3A models. **(7)** Two-bladed propeller on B.H.P. engine. **(8)** Petrol tank under port wing only. **(9)** Steps here on starboard side, all models. **(10)** Solid black serial no white outline. **(11)** Parallel wires. **(12)** Crossed wires. **(13)** Magneto access on both sides. **(14)** Spinner not always fitted. **(15)** Wheel spring covers not always fitted. **(16)** Metal panels. **(17)** Clear-view panel on some models. **(18)** Longer undercarriage on some late Eagle-engined machines. **(19)** Plywood covering as far aft as here. **(20)** Upper longerons lowered on B.H.P. and R.A.F. 3A models. **(21)** Bracing between front legs, but between front *and* rear on some B.H.P. models. **(22)** Petrol gauge. **(23)** Oil tank. **(24)** Main petrol tank. **(25)** Magneto switch. **(26)** Aileron wires run along leading edges. **(27)** Synchronising gear drive. **(28)** White "E" with black shadow. **(29)** Inspection holes in ply covering. **(30)** Two carburettors at each end. **(31)** Two magnetos at each side. **(32)** Connected to top of radiator. **(33)** Connected to lower end of radiator. **(34)** Exhausts shown removed. **(35)** Bevel gear box for camshaft drive. **(36)** Camshaft drive rod housing. **(37)** Two plugs to each cylinder, arranged diagonally opposite. **(38)** Ignition lead conduit along top of induction pipes. **(39)** Exhaust valve spring. **(40)** Induction valve spring. **(41)** Camshaft housing coupling between cylinders 2 and 3, 4 and 5. **(42)** Grease nipples between cylinders 1 and 2, 3 and 4, 5 and 6. **(43)** Camshaft housing. **(44)** Delco ignition switches and ammeter. **(45)** Illuminated compass. **(46)** Air speed indicator. **(47)** Altimeter. **(48)** Engine revolutions. **(49)** Lateral level. **(50)** Fuel tank selector. **(51)** Air pressure. **(52)** Radiator temperature. **(53)** Oil pressure. **(54)** Advance/retard. **(55)** Throttle. **(56)** Altitude control. **(57)** Priming pump. **(58)** Typical strut terminal. **(59)** Pilot's rear-view mirror. **(60)** Aileron wire pulley housing. **(61)** Petrol pumps. **(62)** Rudder bar. **(63)** Tail Trim wheel. **(64)** Ammunition stowage. **(65)** Elevator and rudder control for observer. **(66)** Observer's instrument panel.

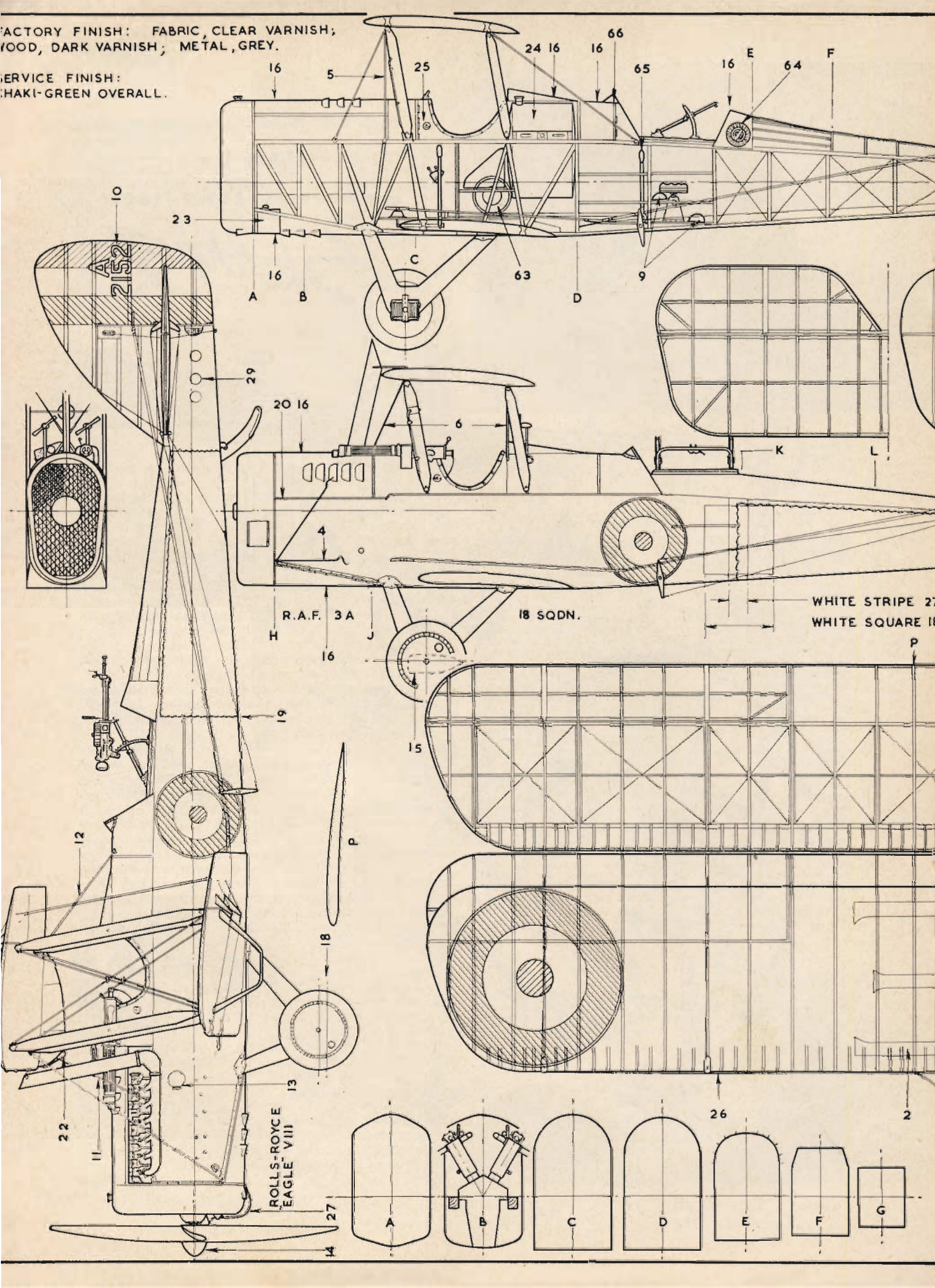
Civilianised D.H.4's started many an airline. This one for Instone Airlines is the "City of Cardiff" and clearly shows the registration of the day, plus passenger cabin modifications

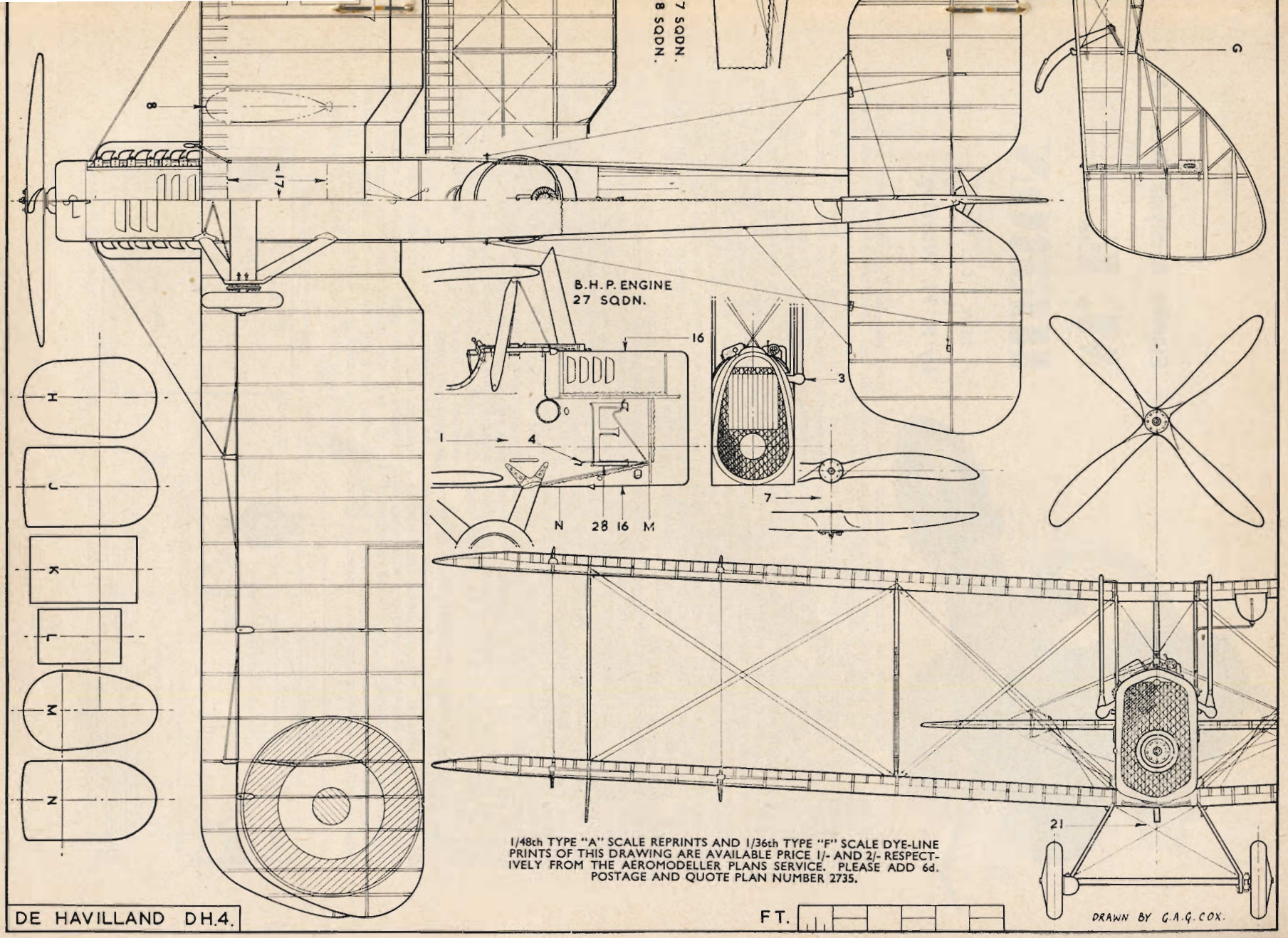
DE HAVILLAND D.H.4 and ROLLS-ROYCE "EAGLE" Sketchpage



FACTORY FINISH: FABRIC, CLEAR VARNISH;
WOOD, DARK VARNISH; METAL, GREY.

SERVICE FINISH:
KHAKI-GREEN OVERALL.





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DE HAVILLAND DH.4.

FT.

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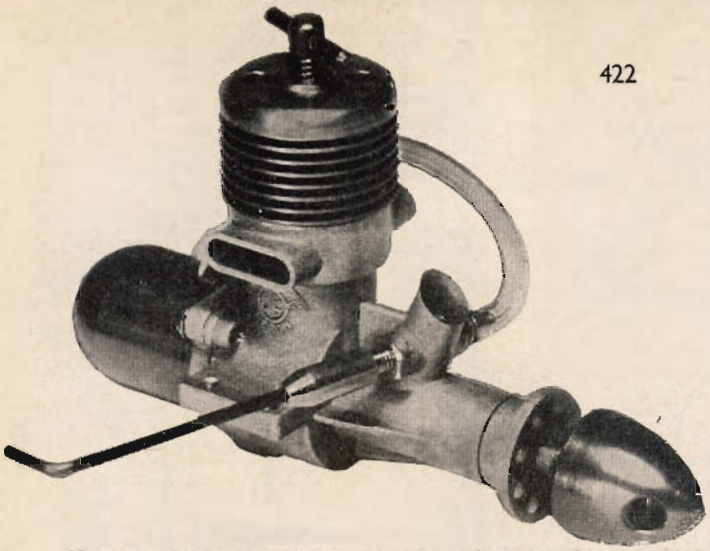


Engine Analysis No. 74

M. E. HERON

A new 1 c.c. diesel

by R. H. Warring

YET ANOTHER NEWCOMER to the engine manufacturing field, Marown Engineering, has a long association with model engines in proprietor Walter Kendall, who was with Davies Charlton in their earliest days. Add to that the fact that Walter Kendall is a toolmaker, with an eye for precision engineering, and one would expect something rather "better than average" from an initial product in a highly competitive field and on which the reputation of the new company will largely stand or fall.

Our own assessment is that the cleanness of the design and the workmanship throughout is well above average and that a considerable degree of skilled attention has gone into the fits and finish of the working parts. It is essentially of orthodox layout, ported primarily with a "sports" performance in view, but with particular attention paid to main bearing fit.

Every engine designer has his pet "theory" as to what is a basic essential and Kendall's is that good starting is synonomous with good crankcase compression, so that the charge is transferred forcibly into the upper cylinder when the transfer ports open. To achieve this, and maintain good crankcase compression throughout the life of the engine, the M.E. "Heron" employs a bushed main bearing of Meehanite, beautifully fitted to the crankshaft so that the assembly is well nigh perfect as regards gas seal. The choice of materials—hardened shaft and Meehanite bush—results in almost negligible wear, as well as extremely low rubbing friction once fully run-in.

