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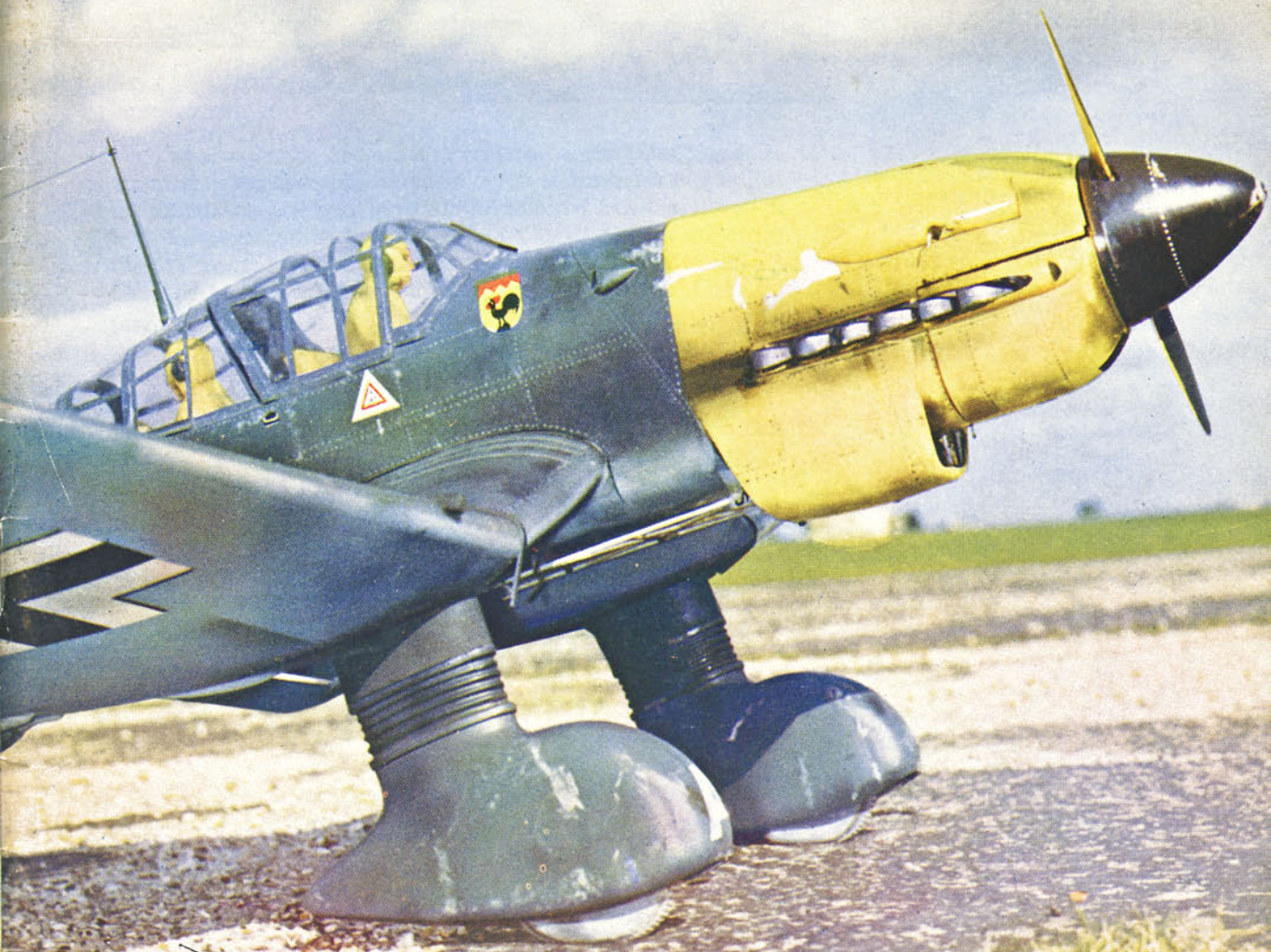

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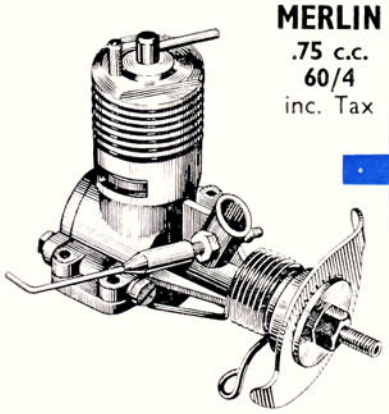

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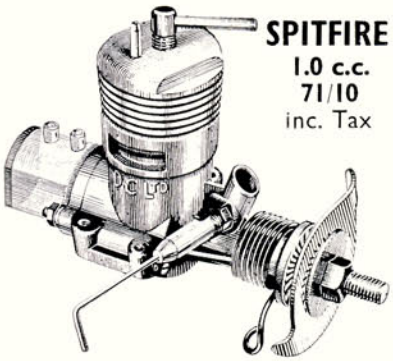

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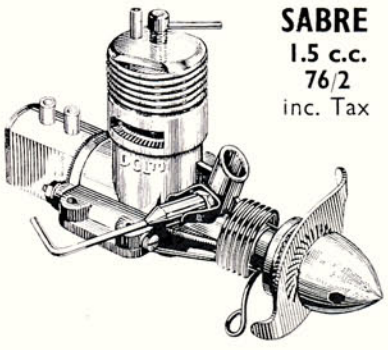

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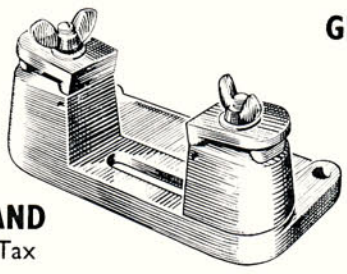

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MODEL AIRCRAFT

September 1967 VOLUME XXXII No. 380

CONTENTS

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EDITOR **R. G. MOULTON**

Assistant Editor **J. FRANKLIN**

COMMENT

The packed contest calendar has burst at the seams. In a week, perhaps the most discouraging week of our long connection with contest model flying we learn of cancellations and insecure rally arrangements. As we write, the Northern Gala (September 3rd) Northern Heights Gala (September 10th), Midland Gala (September 24th) and Southern Gala (October 15th) are written off. . . . . The reasons are multiple. Ten airfields have been sought by one organiser without success. Another has had hopes dashed by announcement of a major military exercise in the area. It is not for the want of effort that such a collapse of the early autumn season should smite the rallyists so hard. The diminishing committees, reduced in most cases to the hardcore of devoted workers will find their unrewarded efforts the subject of inevitable criticism which they have long ago learned to shrug off as unqualified. Happily, two major rallies survive, those at Woodford on August 28th and Cranfield on September 17th. Let's hope the sun shines and the wind disappears for each of them !

cover

Made for the forthcoming film of the "Battle of Britain" at Pinewood Studios by Dave Platt, this Junkers Ju 87 is to 1/6th scale, spans 94 inches and weighs 11 lbs. 14 ozs. A Super Tigre 71 is completely hidden within the cowling and the only component which reveals that this is a model is the relatively small propeller. For story on this and other "B of B" models, see July issue of **Radio Control Models & Electronics.**

next month

The most planful issue for many a month! Free **full-size** pull out plus for Tom Prukner's **"Japp"** diminutive single channel or pulsed rudder R/C Sportster plus Ian Barrett's 26" fun flying **"Dusty" control line cropduster. "Minx"** by noted Czech designer Rad Cizek is likely to be an all time favourite. Can be flown three ways. Glider, Power assisted glider for free flight or R/C plus aerobatic power design for R/C. Perfect for a wide range of engines and ideal for the Sunday flier. **Soviet models;** test on the **Taplin Twin;** scale drawing, sketches, pics of the **Polish RWD-8** and a host of other features, out on September 15th.

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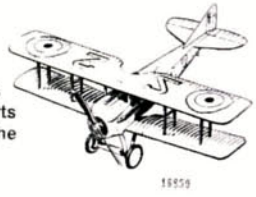

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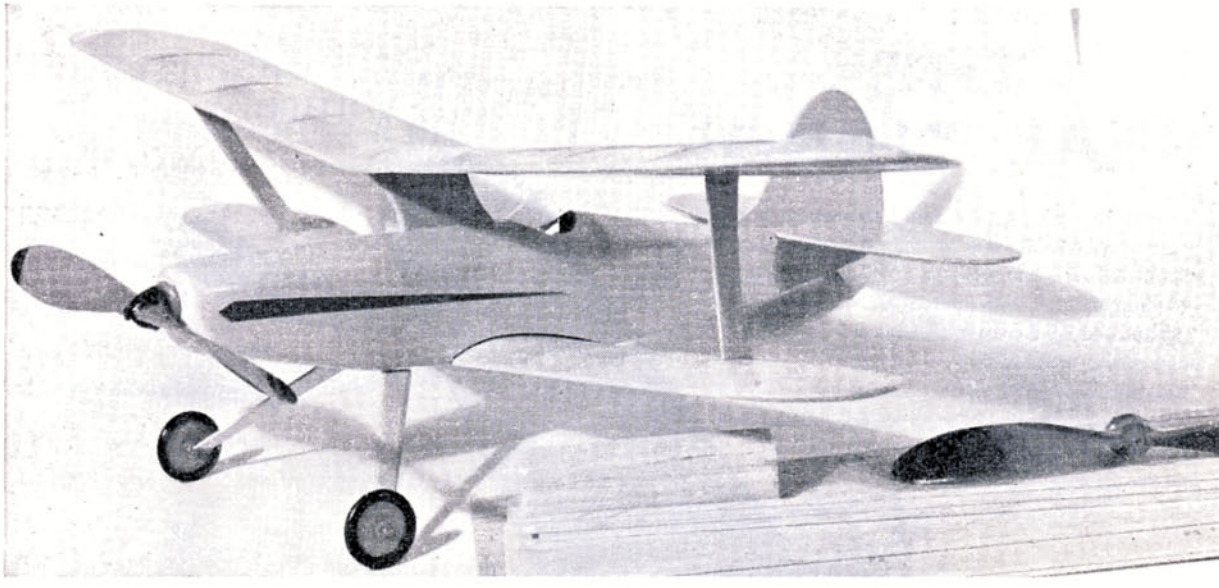

THE IMPORTANT PARTS DON'T SHOW!

It's the structure which really counts with any flying model—the parts that don't show under the covering and finish. And often it is quite a shame that all that careful workmanship has to be hidden, especially with scale subjects.

It is quite remarkable, really, if you stop and consider that those rounded three-dimensional shapes all come from flat sheet and strip. The job is not difficult when using Balsa, but it could be really tricky and tedious if you were forced to use other materials. Plastic mouldings are much simpler to assemble? Yes, of course—but they require an initial investment of thousands of pounds for tooling—hardly suitable for a one-off job. And that's not really the point, either. No other material begins to compare with Balsa for **flying** models. Because of the unique strength/weight ratio of Balsa, Balsa models fly better. The fact that Balsa is really easy to work with comes as an additional benefit.

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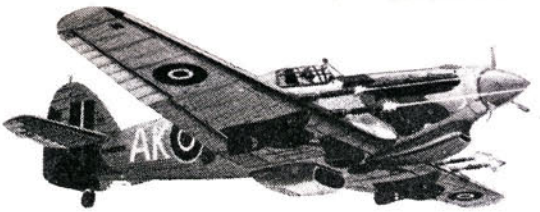

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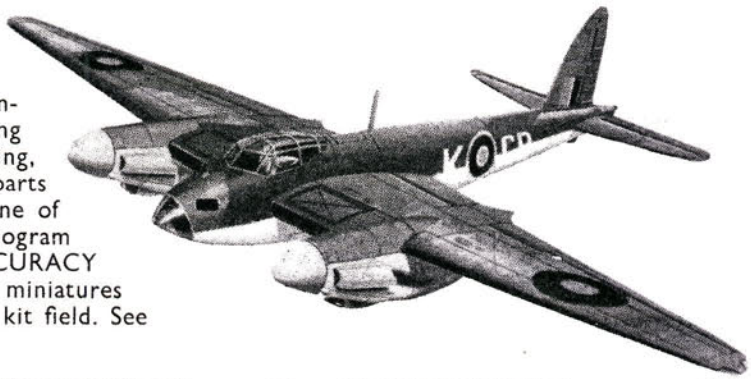

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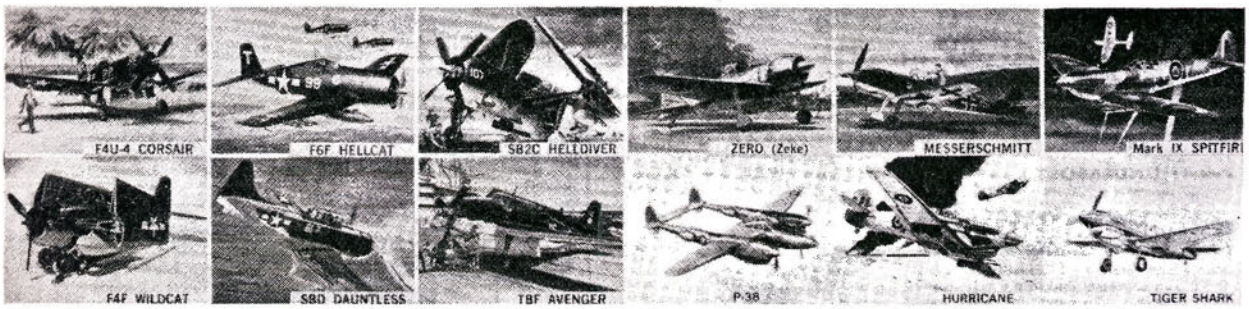

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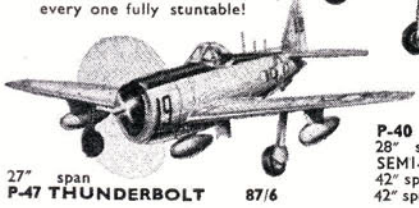

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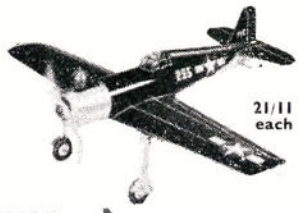

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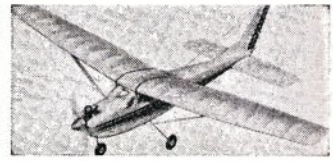

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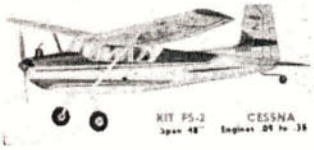

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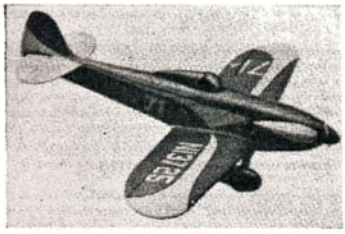

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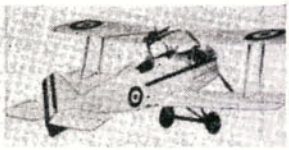

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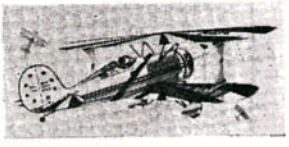
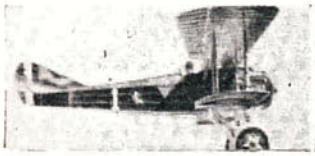


24" GREAT LAKES Spl . 43/6

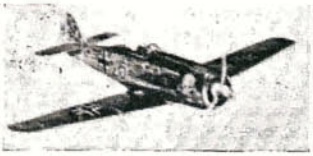
24" FOKKER D7 . . 32/6

22" BEECH BONANZA . 27/6

24" NIEUPORT 17 . . 32/6



24" SPAD XIIIC . . 43/6



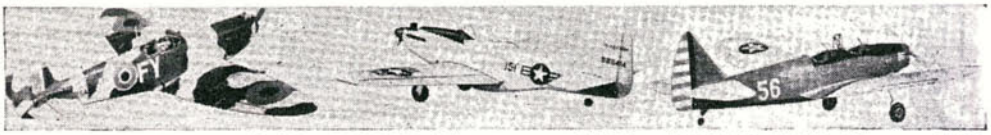
24" FOCKE-WULF . . . 32/6

24" SPITFIRE Mk II . . 32/6

24" F4U-S CORSAIR . . 43/6

R/C or C/L SCALE. . .

All of these scale models adapt for CONTROL LINE as an alternative to R/C. The WIZARD, MAMBO SPECIAL and L'IL ROUGHNECK are specifically designed for R/C flying only. Prefabbed kits.



SPITFIRE 64" span . . . £16.9.6 **MUSTANG 66" span . . . £16.9.6** **FAIRCHILD PT-19 45" span £5.9.6**

WIZARD 54" span . . £7.2.6

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KING COBRA 70" span . £16.9.6

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YOU GET THE VERY BEST OF SALES AND SERVICE AT 308

IMPORTANT ANNOUNCEMENT

We can now offer a complete service for all Digital proportional equipments, using the most modern test equipment in the hands of a competent servicing mechanic.
MicroAvionics Inc. of U.S.A. have appointed us their SOLE SERVICE REPRESENTATIVE for Great Brtiain and their Mr. Doug Spreng visited "308" after the World Championships in Corsica and was good enough to spend a whole day with our repair man demonstrating to him the finer points of setting up the Microavionics equipment to the laid-down factory standards of performance and sensitivity. He expressed himself as completely satisfied with our man's capabilities and was able to give us very sound advice as to what additional equipment we should obtain in order to give a completely satisfactory service. This equipment we have now installed.
Every Proportional repair is sent back to the customer with a comprehensive report detailing the work done and all faulty components replaced are returned.

NEW ACCESSORIES

From Micromold a stick unit for the proportional "home constructor" complete with two trim levers. Completely assembled with 2 5K pots **£4.19.6.** Or in kit form without pots, easily assembled and complete with comprehensive instructions **£3.7.11.**
New large R/C clunk tanks. 10ozs. **8/3**; 12ozs. **8/8**; 16ozs. **9/2.**
PLEASE ADD A MINIMUM OF 1/6 to cover post and packing on small orders.

6" BALSA BY POST

We have had so many requests for our selected 6" sheet balsa to be sent by post that we have at last devised a way of packing it that ensures its arrival in perfect condition without adding greatly to the cost. We can send any quantity packed between blocks of expanded polystyrene at a combined cost of postage and packing of only **4/6** for any quantity of balsa costing **£1** or more. Balsa prices are 1/16×6×36 **3/9**; 3/32×6×36 **4/3**; 1/8×6×36 **4/7**, 3/16×6×36 **5/-**. Please note: 48" long sheets CANNOT be sent through the post.

SELECTED ACCESSORIES

Remember, if there is a good accessory for any type of modelling, we will stock it, Free-Flight, Control-line or Radio-control. If we don't advertise it write and ask and we will let you know whether it can be obtained.

COVERING MATERIALS

"308" selected nylon per square yard, red, blue, yellow, orange and white. **6/6**
Lightweight jap silk. White, yellow, orange, red. Per sq. yd. **9/11**
MONOKOTE. Despatched in strong cardboard tubes that ensures it reaches you in perfect condition. Per sheet 25/-. 3 sheets or more post and packing free. Less than 3 sheets **4/6** p. & p. White, yellow, orange, red, green, blue, silver and gold.

READY MADE MODELS AND WINGS

Our expanded polystyrene wings are rapidly earning a reputation for strength, lightness and accuracy of airfoil section. Pairs of wing halves ready to join (without tips) for Kwik-Fli 11, Sen. Falcon, Taurus 1, Taurus 11, and "Super 60 Trainer" **£6.10.0.** per pair. Postage **4/6** per pair.
Fuselages built to professional standard of workmanship from selected balsa ply and hardwoods. Taurus II Modified "Super 60".
Send S A E. for leaflet giving details of these.
Fuselages can now be sent by rail in returnable packing case that ensures safe delivery. Carriage charge **12/6.** Deposit on case which is returnable on receipt of case returned **£3.**

BATTERY CHARGERS

Our "308" chargers are now recognised as "the best buy" in this field. Universal charger for 2V accumulators and Deacs up to 18V. Simultaneous charging with meter and adjustable charge rate up to 120ma. **£5.19.6.** Field charger for charging accumulators and Deacs simultaneously from 12v. Car battery **£4. 0.0.** 2v Trickle Charger for glow-plug accumulators **£3.10.0.**

AMERICAN MAGAZINES

We can arrange subscriptions for the following American Magazines: R/C Modeler (5/-) 6 issues **33/-**, 12 issues **66/-** post paid. American Modeler ditto. Model Airplane News (**4/6**) 6 issues **30/-** 12 issues **60/-** post paid. Flying Models (**3/6**) 6 issues **24/-** 12 issues **48/-**.

REV-UP PROPS

The choice of the world's leading fliers this is the most efficient wooden prop made.

11×7, 11×7½, 11×8	**5/6**
7×8	**6/-**

GLOWPLUGS

Again in stock FIREBALL Hot and standard only **5/-** ea.

K & B 1LR 1.5 volt	**5/9**
K.L.G. 2V LR EG 200	**8/6**
Merco 2V LR	**5/-**

NEW RADIO CONTROL EQUIPMENT

The best of the proportionals:—
See our last advert (Aeromodeller July) for details and prices of imported American equipments. At the time of going to press we have in stock: Kraft KP4 with Orbit servos and sticks; Kraft KP6B, Logictrol 5 and Logictrol 7; MicroAvionics DS 400 and DS 600.
All available models of Climax and Skyleader digitals also stocked.
Just arrived from Flight Link their latest model the 4+1 complete with 4 servos for **£170.**
We stock selected single channel equipments by Futaba, MacGregor, Gem, and Modelelectric and thoroughly recommend the RMK S/C servos at **£5.12.6.** for the compound and **£5.5.0.** for the rudder and engine only servos.

SECONDHAND RADIO CONTROL EQUIPMENT

At the time of going to press with this advertisement we have the following S/H equipment, all offered subject to being unsold.
ORBIT 10Ch. Valve Tx with superhet receiver. Perfect working order. Terrific range. Sound condition throughout. **£30.**
ORBIT 10Ch. all transistor Tx superhet receiver. In exceptionally good condition. One owner who has maintained it in mint condition. **£65.**
R.C.S. Competition 10 Tx and Rx with 5 Climax servos already wired and 4 servos mounted on board. Perfect. Complete. **£59.**
KRAFT 10Ch. Tx and Rx in mint condition all ready wired to 5 Bonner servos ready for installation. Perfect working order. A real snip at **£79.**
QUADRUPLEX proportional complete. Used for demonstration purposes only. Perfect working order. Originally cost £170. **£75.**
LOGICTROL 7 with 4 orbit servos. Absolutely as new. Belonged until recently to leading modeller who kept this as a reserve set after having test flown it only. Mint condition throughout. **£250.**
OLLEY Fleet G G. outfit with Rand LR3 wired ready to fly. Very good. **£35.**
PHELPS pulser **£7.10.0.**
F & M single channel Tx and superregan Rx **£15.**
BONNER Transmites servos. We have a number of these to choose from all in sound condition and some like new. Self-neutralising and trim **£5.10.0.**
ANNCO servos. Unused and absolutely as new **£7.**
KRAFT single channel Tx and superhet Rx wired to RMK servo complete **£17.10.0.**

GALLOPING GHOST CORNER

We stock and thoroughly recommend the *Derek Olley "Fleet" G G.* super-regen system which costs only **£42.8.0.** with receiver completely wired ready for use to the Rand LR3 actuator which gives rudder, elevator and engine controls. Latest model with superhet receiver costs **£49.10.0.** These equipments are reliable and consistent in performance and are the cheapest possible way of attaining a measure of proportional control without going to the expense of the full-house digital systems.

CONTROL LINE

U-Reely control handle with 100' lines **£4 9.6.**

Roberts 3-line control-line handle	**£3 9.6.**
Veco large 3" bellcrank	**4.6.**
Veco small 2" bellcrank	**3.6.**
Veco elevator horn metal	**3.3.**
Veco Differential flap horns	**7.6.**
Split elevator horns sm. **3/6**; lge. **4/6**	
Dubro blind engine mounting nuts pkt. 4.	**2/3**
440 screws for above. pkt. 8	**1/6**
Glowklip large or ½A.	**3/11**

RAND ACTUATOR LR3. This neat lightweight motor driven actuator for G.G. systems gives proportional rudder and elevator control simultaneously with step by step engine control. Price **£10.8.0.**

ADAMS ACTUATOR The patented proportional magnetic actuator that works from any pulsed double ended or relay receiver. In two types:
Single ended for small models **62/6.**
Double ended for models up to 19 engine size **89/6.**

"308" G.G. REAR LINKAGE. Eliminates the wire "birdcage" and gives really positive operation of rudder and elevator. Easy to install and a bargain at **17/6** for the G.G. fan.

A Few of the ENGINES we stock:—

MERCO 35 R/C	**£7.12.6.**
MERCO 35 stunt	**£5.19.6.**
MERCO 49 R/C Mk. II twin plug	**£13. 4.0.**
MERCO 61 R/C Mk. II twin plug	**£13.17.6.**
McCOY 19 custom stunt	**£5.10.0.**
UEDA 15 standard stunt	**£3.18.6.**
UEDA 19 standard stunt	**£4.17.6.**
UEDA 19 R/C	**£5.10.0.**
COX 049 quiet zone with muffler	**£3. 2.6.**

All other Cox engines always stocked.
ETA 15 D Mk. II Bedford's latest high speed diesel for Team racing **£9.13.0.**

ACCESSORIES cont'd.

Steerable nose wheel assembly. Nylon brgs and bellcrank, sprung leg. Complete	**12/6**
"308" cast aluminium '61' engine mount	**25/-**
"308" glofuel with castrol 'M' per gall.	**25/-**
Hinges Rand thin and thick. Pkt. of 6	**12/6**
Mercury pkt. of 14	**6/5**
Micro-accessories pkt of 5	**5/9**
pkt. of 12	**13/11**

To our NEW ZEALAND customers

We are getting so many orders from modellers in New Zealand now, that we feel one or two points should be clarified regarding the charges for postage and packing. Most of you want items sent airmail, and whichever way this is done it is expensive. Whenever possible we send lightweight items by airmail second class small packet post which costs only 1/4 an ounce. Regular letter-packets cost 3/6 per ounce. Air parcels 13/- per half-pound. Most of you grossly underestimate the cost of sending items you order but we mostly send them off without delay and ask you to send the balance due. It would save a lot of time and correspondence if you would estimate the cost of sending your orders more carefully in future and also help us to give you an even better service. In any case small sums sent in excess of the invoice value are always to your credit pending receipt of your next order.
Meantime, MANY THANKS FOR YOUR ORDERS WHICH WE MUCH APPRECIATE.

GOODS ON TERMS

We can now offer a very convenient method of buying any aeromodelling goods to a value exceeding £25 on monthly terms with no deposit, or any deposit you may care to pay. Please send a 9×4 S A E. for details of this scheme and our latest listings. Remember we can supply any aeromodelling items we advertise in this way subject to their being available.

Our MAIL ORDER DEPARTMENT will send any goods advertised by us to any part of the world. C.O.D. available for home orders over £3. only. You pay the postman. PLEASE ADD A REASONABLE AMOUNT FOR POSTAGE AND PACKING TO ALL ORDERS. Shop hours: Mon.; Tues.; Wed.; Fri. and Sat. 9a.m.—5.30p.m. Thursday 9a.m.—1 p.m.

HENRY J. NICHOLLS & SON LTD.

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Heard at the HANGAR DOORS

ANOTHER FATILITY, but not through radio control or electrification this time. 43-year-old Roger Colon and his son, Philip, aged 12 were in a special area of Flushing Meadow Park set aside for control-line flying on July 2nd. As Roger was kneeling down attending to his son's model, another dived and struck him on the back of the head. Though the fatality occurred in New York, it is just as much the concern of all aeromodellers outside the United States. How many "near misses" have saved a team or rat racing life we dare not guess. Serious accidents of this sort have occurred in Germany and France.

AUSTRALIAN NATIONALS go west at the end of the year, to Perth in Western Australia where great plans are being laid by the organisers. We had a personal account from one of them during a visit to our offices. This is the first time their Nats have gone west, and knowing how small is the world of aeromodelling, an invitation is extended to fellow enthusiasts in Singapore, Malaya, India or South Africa. Contact R. McPhee, 64 Allen Street, East Fremantle, W. Australia.

WORLD RECORD claim for radio controlled duration is being made by Bill Bertrand of Michigan, U.S.A., with a time of 11 hours, 18 minutes. Super Tigre G.20 Diesel powered model carried 6.2 lbs. of fuel, was 10 feet span, and is said to be capable of 14 hours. Model must not exceed a total of 11.02 lbs.. total weight and the engine has to run for a minimum of 98 per cent of the claimed duration.

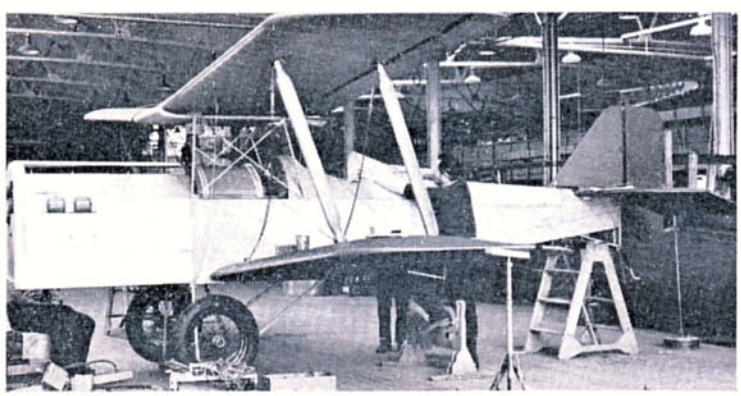
FIRST USE to our knowledge of tuned length exhaust system for FAI free flight power duration was by that expert Berliner, Karlheinz Rieke. A unit made by control-line flyer Rolf Meibach was fitted to a Super Tigre G.15 and increased r.p.m. by over 1,000. Karlheinze had bad luck in contests. His model cracked up in a hard dethermalised landing.

