AERO MODELLER

Christmas 1962

BUMPER issue –
Plus TWO free plans

+FOCKE-WULF 190 DETAILS+INDOOR CHAMPS REPORT

2'6

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AERO MODELLER

MAP HOBBY MAGAZINE

December 1962

VOLUME XXVII No. 323

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cover

Twenty years have past since the sort of scene depicted by Laurie Bagley's cover painting this month, was an almost every day occurence. Operating from bases in Northern France and Belgium, the newly formed F W.190 A-3 squadrons became efficient nuisance intruders with their single bomb load, and heavy armament for strafing military targets. Might we suggest that in view of the current wave of enthusiasm for radio controlled scale subjects, this appears to be a good choice and with the information provided in this issue, an enthusiast could prepare an impressive entry for the 1963 events . . . but please no bombs! !

next month...

A galaxy of contest designs, drawn in fine detail, will open the 1963 year with loads of inspiration in the shape of successful ideas. Ron Place's outstanding ½A team racer **Countdown** which has been collecting no mean share of the prize money over the past season, will be introduced to AEROMODELLER Plans Service. **Simpleton** is the appropriate name for our new year's FULL-SIZE PLAN. Specially selected to open the season with something which we know will be very popular, it is a free flight power model suitable for a wide range of engines and which can be built in a variety of sizes in very rapid time, almost overnight. *Build it Saturday, fly it Sunday!* These, plus many surprises up our sleeves, out on December 21st.

other modelling angles . . .

December issue of *Radio Control Models & Electronics* will be found to be packed with good things for Christmas. John Dumble's sensible 6-channel approach to mono-command contests, winner of the British Nationals 1961, will be introduced to Plans Service as *Six Gun*. Another design in popular demand is Jack Morton's *de Havilland 60 Gypsy Moth*. Lots of scale modellers want to know his alterations and so we have prepared a special sketch page giving all the important details for changing the existing A.P.S. design into a model capable of carrying multi-channel and stressed for aerobatics. R.C.M. & E's first relayless reed receiver is presented in simple do-it-yourself form. Boat enthusiasts will be interested in a simple, yet versatile, control system. Gadgets, commercial developments and loads of new ideas complete the full issue.
In December issue of *Model Maker & Model Cars* there is a FREE full-size 36in. x 11in. double sided plan for a 30in. long *missile carrier*. This fast launch has been specially designed for radio control steering events or sport running. Car enthusiasts have a fine article on road holding and full-size plans will be included for a free running electric trials car. Marine modellers will have their appetite satisfied with Dick Priest's *vane steering gear* for yachts and *County Class* guided missile cruiser. This enlarged Christmas issue with free plans is 2s. 6d. per copy. If your hobby shop or newsagent does not carry a stock, send 2s. 10d. for a return post copy from the address below.

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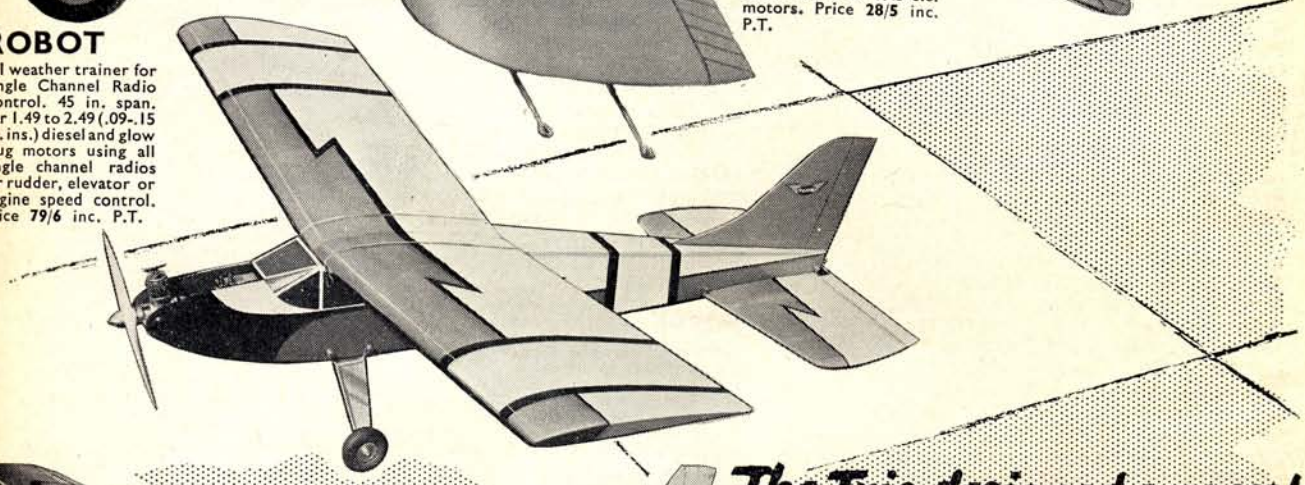

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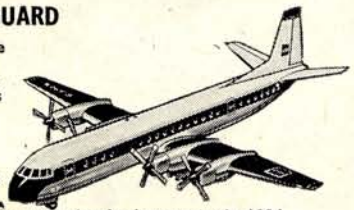

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A.362

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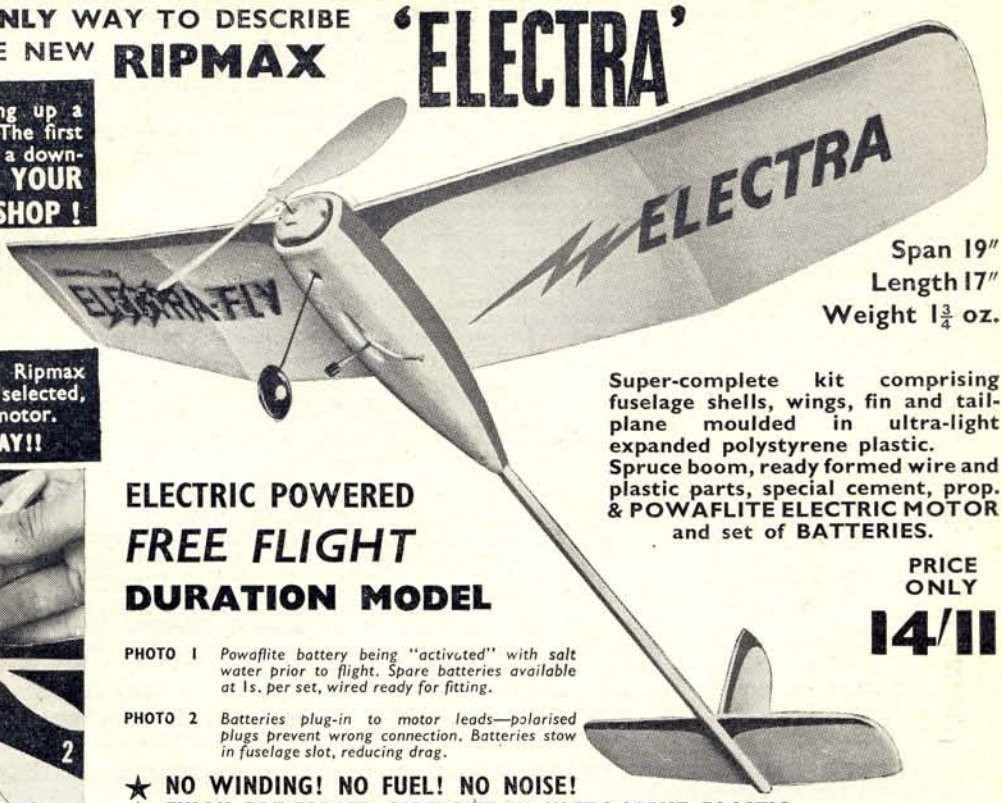

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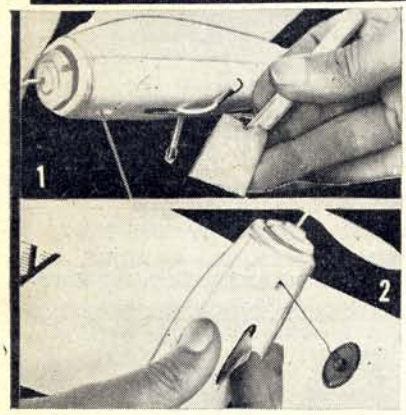

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PHOTO 2 *Batteries plug-in to motor leads—polarised plugs prevent wrong connection. Batteries stow in fuselage slot, reducing drag.*

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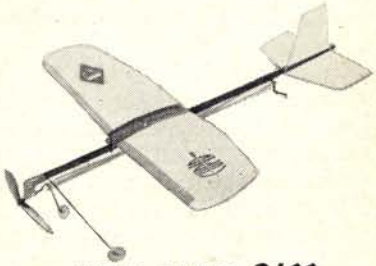

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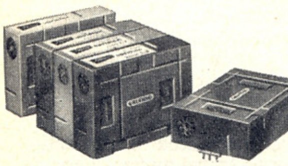

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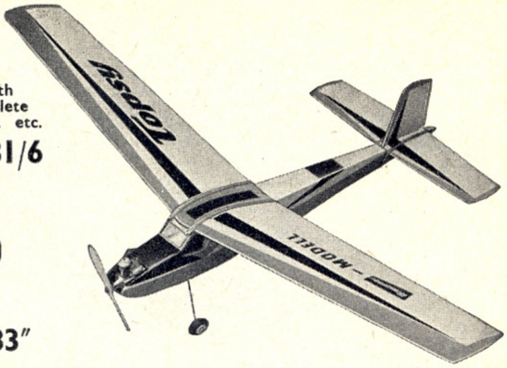
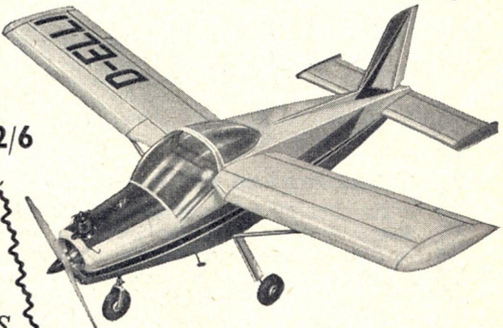
31/6



BÖLKOW JUNIOR 33"

A superb new scale model for R/C or F/F Authentic detail and a delight to fly being really stable; kit contains selected materials, tissue, moulded canopy, 3 wheels, transfers. Suitable for motors up to 1.5 c.c. only.

62/6



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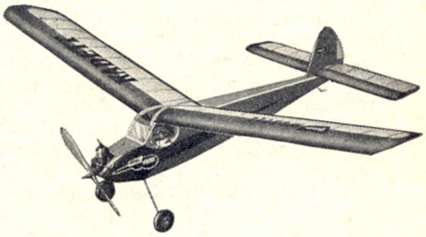

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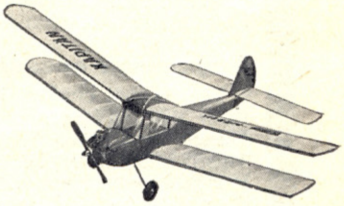


KAPITÄN 43"

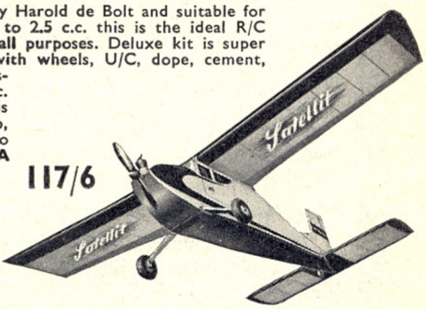
Similar design to Kadett this attractive biplane is great fun to fly with motors up to 1.5 c.c. for R/C. Again kit has everything you need, and only motor, prop and tank are required to complete this exciting model.

53/6

SATELLIT 48"

Designed by Harold de Bolt and suitable for motors up to 2.5 c.c. this is the ideal R/C model for all purposes. Deluxe kit is super complete with wheels, U/C, dope, cement, tissue, transfers etc. Only needs motor, prop, and tank to complete. A contest Winner!

117/6



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Heard at the Hangar Doors

Low inverted streamer towing pass by Harry Brooks' "Reb" at R.A.F. Odiham on the occasion of the AEROMODELLER Trophy for R/C Multi command—won by F. Van den Bergh.

What makes a Champ?

The honour of gaining the title "*British National Senior Free Flight Champion*" is a matter for claim by those who consider themselves prospective applicants. For more years than we care to remember, the title has gone to John O'Donnell, that indefatigable enthusiast who manages to perform so well in practically every event on the Contest Calendar. 1962 will be no exception for John, as we have had sight of his claim sheet. In the period 25th March to 30th September, John entered twenty out of twenty-eight possible S.M.A.E. contests, succeeding in the process by obtaining 2 firsts, 2 seconds, 2 thirds and 2 fourth placings. Of the maximum possible score of 306 minutes in these twenty-eight events, John accumulated a total of 151:45, just a shade under 50 per cent. We stand to be corrected; but it seems very much to us that John deserves the accolade once more and we accord him our full congratulation in advance of the announcement at the S.M.A.E. prize-giving and dinner to be held at the Members Restaurant, The Zoo, Regents Park, London, on Saturday, November 24th.

Important occasion

The Annual General Meeting of the S.M.A.E. Ltd. takes place this year on Sunday, December 2nd at Queens Hotel, Piccadilly, Manchester, opening 11 a.m. This is likely to be the most important of all A.G.M.'s ever held by the Society. Matters concerning membership discrimination and fees will be intently discussed. Moreover, the location of the meeting will be within that section of the country where there has been the greatest expression of discontent. All members who have the welfare of the Society at heart should make every effort to attend what promises to be a lively discussion of far reaching consequences. Now is the time for firm decisions to be made regarding the future policy of the Society and it would be a most regretful day if the decision reached was not truly representative of all the seventeen areas in Great Britain.

Multi—Where Art Thou?

Are multi channel modellers interested in competitions? At the beginning of this year when it was announced that the multi channel contest would be displaced at the British Nationals in favour of the new radio control scale R/C contest, there was a furore of opinion. Yet what do we find among the many events which have been running from August to date? Only *two* entries presented themselves at the Northern Gala, admittedly in appalling conditions. The coincident event held by I.R.C.M.S. at R.A.F. Wellesbourne, Mountford, has yet to provide us with official results, but we understand that the entry was *eight*. Only four official entries were made for the S.M.A.E. centralised contest for the AEROMODELLER Trophy at R.A.F. Odiham. Three more turned up on the day, so that there were a total of *seven* in this event. South Midland Area Gala provided a bright exception with upwards of a *dozen* ready to fly—could it have been publicity and the reputation of a happy meeting?

Enthusiasm seems to have ebbed to its lowest level at the Northern Area all-F.A.I. contest, where only *one* multi equipped competitor arrived! This, at a magnificent venue with half a mile square of smooth concrete and conditions as near perfect as one could wish!

These widely dispersed meetings held in the North and South seem to indicate that there are very few of the many multi channel operators who are keen on competitions. Is it that they do not like to travel and wait for a long period just to make one fifteen minute flight?

Biggest Yet

We are quite used to receiving impressive sales catalogues from overseas companies. High standards of printing, illustration and enterprise in the presentation of sales material has always impressed us in the catalogues from the U.S.A., Germany and Italy. A Swiss model shop, C. Streil of Zurich, even goes so far as to produce a regular printed newspaper, filled with information on international and domestic modelling activity, plus, of course, news of latest trade matters and items they have imported for sale.

But when 4½ lbs. of catalogue arrives in one solid lump from Polks of New York, it tends to overshadow all previous standards.

This is undoubtedly the "most". 574 pages, 8¼ in. by 13¾ in., describe and illustrate practically every item that must be available anywhere in the western world. Not all of it is aeromodelling—only the first 215 pages (!), the rest being made up of associated hobbies, railways, race cars, etc. Incorporated in the catalogue are dealer hints, suggested buying for retailers and words of timely advice from the famous brothers Nathan and Irwin

The Editor and staff send Christmas greetings and best wishes for a prosperous New Year to all readers

Polk, who have been in the business since 1926 at least to our knowledge, and know all there is to know about the model hobby trade. This mammoth "Hobby Buyers Guide Book" is a revelation. It is priced at $25 and worth every cent to a discriminating dealer who wants to improve his range of stock.

Oops!

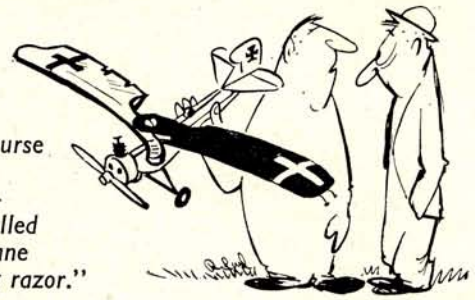
We have slipped! It was far from our intent to imply that Grahame K. Gates was a modeller who had "*disappeared from the present day scene*" when we mentioned his efforts with the Beagle M.218 light twin aircraft design in October issue. Grahame is very much an active aeromodeller and only pressure of work on the M.218 prevented him from attending the 1961 Nationals. He is an active competition secretary for the South Eastern Area.

A credit we missed giving in last month's issue was for the design of the *Midget Mustang*. Keith Laumer created this popular little sports racer as a companion for the *Gee Bee* in April issue. We hope to follow up with more of these profile racers for .5 to 1 c.c.

Records

Bob Copland's British National Slope Soaring record of 230:35, established on 19th October, 1958 at Ivinghoe Beacon was beaten by a slim margin of 49 seconds when Bob Askew flew his radio model for 3 hours 51 minutes 24 seconds at Long Hill. Bob is a member of the Lancashire Area R/C A.S. and we presume he will be endeavouring to increase the margin at next attempt.

While we were in Kiev, we were able to see something of the rivalry between Ivan Ivannikov with his high speed jet deltas and by Anatoli Kouznetsov with his own design 10 c.c. glow plug engine. They were each striving to improve upon Ivan's own absolute world record for speed models of 301 km/h. Ivannikov had already made flights of 310 km/h, but had the misfortune of having a line break within half a lap of completing the kilometre record run attempt. Kouznetsov flew at Kiev making 288 km/h. but hit the ground on his second flight. His motor was undoubtedly the most impressive at the World Championships. The exhaust note increased in pitch from the start of the flight to conclusion and it was quite evident that despite the simplicity with suction fuel feeding and perfectly standard layout throughout, here was an exceptional engine/model combination. We are not really surprised, therefore, to learn that a week after the Kiev meeting, Kouznetsov established an official record attempt time of 316 km/h. (196.36 m.p.h.)



"Of course it's to scale— they called the 'plane a flying razor."

at Leningrad. The model was flown on monoline, presumably 0.25 mm. diameter as used at Kiev.

Model Trade Federation

With the change of name from the previous **F.M.A.M.W.** to the simpler *Model Trade Federation*, the scope of the trade organisation has widened to include a section for retailers. Response to the new branch (quite separate from the manufacturers section) has been good. Modellers will soon be able to see the prominent M.T.F. window sticker in approved model shops, a sign that should guarantee good service, engine demonstration and useful advice from the proprietor. Retailers will gain through this close link with the manufacturers and through regular meetings will be able to apply more concentrated effort in the improvement of the hobby supply business. A permanent paid secretary will issue regular bulletins on activities with new marketing ideas. The M.T.F. is also keeping close watch on the flying site situation and is in a position to offer advice to clubs involved in negotiation with local authority.

The way to do it

Aeromodellers are very much given to talking a lot about ways and means of improving their status among local organisations, but very few clubs seem to find the correct channel of approach. The result is that, on the whole, most British model clubs receive very little publicity and it is by no means unusual for a club to be organised within a town where there are innumerable free-lance enthusiasts quite unaware of any local modelling organisation.

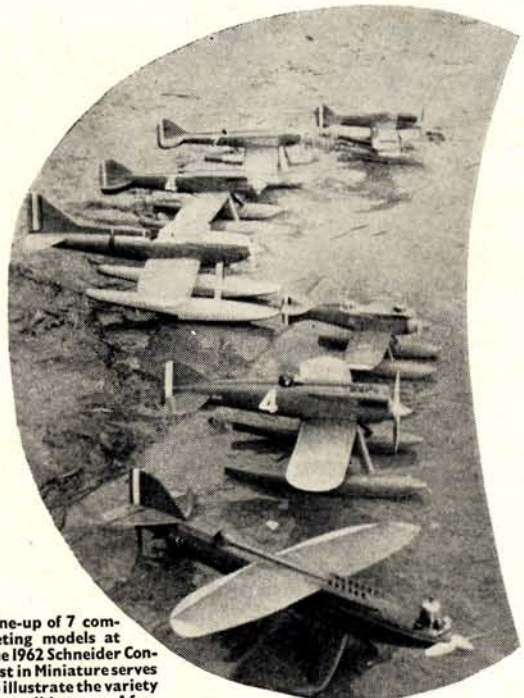
The exception to this situation is, of course, where clubs obtain established assembly rooms and their activities are published in the local press.

In New Zealand, the Christchurch M.A.C. decided to make the bold approach. Members of the South Island M.A.A., they are a progressive group with a predominant free flight interest, thanks to good access to flat fields only eight miles from the city. They decided to spend £50 on advertising a display of their activities on the nearby R.N.Z.A.F. Station Wigram, charging for admission and anticipating a gate of between eight and ten thousand people. This is not the first time that a display has been held and they based their estimation for the 21st October demonstration on a 5,000 attendance. It will be seen in the advertisement, at left, from the local paper (and which occupies an area roughly the size of a half page in this magazine) that the display will be centred upon radio control and control-line activity. Four quite different advertisements were inserted in the local paper and we hope that the effort achieved the anticipated success.

The financial return will, of course, be ploughed back into the club for improved facilities in the future and, we expect, to support participation in overseas World Championships.

Italian Schneider Trophy Racers

Described by Franco Bugada



Line-up of 7 competing models at the 1962 Schneider Contest in Miniature serves to illustrate the variety of possible types. A further description of this contest with three other plans appears in the AEROMODELLER ANNUAL 1962/3, now on sale

REGULAR READERS will recall that in our issue of May, 1961, we published full details of the *Macchi M.C.72* as flown by Silvio Taberna. Plans were introduced to AEROMODELLER Plans Service from that time as drawing CL. 788 price 7s. 6d. The model was originally designed for a Webra Mach I diesel, but will take any engine of 2.5 c.c. and has been a most successful design, winning both the 1961 and the 1962 contests for models to this specification held at Varese in Italy.

AEROMODELLER ANNUAL, current issue just released, contains more details of this fascinating over-water control-line scale competition, giving plans for the 1927/29 *Macchi M.52*, the 1929 *Macchi M.67* and the revolutionary 1929/31 *Piaggio Pegna P.C.7*, with its unusual hydrofoil undercarriage and combined water screw. Each of these types have been successfully modelled and now in this article we give further details of three other suitable Italian aircraft.

One should mention at this point that the Supermarine *Curtiss* and *Gloster* types are by no means forgotten and the Italian enthusiasts have them well in mind for future contests, in fact a Supermarine S6B was entered by Lionello Valle at the 1962 contest, placing 5th to provide a bright blue change from the otherwise all Italian red entry.

Our scale plans range includes the *Gloster VI* racer (pack 2742), the *Gloster IVB* (pack 2225), the *Supermarine S6B* (pack 2331) and the *Curtiss CR3* (pack 2755), each being a 2s. 6d. pack containing 1/48th and 1/72nd scale drawings ready for enlargement.

Contest

Original conception of this Schneider Trophy in Miniature, comes from the home of many of the Italian racers, for Varese is the location of Aeronautica Macchi Company. In 1961 the Varese aeromodellers thought up the idea of a competition where speed, scale and take-off and landing performance would be matched. Description of the rules as applied to the 1961/1962 events is included in the AEROMODELLER ANNUAL and in brief, they call for a model with maximum engine size 2.5 c.c. to fly on a line length of 13.27 metres, over twelve laps for a one kilometre speed check. Additionally, the models are judged for the standard of workmanship, and the quality of take-off and landing and by a system of multiplication coefficient, whereby a K-factor is awarded by the judges for authenticity. The points system determines a winner.

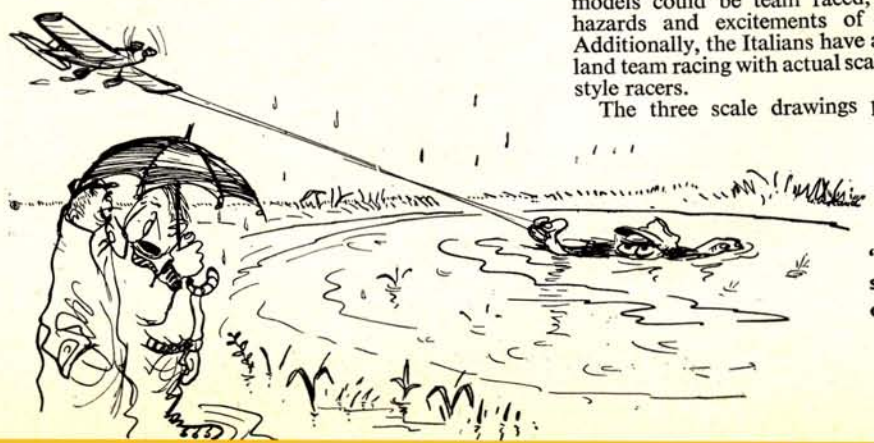
Our Italian friends live in hopes that publicity for their efforts will inspire other aeromodellers to take up the contest and so revive the Schneider Trophy in Miniature as an International event. They are fortunate in having a shallow lake near Varese, where the operator can stand in the centre of the circuit, relatively unimpeded by the depth of water, but we are sure that many similar sites could be found elsewhere.

Flying a water plane of this nature presents very few difficulties. Naturally take-off can be critical and torque effect offers an interestingly similar problem to that on the full-size machines, which suffered from dipping floats. Lines must not be allowed to trail in the water and Taberna actually modifies his engines so that they rotate clockwise for torque to give him some assistance.

Future Ideas

There is a fascinating possibility that these Schneider models could be team raced, bringing with it untold hazards and excitements of water borne pit stops. Additionally, the Italians have a scheme in mind for over land team racing with actual scale models of the American style racers.