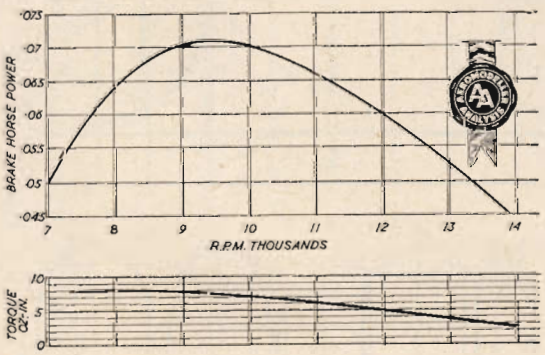
On test, the M.E. "Heron" certainly lived up to its claim for being an easy starter—probably the easiest of any diesel of its size. It is also extremely insensitive to control settings, so that it will run over a wide range of maladjustment. If required, too, it can readily be adjusted to four-stroke quite smoothly dropping from a load-speed of around 11,000 r.p.m. to a matter of some 3-4,000 r.p.m. and holding this speed indefinitely. Probably the best "practical" praise as to the Heron's starting ability is the relative ease with which it could be started on a 6 x 6 Frog nylon propeller—an excellent propeller for flight performance, but a perfect so-and-so to hand start on almost any engine.

The price one pays for this close fitted—once could almost say "tight"—main bearing is that the "Heron" needs a lot of running-in time before it will develop maximum performance. Since a Meehanite bearing hardly wears at all—any wear that takes place is on the hardened crankshaft—anything between six and ten hours may be necessary before the engine can be said to be completely run-in. Performance should increase slightly over this time. Thus the "Heron" is immediately classified as a "long-life" engine.

The engine as used for this test had been subjected to a certain amount of running. It was given some further running time, followed by extended runs at high speed and the main bearing temperature checked. This remained cool, showing that there was no excessive friction from this source. Nor was there any appreciable increase in r.p.m. over a matter of one hour's running time.

The resulting B.H.P. curve plotted from the torque measurements subsequently taken, still showed a low peak r.p.m.—between 9,000 and 10,000 r.p.m. Hence it was quite probable that the engine was still nothing like fully run-in. Thus the curve as given, may very well be extended to a higher peak B.H.P. and peak r.p.m. figure at some later stage.

As the "Heron" is essentially a "sports" engine, however, and obviously not designed for racing performance, ultimate peak r.p.m. may not exceed 10,000 r.p.m. and the considerable extra running-in time necessary for a fully extended test was not felt justified. The power output up to 10,000 r.p.m., in any case, is all that one could want from a 1 c.c. engine of this type.



PROPELLER—R.P.M. FIGURES

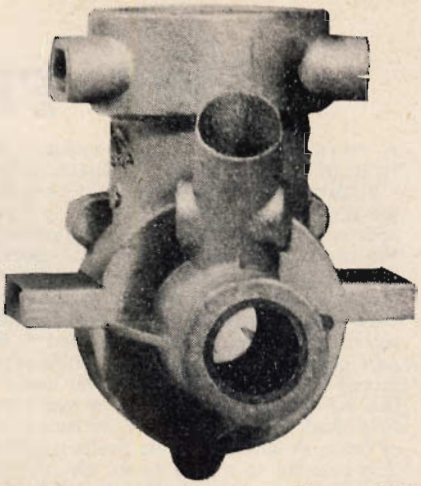
diameter x pitch	*r.p.m.*
Trucut 8 x 4	8,000
7 x 3	11,000
7 x 6	7,500
6 x 6	9,000
6 x 4	11,000
6 x 3	11,800
7 x 5	9,000
Stant 6 x 4	11,400
7 x 4	10,200
8 x 4	8,000
Frog-nylon 7 x 6	8,800
7 x 4	10,000
6 x 6	11,500
6 x 4	13,000
Davies-Charlton-nylon 6 x 4	13,500

Fuel used: Mercury No. 8. A.P.S. Power Coding D.

Specification

Displacement: ·97 c.c. (1,059 cu. in.
Bore: ·424 in.
Stroke: ·420 in.
Bore/Stroke ratio: 1·01
Bare weight (with tank): 2·4 ounces.
Max. B.H.P.: ·072 at 9,500 r.p.m.
Max. torque: 8 ounce-inches at 8,500 r.p.m.
Power rating: ·079 B.H.P. per c.c.
Power/weight ratio: ·03 B.H.P. per ounce.

Material Specification:
Cylinder: Meehanite
Crankcase: Light alloy pressure die casting
Rear cover: Light alloy pressure die casting
Crankshaft: Case hardened BSS EN 34 steel
Main bearing: Meehanite bush.
Contra piston: Meehanite
Piston: Meehanite
Conrod: Machined from L 64 high tensile light alloy
Spraybar: Brass
Cylinder jacket: Turned from dural, anodised red
Fuel tank: Turned from dural, anodised red
Prop. driver: Light alloy die casting
Spinner nut: Turned from dural, anodised red
Manufacturers: Marown Engineering Ltd.,
Glen Vine, Isle of Man
Retail price: 47s. 3d. including P.T.



Larger than life picture of the Heron's crankcase casting with incorporated exhaust stacks shows how the special shaft bush is integral, the casting actually being made *around* the Meehanite

The only danger we can see from this form of production which places the emphasis on a near perfect crankshaft-main bearing fit, is that if the fit is fractionally too "good" (tight) to start with, it may need tens of hours of running to free up completely. As long as the bearing remains cool when running, however, the owner can be assured that his "Heron" will run consistently. On the test engine there was some heating up of the front of the bearing at speeds of 12,000 r.p.m. and above, and a certain reluctance on the part of the engine to develop higher r.p.m. figures even on very light loads.

For free flight an 8 x 4 wooden propeller would appear about the ideal size, giving 8,000 r.p.m. static and as easy handling characteristics as anyone could want. A 6 x 6 nylon propeller would probably be a good choice for control line, approaching 9,000 r.p.m. static. A 7 x 4 propeller allows the engine to overspeed slightly, but might be a good choice for maximum performance on a fully run-in engine.

The "Heron" was certainly not fussy about fuel and ran just about equally well on all the commercial mixtures tried. Mercury No. 8 was used for the measured performance tests, though the difference between this and non-nitrated fuels was small.

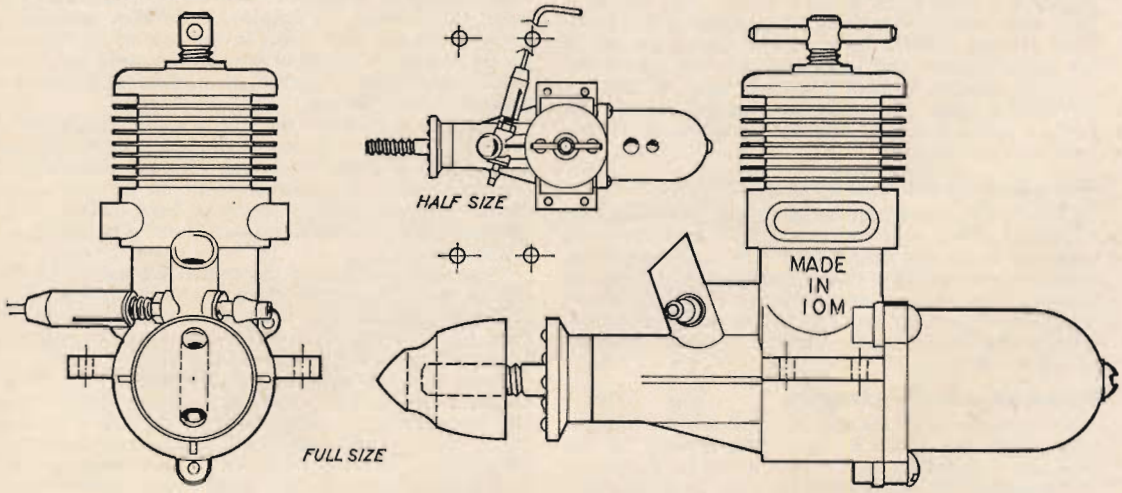
Constructionally the "Heron" features an extremely clean sturdy yet light pressure die-cast crankcase which has the Meehanite main bearing bush actually *cast* in position, threaded for the cylinder jacket and faced on the rear. The integral bush confers many advantages, notably rigidity and robustness. Stub exhausts are cast integral with the main unit in the ring encircling the cylinder liner flange. The cylinder seats loosely in the crankcase on a gasket and is locked in place by screwing the cylinder jacket into the crankcase.

The cylinder liner is of Meehanite, ·516 in. o/d at the bottom and ·526 in. o/d above the flange. The lower external surface is ground, presumably to reduce gas friction—and three transfer ports are milled through the walls immediately below the flange. Three corresponding exhaust ports are milled in the flange immediately above the transfer ports. There are no definite transfer passages in the crankcase casting, the mixture finding its way around the outside of the bottom liner. Similarly, there is a "leakage" path for the exhaust, if the slots do not correspond with the position of the stubs.

The cylinder jacket is turned from dural, anodised red. The bottom thread is ·1687 in. o/d ($\frac{11}{64}$ in.), 32 t.p.i. The jacket is a close fit over the upper liner.

Piston and contra-piston are machined from Meehanite again, both threaded on the inside for fitting to a mandrel for finish grinding. On a production basis this is a slow process, but is one capable of giving very fine results without suffering some of the unwanted variations

(Continued on page 431)



NEWS FROM RUSSIA

A TWIN ENGINED radio-controlled model aircraft built by A. Zarachnyev of Stalino and described in "Wings of the Fatherland" from which we have reproduced the sketches opposite, is particularly interesting for the approach to this problem of synchronisation of engines. We quote from the description:— The centre of the plane is the most overloaded part of the model and so that it would be more durable, two hardwood wingspars were used, the ends of which serve as cases for fastening the nacelles. Fuel tanks are situated in the upper front part of the nacelles and each tank's capacity does not exceed 35 cubic centimetres. The model is fitted with two K6 engines. Their speed is synchronized with the help of a 5 mm. flexible shaft, the ends of which are made of brass. Alignment of the shafts is critical, and whilst it is possible to obtain r.p.m. synchronisation through this direct connection, this is still no guarantee for equal thrust. Consequently a special test rig (see sketch detail) is made, with an electric drive, to check pairs of propellors for equal efficiency.

Varible Pitch Propeller

As a practical means of regulating the pitch of a V.P. propeller in control line speed and team racing models, a split metal hub, used by V. Krasnovolovy of Riga with wooden or plastic blades inserted in it, has proved most useful. The blades with thickened bosses are bound between two half metal hubs, having corresponding pitch. The blades are prepared with the pitch angle theoretically corresponding to the calculated flight speed of the model, making allowances for the characteristics of the engine and the efficiency of the propeller blades. The exact setting of the blades is carried out by means of a special template of sheet metal, the template of which is shown and also the method of measurement. The template is fixed onto the end of the engine crankshaft and the rear face of the propeller blade is adjusted to match the template. Such a way of selecting the propeller pitch relieves the aeromodeller from the necessity of preparing a large number of propellers of varying pitches and changing them after each take-off, as is usually the case in making tests.

That there is nothing new in Honeycomb structure is seen in the remarkable sketches of the production for "egg box" style assembly. Note how the ribs are first shaped in a solid block which is halved, then slotted in pairs. Next, the ribs are sliced off by plane—a feat which must demand either a hand tool or timber not yet of our acquaintance—and individual ribs are interlocked over one another to form a sparless wing. W. Roczok of Taldy-Kurgen (near Chinese border) advises the method in the U.S.S.R. Aviation magazine so we can presume that it works!

Aeroflot Load Carrying Models

"Foreign sportsmen are building and launching load carrying models with piston engines" says the same magazine which then details the P.A.A. load regulations, describing events held in France and Japan with PAAmen sketches. The Moscow aeromodelling club proposes to hold competitions for load carrying models with 2.5 c.c. cylinder engines, during the Summer of 1960,—will they be called Aeroflotters?

Experts aid beginners

An appreciation of the way in which aeromodelling is fostered in the U.S.S.R. by encouragement of the beginners is indicated by a report issued by P. Rivkin. The Moscow City Aeromodelling Club, in putting into practice the decision of the 3rd plenum of the Central Committee of DOSAAF, set itself the following task:—

"To obtain an increase in the ranks of aeromodellers during 1960 in two respects. To significantly widen the network of aeromodelling circles in the schools, and of special middle and top class study establishments in the capital.

"We calculated that to fulfill such a task, we would have to prepare hundreds of public instructors. Work has begun on a course at our club in 1959 (first term) in preparing instructors. Many former students are already in charge of school aeromodelling circles.

"Simultaneously in each regional pioneer house, special groups were formed from among the best aeromodellers—old pupils trained in the capacity as instructors. In this way, during a year, we can teach a large number of public instructors; this presented an opportunity of providing aeromodelling circles in all the primary school organisation of DOSAAF, with instructors.

"The letter published in the January number of the magazine "Wings of the Fatherland" by the public instructors L. Maznichenko, V. Kumanino and G. Karapyetyana having called upon all the masters of sport and the highest trained "class" sportsmen to become public instructors in their particular branch of sport, received a live response from aeromodellers in the capital.

"*He was taught himself—let him teach others.*" is the work slogan.

"For example, Master of Sport U. Sirotkin pledged himself to train five 1st grade sportsmen and the capital's team of pilots to take part in the 1960 all-union championships. Master of Sport U. Kumanin a student at Moscow Bauman technical high school during the early days in the organisation of DOSAAF founded an aeromodelling section, in which more than 30 now take part.