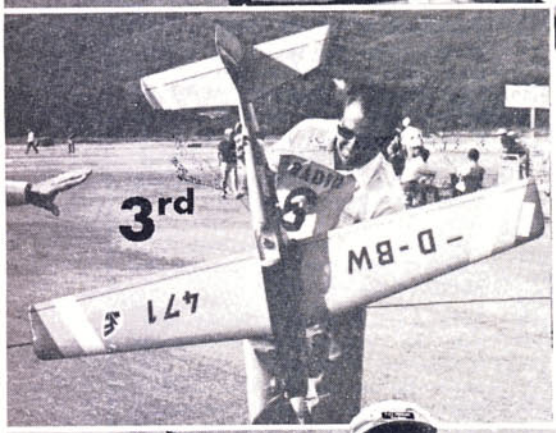
FINE SHOW of scale models was arranged at Royal Air Force station Waddington through ourselves and Flt.-Lt. Leach for the occasion of the Standard Presentation to Nos. 44 and 50 Squadrons by Her Royal Highness Princess Marina, Duchess of Kent. Pride of the display, which covered a history of aircraft equipment for the Squadrons, were A. F. Clements' B.E.2c, Dan Bateman's Bristol Scout and E. A. Potter's Lancaster. Stimulated by the support for this occasion. Flt.-Lt. Leach now asks if there are models available for loan to show at the 50th Anniversary celebrations at Waddington later this year. His list of types ranges from the De.H. 4. 6 and 9 through lesser known types such as the Fawn, Hyderabad, Hinaidi to the Hind, Blenheim and even the Boeing B-29 Washington. Anyone with models of vintage R.A.F. aircraft to loan should contact Flt.-Lt. Leach at R.A.F. Waddington, Lincoln.

FILMS of the Royal Air Force may be borrowed for club showing. Not many secretaries seem to be aware of this free loan service. A catalogue, listing titles which range from *Riding the Sky,* five minutes in colour on gliding in the R.A.F. and the A.T.C. to *Mach 2 Plus,* seven minutes on Lightning interception, can be obtained free from the R.A.F. Cinema Corporation, Africa House, Kingsway, London, W.C.2. There are about 40 titles to choose from on 16 mm. sound.

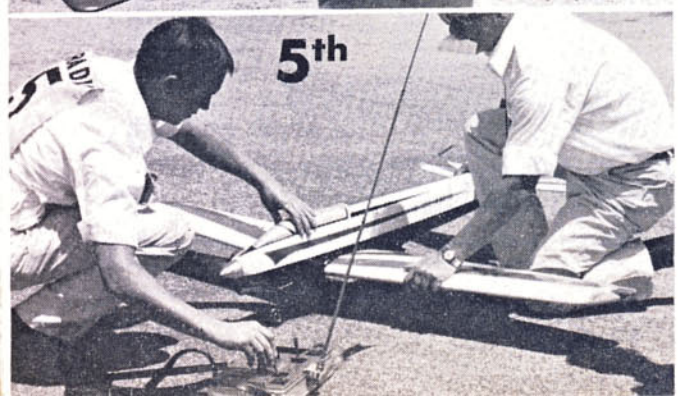
FANTASTIC RESPONSE is reported from Belgium to a beginners glider contest arranged by the Educational section of the A.B.A. We hope to print more details at a later date; but first news indicates that over 350 youngsters took part. National publicity and help from the Royal Belgian Air Force with an Air Display, plus cooperation of Sabena all helped to make a memorable meeting for everyone concerned.

MOCK S.E.5s made at Kirbymoorside by Slingsby Sailplanes as mentioned last month, are now active in the air. Messrs. C.I.B.A. sent us the photograph reproduced below as many of their products have been employed in construction. The long nose is a bit "off" and we hope that those wheels will fit a little lower on the legs but otherwise it just goes to show how one can turn a "Wot" into a W.W.1. fighter !





TOP FIVE



5th World Radio Control

FORTY-TWO contestants from 17 nations went to Ajaccio, Corsica on June 21st to compete for top honours in the 5th World Radio Champs.

Congregating at Nice, contestants and their supporters were flown in double decker "Deux Ponts" and a D.C.6 across the island of Corsica in time for a day of practice.

Of the British team Chris Olsen had two examples of the "Upset" design with which he did well in the previous championships in Sweden. Peter Waters had two identical blue and gold MonoKote covered machines called "Thunderball", a design showing Thunderstormer influence with slender fuselage and huge fin and rudder assembly. Dennis Hammant had the largest model at the meeting, his 7 ft. "King Spectre", while using his smaller "Spectre" as a reserve. From the U.S.A. Phil Kraft had his new "Kwik Fli III" with re-arranged tail assembly, team mate Cliff Weirick had two identical near scale Krier modified "Chipmunks" and Doug Spreng was using a small taper wing machine called "Twister".

The South African team was composed of Rich Brand (Rhodesia) Chris Sweatman and Johnny Wessels. Each had two identical models. Brand had a very attractive machine called "U.D.I. Panzer" based on the Northrop F-5 "Freedom Fighter", Sweatman's was a swept wing inverted Merco 61 engine model called "Condor", and Wessels had two "Kwik Fli II's".

W. German representative Fritz Bosch's big "Super Delphin" design seemed to be finding favour, it was not only by Fritz but by 18-year-old Matt of Liechtenstein and Gloor of Switzerland.

Among the Italians Reda had one of the few kit designs at the meeting in the form of the Italian Aviomodelli "I-Lazer". Also of interest was the small swept wing, "T" tail "Maximum-7" used by Poju Stephansen and Norwegian team-mate Jan Rapstad, the latter with tip plates.

Notable features among models seem to be a strong preference for outboard ailerons as opposed to strip ailerons and big rudders—some huge by previous standards.

A check around the hangar park showed that all competitors were using proportional equipment, 23 of them European manufacture (10 Simprops, 4 Radio Pilote, 3 Multiplex 101, 2 M.B.N. Logic Belle and 1 each Digi Fli, Grundig, Micronic, Vienna Prop, and Propoflex).

Round 1

First round opened at 6 a.m. (*yes!*) June 23rd with a flight by Ulf Tonnesen of Norway. Second in the air was Fritz Bosch who landed after 8 minutes complaining of interference which was cycling his throttle and triggering the rudder. A monitor on the

FIRST. Phil Kraft of U.S.A. and his 60 in. span Kwik Fli III. Basically a Kwik Fli II with lengthened tail moment and rearranged tail cone. Wing reported to be two years old. Kraft KP4B radio and Enya 60 power. Weighed 6 lbs. 2nd, Pierre Marrot of France and shoulder wing Satanus original. 65 in. span model equipped with Radio Pilote proportional which Marrot makes and powered by Rossi 60. 3rd, the quiet man from Germany, Kurt Bauerheim and his 69 in. span Kompromiss design. Used German Multiplex 101 proportional. Super Tigre 60 power. 4th, Doug Spreng of U.S.A. and 54 in span Twister. Attractive little model, used single stick Micro Avionics radio. Super Tigre power. 5th, Walter Schmitz of Germany and Fritz Bosch Super Delphin influenced original. Simprop 7 radio, Rossi 60 motor.

field verified the existence of interference on the 27 Mc/s wave band and Bosch's flight was allowed to stand as an attempt, so that he had another chance to make good. As it happened Fritz had been lucky! As the day wore on, the existence of interference became painfully apparent as proved by many to their cost.

First in the air for Great Britain was Peter Waters, gaining 4,049 points which at the time was the highest score. This distinction lasted only until the next flight however, when Doug Spreng zipped his small 54 in. span "Twister" through the schedule to score 4,736.

A surprise entry came in the form of Wolfgang Matt of Liechtenstein, a completely unknown quantity. Matt used his Simprop equipped "Super Delphin" for a fine flight to gain 4,430 points and it was a remarkable performance for this 19-year-old flier.

The interference problem persisted when Chris Olsen came out to fly and he was forced to call an

Championship

CORSICA JUNE 21—26

attempt and change frequency from 26.995 to 27.045.

Following Olsen's abort came Cliff Weirick for U.S.A. with his fascinating model of Hal Krier's attractive aerobatic "Chipmunk". The tail wheel undercarriage appeared to be no problem for Cliff who made a neat taxi out before pausing to make a throttle controlled take-off run from the requisite standing start. In the air it was a fast performer, using up large expanses of sky through huge loops and eights to collect 4,253 points.

Third man up for the British team was Dennis Hammant who lifted his big "King Spectre" in to the air after a smooth take-off run. After completing the double stall turn, the model entered the combined Immelman, rolled out over the top and dipped into the half outside loop part of the manoeuvre. Half way round, it became obvious that the model would not recover, hitting the ground in an almost horizontal attitude. Obviously, this was a bad setback for the British team effort.

In the wake of this disaster came Phil Kraft for U.S.A. with a beautiful performance which gained him a total of 5,317 points which set him way out in front of the field. By the end of round one, Phil Kraft led the field while Kurt Bauerheim of Germany was a surprise second placer, with 4,825 points. Third was fellow German team member Walter Schmitz ahead of Doug Spreng for U.S.A. 5th placer

A surprise 6th placer was the unknown Wolfgang Matt from Liechtenstein. 19 years old, and has been modelling only 18 months. Used Fritz Bosch Super Delphin design, Simprop Digi-7 radio.

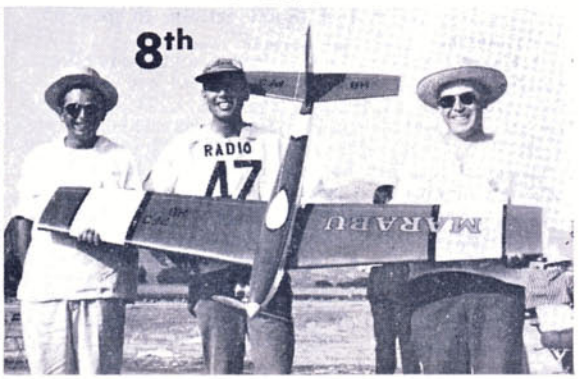
was Marrot of France flying a shoulder wing design followed by South Africans Brand and Sweatman. For his fine flying effort, Matt of Liechtenstein held 8th place while the top Britisher was Chris Olsen, number 11. Of the other British team members Peter Waters was in 15th position while Hammant's early crash sent him one from the bottom of the table, below Fritz Bosch, whose second attempt flight gained him only 810 points due to very bad motor run (he had dared to alter a Kavan carburettor!).

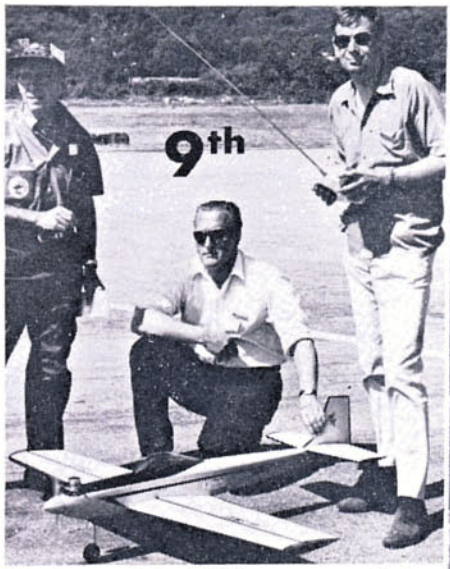
Round 2

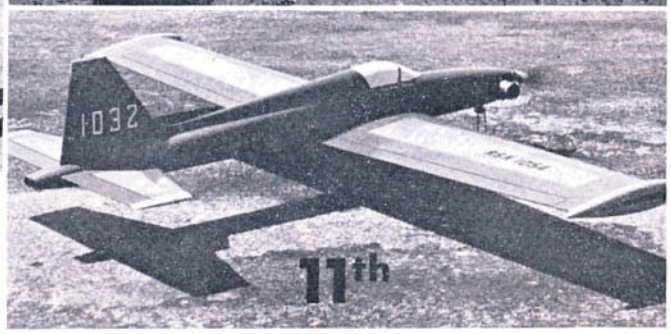
Having missed his first round performance, we were keen to watch Kurt Bauerheim, using the German Multiplex 101 radio equipment. Kurt gave an excellent performance with particularly good rolls, but to the judges it was obviously not as good as his first round effort, gaining only a moderate 4,710.

After his first round crash, Dennis Hammant had hurriedly trimmed out his reserve Spectre ready to be first man up for Britain in round two. Obviously

7th placer, and top South African was Chris Sweatman, seen with original Condor design. Span 67 ins. used Logictrol radio and Merco 61 motor. 8th, Bruno Giezendanner was top Swiss team member flying this 70 in. span original equipped with Swiss Digi Fly proportional radio.







9th placer, and top British entrant was Chris Olsen, here with T/Manager G. Franklin and Dr. W. Good checking interference. 65 in. span Upset design, used Kraft KP4B radio, Merco 61 motor. 10 placer Cliff Weirick's Chipmunk won "Prettiest model" award. Span 59 ins. P.C.S. radio, Veco 61 power. 11th placed, South African Richard Brand's 67 in. span U.D.I. Panzer, used Logictrol radio and Merco 61 power plant.

feeling the psychological effect of his first round crash, his performance suffered, and he nearly crashed again after a low entry to the top hat manoeuvre required an abrupt exit. The flight totalled 3,344 points.

Following Hammant again came Phil Kraft with a masterly performance including a really first class tail slide. It was a good all round flight which gained 5,663 points.

Richard Brand for South Africa met trouble when his Merco/Kavan motor went sick during the top hat manoeuvre. It cut during the spin but managed a square approach and landed for 4,043 points.

During the afternoon Fritz Bosch began to show his form with a smooth flight to obtain 5,194 points. His Super Delphin design is certainly a steady flier with ability to hold a heading, a point which showed up to advantage in the loop and eights. Then Peter Waters flew second for Britain, but had a problem with aileron trim which had to be fought through all manoeuvres, and a bad motor setting, to gain only 3,358 points.

While his team mates were not enjoying their form, Chris Olsen was certainly putting out his best, performing better, we thought, than his 4,793 point total reflected. Certainly from where we watched it, it was a really smooth flight, particularly the combined Immelman and top hat, although Chris had a habit of barrelling his slow rolls.

When round 2 ended Phil Kraft was maintaining his lead, now followed by Marrot of France whose second round performance hardly appeared to deserve the 5,514 points it received. Further position changes included Doug Spreng now in third position, Walter Schmitz fourth, and Chris Sweatman fifth. Kurt Bauerheim had sixth place, while Wolfgang Matt of Liechtenstein continued to show his form now in seventh position. Chris Olsen remained the top Briton in eighth position. While Peter Waters had dropped to 22nd position, Hammant had improved a little to 37th place.

Round 3

Phil Kraft for U.S.A. opened round 3 with a performance not quite so good as his round 2 effort, but still precise enough to obtain 5,518 points. This put him in a commanding position with a flight total of 16,496 points for his challengers to aim at. Second up was Richard Brand of South Africa who missed his tail slide but still gained 4,817 points.

Peter Waters flew first for Britain with a model that just previously had received the contents of Chris Olsen's model box over its wing. Still off form, his effort gained 3,871 points. Doug Spreng continued to do well with a very nice performance except for spin and landing approach which brought in 4,826 points for the U.S.A. team. Chris Olsen continued to make a determined effort in this "last chance" round, totalling 4,628 points, maintaining his consistency with a series of clean maneouvres, although still with that barrelling slow roll.

For Germany, Kurt Bauerheim made his best championships performance in this round, an excellent display with his orange and blue low wing original design gained a well deserved 5,340 points to assure him of a high place. Kurt seemed to excel most in the eights, with a nice consistency of diameter. Positioned at the end of the flight order, Dennis Hammant found his true form for his last attempt, to the tune of 4,244 points thanks to a good double stall turn, thereby ensuring a position well above the bottom of the table.

When final scores were in, Phil Kraft of U.S.A. was the clear World R/C Champion, followed in second place by Pierre Marrot of France. Kurt Bauerheim's

last flight elevated him to third position ahead of Doug Spreng U.S.A. Fifth place went to Walter Schmitz of Germany, ahead of young Matt of Liechtenstein whose performance was probably the most remarkable of the entire championships.

Of the British team Chris Olsen was top in ninth position while Peter Waters finally placed 23rd and Dennis Hammant 32nd.

The U.S.A. team once again made it a clean sweep, winning both team and individual placing, which they have done for every championship except 1962 when the British team took top team honours. Second in the team table were Germany, followed by the South Africans, Brand, Sweatman and Wessels who were a model of collective team effort. To France the host Nation went fourth position followed by the Swiss, ahead of the British team in sixth place.

So ended the Fifth World Radio Control Championships. For the British team it was a rather unhappy episode. Even after the competition was over a Gendarme managed to kick the fin and rudder assembly off Chris Olsen's aeroplane and Den Hammant's model box was broken open and two Kraft servos stolen!

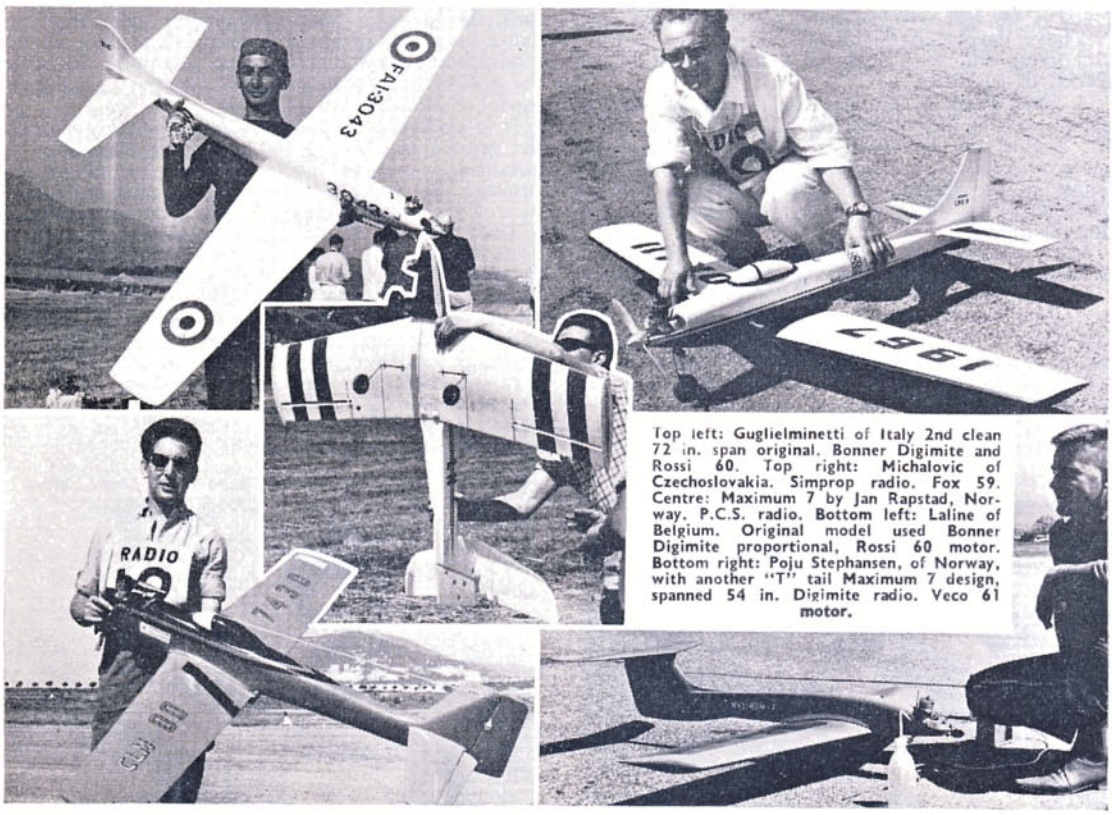
Most noteworthy aspects of the competition were the performances of the European competitors and their German or French equipment. Fliers like Bauerheim, Schmitz of Germany, Matt of Liechtenstein and Giezendanner of Switzerland, are first class performers, and very much a force to be reckoned with for the future. What a pity we have to wait two years for the next Championships which will be in West Germany!

Tony Dowdeswell

FULL RESULTS

Place	Name	Nation	1st	2nd	3rd	Total
1	P. Kraft	U.S.A.	5317	5663	5316	16.496
2	P. Marrot	France	4707	5314	5044	15.265
3	K. Bauerheim	Germany	4825	4710	5340	14.875
4	D. Spreng	U.S.A.	4736	5299	4826	14.861
4	W. Schmitz	Germany	4747	5187	4771	14.705
6	W. Matt	Liechtenstein	4430	4817	5164	14.411
7	C. Sweatman	S. Africa	4616	4966	4772	14.354
8	B. Giezendanner	Switzerland	4296	4366	5574	14.236
9	**C. Olsen**	**Great Britain**	4269	4793	4628	13.690
10	C. Weirick	U.S.A.	4253	4628	4703	13.584
11	R. Brand	S. Africa	4677	4043	4817	13.537
12	J. Cousson	France	4163	4461	4588	13.212
13	J. Van Vliet	Holland	3908	3757	4834	12.499
14	L. Thelin	Sweden	3634	4285	4129	12.048
15	G. Haggeman	Belgium	3719	3912	4404	12.035
16	G. Reda	Italy	4301	3341	4294	11.936
17	F. Schenk	Switzerland	3684	3486	4621	11.791
18	B. Oldenburg	Sweden	3752	4191	3737	11.680
19	P. Stephansen	Norway	3462	3761	4356	11.579
20	L. Reineri	Italy	4084	3749	3520	11.358
21	H. Sekirniak	Austria	3933	3499	3893	11.325
22	J. Wessels	S. Africa	4035	4202	3047	11.284
23	**P. Waters**	**Great Britain**	4049	3358	3871	11.278
24	F.Bosch	Germany	810	5194	5139	11.143
25	F. Laline	Belgium	3806	3454	3529	10.789
26	T. Pham	France	4043	3928	2400	10.386
27	J. Gobeaux	Belgium	3350	3325	3400	10.075
28	F. Guglielminetti	Italy	3257	3095	3177	9.529
29	J. Michalovic	Czechoslovakia	2907	2673	3147	8.727
30	E. Wallner	Austria	2101	2899	3228	8.228
31	J. Von Segebaden	Sweden	3453	3809	915	81787
32	**D. Hammant**	**Great Britain**	365	3344	4244	7.953
33	H. Rasmussen	Denmark	2148	3567	1415	7.130
34	W. Gloor	Switzerland	1980	4233	890	7.103
35	C. Papaspyros	Greece	1761	2604	2964	6.929
36	M. Vostry	Czechoslovakia	2378	2282	2128	6.788
37	A. Notermans	Luxembourg	1725	2216	2368	6.309
38	L. Behm	Luxembourg	1743	1613	2677	6.033
39	W. Dettelbacher	Austria	885	1205	3376	5.466
40	N. Bertemes	Luxembourg	2645	—	2450	5.095

1	U.S.A.	44941	10	Austria	25019
2	Germany	40723	11	Luxembourg	17437
3	S. Africa	39175	12	Czechoslovakia	15515
4	France	38843	13	Liechtenstein	14411
5	Switzerland	33130	14	Norway	14309
6	**Great Britain**	**32921**	15	Holland	12499
7	Belgium	32899	16	Denmark	7130
8	Italy	32618	17	Greece	6929
9	Sweden	31915			

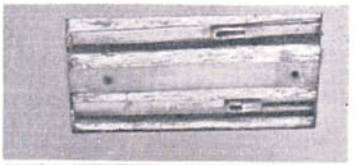


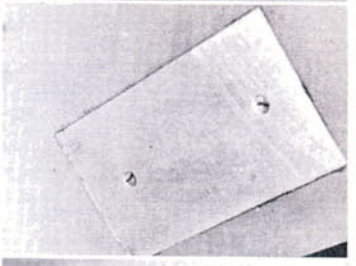
Top left: Guglielminetti of Italy 2nd clean 72 in. span original. Bonner Digimite and Rossi 60. Top right: Michalovic of Czechoslovakia. Simprop radio. Fox 59. Centre: Maximum 7 by Jan Rapstad, Norway. P.C.S. radio. Bottom left: Laline of Belgium. Original model used Bonner Digimite proportional, Rossi 60 motor. Bottom right: Poju Stephansen, of Norway, with another "T" tail Maximum 7 design, spanned 54 in. Digimite radio. Veco 61 motor.

MiSTRESS

Top British F.A.I. Team Racer. 38 inch wingspan for 2·5cc. engines. Simple construction for quick building.

by Brian Turner





Top right, the recessed hatch for control line wire connections in wing panel. Centre, the alloy hatch cover held with two bolts. Right, the nose with air outlet duct and long mono wheel leg. "D.H." stands for Don Haworth engine mods.

OVER the last few years the Turner/Hughes team have developed this Racer for serious competition flying and have achieved a most commendable record of successes.

A good Team Racer must fly as fast as possible, handle well in the air *and* on the ground. But, above all, it must be consistent in its performance. Every endeavour has been made to incorporate all these points in the design, but consistency can only be obtained by the team of a pilot and mechanic operating the model.

Many people think it necessary to do 95-100 m.p.h. to have a chance of winning, but this is *not* true.

In good conditions a model doing 90 m.p.h. with two stops can turn in a time of 4:45. However, when one refers to 90 m.p.h. a *genuine* 90 is meant. It's no use whipping in practice and kidding yourself as this only leads to bad settings for the race. If you let the model fly itself, you then find its true speed and how many laps it is doing.

One thing which spoils many a good T/R is a bad tank design or a badly positioned tank. This can cause both loss of speed and laps. The tank in this model has been found to work very well. However the position cannot be guaranteed as this varies from model to model.

It is preferable to have the motor slightly rich on the ground and leaning out in the air. This effect is obtained by moving the tank to the far side of the fuselage. By doing this, one ensures that the model gets off the ground when otherwise running very lean.

T/R fuel has to be a compromise because you need speed, laps *and* easy starting. Brian Turner favours a high oil content fuel which works in both Oliver and Etas equally well; *27 per cent Castrol M, 27 per cent Ether, 43 per cent Paraffin, 3 per cent Nitrate*. Recommended propeller is a 7 x 8 in. Tornado Plasticote, they seem to rev a little higher than any other wooden props. However, these are almost impossible to obtain and the next best in this team's opinion is a 7 x 8 in. or 7 x 7½ in. Rev. up which is almost as good anyway.

Mistress seen at Tern Hill after the final, note slim rear fuselage.

Mick Hughes (left), the pilot, and Brian Turner (right), pit man.

The model is of purely simple construction being mainly of block balsa. Commence construction with the engine mounts, these are of hardwood with $\frac{1}{8}$ in. Dural strips screwed and Araldited to them. When dry, bolt the motor in position, thus during the fuselage construction, you ensure the engine lugs and mounts are parallel, this prevents distortion of the motor when the model is complete. Now cement the $\frac{1}{2}$ in. Balsa crutch between the bearers and the $\frac{3}{16}$ in. strips on top.

Cement the $\frac{1}{8}$ in. sheet under the crutch, a piece of $\frac{3}{8}$ in. sheet between the engine and the L.E. of the wing position and the piece of cowl in front of the engine.

This forms the centre section around which the model is built. Now cut the top and bottom blocks roughly to shape and hollow out first around the engine. Cement a piece of sheet under the cowl to cover the top of the cylinder head. Cut the top block at 45 deg. where the cowling detaches and let the fin into the rear. Very lightly cement the blocks to the crutch. Then carve and sand the fuselage to its finished shape. Now carefully remove the block and hollow out to about $\frac{1}{4}$ in. thickness. On the bottom block it is suggested that one carves the exhaust duct first, then the clearance for the controls but leave enough to hold the undercarriage.

Cut the wing from $\frac{3}{8}$ in. sheet and cement the spruce L.E. and T.E. in place. Now sand it to section leaving the centre square. Put in the ply bellcrank support and make the lead-out pipe grooves. Fit the controls and cover the lead-outs with $\frac{1}{4}$ by $\frac{1}{32}$ in. sheet strips. Shape the tail in the same way as the wing, leaving the centre square. Cut out the elevators and join them with the 16 s.w.g. piano wire horn. The elevator horn is hard soldered to the elevator joining wire in the centre. Don't forget to put the guide tubes on before you bend the ends! Now cement the wing and tail to the fuselage crutch and put the push rod (which is made from two bicycle spokes) in place. Make up the u/c and tail skid as shown and Araldite them in the bottom block, making sure they cannot foul the controls. Then Araldite the silencer to the base and cement the bottom, and rear half of the top block in place.

First Places

1965	N.W. Area, Tern Hill
	S.M.A.E. F.A.I. Meeting
	South Midland Gala.
1966	N.W. Area Tern Hill
	Novocastrian Rally
	S.M.A.E. Team Trials
	S. Midland Gala.
	Northern Area F.A.I. Meeting
	Wharfedale 1000 Lap Race.
1967	S.M.A.E. Centralised Meeting Upwood
	British Nationals
	Novocastrian Rally
	Wharfedale 1000 Lap Race.
	Plus 8th, 1964 World Champs.
	5th, 1966 World Champs.