The three scale drawings presented here will offer



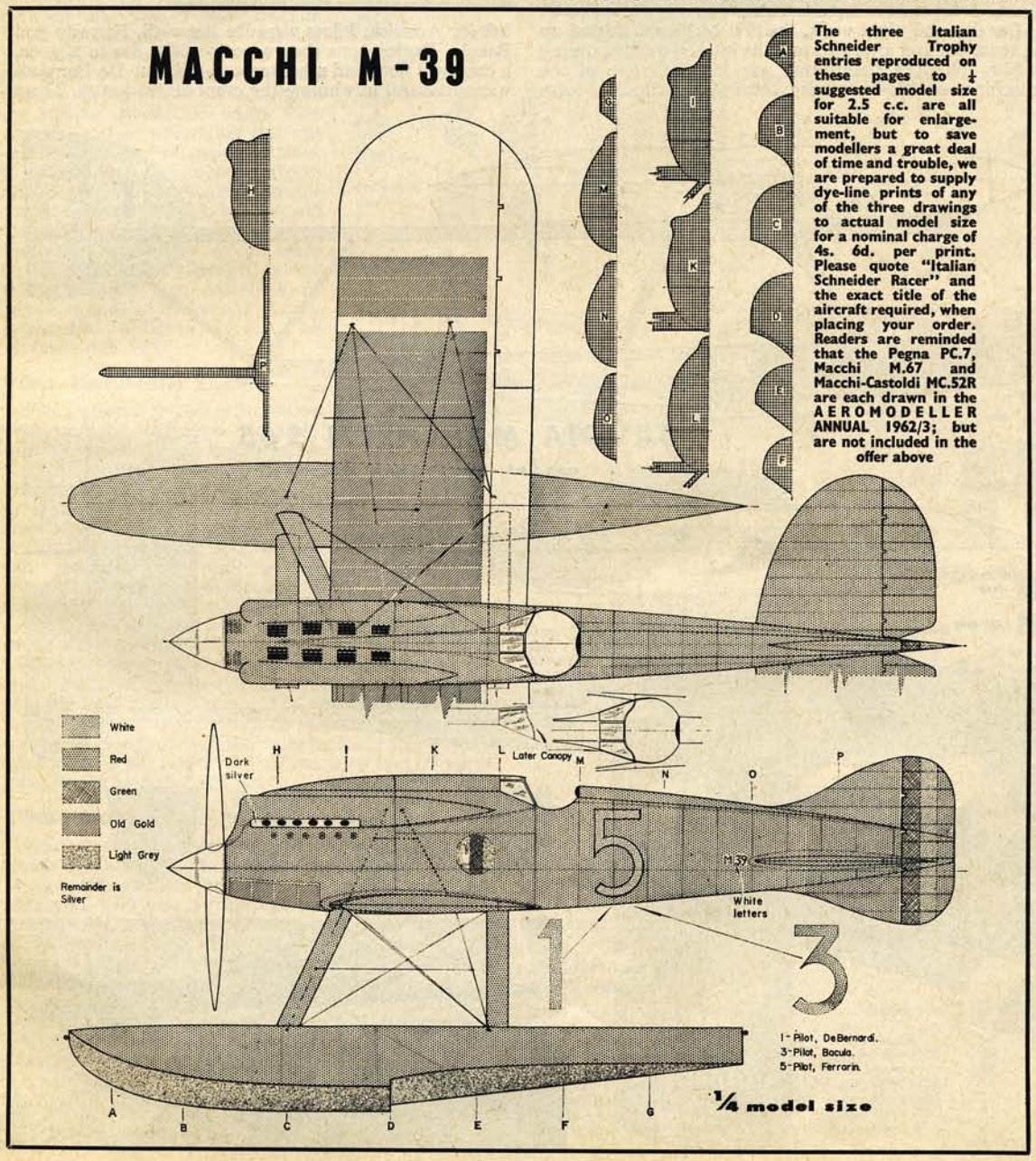
"We've simply got to surface our circle one of these days."

Macchi M.67 is one of the types drawn in this year's AEROMODELLER ANNUAL, seen in photograph at left with 3 blade prop.

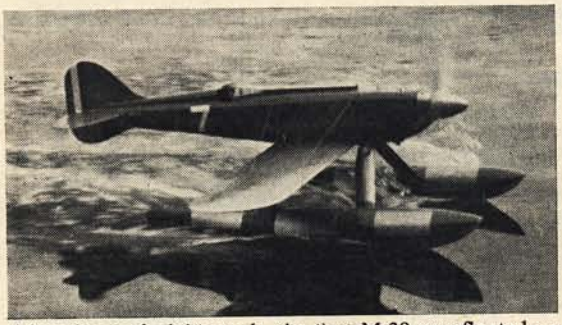
inspiration for those who want to develop their own models and in particular the S.65 gives plenty of scope for twin engines, although it must be remembered that the combined capacity should not exceed 2.5 c.c.

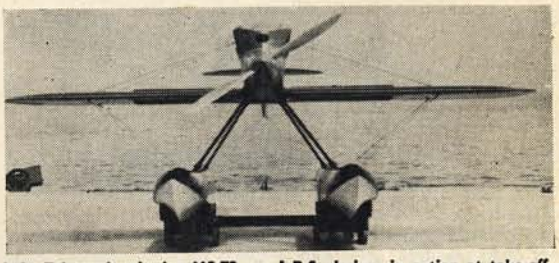
Macchi M.39

Aeronautica Macchi achieved world-wide fame by winning the 1926 Schneider Trophy with the M.39 at Baltimore, U.S.A., with the entirely new type of design by Mario Castoldi. By adopting the fuselage and two float layout, he set a pattern which was to be followed by many other Schneider Trophy designs. Cooling for the 800 h.p. Fiat engine, was effected by radiators on the swept back wooden wings, which did not have dihedral and the propeller was carved from a solid block of dural.



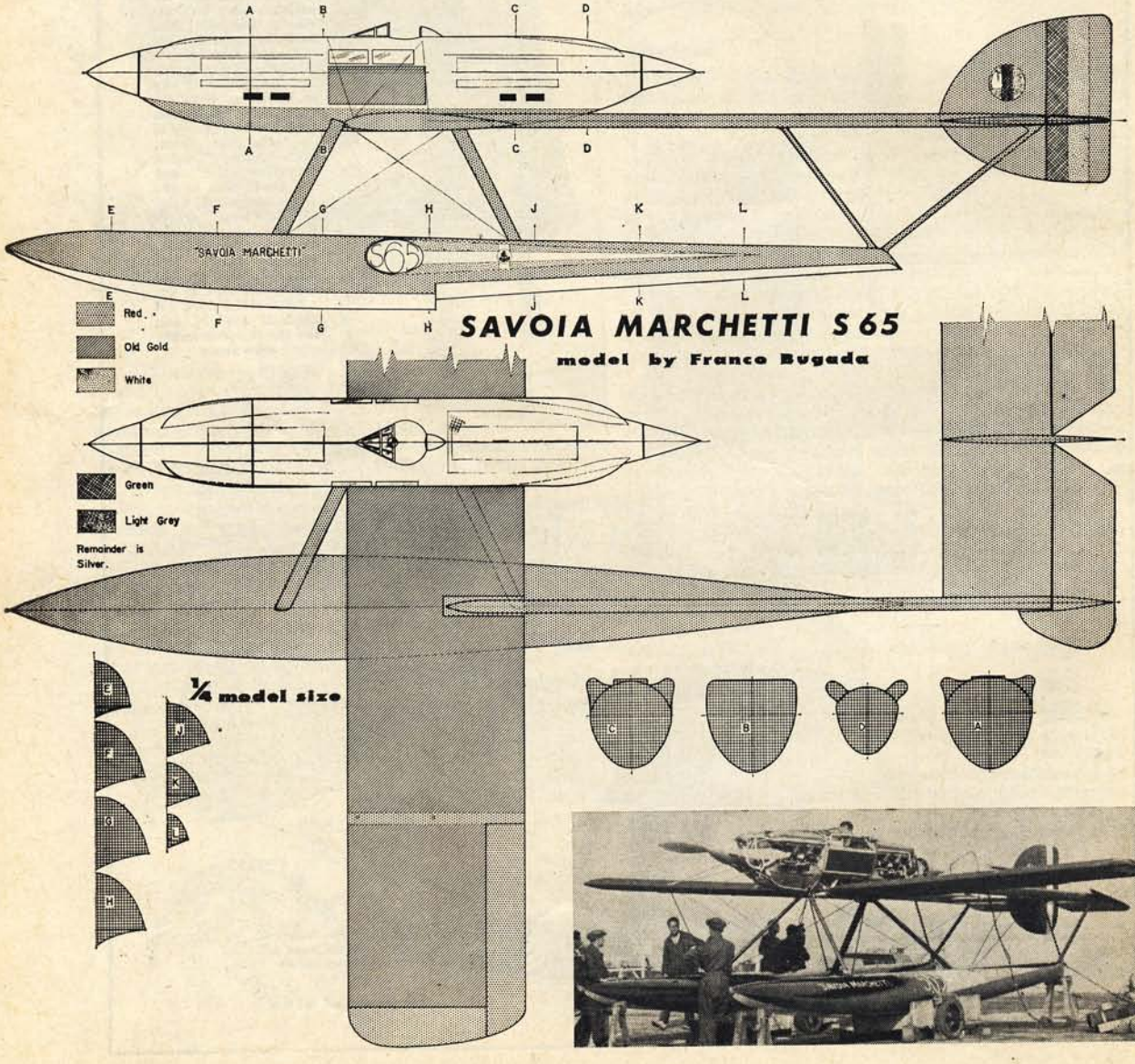
The three Italian Schneider Trophy entries reproduced on these pages to ¼ suggested model size for 2.5 c.c. are all suitable for enlargement, but to save modellers a great deal of time and trouble, we are prepared to supply dye-line prints of any of the three drawings to actual model size for a nominal charge of 4s. 6d. per print. Please quote "Italian Schneider Racer" and the exact title of the aircraft required, when placing your order. Readers are reminded that the Pegna PC.7, Macchi M.67 and Macchi-Castoldi MC.52R are each drawn in the AEROMODELLER ANNUAL 1962/3; but are not included in the offer above





Left, Taberna's winning MC.72, an A.P.S. design, in action at take-off. Above the real Fiat C.29, a rare photograph of a short lived aircraft showing surface radiators above and below wings

After day and night work, the first M.39 was floated on August 6th and after two months intensive effort, during which the pilot Centurione was killed in one of the machines on his first flight, the Italian Schneider team left for America. Pilots were De Bernardi, Farrarin and Bacula. During tests they were to suffer fire in the air, a damaged float and a broken con-rod, but De Bernardi was successful in winning the event at 396 km./h. There



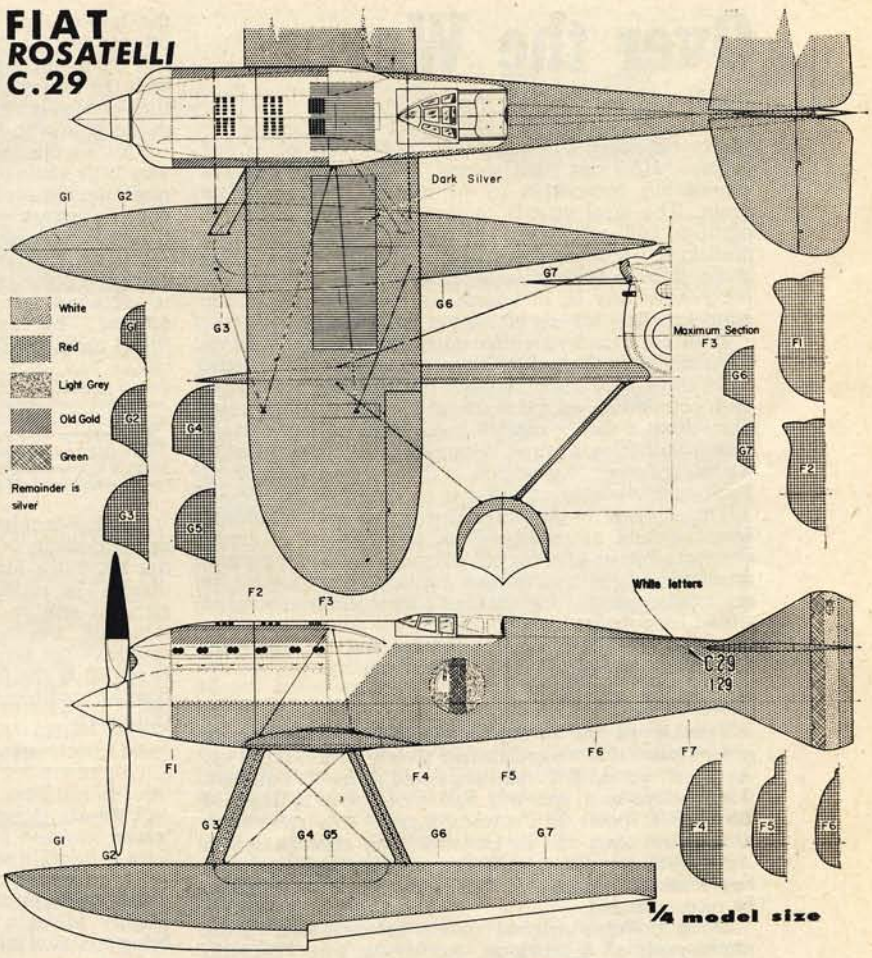
were no British participants in 1926, the competition was provided by the American team equipped with the *Curtiss* R3-C1—C3 and C4.

Savoia Marchetti S.65

There were many notable efforts by the Italian aviation industry to regain the Schneider Trophy in 1929, producing several unusual designs, one of which was the S.65 twin engined project. The pilot was sandwiched (*see photo, below left*), between the two Isotta-Fraschini 1,000 h.p. engines and everything was designed to provide the most powerful unit with the slimmest possible airframe. Radiators covered the steeply dihedraled wings (five degrees) and an interesting fact was that this was the first racing seaplane to employ two contra-rotating propellors. It was despatched to the Calshot contest in 1929, but was not sufficiently prepared. It was then used to attempt the world speed record, but for the supposed reason that the pilot was overcome by fumes, it crashed in Lago di Garda, taking Dal Molin to his death on January 18th 1930.

Fiat Rosatelli C.29

Fiat's effort for the 1929 contest developed by Celestino Rosatelli, offered a different arrangement for surface radiator cooling to that previously employed and was able to take the 1,000 h.p. Fiat AS.5 engine of small cross-section. Two prototypes were made and the first was modified with tail surface changes. There were also special considerations for pilot visibility. The airframe was of metal with the exception of the floats, which were covered with plywood over the fuel tanks. Unfortunately, both prototypes were destroyed by fire and Francesco Agello (subsequently the pilot of the world record-holding *Macchi* MC.72) was miraculously saved. Thus this type did not complete in the Schneider contest, although it was originally built for this purpose Span 21 ft. 8 in., length 17 ft. 7 in., wing area 77 sq. ft. total weight loaded, 2,025 lbs.



1962 Schneider Model Contest

Held at the Gavirate Lido, Varese, the 1962 model contest was supported by the Macchi Co. in the provision of two aeronautical engineers as judges, while Sig. Medaglia, who was a mechanic on the team to go to America, was there to pass observations. Contest proved to be decided much more by quality of take-off and accuracy, giving success to Taberna with his MC. 72. Three modellers chose to hand launch, Bugada with his unique hydrofoil undercarriage Pegna; Gozzo with Fiat C.29;, and Valle with his *Supermarine* S6B. The contest attracted considerable local interest and the table in the next column gives details of points awarded.

Array of trophies awarded at the 1962 Schneider contest makes a tempting sight—any takers for the 1963 event, which will be international?

1962 Contest results and Trophies

Entrant	*Type*	*Engine*	*Speed (m.p.h.)*	*Points*
1. Silvio Taberna	*Macchi M.C.72*	*Webra Mach 1*	70	134.2
2. Silvio Taberna	*Macchi M.52R*	*Super Tigre G30*	68	129.6
3. Bruno Canevari	*Macchi M.39*	*O|D Diesel*	80	119
4. Franco Bugada	*Piaggio Pegna P.C.7*	*Super Tigre G20J*	74	105.7
5. Lionello Valle	*Supermarine S.6B*	*Super Tigre G20D*	55	87.5
6. Italico Gozzo	*Fiat C.29*	*Super Tigre G20J*	71	60.08
7. Giorgio Angeletti	*Macchi M.52R*	*Super Tigre G30*	incomplete	0

Over the Waves

Radio Control Round-up

MOST COMMON QUESTION in radio control is, of course, "How can I get started?" These columns have carried our approaches to the problem time and time again. The *ideal* way is to invest in a multi channel outfit to utilise only six channels at most in the first model; the *less expensive* way is to purchase a ready made reliable transmitter/receiver/actuator set and the *inexpensive* way is, of course, to make up one of the many excellent kit sets which can be obtained.

In recent months another query has frequently arisen from that great mass of R/C flyers, the Sunday Sportsters. They have been right through the mill with actuators and compound escapements and seek pastures new. They want either a control box, which will give them definite selective control, or an actuator that will offer a greater degree of precision in flying than the standard bang-bang escapement.

The answer to the latter demand is without doubt found among practically all of the winners of single channel contests in pulse control systems. Electronic and mechanical pulsers have been marketed but they are by no means essential for winning competitions as anyone would have realized when watching the precise operation of models by the Swiss, the Swedes and the lads from Kidderminster, all of whom pulse manually.

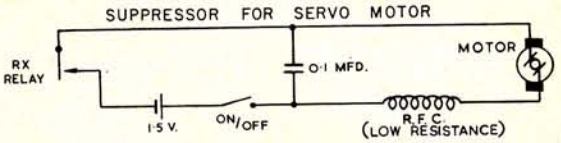
Manual pulsing

Frankly we find so much to recommend the manual pulse system that we are amazed so few have taken it up. As a well versed R/C man once said to us "It's all been done before and you will find most of it in Howard Boys' R/C notes in AEROMODELLER." We refer back almost ten years ago to Howard Boys' contribution in April 1953 issue and make no apology for reprinting two ideas which are still thoroughly up to date and to be recommended.

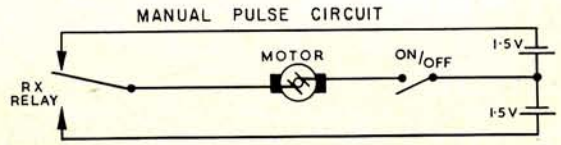
Doug Bolton's original system as illustrated in the photograph of a mock-up, employs a Frog Tornado motor with a home constructed fly-ball governor which is attached to the rudder via shaft and pull rod. The rudder is pre-tensioned to the left. Since the motor is in circuit with the relay (the same as for a normal actuator) it is energized when a signal is sent by the transmitter. The motor rotates, the governor expands and so pulls the rudder to full "right" position. Now, if the operator manually pulses, making the time of pressure *on* the button equal to the time of pressure *off* the button, the model will fly straight. If more time is spent pushing the button than allowing the button to come to the off position, *i.e.* "Finger" button pulses then the model will fly to the right. Conversely, if the model is flown with the transmitter button having a longer time at rest than when being pushed "on" *i.e.* "Shorter" button pulses, then the model will fly to the left.

This sounds complicated, but in reality takes but a very little while to absorb in practice. Those who fly by manual pulse swear by it as the ideal for all single channel contests where precision is required and particularly for Slope Soaring.

Does the system suit all receivers? Here is a perfect case for a mock-up installation. Some Rx's are susceptible to electrical interference and a suppression system is advised. The circuit for this is given but will not be found necessary for all receivers.



The Kidderminster system as used by Messrs. Fellows and Mountain so successfully, does not employ a governor but has a Mighty Midget motor driving the rudder direct. The rudder is set at left position and when a signal is sent, is switched to full right. When signal is taken off, the motor is electrically returned by a very simple circuit shown here. Although the Mighty Midget is stalled at the full left and full right positions, it is in practice continually hunting between these extremities of motion.

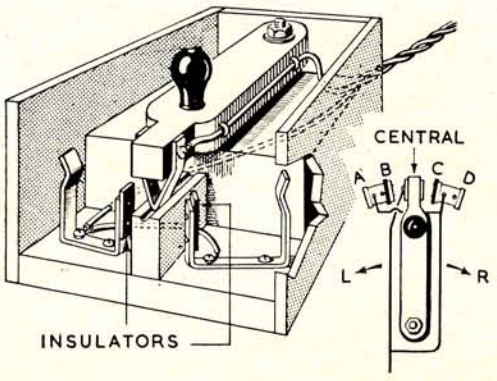


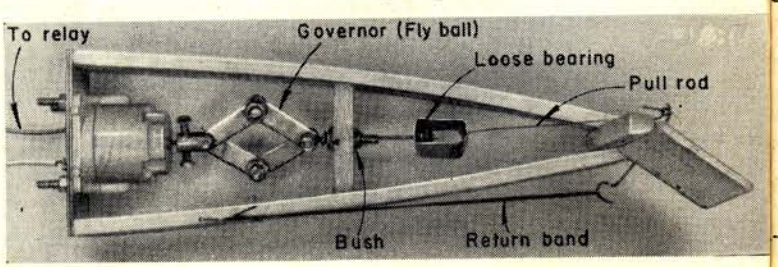
Why not try a mock-up? Fly-ball actuators and geared Mighty Midgets are easy to obtain. The system can bring precision into your flying without any complication.

Single channel think box

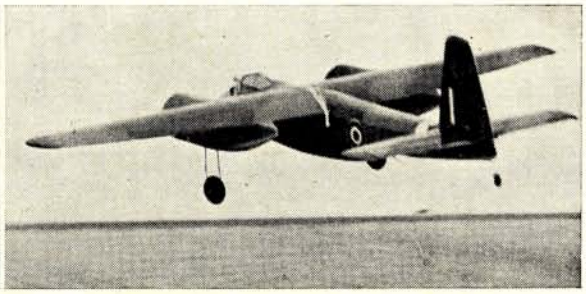
Those who wish to stay with the bang-bang escapement and still want to have precise selective signals can also profit from our issue of April 1953 and this little selector box from Mr. Bowker of Leamington Spa has, we know, been enjoyed by many dozens of modellers since it was originally published, offering as it does control selection without need for a compound escapement.

Moving the lever to the right gives right rudder and to the left gives left rudder, providing one doesn't change mind half way through a movement. With the





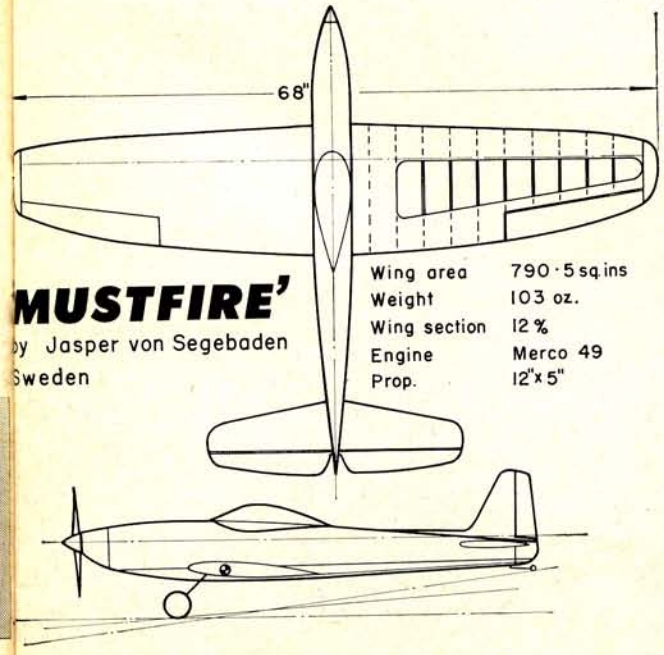
Left: cut-away drawing of the Single Channel Think Box. Below: mock-up of the fly-ball proportional rudder servo first published 9¾ years ago—at last becoming "accepted"

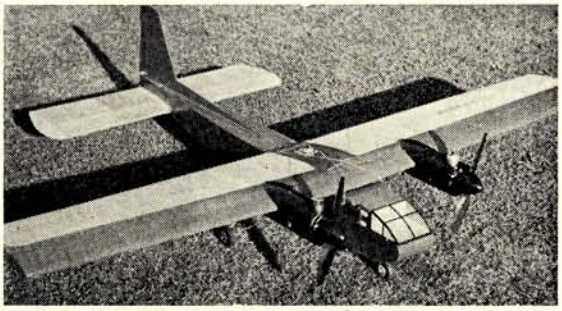


FIRST BRITISH SCALE MULTI TWIN TO FLY: The work of D. J. Walker, Bromley Club, this 1/9th scale, 10½ lbs. Miles M.33 Monitor spans 74 ins. and is powered by twin Merco 35 R/C motors driving 10 x 6 ins. props. both anti-clockwise. Radio is F. & M. Hercules/Midas with Bonner Transmite servos. Test flown on October 21st at Southern Multi Fliers' field, Portslade, Sussex, by Harry Brooks, the model has since been aerobatted. Photo's above show model in target tug colours and at moment of take-off. Right is a single channel rudder only twin by G. W. Dodwell of Melton Mowbray, equipped with a Terrytone Rx. and powered by D.C. Javelin and Frog 150 diesels. Cut-off stops the engines after 6 mins. running time. Model spans 52 ins. and weighs 2¾ lbs. Has flown many times successfully

knob in the centre the rudder will be central, ready to go right. If it is now moved left, it touches contact **B** on its way giving a flick right before coming to rest on contact **A** which is left rudder. For the movement back to central, the contact **B** is insulated, so the rudder gets no flick, and is ready to go right again. In moving the knob to right, contact **C** is insulated so contact **D** gives right rudder. On the way back to centre, the rudder is given a flick to left by contact **C**, and so is ready to go right again from central position. By making all movements deliberately and completing a movement once started, there will be no error.

Now for construction. Hardwood is used throughout and the main block is slotted on the underside for the wiring, and drilled for pivot bolt with a hexagon recess for the bolt head. The bolt is secured with Durofix, and the block glued to the ⅜ inch thick base. The small block at the front is notched for the handle's V brass strip and

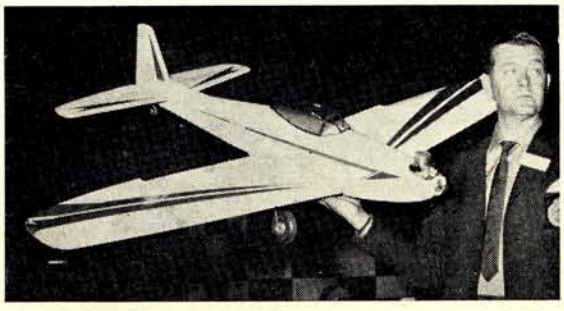


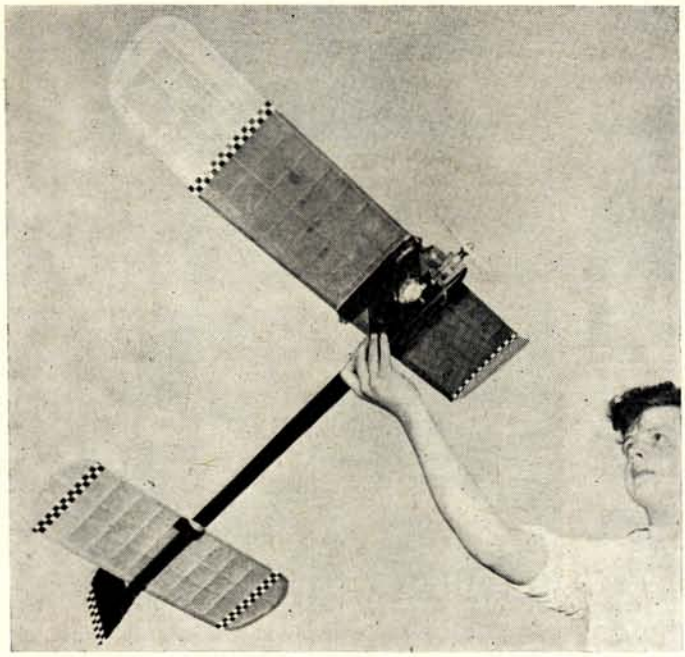


secured to base and main block. The handle is drilled for she pivot bolt, has a knob near the front, and the V shaped brass travelling contact bolted on. Two pieces of springy brass are bent to a rough U shape as shown, and paxolin or ebonite masks are riveted on to overlap by 1/32 inch. at the top and sides. Note carefully which sides they are. The rivets must be below the level of the travelling contact. Screw the contacts to the baseboard. Bolt down the handle, preferably with spring loading to give a constant tension. Complete the wiring, and put on the sides. The top wire may be bound to the handle, and both wires must be securely fixed where they leave the block.

Before leaving April 1953 we must also mention that this same issue introduced readers to a little gadget known as the Pike single acting magnetic actuator. Those who are currently thinking in terms of proportional control with actuators such as the American Septalette will probably be interested to know that the Pike actuator pre-dated some of the latest commercial productions by many years and details were given for a do-it-yourself version in this R/C Notes. As our friend said, "*It's all been done before . . .*"

Flown at the World Radio Control Championships by Swedish competitor P. Eliasson, "Mustfire" was designed by Swedish wind tunnel engineer Jasper von Segebaden, who produced a complete set of mathematical calculations for the aircraft, many pages long. Eliasson had two examples of the design, one of which is illustrated below in the hands of the Swedish team manager Bertil Beckman. Placed 15th at the Championships





EUREKA!