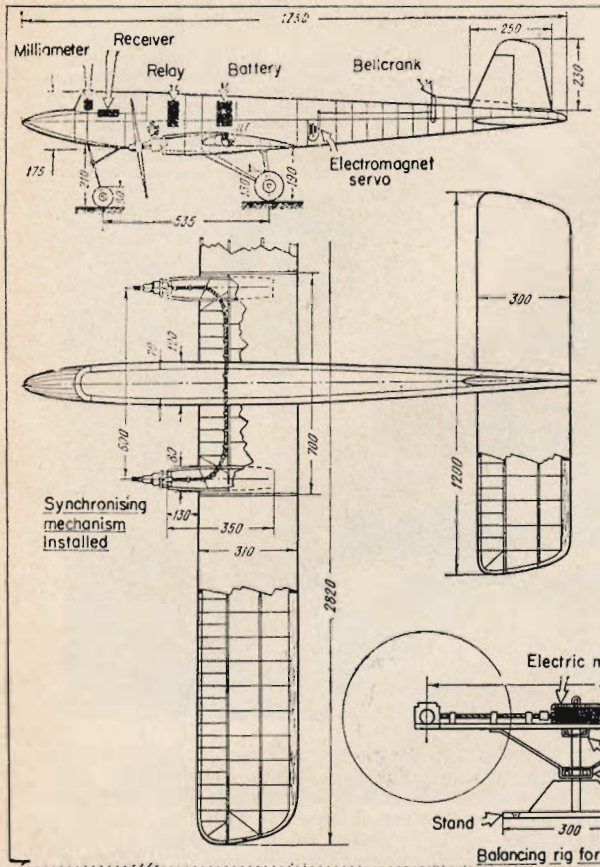
"Master of Sport B. Subottin has been a public instructor for two years already. He controls the group at school 146 in the Leningrad region. 50 aeromodellers have been trained by him, among them 19 "grade" men.

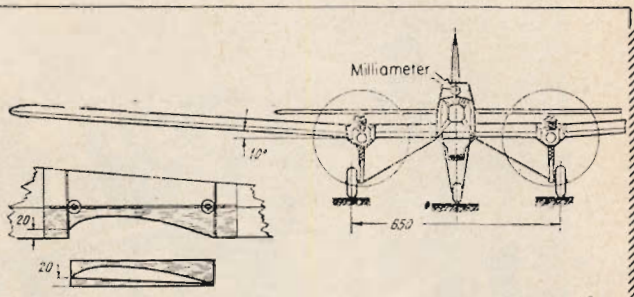
"Master of Sport and official World altitude record holder G. Liouboutchkine took it upon himself to train a free flight model team for the all-union championships. Each week he holds consultations in the construction and building of different classes of models. Masters of Sport O. Gayevski, U. Sokolov, V. Petukov and others, members of the club, enter in the role of consultants. U. Otryaskenkov is head of a section for radio-controlled models and trains a group of wireless operators for regional pioneer houses.

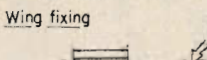
"Another member of the club a student in technical science E. Kostyenko, one of the oldest aeromodellers is in charge of a section dealing with experimental and research models. 15 constructors are on the staff of the section having occupied themselves from the start with aeromodelling. The section plans a series of important investigations.

"The aeromodellers of the capital are answering the call of the 3rd plenum of the Central Committee of DOSAAF with deeds to increase the numbers of sportsmen, and to set up new records for duration, distance, height and speed flight records for models".

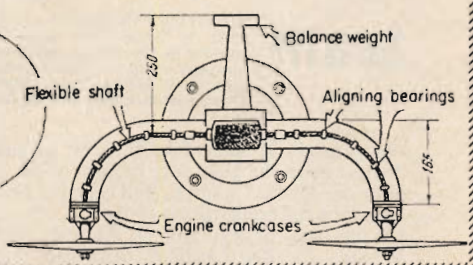
From this, it is obvious that modellers in the Soviet Union are being encouraged in a manner unknown in any other country, except perhaps Western Germany (refer "How to catch 'em young" in June issue) and that the future generation of U.S.S.R. aeromodellers will be stronger in numbers than in any other Nation.

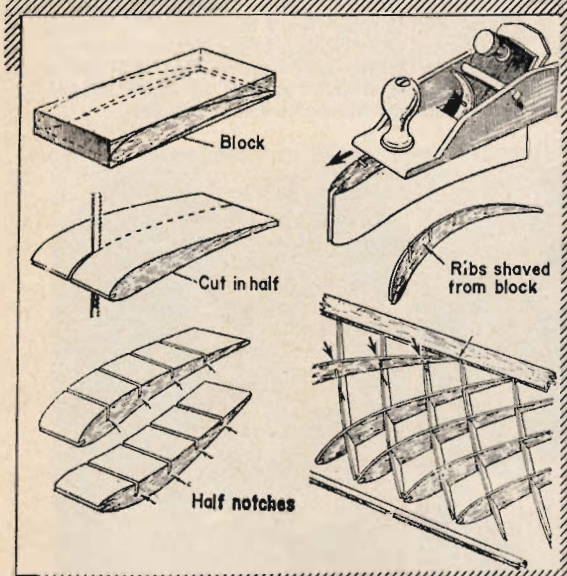


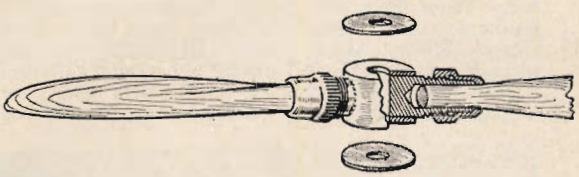


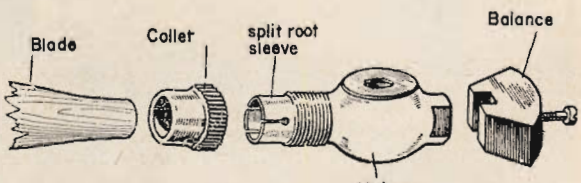


Balancing rig for airscrews

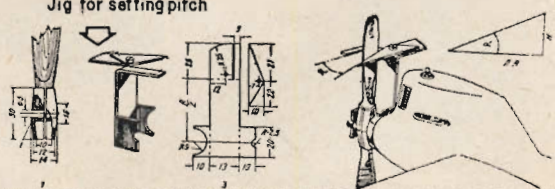








Jig for setting pitch

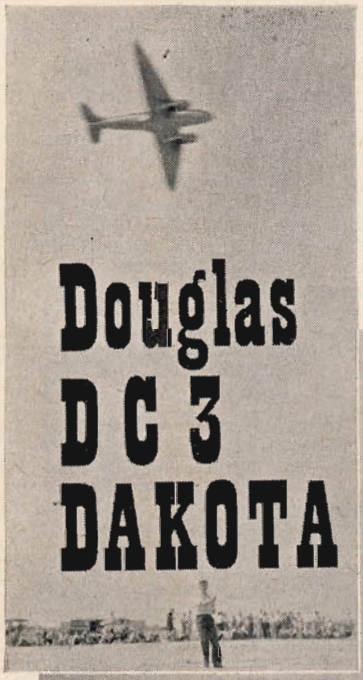


Left: top eight in stunt, L. to R., standing; B. Corden, P. Ridgway, B. Brown, F. Warburton and D. Day. Kneeling: R. Brown, J. Eifflaender and T. Jolley. Note predominance of larger, flapped models. Below: Gordon Yeldham's monowheel caused a stir. Is fast and stable on grass or tarmac.

Selection trials for British C/L team

Below, L. to R.: Mike Smith and Dave Balch of Hayes with Rivers 2.5 qualifier in T/R. Pete Wright fettles his speed model, was fastest at Wigsley with 185 kph. Ken Long in typical pit stop attitude after just one flick!

NOT UNTIL A second eliminator to decide 2nd and 3rd places in the team race section of the British team to go to the World Champs., had been held at the Nationals, could the full constitution of the C/L team be announced. On the basis of regularity in the main selection trials at Wigsley, the *Ken Long/Les Davy* pair from Wharfedale (Eta 15) were clearly 1st qualifiers; but those in 2nd to 5th place were asked to make 3 more flights at the Nats. From these, the *Gordon Yeldham/Chas. Taylor* (Belfairs—Oliver Tiger) and *Dave Balch/Mike Smith* (Hayes—Rivers Silver Streak II) teams emerged successful and so give Britain the remarkable variation of manufacturer representation which would never have been foreseen in earlier years. Clearly we shall be sending the very best, and the most experienced teams. In stunt, the top three are *Ray Brown* (Lee Bees—Merco 35) 2131 pts., *Frank Warburton* (Bolton—Fox 29X) 2094 pts. and *Den Day* (Wolves—Merco 35) with 1962 pts. The third place was hotly challenged by Tom Jolley but like Den Day, he suffered misfortune in two of the final 3 flights, which were judged by the Editor and four of the competitors eliminated in the first stage. The leading eight who went on to make a total of six judged flights are seen at top left. In speed, it is a tale of models coming apart at high speed (Ray Gibbs), of engines off form and a top speed way below those recorded at last year's Criterium of Europe. In consequence, we learn that no British representatives will be sent for this class.



Douglas DC 3 DAKOTA

A true-scale control-line model of the famous workhorse of the air, for a pair of 1·5c.c. engines

Designed by J. LAST and made by J. M. BODEY

THIS MODEL represents the combined efforts of AEROMODELLER Plans Service's brightest stars in multi-engined control line scale model design, whereby J. Last (well known for his D.H.88 *Comet*) was commissioned to design a true scale "Dak" for Maurice Bodey to build. As those who witnessed the flying scale events at the recent National Championships will agree, the flying of this Dakota was the outstanding feature even though it could not match the extensive detail of some of its competitors.

We do not have to extol the virtues of the D.C.3 here, for they are too well-known. The dear old Dakota has for so many years been the stand-by of Airlines large and small throughout the world, as well as being a prominent transport in World War II, playing a very important part in the invasion of Europe.

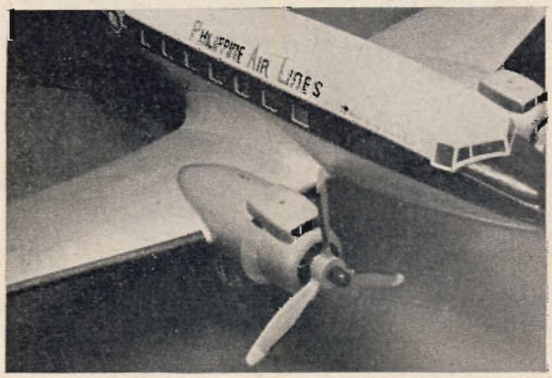
For the scale modeller it lends itself to a greater variety of colour schemes than any other type we can call to mind, Maurice Bodey chose the unusual Philippine Airlines decor and on the plan we show what is probably the brightest C-47 in the American forces, recently based at Bovingdon, Hertfordshire, and which is used for the AACS (Airways Air Communication System) Branch of MATS to check instrument flying aids at various air bases. Its bright day-glo orange, white, blue and silver colour scheme are most attractive. Many other colour schemes can be found in the "*BP Book of Airlines*" and we are sure that the majority of modellers will be able to locate a Dakota at their nearest commercial aerodrome to sketch a local subject.

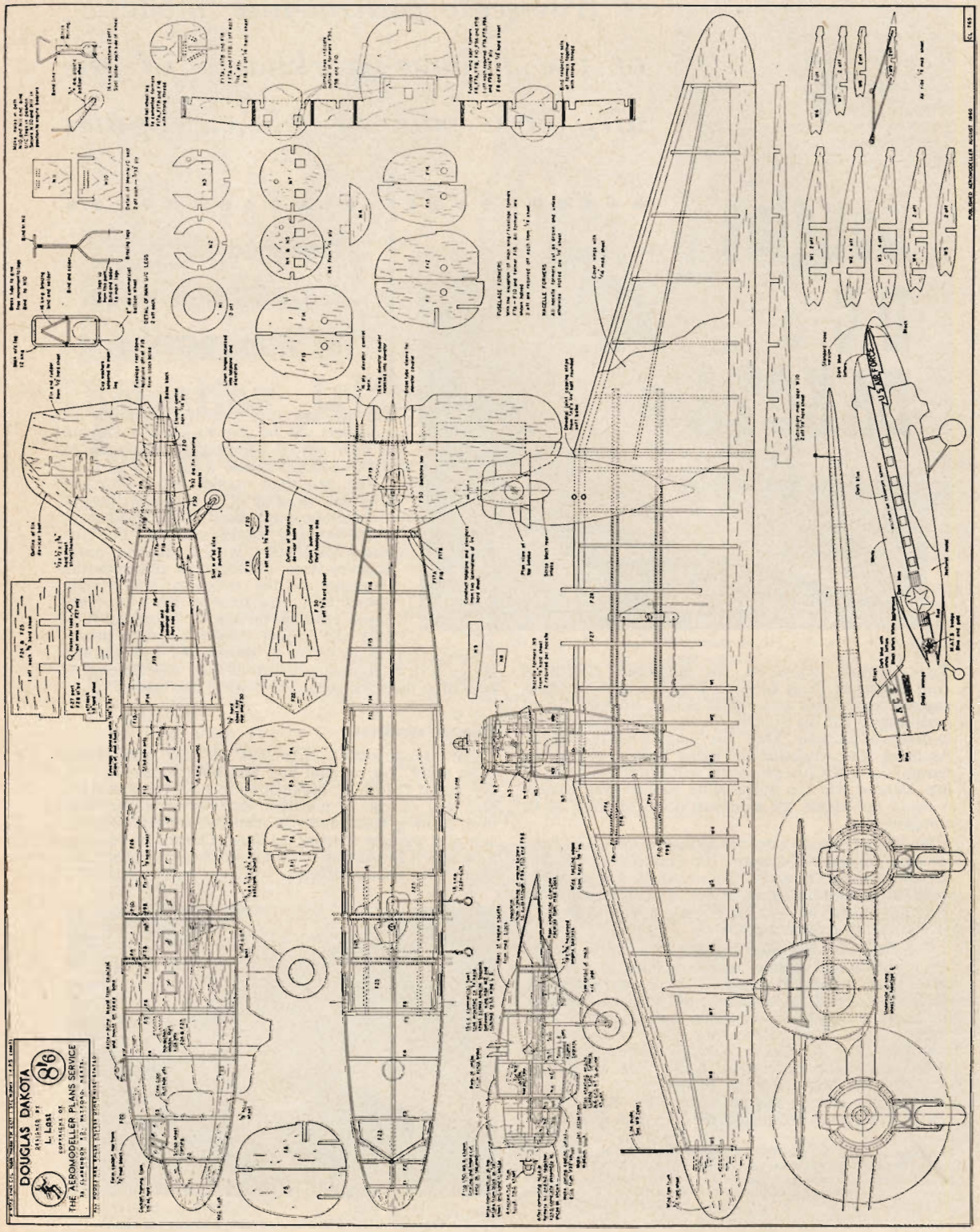
The prototype model flies extraordinarily well on *either* of its two A.M.15s, but it should be emphasised that it is *definitely a twin-engined* model and not one for single installation with a dummy prop. Stage-by-stage photographs illustrate the simplicity of the structure, which only diverts from true scale in the size of the upper cowling intakes in order to fully hide the model engine cylinder heads. Construction details follow in abbreviated style and the design is to be recommended to anyone with the experience of at least one successful control line model.