The cockpit cover is moulded from acetate sheet using the fuselage as a mould. Heat the sheet until soft, then pull over the fuselage (wearing thick gloves). Make the cockpit bottom and back a little small to allow for the thickness of the cover.

The removable top cowl is held in place with two bolts, the back one to a piece of Dural fixed in the model and the front to a bracket on the motor. Face the edges as shown.

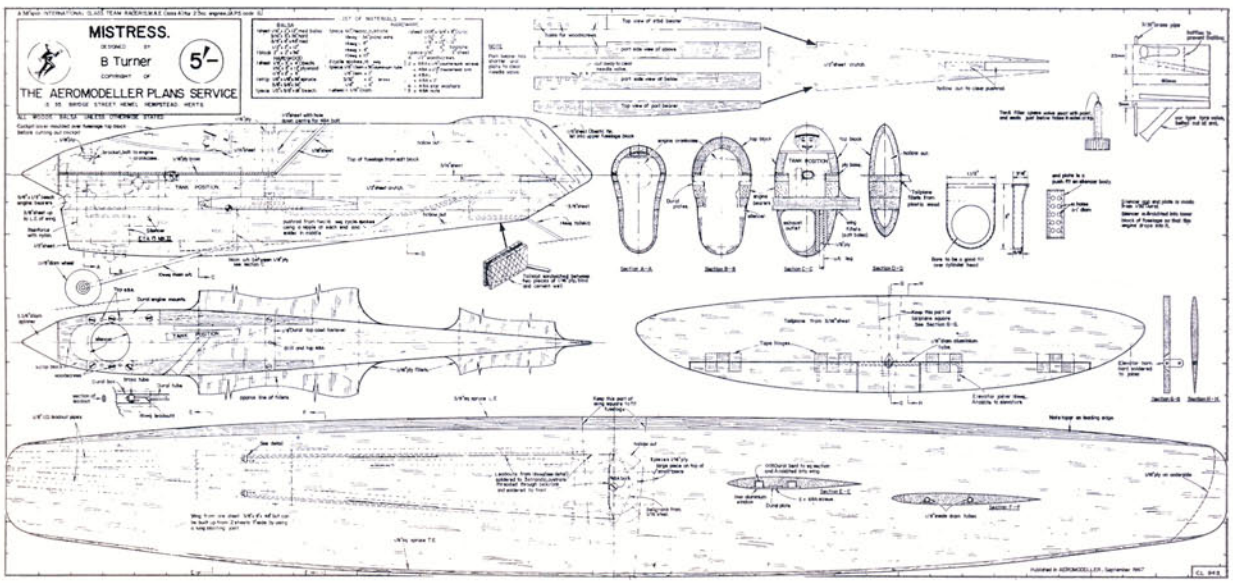
After fitting the balsa and plastic wood fairings on the wing and tail and making holes for the bolts, fuel needle and tank vents, the construction is completed.

Now come to the finish. First of all, give the model one coat of clear dope and sand down. Then tissue cover the whole model. Follow this by about three coats of sanding sealer (made from French chalk and clear dope) rubbing down after each coat. This should give a very smooth surface which only needs one coat of Humbrol Plastic Enamel to finish it.

All that is left is to fit the wheel and don't forget your S.M.A.E. number!

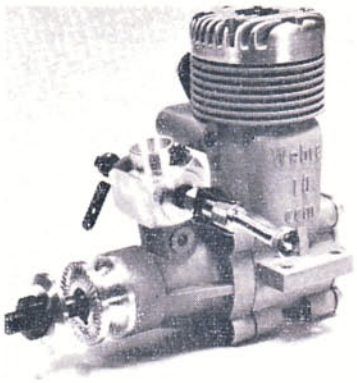
F.A.I. Team Racing is a very competitive class of modelling. Anyone wishing to succeed must dedicate a great deal of time and effort to it, but they will be rewarded in full.

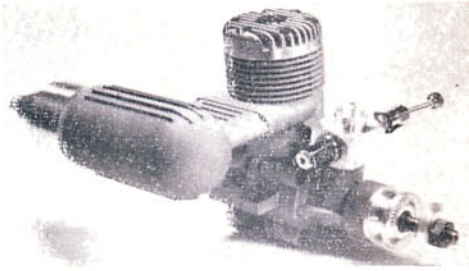
FULL SIZE COPIES OF THIS 1/6TH SCALE REPRODUCTION ARE AVAILABLE THROUGH AEROMODELLER PLANS SERVICE AS PLAN CL 943. PRICE 5/0 PLUS 6d. POSTAGE. BORDER SCALE REPRESENTS 1 INCH DIVISIONS.



LATEST ENGINE NEWS

By Peter Chinn





The production model of the new West German Webra RC-61, a well-made engine of interesting design, now available in the U.K. through Veron stockists.

WE have been asked to include photos of the Webra RC-61 and the O.S. Max-H 60 R/C in this month's L.E.N., so, here they are. The Webra is the new 10 cc. radio-control motor that we briefly described last month. The O.S. is the engine that powered five of the six top placing models in the Nationals scale R/C event.

We also show the Webra with the maker's own silencer that is being marketed for it. The silencer is of generous proportions (weight, nevertheless, is a reasonable 2¾ oz.) and offers free gas flow from the exhaust ports to a large volume expansion chamber. No baffles are used. The makers have also avoided using an external strap method of securing the silencer to the engine. Instead, the solid ends of the RC-61's substantial exhaust stack are provided with two holes through which long 3 mm. screws are passed to screw into tapped holes in the silencer duct. The silencer is made in two parts. The forward section, including extension duct, is an aluminium pressure diecasting. The rear end is turned and screws into the front half.

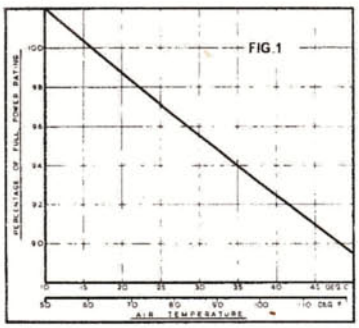
Power and Altitude

A recent letter to the Editor from C/T Dearness, who is stationed with the R.A.F. On Loan Element in Kenya, asks "... is it possible for Peter Chinn to write an article on the effects of altitude on engines and propellers? Here in Kenya, at 6000 ft., the rules on engine size and wing area/model weight do not apply. It is my experience that, in the case of up to 1 cc. engines, the size of the engine has to be double that recommended by the kit manufacturer. Above 1 cc. I have found that an additional 1–1½ cc. is sufficient. There must be others at the same altitude who have wasted money on the smaller engines when starting out in the hobby, as I did myself ...".

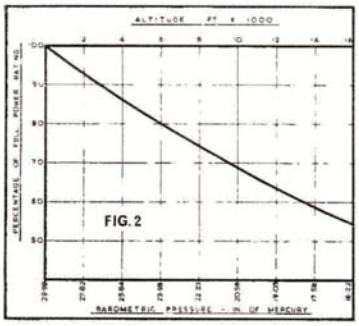
This is a question that crops up from time to time and, in fact, we first dealt with it in print as far back as 1952. We can do no better than to quote from what we have written on previous occasions.

As befits an essentially air-burning engine, the power of an i.c. engine is dependent on the amount (weight) of air (oxygen) consumed in a given time. Since atmospheric conditions vary seasonably and between different geographical locations and altitudes, it follows, also, that i.c. engine outputs will vary correspondingly.

Firstly, the weight of air inducted will depend on air temperature and barometric pressure. Charles' Law states that, in a dry gas, whatever the pressure may be, and such pressure remaining constant, the volume is increased at a constant rate per degree increment of temperature (coefficient of expansion 0·003665 per deg. C.). Thus, conversely, air density, or weight per unit of volume, is decreased at a similar rate with rising temperature.



The result of this is seen in *Fig. 1* in which power output, written as a percentage factor, has been plotted against temperature. The power output, it will be noted, drops nearly 2 per cent for every 10 deg. F. increase in air temperature. The graph is based on rated power being delivered at an air intake temperature of 16 deg. C. (60·8 deg. F.).



In *Fig. 2* is shown a power-altitude curve for normally aspirated engines with a corresponding barometric pressure scale added. A mean barometric pressure of 760 mm., or 29.92 in. Hg. at sea level is assumed in this case, which is in accordance with the table of the International Commission for Air Navigation (I.C.A.N.) and is used to standardise the b.h.p. rating.

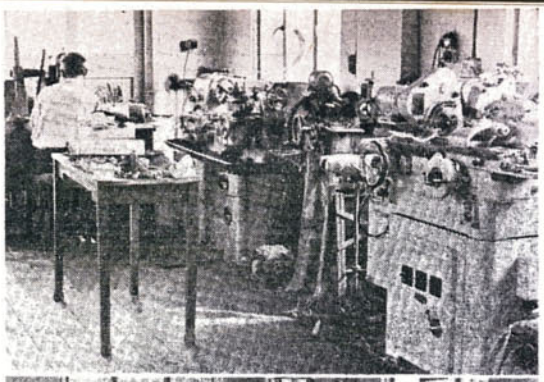
While the climate and terrain of the British Isles are not such as to give rise to the extreme variations of power output covered by these two graphs, it can be readily appreciated that, where such conditions exist, atmospheric pressure and temperature may combine to very substantially reduce performance.

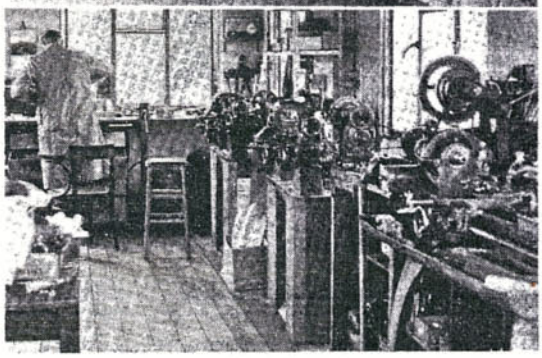
The third climatic condition to be considered is humidity. It has been shown that indicated horsepower is reduced in proportion to humidity, the loss being proportional to the volumetric loss of oxygen content in the atmosphere. In practice, however, this appears to be offset to a lesser or greater degree by other factors; specifically an increase in volumetric efficiency and a lowering of the combustion temperature due to the lower temperature of the ingoing charge and the heat absorbed in vaporising the water content of the mixture.

In full size practice, the introduction of water, either in the form of a finely atomised spray or (by means of a suitable solvent additive) actually with the fuel, has been claimed to have beneficial effects with certain high performance engines and the "water injection boost" as used on some aircraft engines, is a practical example of such an application. In full scale work it has been proved that an adequate moisture content in the fuel/air charge is particularly valuable with high compression engines in suppressing detonation and in reducing carbon deposits, as well as increasing volumetric efficiency, with a consequenl increase in output.

However, to return to the question of the effect of altitude on power. The variation due to falling barometric pressure is, it will be seen, quite considerable and at the 6000 feet altitude mentioned by our correspondent, where the barometer has dropped to a mere 24 inches of mercury, power will be reduced to four-fifths of that available at sea-level.

In a tropical—or, as in this case, equatorial—climate, a further drop in





Tigers Den

STAFF VISIT TO THE HOME OF OLIVERS

John Oliver Jr. compares new Mk. IV and Mk. III Tigers, note smaller crankcase. Below, John Sr. attends to port drilling. At right, views from either end of Britain's best situated engine factory (in John Sr's garden!)

IT must be all of 15 years since aeromodellers "discovered" the potential of John Oliver Sr.'s 2.5c.c. diesel which had been reared in the tough field of cable car racing. Yet in that time only four major changes of design have been incorporated in the "Tiger" the last within the past few months as already recorded in these columns. Even less alteration has been made to the "Cub" 1.5c.c. diesel which remains dominant in the ½A Team Race class. A recent visit to the pleasant Dorsetshire source of Oliver engines gave us an insight into the reasons for such steady success over the years. Surely no other marque of engine can claim such consistency? John senior is technically "retired" and from 1967 the business is known as John Oliver Engineering under the direction of J. O. Junior. On our visit, "Senior" was busily engaged with transfer port machining and "Junior" with silencer manifolds. Apart from all the clerical work by Mrs. Oliver, Senior, there are no other employees and this is one good reason for the maintenance of high standards. (A fine opportunity occurs for apprenticeship of a trainee in the arts of light engineering). Since our last visit of several years ago the family have acquired a Myford precision grinder but otherwise the equipment is much unchanged and still employed on the strict principle of "one machine—one job". We had an opportunity of studying at first hand the new Mark IV Tiger which was being made. The smaller diameter crankcase which has boosted base compression considerably, streamline casing and larger diameter cylinder fins are immediate distinctions. Internally the mods are far more subtle. One might sum them up as adding that extra TLC* of which our American friends are so fond. We also saw for the first time the remarkable finish on the hard chromed liners which can be bought as an extra. Mirror finish takes on a new meaning when one can see fish-eye lens style reflections along the bore. The Olivers consider the chromed liner almost essential for marine work (Tiger Major 3.5c.c. is the popular boat engine) for anti-corrosion. Main point of hard chroming is that the engine will have an extended life span which has yet to be determined! Even with the finest TLC in the business, a performance 2.5c.c. racing diesel runs its way up to peak, holds the performance for a limited period then goes over the hill. Chrome takes longer to achieve the peak, then lasts for ages. Olivers have seen many changes in the engine manufacturing business while they have steadily fed a discerning section of aeromodellers with their products and they are likely to see many more. In a sense they have been the standard by which others are judged and having seen the effort they exert in production of their various Tigers we see little chance that the situation will change for a long time.

**Tender Loving Care.*

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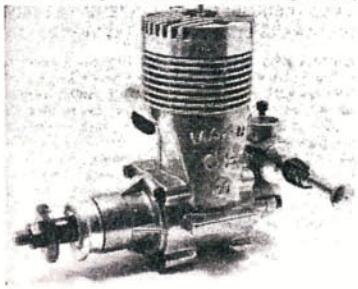
power output can be expected due to the higher air inlet temperature, and the combined effect of altitude and climate, in these circumstances, could be expected to reduce available power to around 75 per cent of the normally rated b.h.p. In other words, a 1–1½ cc. model engine capable of an output of, say, 0·12 b.h.p. under normal "British" conditions, may well be delivering no more than 0·09 b.h.p. in Kenya.

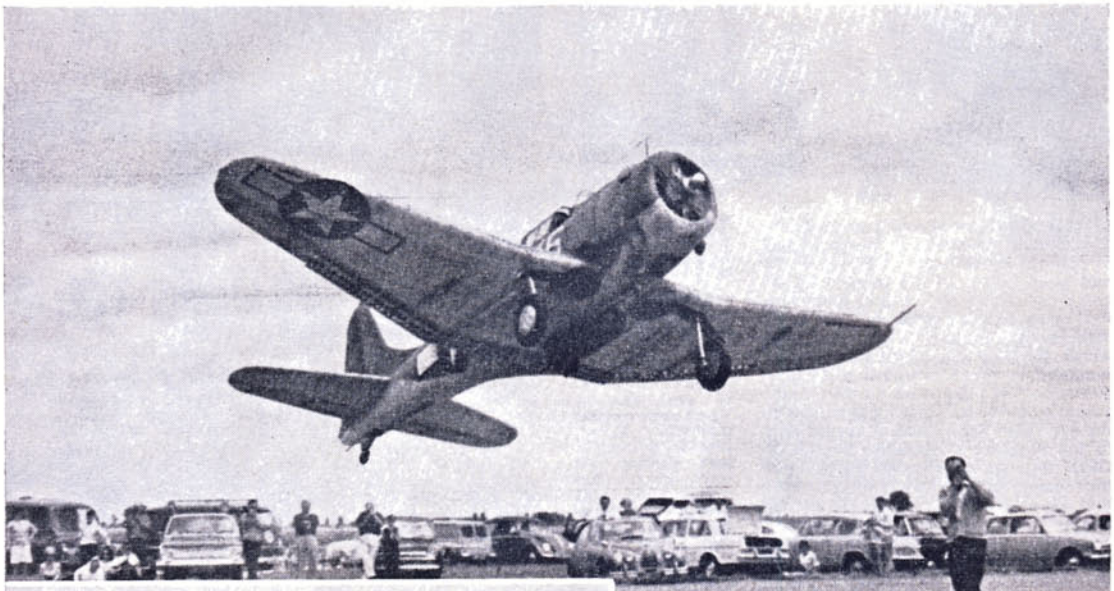
There are means of overcoming power loss at high altitudes, but, in general, these are not applicable to model engines. The solution in the full size field is simple. An aircraft engine designed to operate at high altitudes is fitted with a supercharger which is merely a compressor for feeding air into the engine at a higher pressure. The supercharger is designed to be effective at the desired operational height of the aircraft and, to avoid overstressing the engine at low altitudes, an automatic boost pressure control device limits the extent to which the throttle can be opened at these lower altitudes.



Superchargers are, of course, a bit too complex to have any application in the model aircraft engine field so far as we can visualise (although the tuned expansion chamber exhaust system is, in effect, a form of supercharger) and our correspondent in Kenya obviously has the right idea: just use a bigger or more powerful engine to start with.

One final word. It does not follow that the reduced engine power available at an altitude of, say, 6000 ft., will be readily indicated by an appropriate falling off of revolutions on a given airscrew. Reduced air density also means less drag on the prop and there may be little variation in the speed that an engine will turn a given prop at higher altitudes, but, obviously, thrust is reduced, just as the lift and drag of the whole aircraft is reduced.

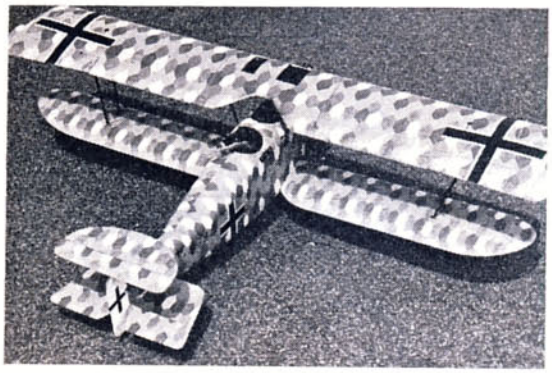
The O.S. Max-H 60 R/C engine is proving popular for R/C scale models. Note convenient carburettor location for inverted installation at right.



The SCALE BUG

SUNDAY, JULY 16TH, was one of those days the fair-weather enthusiast dreams about and at R.A.F. Upwood where the S.M.A.E. were holding the third of their annual all-scale meetings, the land yachts ran out of puff and the delicate free flight scale models cavorted all afternoon. It was a perfect setting for exchange of mutual nterest. A garden party atmosphere prevailed and when each flight is rewarded with spontaneous applause from an appreciative audience then the contest side of the day becomes forgotten and modellers immerse themselves in

At top, Dave Platt's Dauntless lifts off for its last flight—a second later it rolled over into the hard tarmac. Equipped with Logictrol proportional radio control operating all controls plus flaps, bomb release and retract gear it was Dave's unluckiest ever model. Fieseler Storch taking off after touch-and-go is last month's cover subjects. Note flaps in use. To the right is Ripmax Trophy winning, and Nats winner Norman Butcher's Fokker D.VII. This is equipped with O.S. Reed gear and the all-in-one O.S. servo system. Left, a scale model that charms everyone and attracts greater interest than many R/C models is Doug McHard's rubber driven Hawker Demon. Made from the pre-war Keelbild kit by the Model Shop, Newcastle-on-Tyne.



Terry Manley of Blackburn A/C (Brough) produced a superb 1/12th scale Mills 75 powered Hannover CIII weighing 20 ounces at Upwood and placed 2nd. The biplane tail is not a disadvantage, flew well. Top right is a Fokker DVII 3M "Southern Cross" from APS plans for C/L by B. Reynolds of Northampton. Next also from APS, a Pfalz DIII by D. A. Larkin from Cambridge. Heavy at 50 ounces it has a 2.5 c.c. Taifun diesel for free flight. About to test a Finnish A.F. Gamecock is R. H. Yates of Wharfedale. To 1/12th scale it weighs 40 ounces, flies on a Webra 2.5. Dan Bateman's (Luton) Avro Tutor is single channel but performs as well as some multis with F & M superhet and Royal servos on rudder and engine. Weighs 5½ lbs. is 1/8th scale and has Enya 35 engine. Last but by no means least Eric Coates (Blackburn A/C) won free flight scale with his fine flying Bucker Jungmann to 1/8th scale, weighing 32 ounces with Mills 1.3 c.c. diesel. Note that there are only three monoplanes on these pages!

happy satisfaction. Nevertheless, a contest day it was (though but a fraction of the scale models present were actually entered) and our congratulations go again to Norman Butcher for a flight that collected the Ripmax Trophy. In the free flight area, it was the bright red and yellow Swiss Jungmeister trainer, for a long time Eric Coates' favourite, which built-up a convincing score to win.

Notice something about these results and the photographs on these pages? Biplanes are "in" this year, and if it is not a bipe, then it is the rather off-beat monoplane that attracts the scale modeller. Nothing seems impossible not even the four engined R/C model, and Dennis

bites hard!

Bryant's success with the effect of flaps and slats on his Fieseler Storch points the way to even greater realism in flight. At this sudden rate of progress we wonder how long it will be before a Canadair CL 84 or LTV-XC 142 will appear. Such models are not built to win contests but to satisfy the "bug" which grips so hard when once it has imparted influence. If you want to win a scale event, choose something simple, make it and fly it well, but if it's personal satisfaction you seek, choose something with a challenge that makes eventual success so sweetly rewarding.

RIPMAX R/C SCALE TROPHY			*Scale*	*Craft*	*Flight*	*Total*
1. N. Butcher	Hillingdon	*DVII*	155	153	322	628
2. D. Bryant	Bromley	*Storch*	212	219	171	602
3. T. Melleney	Hillingdon	*Cherokee*	85	95	205	385
4. D. Bateman	Luton	*Tutor*	115	60	76	251
5. B. Lees	Mansfield	*D.H.60*	61	39	86	186

FREE FLIGHT SCALE			*Scale*	*Craft*	*Flight*	*Total*
1. E. A. Coates	Blackburn A/C	*Bucker Jungmann*	173	108	279	560
2. T. Manley	Blackburn A/C	*Hannover CLIIIA*	171	114	159	544

TOPICAL TWISTS

by 'Pylonius': illustrated by 'Sherry'

Big Build Up

A MODEL flyer who complains that he did not get either enough success or publicity with his heli-whatnot models decided to throw caution to the winds and jump in with both feet. This he did by making his model big enough to sit in, thus getting that which was outside his control, controlled from inside.

Obviously you need a lot of confidence to do this sort of thing. It's a different re-building job needed if you come to grief than with a model—one with you as the subject. But, publicity wise, you just can't fail, for nothing attracts the newshound quicker than a one man flying contraption; even the bikini dollies take second place.

"Is it a variable geometry project?"

"Only if it hits the ground."

"Do you think your plane will replace the moped?"

"It has. The wife is furious."

And so on. The trouble with the newsmen, though, particularly the camera boys, is that they take it as a slight if you are a clever charlie enough to remain airborne. The traditional comic thing for the one man contraption to do is to crash, and in the most ludicrous way. For it to remain airborne in the face of the expectations of the sporting public is the height of ostentation.

Let us hope, however, that our full size experimenter has not altogether forsaken his modelling interests, however unsuccesful they may have been.

"Do you propose to return to the fold?"

"No, I intend to use stronger wing spars."

Happy Hose Down

Amazing that firemen extend the same humane courtesy to model planes as they do to our feline friends. Both cats and model planes have a particular predilection for arboreal adventure; it is a way they have of seeking escape, and this usually comes in the form of a hundred foot ladder swarming with helmeted rescuers.

I say usually, because the latest rescue approach, at least for the model planes, is an uplifting jet of water to unperch it from its leafy loft. The treatment would seem to be just as bedraggling to the model plane as it would be to the stranded moggy, and suggests that those people who prefer to call in the fire brigade rather than fork out a shilling to an agile urchin should be prepared to invest in an extra coat of dope.

Bare Facts

I have been given to understand that the 'all-together' glider launch, referred to in last month's issue, was merely a simultaneous tow up, and not a Naturist outbreak in the movement.

Some people might have imagined that the 'all-togetherness' was of a scientific rather than a pagan nature, believing that an advanced state of exposure gave a sensitive register of thermal activity. Shiver oscillation, for instance, could be recorded on a graph, working in conjunction, perhaps, with a simple goose pimple counter.

"Disqualified? You'd throw the winch, too, if you'd landed in a gorse bush."

"Joe always did find the strongest thermals"

Gallant '600'

This column is thinking of setting a society known as the '600' Club. Membership will be open to anyone spending 600 hours on a model. It will not be necessary to have produced a model, provided the 600 hours have been used on yahooing quickie flyers on the airfield, writing letters to the model press, and finding excuses for not having 600 hours of building time.

Insignia of the Society will be a horseman couchant on pearly gates, with a pen rampant and a tin of dope regardent. The motto will be *"Per Hack Ad Astra"*.

Tough at the Top

It can be tough being an American. Apart from the high risk of being called 'Herb', the fate of at least one in five of male Americans (the girls are usually called 'Sammy'), you have to be top in everything. This applies just as much in model flying as it does in golf and tennis. If some game Briton wins an unexpected third place then it's flags out and a hero's welcome. If, on the other hand, the American wonder boy strikes an off day and only makes second place, then its sackcloth and ashes, agonising reappraisals and probably a placard protest reception at the airport.

And that's not all. He has also the high pressure statistics to cope with. Your jaunt to Chobham Common may go uncharted and unsung, and you may never know officially how many times you got lost from Marble Arch to Egham, but at least you don't have to face up to the gamut of pollster and investigator at the end of the journey.

Closed Shop

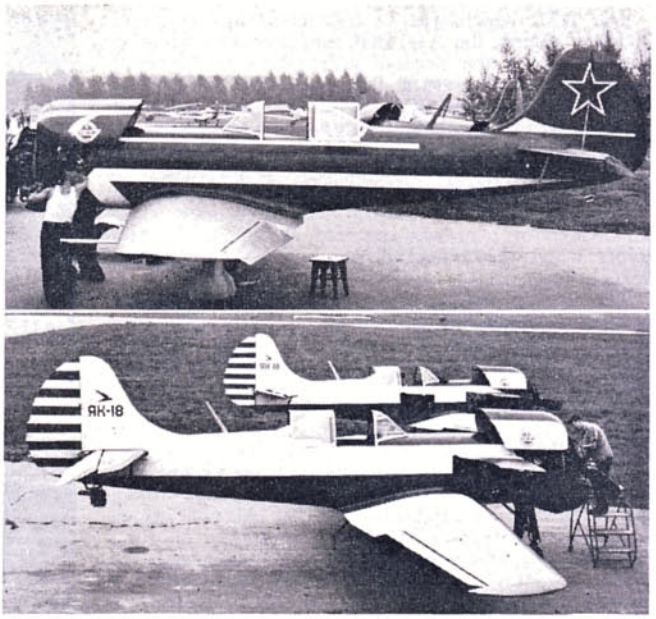
Efforts to take the 'Open' out of Open Rubber have not so far been conspicuously successful. Theories there have been in plenty, but objections have remained one step ahead.

The truth is, of course, that the contest flyers themselves find the present form of adventure flying very much to their taste. It's only that all the cross country romping and twilight flying gives a somewhat irresponsible, adolescent image to the hobby. Thus, it is necessary to put a good face on things by churning out a constant stream of non-starting formulae, none of which are taken seriously by the people who promote them.

What you might call an 'Open and shut' case!

Second in our series of subjects specially selected for flying scale modelling

Yak-18PM



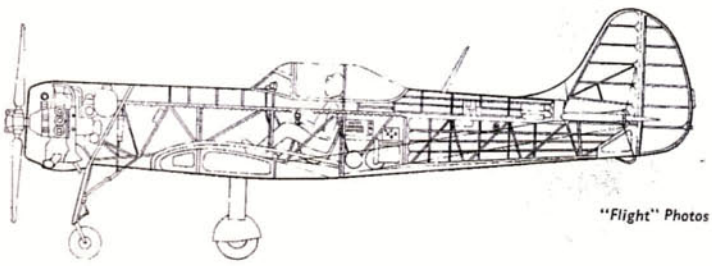
AIRCRAFT DESCRIBED No. 166
drawn by S. Zurad

A YEAR AGO, in August 1966 at Tushino airfield in the suburbs of Moscow, Yakovlev's specially modified version of the standard Soviet trainer became undisputed King among aerobatic aeroplanes. YAK-18 PM's gained four top placings in both men's and women's sections of the World Championships. Subsequent reports by Western team representatives who were invited to fly the long nosed purposeful type all agreed that it had the finest propeller/engine combination known and excelled in climbing manoeuvres such as the vertical roll. But equally they found that it was inferior to others in slow or flick rolls. Ailerons and elevator are extremely powerful, the rudder docile and the air brake (under the centre section trailing edge) reduces landing roll to less than 450 ft. What better subject could we possibly choose for an aerobatic radio controlled scale model? Even the long stilty undercarriage suits models size propellers and the general proportions are close to those of the conventional aerobatic model.

The Yak-18 has no direct equivalent in other Nations. Larger and more powerful than a Chipmunk, smaller than a Provost, it has a progressive development lineage larger than both and has been used in various forms for over 20 years. Early models with two wheeled undercarriages first fixed then partially retractable backwards in the wing, had the closely cowled five cylinder M-11 engine with individual helmets around each pot. About ten years ago the nine cylinder, 260 h.p. Ivchenko Ai-14R engine was fitted to the Yak-18A which had tricycle gear, the main wheels retracting forwards.