Modified by George Stringwell for latest contest requirements and easy trimming, with full co-operation of original designer, Norman Marcus

Chris Dryden displays his Eta 15 powered modified Eureka at left with simple M.S. transparent tank bolted on the side
Below is a line up of some of the many modified Eureka's owned by members of Rotherham D.M.F.C. Left to right George Stringwell, Chris Dryden, Geoff Sykes and Eric Jepson. They use a variety of engines, mostly Eta 15 but also Oliver Tiger and A.M.35. The flat based airfoil as described in the text matter is also used by some of these modellers. Eureka is a grand well established favourite that we can thoroughly recommend for all-weather power contest flying

OLD FAVOURITES never die—and in the case of aeromodelling, rarely fade away. They are preserved, as last flown, somewhere in the modeller's store or souvenirs. We wonder how many *Eureka's* are preserved this way? Up North, in Rotherham, the lads have been experimenting with the design and have given it a new lease of life.

The original *Eureka* wing tended to be weak and prone to inconsistency (see Aerodynamic Mods. below). A sheeted leading edge and centre section were introduced to help cure this and the spar arrangement changed to give more "vertical rigidity". Lap jointing of spars at tips was adopted partly for reasons of strength and partly for ease of construction. Diagonal wing bracing is to give the wing some torsional rigidity independent of the covering.

Fuselage modifications are aimed at producing a stiffer unit with a more rigid engine mount to hold vibration to a minimum, hence the diagonal bracing, long bearers and solid nose assembly. Side sheeting thickness was reduced to 3/32 in. because of the immense strength gain elsewhere.

The tailplane is virtually unchanged, apart from the riblets, which are intended to increase the efficiency of the forward section of the airfoil.

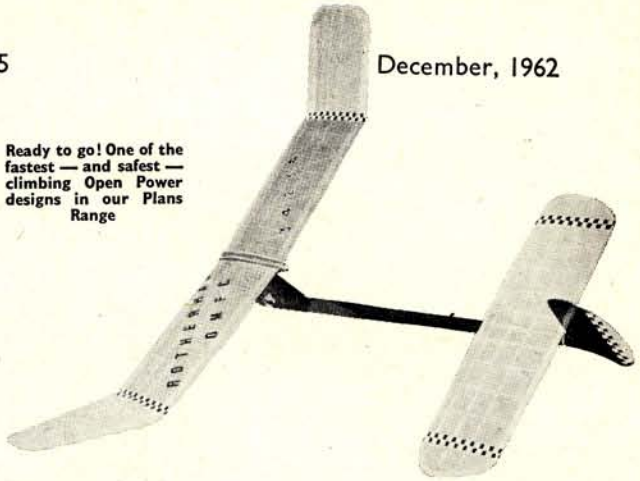
Aerodynamic modifications. The first and most rewarding introduction was a sheeted leading edge to the wing. With the original wing, an engine cut in an awkward position resulted in the airflow breaking away from the wing, failing to re-attach itself and the model plummeting to the ground, which is very spectacular but hardly desirable. The sheeted leading edge eliminated this and gave a much improved glide.

Thoughts turned to a way of obtaining a faster climb. Fellow Clubman Ron Boid, was experimenting with flat base airfoils, and one of these was incorporated. The resulting model (with an Eta 15) proved superior to others by virtue of a far better, and more easily trimable climb, and an equally good glide. The flat base airfoil is thoroughly recommended for any power equal to the ETA 15 or more.

Finally the question of wash-in on the port wing. With a really fast flying model such as this one, more than 3/16 in. wash-in can be a distinct embarrassment and cause persistent over-rolling when trimming. One-eighth of an inch is recommended.

Eureka remains extremely easy and quick to build. Build the wings first, to give them maximum "setting" time and the fuselage last. Provided the ribs are cut accurately, no difficulty should be encountered with the wing. Build the starboard inner panel first, and then build the port inner onto it, blocking up for dihedral and angling the end ribs. Build the tips separately and assemble by slotting in the spars and trimming the L.E. and T.E. to fit. Chamfer the L.E. to receive the sheeting and sheet both the leading edge section and centre section. Sand to a smooth section when dry and add the diagonal braces. Reinforce all dihedral breaks with gauze.

Assemble the rear fuselage structure and pylon support on the plan, and then fit in the bearer assembly. Araldite is recommended for all joints in the nose region,



Ready to go! One of the fastest — and safest — climbing Open Power designs in our Plans Range

and will give an immensely strong unit. Remove the fuselage from the plan when completely dry, and cut out at the rear for the fin, which is built up from sections of $\frac{1}{8}$ in. sheet. Fit the fin and slab the fuselage sides with 3/32 in. sheet, trimming when dry. Special care must be taken in building the pylon around the central support, and it is strongly advised that a card template be made and the pylon sides cut from this, to prevent incidence errors creeping in. The large wing platform may seem unweildy, but has proved itself in practice. Don't use *too* hard sheet for the pylon sides as this will encourage splitting. Reinforce the pylon joints with gauze where indicated, and cover the pylon with lightweight tissue cemented on and rubbed down. Cover the fuselage with lightweight tissue doped on.

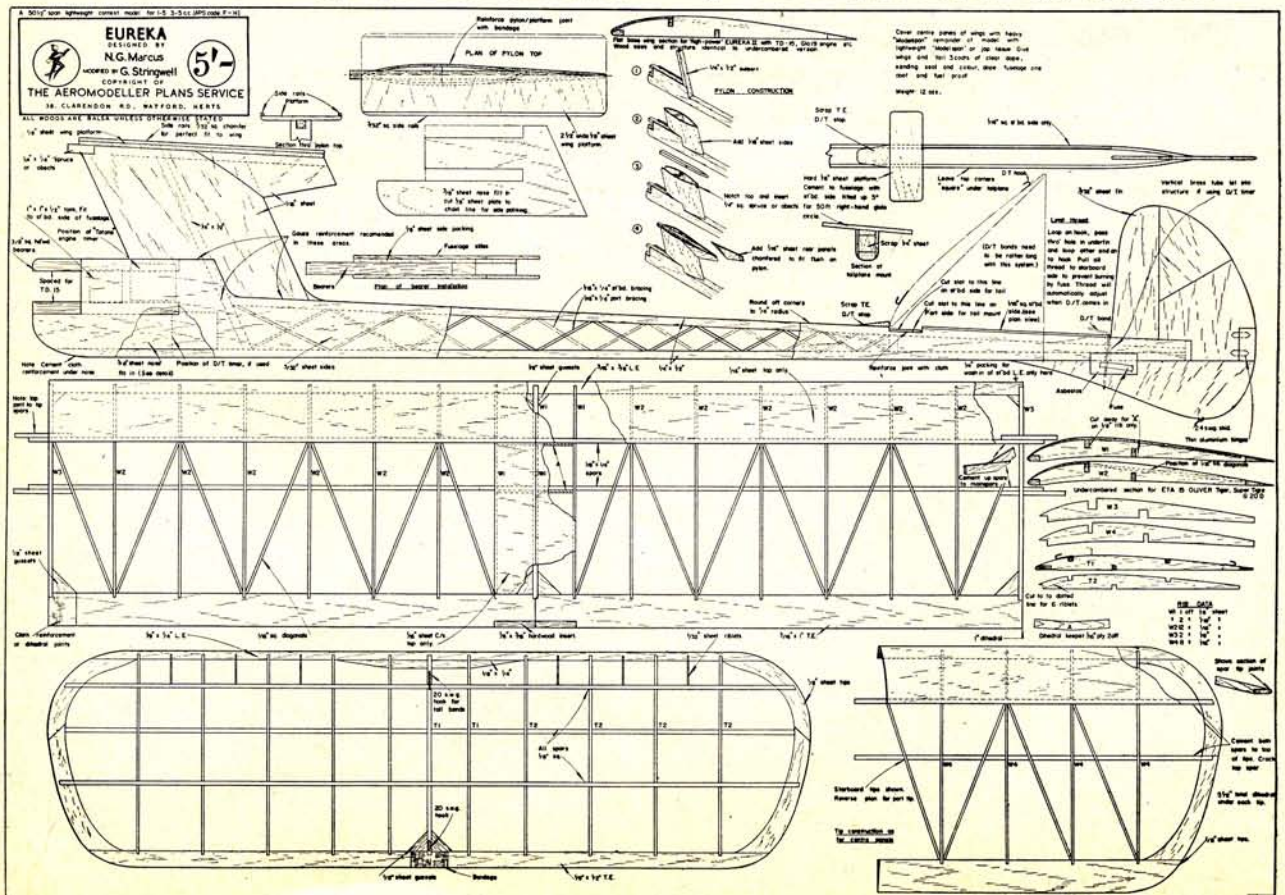
The tailplane is straightforward, provided the riblets are cut "indoor fashion" using a rib as a template. Do not forget the D-T hardware before covering. Cover the wing centre section with heavyweight tissue and the tailplane and tips with lightweight, and give three liberal coats of dope overall. *Remember*—glow fuel dissolves dope, so fuel proof the fuselage and tailplane leading edge.

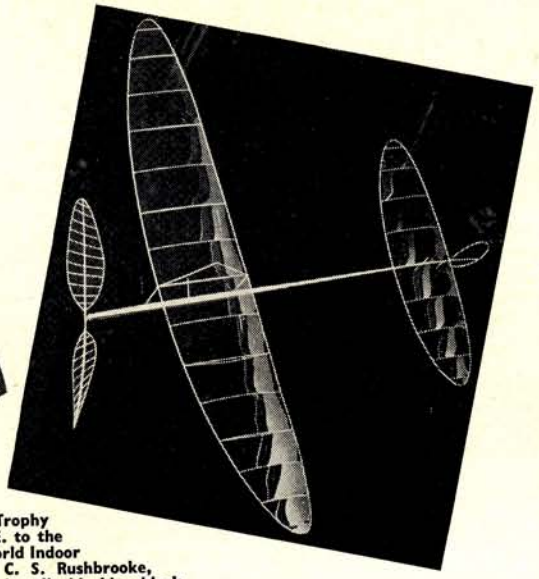
Trimming is not as shattering as it may sound. Adjust the glide roughly with tailplane tilt and ballast. On all power runs use *full* power. Adjust for a $2\frac{1}{2}$ seconds engine run and check that the engine is cutting quickly. Launch the model at about 75 degrees angle and watch it carefully. If it leans gently to the right and cuts while still going up, you may lengthen the engine run gradually. If (as is likely) it climbs straight or leans *left*, cut a $\frac{1}{2}$ in. by $\frac{1}{4}$ in. tab in the fin and apply a few degrees right. *Failure to correct* at this stage will lead to over-rolling left with a longer run and a plunge into the ground at amazing speed—not nice! Proceed to a 10-second run by $2\frac{1}{2}$-second stages, correcting any over-rolling left or tightening to the right at each stage with the rudder tab. At the same time watch for any looping tendency and kill this by adding 1/32 in. shims under the tailplane leading edge and retrimming the glide with ballast in the tail. Aim at a vertical right-hand spiral of $2\frac{1}{2}$-3 turns in 10 seconds, with left roll in phase. When the climb is right, arrive at the final glide trim by adjusting tail tilt to give 50-ft. circles and adding ballast until the model is just off the stall.

Final words of (hard earned) wisdom.

Do cement everything once the model is trimmed. *Do* key the wing and tail with split dowel once trim is finalised—it is the only way to achieve consistency. *Do, always* launch a 75-80 degree dead into wind. *Do not* operate your T-D 15 too near minimum lean, and *always* light the fuse or switch the d/t timer on!

FULL SIZE COPIES OF THIS 1/6th SCALE REPRODUCTION ARE AVAILABLE THROUGH A.P.S. AS PET 711 PRICE 5/6d. INC. POSTAGE





1962 WORLD INDOOR MODEL CHAMPS

R.A.F. CARDINGTON
SEPTEMBER 22nd-23rd

Magnificent Dragonfly Trophy presented by the S.M.A.E. to the individual winner of the World Indoor Championships, designed by C. S. Rushbrooke, made by P. E. Norman, the insect is inscribed inside a block of Perspex, illuminated by strip lighting. Winning model, at right, is seen at apex of its 156 ft. climb, cruising just beneath the centre gangway of Cardington Airship hangar, during 45;40 record flight

ATHLETIC AUTHORITIES ONCE considered the 4 minute mile a remote possibility for a freak runner. Aeromodelling pundits thought for years in the same way of a 30 minute indoor flight—until the 1961 World Championships. Ideas were then revised to make 40 minutes the paragon—yet by the time this second International concluded at Cardington on September 23rd it would seem that 45 minutes is the measure of highest achievement. Such is progress.

The reader might well regard this performance as freak in nature, beyond his comprehension and so far above his modelling ability that the whole business of indoor contest flying is viewed as a "closed-shop". There lies the danger; but one must remember that while the leading times were made by people with long experience in the techniques of indoor flying, at the same time, two "newcomers" in the contest, Varszegi and Malkin (proxy flown by Thorpe), succeeded in displacing some renowned experts.

So, far from being a "closed shop", Indoor flying is very much open to new names; and it must be generally agreed that the class could well do with more support, especially in Britain where the world's finest facilities are readily available at R.A.F. Cardington.

It surprised us how far spectators were attracted to the meeting. S.M.A.E. membership was required as a pass, but only a handful of Britains keenest contest men arrived to witness what was in every way a meeting of fabulous standards and surprises.

The contest was spread over two days, with each entrant given the opportunity of making three attempts each day. Best two flights out of six possible counted for the final result.

Each deliberate, declared launch was an attempt and became eligible as a score unless the model became involved in a collision. Claim could then be made for a second attempt. Since most entrants had two or more models, it was possible to seek out ideal conditions and make simultaneous attempts. Additionally, test flying was permitted throughout the contest period. Thus the air—huge though the airship hangar may be—was decidedly crowded and this is further emphasised by the average time airborne. Having eight or more models making a gross simultaneous flying time of *four hours* in a common area, allows unfavourable odds for a collision to occur, and many near-misses to add excitement. Indoor flying is far from a dull pastime!

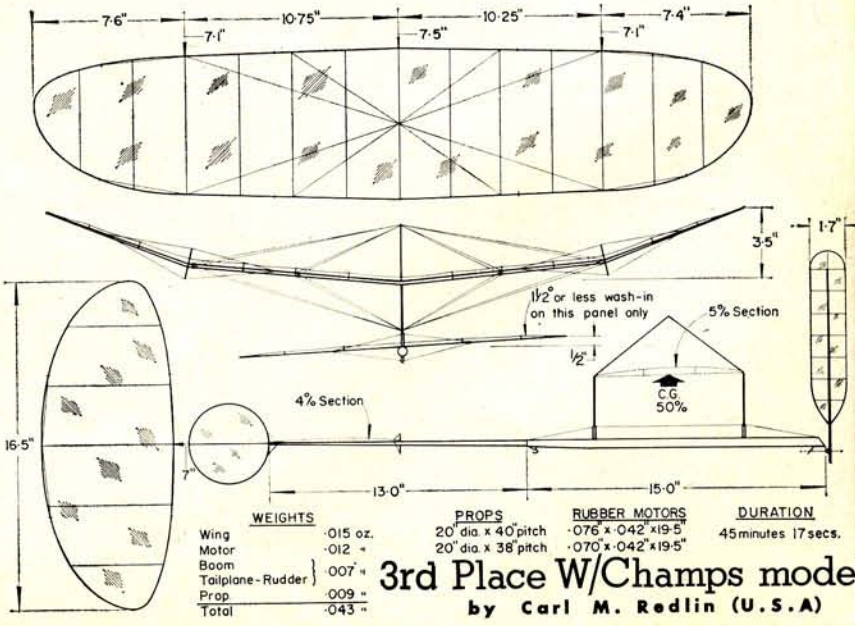
Practice flying produced few significant pointers as most of the time was spent in obtaining trim to utilise the vast volume of the hangar, and full turns were not being employed. However, Max Hacklinger finished the day with a 42:20 to his credit (two minutes short of his 1961 World Record), and team mate K-H Rieke was content with 38:15 on 85 per cent. turns after breaking the motor tube on his best model. Carl Redlin clocked his best ever at 39:03, and these three, with the smoothest flying models, headed the assorted times ranging from 20 minutes upwards.

Collisions had been prevalent. Reg Parham was involved in no less than four, and henceforth nicknamed the *Interceptor* by Hacklinger who he clobbered twice! Kowalski and Egri's models intermeshed, the Hungarian coming out of it as a wreck while the U.S. model remained almost unscathed.

Day 1

Indoor hangar flying is affected by outside conditions. Wind permeates, heat causes convections, rain comes down through microfilm like shrapnel. Happily, the first day was ideal. It was admittedly cool, but calm. Though contestants were all engaged in warm up test from arrival time at 9.30 a.m., it was not until 11.45 that the first comp flight was made, by proxy Ernie Thorpe with John Malkin's New Zealand model. Up to that stage we had seen Redlin have his lightest model wrecked by a sudden door draught,

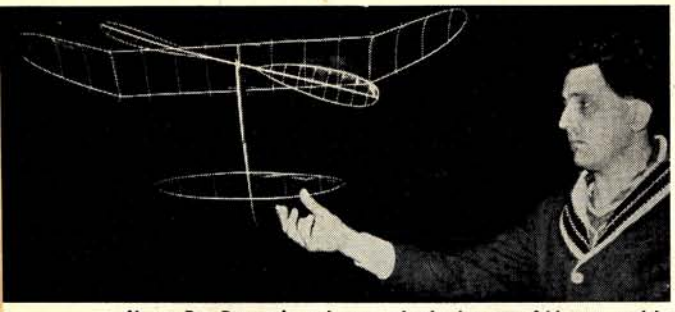
Karl-Heinz Rieke collects his awards at prize-giving. The principal individual trophy; a pewter tankard and memento flag. Drawing of 3rd place model by Redlin is one-tenth scale. Best flight was 45 mins. 17 secs.



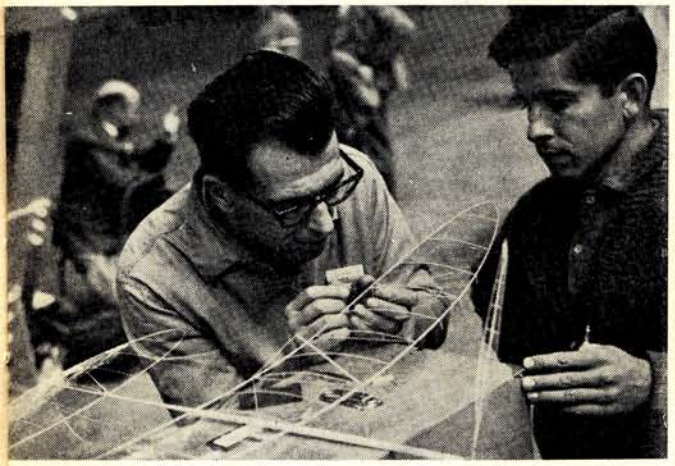
WEIGHTS		PROPS	RUBBER MOTORS	DURATION
Wing	·015 oz.	20" dia. x 40" pitch	·076" x ·042" x 19·5"	45 minutes 17 secs.
Motor	·012 "	20" dia. x 38" pitch	·070" x ·042" x 19·5"	
Boom, Tailplane-Rudder	·007 "			
Prop	·009 "			
Total	·043 "			

3rd Place W/Champs model

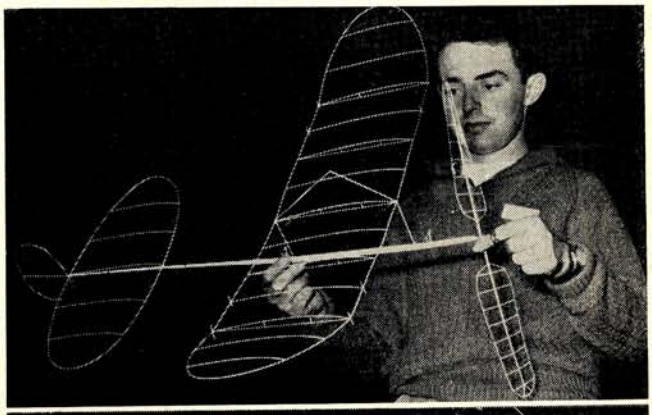
by Carl M. Redlin (U.S.A)

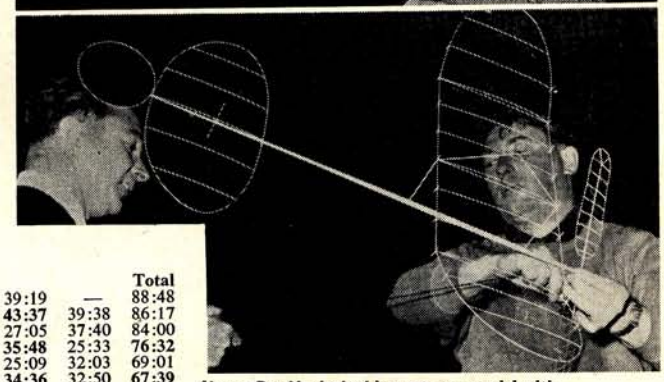


Above; Ron Draper in serious mood releasing one of his new models, lighter than before and which gained him the honour of establishing first over 40 minute flight in a World Indoor Championship, also new British record of 40:44. Below, study in clinical exactitude. Dick Kowalski re-braces his German influenced model aided by team mate Carl Redlin. Perceptible distinction of indoor modellers is their dexterity of sensitive fingers



Below; flown proxy by Ernie Thorpe, John Malkin's far travelled New Zealand model made a fine showing after trimming out by Reg Parham at previous meetings. Similar facilities are not available in N.Z., performance was all the more remarkable in view of lack of practice.





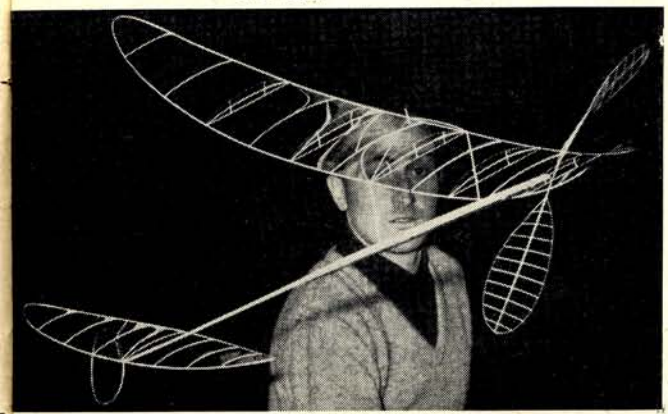
Above: Ray Monks had largest area model with 260 sq. ins. wing, succeeded in establishing his best yet personal time of 34:36. Here being wound by Reg Parham. Below, is unfortunate Esko Hamalainen who suffered atrocious luck

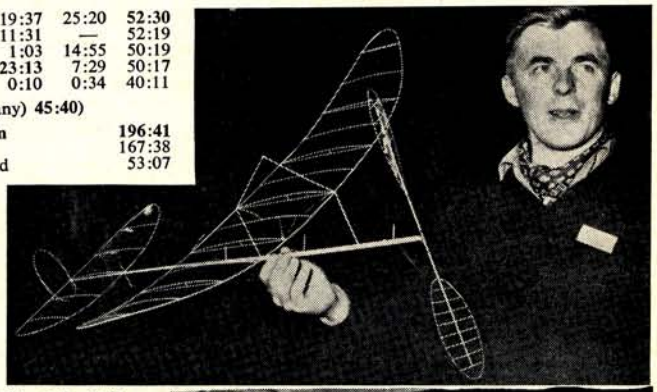
Results

								Total
1. Karl-Heinz Rieke	*Germany*	41:39	**43:08**	**45:40**	38:50	39:19	—	88:48
2. Max Hacklinger	*Germany*	34:13	37:42	**42:40**	36:34	**43:37**	39:38	86:17
3. Carl Redlin	*U.S.A.*	**38:43**	34:23	**45:17**	34:33	27:05	37:40	84:00
4. **Ron Draper**	**G.B.**	**40:44**	0:07	24:50	33:55	**35:48**	25:33	**76:32**
5. Klaus Hewel	*Germany*	30:03	35:07	**33:54**	0:18	25:09	32:03	69:01
6' **Ray Monks**	**G.B.**	28:31	33:03	21:26	26:51	**34:36**	32:50	**67:39**
7. Esko Hamalainen	*Finland*	**32:57**	**34:05**	12:28	0:19	—	—	67:02
8. Antal Egri	*Hungary*	32:25	**34:01**	30:57	17:58	22:16	25:35	66:26
9. Geza Varszegi	*Hungary*	16:36	27:12	**30:49**	23:33	23:30	**28:20**	59:09
10. William Bigge	*U.S.A.*	8:17	**30:21**	21:19	25:11	9:21	**28:08**	58:29
11. John Malkin (proxy E. Thorpe)	*New Zealand*	19:25	22:01	**28:03**	24:53	**25:04**	24:09	53:07
12. **Reg Parham**	**G.B.**	**26:44**	23:54	**25:46**	11:26	19:37	25:20	**52:30**
13. Dick Kowalski	*U.S.A.*	**32:46**	11:39	18:25	**19:33**	11:31	—	52:19
14. Harri Raulio	*Finland*	**22:56**	17:53	27:23	1:03	1:03	14:55	50:19
15. Arto Tauria	*Finland*	0:06	10:31	**27:04**	0:07	**23:13**	7:29	50:17
16. Zoltan Ocsodi	*Hungary*	15:04	0:25	**23:01**	**17:10**	0:10	0:34	40:11

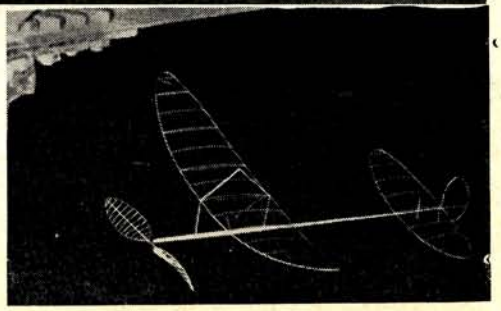
(World Record—subject for confirmation—K-H. Rieke (Germany) **45:40**)

Team Result: 1. Germany	244:06	2. Great Britain		**196:41**
3. United States	194:48	4. Finland		167:38
5. Hungary	165:46	6. New Zealand		53:07





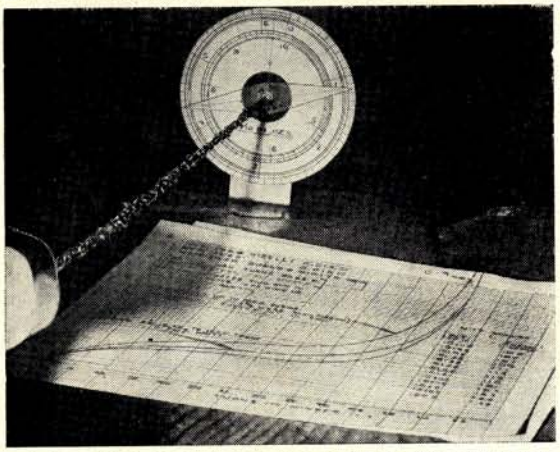
Left; ooh that prop! Max Hacklinger releases and a full 2,000 turns exerts torque on light-weight prop. Right is hangar roof shot of K-H Rieke's model nudging the roof girders



and Esko Hamailainen's model lose all its film as the fully wound motor slid off its hook at about 100 ft. Hacklinger and Rieke were knocking at the 40 minute mark, still in practice as the New Zealand model drifted to the side girders for an abbreviated 19:25 flight. This may have discouraged further official launchings before lunching. Anyway at 2 p.m., a re-start was made and both Hamalainen and Kowalski showed the way straight up to the roof with 32 min. flights. This keyed off the rest of the field (though Hacklinger and Rieke were *still* practising) and Ray Monks soon showed that it was possible to play tag with the girders. He used his two permitted corrections with a hydrogen balloon supported line to deflect direction, and returned 28:31. Hungarian Varszegi, having first experience of such high roof flying, went right into the ceiling girders at 17 minutes.