Heading shows how well the "Dak" was demonstrated by Maurice Bodey at the Woodford and Nationals meetings on a pair of A.M. 15's. Close up at right illustrates the slight adjustment from scale, to enclose cylinders in enlarged carb: intakes over cowlings

Construction

Cut fuselage keels F.21, F.26, F.23, F.29, from ¼-inch balsa sheet. Pin to plan and add half formers F.1 to F.6, and F.11 to F.16. Make up former F.18 as shown on plan and cement in position. Remove completed half from building board and add other half formers. Cut out and add window sheeting sections. Cement in position F.24 and F.25. At this stage, lay fuselage aside until the wings have been completed. (*Continued on page* 429)





FULL SIZE COPIES OF THIS 1/6th SCALE REPRODUCTION ARE AVAILABLE AS PLAN CL765 PRICE 7/6 PLUS 6d. POST FROM *AEROMODELLER* PLANS SERVICE

(*Continued from page* 427)

Wings are built up in three sections — centre and two outer panels. Commence with centre section first. Build up the two main spars F.10 and F.8 as shown on Plan. Temporarily, thread them on to F.27 and F.28. These serve as a guide to enable accurate construction of wing. Cement in position all ribs W.1 and W.2. Follow this by wing trailing edge which should be pre-shaped beforehand. Add leading edge, put aside and allow to set. While waiting, the outer panels can be built in the normal way. The bellcrank assembly should be added at this stage. F.27 and F.28 can now be cemented in permanently. Thread on lead outs and push rod, soldering all joints well. The outer panels of the wings can now be joined to the centre section, checking that each tip has same amount of dihedral. The completed wing can now be joined to fuselage, cementing all joints well.

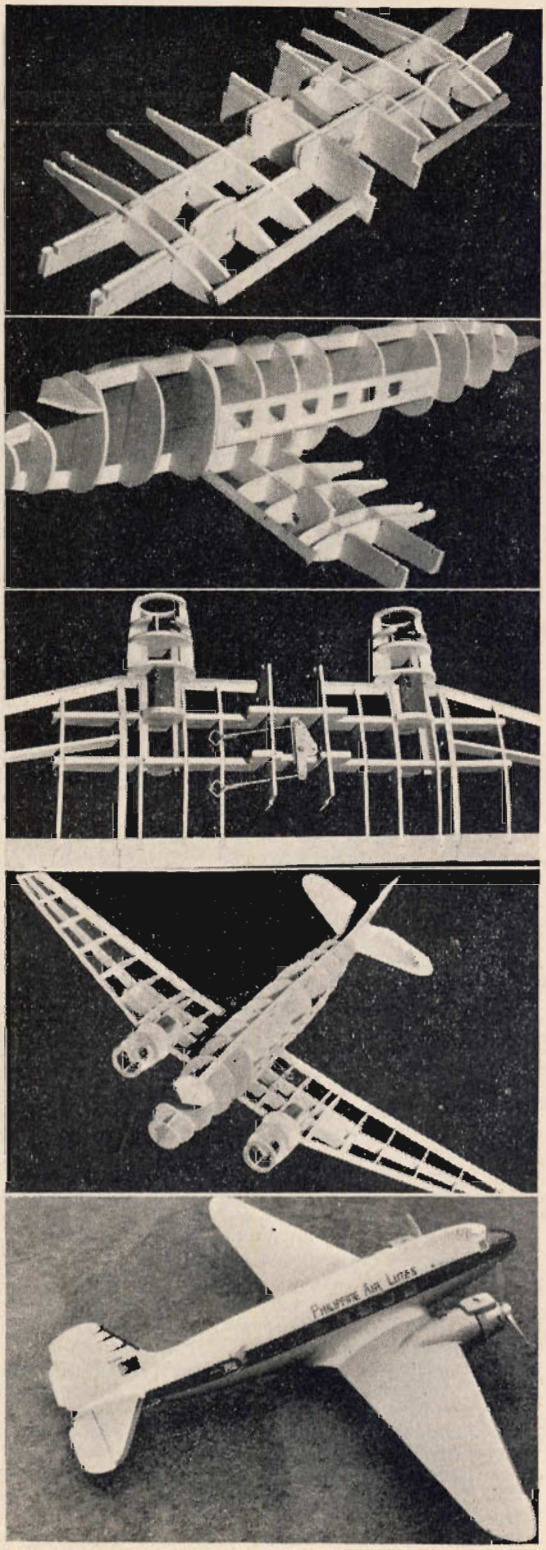
Tailplane and elevator are made from ¼-inch hard sheet balsa. Sand to a symmetrical section. Fin and rudder are constructed from ½-inch sheet balsa, also sanded to symmetrical section. Cement in position on fuselage F.30 and F.20. Follow this by cementing tailplane, checking it is true. Connect push-rod to elevator horn. Plank complete fuselage with ⅛-inch by 1/16-inch balsa strips. Add block tail fairing. Block, nose and cockpit top are from soft block, and sand complete fuselage to shape. Firmly cement into position fin and rudder at this stage.

Start nacelle construction by threading the 5/16-inch by ⅜-inch hard wood bearers through formers F.8 and F.10. Cement firmly in position N.5, N.6, N.7 and the ¼-inch balsa tank seat. 15 c.c. fuel tanks are fitted between N.7 and F.8 on top of the bearers. Add N.4 of 1/16-inch ply and N.10 of 3/32-inch ply, after firmly binding 12 s.w.g. main undercarriage legs to N.10. Bind 16 s.w.g., bracing legs to N.11, and glue in position. The undercarriage can now be bound and soldered. Add remaining formers N.2 and N.3, together with N.8 and N.9. Drill engine bearers to suit engine and completely plank nacelles with 1/16-inch sheet. When completely dry, sand to a smooth section. Formers N.1 can now be cemented to N.2 and sanded to section.

Bind and cement guide-line into position at wing tip, and add lead weight to opposite wing. Wing can now be covered with 1/16-inch sheet and sanded smooth. Add wing-root blocks, top and under-side nacelles blocks, and carve to shape. Completely sand construction smooth all over.

Wing-tip fillets can be made either from block or several sheet sections. We found the latter version more satisfactory. Cut cowling sheeting between N.3 and N.4 and remove cowlings to enable engines to be installed, replace cowlings and add top intake cooling gills, and oil cooler.

Cover the completed model with lightweight Modelspan and finish as follows: one coat clear dope followed by a light sanding. Two coats sanding sealer, sanding between each, followed by three coats of Belco primer. A satisfactory surface should now have been obtained. The choice of Airline colour scheme is left to the builder but the original was finished in Philippine Air Lines. It is important to remember that all window glazing should be carried out *after* painting the model.



Stage by stage assembly photographs help the builder. At top, the basic centre section with parts to key into the fuselage structure, added in next view. Third photo shows the tip panels added, together with nacelles and bellcrank control in a check assembly prior to final glued fitting. Next, the complete airframe before planking and at bottom, the prototype awaiting a test flight

News from the Union of the 10th Championships, held for the first time at Bloemfontein

. . . by the Editor of "BAC-Chat"

FOR THE FIRST TIME since post-war model flying started in South Africa, the Nationals were held at Bloemfontein, where the Civil Aviation authorities very kindly allowed use of their aerodrome for all the Free Flight events as well as accommodation purposes and the Military authorities "gave over" a large portion of their training grounds for the R/C events. Rhodesia made an appearance in the form of nine members from the Mashonaland M.F.C. who, under the leadership of Dennis Hunt, chartered an aircraft to traverse the 1,200 miles from Salisbury to Bloemfontein. There were 120 contestants and over 300 entries and the splendid organisation was due to "dynamic Marie Lee" . . . yes, a woman . . . but even the most highly organised model meeting can slip slightly, as it did (slightly) when the first day, Easter Friday, dawned unusually windy !

Under the direction of F/F Contest Director Mr. J. Olivier, Hand-Launched Glider was first off and only the most staunch "Chukkies" survived the battle against the elements, with our old "strong arm" friend Robbie Rowe from the Cape coming out tops. F.A.I. A/1 Glider was off to a smashing start as wing after wing folded up on the towline, the event finishing up with only three contestants making all their five flights. The high wind did not deter the Open Rubber boys, however, except perhaps for one prominent member who stuck his head out of the hangar with his delicate high-ratio model in tow, took one look at the weather, declared that this was "for the birds" and promptly disappeared.

In the afternoon Open Glider was flown off with the usual large entry. The wind had abated to a mere warm breeze by midday, with the result that many thermals were rising off the hot runways, A. Hardy from Durban M.A.C. gaining a victory he deserved, with an *Inch Worm*. Meanwhile PAA load had been flown off and won by Nigel Harrison of Pietermaritzburg M.A.C., using a Blanchard's *International* with O.S. Max15.

Saturday's weather was almost a repetition of Friday, but by midday the wind had died down, having written off a good few A/2s in the process. In spite of the wind, some excellent times were set up, the victor being Robbie Rowe once more, flying an A.P.S. *Lucifer*. At noon the field burst into life as "½A" Gas aircraft screamed aloft (and back again) to provide an exciting ½A contest which was won by junior K. Jensen from Pretoria, who, incidentally, entered nearly every F/F event and so went on to win the Junior High Point F/F Trophy. Eddie Boys from Rand M.A.C. went on to win "B" Gas F/F with a splendid performance from a *Satellite* with a Torp 23. Norman Leipsig, also from the Rand, showed a fantastic climb with an O/D powered by Cox "Olympic" 2·5 which won "A Gas" for him, but against stiff competition for this is a very popular class.

Sunday's weather was such that everyone was whispering, as the weather was perfect. Last year's *Victor Ludorum* winner Cliff Cannon from B.A.C. won Jetex Senior in the morning with a high-performing O/D, and Ron Ousman, also from B.A.C., pulled off Junior Jetex. The redoubtable Pete Visser did it again in Wakefield using Sal Canizzo's *Champ* although the "Wake" boys experienced disappointing downdraught patches, F.A.I. power saw many a Cox Olympic and high performance — it was finally won by T. Hamilton of Durban. In the meantime ½A and A team racers were putting in much hard work all the morning in preparation for the ½A and A heats which commenced at lunch-time. Here, under the watchful eye of T/R C/D, Pete Visser, the organisation was at its highest peak as there was not six minutes between heats. With most models using Oliver Tigers, "A" T/R was hot, and everyone present was shaken by the stunning performance of W. Ehlers' model from Bloemfontein, for which 5-sec. pit stops were registered, until lines tangled and the aircraft written off in the semi-finals (tarmac, too). The "A" maestro, Gerry van der Werff from Skylions of Durban, used a re-worked Oliver Tiger and O/D aircraft. "Mossie" Clemants of Mashonaland M.F.C. shook everyone with his Oliver Tiger Cub-powered ½A model clocking 88 m.p.h. and hence romped home with the ½A T/R victory in his pocket.

Monday was kind again and Sunday's weather persisted for Control Line at Springbok Park, where U/C C/D Ken Ousman got the day off to a hot start with Combat, this being the most highly contested event throughout the day. A highlight came when one model had its lines cut and flew off to perform a series of F/F aerobatics for a good 7 secs. before meeting *terra firma*. "B" T/R saw a few disqualifications in the first two heats and so eliminated some of the better performers, nevertheless, performances were fairly good and so "B" T/R went on throughout the day, winding up with a rather

Bloemfontein performers: Top Left, Eddie Boys, down from the Rand MAC (Johannesburg) with a K. & B Torpedo 23 Satellite which won class "B" free flight power. Top right: The long distance travellers from Mashonaland (Southern Rhodesia) who flew the 1,200 miles to the contests and won ½A team race (Oliver Tiger Cub) through M. Clemants in centre. Below left: Holder of the Howard Bonner Trophy is Cliff Culverwell from Pretoria, using K. & B. 45 Astro Hog with Orbit gear. Below right: Gerry van der Werff and pilot with the winning Class A racer Oliver Tiger)

slower final, Lionel Milborough battling home against the remaining three racers.

Stunt was populated by *Noblers* and *T' Birds* as usual. An impeccable pattern was flown by Roy Heydenrych of the Rand who won this Senior event with the new Palmer *T' Bird*. A very promising junior Johan Visser, from Bloemfontein, won Junior Stunt with a very smart pattern flying Aldrich's Nobler design. Cliff Cannon remained Combat champion when he beat Lionel Milborough in the most exciting Combat final seen in years, to round off the Nats. One and all retired home in excellent spirits to wash away the grime and disappointments in preparation for the Prize-giving Dinner and Dance which was held at a leading hotel in Town. Senior *Victor Ludorum* went to "Hammy Jammy" Lionel Milborough of Durban, with young Ron Ousman obtaining the Junior High Point Trophy. The beautiful Howard Bonner Trophy went to Cliff Culverwell of the "Stars" (Pretoria) for the third consecutive year with an immaculate performance in R/C Multi-channel. Among the prizes of the evening, the annual award of the "Goof Pot", which is a nocturnal utensil, went to Alf Silverstone (Bloemfontein) for attempting to race in his team race heat on glow-fuel using an E.D. Racer diesel for power.