As with other Soviet designs the engine cowling for the new power unit was very clean. In place of gills at the rear, a power controlled radial venetian blind could close off all air at the front, no doubt beneficial in Arctic climates and general cold weather operation.

The new Yak also had a taller canopy than before, allowing more headroom for pupil and instructor. It was not long before teams of red and white painted 18A appeared in aerobatic sequences at the Tushino Air Display. Continuous loops and spirals by up to thirty tail chasing Yaks became the highlight of Soviet films on sport aviation. The Yak-18PM aerobatic special single seater was a logical development. It first appeared with a single cockpit in the forward position and had an inward retracting main gear. A rear cockpit version with forward retracting legs also entered production, but it is the former which has been most photographed and was used in Spain for the '65 World Champs.

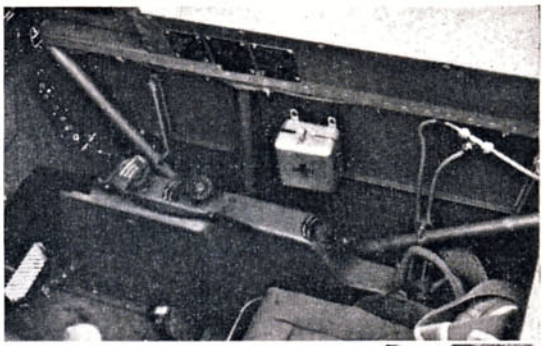


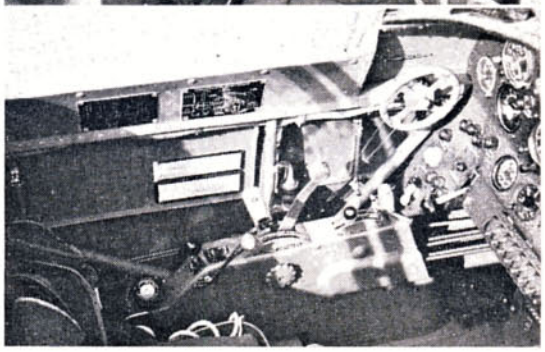
"Flight" Photos

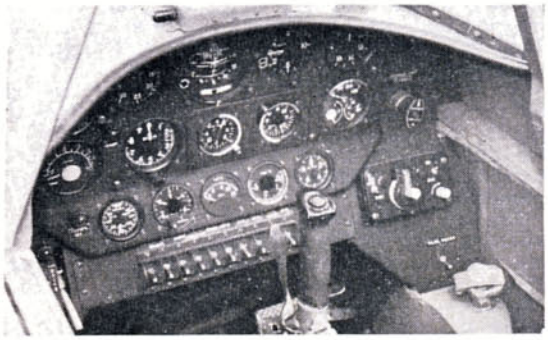
Two basic colour schemes for the PM are seen above. Top one is red all upper surfaces, white under wings, fuselage and tail. Star outline is white on fin and wing top, and has extra red outline under wings. Fin root and two fuselage stripe trims are white and upper nose is black. Lower view shows the decoration as more commonly applied. Main colour is white with wing and tail undersurfaces red. Lower fuselage is red up to a narrow grey division line. Leading edges and roots of upper surfaces have red trim. Bird insignia on fin is blue-grey over name emblem in red. Horizontal rudder stripes are a diffused light red. Upper nose is black on all aircraft, the shutter blades in the engine cowling are red. At left is a structural diagram. Most of the airframe is accessible through large area detachable panels.

The P.M. which was so triumphant in '66 has a 300 h.p. engine, the A1-14RF, and a cockpit which is slightly aft of the original rear pilot's position. Of metal construction with fabric covered wings and control surfaces the Yak-18PM has large areas of removable fuselage panelling for access to equipment. Wing dihedral, previously a generous 7 degrees 20 minutes on the A and P versions, is reduced to 2 degrees coupled with a slight reduction of span. This has improved inverted performance to the extent that no change of trim was required by the invited test pilots when they checked stability while flying inverted.

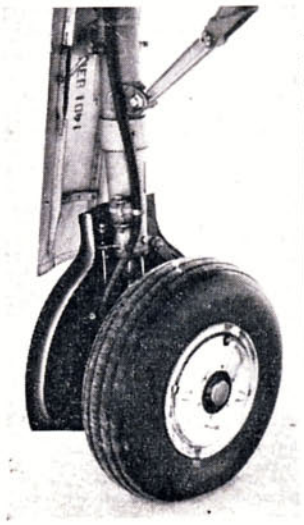
The general verdict was: a fine sturdy purposeful aeroplane specifically created for aerobatics. No production figures have ever been quoted but whatever they are, there must be many more PM's in service with the Aero Clubs of the U.S.S.R. than there are of any other near equivalent type anywhere else. Only in the communist countries is there any importance attached to individual aerobatics as a sport (though training schools do exist in the U.S.A. and France). The continued use of these single seaters, the YAK 18P and PM also the Zlin Akrobat which can be supplied by Government sponsored sporting organisations and operated on minimum charge to pilots is bound to reinforce Soviet dominance in International competition for some time to come.

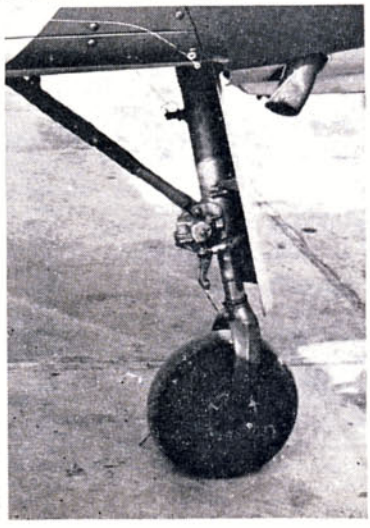


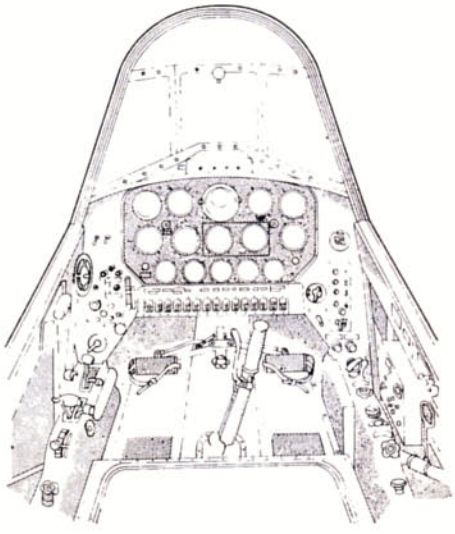


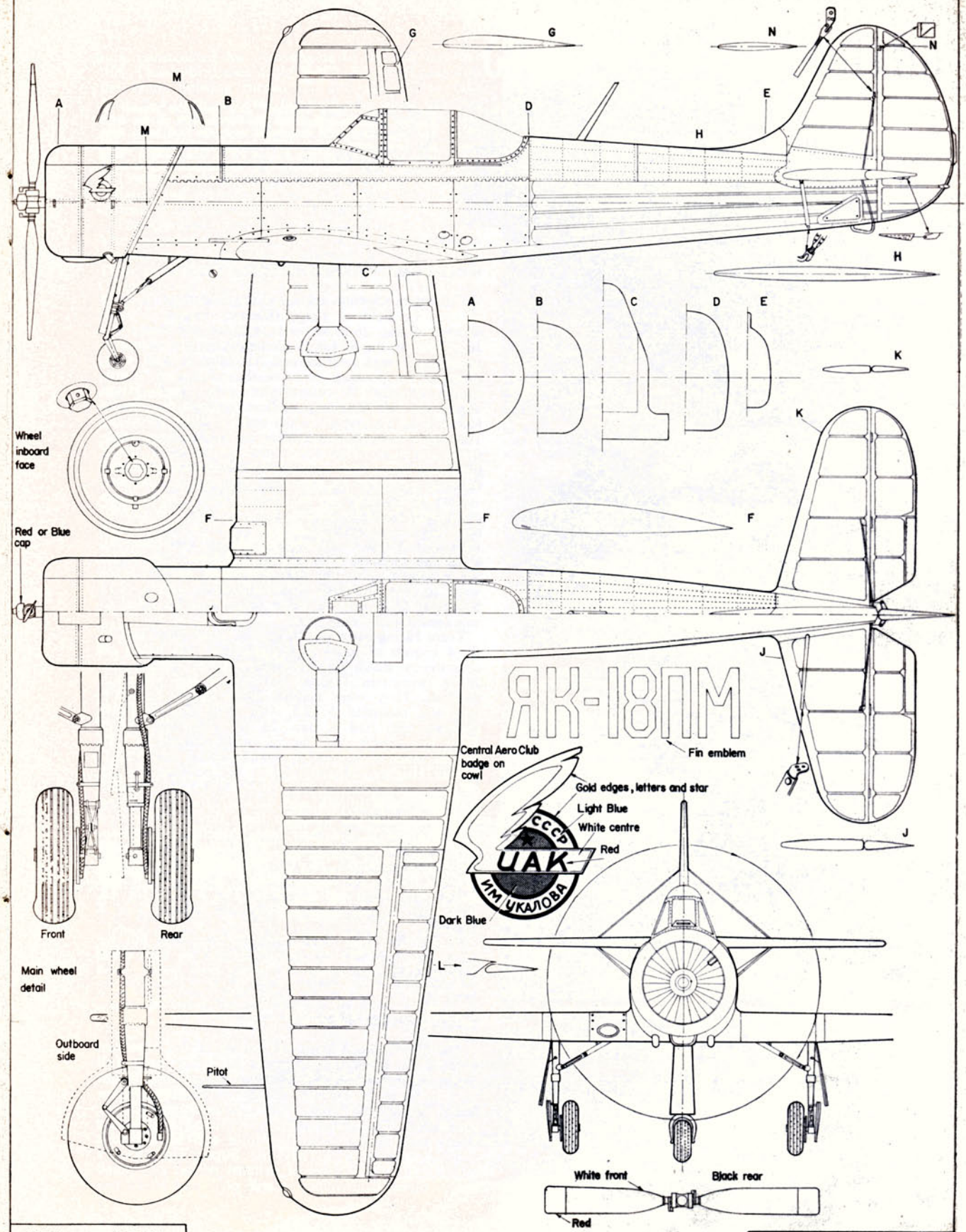


Interior detail of the Yak-18PM cockpit show (at top) the starboard cockpit wall, and immediately above, the port side. At left is the standard aerobatic aircraft panel. In the centre rectangle are two accelerometers, one mounted inverted for inverted flight recording. Larger instrument at top centre is an altitude indicator, used for aerobatic training purposes. Below is a line diagram of the pilot's eye-view. Lever on the control column is for brakes. Bottom left is a three-quarter view of a main undercarriage leg which extends prior to retracting sideways into the wing. Other photo shows the noseleg and one of two exhausts, the only protrusions in an otherwise very clean cowling.
Reprints of the 1/48th scale drawing opposite and dye-line prints of the 1/24th scale original are available as plan AH2870, price 2/6d. plus 6d. post from Aeromodeller Plans Service.



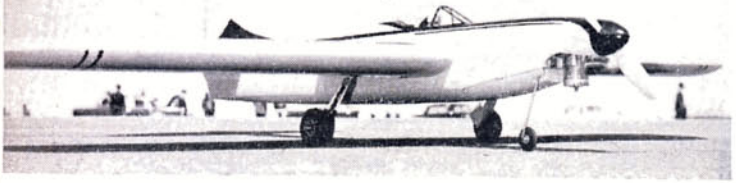





A
B
C
D
E
F
G
H
J
K
L
M
N
Wheel inboard face
Red or Blue cap
Front
Rear
Main wheel detail
Outboard side
Pitot
ЯК-18ПМ
Fin emblem
Central Aero Club badge on cowl
Gold edges, letters and star
Light Blue
White centre
Red
Dark Blue
СССР
UAK
ИМ ЧКАЛОВА
White front
Black rear
Red
Scale Feet

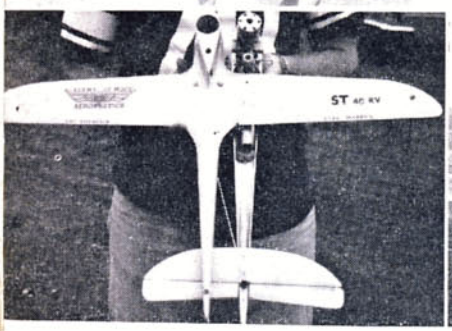
YAK — 18 PM

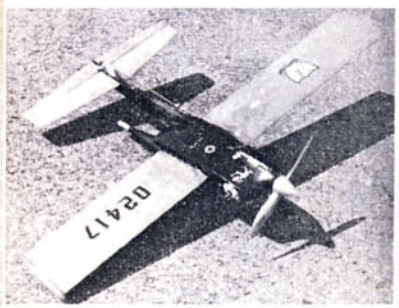
CONTROL LINE NEWS



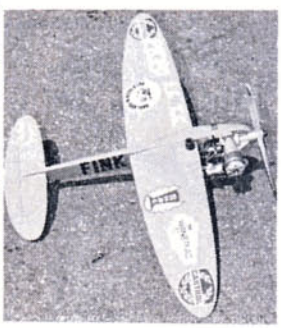
Geoff Higgs' "Pink Panther" O.S. powered stunter in heading opposite weighs 60 ozs. for its 700 sq. in. area. The undercarriage is detachable as is the fuel tank, note the small nose wheel. With an eye catching pink and maroon finish Geoff flys her on 70 ft. heavyweight "Laystrate" lines. The elevator has counterbalancing area at the tips to ease control loads in windy weather.

Left, Sandy Pinkert with Don Pinkert's 173 m.p.h. S.T. .29RV speed model, Florida. 60 per cent Nitro, 20 per cent Castor Oil, 5 per cent N. Benzine, 15 per cent Methanol. Below left, S.T. 40RV powered "Hoptee" by Art Adamisin, Detroit. Note long tank with Quick Fill Valve. Below, John Kilsdonk, "Hoptee" designer M.A.N. plan 67A.





Left, two views of Dave Rudds' K&B .40 RV powered rat racer, has pressure fuel system and tuned length exhaust pipe. Below, Gilhespey/Goddard S.T. 40 RV powered "Pink Fink" has Rev Up 8 x 9, from M.A.N. plan 53A.



Left, Mick Reeves with his latest "Dictator" design has a Fox .35, nice racey lines. Below, Ralph Goulds "Lead Sled" rat racer with full length pan and modified Fox engine.

Criterium of Aces Team Trials

THE team selection trials for the Criterium of Aces to be held at Leige (Bierset) August 25-28th (contest flying 26-27th) were run at Swinderby on June 25th by the S.M.A.E. Control Line Sub-Committee. Very humid weather and flat calm to start with, changed to pouring rain in the afternoon. Aerobatics attracted 5 competitors with Geoff Higgs organising. M. Mayne (Lee Bees) topped the results followed by D. Day (Wolves) then C. Elliot (Wolves). The flying was not outstanding by international standards and most of the top names did not enter, thank goodness there are some modellers who will foot their own bill for an important international contest.

Very little went on in speed, with 3 contestants competing for three places. Brian Jackson (Worksop) used his G.15 powered Stuppi with a tuned length ipep for top spot at 132 m.p.h. Silencers were essential, as at the moment only World Championship Trials are excepted under the S.M.A.E. rules. Second place went to Bill Fairbank (Worksop) also with a G.15 Stuppi at *95 m.p.h.* No other times were recorded so this means a *two man* team.

Team racing attracted 10 entries. Each team had to fly 4 rounds of heats as the selection was based on consistency. Balch/King (Feltham-Hayes) used a new 28 in. wingspan Trident and had a few vibration troubles. They were making 84-88 m.p.h. for 35+ laps and recorded 5:13.5, 4:47, 5:05. Laurie/Peart (Novocastria) had a new 28 in. wingspan Oliver Tiger low aspect ratio model nicely finished to take second place with 5:13.6, 5:04.2, 4:52.6 and 5:08.1. Turner/Hughes (Wharfedale) in 3rd position had an off day with 5:44.6, 5:09.9, 5:32.6 and 5:08.1. Place/Haworth came in 4th and Nixon/Ellis were going quite well until pit work let them down. They used the Eta Elite II and their own 'Punctilio' propellers now available commercially. These look pretty good and are machined in 12 operations from close grained beech. At the moment 7 × 8, 6 × 8 and larger R/C sizes are available. The 6 × 8 for ½A team race is cuff rooted, whilst the present 7 × 8 is not.

In all, the trials were not very promising but we know our lads will do their best, and we wish them well in Belgium.

Continental Efforts

The Dutch speed fliers will not be at the Criterium because of other commitments but they have full teams in Stunt and Team Race. These are, Stunt: L. v. d. Hout, H. Twerda, and B. Meukemeyer. Team Race: Metkemeyer bros., Buys/Goudsmit, and Cator/Harskamp. The speed fliers in Holland are getting really competitive with W. Holle and H. Heinsius touching 140 m.p.h. They use Super Tigre G.15's modified to 165 degrees of exhaust period and tuned length pipes. Consistency is still poor and Holle has

now constructed his own engine to try and improve this. This hybrid uses an M.V.V.S. RL crankcase with the front housing turned off and adapted to take Moki S-3 front and rear housings also Moki bearings and shaft. The cylinder liner and piston are 165 degree modified Super Tigre G 15 parts with a G.15 head also. The venturi is K&B 15 series '64 type. This engines performance is slightly better than their G.15's and it will benefit by having a rear facing exhaust and adaptor to take the tuned length pipe instead of the side exhaust on the G.15.

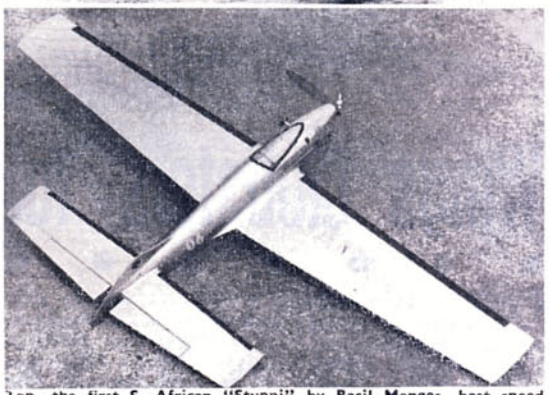
The German speed team is headed by J. Frohlich who recorded 147 m.p.h. followed by Franz Zilliken at 143 m.p.h. then Rolf Miebach at 140.4 m.p.h. Their trials flown during an International meeting at Gielenkirchen had very hot weather and this made pipe settings difficult, all models being released ultra-rich.

It seems fitting to mention here that Shlomo Barack of Israel is also using tuned pipes on a Super Tigre G.15. We don't have any details except some fuzzy photos that show a rear exhaust type top half crankcase grafted onto a G.15 lower half with an adaptor to take the tuned length pipe. Shlomo has made several pipes with different outlets and finned head-pipe sections. The main body is painted.

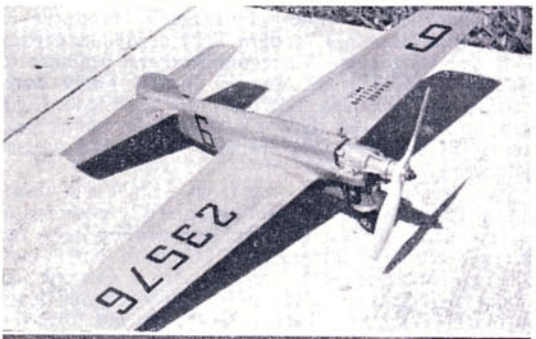
South Island Champs

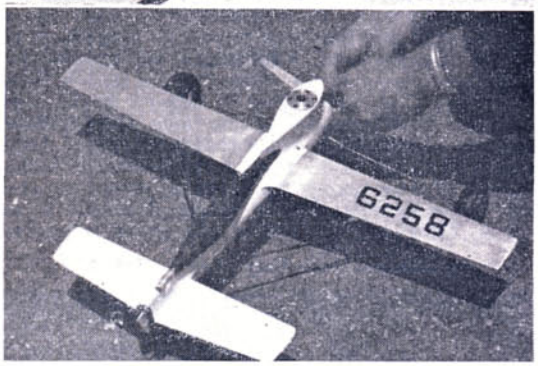
The South Island, New Zealand, Champs held at Oamaru saw Bill Long win Class B team race with a bored out Eta 15 flying at 90 m.p.h. for 70 laps on the longer and thicker "B" lines and larger tank size. With a 7:42.8 heat and 7:37.5 final time he was consistent. Both second and third places went to O.S. Max-H 29R powered models Stunt was once again won by Peter Wheeler with 815 points from his Phoenician. Paul Lagan in 2nd place used a Peacemaker to score 653 points. Speed was disappointing, in Class 1, G. Tapper used an S.T. G20 on nitro for 108.4 m.p.h. to win and Paul Lagan took 2nd with 107.8 m.p.h. from a G.15 on straight fuel. Class 4 speed for 10 c.c. went to Doug Kennedy at 115.4 m.p.h. and 2nd to Peter Wheeler with a stunt .35 at 87.4 m.p.h. Other speed classes 2, 3, and 5 were held unofficially. No times were recorded in class 3, Mike Kingsbury won class 2 with a S.T. G20/19 powered Combat model and Doug Kennedy topped class 5 (jet) with 124.1 m.p.h.

"The rate of progress in control line flying has almost ceased" says Paul Lagan *S.I. Newsheet* Editor. No one has come even near to beating the 5 year old 147 m.p.h. record for 10 c.c. speed models, nor the 2.5 c.c. record. They are hoping to reclassify the speed classes flown in order to get more interest concentrated on each class. Another factor is the availability of hot fuel, very scarce, and most fliers are a little apprehensive when it comes to reworking their engines as the spares are usually harder to get than precious motors themselves.

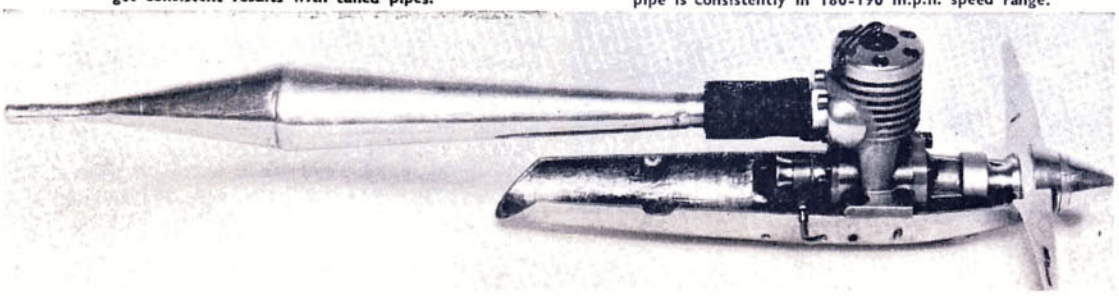


Top, the first S. African "Stuppi" by Basil Menges, best speed to date is 111 m.p.h. with Copeman S.T. G20 at 5,500 ft. altitude (see Latest Engine News). Basil's F.A.I. racer "Shifter" won Transvaal Champs with 5:27.5 and 12:20 from an Oliver Tiger with Rev Up 7 x 8 and 7 c.c. tank.





Top, S.T. 40 RV rat racer by Don Pinkert, Florida, U.S.A. does 130 m.p.h. and is consistently under 6:00 for 140 lap finals, note ample wing area. Above, Bill (Mr. Speed) Wisniewskie, California, U.S.A. latest T.W.A. .29 powered "Pink Lady" with tuned length pipe is consistently in 180-190 m.p.h. speed range.



Below, Hybrid speed engine with Super Tigre, M.V.V.S., Moki and K&B parts is by W. Holle, Holland, and is faster than his Super Tigres with a tuned length exhaust pipe. Top Flite Speed propeller. Although fast, the speed men are finding it difficult to get consistent results with tuned pipes.

GOLDEN WINGS AEROMODELLER MODEL CLUB

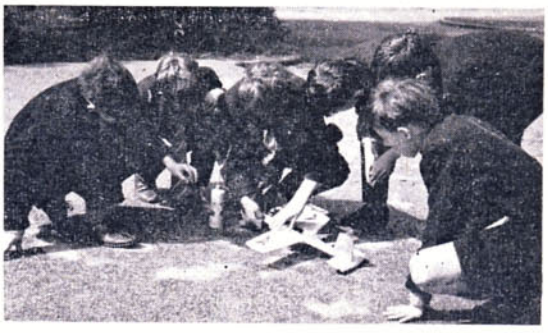
Ray Malmström's line sports trainer

Wings Clubsters, full size plans on following

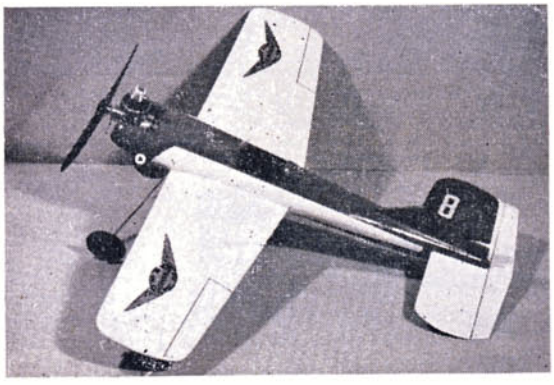
QUIETNESS is certainly a virtue in modern aeromodelling and no engine helps us aeromodellers to be more virtuous than the new Cox .049 QZ (Quiet Zone)— Aero Modeller Engine Test, May 1967. Test flying this docile forgiving little 20 span trainer with the .049 QZ, a club member said "I've heard of hush-puppies, but this is the "hushiest" buggy I've ever flown. So beginners (and others) may we introduce you to "Hush Buggy".

Unusual—but simple construction produces a model that combines modern light aeroplane styling with real toughness. We recommend the beginner to use the Cox .049 QZ engine, for its really easy-starting and quietness, but the more experienced can step up the power to 1 c.c. and enjoy some real sports flying. So, very quietly !—let's get balsa-butchering.

Start by cutting the wing from ¼ in. balsa sheet, and shaping the airfoil, noting carefully the centre-section. Cut part A from ¼ in. ply, drilling holes for the undercarriage thread and bellcrank bolt pivot. (This bolt must screw *tightly* into part A. Cut out and mount bellcrank complete with control-rod and lead-out wires. Cut these over-length and do not form the hooks at this stage. Form undercarriage wire (use a vice for this) and bind and cement to underneath of part A. Cement well. Add wheels and retain with washers, soldering to the axles. Cut out part A from ¼ in. balsa sheet. The engine bulkhead F is cut from ¼ in. ply. Drill holes for engine bolts (QZ049, Babe Bee and Golden Bee holes shown on plan) insert bolts with heads to the rear of the bulkhead. Solder a piece of wire across the heads as shown to stop them from turning. Firmly cement bulkhead F to part A. Then assemble part A into cutout in leading edge of wing and part A1 into cut-out in trailing edge of wing. This completes the basic fuselage assembly. Cut part B from ¼ in. balsa sheet (leaving shaded portions in) and cement to underneath of basic fuselage assembly. Channel-out undercarriage wire at front of part B before assembling. Then cut away the shaded portions for the control-rod and lead-out wires. Make the lead-out wire guide as shown, cement in position on underside of wing (left hand panel) and insert lead out wire through guide holes. Cut part C from ¼ in. balsa sheet and cement to top of basic fuselage assembly. Then add parts D (top) and D (bottom), both cut from ¼ in. balsa sheet. Fill recesses with plastic wood and allow fuselage to dry. Then with a sharp knife carve to shape using bulkhead F as a template. Finish off with coarse and fine sandpaper. Add cockpit combing and windshield. Cut out fin from ¼ in. balsa sheet. Assemble fin into slot. Note rear of fin is cut away and cemented offset to the right ¼ in. (model viewed from rear). Cut tailplane and elevator from 3/32 in. balsa sheet. Attach elevator to tailplane with linen or nylon tape hinges. Check free movement of elevator. Cut the elevator control-horn firm from 1/16 in. ply and cement into slot in elevator, reinforcing with a piece of tape. You can dope and paint the tailplane and elevator, before assembling into the fuselage slot. Connect up control-rod to control-horn, and form hooks on lead-out wires. Make sure that when the lead-out hooks are level the elevator is also level (neutral). A tip here, Sellotape the lead-out wires with the hooks level to the wing. Lock the elevator at neutral by pinning a piece of ¼ in. sq. balsa to elevator and tailplane. You can now easily bend the control-rod in the right place to slip it through the control-horn, bend over the end and cut off any surplus wire. Bend tailwheel wire to shape and



Starting up "Hush Buggy", no lack of advice.