In an incredible coincidence, Kowalski and Egri collided again, much to the misfortune of the Hungarian for his time was 32:25 and he was still at 80 ft. or so—it would so easily have been an outstanding National record for him.

Bert Spurr, team manager for G. Britain piled on turns for Ron Draper and managed to pack in more than were really wanted. The launch was tense, but the model mushed its way around and then got into its stride for a lovely flight—the first over 40 minute time ever recorded in a World Champs—Good for Ron! Actual time was 40:44 a new British Record. Unluckily, his second attempt ended in a wing collapse due to snagging the bracing. We clambered aloft, up to the dizzy height of 156 ft. where the central of three walkways extends for the length of the hangar. By so doing, one is rewarded with an almost celestial view. Four models slowly rotated just below us. The view from above adds a new sense to the appreciation of flight, and offered drama too. Redlin, up there with us was cursing too powerful a motor. His model climbed too high, touched a girder, and as it slipped back, so the tip folded. In this stricken state, the nose dropped, and the frame started its spiral to the concrete below . .

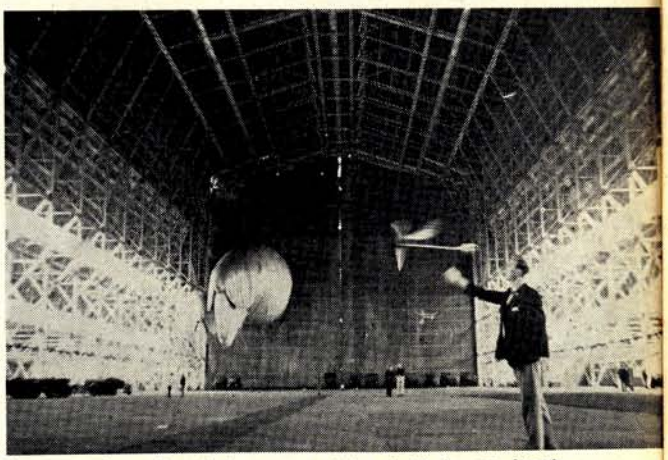


and right in the trajectory was another model! Ray Monks also aloft, convinced it was his, dashed off as soon as the inevitable collision occurred. It happened to be *interceptor* Parham's, and disappointingly so, for the flight was a cert "over-30" and would have been his best. Hardly was this episode concluded when another model came up right to the level of the centre walkway. It was Rieke's. Nudging girder after girder, the stiffly braced model structure refused to break or hang up thanks largely to the rigid bracing. We were watching a momentous flight. By using every single inch of altitude (with a rubber motor given to him with the compliments of Carl Redlin) Rieke was in the process of establishing a new World Record of no less than 45:40! After the long cruise, we too descended, only to find that Redlin was now well aloft again and knocking at the freshly established record! We found too, that Rieke had already made a flight of 43:08, so it was clear that he was firm in the lead. The American model failed by only 23 seconds to match Rieke's effort, and as it landed, attention moved to Hacklinger's last flight which at 42:40 became the fourth over-40 of the first day.

Day 2

Conditions were good; but not as perfect as before. Again, flying was delayed until the afternoon when interior temperature rose, and even when official attempts did start after 2:15 p.m., the drift and peculiar currents were baffling. Ray Monks had his model noticeably sinking when expected to be cruising at constant height. Reg Parham came down with turns still left on the motor after a low altitude flight and believe it or not . . . Hacklinger's model *stalled* to lose about 25 ft. on a flight that still clocked 36:34. Ocsodi who was way off form, trying hard to sort out matters, sealed his bothers when his arm caught the model and wrecked it.

Gradually, conditions sorted themselves out and in mid afternoon Hacklinger made 43:37 (to shift him into 2nd place), Ray Monks his personal best at 34:36 and Ron Draper a good backing up 35:48. Rieke reeled off two cool 38 and 39 minute flights then was hampered by a film tear. He was established in the lead, and with Redlin within striking distance, U.S. team manager Joe Bilgri was coaching hard.

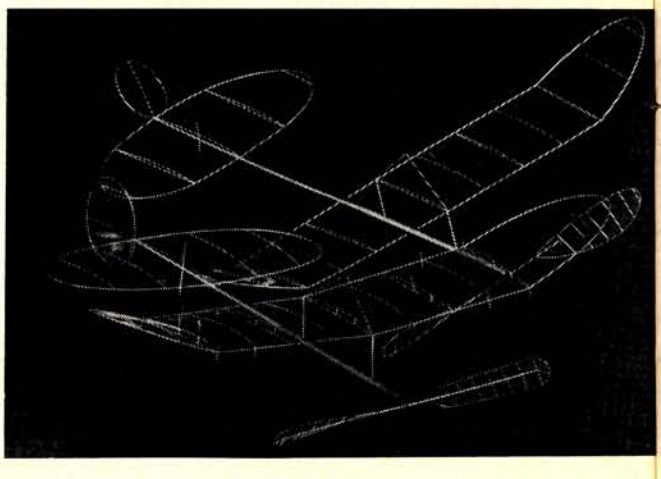


Above; an impression of the vastness of the airship hangar, length 814 ft., width 182 ft. height to walkway 156 ft. can be gained from this ground level view, where the collections of International modellers appears to be lost in such space. Despite the enormous amount of elbow room, collisions were prevalent. At left; is the torque meter which reads in 1-10th inch-ounces as a motor is being wound up. The graph in the foreground enables a power estimate to be determined and by such analysis of motors it is possible to balance a delicate power factor against duration. Devised by Ron Draper, this actual calibrated measure has been used in California by American experts

With sands of time running low, the last hour of the contest was as hectic as we have ever known. Redlin's motor broke just at the peak of the winding on 2,060 turns. When he did get away, the knot started rubbing the boom, then the model drifted off to one side, then the other in an attempt fraught with hazard, nevertheless it had every sign of being one of great duration. He decided to launch another model for a simultaneous last attempt and with one airborne and one to go he was a very busy person. Team mate Kowalski, who had also had his full share of motor breakages in all out attempts, undertook to deflect Redlin's No. 1 model from the side but missed it and it hung up after 27 minutes. It was still on the climb at this stage so one could only hazard a guess that the flight might have carried off the contest. The second model fell short of the required time to gain a higher placing but still a most creditable 37:40.

Meanwhile, Hacklinger had piled on full power and in 19 minutes was knocking on the girders. This was another tremendous flight but one which ended in a broken model as the fuselage collapsed only 20 ft. up when Max was trying to deflect it from obstruction. Draper also involved in a nerve racking period, had the galling experience of three successive motor breakages. Eventually he got away but the flight was nowhere near the expected standard. Hacklinger had a second model airborne and it almost collided with team mate Rieke's as the air seemed almost filled with models scrambling to get in their last qualifying attempts.

Below, the second of two remarkably coincidental collisions between models flown by Dick Kowalski (U.S.A.) and Antal Egri (Hungary), which terminated a very fine flight by the latter. Drawing, opposite, of winning model is to one-sixth scale. Note side thrust bearing



Moment of disaster! Harri Raulio, the Finnish all-round modeller, looks aghast as the rubber motor disengages from its hook and so shatters the propeller, seen falling alongside the ball of rubber which is the motor. The Finns were beset by a series of such misfortunes, but despite adversity, put up a great showing. Note second blade poised in mid air in front of the wing! Harri immediately commented that the remaining hub might have been good for speed flying

But the contest result was already sealed by the performances of the first day and all effort was in vain. This did not stop the Finns making many gallant attempts. Motor breakages, motor stick failures . . . practically everything went wrong for them in the last hour. Kowalski had the front peg of his wing mounting pylon detach from the fuselage so the model "dethermalised" in a crippled state—it was clearly *not* his day!

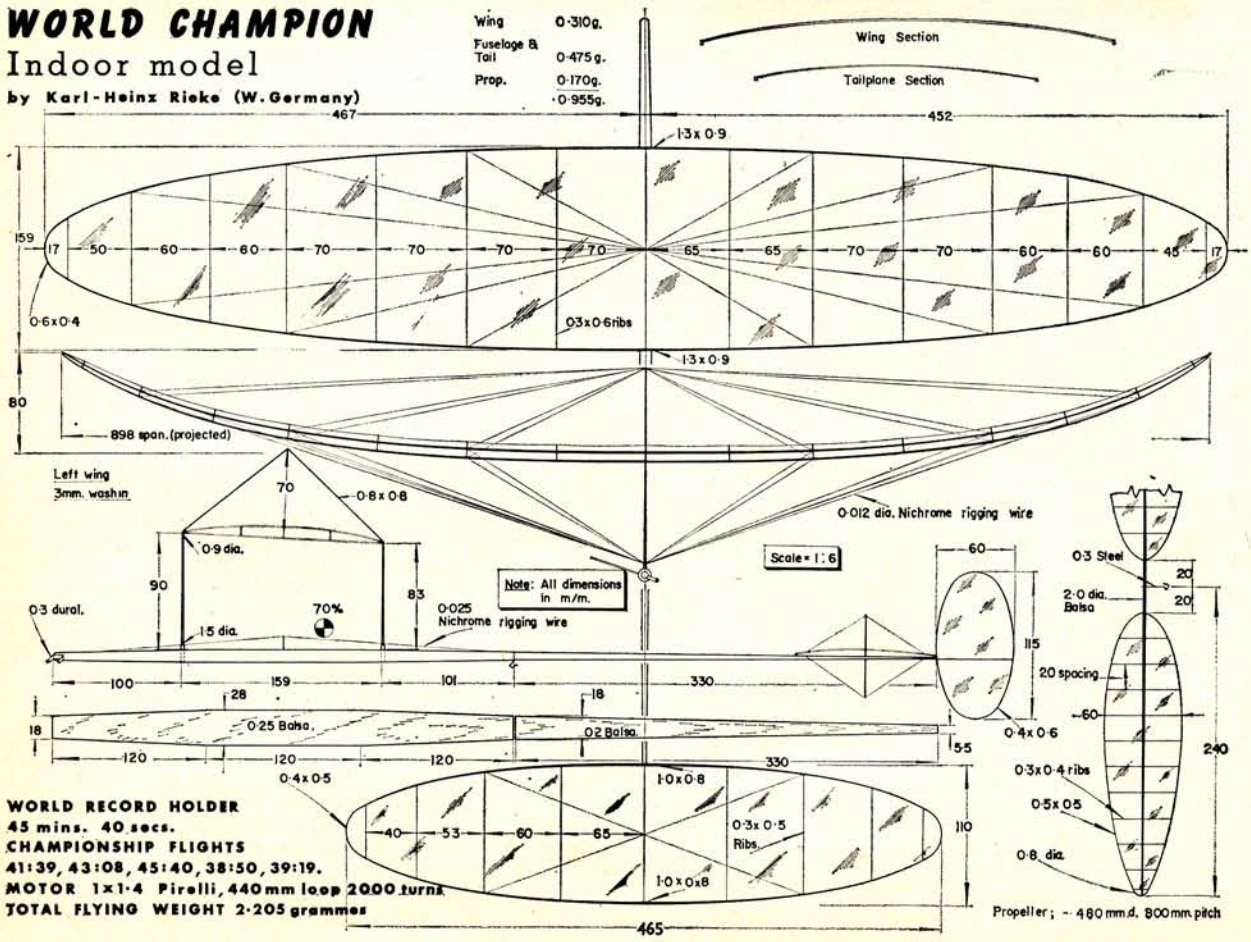
Momentous occasion of the afternoon was undoubtedly the great aerial act by Bill Bigge. He had a model hung up in the girder work to one side of the hangar where the walls meet the roof. The nearest walkway was a matter of 30 ft. away but this was no bother to Bill. He went through the rails and "crawled" (to use his own expression) along the girder work to his precious charge. There, he removed the motor, packaged it then sent the model off for a 12 minute gliding descent, while he returned by the more conventional means of stairway and ladder. With nothing but a 146 ft. void beneath him at that point, Bill was certainly running a considerable risk for a few hundredths of an ounce of model!

A concluding banquet in the De Parys Hotel at Bedford with a prize-giving revealing the handsome new trophy for the individual winner, rounded off a magnificent contest. Wing/Comdr. P. H. Waterkeyne, D.F.C., O.B.E., Officer Commanding the Station took great interest in the meeting and thanks to his excellent co-operation, and the efforts of S.M.A.E. officers, notably C. S. "Rushy" Rushbrooke, it can more than safely be said that Indoor World Championship standards have been set in terms of organisation. Such was the reaction of those present to the enjoyable atmosphere which prevailed, that strong requests were made by the visitors for an F.A.I. calendar event (not a championships) to take place in 1963 at Cardington.

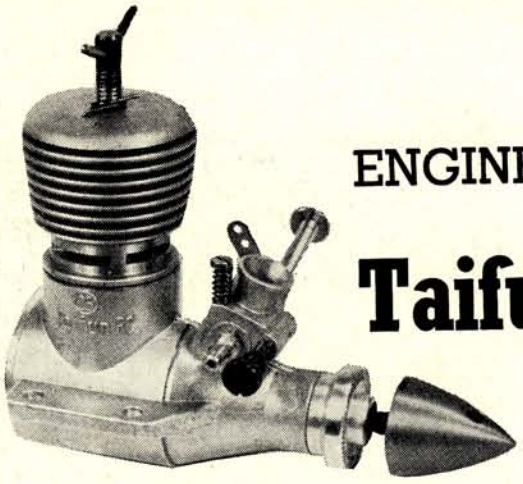
WORLD CHAMPION

Indoor model

by Karl-Heinz Rieke (W. Germany)



WORLD RECORD HOLDER
45 mins. 40 secs.
CHAMPIONSHIP FLIGHTS
41:39, 43:08, 45:40, 38:50, 39:19.
MOTOR 1x1·4 Pirelli, 440mm loop 2000 turns
TOTAL FLYING WEIGHT 2·205 grammes



ENGINE ANALYSIS No. 102

by R. H. Warring

Taifun ZYKLON 2·5 R.C.

THE GERMAN-MADE "Zyklon" 2.5 c.c. diesel has been developed specifically as an R/C power plant with the barrel-type throttle housing an integral part of the crankcase rather than a separate attachment. Design layout otherwise is strictly conventional, employing really sturdy construction and excellent workmanship throughout. A sound, consistent, reliable engine which is easy to handle, peaks at quite a moderate speed and should run virtually for ever without wearing out. Power output is adequate for the job, although rather on the modest side for a modern diesel of this size, but with maximum power developed at 12,500 r.p.m. reasonably large propeller diameters can be utilised for increased thrust efficiency. A 9 x 4 or even a 10 x 4 prop. (preferably a 10 x 3½) would be about right for R/C work.

The crankshaft is carried in a well finished plain bearing machined in the crankcase casting (unbushed) with a single ball race at the rear end. This, coupled with a good but not tight piston-cylinder fit gives an engine which requires a minimum of running-in time, although performance may increase slightly over the first hour or so with individual engines. There was no trace of inconsistency of running, even with the engine brand new, except at the very highest speeds. On 7 inch diameter propellers of fine to medium pitch the engine is sufficiently unloaded to be unhappy.

A lot of thought has gone into the design of the throttle unit which, basically, is of the conventional barrel type, mounted in a cubical housing. The barrel rotates independent of the spraybar, which is fixed. Provision is made to lock the throttle in an open position by tightening a small screw on the front (left hand side) of the housing. With this screw loosened to permit throttle arm movement it will eventually vibrate out and be lost, so it would normally be removed entirely when the engine is worked with throttle. On the other hand, using the screw tightened up for normal running ensures that the throttle cannot "creep" under engine vibration and so upset the mixture.

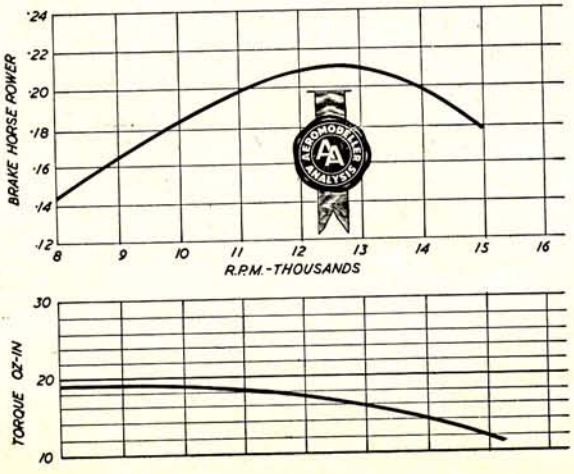
A small screw on top of the housing permits adjustment of the "slow" throttle setting by acting as a stop for the barrel movement. This screw is locked with a coil spring. Further throttle adjustment is provided by an air bleed hole in the front of the housing, the extent of the air opening being adjusted by turning the projecting screw (rather like a smaller needle valve assembly) on the right hand side. Since this adjusting screw comes very close to the propeller disc the head is sensibly slotted so that adjustment can be made with a long screwdriver. Barrel throttle movement is controlled by a conventional angled lever with two holes for alternative moment arms. The lower hole is consistent with a push-pull actuator stroke of approximately 13/32 in. for full throttle movement and thus matches most conventional servo strokes.

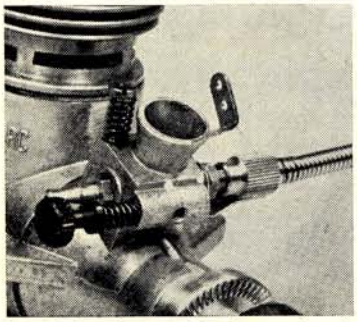
Despite the elaborations not usually found on a small engine throttle, multi-speed performance is strictly limited. Even with the greatest amount of care in adjusting the air bleed and throttle stop, minimum safe slow running speed was of the order of 4,000 r.p.m. Anything less tended to be erratic, with a considerable risk of the engine stopping. The throttle action itself is also abrupt—changing from "low" to "high" and back again with no practical intermediate speed settings. In other words, even if connected to a progressive actuator action the "Zyklon" throttle will not give more than "high" or "low" speed response.

Constructionally the "Zyklon" features a rigid and relatively heavy crankcase casting with long, thick lugs for beam mounting, a screw-in steel cylinder with screwed-on jacket, and a screwed-in backplate. The intake tube and throttle block is integral with the casting, subsequently drilled to throat diameter and laterally to take the throttle assembly.

The main bearing is machined in the casting, with the rear ball race press-fitted into a machined housing. Crankcase taper between full crankcase diameter down to the front of the bearing comprises a solid metal section which undoubtedly contributes great strength over this region. One might almost say the unit appears to be designed with crash-landings in mind!

The cylinder is of steel, hardened and ground to finish. Walls are of substantial thickness, both above and below the exhaust ports. Four transfer ports are milled on the inside of the lower cylinder, tapering off at the upper end to pass between the exhaust port pillars and overlap the exhaust opening by almost 100 per cent. The cylinder screws into the crankcase to seat on its flange with a copper gasket underneath. The cylinder jacket is machined from light alloy, perfectly conventional in pattern but anodised an unusual mauve colour. Only unusual feature is the single turn spring steel wire locking clip carried on the compression adjusting screw thread and located by a turned-down end engaging in a small hole in the top of the jacket. This compression screw lock is much simpler than the usual tommy bar type lock, just as





Integral throttle control in close-up show the air bleed for slow running and throttle stop screw.

Specification

Displacement: 2.540 c.c. (.1548 cu. in.)
Bore: .597 in.
Stroke: .553 in.
Bore/stroke ratio: 1.08
Bare weight: 5¾ ounces
Max. power: .21 B.H.P. at 12,500 r.p.m.
Max. torque: 19 ounce-inches at 9,000 r.p.m.
Power rating: .083 B.H.P. per c.c.
Power/weight ratio: .0365 B.H.P. per ounce
Material specification
Crankcase: light alloy pressure die casting
Cylinder: hardened steel
Cylinder jacket: turned dural (anodised mauve)
Piston: cast iron
Contra piston: hardened steel
Connecting rod: turned dural
Crankshaft: hardened steel (stress relieved after heat treatment)
Bearings: plain with single ball race at rear
Propeller driver: turned dural
Spinner nut: dural, anodised mauve
Crankcase back cover: turned dural
Manufacturers:
Johannes Graupner, Kirchheim-Teck, W. Germany
British agents:
Ripmax Ltd., 80 Highgate Road, London, N.W.5.
British price: £5 7s. 6d.

Propeller RPM Figures

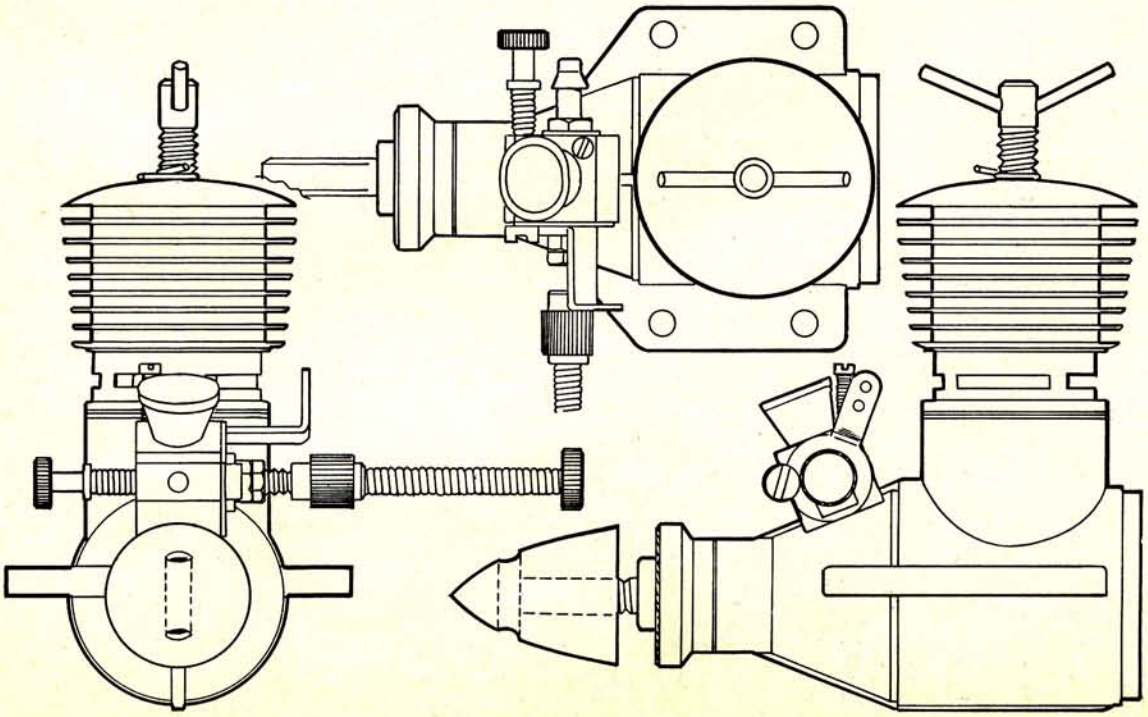
9 x 4 Trucut	10,400
8 x 4 Trucut	12,300
7 x 4 Trucut	14,600
9 x 4 K.K. nylon	11,000
8 x 4 K.K. nylon	12,500
7 x 4 K.K. nylon	14,400
7 x 6 Top Flite nylon	12,800
8 x 4 Top Flite nylon	13,000
9 x 4 Top Flite nylon	10,400
9 x 6 Top Flite nylon	8,000
8 x 4 Stant	11,400

effective and never gets in the way or requires separate manipulation. It seems a very good idea.

The piston is of conventional plain pattern with a slightly conical top, machined from cast iron. Wall thickness is substantial. Connecting rod is machined from dural with "ball" ends and polished. The silver steel gudgeon pin is full floating and neither the big or little ends are bushed. Piston surface finish and bore finish are both excellent. Contra piston is of hardened steel and relatively shallow in depth. The bore is, in fact, on the large size (15 mm. nominal) with a shorter stroke (14 mm. nominal). Despite being over-square the "Zyklon" is not, however, a high speed engine.

The hardened steel crankshaft is a sturdy ⅜ in. diameter (rather odd to find an "English" size adopted), relieved forward of the intake port to reduce the rubbing surface area of the plain bearing length. The crank web is purely circular with a .196 in. diameter crankpin. The shaft unit is finished by grinding between centres and this, together with other evidence of manufacturing techniques, would appear to indicate that the "Zyklon" is produced in relatively small batches rather than mass produced. Certainly it appears to receive a lot of attention as regards good fits and finishes. It also gets its sturdiness without excessive weight, although 5½ ounces is quite enough for a 2.5 and could produce a C.G. shift on a model designed around an American .15 glow motor. As it will be used on R/C sports type models, however, this is not likely to matter; and in any case it is consistent with the 2.5 c.c. motor weights common to European design practice.

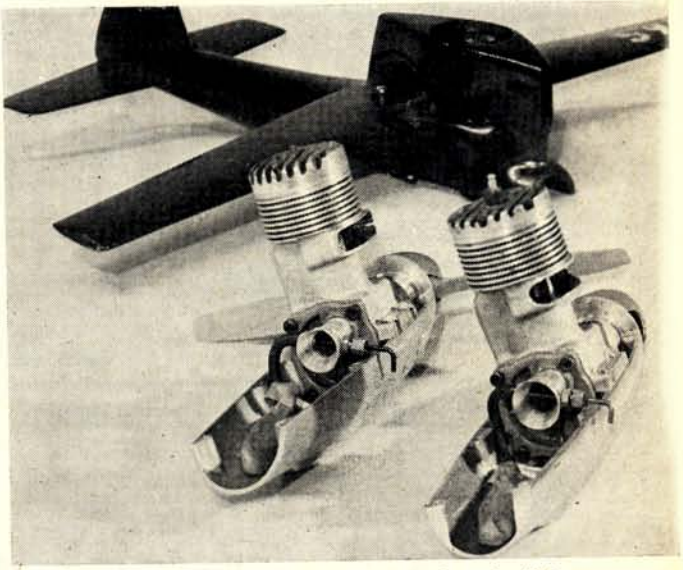
Summarising, we would say that the "Zyklon" offers excellent workmanship and sound design in a tough, rugged power plant for typical R/C "Sunday flying." The throttle is an integral feature, whether you use it or not, and is easily locked open for normal sports free flight. If you are looking for an engine with top performance in the 2.5 c.c. size, the "Zyklon" will not fit the bill. But if you want an engine which will last and last—and survive crashes, if necessary—the "Zyklon" has all the power required from a 2.5 c.c. sports power unit, and it delivers its power at sensible r.p.m. figures. The only aggravating feature from the operating point of view was the ⅜ in. diameter boss on the propeller driver calling for enlarging the holes in propeller hubs to fit—but many modellers like this method of location anyway. We personally prefer to keep as much "meat" as possible in the propeller hub, especially with wooden props.



Re-working the McCOY 60

tips which apply to all racing engines, given by British 168 mph speed record holder

by Gus Johnson

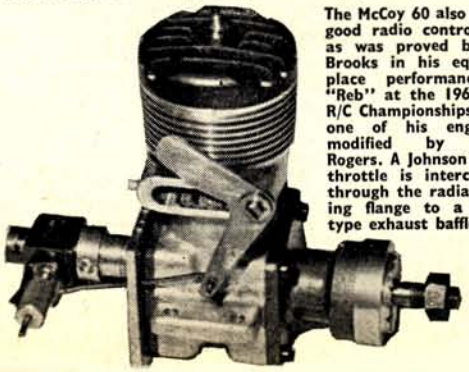


THE ONLY MODIFICATIONS listed are those that do not incur additional expense above that of the basic engine price. The McCoy 60 engine is very much a mass produced engine and lends a lot of scope to the amateur tuner, the suggested modifications will increase performance to the point where owners of expensive, specially tuned motors, will want to know what you are running.