After congratulations and laughter all round, it was "away with the formalities and bring on the dancing girls!" to round off a highly-spirited Nats for 1960. Next year the events are to be held nearer sea level at the Cape.

ENGINE ANALYSIS (*Continued from page 423*)

sometimes produced by centreless grinding. The crankshaft is also ground between centres. The implication is that Marown Engineering has not got extensive machine tool capacity, but what machines they have are very good and they are using them properly and to best advantage, irrespective of time factors involved.

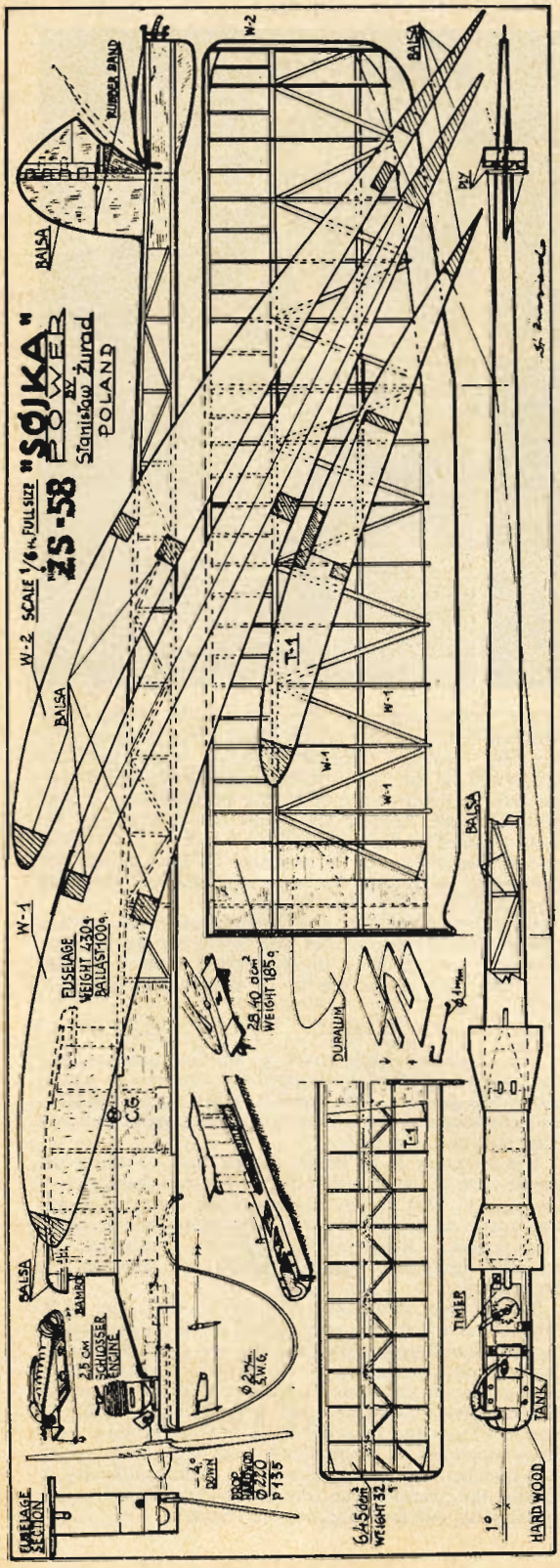
The connecting rod is ball ended, machined from solid high tensile light alloy and nicely sized big and little end bearings. Gudgeon pin diameter is ⅛ in., the pin being fully floating; and crankpin diameter ·156 in.

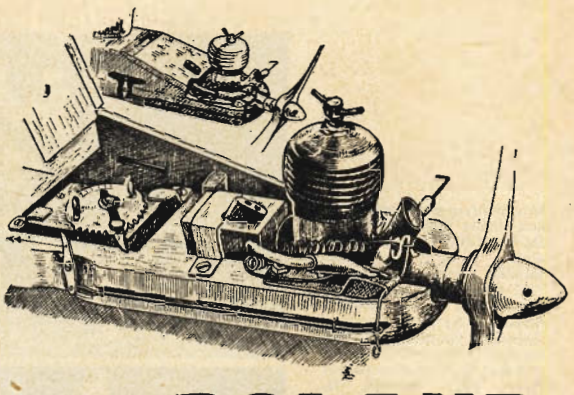
The crankshaft is machined from EN 34 high tensile steel, case hardened and ground over the journal length and taper. The front length is tapped 2 BA. An unusual feature for this country is that the propeller driver is a pressure die-casting. This is simply a friction fit on the shaft taper. A spinner nut is supplied, also a tommy bar for tightening. The front end of the shaft protrudes into the tommy bar hole on 4 in. pitch sizes and less, making it difficult to insert the tommy bar—and definitely calling for packing washers behind the spinner on 3 in. pitch propellers.

The crankcase back cover is another pressure die-casting and attached by three 6 BA screws. A gasket provides a gas seal. The metal tank is turned from solid and anodised red. It is held by a single central bolt and does not have a gasket.

The spraybar is of brass, angled back to bring the needle clear of the propeller disc on the right hand side of the engine. This means that the needle is angled downwards with normal "sidewinder" mounting, which makes it vulnerable. Reversing the assembly to obviate this virtually limits the length available for gripping the brass thimble.

Summarising, we can only repeat that the M.E. "Heron" is a first-class engineering job throughout with excellent handling qualities and the sort of workmanship that one does not often associate with "sports" engine production. It undoubtedly requires a lot of running-in time to achieve maximum performance, but is usable in a model from the time the main bearing remains cool when bench run on the particular size of propeller which it is intended to use. And anyone finding difficulty in starting the "Heron" can take consolation from the fact that it is his *own* fault and not the engine's.



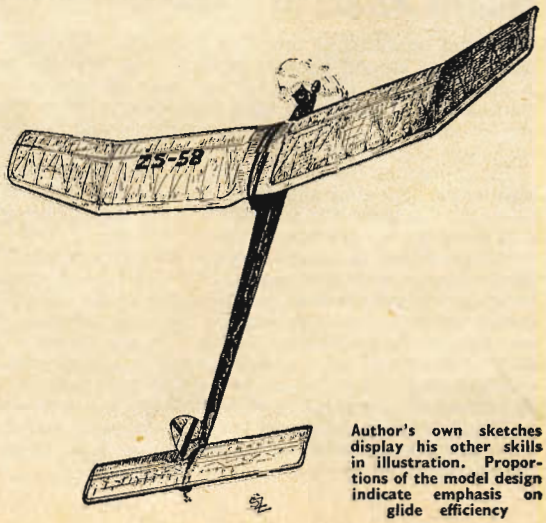


from POLAND Zurad's F.A.I. power model

STANISLAW ZURAD, who is noted for his remarkably fine detailed work in Wakefield models, appearing in the last two World Championships for the rubber class, is not generally known as a power model flyer. Last year he placed high in many such events and we reproduce his own original sketches of the model he employed, since we feel that as a design study, they are fascinating to the extent of being a Gadget Review unto themselves.

Unfortunately, our page size does not permit reproduction of the plan sketch as large as we had hoped and although all the details are accurate at 1/6th full size, the airfoils should in fact be 6¼ in., 8 in., and 3 15/16 in. chords respectively.

Note how the camera timer is connected (*see* sketch above) to a mouse trap arrangement to cut off fuel supply while another line is connected back to the auto-rudder. The wing has undersurface pegs to prevent any lateral rocking and only the upper quarter of the fin is movable, leaving the bottom section to act as a d/t stop. The engine used is the East German Schlosser 2·5 c.c. diesel of the same type as employed by Hungary's Erno Frigyes to win the Championship in 1958. Incidentally, the unusual name is that of a Polish bird.



Author's own sketches display his other skills in illustration. Proportions of the model design indicate emphasis on glide efficiency

1,000 Lap Team Race at SAO PAULO in BRAZIL

THE "UNIAO PAULISTA DE AEROMODELISMO" of Brazil conducted a remarkable Team-Race, probably the first of its kind to be held in the world, entitled "One Thousand Laps of Ibirapuera".

Held on December 13, 1959 at the U.P.A. club circle in "Parque Ibirapuera", Sao Paulo, the competition was a complete success attracting many spectators for the 1,000 laps equalling 113 km. (71 miles) with stops only for refuelling.

Five participating teams were allowed in the circuit and a minimum of two men per team. Models were all conforming to 1958 A.M.A. team race specifications, and before the main event a qualifying competition, consisting of preliminary flights of 100 laps with four teams flying in each heat was used to decide the five finalists.

A "Le Mans" start was used and to judge the competition 20 people counted laps and acted as timekeepers, in addition to two field judges, one general recorder and one overall judge. In this way each competing team was timed by four judges, one timekeeper for the total accumulated time, one for timing stops, one counting the laps and one recorder.

The following teams qualified over the 100 lap (just over seven miles) eliminators:

1. St. Andre Team ... ... 6 : 24
2. Boomerang Team ... ... 7 : 16
3. Recuperado ... ... 7 : 22
4. Brazil Team ... ... 8 : 43
5. Delta Team ... ... 8 : 57

After 47 minutes the Boomerang team (Brazilian and South American champions) retired with a damaged model having completed 418 laps. At this, the Thunderbirds entered the competition as a replacement (after the style of Continental football). At the 57 minute mark the Sto. Andre team retired due to defective control lines after completing 618 laps, they were in turn replaced by Morcego team.

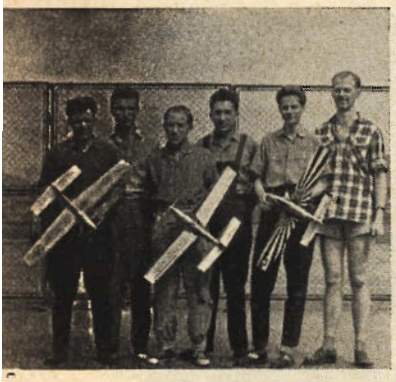
The final results after 75 minutes of continuous flying were as follows:

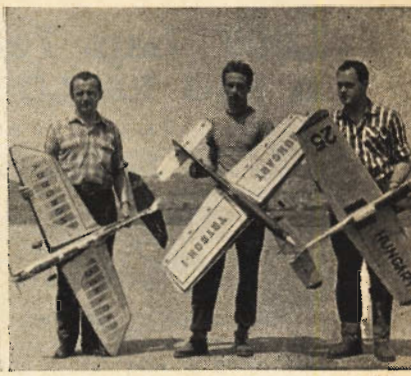
Place	*Team*	*Engine*	*Course*	*Time*
1.	Recuperado Team ...	O.S. Max. 29	1,000 laps	1 h. 15 : 10
2.	Brazil Team	O.S. Max. 29	752 laps	1 h. 15 : 10
3.	Sto. Andre Team ...	Enya 29	618 laps	57 : 4
4.	Delta Team	O.S. Max. 29	564 laps	1 h. 15 : 10
5.	Boomerang Team ...	K & B 29	418 laps	47 : 00
6.	Thunderbird Team ...	O.S. Max. 29	266 laps	25 : 12
7.	Morcego Team ...	K & B 29	192 laps	16 : 21

The winning team completed the contest with great consistency, demonstrating unusual skill in refuelling and re-starting the O.S. Max. 29, which was accomplished in each case within 9 to 12 seconds. They made 29 refuelling stops with from 30 to 35 laps per tank. The 1,000 laps was completed without loss of time for repairs, and the same glow plug was used throughout the entire competition. The closest competitor was 248 laps behind, using the same type of engine.

Will this Brazilian marathon start a new craze? 71 miles in just over 75 minutes, shows what can be done and there will be many Team Race devotees who will endeavour to beat this speed. Could the British Nationals winning speeds be maintained for seven times the distance, so establishing a time of about 50 minutes for the distance? We fancy that it will not be long before we can announce a challenger for our Brazilian friends.

Plenty of lap counters are evident in top pic. Recuperado team which won are with their UPA 19 model in next view. No. 20 model belongs to 2nd place Brazil team, and at bottom, the St. Andre team with model No. 18





NEWS from HUNGARY

Team members in above three pictures hold the models which will be flown at Budapest in September

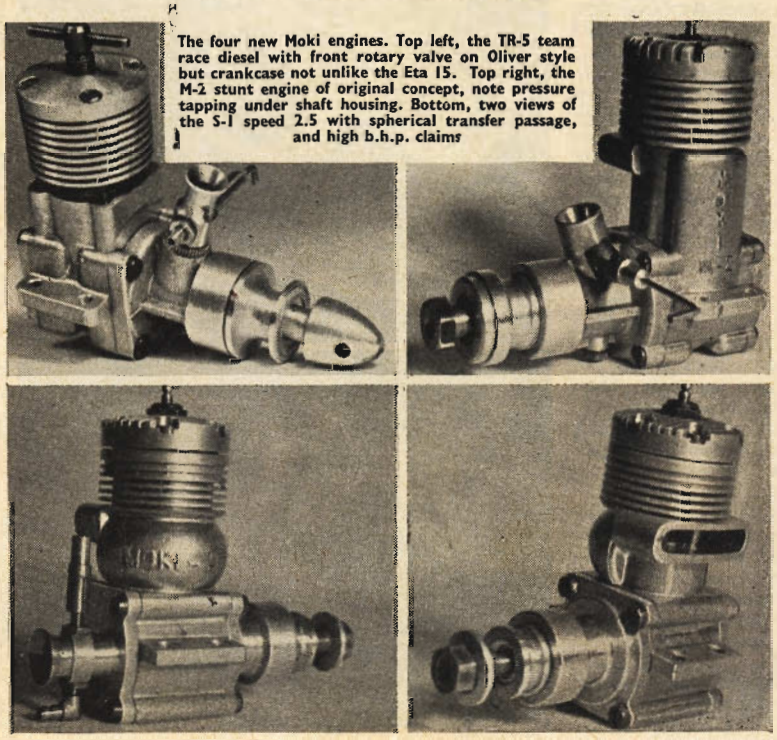
In September the World Championships for control line models will be held near Budapest. Already many countries have selected their representative teams including Hungary itself, as will be seen in the photographs on this page.