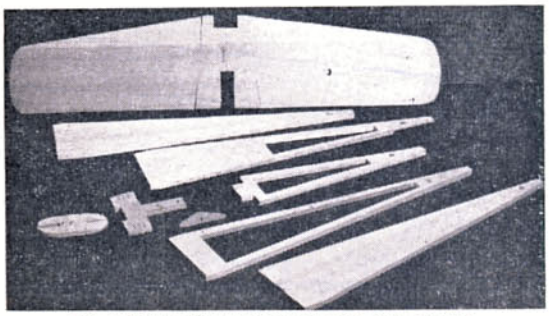


The prototype "Hush Buggy" with Cox .049 QZ.

special Control-line pages for 20" model

HUSH-BUGGY

attach to fuselage with linen tape well cemented. Add wheel. Cut a piece of sheet lead or hammer flat a folded cement tube (used!) and Evo-stik to the RIGHT hand wing tip. Reinforce with several layers

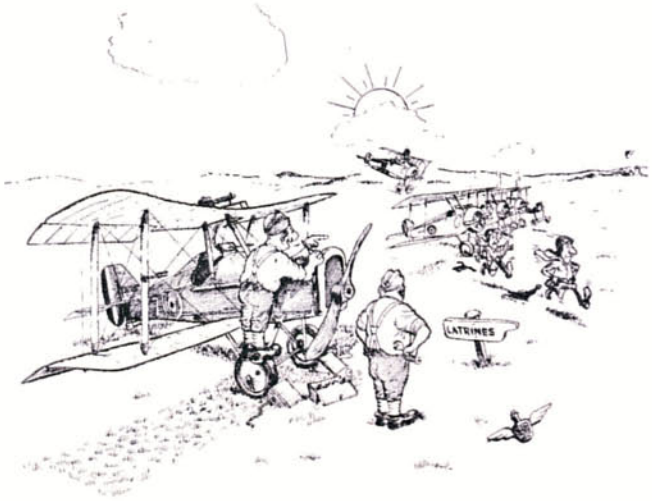


The finished major components of "Hush Buggy".

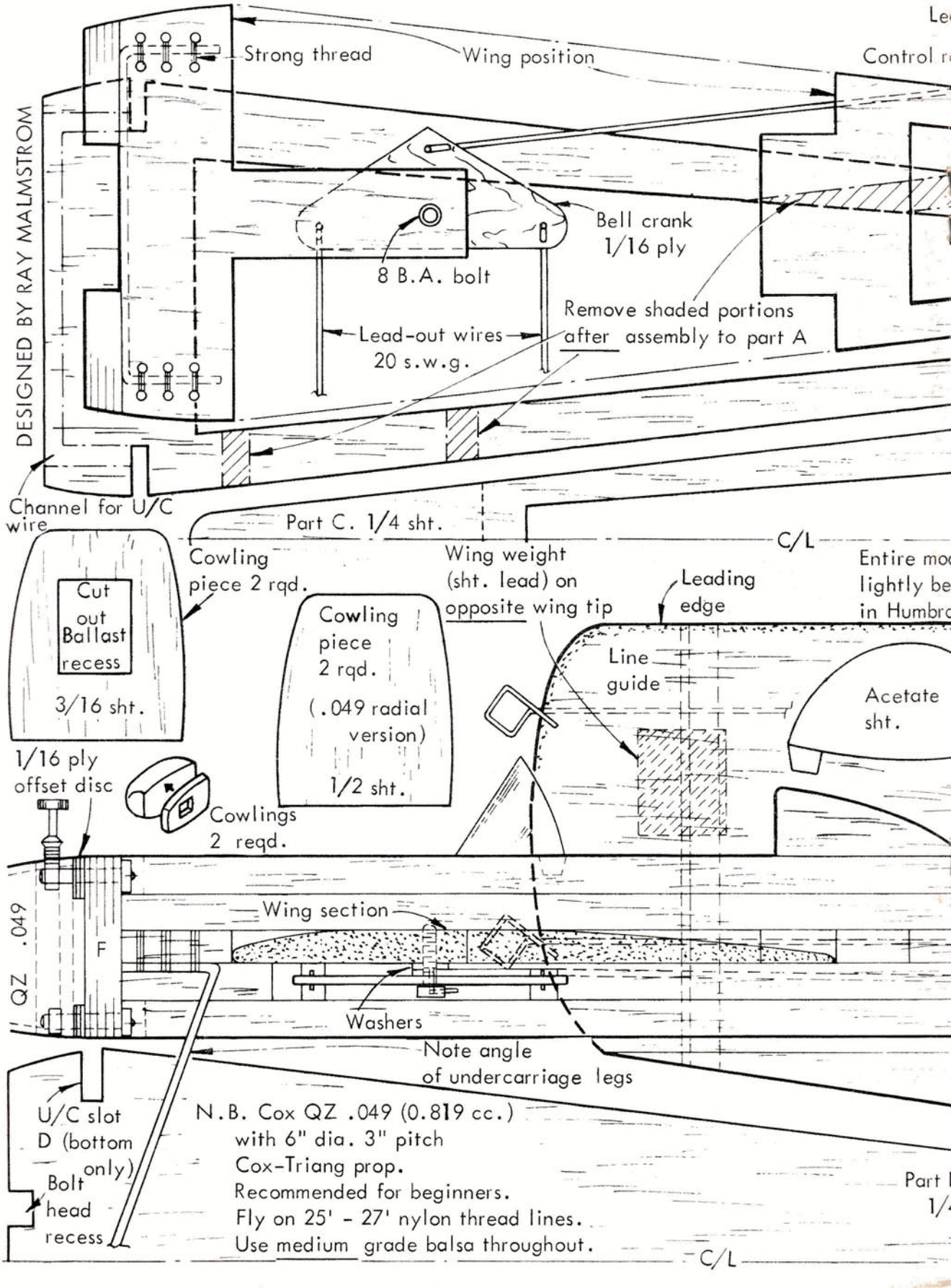
of doped-on tissue. *Remember* the Right (Starboard) wing tip. This is important. You can add the cowling piece at this stage or wait until you have bolted the engine (complete with propeller) in place. Give the model 2 coats of clear dope and decorate. Our original HUSH BUGGY is yellow and blue. If you use Humbrol enamels you need not add a coat of fuel proofer. Of course, if you add waterslide transfers (your Golden Wings Club badges will look grand on the wing tips—ours do!) you must cover them with Humbrol clear enamel. When you bolt in your engine use 2-$\frac{1}{16}$ in. ply or metal washers to off-set the motor to the right (viewed from the rear). Do not forget this adjustment.

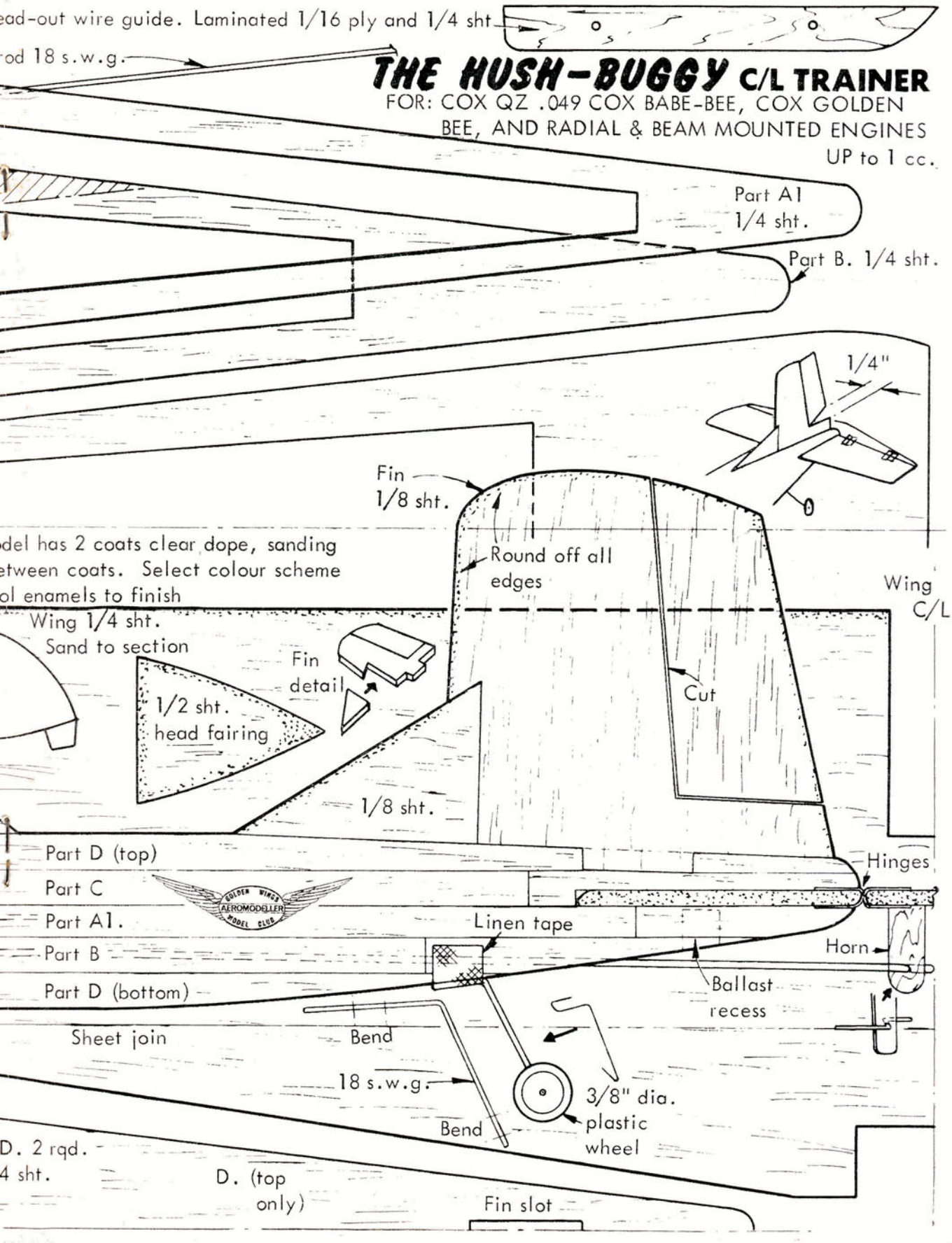
With your HUSH-BUGGY completed you must balance the model before attempting to fly it. Do take care over the balancing. You will be rewarded with a really easily controllable model. HUSH BUGGY should balance level when supported under a line through the FRONT lead-out wire. Slight nose heaviness does not matter, but tail-heaviness MUST be avoided. There are ballast-recesses in the nose cowling pieces where you can conceal (using Evo-Stik or Britfix '88' Epoxy adhesive) a small amount of sheet lead or folded cement tube without in any way spoiling the sleek lines of your HUSH BUGGY. There is also a ballast recess in the tail if it should be needed. Our original HUSH BUGGY needed just a little weight in the nose for spot-on balance. It depends very much on the weight of the engine you intend to use. Now, to conclude, some cockpit drill for the beginner in control-line flying.

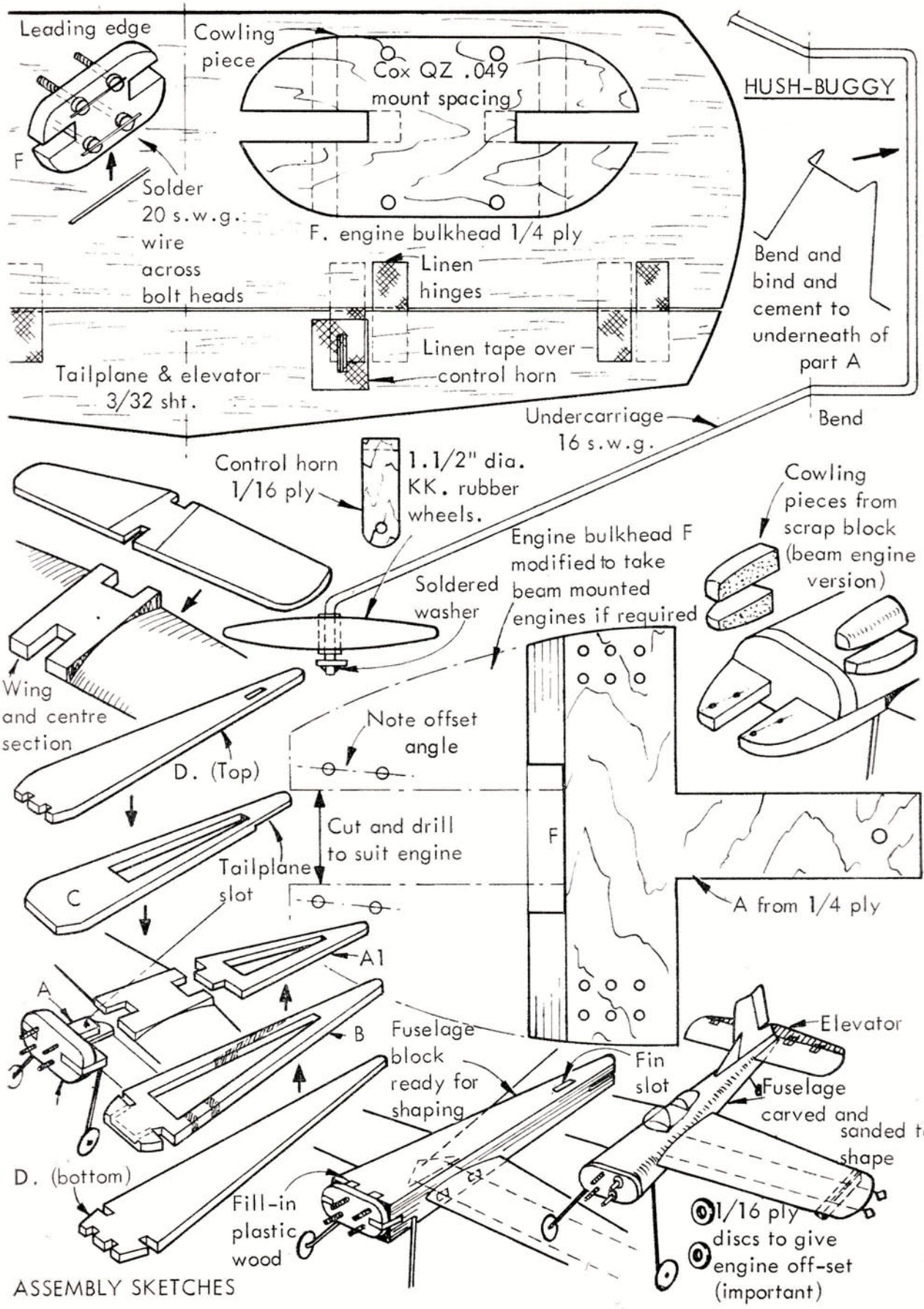
1. Choose a calm day for your first flights and fly over grass if possible.
2. Read the makers instructions on starting your engine and follow them carefully (use Thimbledrome or KK Nitrex 15 fuel.)
3. If possible get an experienced C/L flyer to try-out your model first and then follow his advice. If you cannot, use the "straight arm" method. Hold the arm straight out pointing at the model. Then as you raise your arm slowly the model will climb gently. As you lower your arm it will descend. DO NOT use wrist movements until you have the "feel" of the control response.
4. Always take-off on the down-wind side of the circle.
5. Always check your elevator movement (you may have got the handle upside down!) before signalling your assistant to let go.
6. Frequently check lines for fraying.
7. Use 25 ft.—27 ft. nylon thread lines with HUSH BUGGY.
8. *NEVER* at any time fly near power cables of any kind.



"Here comes the castor oil patrol!"


DESIGNED BY RAY MALMSTROM
Strong thread
Wing position
Control r
Bell crank
1/16 ply
8 B.A. bolt
Remove shaded portions
after assembly to part A
Lead-out wires
20 s.w.g.
Channel for U/C
wire
Part C. 1/4 sht.
C/L
Cowling
piece 2 rqd.
Cut
out
Ballast
recess
3/16 sht.
Wing weight
(sht. lead) on
opposite wing tip
Leading
edge
Entire mod
lightly be
in Humbro
Cowling
piece
2 rqd.
(.049 radial
version)
1/2 sht.
Line
guide
Acetate
sht.
1/16 ply
offset disc
Cowlings
2 reqd.
Wing section
QZ .049
F
Washers
Note angle
of undercarriage legs
U/C slot
D (bottom
only)
Bolt
head
recess
N.B. Cox QZ .049 (0.819 cc.)
with 6" dia. 3" pitch
Cox-Triang prop.
Recommended for beginners.
Fly on 25' - 27' nylon thread lines.
Use medium grade balsa throughout.
Part
1/
C/L


ead-out wire guide. Laminated 1/16 ply and 1/4 sht
rod 18 s.w.g.
THE HUSH-BUGGY C/L TRAINER
FOR: COX QZ .049 COX BABE-BEE, COX GOLDEN BEE, AND RADIAL & BEAM MOUNTED ENGINES UP to 1 cc.
Part A1 1/4 sht.
Part B. 1/4 sht.
1/4"
Fin 1/8 sht.
odel has 2 coats clear dope, sanding etween coats. Select colour scheme ol enamels to finish
Round off all edges
Wing C/L
Wing 1/4 sht.
Sand to section
Fin detail
1/2 sht. head fairing
Cut
1/8 sht.
Part D (top)
Part C
Part A1.
Part B
Part D (bottom)
Hinges
Linen tape
Horn
Ballast recess
Sheet join
Bend
18 s.w.g.
3/8" dia. plastic wheel
Bend
D. 2 rqd.
4 sht.
D. (top only)
Fin slot



ASSEMBLY SKETCHES

GOLDEN WINGS AEROMODELLER MODEL CLUB

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

Dear Sir,

I enclose a picture of my *Veron Robot* and myself. I have an AM 15 and O.S. Pixie radio gear installed in it. This is my first radio model and I am very pleased with it. At first it seemed a bit heavy but when I had the engine going I soon realised that this was the least of my worries. By chance the balance was correct with the radio, engine and tank in position so no weight was added. As the plane was large and heavy I gave it a fast launch when test gliding it and no trimming was needed. Then when I tried a short power run with the engine going and radio on (just in case) it climbed and dropped a wing and crashed without damage. This happened because I had too much right thrust. I adjusted the engine thrust line and it was alright and it then flew with a straight climb. I was beginning to be afraid of a flyaway and it wobbled a lot on the turn because I had too much rudder movement, so I just gave quick blips and it was all I could do to keep it in range. After the engine cut I made the rudder movement less and the turns were very smooth, it was just like seeing a real plane. After a few more flights we ran out of fuel (I had two pints). We packed up feeling very satisfied.

I would like to congratulate Veron for their wonderful kits and also David Boddington with his hints and tips of the first radio control flights.

Bushey, Herts. *M. G. Gidwani*

* * *

Dear Sir,

I have a *Keil Kraft Conquest.* I originally covered the wings in plain white tissue with gold trimmings but I felt it would have looked nicer in camouflage. Do you have any ideas how I could camouflage it apart from coloured dope? Is camouflage tissue available.

West Kensington, London. *M. C. Roper*

Colour doping the tissue to get a camouflage effect is not to be advised with this model as the increase in weight would ruin the performance. Camouflage tissue is not available these days so the only way out is to use two tissues. If you get lightweight Model span you can dye this to say dark green then cover the model in it and then dye some more tissue dark brown and cut it into camouflage shapes. Dope the brown camouflage shapes over the green tissue for the final effect.

* * *

Dear Sir,

I am writing to you to give me advice on a single channel radio control plane. As I have an O.S. Pixie Radio set and an Elmic Conquest escapement. I have two engines which are the Cox .049 and Cox Pee Wee. Could you tell me where I could get the plans and how much they are.

I am enclosing a 4d. stamp to cover the return postage.

Fishponds, Bristol. *S. Hall*

Aeromodeller Plans Service (A.P.S.) have several single channel R|C models to suit your combination of radio gear and engine. Skyscraper *plan RC 889 is 28 in. span for any single channel R|C and it's simple to build for a .049 engine. Another design and one of our best R|C beginners models is* Pal Joey *plan R|C 852, designed by W. Winter, noted American radio control flier. High wing, this model has no vices and is the perfect introduction to the latest branch of the hobby.*

* * *

Dear Sir,

I have been a Golden Wings Club member since last year. I have made three gliders and two rubber powered planes. I am about to build a *Keil Kraft 'Squib'*. Can you tell me if this is a very good model for Jetex power? I also have a 1 cc. Heron and I am bench testing it. When the compression builds up it gives a crack and the propeller comes loose. Can you tell me how to remedy this?

Buckden, Hunts. *Trevor Peach*

The model you mention is just right for a first Jetex model, most kits are de-bugged before they get on the market, and in the case of any confusion the manufacturers are more than willing to help. The usual reason for a propeller coming loose with a sharp crack is quite simple, you have not tightened it up enough. The cracking noise is just the sound of the propeller breaking away from the prop. driver. You must tighten the propeller up with the proper tool. whether it's a spanner, tommy bar or screw driver does not matter, use the right tool. Pliers are the worst possible means of tightening such things.

* * *

Dear Sir,

Could you tell me whether Davies Charlton or Marown Engineering ever produced a 2.5—3.5 cc. diesel engine with a crankshaft induction system mounted on the underside of the crankcase. My friend is selling such an engine which he says came from an engine firm in the Isle of Man, which I cannot identify.

Cheshire. *B. A. Jones*

This engine is the Davies Charlton Wildcat 3.5 cc. diesel and it was described briefly in July, 1967 Latest Engine News.

* * *

Dear Sir,

I enclose with this letter an application form for membership and a 2/6d. postal order.

I fly control line models. The one I am flying at the moment is the Bouncer powered by my D.C. Sabre. After I have flown a bit more I intend to put my engine in a *Mini Early Bird.*

I enjoy your magazine very much and my only regret is that it does not come out more often and that it does not have more articles on control line flying.

Westoning, Beds. *David Berwick*

You must realise that with a magazine such as Aeromodeller *we have to try and strike a balance between all classes of modelling and Control Line News should help this situation from your point of view. We have had quite a lot of control line plans this year and it would seem that most control line fans are satisfied.*

Dear John Bridge,

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

NAME IN FULL .....

ADDRESS .....

.....

YEAR OF BIRTH..... **SCHOOL**.....

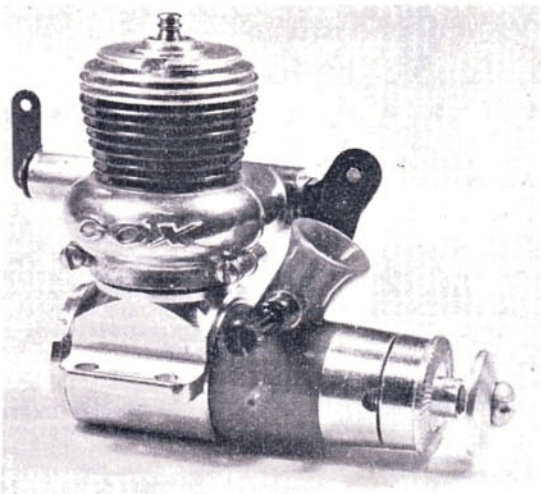
NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any) .....

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

2d. in the 1/- Rebate plan purchase coupon for Golden Wings Member

9/67

G.W. No.....



Cox Medallion ·09

with Cox Throttle Control

ENGINE TEST

By Peter Chinn

THE Cox "Medallion" series engines were first introduced in 1962 and comprised three models, the "049" (0.817 c.c.), "09" (1.497 c.c.) and "15" (2.499 c.c.). Basically these were, and still are, de-tuned versions of the "Tee-Dee" series competition engines, a little cheaper than the Tee-Dee type and intended for "Sunday flying", including control line stunt, sports free-flight, scale etc.

Up to this time, Cox had not offered throttle equipped versions of any of their engines but, late in the following year, this situation was remedied with the announcement of the Cox Throttle Control unit. This is a set of conversion parts, applicable solely to the Medallion series, and is made in three sizes to suit the three different displacements. Cox do not offer complete engines ready equipped with the throttle control, but it is a simple matter to fit the parts to the engine and the only item that gets "wasted" in the process is the standard spraybar. All other conversion parts are additional to the standard parts of the engine and re-conversion back to the standard engine can be just as easily effected.

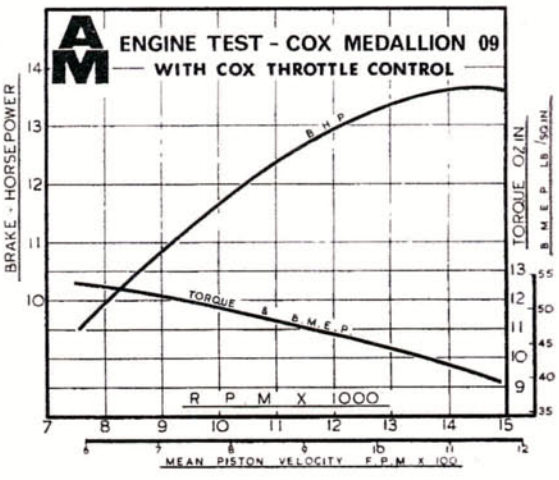
As we have already implied, the Medallion 09 is similar in general design to the Tee-Dee 09. The latter, when operated on a fuel of high nitromethane content, is just about the most powerful 1.5 c.c. engine on the market at the present time. The standard Medallion 09 is a very much less powerful motor than the Tee-Dee 09 and, unless one is unconcerned with power output, the Tee-Dee 09, with at least 50 per cent more power than the Medallion, is a much more attractive proposition. However, if throttle control is needed, it has to be the Medallion, obviously, and, for these reasons, we have chosen the Medallion with Cox Throttle Control for this report, rather than the standard Medallion.

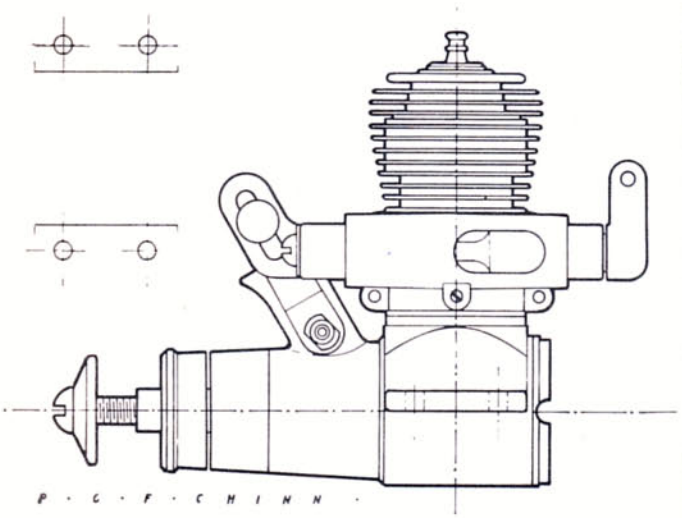
Actually, although the two engines look alike and are identical in mounting dimensions, the only parts they share are the crankcase and backplate, piston, conrod and front retaining ring.

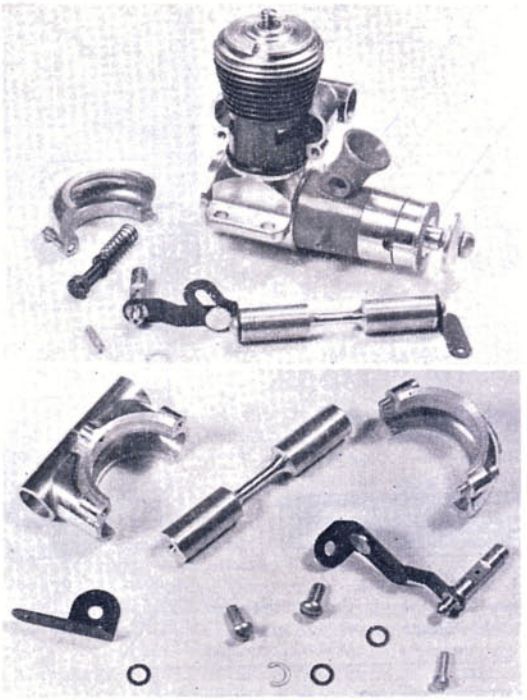
The crankcase is produced from extruded aluminium bar, with an unbushed extension sleeve forming the crankshaft bearing. The top of the sleeve is machined flat, to expose a large rectangular intake port, and is surrounded by a moulded Delrin housing complete with venturi intake which is secured by means of a screw-on ring at the front. The crankshaft is of generous dimensions and is similar to that of the Tee-Dee 09, except that it uses a smaller, circular, valve port—actually about 60 per cent smaller in area than that of the Tee-Dee.

The unhardened steel cylinder is typically Cox and looks exactly the same externally as the Tee-Dee cylinder. It screws into the crankcase, has integral fins and is topped by a screw-in alloy head with integral glow filament. However, it has only one transfer flute instead of two, and the head, instead of the trumpet shape of the Tee-Dee, is hemispherical and of larger volume thereby reducing compression ratio. The piston is of the usual Cox pattern, flat crowned and permanently fitted to the hardened steel connecting rod by means of a ball and socket joint.

The Cox Throttle Control features a slide type exhaust restrictor coupled to a flattened spraybar type intake throttle. The exhaust collector housing is pressure die-cast (the only cast part of the engine, incidentally) in two halves which are precisely machined to fit around the cylinder between the base flange and lower cooling fin. The two halves are connected together by two screws and there is a small set-screw which prevents rotation of the complete unit. The housing incorporates a cylindrical section on the left side, through which is installed the sliding bar that controls the exhaust outlet. A glance at the illustration will clarify these details. Fitting the Throttle Control conversion kit takes only a few minutes.







Parts of the Cox Throttle Control unit are accurately made and are easily fitted to the engine in a few moments.

Whereas the manufacturer's recommended fuel for the standard Medallion is Cox Thimbledrome Glow Fuel—a fuel of medium power rating containing approximately 15 per cent nitromethane—the recommendation for the same engines when fitted with the throttle unit is Cox Racing Fuel which contains approximately 30 per cent nitro. We would assume that the reason for selecting this more powerful fuel is to try to restore some of the power lost through the addition of the throttle system. A feature of most Cox engines, the Medallions included, is "sub-piston supplementary air induction". In this, the piston skirt clears the bottom edge of the exhaust ports at the top of the stroke and, provided that the exhaust ports are exposed to the atmosphere, the crankcase thereby achieves more complete charging by drawing in extra air. Unfortunately, if the exhaust ports are enclosed within any sort of chamber or duct—such as a collector ring, silencer or, as in this case, the housing for the exhaust restrictor valve, the supply of pure air is cut off, burnt gas will be drawn in and the fuel charge diluted and heated, thereby reducing volumetric efficiency and causing a loss of power.