Start with the front housing. Remove the crankshaft and check it between centres to ensure that it is true, some have been known as much as .007 in. out. File off rough edges from the crank disc and polish. Check the bearings for free running and replace if necessary. In past years, difficulty was experienced in fitting the ball races in the front plate and to ensure that the crankshaft was perfectly centred. Some of the difficulty was traced to the outer ball race casings not being perfectly round, and this, combined with very tight ball race fits in the front cover, resulted in tightening under heat, during peak engine speeds. If the bearings were slipped into place with "finger push fit" they would tend to align and centre themselves properly. Lapping compound can be used to relieve the front casings, taking care that they are not made too loose. When running in the engine, be sure to check the crankcase and front assembly to determine if excessive heat is caused by faulty bearings or tight fits.

Fit a burnt out glow plug to the cylinder head, then remove any excess threads that might project around the plug hole with a model knife or burnishing tool and polish the inside of the head. Finally, lap the head to the cylinder liner for a gas tight seal. If facilities are available remove .020 in.—.030 in. from the head thereby increasing compression ratio. Only apparent help derived will be in using about 10 per cent. less Nitro Methane for the same final results, so effecting a financial economy in operation.

The following operation is the most important single step that you will take in striving to obtain more power from your .60. We must try to get a *round* liner. Most production sleeves are *not* round, so with the help of a good hone (brake cylinder hone will do at a pinch) we grind the bore to a satin finish, hoping that we can knock off all the humps and come out with a round hole. After this job is completed, we fit the piston.



The McCoy 60 also makes a good radio control engine as was proved by Harry Brooks in his equal first place performance with "Reb" at the 1961 World R/C Championships. This is one of his engines as modified by Norman Rogers. A Johnson Automix throttle is interconnected through the radial mounting flange to a chopper type exhaust baffle.

It is possible that the piston was a tight fit and will be satisfactory to set up in the present sleeve, and still maintain a wall clearance of .125 in. or a total piston liner tolerance of two and a half thou. If not, one may have to purchase an extra piston or two, plus one extra sleeve, to arrive at these measurements. When fitting the piston to a *round* liner, use fine lapping compound (available from the local garage), then a mixture of 3 in 1 oil, jewellers rouge and toothpaste "soup" to arrive at the final clearance and polish. Try to maintain 2½—3 thou. total clearance. We did *not* file and polish the intake and exhaust, or bypass ports, the reason being that in the author's opinion, this procedure is of questionable value.

If one *must*, file all ports to a 30 deg. angle and open bypass ports (sleeve and piston) to ¼ x ⅜ in. oval shape and polish, taking care not to damage the interior surface (although the benefits of this operation are also questionable). If port timing is altered in any way, residual burrs must be carefully removed. Above all, do not remove the vertical bars in the ports, as the piston rings will "balloon" into them.

Now for the piston rings. With the hard McCoy sleeve, best performance can be obtained by using the soft, standard rings as provided by the TESTOR CORP. "Split" rings have been used (total of four, two in each ring groove) in various configurations and also "pinned" rings but have not shown measurable gain. Place a ring in the honed liner and file end gap until the feeler gauge indicates about .004 in. As the engine is run in, we hope to wear away the ring grooves about one or two thou's, so that the final ring end gap will be about .005 in.—.006 in. in a cold engine. At peak speeds the coefficient of expansion on the rings should work out just about right to maintain a good seal without dragging. When "running in" be sure to check the rings to ensure that they are polishing evenly all around the circumference. If the rings have alternating areas of bright polish adjacent to sections that are not polished at all, this indicates that the rings are "ballooning" and end gap is not great enough to allow the rings to expand evenly. Remove the rings and file off more metal for proper clearance.

The liner should be a "push fit" into the crankcase—relieve with lapping compound as required—and also

lap the front and rear housings to the crankcase. Here again, the extra effort of grinding and polishing the fuel by-pass areas has not in the author's opinion been worth the extra effort involved. So leave this area in it's natural, ugly, sand casted, self. If the outside exhaust stack is cut off, ensure that the front edge extends further in the slipstream than the rear section of the exhaust stack. This is critical.

Finally, we come to the backplate and rotor assembly where we can also pick up a few miles per hour. After adjusting the jet assembly for tightness and true centring, remove the needle valve and ream the venturi to the maximum cross section area with the jets in place, and polish.

Increase the taper on the needle valve to the longest possible in order to decrease needle valve sensitivity. (When we fly the model in competition we *always* set the needle, on the first run, peaking *rich*. This cures "contest nerves" in determining, after the flight, whether the needle was too rich or too lean. We *know* it's *rich* so only have to turn it in a little further to go faster).

Open out, by filing, the rotor induction quadrant a further 1/16 in. on leading and trailing edges and bevel the *opening edge only*, to maximum, and polish. Leave the *closing* edge of the rotor quadrant as stock except the edge that touches the backplate, where we file a small 1/32 in. radius to remove oil drag on the backplate. Lap and polish rotor to rear cover and re-assemble. If the series 20 came equipped with a "full" rotor shim that clips in place with two "ears" in the venturi throat, replace it with an ETA 29 rotor spacer of .003 in. thickness.

The author has never liked the idea of an aluminium rotor riding against an aluminium backplate, so if at all possible, replace the rotor with some other material such as Micarta, Tufnol, etc. Re-assemble the rotor shaft using extra lock washers, pulling the rotor up tightly, on the shim.—Shim thickness can be varied with changing weather conditions using .004 in. shim if very hot or .002 in. for cold weather operation.

Ensure that the engine is spotlessly clean before re-assembly. Use 3 in 1 oil to slip parts together, replacing original engine bolts with good grade Allen head screws. After turning engine over by hand to check for binding or leaks, it is advisable to run the engine in on a stock 9 x 11 propeller, while maintaining a rich mixture on about 30 per cent. Nitro, 25 per cent. Castrol and 45 per cent. Methanol (Regent Grade). Check the engine very closely to ensure that the rings are seating properly and that no "hot spots" occur in the front assembly or case. If all remains normal, continue to run engine four cycle rich for about twelve two minute runs and then turn it loose.

The fuel system that we use is the common pen bladder tank (large size) placed inside a penny balloon for protection. Don't forget to use 3-4 drops of Castrol between the ink sac and balloon to prevent friction and possible rupture. Filling is best achieved with a 50 c.c. hyperdermic syringe—its faster, cleaner and more accurate than an oil can.

Fuel has been a big problem here in the U.K. and the author has had to start learning the mixes all over again. Nitro Methane content seems to be quite critical, so that instead of throwing in batches of 5 to 10 per cent. changes in Nitro, we have been forced to change our fuel mixes in increments of 2½ per cent. or less. Also the Nitro Benzene content has steadily climbed. In cold, wet weather, more N.B. is needed in order to make the fuel "mix". We have tried "This is it", "Ka-Boom", "Cool-Glo" and Zoom, from the U.S. without much success. Too much oil, too little Nitro. At the 1961 U.K. Nats. 157 m.p.h. was made using 27 per cent. Castrol, 3 per cent. Nitro Benzene, 30 per cent. Methanol and 40 per cent. Nitro swinging a full 9 x 12 Tornado Wood propeller. In '62 it was 25 per cent. Castrol, 7 per cent. N.B., 23 per cent. Methanol and 45 per cent. Nitro using a clipped Tornado 8¾ x 12 prop good for 162 m.p.h. Then in 1962 we were lucky to make 166 m.p.h. using 20 per cent. Castrol, 10 per cent. N.B., 12½ per cent. Methanol and 57½ per cent. Nitro with a TMHK 8¾ x 13 propeller.

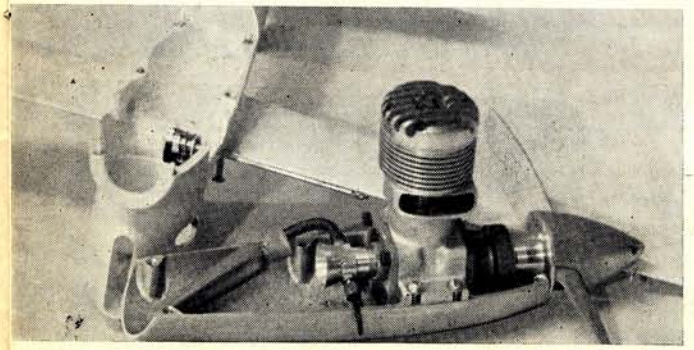
The latest combination, used to establish a new class III U.K. record of 168+ m.p.h. at Odiham, was Castrol 20 per cent., 10 per cent. N.B., 17½ per cent. Methanol and 52½ per cent. Nitro using a full 9 x 12 Rev-up propeller.

As one can appreciate we have had to learn mixing techniques all over again to suit present conditions. Use of any of these mixes won't be far wrong; but when the engine is new, try to stay with lower nitro content, more oil, and props with 11 in. pitch. You'll go faster.

To check engine performance use a TMHK 9 x 12 propeller and turn about 16,300 r.p.m., so from there on, the stop-watch tells the story.

Speed flying is a lot of fun and very rewarding and we really enjoy it. We have no secluded "speed secrets" and look forward to comparing notes and swopping lies with other speed merchants!

The author would be pleased to be of assistance at any time, mail any inquiries to: Major Gus Johnson, c/o The Editor, and he'll do his best to reply. See you at the rallies!



Heading opposite shows the two McCoy *60s* as used by Major Gus Johnson in his "Ginmill" designs. Black model is the subject of a British record claim of *168* m.p.h. Note alteration to the exhaust stack and the balloon covered ink sac used for a fuel tank. At left is a close up of the engines also showing the yellow "Ginmill" with experimental position of monoline in front of the wing leading edge

We could not resist the opportunity of reprinting this appropriate cartoon from "The Evening News" of 24th September with this article. Gus Johnson has promoted rat racing in Great Britain and this cartoon appeared in the "Almost Human Series" by Ark

"It's a nice evening. Care for a rat race?"

AIRCRAFT DESCRIBED
Number 118
Drawn by D. H. Cooksey

By good fortune a complete, undamaged and a ready to test example of the FW.190 A-3 was delivered to the Royal Air Force by Oberleutnant Arnim Faber on June 23rd 1942. Following a raid over the South West of England he lost direction, mistook the Bristol Channel for the English Channel and landed at R.A.F. Pembrey, where the duty officer demanded surrender, armed with a Very pistol!

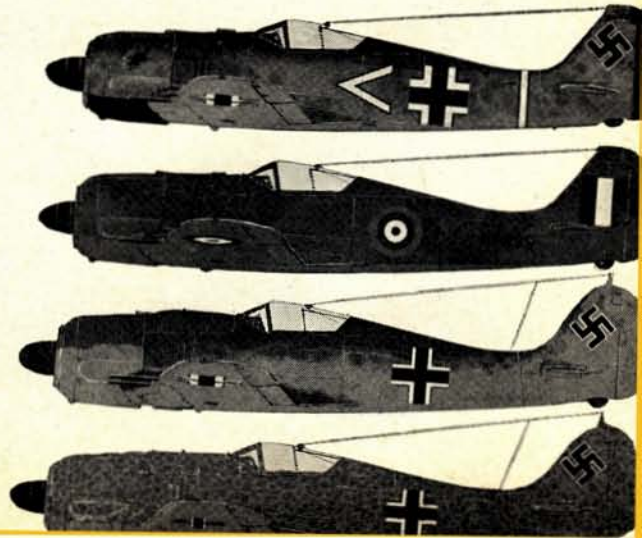
Of particular interest at the time, were the shock absorbing arrangements for the partially retractable tail wheel, the electrical trim on the tailplane, in fact the entire highly developed electrical system and the armament consisting of two 7.92 mm. machine guns mounted on top of the cowling, two 20 mm. Mauser cannons in the wing roots and two Oerlikon 20 mm. cannons mounted just outboard of the very wide track undercarriage. This armament was, at the time, the heaviest installed in any single seat fighter. The Mauser cannons with their rate of fire of 700 rounds per minute and the 1,000 round store for each of the machine guns offered a formidable degree of fire power. The captured aircraft was summed up as a happy marriage of advanced design with attention to detail for rapid production. The pilot was protected by an armoured seat and a 2¼ in. thick bullet proof windscreen. Engineers were especially intrigued by the powerful BMW801D 14 cylinder two row radial engine, with its fan assisted cooling and circular radiator cleverly streamlined and protected by the 5 and 3 mm. armour plated front cowling. To offset this somewhat alarming evidence of advanced thought from across the channel, the surface finish was inferior and the operational duration of less than two hours, a distinct limitation—for this was the very reason why we were able to obtain such an excellent sample!

Increased internal fuel capacity in the A-8 made good some of the deficiency, but nevertheless the FW.190 was very much a short range aircraft, put to its best use as an interceptor or ground attack type, according to mark and variation of equipment. The A-3 and A-8 were the most commonly used variants and are the subject of our drawing. They are distinguished by the longer nose of the A-8, which had been introduced on the A-5 version, and changes in the fin,—the small stub aerial mast appearing for the first time on the A-5. Two prototypes were first tested in mid 1939, followed by two short span prototypes, which were tried with a variation of armament. The pre-production batch were known as the FW.190A-O and it is of interest to note that following difficulties in attempting to abandon the aircraft, a request was made for an ejection seat, These pre-production aircraft proved the need for a cartridge ejected canopy, and a fan to aid the engine cooling. Then came the A-1 with its four synchronised 7.9 mm. machine guns firing through the airscrew disc, and the improved A-2, which was the first to have the Oerlikon cannon in the wing root. The A-3 benefited by an improved BMW801Dg engine, giving 1,700 h.p. and the faster firing Mauser cannon replacing the Oerlikon, which were moved outboard. It was this version which was particularly impressive in action against Spitfires and which built up such a reputation for performance at high altitude.

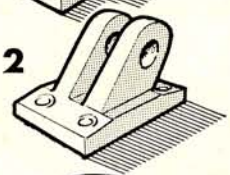
In mid 1942 the A-4 appeared with supplementary fuel injection, boosting power to 2,100 h.p. and from this came tropical and fighter bomber sub-types. The A-5 was similar, but the engine was moved forward just under 6 in. There were many armament and bomb variations, including the A-5/U15, of which only three were built as Torpedo bombers. Detail improvement followed in the A-6 with faster firing cannon fitted in the outboard positions, then the A-7 introduced 13 mm. machine guns in the fuselage, and subsequently the A-8 arrived with yet more variations in armament.

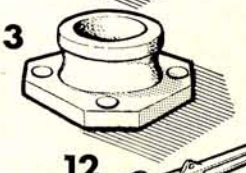
An A-8 is preserved by the Historical Branch of the Ministry of Aviation and retained at R.A.F. Biggin Hill. There is also another most unusual A-8 preserved at the Royal Air Force College of Engineering, Henlow, in the shape of the two seater A-8/U1. Study of the Biggin Hill aircraft has enabled us to produce the details in the drawings and grateful acknowledgement is made to the Ministry of Aviation, the Royal Air Force and Focke-Wulf G.m.b.h., for their co-operation.

Top, surrendered FW. 190 A-8, intact and with bomb fitted (I.W.M. photo NA6711.). Right is Japanese assembled machine taxying for take-off—a novel variation in colour scheme. Below the 190 A-3 being refueled shows hood in open position and typical Squadron markings (I.W.M. photo H.U.2715). Right are D. H. Cooksey's sketches of two captured aircraft, upper pair show first surrendered 190 A-3 in original colours (as on cover) with R.A.F. re-decoration below. Third sketch is FW.190 A-8 in original colours with revised camouflage, as now retained at R.A.F. Biggin Hill, at bottom

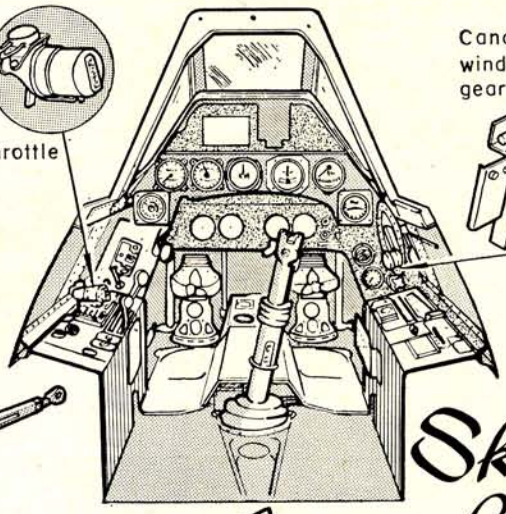


Focke Wulf. Fw 190 a-3 & 8

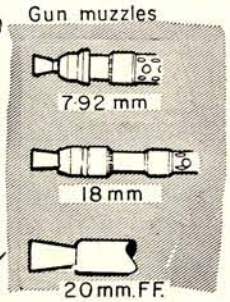




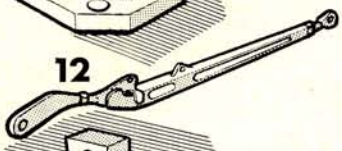

Throttle

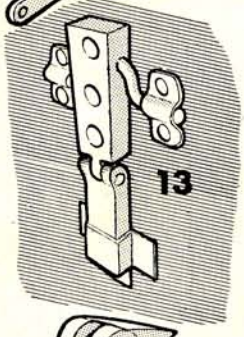


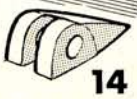

Canopy winding gear

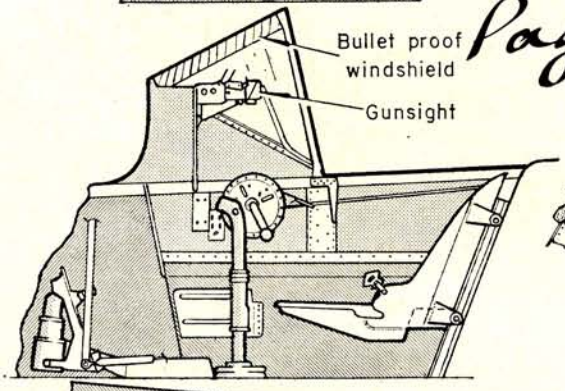


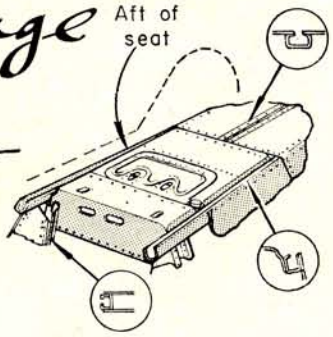
Sketch Page

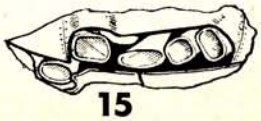


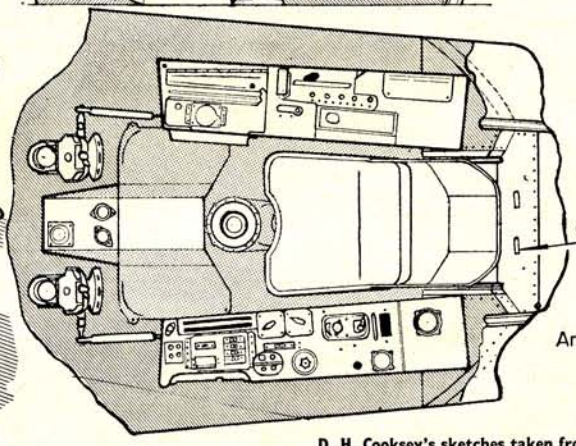


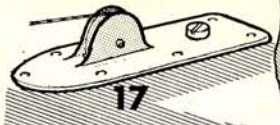


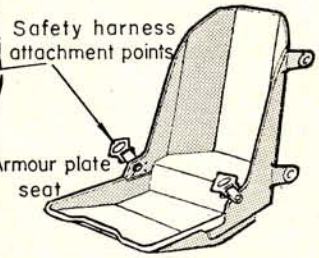




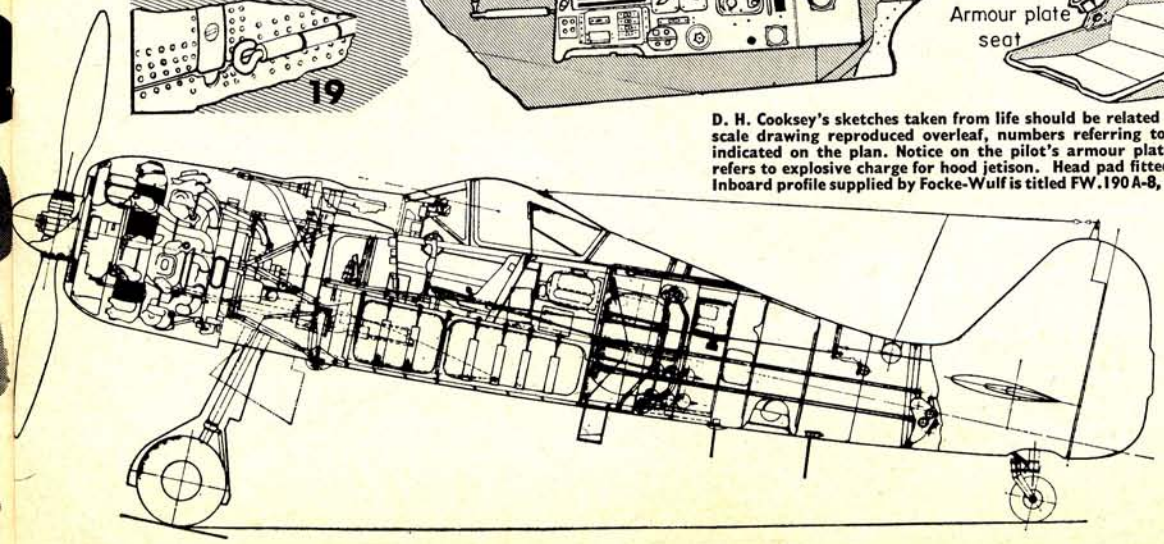




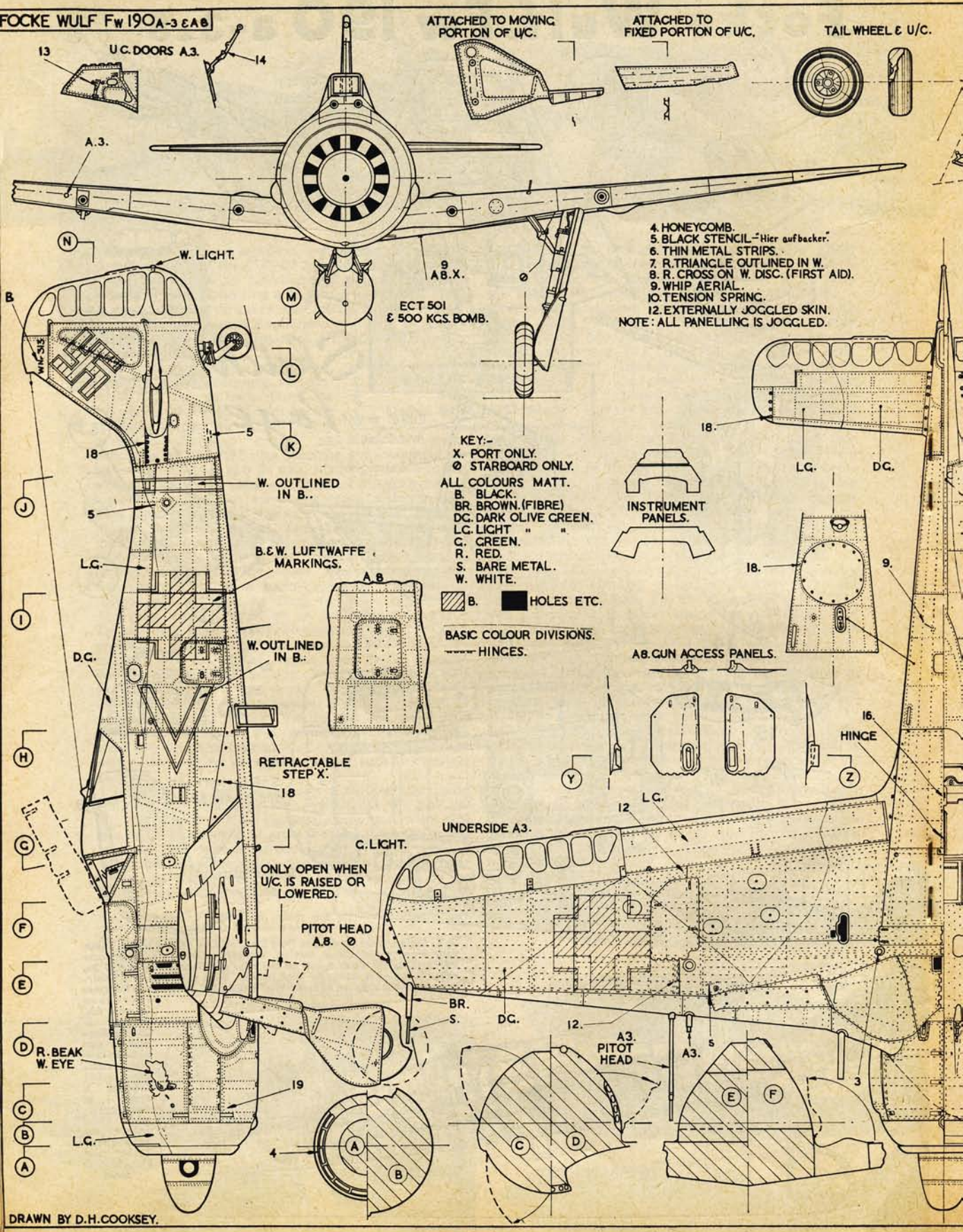




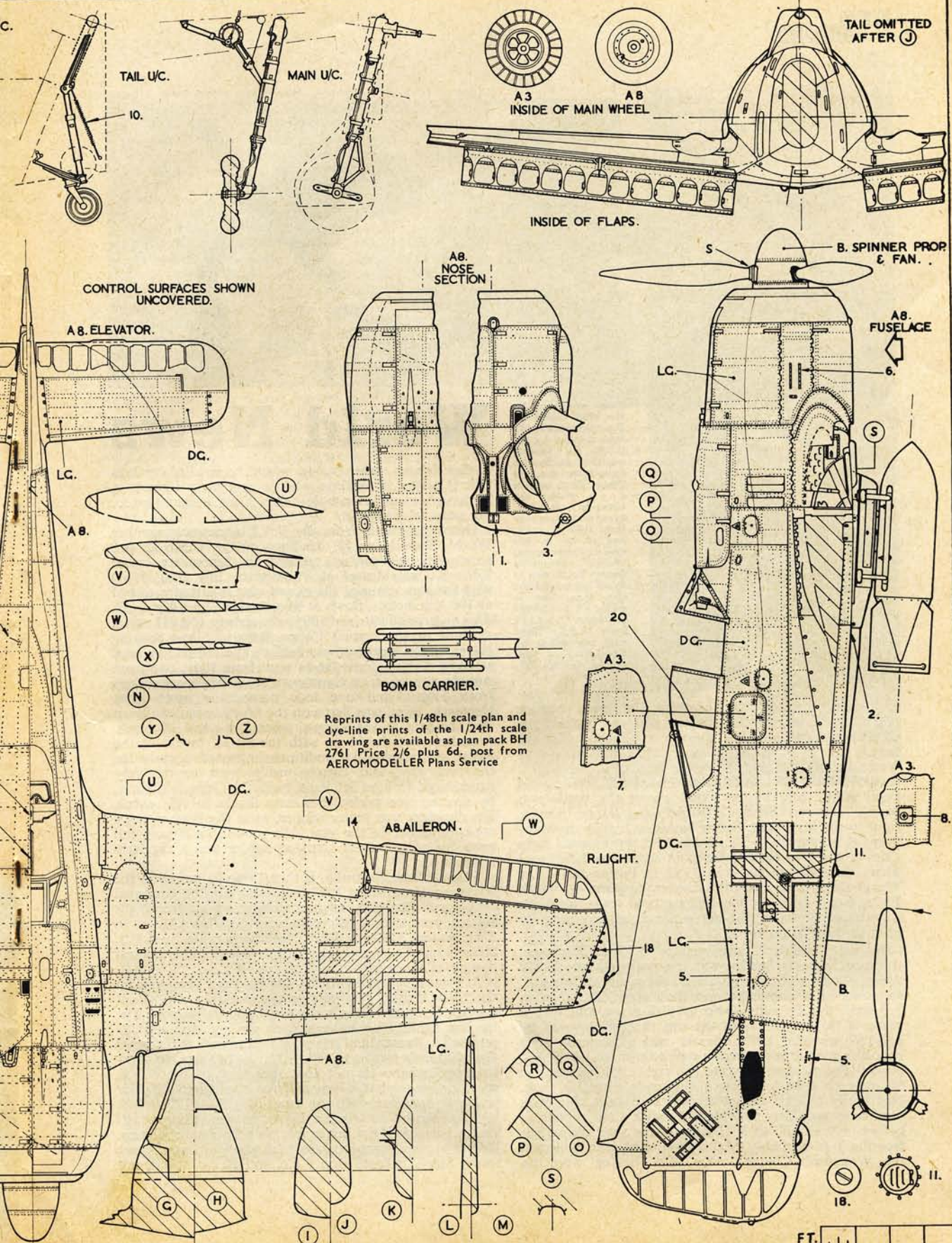
D. H. Cooksey's sketches taken from life should be related to his 1/48th scale drawing reproduced overleaf, numbers referring to components indicated on the plan. Notice on the pilot's armour plate, sketch 20, refers to explosive charge for hood jetison. Head pad fitted to A-3 only. Inboard profile supplied by Focke-Wulf is titled FW.190 A-8, and indicates increased internal fuel capacity of 25 gallons plus gun position control runs, etc., but includes a type of hood generally fitted only to the subsequent Ta152 and FW.190 D series



FOCKE WULF Fw 190 A-3 & A8



DRAWN BY D.H.COOKSEY.