After elimination trials on May 8, 15 and 22, the following are picked for the team to represent Hungary.

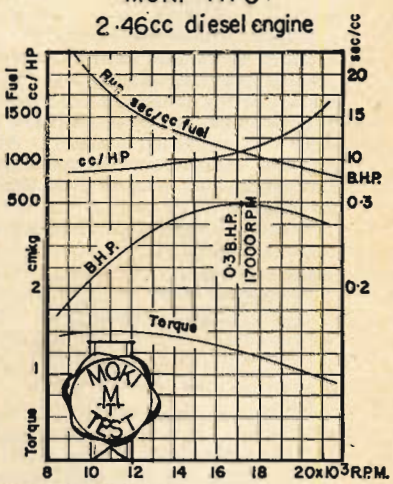
Team-racing	Speed	Aerobatic
L. Azor	R. Beck	Dr. G. Egervary
J. Simon	I. Toth	G. Masznyik
E. Frigyos	Gy. Krizsma	L. Ordogh

Just as there have been interesting changes in the equipment used in the British team this year, the Hungarians are also springing a few surprises, notably in the introduction of a new series of engines for team race, speed and stunt. All of the Hungarian models at the World Championships will use these new Moki motors. The power curves illustrated here have been produced by the Hungarian Model Institute and it can be seen that in 2·5 c.c. speed especially, new standards have been reached and the Moki organisation under the direction of Georges Benedek is to be congratulated. Georges has been responsible for the design and manufacture of all the Moki engines, technical details of which are as follows:

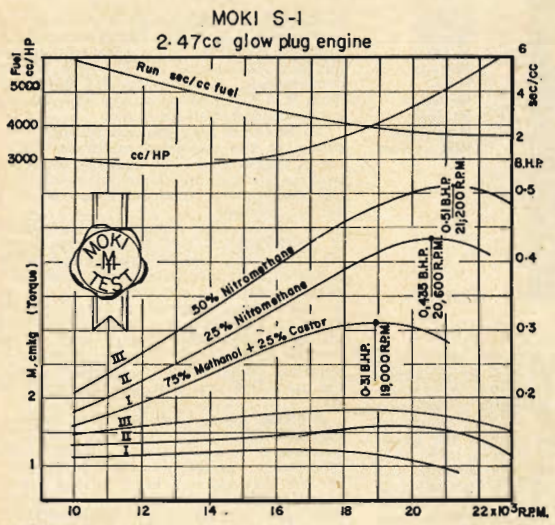
Above: Hungarian Team-racing, Speed and Aerobatic teams posed with their models



The four new Moki engines. Top left, the TR-5 team race diesel with front rotary valve on Oliver style but crankcase not unlike the Eta 15. Top right, the M-2 stunt engine of original concept, note pressure tapping under shaft housing. Bottom, two views of the S-1 speed 2.5 with spherical transfer passage, and high b.h.p. claims



MOKI TR-5 (Team Racing)
Displacement: 2·46 c.c.
Bore: 14 mm.
Stroke: 16 mm.
Bore-stroke ratio: 1 : 1·14
Weight: 175 grs. (6·2 ozs.)
Max. B.H.P.: 0·3 at 17,000 R.P.M.
Power rating: 0·122 B.H.P. per c.c.
Power-weight ratio: 0·0485 B.H.P. per ounce
Crankcase: Aluminium alloy
Cylinder: Hardened steel
Piston: Aluminium with one cast-iron ring
Connecting rod: Dural
Crankshaft: Chrome-nickel steel, with two ball races
Cylinder jacket: Dural

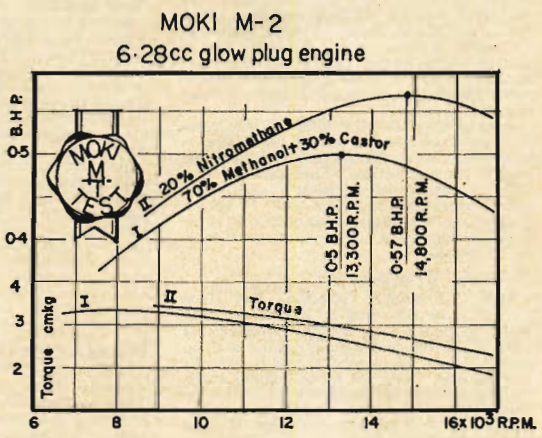


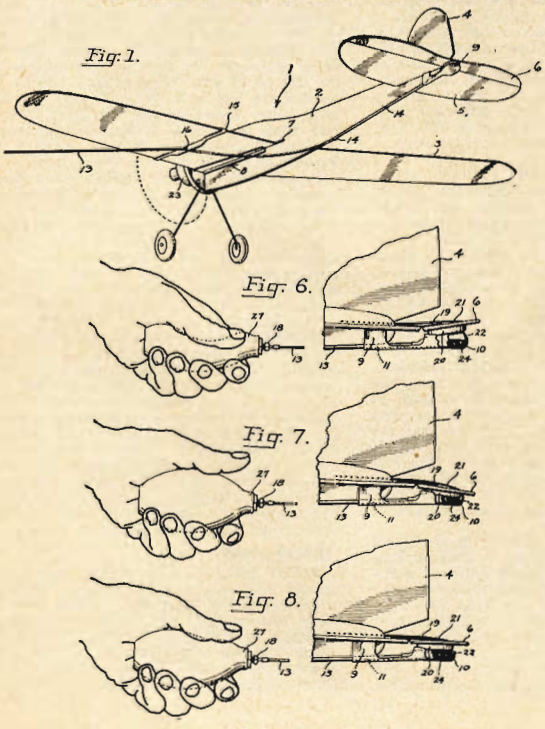
MOKI S-1 (Speed)
Displacement: 2·47 c.c. Bore: 15 mm. Stroke: 14 mm.
Bore/Stroke ratio: 1·07 : 1. Weight: 150 grs. (5·3 ozs.).
Max. B.H.P.: 0·51 at 21,200 r.p.m.
Power rating: 0·207 B.H.P. per c.c.
Power-weight ratio: 0·096 B.H.P. per oz.
Crankcase: Aluminium alloy
Cylinder: Hardened steel
Piston: Aluminium, with two rings
Con. rod: Aluminium
Crankshaft: Chrome-nickel steel, with two ball-races
Cylinder head: Dural. Rotary disc: Plastic.

The B.H.P. of 0·51 is very high for such a capacity It has been calculated that such power is necessary to overcome 0·25 mm. line drag at speeds of 130 m.p.h.

MOKI M-2 (aerobatic special)
Displacement: 6·28 c.c.
Bore: 20 mm.
Stroke: 20 mm.
Bore-stroke ratio: 1 : 1
Weight: 260 grs. (9·2 ozs.)
Max. B.H.P.: 0·57 at 14,800 r.p.m.
Power rating: 0·091 B.H.P. per c.c.
Crankcase: Light alloy
Cylinder: Hardened steel
Piston: Aluminium, with two cast-iron rings
Con. rod: Dural
Crankshaft: Chrome-nickel steel, with two ball-races
Cylinder head: Dural
Glow-plug: Hungarian "Rekord"

No. 1 Fuel:	*No. 2 Fuel:*
20 per cent. Nitromethane	70 per cent. Methanol
45 per cent. Methanol	30 per cent. Castor
30 per cent. castor	
5 per cent. Nitrobenzene	





Important PATENTS

Yet another of the late

"Jim" Walker's inventions

27141783 (U.S.A.) N. E. WALKER

The invention here provided is known colloquially as a "semi-captive" aircraft. A conventional propulsive source is employed, but the control line wires are substituted by a flexible, but inexpansible, pneumatic conduit extending from a squeeze bulb held in the operator's hand to a smaller expansible bulb arranged beneath the elevators. The elevators are spring biassed downwardly against the bulb and are displaceable upwardly by compression of the operator held squeeze bulb. It is claimed that the flexible conduit offers less drag than control line wires as known and that up to 90 feet of conduit may be used for flying a model.

Club News

A good Line-up of the Medway M.F.C. Clubsters on their local flying field in Kent

NOISE REARS ITS ugly head once more. The Aircraft Radio Control Club have been asked not to use Martin Baker's private airfield at Chalgrove because "many complaints have been initiated by the noise emanating from the open exhausts of cars, karts and motor cycles and recent complaints include the noise of model aircraft."

A great pity this, for A.R.C.C. has carefully governed sensible use of the airfield—only to lose it through no reason attributable directly to themselves. The moral is, if a field is made available—use it diligently and outlaw all those who abuse. Only by such a policy have West Essex been able to hold on to their handsome flying area at R.A.F. North Weald.

North Western

MACCLESFIELD M.A.S.C. Rat Race proved to be very hard on models, pit men and neighbour's ears. Entries consisted of a minute ·35 rat racer, a ·29 model and an elderly 2½ c.c. stunt model; and it was just like combat. The ·29 model retired early, leaving the other two to fight it out and at one stage the stunter was doing consecutive bunts to sort out some tangled lines. If speed had counted the ·35 would have doubtless won . . . but it piled in after having severely maltreated its pit-crew. Of course, the 2½ c.c. stunter won. Now they've decided to have Open Combat: it's much safer! When Congleton Club held their rally there was quite a large Macc contingent. Barry Corden, who came third in combat at Woodford, did very well until his reserve model was neatly sliced off the end of the lines. Then Gig Eiffiaender flew his P.A.W. 1·49 c.c. model to win in stunt, competing against a number of the top stunt men with their big glow-models.

WHITEFIELD M.A.C. has taken on a new lease of life in the past few months, new members both Junior and Senior, joining nearly every week. New blood, plus enviable assets of three summer flying fields, four in winter, and a healthy bank balance, all add up to a bright future. Club comps. are well attended, the most recent a F/F and C/L do, Rat Racing and Balloon Bursting the most popular classes. Tom Jolley waved a cunning handle to win the Balloon event, Shirley Jolley out-rodented everyone to win the Rat Race, H. O'Donnell out-chucked everyone in glider.

WIGAN M.A.C. trip to the Nationals brought nothing in the way of prizes, but the wealth of experience gained, made the effort of organising such a trip well worth while. Many Juniors returned fired with a much greater enthusiasm than they have felt before.

Western

At the Nationals Pete Heeley of WESTON CONTROLINERS came third in Combat. He flew his O/D model with a Rivers 3·5 up front. This motor is really fabulous and not even any of Kenton's wings could keep up with it. It is very unfortunate that he made a slight error of judgment and knocked the tailplane off at the bottom of a bunt—another few inches and he would have made

Northern

WHARFEDALE M.A.C. can use R.A.F. Rifforth near York and had an enjoyable meeting there on May 15th. Due to examinations only four teams were able to take part in the C/L team trials. A very consistent Eta 15 powered model enabled the Long/Davy team to put up three good times after a line breakage in their first attempt and they gained leading place in the team to visit Budapest later this year. The Nationals were enthusiastically supported and Class B was the club's most successful event with the Long/Davy/Willmott team flying Don Howarth's proxy entry to first place using a standard ETA 29 Mk. VIc in a new *Dalesman* racer. The final time (7 : 15 : 4) is the fastest ever done by a Wharefdale team. Third place went to the Horton/Baxter/Longstaff team, who still persist in flying their remarkable 70 lap Frog 500 model.

East Anglia

Leading up to the Nats., a NORWICH club open glider comp. was held at Thetford Heath, and was won by new member "Andy" Anderton with three maxs., using his own design Lt./weight "suspender" against exclusive A/2 opposition. F/F member Mick Smith, was unlucky in glider fly off at Nats., missing by one second, and one member, although taking home models intact (for a change) lost two pounds, sun glasses, a glider winch and tow-line and a Thermos. Controline members were trying hard at team race, Sec. Joe Hemmings, destroying his second Ollie Tiger this season with a perfect wingover . . . into concrete! Also unlucky with a fast ENYA 29 in "B" T/R, put out by a plug change!

South Midland

South Midland Area Rally on August 28th events will be as follows: R/C Single control plus engine (Precision rules) R/C Intermediate and Multi (Ripmax rules) Open Power, ½A Power (·85 c.c.), Open Glider, Open Rubber, Chuck Glider, Combat 3·5 c.c. (limited to 48 entries) Team Race, Class A and B. Pre-entry for all C/L event is required by August 21st to 10 Angle Ways, Leaves Spring, Stevenage, Herts. (1s. 6d. for all except T/R and R/C—2s. 6d.).

Most of last month STEVENAGE M.F.C. spent preparing for the Nats. However, they were somewhat dismayed on arrival at Scampton to find the completely inadequate camp site already fully. They thus had the situation where half the club were unable to get to the camp, and those who had arrived early were unable to get their car out again! Fortunately the glorious weather made up for this and other restrictions imposed.

There has been an increase in free flight activity in the ERGS M.F.C. recent months, accent being on power jobs, although a few A.2's have appeared (and disappeared)!. A remarkable interest has been shown in chuck gliders and a few competitions have been held. In one of these the Secretary was particularly unlucky when, having won the previous week's contest (despite losing half the tailplane in a fast launch), had his model, at that time in the lead, chewed up by a revving Glo Chief 29. Thirty-two stalwart members visited the Nats., a few entering the Sir John Shelley and the Thurston Trophy competitions. New member J/T Robertson from R.A.F. Chicksands, the lone combat entry, reached the third round.