However, the use of a more powerful fuel undoubtedly helps in this particular instance and the torque and power developed by the throttle version of the Medallion 09 was quite good for a 1.5 c.c. R/C engine and particularly so on a power/weight ratio basis.

Practical idling speeds obtained on test included 4500 r.p.m. on a 9×4 Top-Flite nylon, 5300 on an 8×4 Top-Flite nylon, 6100 on an 8×3½ Top-Flite nylon and 7200 on a 7×4 Power-Prop wood. These are not as low as have been obtained with some small R/C engines, but we found the throttle control very reliable. Incidentally, the idling adjustment is by means of one, two or three 10 thou. washers, placed between the rear actuating arm and the exhaust bar. The larger the number of washers fitted, the further forward the bar is allowed to move, thereby closing the throttle to a lower idling speed. Three washers are supplied and, after experiment, we used all three. We also tried adding a fourth but with no further improvement. This also involved the addition of a fibre washer behind the prop to prevent the throttle linkage from fouling the rear of the prop blades.

The total cost of the Medallion 09 with Cox Throttle Control is a little high, but the engine has the merit of light weight and a good power output, added to which the beginner will find it easy to start and uncomplicated to adjust.

Power/Weight Ratio (as tested): 0.70 b.h.p./lb.
Specific Output (as tested): 90 b.h.p./litre.

Next Month's Test
Taplin in-line Diesel Twin

SPECIFICATION

Type: Single cylinder, air-cooled, two-port two-stroke, with opposed exhaust ports and single transfer flute. Shaft rotary-valve induction. Glowplug ignition. Plain bearings.
Bore: 0.497 in. **Stroke:** 0.471 in.
Swept Volume: 0.0914 cu. in. =1.497 c.c.
Stroke/Bore Ratio: 0.948:1
Weight: 3.1 oz. (including throttle unit).

General Structural Data

Crankcase and main bearing (unbushed) machined from extruded aluminium alloy bar. Hardened and ground steel *crankshaft* with full disc web and crescent counterbalance. 0.375 in. dia. divided main journal, 0.265 in. dia. bore gas passage and 0.156 in. dia. solid crankpin. Shaft end knurled for pressed on machined aluminium alloy *prop driver* and tapped for *prop retaining screw*. Unhardened steel *cylinder* with integral fins and blued finish. Steel *piston*, hardened on skirt surface only and fitted to ball-ended, hardened steel *connecting rod* by means of swaged cup. Screw-in aluminium alloy *glowhead*, seating on soft copper gasket. Moulded Delrin *main bearing housing and carburettor intake* with moulded in nipple for optional high-pressure crankcase-pressurised fuel system. Pressure diecast aluminium alloy *exhaust collector ring and restrictor valve housing*. Machined aluminium alloy *exhaust restrictor valve* linked to flattened spray-bar type *intake throttle valve*. Beam mounting lugs.

TEST CONDITIONS

Running time prior to test: 1 hour.
Fuel used: Cox Racing Fuel. (Approx. 30 per cent nitromethane).
Air temperature: 45 deg. F.
Barometer: 30.20 in. Hg.
Silencer type: Nil. (Maker does not offer silencer for this model).

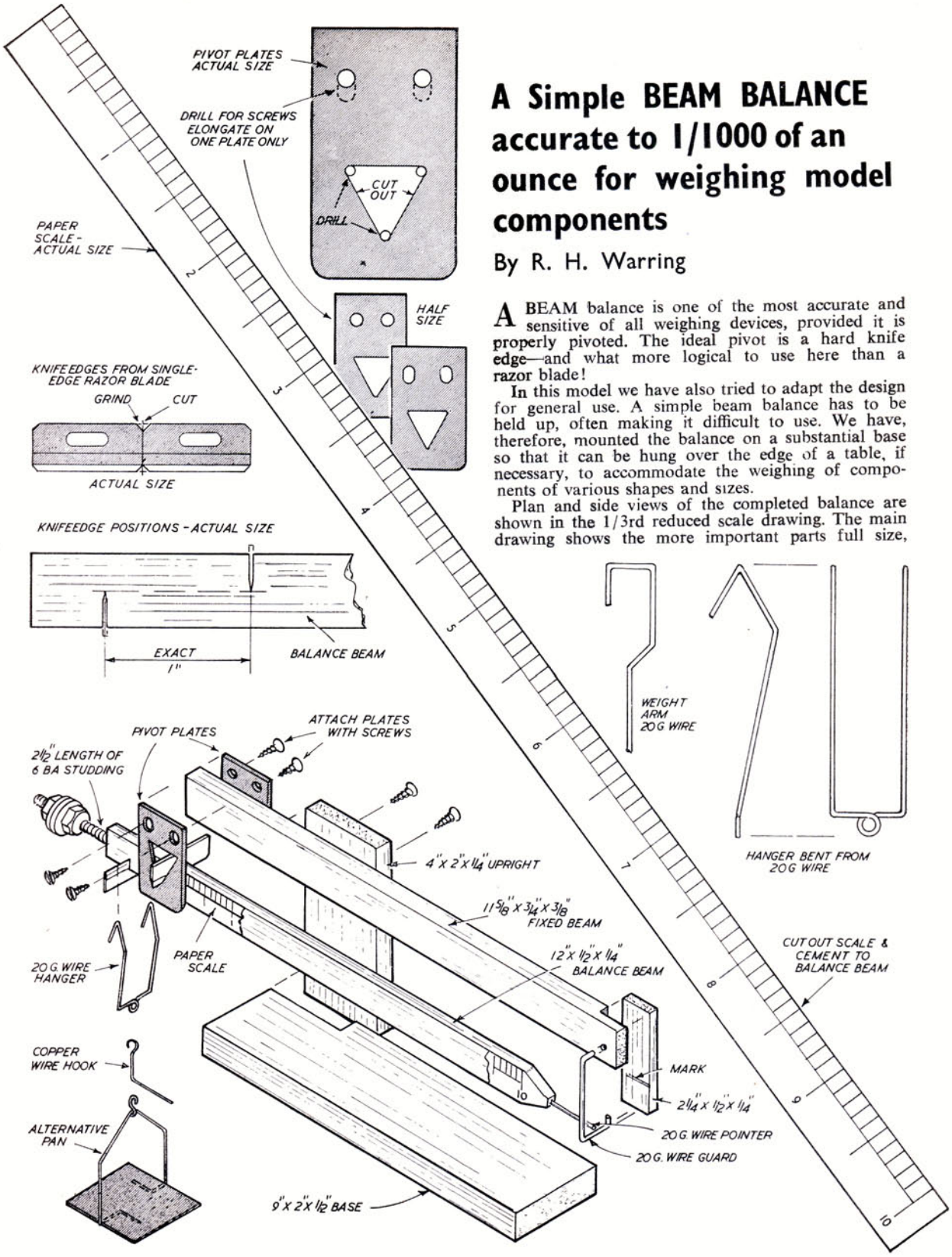
A Simple BEAM BALANCE accurate to 1/1000 of an ounce for weighing model components

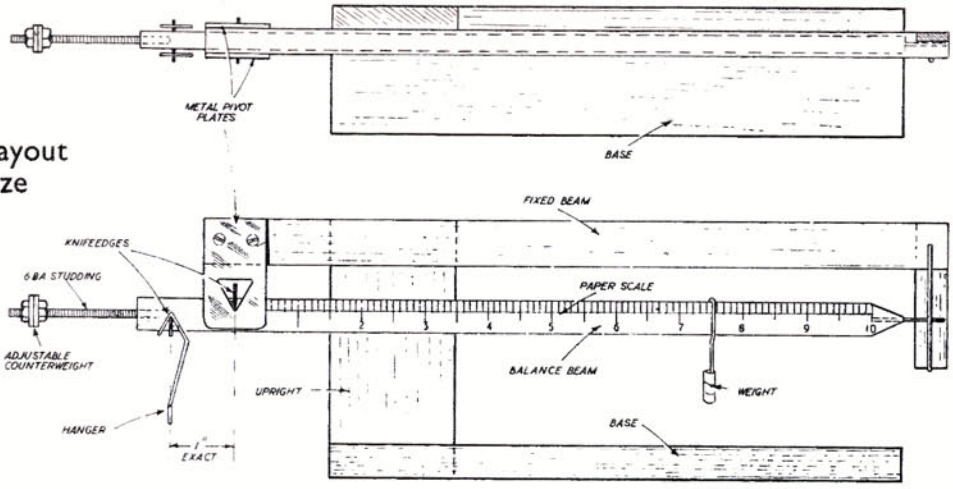
By R. H. Warring

A BEAM balance is one of the most accurate and sensitive of all weighing devices, provided it is properly pivoted. The ideal pivot is a hard knife edge—and what more logical to use here than a razor blade!

In this model we have also tried to adapt the design for general use. A simple beam balance has to be held up, often making it difficult to use. We have, therefore, mounted the balance on a substantial base so that it can be hung over the edge of a table, if necessary, to accommodate the weighing of components of various shapes and sizes.

Plan and side views of the completed balance are shown in the 1/3rd reduced scale drawing. The main drawing shows the more important parts full size,





General Layout
$\frac{1}{3}$rd. full size

including a scale which can be cut out and cemented to the balance beam, together with an exploded view of the assembly.

The fixed beam, upright and base, and the 2¼ in. by ½ in. by ¼ in. strip on the end of the fixed beam *can* all be made from balsa, but a harder wood is to be preferred. The balance beam can be made from medium-hard or hard balsa, although again spruce or a light hardwood may be preferred.

Cut the base, upright and fixed beam to size first. Fit the upright to the base, using glue and screws. Rebate one end of the fixed beam to take the 2¼ in. by ¼ in. by ¼ in. piece, which is cemented in place; then attach the fixed beam to the top of the upright with glue and screws, making absolutely sure that it is parallel with the base. Stand the base on a level surface and check that the fixed beam is horizontal with a spirit level.

The two pivot plates are cut from 20 s.w.g. aluminium or brass. Drill holes in each corner of the triangular cut out, then complete cutting out of the triangle with a fretsaw or jewellers' saw and finally smooth the edges of the cut-out with a file. Drill holes for the mounting screws, noting that these holes are elongated with a file on one mounting plate only. Then fit the mounting plate to the end of the fixed beam with woodscrews.

The balance beam should be cut to size. The two saw slits to take the knife edges must be truly vertical and exactly 1 in. apart, as shown in the detail drawing —the first cut being made ½ in. from the end of the beam. Drill a hole in this end of the beam and screw in a 2½ in. length of 6 BA studding, first smearing Araldite (or equivalent epoxy resin adhesive) on the threads.

The knife edges are made by breaking a single-edge razor blade down the middle and then grinding off, as shown in the full size drawing. They are pushed into the beam slots, cutting edge first, and positioned exactly at right angles to the beam and parallel to each other. Finally secure them permanently with Araldite. Cut out the paper scale and cement to the beam so that the first mark *exactly* lines up with the knife edge.

Taper off the last ½ in. length of the beam at the other end and push a 1 in. length of 20 s.w.g. wire into this end to act as a pointer.

Assemble the beam by removing one of the pivot plates and then replacing so that the uppermost beam knife edge rests in the triangular cut outs. Now adjust the final position of the pivot plate with the elongated mounting holes until the balance beam is accurately lined up and supported on the knife edge. Fit the guard wire to the end of the fixed beam downpiece, again checking that the beam swings freely and mark a line on the downpiece corresponding to the pointer position when the balance beam is exactly parallel to the fixed beam.

Bend the hanger from 20 s.w.g. wire to the shape shown. This simply hangs on the first knife edge. A hook of copper wire attached to the hanger will be a convenient attachment point for most objects to be weighed since it can be bent to any shape to support the object, or slip under a rubber band placed around the object. You can, however, also make up a simple plan to carry small objects to be weighed.

The balance beam must now be counter balanced. With the hanger and hook in position, add washers and nuts to the studding and adjust until the beam balances horizontal, i.e. the pointer lines up with the mark on the downpiece. Note that the counterbalance will need to be readjusted should you change from a hook to a pan attached to the hangar, and vice versa.

Weights required are .01 oz., .1 oz., and .5 oz. (the latter representing the safe limit for weighing with the balance). The corresponding ranges of readings are: *.01 oz. weight* from .01 to .1 oz. in 1/1,000ths of an oz. *.1 oz. weight* from .1 to 1 oz. in 1/100ths of an oz. *.5 oz. weight* from .5 to 5 oz. in 1/20ths of an oz.

A separate weight arm is bent from 20 s.w.g. wire for each weight. This arm is shaped to slip easily over the balance beam. The bottom end of the wire is turned up and lead foil wrapped round to give the required weight.

For highest accuracy it is recommended that you get a 0.1 oz. weight checked by a chemist, or on a balance in a school lab. This 'master' weight can then be used to calibrate the other two weights required e.g.

(i) make up the .01 oz. weight to balance when placed at the '10' mark on the scale with the .1 oz. weight in the pan.
(ii) make up the .5 oz. weight to balance when placed in the pan and with the .1 oz. weight on the '5' mark on the scale.

An alternative method is to use a new sixpence as a 'master' weight. This will weigh 0.1 oz., thus—

(i) mark up the .01 oz. weight to balance when placed at the '10' mark on the scale with the sixpence in the pan.
(ii) make up the .1 oz. weight to balance when placed in the pan and the .01 oz. weight at the '10' mark on the scale.
(iii) make up the .5 oz. weight as above.

A collection of single channel radio control models at David Boddington's Northamptonshire residence, no one can say the lad hasn't had a lot of experience!

Strictly Simple

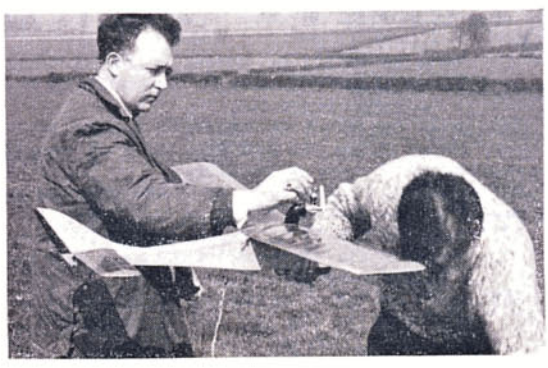
Designing and experimenting with dual floats for radio control models

By David Boddington

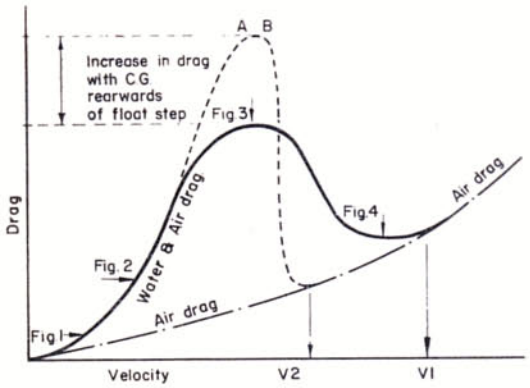
NEARLY twelve months have passed since I last reported in November '66 *Aeromodeller* on the fun I had been experiencing with R/C seaplane. Regrettably, since that date, I have not had many opportunities to continue this fascinating branch of the hobby. Although I have two sets of floats built and ready to attach to models other activities connected with R/C work naturally, have had to take priority. Over the past twelve months, though, I have been corresponding with Willem Aarts of Holland on all aspects of float planes and flying boats. Willem is an extremely enthusiastic "water plane" modeller and has been conducting a one man campaign to educate aeromodellers, through the national magazines, in the art of getting on and off water. In Holland of course there must be tremendous opportunity to fly from waterborne sites but with the increasing lack of suitable land areas in this country I prophesy that more and more use will be made of our lakes, gravel pits etc. Like myself Willem could find little information of help in designing and setting up his floatplanes and had to find out the answers the hard way. Now he has put in many hours, particularly with the larger multi models and I am sure his comments will be of great interest to you.

He considers that the positioning of the floats as I described in the November '66 *Aeromodeller*, although workable for lightly loaded models, would not be satisfactory for the heavier wing loadings associated with aerobatic multi models. The model may fail to become airborne or, if she does become unstuck, the speed will be too near the stalling point and cause the model to flip over as the nose comes up. The main reason for this apparently is the wrong position of the step in relation to the C of G. Always, says Willem, have the C of G in front of the step, also a 0-0 incidence setting of the float (measured on the top surface) to the model datum line should result in less chance of a noseover on landing. Incidentally, much of the information gathered by Willem has been obtained from yards and yards of film taken during flying sessions noting the effect of trim and C of G changes. It has been impossible to calculate the exact distance the C of G should be forward of the step, only experience can ascertain this, but, as it is a safer condition than with a C of G position behind the float step, no damage is likely to be incurred during the trim session.

To understand the reason for this setting let us examine the relation of the floats to the water throughout a take-off: Refer to graph and diagram.



Field procedure with "Apprentice", a simple pylon mounted engine powered model. Left, start the engine with an assistant holding the model and positioning the glow plug leads onto the engine. Right, check the radio for the last time with the engine running, launch from shoulder height.



Float, Drag/Speed relationship

In Fig. 1 the model is at rest in the water. With full power applied the model will start to accelerate and the float tips will rise out of the water as in Fig. 2. During the take off run the floats will continue to rise until they reach the maximum at the Fig. 3 position with only the step and aft part in contact with the water. Finally, providing the C of G and step positions are correctly located the model will tip forward to position as in Fig. 4 when the water resistance will decrease considerably and the model will quickly accelerate to flying speed. With the C of G located aft of the step the model tends to become airborne from the Fig. 3 position.

Willem also concluded that all the moments during the take off run were acting through one point above and aft of the C of G. To prove his point he removed the wing and tailplane of the model and the floats reacted in a similar manner, the only difficulty now is to apply this knowledge to some useful practical function.

Top right, a multi model by Willem Aarts of the Netherlands with the nose leg still in position has two push rods linked to both water rudders that move in conjunction with the normal rudder.

Centre, the floats in Fig. 3 position with the model nice and level, almost at flying speed for the transition to Fig. 4 position.

A twin engined model powered by two Enya .19's with Logictrol S, two stick radio gear. The C of G is too far back, creating excess drag.

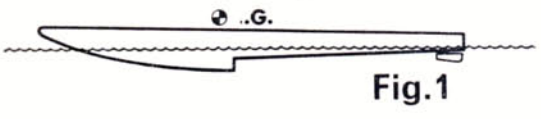


Fig.1

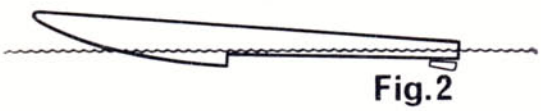


Fig.2

Fig.3

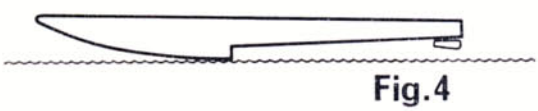
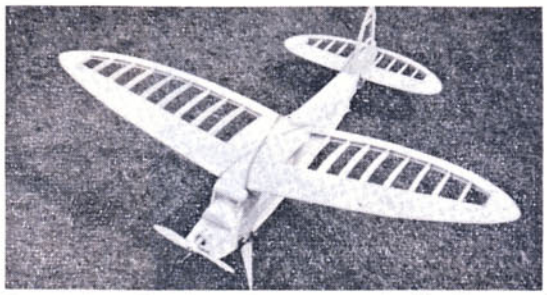


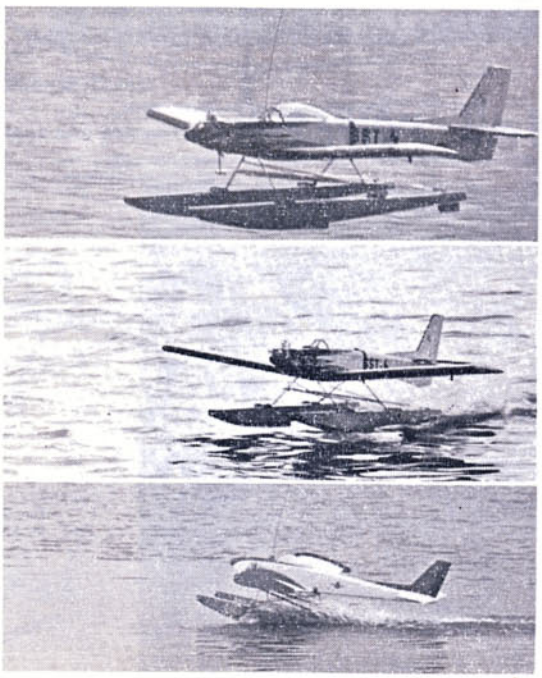
Fig.4

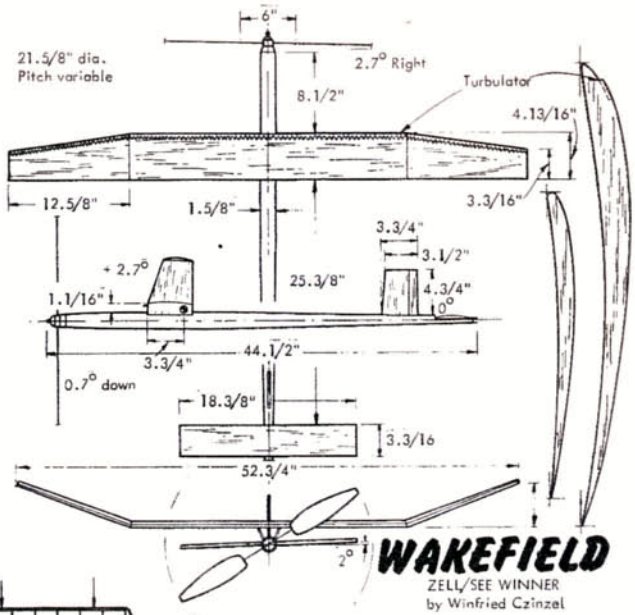


Ron Hughes of Bushey, Herts., converted this, his second "Bowden Meteorite" to single channel radio control with a Mills 1.3 Mk. I for power. 45½ in. wingspan, it has Minimac Rx, Elmic Conquest escapement and Centrolaire Mule Tx. Ron is willing to loan the plan to genuine enthusiasts who should contact the Editorial Offices for the twenty year old "history sheet".

In order to help the understanding of the four float positions, and their significance to the take off, a graph can be plotted of drag relative to speed. Note how the drag is reduced (due to the rapid decrease of skin friction of the floats) during the transition from Fig. 3 to Fig. 4 from this point on, the speed increase is rapid to take off speed VI. We can also see from this graph what is likely to happen to the model with the step forward of the C. of G. This is indicated by the broken line showing the increase of drag to the floats remaining in a position as in Fig. 3. The model in fact becomes airborne from this position (Point B) after accelerating to point A providing sufficient power is available. Speed at V2 is very close to the stalling speed and will result in many models "flipping over" on their backs before a safe flying speed is built up.

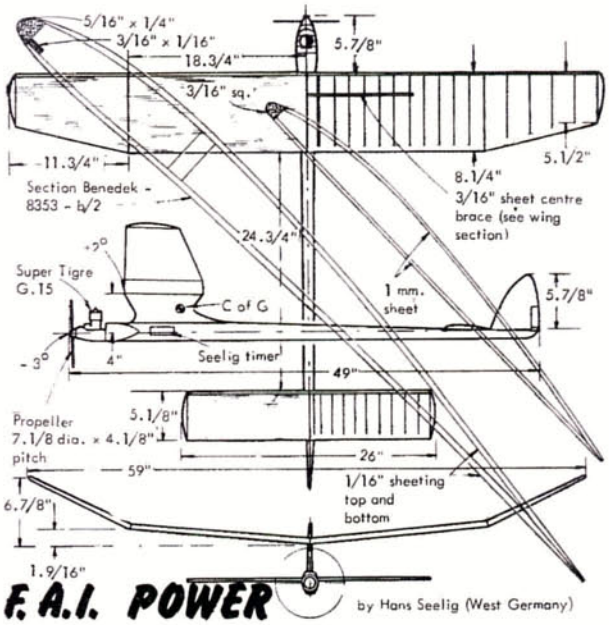
Directional stability and construction of floats next month.





WAKEFIELD

ZELL/SEE WINNER
by Winfried Czinzel



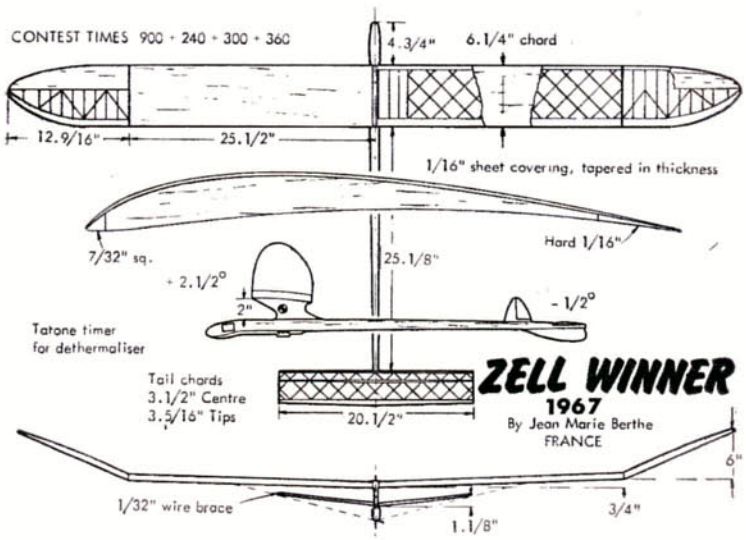
F.A.I. POWER

by Hans Seelig (West Germany)

CONTEST DESIGNS

FIVE FOR FREE FLIGHT

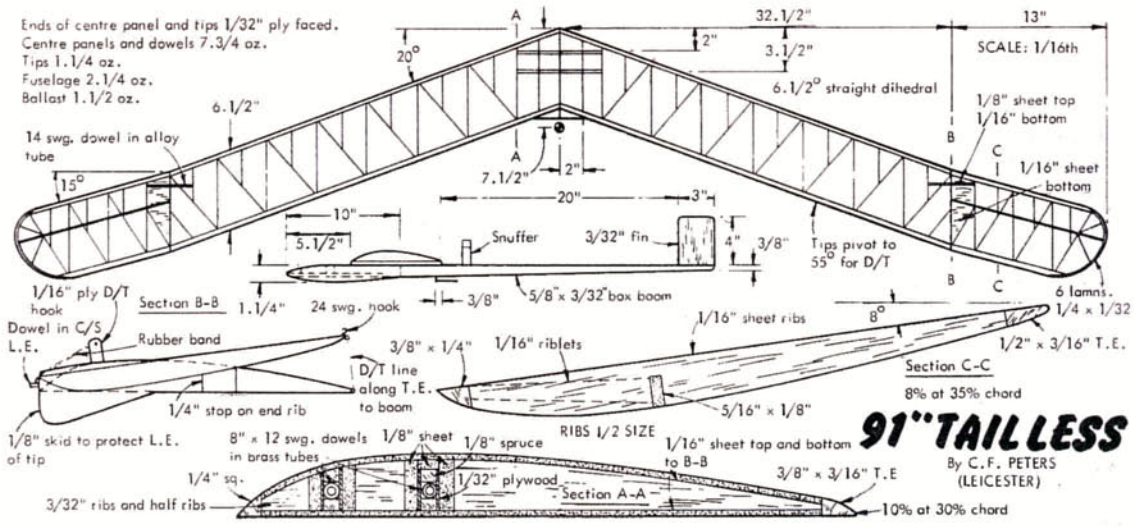
The Austrian International at Zell/See (reported in July issue) is a fine preview of what is to come at the World Champs which are taking place in Czechoslovakia as this magazine is distributed. The three class winners are excellent examples of new techniques both in design and in contest tactics. The French glider below and in photo bottom left is held on the line in sweeping circles until a thermal is "hooked" and the all-sheeted surfaces of the other two are an indication of what is becoming necessary for top performance. Vaclav Horcicka anylised the 66 models processed at Zell and discovered that 83.5 per cent of power models use auto-rudder 65 per cent auto-tail.