Reprints of this 1/48th scale plan and dye-line prints of the 1/24th scale drawing are available as plan pack BH 2761 Price 2/6 plus 6d. post from AEROMODELLER Plans Service

Team members for the 1963 World F/F Champs have already been selected by the U.S.A. Sal Canizzo qualified at Eastern Semi-finals for the Wake Team and is seen giving the heave-ho at left. Event took place over farm field in calm, but at up to 100 degrees temperature. World Champion George Reich was in fly-off but missed out this time. Top is elegant "Fillons Champion" built from A.P.S. plans with r/c added by Dave King of Vancouver, Canada.

World News

FOR THE FOURTH time, Markku Tahkapaa became A/2 glider Champion of **Finland** and now retains the Challenge Cup. He was given a good chase for the trophy by 15 year old Harry Huhta who was only 4 secs behind the maestro in the final of 4 events held in 1962. Wake Champ is Reino Hyvarinen, who ousted Penti Aalto, and in free flight power the battle was mainly between Sandy Pimenoff and Harri Raulio, right to the last flight. Sandy won the Trophy and now keeps it permanently . . . looks like the Finnish Aero Club is going to have to fork out some new hardware! There were 62 entries in A/2, 22 in Power and 19 in Wakefield, which illustrates the enthusiasm on which Finland can draw for the International team selections —as usual however, the same names always seem to filter through to the top.

In the **Swedish** Championships held at Borlange, the most notable feature was the performance of A/2 flyers. Won by local man Lars Johansson at 790 secs. followed by a namesake and then Hans Thomann in 3rd spot, the list runs down to 13th place, still with a score of 701, that makes the top thirteen covered by only 89 seconds! Ulf Carlsson used a Borjeson style shoulder wing, not the easiest type to trim, to win F.A.I. power (See picture, opposite top right). Ulf missed the '61 title by only a few secs but made sure this time. Not many fly this model layout these days. Borjeson used it to gain five individual Swedish Championships before he "retired" to R/C. Man of the year in Swedish free flight is probably Malte Blomquist who collected the Wakefield Championship after having won the earlier Winter event; but he would be rivalled by Jan-Olle Akesson of Malmo who is runner-up Champ in both rubber and power by less than 9 secs. in each case . . . no mean achievement.

October Bulletin from the F.A.I. announces another World Record for N. Malikov of the **U.S.S.R.** (we announced his altitude record in September issue: 7,380 feet established at Volyntsevo, July 26th, 1961) who has now claimed the closed circuit distance record at 100 Kilometres, flown at Miasnovo on 31st May, '62. This nice round figure of 100 k. converts to 160.934 miles.

Third of the annual Coppa Bavaria Slope Soaring International meetings was held on the Hesselberg west slope in August. Four teams went from **Italy,** two from **Austria,** and nine from **Germany** while there were observers from **France** and one lone competitor came from **Denmark.** Wind was fierce on the first day and we learn that the contest was stopped when it reached 25 m.p.h. (wonder what they'd do with the 40 kt. breeze at the Mynd or Ivinghoe!) Conditions improved slightly for the final day, and Championship went to the very experienced Helmut Schubert, twice the German Champ, by scoring five perfect 5-minute flights in this event. His daughter was junior winner, as at the Wasserkuppe meeting earlier in the year. His models have very tall nose fins with magnet actuated rudder and a similarly tall rear fin.

Snippet from **Australia,** is that Tony Farnan won the Victorian State Multi R/C event with an OS. equipped *Orion* and Cox TD. engines dominated all free flight classes, even ousting the once very popular AM. 10 in 1 c.c. power. All three glider events were taken by A.P.S. "*Sans Egals*"—surely one of the most popular contest designs of the year.

In **France,** the Federal Champs (makes a change from the "Nats." title) were held on the vast area of d'Avord for free flight and indicated a new boom in interest. The heavier loading of 400/grammes per sq. decimetre is retained in France, and it is of interest to note that winner Guy Guidici's total was 180 + 180 + 147 secs. to show that performance is not that far short of the F.A.I. specification models. *Coupe d'Hiver* is split into a Senior and a Cadet class, with top times of 120 + 120 + 108 by Paul Andre to win Sr. in windy conditions which claimed many of the better models with distant chases. Control Line Championships took place at Lyon. Once more, Jarry-Desloges won 5 c.c. and 10 c.c. speed, but

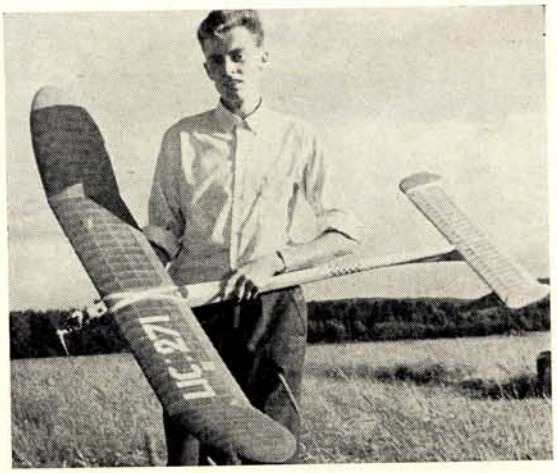
results were not exceptional, nor were they so in team race. France is one of the few Nations other than Britain, the U.S.A. and Australia, where 5 c.c. team racing is organised. Radio Control Champs were held at St. Andre-de-l'Eure with classes for gliders using single and multi command, plus multi channel power and also a new class for single control over a triangular course. Intermediate controlled models also flew the course same for another category. The "*Circuit triangulaire*" is very much a matter of debate in France at the moment, and its future will depend upon the inquest upon the October meeting. Pierre Marrot from Chateauroux had a walk-over victory in Multi, using an *Uproar* type design.

The two **Austrians**, A. Schwarz and H. Wagner, each made perfect 900 seconds totals in the A/2 section of the International Vartex Cup held at Varazdin, **Jugoslavia.** Peculiar combination of the gliders with team racing does not make the event specially attractive, but the '62 event enticed entries from **Hungary** as well, and the Katona-Purgai team gained equal first in T/R with Jugoslavian Spoljaric and Ivancek, each making 4 : 52.

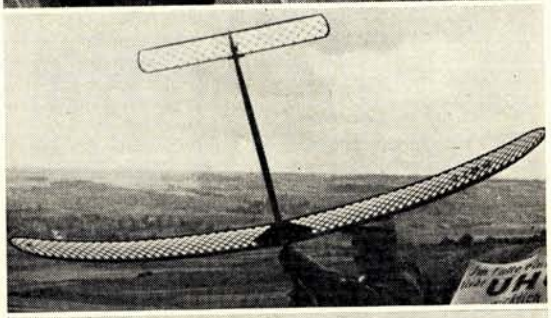
Illinois M.A.C. in the **U.S.A.** is very much an F.A.I. event club and annually promotes an invitational F.A.I. free flight contest. Representatives from nine U.S. States went to Burlington, Wisconsin on September 30th. Bob Sifleet won Power at 877 secs., he was also second in A/2 with 750 against John Gard's winning time of 783; and Carl Perkins was the only one to return a perfect 900 seconds score, in Wakefield. Unusual award was the appropriately named "Pentamax", which Carl collected for the first 5-Maximum performance. John Gard collected a booby prize for launching his Wakefield into his cap peak when well in the running for that event—we always did think those American caps were a trifle large in the eyeshade department!

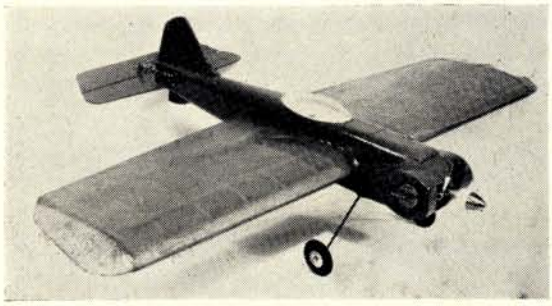
Interclub postals are building up. We have reports of several in hand, among them a six competitor a side (three classes, two in each) free flight challenge between Vancouver in **Canada** and Halifax in England. This ran into some high times, the Cannucks eventually winning with a margin of 48 : 02 to 44 : 19, maximum possible being 54 mins. If any other clubs want to take up a challenge, we'll be pleased to put them in touch.

Group of Christchurch M.A.C. flyers in South Island, New Zealand, obviously have a preference for "Lucky Lindy" design. Keen on free flight despite the strong prevailing winds, this is a go-ahead group, anxious to exchange news with others. Contact them at Box 2332 Christchurch, N.Z. See also "The way to do it" on page 587 this issue.



Swedis h Champion power free flighter for '62 was Ulf Carlsson of Gothen burg, using shoulder wing design. Below is R. de Vrij from Holland holder of 3rd place at the Europa Cup reported last month. Note position of the fin with autorudder on outrigger fuselage. Mario Feruglio of Italy has all geodetic glider structure of vane steering, seen at Coppa Bavaria. Bottom is also Italian, with Egidio Medaglia launching hydro model at Milan in Coppa Ostali event.





TUFFY

Looking for a control-line aerobatic trainer? This 28 inch span design fills the bill for 1—1.5c.c.

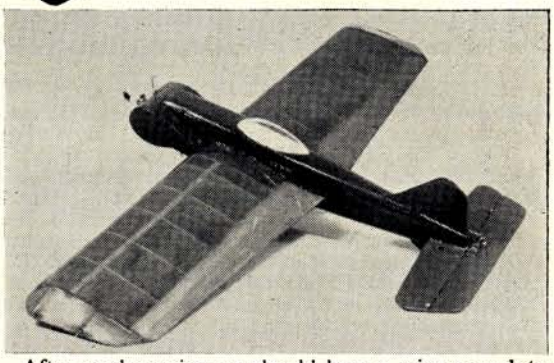
By M. Maude

HERE'S A MODEL that will really live up to its name. Flown over grass, it is virtually indestructable, especially if covered with silk. There is nothing unconventional in the structure except perhaps the means of enshrouding the engine in a neat sidewinder cowling made of plywood. This, in effect, provides a protective box around the most valuable part of your model and although there is no allowance made for accessibility, in our experience, provided the engine is securely bolted in the first place there should be no need for one to get inside the cowling. This side mounted engine arrangement will mean complete safeguard for the cylinder and if the needle valve is a long one, we suggest a protective wire hoop around it.

Tuffy is specially aimed at the sports flyer and not the man who wants to fly in competitions. It will fly through most of the aerobatic manoeuvres. The novice will find it an ideal trainer for learning how to stunt and will appreciate its toughness when the odd mistake is made. Before we begin construction perhaps we should explain the "back to front" arrangement of the bellcrank. This is because the elevator horn has been placed on the top side of the elevator as another safeguard and we also want to have the rearmost of the two lead-out wires in the wing arranged to be the "up" line. Thus if the model tends to go loose on the line and then fly in towards the operator, it will be the up line which will be pulled due to the fuselage yaw and the model will safely climb.

We prefer to make Tuffy's wing first and we start with the mainspar, which extends over the full span, less profile tips. This fits on to the ribs in egg-box fashion. Fit ribs loosely and position them over the plan in accurate spacing and add right angles. Then lift off the plan and apply the two cap strip spars and the result is an "I" beam of considerable strength. Replace over the plan again to fit the very strong but light leading edge arrangements and the trailing edge. Lift off the plan again, fit the webbing to fill in behind the leading edge then the trailing edge extensions and the wing tip structures. Finally add the control system and plank the centre-section with the 16 s.w.g. push rod sticking through free and of ample length.

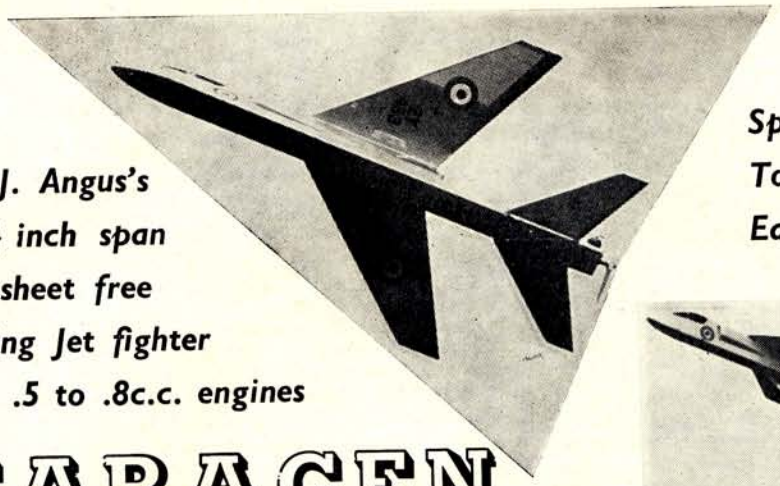
YOUR TWO FREE PLANS



After sandpapering we should have a wing complete and ready for covering. All we need to do now is to add the rest of the airframe.

Start the fuselage by making up the F1, F2 (with undercarriage fitted) assembly on the engine bearers. Bearer spacings should suit the engine and the tank a wedge fit between the bearers. The $\frac{1}{8}$ sheet sides extend from F1 to the extreme rear fuselage but are not to the full fuselage depth, only the depth of the formers (see cross sections). Fit longerons to the sides and slide the sides over the wing from each tip, joining them with the engine bearer assembly. Slip F5 over the push rod, work push rod through the slot in the port side then join sides at the extreme rear. F6 and F3, F4 are fitted in sequence. The tailplane and elevator assembly can be shaped and hinged, horn fitted and then tailplane cemented in the fuselage sides. Two pieces of $\frac{1}{4}$ sheet are added to the nose as seen in side view, then the $\frac{1}{4}$ sheet top and bottom facings added, roughly cut to shape. Extensions to the tank vents should have been fitted.

Now cut the streamlined shape $\frac{1}{4}$ in. cheek plates and a blank of thin plywood 1 mm. or 1/32 so that it will fold back over the cheek plates. Cut out a section roughly $1\frac{3}{4}$ x $2\frac{1}{2}$ in. from the two ends of the ply so that when folded back around the plates, you can fit the cowl to the nose and get a good trial and error joint. When satisfied, fit the engine permanently using double lock nuts to make sure nothing will work loose and make up the cowl assembly around the engine, cutting out an air intake in the front and sufficient room for the crankshaft to come through etc. Now shape the entire fuselage to a curved edge section and fill in with scrap balsa any odd corners, such as that immediately above the cowling. Cut slots for the fin and skid, and after fitting, prepare the entire airframe for covering with tissue or silk and then dope liberally, finishing with colour of your own choice. The model suits all engines 1 to 1.5 c.c. and provided it balances about the front line point it will perform admirably, even in quite windy weather. The cockpit canopy is an added embellishment and a pilots head adds to the appearance.



P. J. Angus's
20½ inch span
all-sheet free
flying Jet fighter
for .5 to .8c.c. engines

Speedy to build.
Tough.
Easy to fly!

SARACEN

EASY TO BUILD and capable of withstanding a lot of knocking about, *Saracen* is a "pusher" with a difference. Who would not agree that this is also the *right* shape for a "sport" model in 1962/3? Any resemblance to a very efficient Navy jet fighter is purely coincidental. The original models have flown well with a D.C. Dart .5 c.c. diesel and a Cox .049 glow plug Babe Bee. Visitors to the '62 rallies will have seen and been impressed by them in action.

If your engine is beam mounted, check the beam spacing and alter the drawing if necessary. Also, decide which way the side thrust should be. This depends upon whether you use a "pusher" prop as on the "Dart" (pointing to the left, viewed from above rear) or a tractor prop, running the engine in reverse, as for the "Cobra" or "Babe Bee", or Mills .75 (pointing to the right from above rear).

Be most careful to avoid making the model unnecessarily heavy; the drawing indicates correct grade for each component.

Wood for tail surfaces and fuselage sides should be sanded smooth while still in the sheet stage, before trimming to shape.

When assembling each half-wing, trim the inboard ends to match. Double-cement halves together and add the ply understrap. Allow to dry thoroughly before shaping. Use very coarse sandpaper for initial bevels when sectioning.

Here's a tip. After cutting fuselage sides, stick them together with about eight dabs of cement around the periphery and trim edges with sandpaper so that the two sides are identical. Before separating, mark the former position on the outer edges. Fix all the formers to one side, then add the other side. Add internal items. Cut top and bottom sheets and attach. Don't forget the fin-slot and holes in top. Cut nose ½ in. sheet items slightly oversize and fix. Finish the nose shape, trim off excess sheeting, round-off corners and smooth all over. Now fit dowels, fin and finished dummy intakes. The following joints should be double-cemented: (1) All joints to engine bulkhead and engine bearers, (2) All end grains on nose block. Trial fit the engine, but avoid oil stains on the woodwork.

Finish

The appearance of this model depends greatly on the colour scheme. Decorated with R.A.F. trainer colours as detailed on the plan it is a most attractive subject. If you want a different scheme, look for coloured pictures in the full-size aviation journals and you'll find plenty of ideas. Avoid "model" type patterns of scallops, rays, zig-zags and chequers.

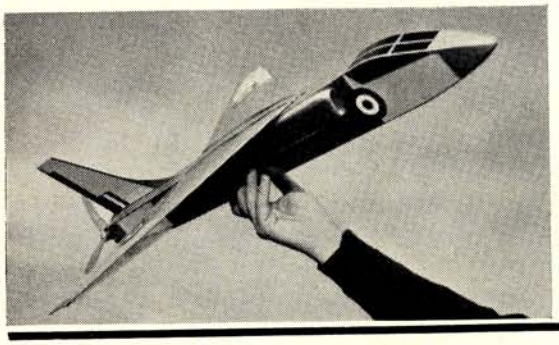
Snappy swept lines of one of the prototypes is well displayed in these two views. Saracen has attracted considerable interest wherever it has flown at the 1962 rallies, looks very realistic in the air

Here's how to do the R.A.F. trainer scheme. (i) Apply at least two coats of clear dope or sanding sealer, and rub down. (ii) Apply one coat of silver brushing cellulose dope, all over. (iii) Mask and paint colour patches (see plan) with one coat of glossy enamel. (iv) Apply transfers and address label. (v) Apply one coat of fuel proofer. It isn't really as easy as that, so here are a few more tips, stage by stage. After stage (i) fix temporary handles to fuselage, wing and tail to aid decorating, and don't remove until all painting is complete. (ii) Start silver doping by painting all edges, crevices and awkward spots with an almost dry brush, then quickly finish off the easy areas with a well-loaded brush. Don't let "runs" develop. Watch out for loose hairs on the brush; it's much easier to pick them off the brush than off the painted surface. (iii) "Blaze" is the correct colour, but you'll probably have to settle for a bright orange, or red, which will still look good. Press the masking tape down well, and strip off as soon as possible after painting. If the enamel does run under the tape you can scrape off the unwanted spots with a sharp knife when its thoroughly dry. To make narrow strips of masking tape, stick a wide piece of tape to a sheet of glass and cut off strips to the required width with a razor blade and a steel rule. Coloured gummed paper could be used as an alternative to enamel for these patches.

(iv) After applying the transfers, rub a drop of gum (mucilage) around their edges with a finger-tip and wipe with a slightly damp cloth. If the transfer edges are not well fixed they will wrinkle when varnished.

(v) It's *very, very* easy to miss a few patches when clear varnishing, so inspect very closely when you think you've finished.

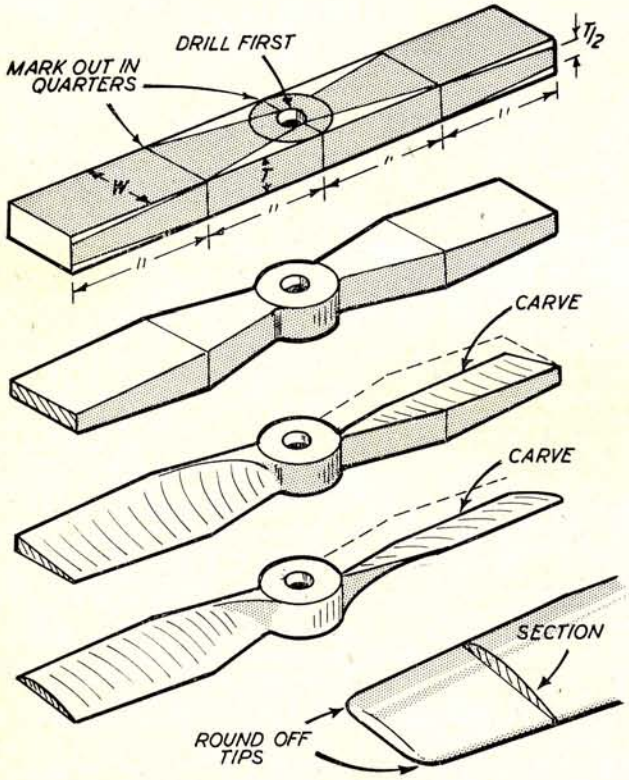
Unless you are quite sure of your materials, you should try out the paint scheme first on a piece of scrap sheet balsa. There are many paints on sale which "lift" if over-painted and if this happens to your model when it's nearly finished, you'll wish you had heeded this advice.



Trimming the SARACEN

Adjust engine sidethrust by sighting the prop line over plan. Balance complete model where shown and seal weight box with Plasticine. No turn should be apparent from a hand launch glide. Adjust if necessary by warping the fin or weighting a wing tip with Plasticine. Send her off at full power with fuel tank ⅓ full. A fast launch is required, especially if there's not much breeze to launch into. Best trim is a very wide circle, in either direction but same way for both power and glide, and not too close to the stall. On calm days one can fill the tank and enjoy really high altitude flights, as *Saracen* is not a likely type to drift away in a thermal!

Carving a PUSHER PROP for SARACEN



BEECH, ASH OR a *hard* mahogany are suitable woods for carving a power prop. First job is then to cut a true rectangular shape on which to mark out the *propeller blank*. To arrive at suitable proportions for the width of block (W) and thickness (T), use the following simple rules.

(i) Width (W) should be *one tenth* of the diameter—i.e. for a 6 in. diameter prop blank width = .6 in.

(ii) Thickness (T) depends on the propeller pitch required. The following are approximate figures for *all* diameter sizes (provided W is made one tenth of the diameter).

4 in. pitch, T = ¼ in. 7 in. pitch, T = 7/16 in.
6 in. pitch, T = ⅜ in. 8 in. pitch, T = ½ in.

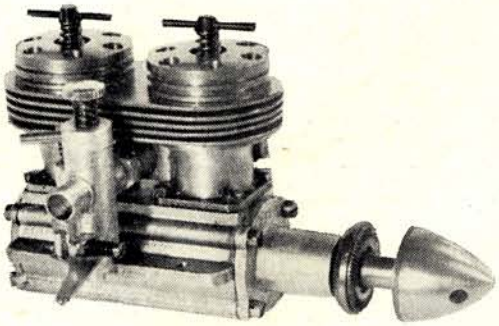
Having cut the block to the required proportions, mark out in quarters as in the top diagram, then draw on the *blank* outlines as shown. Drill the hole in the hub (to suit the engine crankshaft) and then cut out to the propeller blank shape (second diagram). Use a small stiff-back saw for all cuts except the round hub, which you can cut with a fretsaw or carve.

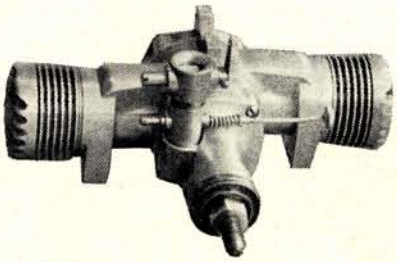
(iii) Now follow through with carving stagse, shaping the *back* of each blade first. Note that you carve away the *top left hand edge* of each blade (facing away from you), to produce a pusher prop. Carve down to a flat undersection, then turn over and carve the upper side of each blade to shape. Aim for equal thickness on each blade and taper the thickness from hub to tip. Leave a generous section near the root for strength. Aim for thin sections near the tip.

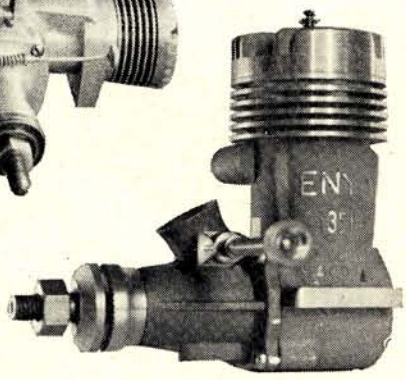
Sand the whole propeller down smooth, rounding off the tips slightly. Check for balance by mounting on a drill or dowel which fits the hub hole and remove wood from the heaviest blade until the prop. balances level. Good balance is as important as getting a good section on the blades.

A final reminder—at stage three when you start to carve, start whittling away on the left hand edge always (facing away from you).

"I'll say this for Fergusson, lazy as he is; he's sure got his wife under full control."







Motor Mart

Left, the Taplin Mark II 8 c.c. twin diesel, centre, Japanese Sky Queen 16 c.c. glow twin, right the latest Enya 35 with deep finned head.