At the end of May 2nd, aircraft films were shown to the assembled multitude during one of the two mid-week meetings, which are held on Tuesday and Thursday evenings at the Goldington Road Secondary Modern School, Bedford.

On Sunday, May 22nd, young N. Wickers of NORTHAMPTON M.A.C. was flying his *first* power model, powered by an A.M.10. It proved to be very stable under power after trimming having a very steep spiral. On the last test flight the model with no D/T was down to about 10 feet when it caught a thermal. The model climbed to about 700 feet and stayed up for 30 mins. travelling to Spratton. What a flight for the first model, but use a D/T next time, put your name on it!

A Model Flying Club has been formed in PETERBOROUGH. Secretary is Mr. J. Fairchild of 71 Lawn Avenue, Peterborough, Northants. The club was formed in December last year and now has a membership of 31. Main interests are combat, T/R and free-flight. Any unattached modellers in the area are welcome to flying meetings on Sundays at Westwood Aerodrome, or to contact the secretary (*see* New Clubs).

South Eastern

The three early season area meetings, held at airfields for the first time, have been very well supported. New names have appeared at the head of the results and the committee feel that the extra work and responsibility involved is well worth while. One or two new clubs have appeared, although some of the older ones seem to have slipped a bit! Plans are well in hand for the South Coast Gala on September 25th for a first class meeting for those who would care to come down to the "Sunny South". Details will be circulated to all clubs shortly.

Since the club started three years ago, membership of the MEDWAY M.F.C. has steadily increased to over 20. Interests have also widened to include all classes. Due to noise problems, the club is threatened with the loss of its C/L flying ground and as a result have had several "write ups" in the local press. However, they are lucky in one fact that they have alternative facilities. Prospective members should contact I. Tanner, 82 Osprey Avenue, Gillingham.

EAST GRINSTEAD M.F.C. have been enjoying some excellent flying in the recent fine spell. They have a very large flying field, which adjoins the vast expanse of Blindley Heath on the A.22 Eastbourne Road. One radio flier, Roy Payne, has shown great form lately and perfected vertical eights and the roll shortly before the Nats., but unfortunately suffered typical E.G.M.F.C. contest luck at Scampton.

HORLEY M.A.C. gave a display of C/L flying at the recent town carnival. It was scheduled to last 15 minutes, but the crowd was so enthusiastic that they continued for 1½ hours, during which time not a single model crashed and not a single engine played up, which says a lot for the E.D. Racer, which predominated. There is considerable interest in ultra-light aeroplanes in the club, and they had on static display the sole remaining Heath Parasol, G.-AFZE. Incidentally the club's secretary has the appropriate name of M. Heavens.

Midland

WEST BROMWICH M.A.C. made the annual pilgrimage to the Nats., together with members of BRIERLEY HILL M.A.C. Club membership has become somewhat depleted of late and the usual luxurious coach was not available due to this fact. Mike Kendrick flew the Oliver Tiger, *Black Ghost* combination to win the combat event,

for the second time; placing second last year and first the year before. These *Black Ghosts* are consistent! Mike was the only entry in combat at the Nats. due to difficulties in getting entries accepted (sluggish secretary?) Tony Day the club scale expert, flew in the Knokke Trophy with a beautifully built and finished replica of the Fokker D. VIII, powered by a Taplin Twin and gained a well deserved second place.

OUTLAWS (CANNOCK) M.A.C. sent six bods, four team racers, two stunt jobs, two tents and enough fodder to feed an army in one Ford Zephyr, for an epic weekend at the Trials (not without tribulations). Everything went fairly well, but in a weekend, which in their humble opinion, produced the highest standard ever in this country in stunt and team race, they were just outclassed. Pretty much the same story at the Nats., a good time was had by all, but no one found their way among the prizes. For this they chartered a 2½-day coach and took along members of the BILSTON- WOLVES and WALSALL clubs—oh those Nationals experiences, last year on the way back, they found a genuine pub with no beer, this year they staggered thirstily out of the Newark traffic jam, into Nottingham at 10 p.m. prompt, only to learn that the hostelries in that part of the world close at that aforementioned, early evening hour!

Southern

There was great disappointment when BEXHILL D.M.A.C. were turned off the F/F field because it had to be ploughed, but they still have a C/L field and C/L has rapidly caught on.

Wing-Cmdr. Gutteridge, who presented the trophies at their recent prize-giving, has now agreed to become President of CHICHESTER AND D.M.A.C. Immediate reaction has been a spate of rubber models, their being 10 entries in Open Rubber Trophy contest, which was held early this year. Other trophy competitions held so far this year include radio control, which attracted five entries, Power- eight entries. Glider—14 entries. It is interesting to note that *Sans Egals* took first three places in the glider contest. For light relief, the club is helping to organise and will paticipate in a U.S.A.C. Scramble on June 12th, 1960. The scramble is open to all types of model, F/F, C/L, R/C, the object being to log as many flights as possible of 45 seconds or more in 30 minutes. The ensuing chaos should be interesting.

CHRISTCHURCH M.A.C. could do with some more members, particularly Seniors. The club meets every week for discussions and indoor flying (Jetex). Main interest at the moment is in control line (all classes), although there is some interest in F/F, glider and rubber. The club has been provided with a large field for control line flying by the local council and all unattached modellers in the area are invited to contact the Hon. Secretary at 7 Willow Way, Christchuch, Hants.

BRIGHTON D.M.A.C. members made their annual visit to the Nationals without managing to carry off any of the prizes, but John West reached the fly-off of the Thurston (placing fourth) and Fred Boxall the fly-off of the Model Aircraft Trophy.

SOUTHAMPTON M.A.C. visited High Wycombe Controline Rally and the Nationals but after promising starts, ran out of luck. Only successes lately have gone to Norman Elliott, who so far has won the Gamages Cup and took 4th place in the Weston Cup. He is taking work up North somewhere. Dave Christopher, the club stunt expert, also achieved renown with his beautiful semi-scale jet model, actually placing 10th. As for the camping, they must have been one of the luckiest clubs with three Calor gas stoves, an ex-army cook, the meals were excellent, and a huge tent—seventeen sleeping in it, three with camp beds.

Nine GLEVUM M.A.C. members attended the Nationals camping over the weekend, four members enjoying the hospitality of South Bristol M.A.C. for sleeping accommodation. Stan Perry gained the highest placing—sixth in the Knokke Trophy with an E.D. 346 Powered Hawker Fury. The model made a realistic take-off, taxiing from a standstill under engine control, but came to grief in the wind. spoiling Stan's chances. Elton Drew managed to get three maximums in the Model Aircraft Trophy, but came unstuck in the fly off, miscounting by 100 turns on the winder—that's his story and he's sticking to it! Other members were right out of luck. Charles Aitkenhead, after getting first round maximum in the Thurston, was stricken with a bad attack of hayfever and had to return home.

South Western

In the last round of EXMOUTH AND D.M.A.C. aggregate contest, a few new names appeared among the top placings. Although Rubber remained the usual battle between Alan Parker and "Pop" Baudet, Parker taking first. Power and Glider saw some changes. Ernie Mann leapt into first place, forcing Alan Parker to second in Power. In the Glider Tony Milum made first place, after a keen tussle with Dennis Baudet, who was second. Tony Milum was flying an A.P.S. *Number Eight*, both the Baudets' used A.P.S. *Altairs*. Circulars giving details of the "1960 Devon Rally" are now available, and are being sent to most clubs, if you would like details, send S.A.E. to D. G. Baudet, Hon. Sec., Exmouth and D.M.A.C., 80 Moorfield Road, Withycombe, Exmouth, Devon.

Towards the end of May, the TAUNTON AND DISTRICT M.A.C. was reformed after an absence of three years and was asked to give a flying display at a local Fete on Whit Monday. Despite a fairly high wind, and maybe a touch of "stage fright", a fairly reasonable showing of control-line flying was possible. The Club's main interests are Team Racing, Stunt and Combat, with just a few "odd bods" who yearn for free flight.

North Eastern

NOVOCASTRIA M.A.S. will be holding the Rush Trophy Gala on the Newcastle Town Moor, Sunday August 7th, 1960, commencing at 11 a.m. The events to be run are: F/F power, rubber, glider and combat. All prizes will be Cash. Three flights, 3 min. max., will be flown in all F/F events. The Gala Champion, selected on a points basis, will receive the Rush Trophy. Entrance fee to all events will be 2s. and all S.M.A.E. cards or numbers should be shown on entering. Those wishing addresses of Hotel Accommodation should contact the Secretary, Mr. A. Cordes, 23 Caroline Street, Benwell, Newcastle-upon-Tyne 4.

SUNDERLAND M.A.C. held a flying display on July 10th in the recreation park at Seaburn. This meeting was open free to the public, and the aim is to create local interest in the hobby. The club itself is still going strong with two dozen active members and new members coming in each week. They are fortunate in the use of a large airfield for Sunday flying.

East Midland

A coachload of HUCKNALL D.M.A.C. members and friends attended the Nats. Great interest was shown in T/R, several members are now busy building them, and are hoping to make their mark in forthcoming contests.

WIGSLEY M.A.C. is not a new club but the Barriers renamed after the airfield on which they fly at the weekends—lucky them! New members welcomed; enquiries to: N. P. Keyse, 3 Back Lane, North Scarle, Lincoln.

London

COSMO A.M.C. held their annual ½A/T/R and Combat Competition. The ½A T/R resulting in yet another win for Fred Andress and his very reliable *Greenbottel* (A.M.15) this design being ideal for grass operation, yet still retaining a high performance. Combat had twelve entries and Junior, Jeff Hayward, emerged the winner, but fortunately he is just too old this year to qualify for Junior Championship points. There was an exciting finale to the three in a circle final, when after a line tangle, Haywards model flew away towing behind it second place John Coles model, both complete with lines and handles with two Senior Members hot in pursuit, ending when Haywards' model looped into the ground several hundred yards away.

Only a few of the members of CRYSTAL PALACE M.A.C. were able to attend the Nationals this year, so an impromptu combat event (A and ½A) was held on Sunday, June 5th. The winner in each class, was the secretary (*fiddle*). One competitor, who shall be nameless, decided after a few laps of the first round to do combat with a passing train when his lines broke!

Following ENFIELD D.M.A.C. recent success in control line rallies, Alex Ewen flew to second place in the combat event at Dagenham. Unfortunately, this success did not extend to the Nationals, where Pete Hartwell was doing well in the semi-final until a split prop. vibrated the motor loose. In the glider, Bob Moore was jubilant after getting his second max., only to have his hopes dashed by a big downdraught.

NORTHWOOD M.A.C. ran combat at Nationals with the help of friends from Kenton, Dagenham and Uxbridge. On the whole an uninteresting event; only bright spot was 14-year-old Mike Bradbury getting to the semi-final. John Simmance took second place in free flight scale losing the first place because his last perfect flight was two seconds short. Next year they are determined to *win* both events.

HAYES D.M.A.C. think the 1960 Nats· mu t be their best ever, and wish to express its appreciation for the work done by Sam Messom. They came home with the happy news that Dave Balch would be a British T/R representative at the World Champs. He also shared Mike Smith's win in Class "A" T/R witha 4 : 59s' final and a 4 : 52 and 4 : 55 secs. in the heats. Junior Robin Greenaway reached the combat final, and in Class 1 Speed, John Taylor, Dick McGladdery and Ian Russell came in 3rd, 4th and 5th. Dick McGladdery, also got in a 3rd place in Class 3 Speed, using his McCoy 49. Josh Marshall triumphed again in the Lady Shelley Tailless, and his rubber model set up a possible new British Record of 6-15 secs. on one of its flights. DAGENHAM M.A.C. combat rally was won by Peter Tribe of Northwood with Ewen of Enfield second and although "B" combat was not to be catered for, eight entrants turned up, so a comp. was arranged with D. Platt of the "Squares" as the winner. The whole rally was going smoothly until the local council members began to arrive for an important meeting in a building nearby, so they had to move the circles elsewhere!

Whitsun weekend saw 24 ST. ALBANS M.A.C. members emigrate to the Nationals. This year the club organised and ran two contests, namely the THURSTON and LADY SHELLEY. Members did very well in the free flight contests; George Fuller has at last won the SHORT CUP after being dogged with bad luck over the last few years. Don Edwards reached the fly-off in the SIR JOHN SHELLEY and came 3rd with 4.27 fly-off time. Two members, Messrs. Simeons and Cleghorn reached the fly-off in the THURSTON CUP and took 5th and 7th places respectively with fly-off times of 4.34 and 4.29. In the MODEL AIRCRAFT CUP the club rubber pundits were all put to shame by Michael Knight who put up 9.12; he is just 10 years old! Ian Crawshaw ran the LADY SHELLEY CUP and managed to gain 5th place out of an entry of 18. 22 of the members who went to the Nats. camped at the airfield and again the club did a

certain amount of organising as regards to tent positions and lanes for cars in the camping area. Latest interest in the club is ½A Power which is a welcome change from flying larger 2.5 c.c. open power machines. Note that Helicopter (Power, Jetex and Rubber) is now added to the August 7th Gala day programme.

Ireland

BELFAST M.F.C. will organise an Ulster National competition at Maghaverry Aerodrome near Lisburn, Northern Ireland. (approx. 15 miles from Belfast) Events are Control only to S.M.A.E. '60 rule book.

S.M.A.E. STUNT "A" COMBAT
"½A" TEAM RACE "A" TEAM RACE

on August 13th 1960. Entry Fees, seniors 2s. 6d., juniors 1s. 6d. Pre-entries to 207 Ferris Park, Larne, Co. Antrim, N. Ireland.