ZELL WINNER

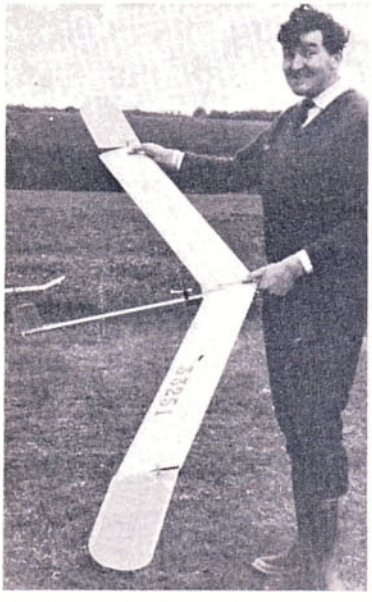
1967

By Jean Marie Berthe
FRANCE

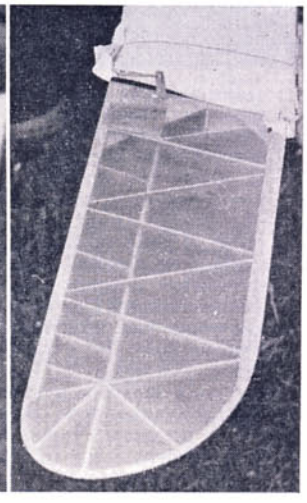


91" TAILLESS

By C.F. PETERS (LEICESTER)

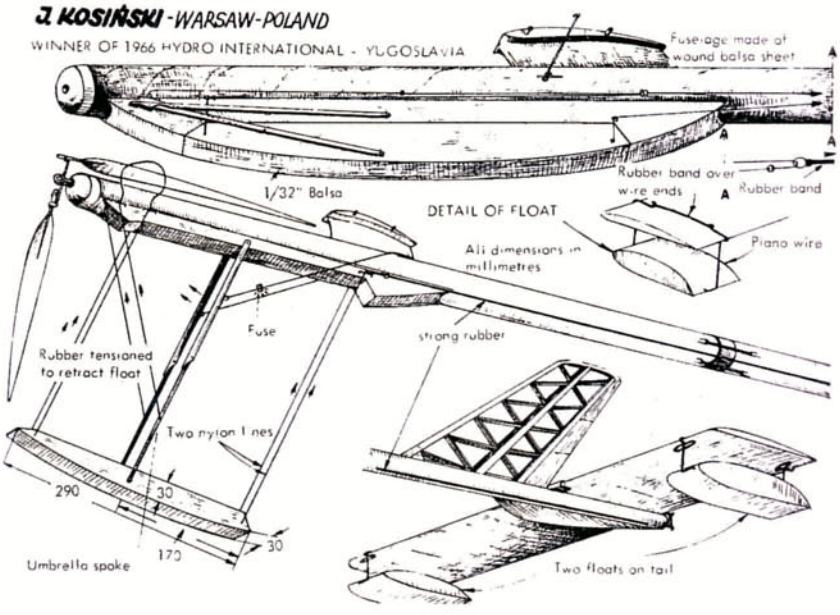


Chris Peters looks pleased with his model which came 4th in the Postal event. Note the fuse on the fus: (sticking through legalised snuffer tube). At right, the all-moving wingtips designed to bring the model down when the fuse burns through restraining cord. This is NOT the underside, the tips have an inverted airfoil (see drawing).



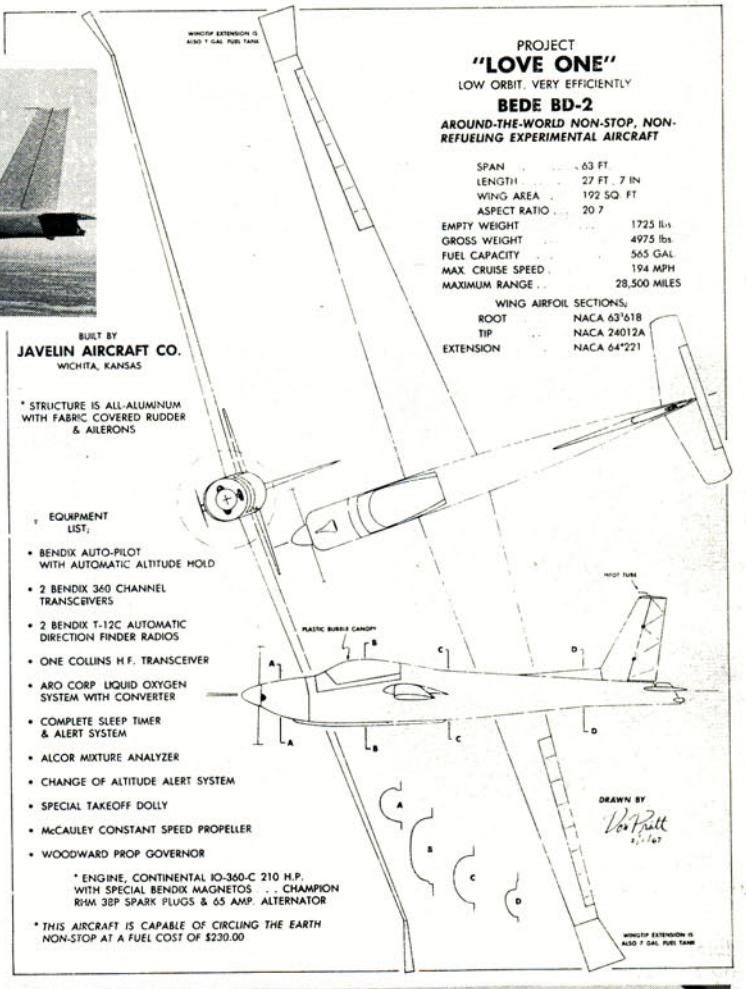
When Chris Peters first flew his long span tailless (but not without fuselage please note) model only one of the tips used to go up on dethermaliser action and the sharp turn prevented the opposite tip from working properly—so intending builders should be careful to use strong d/t action bands. The model tows well, even downwind on one occasion in the Halifax Postal event, and it will tighten the turn when in lift. The section is of the type first used by Ron Draper for FAI power models

Details of the Polish entry by Jersy Kosinski in the waterplane International held in Yugoslavia last year add further light to the ways and means of obtaining clean float retraction by simple means. The "legs" come from an umbrella!



How's this for a Scale Subject?

Jim Bede's AROUND-THE-WORLD 'PLANE



Jim Bede is a man with a mission. His intention is to take-off from Cleveland Municipal Airport in the United States, climb steadily to 20,000 feet and set course for a non-stop orbit around the world! The project is no joke. It is the result of years of planning, careful study, and devoted work by enthusiastic aircraft workers at Javelin Aircraft Co. Wichita, Kansas under the direction of Dave Blanton. Basically a converted two-seater Schweizer 2-32 high performance sailplane with a 210 h.p. engine of the type used in the Beech Bonanza. "Love One" is a very efficient flying fuel tank with a range of no less than 28,500 miles. Jim has planned the trip to last about 170 hours. For a third of that time he will be asleep, and at any time or place he has sophisticated radio equipment to converse directly back to base with the weather bureau, NASA and the Collins Radio Co. at Cedar Rapids in Iowa. His oxygen system is the same as that used for space flights in the Mercury programme and the Bendix auto-pilot incorporates a special warning device to waken the pilot in the event of irregularity.

The whole project is very much akin to the establishment of a World Record for model duration —maybe it will inspire new thoughts for scale modelling? When asked about the trip, Jim Bede once said: "When I have gone all the way around the world and come back over the airport I started from, I'm going to do a loop. Then I'll apply to the F.A.I. for confirmation of having done the world's largest figure-8."

—Photographs and drawing by
DON PRATT

Readers' Letters

The editor is not bound to be in agreement with any view expressed.

Sad News

Dear Sirs,

It is with regret that I inform you that the Northern Heights Gala Day due to be held at R.A.F. Halton on Sunday 10th September 1967 is **cancelled.** This decision has been forced upon us due to difficulties that proved to be insurmountable.

To those who made offers of help towards the successful running of the Day, the club extends its grateful thanks. To our regular visitors, and to those who were anticipating their first visit to the Gala we extend a hearty welcome to our next Gala Day which, we sincerely hope, will take place at Halton in 1968.

London N.9. *V. Botta.*

Hazardous

Dear Sir,

On Sunday July 2nd, I attended the Croydon Gala at Chobham Common as a spectator. I was rather shocked to see F/F jobs being flown from a crowded public car park. It seemed obvious that sooner of later there would be an accident and luckily when the inevitable occurred no spectators were hurt. A large job. on being launched failed to climb and crashed into a parked car. The flier concerned, after picking up the wreckage then got another model from his car and continued flying from the same area.

Surely with a field the size of the Common it is unnecessary to fly from the car parks and organisers should clamp down on this anti-social behaviour immediately. If Chobham is lost, F/F will almost cease to exist in this part of England.

Hounslow. *B. Clarke.*

Ker . . . runch ! ! !

Dear Sir,

In the July issue of Readers' Letters someone suggested that it would be a good idea to have some more "tall tales", I don't know if you intend to publish any more, but in case you do, here's one.

About six years ago I was attached to a Missile Regiment in West Germany. The camp was an old Luftwaffe base, and so model flying conditions were ideal. I had a venerable A2 glider, the nose of which was sawn off and replaced by a Cox PEE WEE engine. This plane would fly in circles of about 100 yards diameter at a height of 50 feet and speed of five miles an hour for 15 minutes on still summer evenings. All the lads would lie around watching it; a pleasant way of passing a warm summer evening. Until one evening, when the model came to roost in a pine tree on the perimeter about 40 feet up. Unscalable ! The unit comedian suggested that the mobile crane had a 30 foot jib; and 15 minutes later a 37-ton crane was in position on the slope at the foot of the tree. Up the jib went one adventurous type, and seizing the plane by the rear end of the fuselage, dropped it vertically. And vertically it continued on down, straight through the operator's cab window. He took immediate evasive action, but in doing so grabbed the hydraulic outrigger retract lever. Up came the outriggers, and down came the crane ! !

Have you ever tried putting a 37-ton mobile crane back on its feet in such a way that no one will know that it has been used, let alone turned over on its side? It's not easy, and it took one light and two heavy recovery vehicles and most of the living-in members of the workshops about three hours and a lot of sweat.

I am now the proud possessor of a noseless A2 glider, worth some five shillings. Truly, ours is an expensive hobby ! !

B.F.P.O. 45. *Sgt. D. B. Thomas.*

Thanks . . .

Dear Sirs,

May I make use of your Letters column to thank the members of Elliott M.E.C. for a most excellent C/L Rally at Rochester on 4th June.

This was without doubt the best organised and most enjoyable Stunt Contest I have ever attended.

In conclusion, may I ask – no, beg – Elliott M.E.C. to volunteer to run next year's "Gold Trophy"?

Wolves M.A.C. *Dave Day.*

Noisy Silencers

Dear Sir

Silencers have been in use by S.M.A.E. members for approximately two and a half years and with what result ? Have we got back any old flying sites or gained new ones? Is the hobby better received by local authorities and the general public? It does not appear so after reading the July *Aeromodeller*. Glebelands was unavailable because of noise which was made *with* Silencers fitted. They now say that in July silencers *must be effective.*

A gentleman in Sheffield will let people fly anything on his land except power models—silenced or unsilenced. Is this because the difference in noise is so small that it is still a nuisance? Having flown in competitive modelling for the past five years or more I have seen the *Silencers* used. Bits of tin wrapped around the engine with a few holes in it exhausting inside the fuselage, or a manifold doing the same thing, combat models with just a manifold and large glow motors with silencers opened up to such a size that it makes no difference. So where is the control of noise and the development of silencers that was going to be? (The above silencer comments refer mainly to control line models.)

There is also the case of the modeller who does not have to answer to anybody, such as the S.M.A.E. or a club. Are most of the complaints brought about by these people who can do as they like?

From the preceding paragraphs it would appear that I would like things quieter, this is not the case. I want the S.M.A.E. to drop this stupid rule and let us get back to the noise that *still* annoys people. Let us drop these so called silencers and get our models performing as they should, to compete with the rest of the world.

The engine manufacturer works very hard to give us the best engines possible and we have to fit a so called silencer on to it and destroy all his good work.

To end I will say this, if our engines made no noise at all it would still annoy some people to see another group of people doing something they enjoy.

Hemel Hempstead. *E. Gillhespey.*

More Thanks

Dear Sir,

As both a competitor and an official at the Nationals, I would like to thank all you timekeepers who so much assisted me and others.

You have no doubt often read on these pages some criticism of your alleged shortsightedness, deafness or special affiliations; now for once, read a few words of praise and thanks.

Ditchling. *N. J. F. Neve,*
P.R.O. S. Eastern Area

Pro-scale

Dear Sir,

I feel I must most strongly object to the harsh words spoken by "Pylonius" in the June *Aeromodeller*, regarding free flight scale model flying. As a weekend sports flier I built my first scale model just over three years ago. A *Keil Kraft S.E.5A* 16" rubber model converted to Cox ·010 power, the aerobatic performance and reliability of making a clean getaway from a hand launch in near gale force conditions more than proved the practicability of sports flying, flying scale as a weekend pursuit.

A *Keil Kraft Hurricane* was next, again converted to Cox ·010 power but this with scale dihedral proved laterally unsuitable and plans are in hand to build a second model with pendulum controlled ailerons (to jump the gun a bit, I have since built a modified Frog F.F. rubber powered *Ryan* this was started a long time ago and due to losing the plans the final model was built mainly from guess work using the original printed fuselage formers and wing ribs as a guide. However, the resulting low wing model spanning 21" and with 1¼" dihedral under each wing tip flies beautifully on Cox ·010 power and again has proved an all weather model).

However, to get on to the *piece-de-resistance* I finally built a 40" wing span *Armstrong Whitworth F.K.3* to plans

Mr. Saunders' models, a converted KK 20 in. Hurricane with Cox .010, the 48 in. Seagull based on plan MA 83 (no longer available) and converted KK 16 in. S.E.5 with Cox .010.

presented in the December 1963 issue of *Model Aircraft*. The first pair of wings made as per plan with two spars and strips of $\frac{1}{32}$" x $\frac{1}{8}$" balsa top and bottom to form the wing ribs collapsed and corkscrewed under the shrinking power of doped tissue (it was pinned down for a day after doping but twisted a couple of days after being pinned!). This meant building and rigging new wings with $\frac{1}{16}$" sheet solid wing ribs before the plane was ready to fly. Powered by an ancient Miles 0·75 diesel it flies well in quite strong winds, its biggest virtue being the pendulum rudder which keeps it weathercocked into wind better than some single channel radio models I've seen. Perhaps there is something there the free flight contest boys should try reviving – the use of pendulum control to obtain wind penetration so that the model finishes up-wind of the time keeper when the motorcuts, the *Armstrong Whitworth FK 3* does it provided the wind doesn't exceed flying speed. In fact I've had more than one flight of two to three minutes finish up with within 20 yards of the launch area due to the plane beating back up into wind after gliding round in a large left hand circle.

Finally I must mention my latest model if only to ask for the plan to be brought back into the Aeromodeller plans range and this is the 48" wing span *Supermarine Seagull*. This model was based on Model Aircraft plan No. MA 83 with the addition of a centre fin. (Found necessary on the full size plane to assist directional control and adopted on the model for the same reason) The power of the old Mills ·75 flat-out on a 7 x 4" prop is marginal giving a climb rate of about 30 ft. per minute but the rock steady flight and leisurely speed together with this clawing for altitude give a wonderful air of realism. Incidentally I have found very little need for trimming on any of my models (except the Hurricane) I am careful to get the C.G. about the right place, and having done this and removed any warps, all have flown virtually straight off the building board.

So in closing may I say to fellow sports fliers, don't be put off by the need for an exhibition finish, just a good finish will do for a sports flying scale model, but what a thrill one gets from flying a scale model, and they can be flown in windy conditions just as safely as conventional sports models – try one.

London, S.E. 26 M. R. H. Saunders

Semi-Scale

Semi-scale models, thats what they *used* to call them. Models which though not replicas of a full size aeroplane they did at least *resemble* such a machine. What has happened to the imagination of today's designers of free flight sports models? Where for instance is the modern equivalent of the old "Purist Plea" or the A.P.S. "Black Magic".

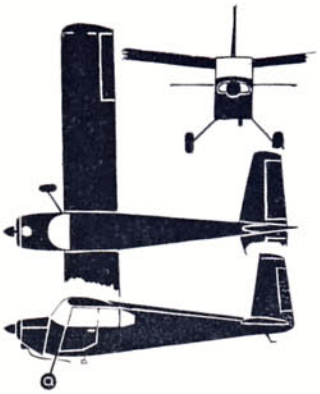
I was recently given a large pile of *Aeromodeller* back numbers mostly covering the first few years after the war and looking through those pages was like seeing into another world. The designer today seems to have fallen into an appalling rut of simple sheet models with no character to them at all. There is nothing on these objects for one to observe "Ah Vic Smeed or perhaps Rupert Moore designed that one". Free flight types today look as if they were all created in one factory. What has gone wrong? Let's do a little thinking. First for performance and simplicity we can assume we are stuck with a simple high wing type so lets make the most of it. To start with, let's go for the nose of the model. Instead of the conventional type let us put on a scale type Lycoming cowling, which is only a simple flat box made from $\frac{1}{8}$in. sheet balsa. Next, we mould the windscreen instead of sticking on flat pieces of acetate. Then by building a taller fin, putting on some dummy exhausts, a step to the cockpit, and perhaps a door with handles we then have something as illustrated in the Sketch below. No, this isn't something from pages of *Aircraft Of The World*, it's purely a freelance design which no model exists as yet.

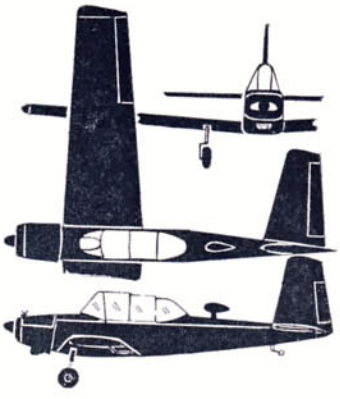
It's not only the free flight brigade who is in the rut the control line boys are there too. As mentioned in *Aeromodeller* pages before, the team racers have reached a ludicrous state with the one wheeled efforts with the pilot dangling by one foot piloting the machine with his head stuck in a ventral radome. Why don't we have a new class of racer based on the full size pylon racing machines? Perhaps something like that illustrated in the second sketch below. Again there is no such type but a few of these racing against each other could be a good crowd puller.

The radio Boffins cannot escape either. They go to tremendous effort to get a beautifully finished low wing machine complete with wheel brakes and throttle control which with everything in the way of control surfaces so it will behave exactly like the real thing. Then they go and spoil the whole thing by turning up with almost identical design to the next man with those silly little swept fins and a minute pimple of a cockpit canopy hardly visible. Look at the third Sketch at bottom. This could be full size but it isn't. The reason it looks that way is again the scale type engine compartment, a much larger cockpit (tandem layout in this case) and a few dummy extras such as a radio direction finder on the top of the rear fuselage and a much larger fin.

Come on designers, let's see some *real* model aircraft for a change. Let's be in a position so that in future years our descendants will look back and say "By Jove, they knew how to build models in those days, they really had character".

Worcester *M. E. Jones*





Stopwatching

Dear Sir,

With reference to John O'Donnell's remarks in the August *Aeromodeller*, may I point out that in the last two rule books published by the S.M.A.E. in 1955 and 1962 no mention was made as to how engine runs were to be timed, nor was even a single stopwatch prescribed for this purpose. The new rule book which clears up this point and other ambiguities, was, as far as the free-flight rules are concerned, based on an otherwise very excellent draft prepared by John himself and it is a pity he did not take the opportunity of putting matters right then. However his draft perpetuated the ambiguities of the past.

Surely in this so-called affluent day and age the procurement of an adequate number of stop watches is not too big a step to take. In any event the requirement of the use of two stopwatches on the engine run is better than the haphazard method of a visual check on a moving second hand of a single watch which would appear to have been legitimate in the past.

I will leave the Contest Director of the Sir John Shelley event to comment on the allegations relating to the breach of the new rules. The directive sent to him by me clearly stated that they were to be observed and as a competitor all my flights were timed in accordance with the rule book. In fact, on my second flight I had 1/10 sec. excess engine run due to the difficulty of the timekeepers in hearing the precise moment of cut out due to other engines running in the vicinity. With two watches agreeing there was no reason to dispute the decision despite an independent timekeeper (a member of the Free-Flight Sub-Committee) who was sited away from the noise clearly showing the engine run not to have exceeded 10 secs. on his stop watch.

Hove, Sussex. *I. Lucas,*
Chairman Free Flight
Sub-Committee
S.M.A.E.

Dear Sir,

Thanks for a fine Nats report in the August *Aeromodeller*—it certainly gave a "what happened" impression to those like myself who, because of actively taking part, could see only a fraction of the meeting.

However(!) as event director of the *Sir John Shelley Cup* I should like to correct the statement by John O'Donnell that I insisted on the use of two watches to record the engine run, but allowed a single watch to time the flight. *This is just not true !* As I remember I went slightly hoarse giving verbal instructions to each competitor that in addition to the two watches timing the flight, a third watch must be used to record the engine run. I think the Nick Neve, the S.E. Area P.R.O., who spent all day assisting me will confirm this, We also offered the use of a third watch or timekeeper to any competitor who had difficulty in obtaining same. For the fly-off, Ian Lucas organised four timekeepers for each competitor i.e. two to time the engine run and two to time the flight. Thus the fly-off was timed exactly as required by the current S.M.A.E. rulebook and as the "Shelley" might be considered the premier S.M.A.E. power event then surely, one could not do less then this.

As to the "impractical" comment, perhaps it is up to individuals, clubs and Areas to make an effort to obtain more stop watches, preferably of the split-hand type.

One last thought on this subject. There is the beginning of a trend at the moment to increase competition entry fees so as to enable winners to walk off with bigger cash prizes, even to make a profit on the weekend to quote from the "N. Area News", so why not bigger entry fees to enable timekeepers to be paid—say at the rate of sixpence per timed flight?

In this way we might solve the timekeeper shortage problem. For example a competitor who put in a good stint of timekeeping might recoup his entry money and somebody else doing sole duty as a timekeeper might even cover his "petrol money" ! I intend this suggestion to be taken *seriously*.

Crawley. *P. Cameron,*
S.E. Area Comp. Sec.

Standards in Germany

Dear Sir,

It was with great interest that I read the letter from Mr. A. D. Corbett in the June issue of *Aeromodeller*, as I find myself in a very similar position, that is, entering the sport again after an absence of 15 years. However, I cannot agree with Mr. Corbett's generalised sweeping statements of low standards of building and flying, although I must admit not to have attended a contest in Great Britain for 15 years and that my recent contest flying experience is limited to Western Germany. But what an experience! I was absolutely amazed and delighted by what I saw—the standard of building and flying, both free flight and radio control; it to my mind absolutely in keeping with today's advanced technologies. I need mention here only a few outstanding examples—the SPL series A2 and A1 models of Herbert Schmidt and Siegfried Puttner (solid balsa wings with variable twist distribution), the new towing methods practiced by the French, and the variable pitch propeller used by Reiner Hofsass on his Wakefield (although I affectionately remember Ted Evans models and their high standard of craftmanship!)

It might also interest you to have details of some models which are currently flown by members of the recently formed club "Thermik Schnuffler", Altenbach, Heidelberg. The two power models are flown by Peter-Jurgen Birkoff (left in photo) and Heino Klingenfuss in the Motor Segler Class (A2 specification plus motor up to 1 cc., 15 sec. motor-run). Birkoff's model is a modified *Dixielander* (shame on modern developments) and that of Klingenfuss in his own design with which he won the German Championships in 1966. Both these models use the very powerful Schlosser 1 cc. diesel, Klingenfuss uses a wing section developed by Dr. X. Wortmann which has proved itself absolutely right for this class of model. Both models make extensive use of thin strands of glass-fibre laid at 45° across the wing and tailplane to amplify the diagonal tension-field effect.

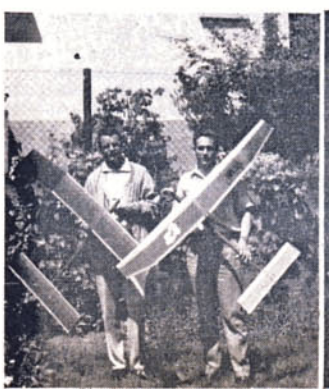
The centre photograph shows German Wakefield team member Reiner Hofsass and one of the models he will fly in the World Championships. This is a fairly conventional model, if one now accepts solid balsa wings as conventional, with a variable pitch propeller, which on 14 stands of rubber climbs rapidly for thermal hunting (right-climb, left glide). His other Wakefield, which also uses a slightly modified Thomann wing-section, has a higher aspect-ratio and is trimmed to fly on 12 strands for calm weather. The tailplane, as well as the wing is again carved from solid balsa.

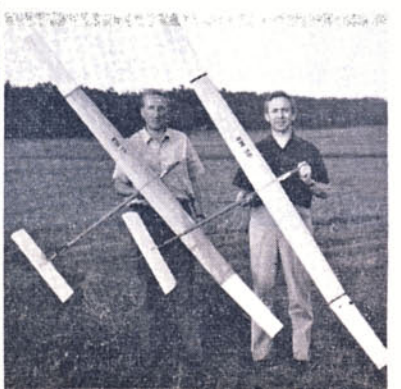
The third photograph shows Reiner Hofsass and myself with our developments of the SPL A-2 sailplane. Hofsass uses here a modified Wortmann section and myself a Thomann both with a three-dimensional turbulator; the still-air performance is practically the same. Due to the variable twist wings both models, in spite of 94½ in. span, will turn on a sixpence (or should I say Pfennig) for thermal flying. We have also developed a towing method in which the model cannot be released from the line until the end is given free—consequently we can fly them as rather large, powerless control-line models until we find a suitable thermal.

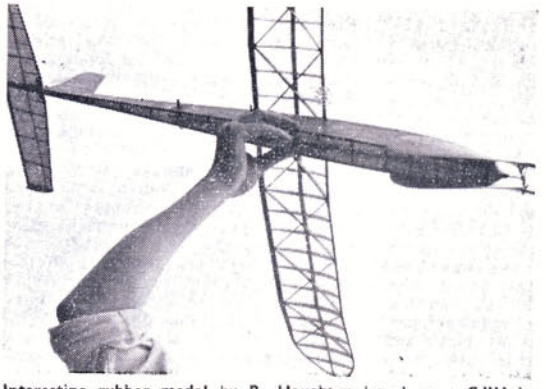
Although an exiled Englander who does all his flying in Germany, please convey my best wishes to the British World Championship Team.

J. B. Spooner.

Boblingen, West Germany.







Interesting rubber model by R. Houghton based on a Cd'H by Alain Landeau. Wing covered in Melinex, diagonal wing ribs provide necessary bracing. Evostik diluted with thinners used as adhesive. Weight of completed structure comparable with conventional tissue covered surfaces. Model flew well though not in official flights at Croydon Gala.

FREE FLIGHT COMMENT . . . .

. . . . By John O'Donnell

Recent S.M.A.E. contests
Clwyd slope soaring
National Champs reflections

CONTEST ACTIVITIES in the past few weeks have been far from convenient to report. There have been two area-centralised S.M.A.E. events which are intrinsically difficult. To adequately cover all areas would take far too much space—even if the information were available.

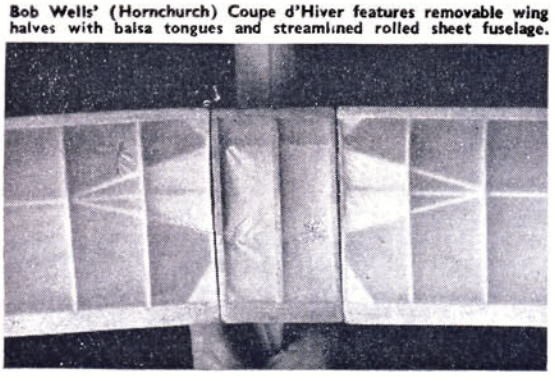
I flew the **June 18th** meeting with the N.W. Area at Chetwynd, and from the results it seems I went to the right place ! The dead calm existing on arrival didn't persist for official flights, but it stayed hot and thermally. My first power flight found sink—but after that I couldn't go wrong. The technique I used for Wakefield was that of "wind and wait". As this meant I had to fit extra D.T. fuse on three flights the power was certainly affected, but this was immaterial as the flights were in lift. The fly-off was rather a disappointment as it D.T.'d at about six minutes but had disappeared into heat haze at 3½. I "doubled" the flights and fly-off for the Area Open Rubber event, and managed to edge out Russel Peers' open model!

Other Area members also used the weather and site to advantage. Steven Phillips won the **Frog Junior** flying a "Shorty" and didn't need his fly-off. Geof Lowe managed second in the **White** with a smallish Cox 15 model.

This meeting convinced many people that Chetwynd was too small for F/F in the crop season—especially as the venue has had its troubles in the past. The courageous decision was taken at a N.W.A. committee meeting not to use Chetwynd for the **July 9th** events. As no other venue could be found this meant that intending competitors had to travel "outside" the Area. This decision was not popular and hotly disputed in some quarters. However it shows that the N.W.A. at least is not unaware of the problem of "fitting the six minute model into a two minute airfield"—and prefers to retain a field for when the farmers are amenable for retrieving.

The resultant participation of N.W.A. members at Topcliffe rather defeats the objects of the area-centralised concept—especially as Midland and East Midland fly "together" at Wigsley. This approach and the numbers participating nowadays makes me wonder if the very concept of these contests is ripe for re-evaluation.

Bob Wells' (Hornchurch) Coupe d'Hiver features removable wing halves with balsa tongues and streamlined rolled sheet fuselage.



The weather at Topcliffe was good (hot, sunny and breezy) except that recovery from "downwind" was largely dependent on just which field was involved. I had a busy day with open rubber (one flight—it didn't want to come down on D.T.), F.A.I. Power for National Championship score and team glider.

I ended up the day with all models—since the "Maxine" was returned to the 'drome thanks to the "return to Topcliffe on July 9th" label—and a co-operative farmer. Others were not so lucky, losing models either in crops or strong lift. The latter included Daves White and Wiseman—the only two to fly-off in rubber (six and five minutes respectively). It was Dave White's 14th consecutive treble with that model !