WE CAN ANNOUNCE two new engines this December and strangely enough, each of them is a twin. The success of the original **Taplin Twin** 7 c.c. diesel as a sports aero motor and as a marine power plant that has swept the board in many contests, is too well established to repeat here. It is followed by the Mark II version of increased capacity, now 8 c.c., and with distinctive unit finning inter-connecting the vertical in line cylinders. Several new features have been added to the enlarged capacity version and production is being built up to meet demand when supplies become available during December. A great feature of the Taplin diesel twin has always been its excellent carburrettor control and this will be even further enhanced with the higher speed range in the new motor, which will sell for £9 10s. 0d., including tax. From Japan we have just a photograph of the other **"Sky-Queen"** twin, glow plug ignition and of 16 c.c. capacity (.99 inches). Further information is on its way to us, but in the meantime, the external view reveals an unusual application of crankshaft porting with a simple butterfly front fitted to the carburettor and standard loop scavenging applied to the staggered, horizontally opposed cylinders which will, of course, be simultaneously firing. Such an engine capacity is now outside the limits for international contest work, but still has excellent application among sports flyers, who will produce heavy airframes and large models.

Supplies have reached Keilkraft, distributors of **Enya** engines, of the new 35-11, model 6001 Enya glow engine. This 5.85 c.c. engine is claimed by the manufacturers to have a peak b.h.p. of 0.8. It will retail at £6 15s. 6d. Being over-square with a bore of 0.083 in. and stroke 0.704 in., it has a healthy bark and a distinctive feature is the deep finned head, reminiscent of the Fox 29R, retained with six screws.

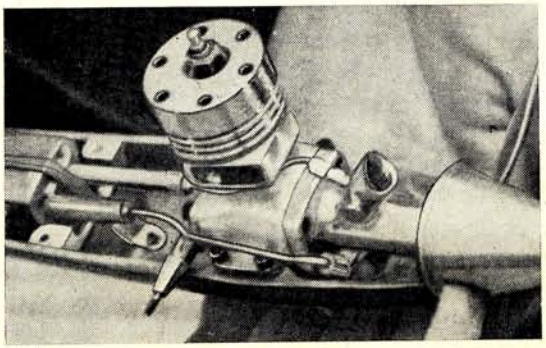
Checking with developments at Messrs. **Oliver**, we learn that their new specification shaft and heftier crankcase dimensions have succeeded in reducing the few failures to zero and a certain amount of little end wear has led them to incorporate a phosphor bronze bush in the small end of the connecting rod since the September production period. The Oliver family take pride in the fact that they are still servicing engines produced eight to 10 years ago, sent in with a request to recondition to present standards.

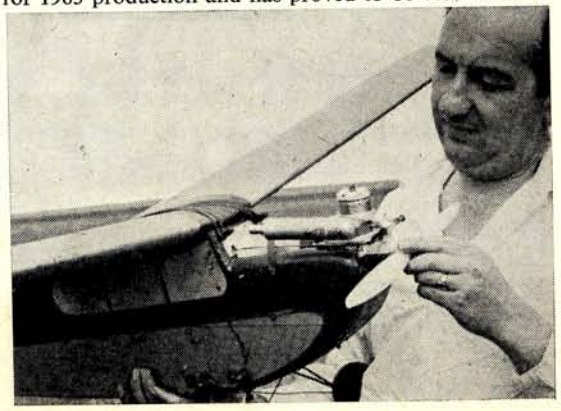
A common request is for the source of supply of Nitro Methane. There has always been a shortage of supply and this was enhanced, when some U.S.A. manufacturers discontinued export arrangements. We are happy to report that Nitro Methane is now being produced synthetically by L. Light and Co. Ltd. of Poyle Colnbrook, Bucks., and can be supplied packed in one kilogramme tins at a price of 45s. per kilo.

It is not very often that we get the opportunity of producing a photograph of an American 2.5 c.c. F.A.I. "special", but the one made by Danny Keiwicz is of interest, employing pressure tapping off the crankshaft valve for direct pressure feed into the open carburettor.

Air tests of the new 10 c.c. **E.D. Condor** engine have been made by Harry Brooks and Stewart Uwins in multi-channel R/C models. This very much over-square (1 in. bore, .77 in. stroke) unit has two piston ring and twin roller bearings for the crankshaft. It is scheduled for 1963 production and has proved to be very smooth.

Below, own design and constructed F.A.I. speed engine by Danny Keiwicz of Detroit, showing pressure piping. Right, Harry Brooks with E.D. Condor 10 c.c. fitted with silencer, used in test R/C multi channel model.





Trade Notes

IT IS NOT often that we have the chance to examine model products from East Germany but one item that did catch our interest recently was a plastic kit for a *MiG* 15 jet fighter. Packed in a soft cardboard box, the coloured exterior does not compare with the glossy covered boxes we have come to associate with plastic kits from Western countries. Parts are moulded in a thick dull silver grey plastic with rivet lines very much Clyde ship building size.

A regular problem with nuts and bolts is that of fitting those inaccessible bolts down between the cowling side and the engine cylinder. Engineers have a special tool for this purpose, but they are large and expensive. Now, a triple pack of **Slotgrip** torsion screwdrivers has come on the market for model makers from Henri Pickard & Frere Ltd. This clever little device will hold all the types of bolts we use in aeromodelling simply by pushing the blade into the slot in the head. The screw can then be spun into position. Retail price is 36s. 9d.

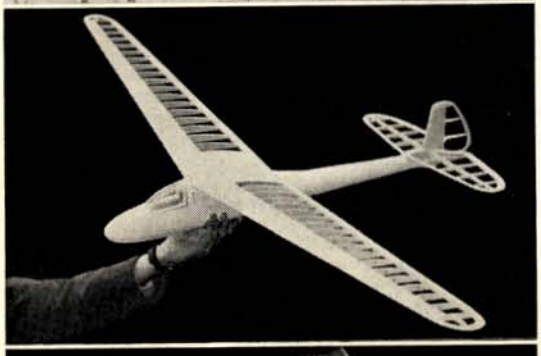
Want something to keep junior happy and out of mischief when you take him with you to the flying field on a Saturday or Sunday? Well if you have that kind of a search on, then maybe the **Jetex** *Easiflyer* is just the answer you have been looking for. Easiflyer is a Ready-to-Fly which clips together. The fuselage and fin are moulded from plastic and the wing and tailplane are coloured sheet balsa. Wing, tailplane and undercarriage clip on and the fin offset is adjustable by means of a serrated friction contact. An intentional warp allows the model to turn tightly without dropping a wing.

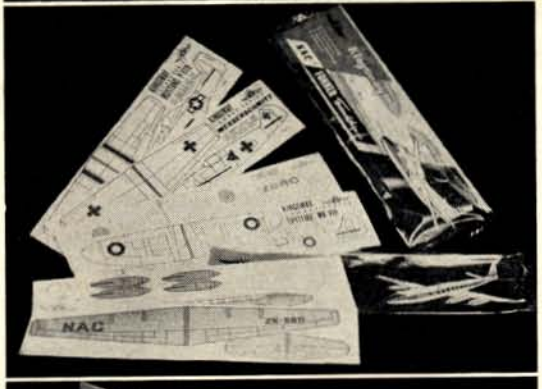
Pace of the **Airfix** expansion never slackens, or so it seems to us. Latest additions underline their creditable attention to infrequently modelled types. First came the *Heinkel H.E.*111 *H*-20. With 79 light grey moulded parts this kit is to the accepted usual Airfix 1/72nd scale for aircraft at 6s. Two bombs are provided to hang beneath the wings, the undercarriage retracts and all gun turrets can be swung through their normal operating arcs. Next to arrive is the 1/144th scale *Vickers Vanguard* in the Skyking series at 4s. 6d. Spot on accuracy (it follows all the detail in our A.P.S. plan) and authentic down to the built-in stairway, it makes a fine job in B.E.A. colours.

Resourceful modellers will find a host of uses for **D. W. Ilett** *Lightweight Universal Couplings*. These are moulded in nylon with brass centre blocks and pins. They can be threaded, and the ¼ in. dia. will take 3/32 in., ⅛ in. or 5/32 in. bores, the ⅜ in. dia., 5/32 in., 3/16 in. and ¼ in. bores, while the ½ in. dia. one takes bores of 3/16 in., ¼ in., 5/16 in. or ⅜ in. These couplers should have many torque rod applications. Respective prices are 5s. 6d., 6s 6d. and 7 s. 6d.

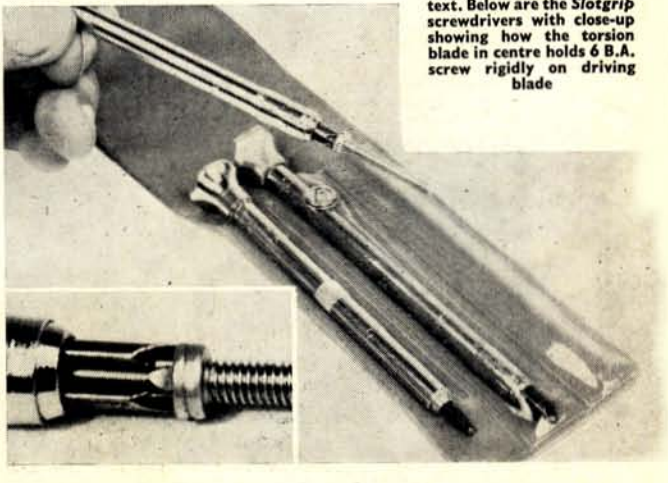
Soon to come from **Keilkraft** are more of the *Eezebilt* series at 6s. 11d. *Mustang*, *Spitfire* and *ME.*109 are attractive World War II fighters supplied in die-cut printed sheet with special 3 blade plastic prop and the micro thrust adjustment we have mentioned before in these columns,—a very nice design effort which we know will be appreciated. Additionally the **Mercury** 3 *footer*, an all-balsa 36 in. glider for tow-line training or sport flying with Bowlus type pod and boom semi-scale appearance. Looks like being a popular beginners favourite. Keilkraft are also distributing the popular range of **Xacto** modelling knives, with a new snappy dispenser for counter display which would grace any model shop counter. We are also in the process of testing out the whole range of **Wen-Mac** ready-to-fly plastic models, which also come from Keilkraft. The latest to arrive in the British range is the *P*-63 *Kingcobra*, at £7 10s. 0d., following up the already established *Airacobra*. Feature of the latest model is that it is completely bright aluminium finished—a real bobby-dazzler!

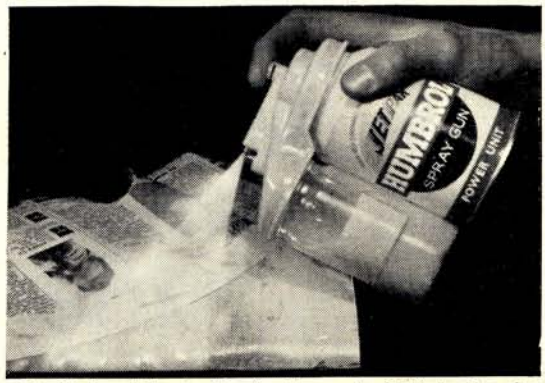
Using fuel in large quantities? **Performance Kits** are offering top quality glow fuel at 26s. 7d. per gallon through their retail agents. Mixture is best quality alcohol and high grade oil with additives for smooth running of stunt engines.





Top, small photo belies size of 30 x 10 in. kit box for *Robbe* "*Thor*" R/C multi to suit 3 to 9 channel, 61 in. span. Fully prefabricated, cut ribs, bulkheads, bent wire parts, soft wheels, hardware, very complete kit for approximately £7 with multi language details. Next is *Graupner* "*Weihe*" with expanded polystyrene fuselage, weighs 13 ozs. as shown, less radio, an elegant model using new techniques, distributed by *Ripmax*. Printed sheet glider packs from *Kingsway Models*, New Zealand, include *Combat* series of World War II fighters and larger *Skyliners*, Viscount and Friendship airliners. Neatly printed *both* sides of balsa, they are to highest standards of production. Attractively packaged, selling well in Australasia, bottom left is East German Mig 15 kit mentioned in text. Below are the *Slotgrip* screwdrivers with close-up showing how the torsion blade in centre holds 6 B.A. screw rigidly on driving blade



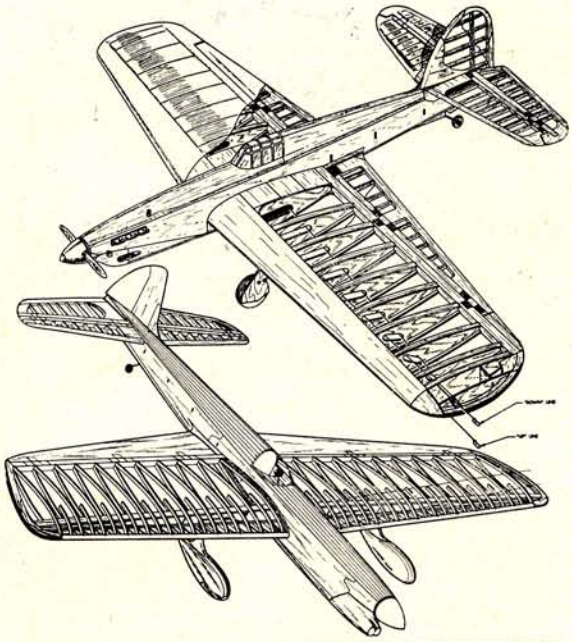


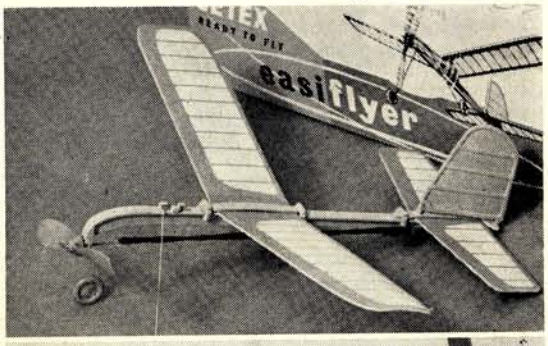
Mystified modellers looking for the popular N.W. London shop on the bridge by Wealdstone Station may not be aware of the new location. Brian Smith, who is a raving keen sports radio flyer always ready with a hint and a tip, has shifted his shop to 12, Broadway, Wembley Park, Incidentally we spotted Brian in action the other day using a new application of **Telecont** 3-channel R/C,—2 on ailerons, 1 on selective elevator. Nice to see a dealer enjoying the hobby.

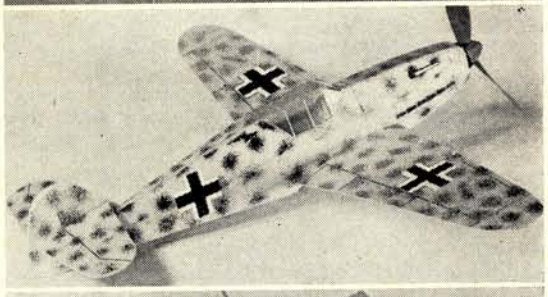
Want an accumulator? **Roland Scott** has yet another value for money line in brand new 2 volt, 18 amp. lead acid type. Accs. at 10s. plus 2s. 6d. carriage, which we can commend.

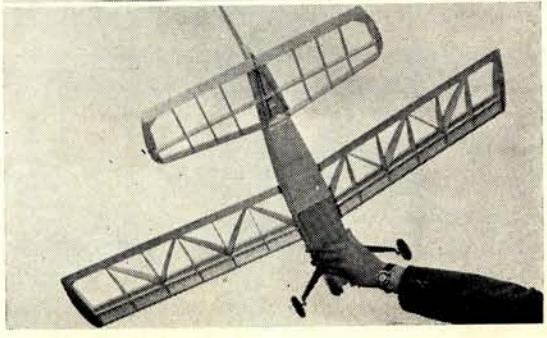
Henry J. Nicholls Ltd. sent us samples of the new range of Italian carved *Super Record props* in popular competition sizes for team race and free flight. Low priced at 1s. 9d. for 6 in., 2s. 3½d. for 7 in., 2s. 7d. for 8 in., they are extremely well finished in beech and use efficient blade profile and section. Those who have tried them speak highly of their performance.

Two new items from **Humbrol** are the *one pack hot fuel proofer*, 2s. 0d. per 2 oz. tin, which dries in two hours and seems, on our first check, to be impervious to fuels and also the *Jet-Pak spray gun*. The latter is a 35s. unit suitable for spraying enamels or dopes when suitably thinned. The gas (Dichlorodifluoromethane refrigerator gas) filled power can is replaceable for 10s. 6d. and will give enough pressure to dispense approximately seven full jars of mixture at 4 ozs. per time. We checked it with the Humbrol fuel proof dopes and obtained good coverage. Usual spraying precautions must be taken, especially in ensuring a clean, grease free, surface. We have yet to locate a jar of identical thread in common use and hope that spare jars will be sold (as in America at 20 cents), so that colours can be retained ready thinned and handy for quick use. Supply of spare clean neoprene feed pipe is also advised for each colour. Incidentally, for those who wonder why matt colours are not possible in fuel proof dopes, the matting effects the proofing so we are informed.

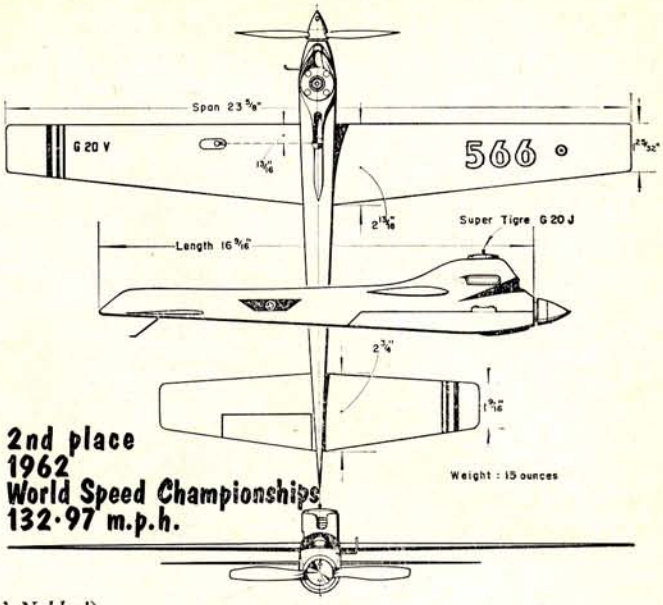








Top right, Bob Palmer's 56 in. *Hurricane* with 590 sq. ins. wing uses latest design features, produced to usual *Veco* standards. Other sketch shows *Ambroid* kit for Bill Werwage's U.S. Nats winning *Ares*, 50 in. for 29-35 engines, using lightweight structure as illustrated. A clever kit, sold through *Roland Scott* at £4 9s. 0d. Next the 5s. 11d. *Jetex 'Easiflyer'* with plastic fuselage and fin, printed sheet balsa surfaces, goes well. Right is *Keilkraft Eezebilt* Me. 109, showing three blade prop, printed sheet wood, die-stamped, ready to assemble. Bottom right is *Veron 'Robot'*, 23 ozs. uncovered as shown, a fine British kit which we have observed going specially well with Fox 15 R/C engine. Below left are the universal couplings by *D. W. Ilett*, moulded in nylon with brass centre blocks and new version of an old favourite, the *Valvespout* with on/off twist lock safe valve, perfect for fuel at 3s. 9d., which we saw on sale at H. J. Nicholls Ltd.



Championship reflections

BY BOLDLY REVEALING individual judges' scores for each flight at the R/C Champs., the S.M.A.E. has exposed itself to some criticism from Belgium. Two judges who consistently marked high and low and were repeatedly discarded under the F.A.I. scoring system, have been criticised (unjustly we think).

Mock kit prize of balsa, Melinex and large tube of cement was given to indoor flyer Esko Hamaleinen for his many prangs at Cardington—he even broke one when walking too fast across the hangar.

After the Kiev meeting, British modellers went back to enjoy the "Kordodrome" (suitable name *eh*?) to fly for fun on the excellent circuits. Such flying can be disastrous. All three stunt men returned with damaged models, mainly loose bearers through ground contact (including one caused by the editor, flying Geoff Higgs' *Nobler*!).

Happy Japanese Oki and Kato turned up at a Californian R/C meeting soon after the Kenley Champs—makes the world a small place for those able to travel.

Karl-Hienz Rieke's model boxes were uniquely protected by overall covering of 1 in. thick polyurethane foam plastic—a good idea for bumpy trains, planes or cars.

Delta jet that left the lines at Kiev (photo top right) went through three trees, cleaving branches and the Swedish team tent, missing competitors by a few feet. Luckily the hot rod dropped on an open space and apart from singeing the torn tent sides, did not damage a thing—fortunately. Henceforth jet flying stopped!

Universal comment after Kenley concerns contrast of relatively spartan airmans' barrack block sleeping accommodation with the formality of a candlelit all-male prize-giving banquet. Some of the more endowed competitors said they would have preferred to have paid a larger entry fee for the use of hotel private rooms. Difficulty was that of obtaining any sort of accommodation anywhere adjacent to a suitable airfield.

Juri Sirotkin was seeking a Merco 49 after the contest at Kiev. Shows that the Russians have their ears to the ground on latest developments in stunt modelling.

Freshly spray painted girder work inside the enormous Cardington hangar made the place decidedly brighter and cleaner. We understand that during the operation there were three falls. One from the roof was luckily arrested by the man catching hold of a rope on his way down, but another was serious, resulting in many broken bones. Makes one think twice when clambering to those heights just to watch a model!

Top, at Kenley, U.S. 1963 team member Gerry Nelson of Los Angeles (white shirt) chats with Don Brown (right), beside Don's bright orange finished proportional controlled model, in foreground is ultimate winner "Perigee" by Tom Brett. Below, combat at Kiev was hectic. In the final bouts, the Russians lost three models and two engines! Here is one model being recovered from a tree outside the circle

Above, Giancarlo Ricci's beautifully prepared single cable controlled model, which placed 2nd at Kiev. Apart from metal under-pan, the entire model was in natural finished spruce. Cowling allowed completely exposed cylinder head with a gully for airflow. Below Anatol Kouznetsov, new world record holder, with his conventional but extraordinarily fast model, powered by own design engine of remarkable output. Broad blade prop and monocable. Note large fin used on Russian speed models

South African, Monte Malherbe comments on Kenley that he came with a 5,000 ft. aircraft, much too light for British weather. Next year he is coming with something heavy and fast. Nevertheless, Monte you showed them how to use throttle and keep the model "on the island."

We learn that there are three model clubs in Kiev—two of them associated with factories. Total membership is about 100—not much for so large a city.

Which line will indoor modellers follow next? Rigidly braced elliptical form German layout or traditionally floppy, American polyhedral type?

Redlin and Rieke were practically equally matched at their top times though the Germans showed infinitely better consistency.

Harold de Bolt is to produce a kit for Tom Brett's world championship winning "*Perigee*". Should be quite a challenge for Hal, renowned for producing simple structure kits, when Tom says it takes him nearly a year to make an aeroplane and if there is a hard way to make a model, Brett will use it.

Soviet method of checking team race tanks was crude in extreme. Only burette on the field was one taken by Dick Edmonds, borrowed by Maurice Bienvenu to check the team race finalists; but this was stymied when jury man Jermakov refused to allow such processing of Soviet or Hungarian tanks. A very strange move which did not instil much confidence. Mystery of East Zone Nation interest in Natalenko's last speed flight is now revealed by a statement that he had made 225 *km/h. in practice—could well have been a winning flight, no wonder he was disappointed and the Hungarians relieved, when he made* 204 *km/h.*

Duck! C. S. Rushbrooke, one of the five international judges, stoops to safety as Tom Brett makes a smooth approach line up with the wind on his second contest flight. Landings were a fine feature of this R/C championships

Belgium was upset by omission of invitation to Albert Roussel to attend the R/C Champs. Albert was responsible for establishment of "The King of the Belgians" trophy and organisation of early R/C meetings. Other criticism concerned lack of information in the French language, especially at speech making.

Indoor materials are said to be hard to get. Maybe one should take a lesson from Ray Monks who states he made one of his models from a sheet of $\frac{3}{8}$ *in. balsa he found in a model shop to be of ideal consistency. Sanded and cut down to strip and sheet of fine dimensions, it produced as light a model as would material from more exotic sources.*

Italian magazines appear affronted by the exclusion of national speed champ Ugo Rossi from the Italian C/L speed team, which was all Super Tigre equipped, whereas Rossi now uses his own motor. It is claimed Rossi could easily have beaten the winning speed.

Soviet authorities questioned British C/L team and manager on U.S.S.R. R/C performance at Kenley, thought they had done badly . . . but how little they appreciated how far behind were the Soviet modellers in equipment and "know how." Intense study will now be made of latest British and American gear in time for 1963 *Champs. in Belgium.*

At the end of the first round all heats in team race at Kiev, many managers were so incensed by standards of flying that the jury was asked to remind pilots and mechanics of the rules. They in turn delegated this task to the editor, who happens also to be Chairman, F.A.I. C/L Sub-Committee. Lecture included requests to allow models to do some of the work and for better sportsmanship. Subsequent rounds improved slightly; but main fault was lax administration.

Microfilm used by the six Nationalities involved at Cardington, varied in formula, according to preference or local availability; but the simple three part mixture of 80 *per cent. clear nitrate dope,* 15 *per cent. Amyl Acetate and up to* 5 *per cent. Eucalyptus oil as used by Rieke will be of interest. The result is a very clear film, slightly sticky and prone to collect dust but it was certainly taut, and not in the least wrinkled as were many other coverings.*

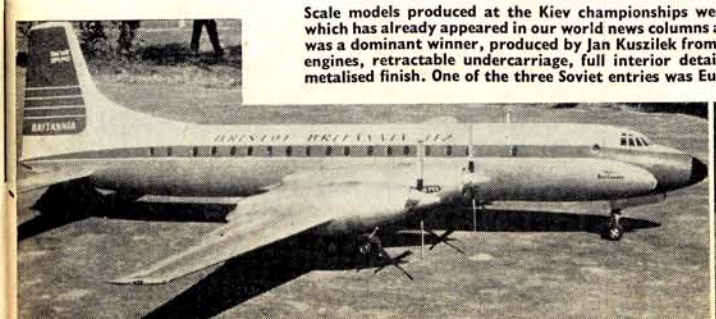
Jet Deltas with home constructed power units were flown in demonstration and competition at Kiev. This one is being straightened up by owner Atakulov, who comes from far away Tashkent. His other jet, with conventional wing and tail form, was the biggest we have ever seen

British team thought they had everything laid on to meet Soviet modellers at Central Aero Club modelling laboratories when they returned via Moscow. Such was not to be apparently, whether by design or accident we shall never know. Team was led off on a time consuming sightseeing tour when they would have much preferred to meet those modellers. We understand there are 9 permanently employed at Central Aero Club on model research, led by the experienced Michael Vassilchenko.

Noticeable point at Kiev was the interest expressed by modellers from Rumania in British designs and engines. Supplies are hard to obtain in that country and we feel that this particular team made a very good showing with the equipment to hand.

Spectators who admired lustrous red and green sheen on American Willis Robinson's *Moody* R/C design at Kenley may find what they need in the shops selling Christmas decor. Known in the States as *Metalflake*, it is mixed in with the dope and looks like deposited granules of anodised aluminium.

Scale models produced at the Kiev championships were mixed in standards. The superb Bristol Britannia 312, which has already appeared in our world news columns and was made largely from information we helped to supply, was a dominant winner, produced by Jan Kuszilek from Krakow, Poland. It is to 1/20th scale, has four Super Sokol engines, retractable undercarriage, full interior detail, moving controls, the lot in fact, plus a most realistic metalised finish. One of the three Soviet entries was Eugene Kondratanko's AN.24 in red and white, seen at right.



R.F.C. SQUADRON MARKINGS

PART TWELVE
Explains numbering and equipment of two Australian squadrons

Described by Leslie A. Rogers **Drawn to 1/72 scale by K. McDonough**

No. 2 Sqdn. Australian Flying Corps

GOING TO FRANCE on September 21st, 1917, known as *No.* 68 *Sqdn. A.F.C.* and equipped with D.H. 5's, this unit was renamed *No.* 2 *Sqdn. A.F.C.* on 19.1.18.