Wales

On Sunday May 15th CARDIFF club went to Kenfig Common where they had an enjoyable day's flying against Port Talbot. The main Event was team glider for the "T" Cup, which the Cardiff men won. Times (3 x 2 m):—

Cardiff		*P. Talbot*	
E. J. Langton	6.00	P. Waters	6.00
B. Flaherty	5.46	M. Evans	4.23
I. Harvy (J)	5.33	V. Lethaby	3.40
	17.19		14.03

GIRLING M.A.C. held its annual general meeting on May 19th and there was a very good attendance for the elections. Control line and radio control are now the main interest due to the Flying Area. Outstanding models are The *Peacemaker*, a club designed profile trainer, intermediate stunter and flap stunter. In radio it's the R.6B. New members would be welcomed.

Scotland

PAISLEY M.F.C. with 28 fully paid and insured members, has the largest membership in Scotland, although in common with other clubs the actual flying is done by only a handful of real enthusiasts. The first two competitions of the season, for A/1 and W. Morrison and T. Lawrie respectively and serious trimming was under way for the Pan-American Competition on June 25th and 26th.

Local wonder-boy of MONTROSE M.A.C. D. L. Petrie took some back-days off and went down to the Nationals managing to do a treble maximum in the open glider with his A.P.S. *Lucifer* to collect 8th place after the fly-off.

The Scottish Controls-line Nationals were held at Beveridge Park, Kirkcaldy on May 29th 1960. The weather was perfect and KIRKCALDY M.A.C. ran the show. Combat had the largest number of entrants of all the events in the Comp. *Peacemakers* and *wings* were the order of the day, the power-plants being mostly Olivers with the occasional Flow motor. Eventual winners were 1st. Wilson of Perth, 2nd McAlpine of Kirkcaldy and 3rd Wilson of Perth. Stunt was well worth the watching. Most of the models for this event were powered by Glow motors although there were one or two Olivers. Result: 1st C. Grubb of Kirkcaldy, 2nd I. Ward of Dunfermline, and 3rd N. Falconer of Montrose. It was the West of Scotland that provided the most competition in Team Race. The premium Scottish T/R outfit, namely Cadzow, walked the field with their home tuned Oliver, which were pulling their models round at over 90 M.P.H. Class A results 1st Stoddart of Cadzow, 2nd McAlpine of Stevenson, and 3rd Archibald of Oldham.

THE CLUBMAN.

For Your Diary

July 17th
Butlin's C/L Rally, Masney, Co. Louth, Eire.

July 24th
Northern Area* Concours D'Elegance—R.A.F. Rufforth.

August 7th
St. Albans Gala,* Chobham Common, open glider, open power, open rubber, F.A.I. power ½A open power, radio (single channel). Helicopter (all types).

August 7th
Novocastria M.A.S. Rush Trophy. All classes open F/F, Combat.—Newcastle Town Moor, 11 a.m.

August 13th
Ulster C/L Nats.—Maghaverry, Nr. Nr. Lisbon.

August 14th
1960 Devon Rally*
Woodbury Common, nr. Exmouth.
Scottish Gala, Abbotsinch.
Sidcup Gala,* Kenley Aerodrome, T/R stunt.

August 21st
Southern Counties R/C Rally, Army Air Corps Station, Middle Wallop, Wiltshire, County Championship Prizes, Rudder only, intermediate, multi.
Ramsgate C/L Rally, Jackey Baker's Sports Ground, F.A.I. and B class T/R combat, stunt.

August 28th
South Midland Area Gala* (all classes). Cranfield.

September 4th
Irish F/F Nationals, on the Curragh.

September 11th
Croydon Gala*, Chobham Common, open glider.

September 18th
Caledonia Shield, Lanark.

September 18th
E. C. Muxlow trophy* (N. Area)—R.A.F. Rufforth.

September 25th
South Coast Gala,*/R.A.F. Tangmere, all classes F/F R/C and C/L.

* *Signifies S.M.A.E. Sanction.*

August, 1960

CLASSIFIED ADVERTISEMENTS

PRESS DATE for issue September, 1960, July 20, 1960

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Rivers Silver Streak 2·5 c.c., perfect condition, hardly used, £5; Voodoo, £1. Dale, 31 Evelyn Road, Barnet. Tel. 4668.

Merco 35, £4/10/-; McCoy 29RH, £3; Oliver Tiger II, £4. All are perfect; or offers. McEwan, 31 Parkside Road, Alyth, Perthshire.

Clean, modern copies of AEROMODELLER, *Model Aircraft*, *Model Maker*, *Flight*, also Vol XI of AEROMODELLER as new, all M.A.P. aero books. Send S.A.E. for list of above. D. N. Michaelson, 8 Eastleigh Close, Neasden, London, N.W.2.

Frog "80", Ripmax Mactuator, E.D. Bleep relay, R.E.P. "PC" Tx Kit, 15/- each. Craven, 59 Lingley Drive, Frindsbury, Kent.

Mills ·75, Meccano Transformer M20, Celspray No. 3, Jetex 50B, all new, £5. Offers. Spares, Tanks, Props, Plans, AEROMODELLERS thrown in. John Taylor, Sunnydale, Marsh Lane, Hesketh Bank, Nr. Preston, Lancs.

Frog 2·49 modified, v.g.c., £3; AEROMODELLERS Aug., 1956 - Dec., 1959 complete, 40/-; both o.n.o. Gibbard, 78 Lonsdale Avenue, London, E.6.

Two E.D. Bees, 25/- each; A.M.15, 35/-; A.M.35, 40/-; E.D. 8-reed unit and six relays (wired), 60/-. £9 the lot. Calver, 20 Hartburn Place, Fenham, Newcastle-upon-Tyne 4.

Unused O.S. Max ·35 R/C, £5/10/-; and Enya ·099, £2; brand new F-84 aluminium C/L jet kit complete with O.S. Jet engine, electrical starter, £13. Brand new Bonner kick-up elevator and rudder escapement, £4. Box 625.

New, unrun Cox Babe-Bee ·8 c.c. glow, 35/-, or exchange for good D.C. Bambi. R. Moore, 46 Belgrave Road, Leyton, E.10.

E.D. Racer, just run in, 50/-; A.M.15, good condition, 35/-; two E.D. Babys, good condition, 35/- each. Box 624.

Oliver Tiger III, little used, £5/10/-; modified Racer 2·46, £2; Fro 349, £2/10/-. Clansey, 33 Rochester Drive, Pinner, Middlesex.

Everest Tx, Rx, and control box, £12; E.D. Mk I Tx, £2/10/-; Transistrol Rx, £3; Avionic Rx, 30/-; Cobb Hobby Selector four escapement, 50/-; Taplin Servo, £1; two Typhoon Escapements, 10/- each; Fox Combat Special, £6; Allbon Mercury 2·5 c.c., 30/-. Watson, 23 Lancifield House, Nunhead Lane, Peckham Rye, London, S.E.15.

Surplus to requirements. Both new, unused, and in original boxes. One Webra Boxer 7·5 c.c. twin, £22; one Taplin Twin water-cooled complete, £8. O.N.O. Box 626.

R/C plane, span 36 in. with K & B 15, Wright Tx and Tx, £15, complete outfit ready to fly; brand new C/L Nobler, made by expert, silk-covered with Johnson 35 engine, also brand new, ready to break records, £12/10/-; Mercury Monarch with Veco 19, £6; Mosquito scale with two E.D. 246s, £8/10/-, beautiful model; F/F Matador with Frog 150 brand new plane, good engine, £6; Peacemaker silk-covered with Fox 19, £5; Invader with two E.D.246s (one engine requires replacement), £6; C/L Wildcat with E.D. Hunter, £3; C/L Globe Swift with E.D. Hunter, £3; Talon, Peacemaker, Toreador, less engines, 25/- each; Ohllson 10 c.c. petrol engine with spinner, tank and props, £3/10/-; several other good engines and planes. S.A.E. for lists. Smith, 129 Hankinson Road, Bournemouth. Tel. Winton 1794.

Emigrating! R/C equipment at bargain prices for quick sale! Transmutone 8-channel Tx and Rx (unused) with all accessories, £20; 60-in. Astro-Hog, fitted all servos, etc., for 8-channel, with Rx and hand-held Tx (flown once only, excellent condition), £35; A.P.S. Black Magic (unflown) transistor Rx, servo, etc., £6; hand-held Galloping Ghost Tone Tx with printed circuit Unitone Rx, £12/10/-. Peacock, 103 Mersham Road, Thornton Heath, Surrey.

Taifun Blizzard 2·5, never run, brand new, £3 o.n.o. Master Hugh O'Neill, 3 Blackheath Gardens, Clontary, Dublin.

Taplin Twin, bench run only, £7 o.n.o. 5064815 J/T Law, 1100 M.C.U., R.A.F. Alness, Ross-shire, Scotland.

E.D. Airtrol Receiver, as new, £3/10/-; Telecommander Hans Transmitter, case handle broken, 25/-; Elfin 2·49, unused, £2. Taylor, 6 Park Crescent, Bishopbriggs, Glasgow.

New Rivers Mk. II 3·5 Arrow for new or in good condition Oliver Tiger Mk. III. 1939191 B/E B. R. Peers, 4 Sqdn., 2 Wing, 21 wes., C Flt., R.A.F. Cosford, Nr. Wolverhampton, Staffs.

Everest 6-channel Rx, £8; Control box for same, 30/-; two Uniacs at 15/-. Higham, Redgrave, Diss, Norfolk.

E.D. 3·46 Hunter, 11-in. propeller, tank, just run in, jet needle broken, £2/15/-; AEROMODELLERS, August, 1956, to December, 1958, excellent condition, 27/6. C. Geut, 31 Bridge Street, Walton-on-Thames, Surrey.

Dooling, Ohlsson, Anderson or McCoy 9·9/10 c.c. spark ignition, new. J. R. C. Moore, Little Melton, Norwich.

Allbon Sabre with Quickstart, hardly used, 35/-; also 38 AEROMODELLERS from June, 1957, complete, 25/-. Dick, 8 Northumberland Road, Coventry, Warwickshire.

A.P.S. "Aires" R/C Glider, pylon, U/C, for power; silk-covered M/M Servo, Triang Transmitter, receiver, all batteries, £13 the lot. Hughes, 197 Wigman Road, Bilborough, Nottingham.

Selling out, engines, books and accessories. Please send for lists to P. Maidment, 26 Dale Road, Shirley, Southampton.

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Brand new, unused Transitrol Rx plus actuator, boxed, £5; strongly-built Jnr. 60, £2/10/-; Allbon Merlin, 25/- o.n.o. P. Bree, 2 Hessle Place, Leeds 6.

E.C.C. Telecommander Transmitter and Receiver; E.D. Escapement. All good condition, £6 the lot. R. Longrove, Manor House, Tonbridge, Kent.

Continued on page 447

FOR SALE— *Continued from page 445*

Mills 1·3 diesel. Good condition, 60/-. A. Granados, 30 Western Avenue, Thorpe, Egham, Surrey.

Exchange Cox Olympic (new) for new pair of Adidas Melbourne running shoes. Reply: C. De Bruyn, 3 Kleinfontein Road, Brakpan, Transvaal, South Africa.

No messing, genuine bargain, £35. O.M.U. 8 Tx crystal controlled, O.M.U. 358 multi radio, 8-reed unit, 8 Siemens vibration, G proof relays. 6 v. accumulator for Tx. N.B. identical equipment placing 3rd in 1960 Nationals. T. Clark, "Prinstead", Twyford Moors, Nr. Winchester. Tel. Twyford 2382.

Cox Olympic "15", 3 plugs, Special radial mount, excellent condition, £5/10/-. Collinson, 4 Bolton Crescent, Eccleshill, Bradford 2, Yorks.

Model Airplane News, Aug., 1957, June, 1960, 33 issues; *Flying Models*, 1958, June, 1960, 23 issues. £3 the lot. Foster, 74A Derby Road, Nottingham.

McQue Superhet Rx with Xtal and separate Sigma 4F relay, £9; spare McQue superhet needs part rewiring less Xtal and relay, £5; Delta 707 silk-covered with A.M.15, £4; Xtal controlled Tx in wooden case, requires 240 v. H.T. 6 v. L.T., 90/-; E.D. Hunter with DBL Butterfly throttle, 60/-; E.D. Racer with two-speed throttle, 60/-; O.S. 35, 100/-; Enya 15, 50/-; Allbon 75 Mk. II, 30/-. Holme, 45 Kings Road, Wilmslow, Cheshire.

Oliver Tiger, 90/-; E.D. 246, 30/-; E.D. 146, 20/-; Mills 1·3 Mk. I, 15/-; Frog 160, 10/-; Royce Reel, 30/-; 8 T/R Props, 10/-; Hill miniature latest Siemens, 60/-; Ultraton, 180/-; Aerotone relay less, 50/-; Transmutone, 50/-; OMU 5-reed Relay Unit, 100/-; Selecta 4 escapement, 40/-; Micro 4 Servo, 90/-; Pilot Control Box, 60/-; Rising Clockwork, 25/-. Waters, 18 Bridge Street, Kenfig Hill, Nr. Bridgend, Glam.

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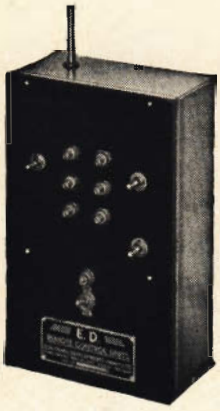

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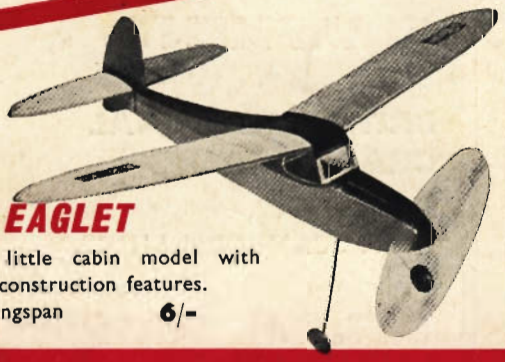

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