June 18th S.M.A.E. Results *WESTON CUP. 1. J. O'Donnell (Whitefield) 18:26, 2. H. Tubbs (Balldon) 14:35, 3. R. Monks (B'ham.) 13:32. WHITE CUP 1. J Bailey (Bristol & W.)+3:10, 2. G. Lowe (Wallasey)+3:02, 3. T. Payne (N'T'N)+2:24. FROG JR 1. S. Phillips (Spitfires)+1:17, 2. J. Lorimer (Woking) 7:23, 3. J. A. Pool (York) 6:58.*

July 9th S.M.A.E. Results *MODEL ENGINEER CUP 1. Norwich 32:04, 2. Anglia 30:55, 3 Richmond 29:41. (Individual places) 1. S. Bowles (Norwich)+5:26, 2. K. Winter (Brighton)+3:15, 3 P. Jellis (Croydon)+2:14. ASTRAL TROPHY 1. J. West (Brighton) 13:59, 2. D Welch (Brighton) 13:23, 3. T. Payne (N'T'N) 13:09. OPEN RUBBER 1. F. Sharp (Blackheath)+10:37, 2. J. Lorimer (Woking) +10:26, 3. I Kaynes (Croydon) +7:35. PLUGGE TO DATE 1. Brighton 899, 2. Croydon 609, 3. St. Albans 509.*

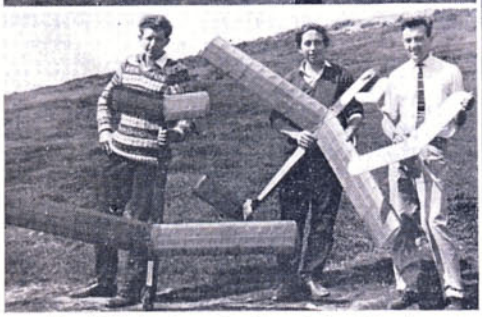
Other events have included two **Chobham Rallies** that I did not attend—principally because I needed the time to prepare models for the events that will form the subject of next month's comments. (I'll be writing "cliff-hangers" next !)

The second of these Rallies coincided with another event much nearer home—the perennial **Clwyd Slope Soaring Rally.** Changes have been made in this year's events following poor support last year. (Allowance for the counter-attractions on the refly date and/or the earlier cancellations would have been reasonable.) The previous two categories (open and A/2) were combined into a single class, although the separate Junior category was retained. The best *two* of four flights were counted instead of merely the best. Finally there was only a *single* prize in each of the F/F categories plus, of course, the Gosling trophy for the best single flight.

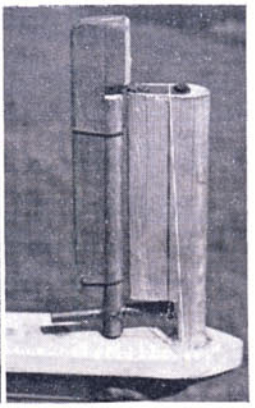
Clwyd is far from an ideal site and its continued use seems a mixture of convenience and sentiment. This year's variable wind was right onto the pointed end of the promentary from which soaring is attempted. This meant that the moment of launch was critical—a point not appreciated by my timers on one occasion. In fact, one said waiting in the launching area was dangerous due to the R/C models ! !

Few F/F participants take Clwyd seriously and many fly old and/or expendable relics. The St. Albans contingent, however, had specially designed slope-soarers. Clive Booth's 36 in. all-sheet balsa "Woggis" looked diminutive compared with Don Edwards' (complete with weight forward rudder) and John Outram's versions. However it was Clive who got in two good flights to record a 6½ minute total. This looked very useful as several fliers with a single good flight couldn't back it up with another. They included Brian Picken (best of 4½ minutes), S. P. Armstrong who lost a "Caprice" upwards after 5½ minutes in a perfectly normal thermal flight (an "Inch Worm" went the same way on test) and myself. Models going over the main hill-top at Clwyd are only too liable to end in the forestry plantations beyond. They certainly swallowed both Len Hutton's and my models.

All the mentioned flights were eclipsed however by the sole entrant with the proper equipment for the event. This was Ray Sutton of Leek who had a magnet steered model—an approach so far almost unheard of at Clwyd. Ray's model was



Top left, Dick Godden (Cambridge) launches his R/C soarer at Clwyd. Bottom left, the St. Albans trio, Don Edwards, John Outram and Clive Booth with his small model, also at Clwyd.



Left, the crude but effective exposed magnet steering nose end of Ray Sutton's model which made the best flight at Clwyd in F/F. Above, George Sharpe (Bleackheath) placed top in London Area July 9th S.M.A.E. events, with a 10 min. plus flyoff time. Mrs. Sharp holds the model. Fair helper, eh?

very "basic" in having a hardwood dowel fuselage, hardwood profile forward platform and skid, Jedelsky wing and sheet tailplane. The wing had been converted from conventional to sweptback form and hence no longer had camber retaining ribs. The magnet was unshielded and was mounted directly onto the forward rudder with all the "works" exposed.

This model recorded one poor flight, one very respectable (2¼ minutes), and a final "unbelievable" 14 minute O.O.S. flight. I didn't see this (being busy surveying the woods) so I can't say how it got over the gully downwind of the launch site—but I understand it stayed nose into wind and drifted slowly backwards and upwards in the upcurrent in front of the main hillside. The timers clocked it O.O.S. well up in the clouds. A spectator with binoculars later saw it start to lose height !

The prizegiving had begun when Ray Sutton was observed returning *with* the model. It had in fact decended relatively rapidly once it had passed the high spot of the hill and was down within another mile. Certainly it was a very convincing win and deserving of both the medal for aggregate score and the **Gosling Trophy** for best single flight. (Perhaps we should add that there was lots of R/C activity throughout the day but it is hardly my province to report this in detail.)

* * * *

Last month's **Nats** report was rather restricted on space and "comments" thereon were consequently not included. There is little doubt that the free-flighters were far from happy when the scheduled return to Hullavington was announced. Memories from 1966 of the downwind woods are still strong. In the event F/F was lucky this year thanks to the wind being onto relatively open country on the first day and having fairly calm conditions on the second.

Nevertheless I have still heard comments to the effect that F/F requirements should be given proper consideration and not over-ridden by organisational and/or camping requirements.* There is no doubt that F/F still provides a very large percentage of the total entry, and yet there is a growing feeling that other branches, due to being more glamorous and of more obvious public appeal, are being given priority. The timing of the Nationals prizegiving to be before F/F events were concluded is an obvious example.†

Another unsatisfactory situation was the undefined status of the Wakefield event. Even the organising Norwich club couldn't tell me if the event was a national (i.e. S.M.A.E.) one or merely a club organised contest allowed to be flown at the Nationals.‡ I understand that Rat Race had a similar state of indecision resolved in favour of the S.M.A.E. accepting that they should pay out prizes.

Views are being expressed in some quarters that the time has come for the F/F fliers to form an organisation on the lines of the American N.F.F.S. to look after their interests. A eparate F/F "Nationals" has been suggested as a solution to he venue problems.

Whilst I feel that the complaints are undoubtedly justified, I do not consider that a satisfactory *long term* solution is to be found by "going our own way" in a fashion liable to split up what little organisational ability exists. Certainly organisational matters could and should be solved by any competent administration worthy of the name.

** Four alternate sites were solicited and rejected for varied reasons associated exclusively with free flight prior to decision to return to Hullavington. Free Flighters were a MAJOR consideration as far as the 1967 Nats were concerned. NO PRIORITIES were given to any other category. Field layout was dictated by Free Flight needs.*

† Prizegiving was arranged for 5.30 p.m. on the second day in order that the President and Station Commander could participate in distributing awards to the 39 Prizewinners in the 11 events which had been concluded. Despite frequent announcement, only two qualifiers attended at the proper time. In consequence there will be NO PRIZEGIVING at any future Nationals. Had the prizegiving been scheduled after conclusion of the two fly-offs in Free Flight, it would have been timed for 7 p.m. by which time we can assure John that the airfield was deserted except for litter-collecting S.M.A.E. Officers and modellers who fly for fun.

‡ Both the Norwich Wakefield and Sheffield Rat-Race events were accepted by the S.M.A.E. Council as Supplementary to the Nats programme on the basis that the organising clubs would also administrate some of the Programmed contests. Naturally they became National events by nature of their location but they are outside the normal S.M.A.E. Calendar. Support indicates that they should be adopted into the 1968 programme. Is this unsatisfactory?

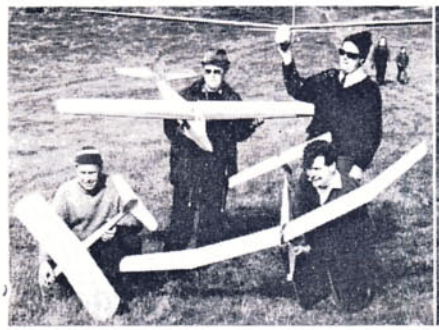
As for "competent administration"—we have nothing but praise for those who ran free flight at the Nats and the way in which the S.M.A.E. Free Flight Sub Committee is tackling its duties for the future in a creative manner.—Editor.

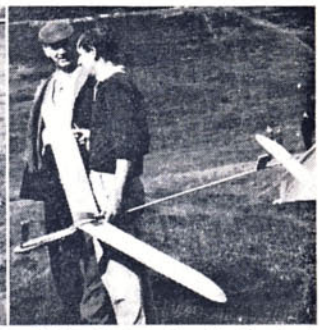
Questions which now arise are:—

1. *What airfields do free flight competitors wish to use for the '68 Nats?*
2. *Who is really interested in getting a cash prize as well as an S.M.A.E Plaque?*
3. *Is the Nats to expand its collection of Supplementary events by request?*

Views on these points may well determine the character of the '68 event as far as free flight is concerned.

CLUB and CONTEST NEWS





Slope soarers at Clwyd included the group at right, who are, left to right, N. Benstead, J. Morden, G. Bushel and P. A. Lewis. The free flight winner, R. Sutton, with his vane steering model, is seen at right.

Two Chobham Rallies

The **St. Albans M.A.C. Gala** on June 25th was the first of the two recent Chobham Common meetings. The day started well with little wind, then at noon the rains came pouring down leaving the crossroads car park 6 in. deep in water. Retrieving was difficult for any flight over 1½ minutes as the floods were 6 ft. deep in some hollows. Martin Dilly topped *Vintage* with a very lightweight "Super Duper" scoring 6:35 followed by J. Mayes with a "Scram" at 3:03. In all, Vintage attracted five entries. *Open Rubber* with 15 entries had the top four score full-houses with R. Paveley topping clubmate A. Wells with a fly-off of 3:40 to Wells' 2:08. J. Clements took third spot with 1:53. *Open Glider* the best supported event. with 20 entries, was a vengeance for J. Clements in first position with 8:17 followed by Al Wisher at 7:34, then J. V. Hook with 6:56. *Open Power* followed the usual trend with only eight entries. G. Fuller of the host club scored the only full house and collected the *Carl Simeons Memorial Trophy* but passed the "cash" to the other contestants. D. Welch was close behind with 8:49 followed by B. Peers with 8:41.

Experimental entry fees were the main talking point at the **Croydon Open Gala** on July 2nd at Chobham Common. The 2/6d. entry fee has become a tradition and the Croydon organisers doubled it to 5/- without any advance warning, reasoning that double the prize money would result, so that winners could be "in-pocket" after a contest. After the initial reaction the entries came at a steady rate throughout the day and a windy and sunny start with some very strong lift was followed by a calm period during the closing stages that gave late entries a much better chance. Many regretted flying early, including R. Pavely and B. Wells who scored full-houses, but at the expense of a model each. In the 11 man *Rubber* fly-off D. Wiseman topped the listing with 6:28 followed by J. Clements just 20 seconds behind at 6:08 then F. Sharpe with 5:08. *Power* top man A. T. Cheesley had the only treble maximum followed by G. Fuller just one second behind, then T. Payne with 8:55. *Glider* saw the top five entries score over eight minutes but no one scored a treble maximum. J. Mabey used a new A/2 and made two maximums followed by a 2:39 chased by D. Wiseman with 8:26. Third place went to Paul Newell with 8:21.

CLWYD SLOPE SOARING

The Chester R/C M.F.C. held their annual slope soaring contest in the Clwydian Hills on July 2nd. A record crowd of spectators and ideal conditions made the meeting very pleasant and clubs attended from a wide area. The Free Flight standard was much higher this year and the better two of four flights rule worked well, eliminating the chance of a lucky flight making a winner. This event was for the Gosling Trophy, named after R.F.L. Gosling who was an early glider exponent and a founder member of the Cheshire Club. At first the trophy was awarded for distance but now it's for duration. R. Sutton (Leek) proved the winner with a time of 16:39 followed by A. Booth (St. Albans) 6:29. S. Armstrong (Hawarden) 5:49. In the single surface Radio Control class N. Benstead topped the list followed by G. Bushel with K. Emmett (Sheffield) third. The Multi event was won by J. Morden (West Mendip) followed by P. A. Lewis (Shrewsbury) and P. Healy (West Mendip). The special junior section saw several youngsters "following in father's footsteps" and M. Fletcher (Heswell) put in the winning flight. Second place went to 13 year old R. Hargood (Chester) and third position to L. Turner who is only *nine* years old. Many different types of models were seen with simple balsa and silk fuselages alongside the fibre glass and polystyrene creations. Mike Barnett and J. Thomas of West Mendip had a model made of thermo plastic material, which, they claim, is ten times stronger than glass fibre. The fuselage is split vertically, weighs only 26 ozs. and needs no additional ballast in the nose.

Winners, above, are victors from the S. Midland Area's first National Combat Rally at Upwood on July 9th: G. Johnson, Shaw and D. Phipps. The elegant trophy at left for first place was designed and constructed by members of the Maidenhead club for the South Midland Area.

The Feltham Eagles

The main news from Feltham and D.M. A.C. is that a new club transfer has been printed and this depicts an Eagle in a shield, about to settle. Also of course they are keeping up their wins in all control line events where at times, but not all the time, they comprise most of the entry! They have placed in all contest entered with Rat Race coming to the fore. Frank Bradley using a Super Tigre G40 RR and Lindsey tuned pipe silencer has recorded over 130 mph but a good time has not yet been recorded and he wears piston/liners out at a fast rate. The club record stands at 3:16 for 70 laps and 6:33 for a final of 140 laps, both flown by Dave Rudd. Most rats have a cut off, some even having clockwork timers, no D/Ts though! Andrew Longhurst the clubs 1966 Rat Champ has a hybrid made from 8 different engines. K&B crankcase, Enya front housing, Fox head, McCoy con. rod, home made backplate, Johnson liner assembly, and E.D. spraybar! Not exactly a wild one in the performance sense it does 104 mph in a B combat model, still it's quite an effort to get it to run! Dave Balch made the most of things by winning B combat at Finchley after some very good combat with just half a model, This may be the last season of flying for Dave, as he is emigrating to the U.S.A. We should explain that several of the Feltham members are also Hayes club members and as they still exist as two seperate clubs yet fly together, rally results are listed as Feltham/Hayes.

Change of Venue

The latest Croydon Newsletter edited by Ken Smith informs us that their weekly meetings will now take place at "*The Harrow*", Cheam Village, instead of the "*Red Lion*" where they had a disagreement with the management. Another tip is Ordnance Survey map No. SU96, this gives a good and clear map of Chobham Common with its 2½ inch scale. At the Nationals they had 16 club members competing in free flight events.

Northern Area News

Due to the resignation of the Northern Area S.M.A.E. Secretary, Ron Firth has been taken on this position. This means a change for the *Northern Area News* editorship. Dave Wiseman is now in charge until Ron is able to find another capable secretary, and return to the Newsheet he has organised so well in the past. Dave has made a good job of it and the last two issues include no less than six plans, five F/F and one C/L. At present the subscription rate is 5s. a year, and rightly so, they are considering putting it up to 1s. a copy. The venue for the **Northern Gala will not be R.A.F. Leeming** as this has now become a master diversion airfield open to traffic 24 hours a day. Plenty of other venues are being tried and we will put the venue in Contest Calendar if known by press date If an airfield is *not* available some events *may* take place on Baildon Moor. They hope to notify all club secretaries before the date (Sept. 3rd.) through the *Aeromodeller* club Address list.

Above right, Julie Goodyear, "Miss Aeromodelling" 1967, Queen of the North Western Area Woodford Rally on August 27th, posing with Derek Brunt's Goodyear racer. Above, a sign on public ground at Iford Bridge, Christchurch, Hants. We hope the Council have arranged an alternative site for local modellers. At foot of page, the Western Area S.M.A.E. Committee, left to right, standing: G. Pink, J. Down (Sec); seated: T. Allen, A. Rodgers (Vice-chairman), N. Wilkins (Comp. Sec), M. Greer, J. Mayes (Chairman).

First Birthday

Havering M.C. are just a year old and have met with considerable success in the formation of their club. They have their own flying site on private land at the Stubbers Youth Farm and the members realise just how lucky they are. Having kept the club general, embracing all types of modelling they find the largest interest is still aero modelling.

The control line section are concentrating on stunt and combat and the radio control is mostly single channel with the emphasis being on standard production kits, in models as well as radio units. Free flight is the smallest section with interest in rubber and glider. Scale is on the increase with a Fokker D VII from the Chairman John Barfoot and a B.E. 2e from Dave Willis. They have almost 100 members.

Coming Events

August 19	*Irvine Concours d'Elegance*, Static display only. Scale and non-scale. Junior and Senior class. Entry forms from: D. McIntyre, Minyores, Stewarton, Kilmarnock, Ayr Scotland.
August 20	*S.M.A.E. Area Centralised Meeting*, Team Power Kell) Trophy), F.A.I. Rubber (Gutteridge), Open Glider, A/1 Glider.
August 19/20	*Southend Radio Control Rally*, The Recreation Ground, Leigh-on-Sea. Saturday (a.m.) Scale Flying; (p.m.) Scale judging, Novelty (Limbo, etc.), Open Pylon racing. Sunday (a.m.) Multi F.A.I.; (p.m.) Team formation flying, Multi-F.A.I., Goodyear Pylon racing.
August 27	*Torbay Free Flight Rally*, Woodbury Common, Devon. Open R/G/P and Chuck Glider.
August 27	*Woodford Rally*, Hawker Siddeley Airfield, Woodford, Cheshire (not London). Open R/G/P Chuck Glider F/F Scale, R/C Freestyle Aerobatics, R/C Open Pylon Race "A" Combat, "½A", "F.A.I." T/R Rat Race, Stunt and C/L Scale. Pre-entry 2/6d. to: G. Stott, 11 Fairsnape Road, Lytham, Lancs. Car parking free, free admittance to S.M.A.E. members with current affiliation card.
September 3	*Boscombe Down Rally*, Army Air Corps Airfield, Middle Wallop between Andover and Salisbury. "Fly for fun" meeting with contests for Open R/C Spot Landing and Concours d'Elegance—models must fly. Restricted hard-stand area.
September 3	*S.M.A.E. Northern Gala*, **No location,** most probably cancelled. Open R/G/P. Tailless, Team Race "¼A", "A", "B" Combat. Stunt. Multi R/C.
September 3	*South Coast Radio Control Rally*, Golden Cross, Lewes, Sussex. Single channel spot landing (10—1 p.m.), Multi open pylon race. 5 min. aerobatics. Limbo event.
September 10	*Northern Area Slope Soaring*, Holmfirth, Nr. Sheffield, Yorks. Site is near A616, 2 miles south of junction with A635. Free Flight, Magnet Steering, Single Surface, Radio Control—possibly Multi if time permits.
September 10	*Northern Heights Gala*, **CANCELLED.**
September 17	*S. Midland Area Rally*, College of Aeronautics, Cranfield, Beds. R/C, F/F, C/L all events except speed, scale.
September 17	*S.M.A.E. Area Centralised Meeting*, Team Rubber (Farrow Shield). F.A.I. Glider (S.M.A.E. Cup), Open Power, ¼A Power.
September 23/24	*R.A.F.M.A.A. Championships*, R.A.F. Hullavington, Wilts. Wakefield (Thurston) open to civilians on 24th. Three flights in rounds, starting early !
September 24	*S.M.A.E. Midland Gala*, **No location,** probably cancelled.
September 24	*Luton and D.M.A.S. Slope Soaring Rally*, Ivinghoe Beacon. Single control pylon race, 5 min. flight time, 2 flights. Multi control, 5 min. flight time, 2 flights. Aerobatics, 2 loops, 2 bunts, tail slide, spin (3 turns). Entry restricted to 30 in each class. Free flight Glider and Chuck Glider also Magnet Steering. Pre-entry to : D. W. Bateman, 14 Ridgeway Drive, Dunstable, Beds.
September 30	*Mid Essex Rally*, Doctors Pond, Dunmow, Essex. Combat, R/C boat balloon bursting, statics.

New and Changed Events

October 1	*South Coast Gala*, R.A.F. Tangmere, Nr. Chichester, Sussex. Open R/G/P, combined F.A.I. R/C. Open pylon race. Limbo, Scale, C/L Stunt, Combat, ¼A, F.A.I. T/Race. Pre-entry 2/6d. to: Area Secretary, 7 The Green Walk, Willingdon, Eastbourne.
October 1	*South Bristol Autumn Gala*, R.A.F. Hullavington, Wilts. Combined Vintage, Combined F.A.I., Chuck Glider, Coupe d'Hiver.
October 15	*S.M.A.E. Southern Gala*, **No location,** probably cancelled.
October 11 to 15	*Rotherham Model Makers Fair*, Town Hall, Rotherham, Yorks. Display, etc.
October 29	*Wanstead Control Line Rally*, Charville Lane, Hayes, Middx. Combat and Rat Race. **NOT TEAM RACE.** 100 miles rat race marathon, 1,500 laps, 56 foot lines. Pre-entry 10/- sen., 7/6d. Inter., 5/- Jun. to R. Ives, 15 Falmouth Avenue, Higham Park, London, E.4, S.M.A.E. cards are *essential or NO-FLY*. Large prizes.

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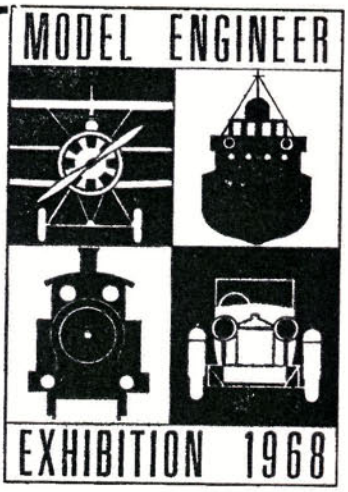

COMPETITORS are advised that entry forms are now available as this issue appears. Closing date for entries will not be coming up for some time, but early entry would naturally assist the organisers, and ensure the widest possible variety.

EXHIBITORS from the trade are informed that brochures and detailed stand application forms are ready. Potential exhibitors are warmly invited to write for details of what will be the first major exhibition for several years.

Entry forms and trade exhibitors' brochures are available from the Exhibition Organiser, M.A.P., LTD., 13-35 Bridge Street, Hemel Hempstead Herts.

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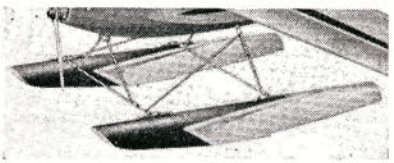

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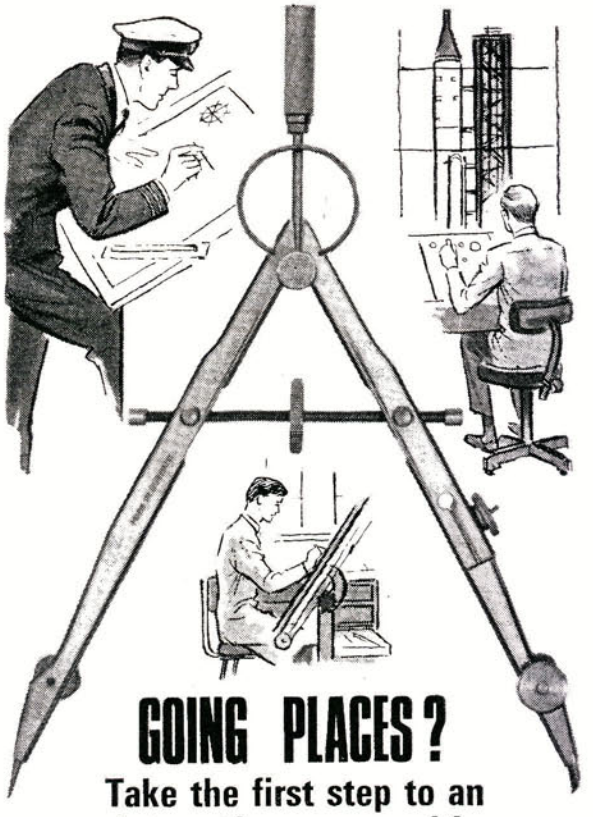

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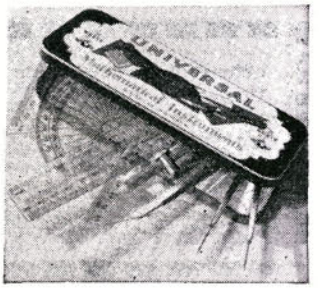

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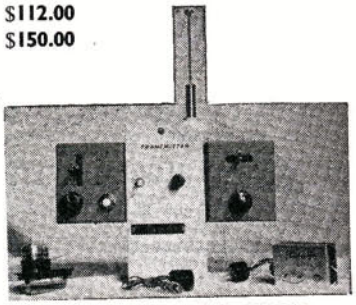

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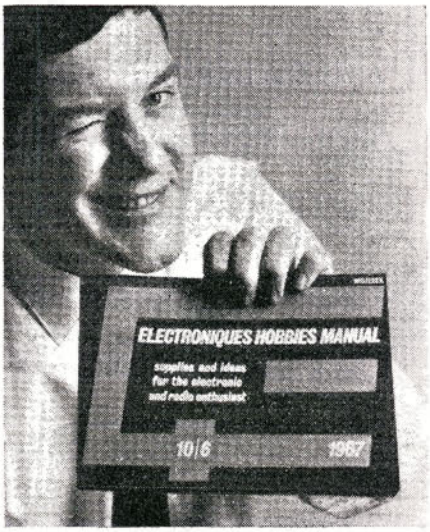

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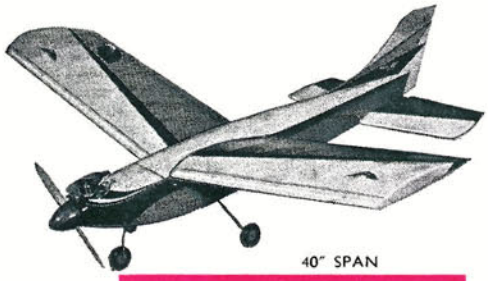

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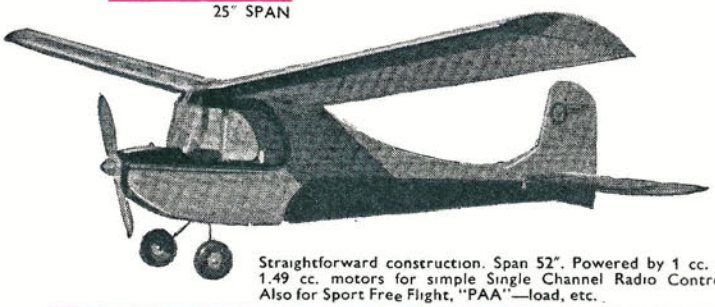

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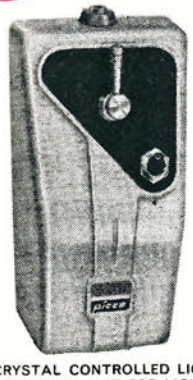

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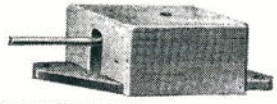

Standard Version 1270. Size: 30×22×20 mm. Current 25 m.a. Weight .9 oz.

Special Actuator 1271 For Greater Power. With Improved Performance. Size: 30×26×20 mm. Current 30 m.a.

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1270	Standard Actuator	2 16 4
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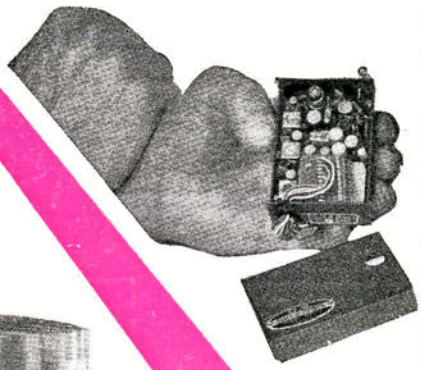

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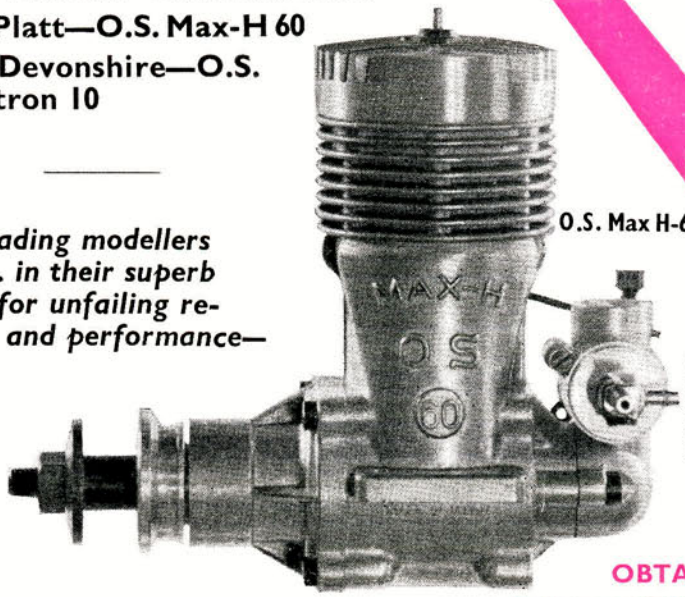

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