Using D.H.5's, the Sqdn. marking (carried from September, 1917 to December, 1917) was a white band painted right round the fuselage just forward of the tailplane.

Individual Markings were:—

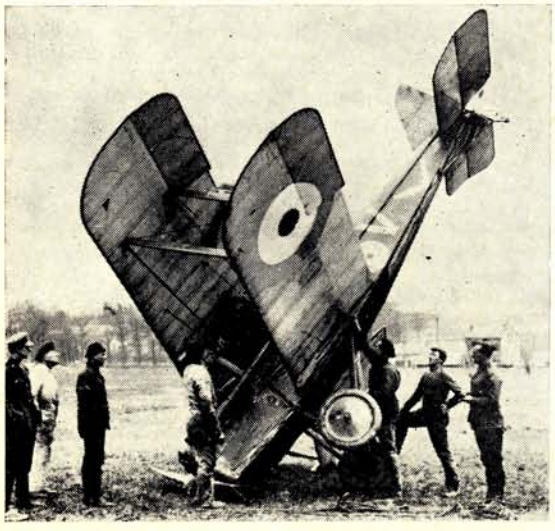
"A" Flight used the letters, A, B, C, D, E, F.
"B" Flight used the numbers 1, 2, 3, 4, 5, 6.
"C" Flight used the letters U, V, W, X, Y, Z.

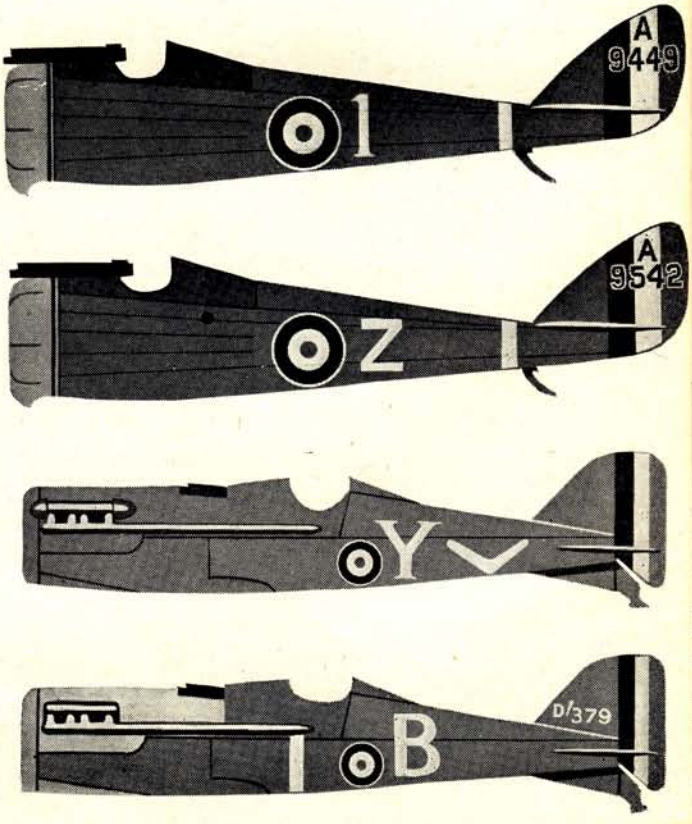
All markings were painted in white behind the cockade on the fuselage. Flight/Cmdrs. were identified by a streamer on each of the rear interplane struts.

Using S.E.5A's. The Sqdn. marking (carried from January, 1918 to March, 1918) was a white Boomerang painted on the fuselage sides forward of the tailplane and individual markings were as used on D.H.5's.

The Sqdn. marking carried from April, 1918 to Armistice and beyond on S.E.5A's, was a single white band painted on the fuselage sides just forward or just below the cockpit and individual markings were as previously employed.

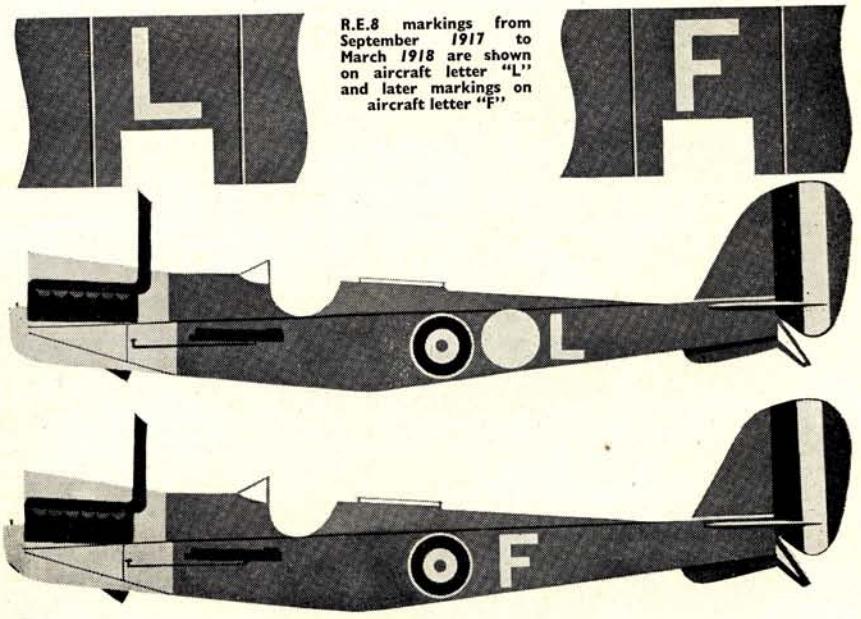
De Havilland *5* at top right is aircraft A/*9449* in the original *68* A.F.C. Squadron at Baizieux, 7th December *1917*. I.W.M. photograph E.*1444*. Serial number is black on the fin, outlined in white. Drawing of D.H.*5* carrying letter "Z" is from "C" flight, as crashed by Lt. MacDonald near Baizieux, *6.12.1917*. Below is "C" Flight Commander's S.E.*5A*, crashed on *24*th March *1918*, aircraft C/*9539* (I.W.M. photograph E.*1882*). *1/72*nd scale profiles to right show similar marking on aircraft "Y" and the later marking on "A" flight aircraft at bottom





No. 3 Sqdn. Australian Flying Corps

MUCH CONFUSION has been caused over the correct title of this unit. The following notes will help to clarify matters. The Sqdn. personnel left Australia known as *No.* 2 *Sqdn. A.F.C.* and arrived on Christmas Day, 1916. On moving to South Carlton near Lincoln, it became *No.* 69 *(Australian) Sqdn. R.F.C.* This designation was nominal and Pilots went off on training courses and ground crew also went on courses of instruction. A cadre was however maintained at South Carlton and on March 31st, 1917, the Sqdn. was re-designated *No.* 69 *Sqdn. A.F.C.* and as such, proceeded to France on September 9th, 1917, equipped with R.E. 8's. On January 19th, 1918 the title was changed for the last time to *No.* 3 *Sqdn. Australian Flying Corps.*



R.E.8 markings from September *1917* to March *1918* are shown on aircraft letter "L" and later markings on aircraft letter "F"

The **Sqdn. Marking** (carried from September, 1917 to March, 1918) was a white disc painted on the fuselage sides behind the cockade. **Individual Markings** during the first two months in France were numbers painted on the fuselage sides behind the Sqdn marking and repeated on the top decking. Presumably, with a strength of 24 aircraft, the numbers used would have run from 1 to 24.

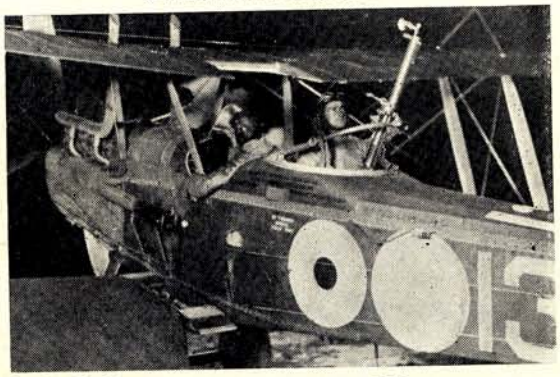
By November 30th, 1917, the numbers had given way to letters. Possibly the date of this change was November 16th, 1917, when the Sqdn. was attached to the 1st ANZAC Corps. The letters were again painted behind the Sqdn. marking, but were repeated centrally on the central section.

Again, with a strength of 24 aircraft almost every letter in the alphabet would have been used, the two most likely to have been omitted are "I" and "Z".

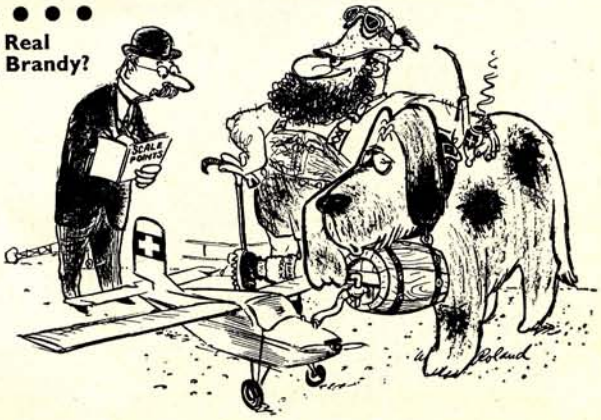
After March, 1918, the same letters were used but without the Sqdn. marking and the letters were moved closer to the cockade. This marking remained in use up to the Armistice and for some time afterwards.

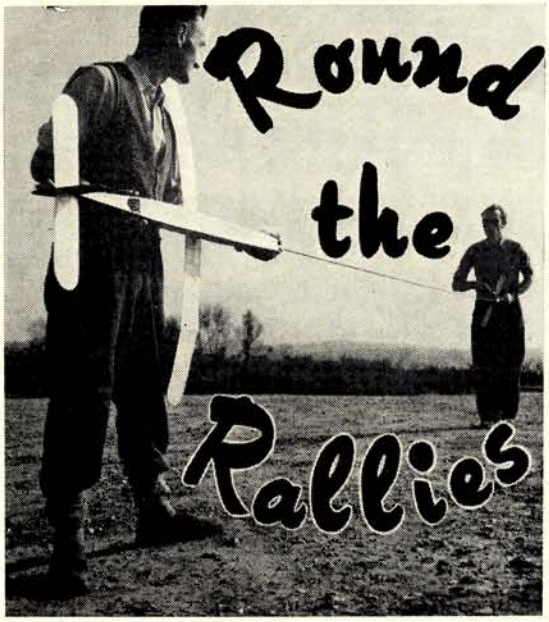
Amongst the R.E. 8's on strength, was A'4397, which held the record of flying time over the lines, making 147 trips and building up a total of 440 hours 35 mins. service flying time. It was flown by Capt. R. G. D. Francis, D.F.C. and lettered "D".

Well known I.W.M. photograph E.*1178* below shows *96* Squadron A.F.C. aircraft about to depart on a mission from Savy, October *1917*. Note the aircraft number, which is repeated on top of the fuselage as well as on sides. Bottom left, R.E.*8* presented by Mr. H. Teesdale-Smith of Adelaide. Inscription to this effect appears in white behind letter "J" on fuselage side of aircraft A/*3662*, in this view of a number *3* A.F.C. Squadron aircraft, I.W.M. photograph E.*1359*



Real Brandy?





WHAT A SESSION! The rally programme has been more intense than for any other year we have known. September 23rd was a busy Sunday with the World Indoor Champs at Cardington, the **Aeromodeller Trophy** and **S.M.A.E. Control Line** meeting at R.A.F. Odiham (where Ft. Lt. R. Gould of F.A.S.T.E. club established a new jet record at 149.1 m.p.h.) and the **Air League Rally** at the most suitable airfield of Elvington near York. The Air League committee co-operated with Northern Area clubs to organise and run 13 events. It was an enormously successful meeting, highlighted by efficient organisation, Jim McCann's ½A Canard model, the useful dress lengths of Courtelle material presented as prizes, the incident in which a car drove across the F.A.I. team race final at about 40 m.p.h., success once more for Dick Place's *Countdown* in ½A T/R with a new fast time of 3:58.4 for the 5 mile heat and also for the unique solid scale model contests.

Also on September 23rd, down on Great Buckswood Farm, **Crawley M.A.C.** were organising a Southern Area Rally with the full co-operation of land owner Mr. L. Brookes. This is now established as a regular event in the calendar thanks to modellers conducting themselves well and leaving the farm in a clean and tidy condition. It was a very popular meeting and we have already received letters from visiting clubs wishing to express thanks for an enjoyable day.

Hayes free flight rally was held at Chobham Common, October 7th, in very pleasant autumn conditions. Standards were such that fly-offs were needed in all classes except ½A power and rising mist made timing difficult. A moral should be drawn from the incident in which S. Coulter of Harlow received a nasty gash in his head caused by a winch thrown by an irresponsible flyer.

Next on our list the following Sunday, October 14th, was a trip to Ivinghoe Beacon, Buckinghamshire, where once more excellent weather, though perhaps not quite as much wind as needed, prevailed for the **Luton Slope meeting.** To say that the standard was tremendous would be no understatement as results will show and those two manual pulse experts Mountain and Fellows from Kidderminster proved invincible. Free flight glider was in the balance right to almost the last minute and was finally won by combat man Peter Tribe.

On the same day Lincoln aeromodellers had their rally at Wigsley in similar excellent conditions, which produced as many as 12 in the rubber fly-off, though visibility became poor in the evening. There were 11 in power fly-off and local man Pete Anderson showed the way home in single channel radio with an A.P.S. Sky-Pal.

Following Sunday at Elvington was the date for the **2nd Northern Area F.A.I.** meeting in ideal weather with little drift. Ron Firth made a 27 minute flight with failed D/T, which he followed at walking pace for seven field widths. Yet there was no fly-off and the only perfect time came in F.A.I. power with J. Pencheon's entry from Baildon topping Buskell, French and Eggleston.

Wharfedale club organised the "Rivers Trophy", which attracted the largest team race entry of the season in the area. Rules were most rigidly enforced, some models being eliminated for excess weight. Dick Place's model was by far the fastest in the air and the Wallace/Laurie team made fastest heat time of 4:32, but the event was won by reliable Long and Davy with their latest *Tigress Mark VII* (range of more than 50 laps.)

Heading shows Boxall Brothers preparing at the HAYES rally. Below left, Simmance and Jones discussing Hurricane and Albatros at AIR LEAGUE RALLY. Centre Pete Anderson with single R/C winner at WIGSLEY. Right Derek Smith, with Cox .049 HTL design at F.A.I. meet

The Air League Rally September 23rd, Elvington

Open Rubber. 21 *entries.*
1. J. O'Donnell *W'field* 11:45
2. Mrs. N. Stott *E. Electric* 10:38
3. R. C. Pollard *Tynemouth* 10:12

Open Glider. 52 *entries.*
1. G. Freeston *Sheffield* 8:17
2. B. Picken *Wigan* 7:50
3. J. Chadwick *Ashton* 7:38

Radio—Single.
1. R. Scott *Bolton*
2. N. Williams *York.* / E. Scoles *N. Lincs.*

½A Team Race. 13 *entries.*
1. Place/Burley *R.A.F.* 10:05
2. Wallace/Kirton *Novos* 11:07.2
3. B. Turner *Cambridge* Retd. at 86 laps

Class B Team Race. 9 *entries.*
1. Dugmore/Bell *Novos* 7:19.4
2. R. Yates *Leigh* 8:14.8
3. McGee/Bowden *Chorlton* 137 laps retd.

Control Line Scale
1. B. Randle *C'try* "Gannett".
2. J. Woodhouse *H'field.*

Plastic Scale.
1. J. Wardman *W'dale* "Fokker DR1".
2. I. James *Walsall* "Fokker D VII"
3. E. Humphrey 168 *ATC* "Bell X 15"

Open Power. 58 *entries.*
1. M. Green *N'ham* 9:00
2. A. Carter *L'pool* 9:00
3. D. Illsley *C.M.* 9:00

½A Power. 23 *entries.*
1. D. Illsley *C.M.* 9:00
2. H. Tubbs *Baildon.* 8:43
3. T. Stoker *Baildon* 8:07

Radio—Multi
1. J. Bradley *N'ham*
2. G. Sargent *D'caster.*
3. G. Bradley *N'ham.*

F.A.I. Team Race. 25 *entries.*
1. Crofts/Atkinson *Derby* 9:59.8
2. Wallace/Kirton *Novos* 12:26.3
3. Cooper/Allan *W. Essex* 12:49.2

Combat 19 *entries.*
1. Gibbard/Salder *Derby*
2. De Ville *Derby*
3. C. Secker *Derby* / T. Spence *W'dale.*

Solid Scale.
1. J. Wardman *W'dale* "Spitfire LF Vb"
2. J. Wardman *W'dale* "Heinkel 162"
3. R. Firth *Sheffield SA* "Swift"

Senior Champion: J. O'Donnell Whitefield 23:46.
Junior Champion (and winner of the Air League Model Flying Trophy) J. Shaw Sheffield SA 14:03.

Crawley Rally September 23rd

Rubber (Fly-off times)
1. C. Straghan *Exmouth* 7:48
2. A. Wells *H'church* 7:00
3. C. Garner *Brighton* 5:17
4. F. Boxall *Brighton* 3:39

Chuck Glider
1. Fleetwood *Hornchurch* 2:55
2. Slater 2:48
3. Paige *T'bridge Wells* 2:48

Combat
Finalists S. Holland, P. Tribe } Northwood

Junior Champion: G. Sherwood Hornchurch, total 15:31

Power
1. D. Welsh *Brighton* 8:21
2. D. Cook *Country Member* 8:03
3. A. Wisher *Croydon* 6:44

Glider.
1. R. Muzzelle *Brighton* 8:36
2. R. Owen *East G'stead* 7:49
3. R. Bennett *Anglia* 7:23

½A Power.
1. A. Young *St. Albans* 8:18
2. J. Boxall *Portsmouth* 7:22
3. A. Wisher *Croydon* 6:44

Hayes Rally October 7th, Chobham Common.

Power (*Fly-off times*).
1. G. French *Essex* 8:31
2. P. Manville *Bn'mouth* 5:28
3. A. Wisher *Croydon* 3:30
4. D. Posner *Surbiton* 2:57
5. M. Gaster *Surbiton* 2:20

Glider (*Fly-off times*).
1. M. Burrows *St. Albans* 3:31
2. P. Manville *Bnmouth* 2:50
3. R. Muzell *Brighton* 1:30
4. J. O'Donnell *Whitefield* :35

Rubber (*Fly-off times*).
1. L. Barr *Hayes* 7:01
2. J. O'Donnell *Whitefield* 6:06
3. Wells *Hornchurch* 6:03
4. C. Strachen *Exmouth* 5:20
5. N. Elliott *Croydon* 4:14
6. F. Boxall *Brighton* 3:56
7. R. Paveley *Hornchurch* 2:56

½A Power.
1. A. Young *St. Albans* 8:36
2. M. Dilly *Croydon* 8:17
3. Cuthbert *Surbiton* 8:14

Luton Slope Soaring Rally

October 14th, Ivinghoe Beacon.

Multi Control Glider.
1. J. A. Mountain *K'minster* } 1 pt.
2. M. B. Fellows *K'minster* } error
3. P. Thorton *Richmond* 2pt. error

Free Flight Glider.
1. P. Tribe *Northwood* 3:37
2. C. Hunt *Weston* 3:30
3. D. Patridge *Croydon* 3:20

Single Control Glider.
1. J. A. Mountain *K'minster* 2pt error
2. N. Ward *Reigate* 3pt error
3. M. Downes *K'minster* 5pt. error

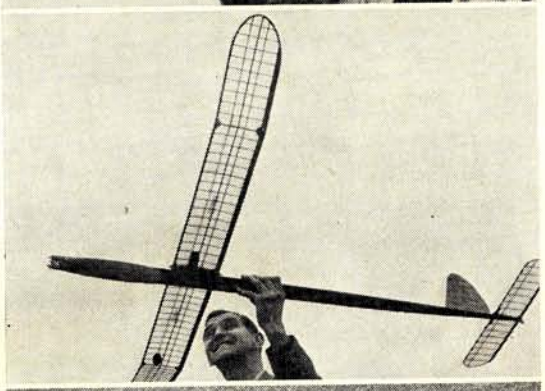
Chuck Glider
1. J. Dumble *W. Middx.* 2:01
2. A. T. Slater *Croydon* 1:07

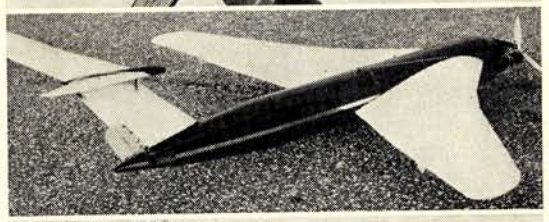
Blackheath Gala October 21st, Chobham Common.

Open Rubber (*Bill White Trophy*)
1. R. Leppard *Croydon* 9:00
2. A. Wells *Hornchurch* 8:23
3. R. Pavely *Hornchurch* 7:43

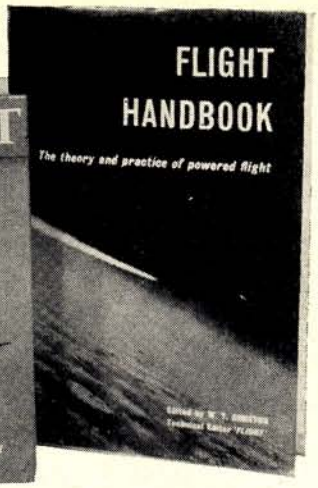
Open Power
1. P. Manville *Bournemouth* 8:10
3. M. Dilly *Croydon* 7:02

Open Glider.
1. M. Burrows *St. Albans* 8:27
2. P. Giggle *Stevenage* 7:48
3. R. Humphries *Anglia* 6:59
2. A. Wisher *Croydon* 7:20





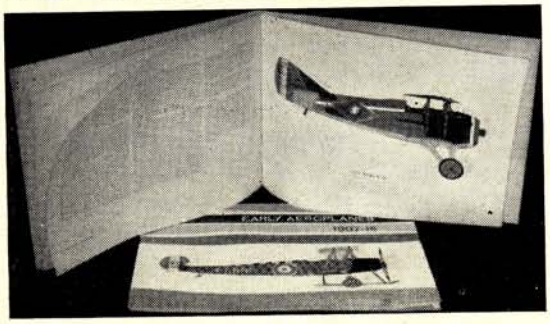
Top: J. Mountain with club mate Fellows' glider at LUTON Slope Meeting. Next Terry Toolan of Whitefield with offset pylon, had Cox Tee Dee .049, model at AIR LEAGUE Rally. Centre is Henry Tubbs, rubber winner at the 2nd NORTHERN AREA F.A.I. Meet. Single R/C Handley-Page Victor is by N. Pitt of Gainsborough with OS.15, U.K. Rx at WIGSLEY. Bottom, Vic Jays and Mike Gaster have a change from free flight at the S.M.A.E. ODIHAM Meeting with speed models



A Book for Christmas?

NEVER HAS THERE been such a year as 1962 for the wealth of brilliant literature of aeronautical interest. Over the last few months, the publishing trade have released a considerable collection of books which we know will be of interest to all our readers.

Keeping our review in chronological order, we must open with those dealing with the early birds and what could be earlier than the subject of Sir George Cayley? To many this name will mean absolutely nothing, yet Cayley is acknowledged to be the true creator of the modern aeroplane and in C. H. Gibbs-Smith's **Sir Caley's Aeronautics 1796-1855,** published by Her Majesty's Stationery Office, price 30s. we find a most fascinating account of the many inventions attributed to this remarkable man. Most of the inventions are in model form. They have a particular appeal to the ingenious aeromodeller and if you are seeking something quite out of the ordinary, which will be instructive, inspiring and also most readable, then we heartily commend this work as a suggestion for a present. The appreciative reader will be impressed by the model glider of 1849; 16 sq. ft. in area and having an acceptable modern configuration at a time when suggested flying machines were of anything but simple structure. Overlapping in date but dealing with the work of countless British aero inventors is P. Lewis' **British Aircraft 1809-1914** published by Putnam at 63s. Again this is for the enthusiast and the appreciative. We must congratulate Mr. Lewis on his remarkable collection of types, the majority of which were quite unknown to us. They serve to illustrate that old adage that there is nothing new under the sun, including hydrofoils instead of floats for seaplanes as photographically illustrated in action on the Bristol Burney X.2 of 1912 for example. Many of these unusual aeroplanes are capably drawn in sufficient detail for accurate model making, including we might mention such gems as the Avro 4 Triplane, the Avro 511 Arrow-



scout and the Martin-Handasyde transatlantic monoplane, all of which appear to us to be attractively proportioned for flying scale subjects. For three guineas one is rewarded with 576 pages filled with fact, pictures and many 3-view drawings.

Early Aeroplanes 1907-18, illustrated and described by Roy Cross in Hugh Evelyn Ltd.'s 63s. massive 18½ x 13½ in. volume is of entirely different character. Coloured side-views are given with a description of twelve outstanding early aircraft, among them the S.E.5, Albatros D.V. (*photo bottom left*). Obviously chosen for their colour applications, these side elevations will be invaluable to aeromodellers seeking gaudy schemes.

From the three guinea to the four guinea range we go to the very specialised collection of **German Giants** by G. W. Haddow and P. M. Grosz, published by Putnam. This is a really fabulous piece of work by two very expert solid scale modelling enthusiasts and includes photographs and drawings of types which will be completely strange to many who thought they knew their early German aircraft. We are not going to suggest that many of them are suitable flying scale subjects . . . but for the adventurous may we suggest the three engined, tricycle undercarriage Staaken series?

For 50s. the latest Harleyford publication to reach us in time for reading before this review (it is a job to keep up with this very active Company and their extensive programme) is **Reconnaissance and Bomber Aircraft 1914-1918,** compiled by W. M. Lamberton. This perfect companion to the previous series of standard size and format Harleyford books brings with it something we have pleaded for in past reviews in the shape of cross-sections and greater detail for modellers in the 1/72nd scale plans. Incidentally these are produced in a finer line style and incorporate a wealth of detail. No less than 72 aircraft are described in text and accompanied by 1/72nd scale drawings. In addition another 40 aircraft are described and illustrated with quite a remarkable collection of photographs. There are many gems which we certainly have never seen before. Certainly a book we would consider top of the request list when issuing your hints to relations for Christmas presents. 231 pages solid with fact and first class illustration.

Bridging the chronological gap from 1913 to 1961, Roy Cross's **Fighter Aircraft Pocket Book** by Batsford, offers a picture and brief story of many well known and famous types from the Tabloid to the Hawker P.1127 prototype. There are no drawings but for 9s. 6d. it makes a handy and small (4½ x 5½ in.) reference.

Similar in content is E. J. Farley's **U.S. Army—Air Force Fighter Planes** by Aero Publishers, Los Angeles at $4.50. Ranging from the Curtiss P.1 Hawk to the

experimental F.107 development of the North American Super Sabre, 60 aircraft are presented in scale drawing 3-views complete with varying scales to aid enlargement and cross-sections of components, plus a reproduction of a painting of each aircraft.

Staying with fighters we come to W. Green's second volume of **Famous Fighters** by MacDonald. For 21s. this is another book we must place at the top of the list. The 132 pages dealing with a dozen more of the outstanding fighter aircraft from the Russian I-16 to the Japanese Nakajima "Frank" include photographs that one could scarcely have dreamed to be still in existence, and first class tone drawings by Peter Endsleigh-Castle. The text reveals details hitherto unknown, destroys the myth that surrounds the Gladiator defence of Malta, tells us the full story of the Hellcat and Corsair, but strangely omits reference to the all black single-seat Defiants which mystified us in 1943 and were thought to be used for landing agents on the Continent. This is a fine book but we do hope the publishers will some day add cross-sections and stabilize the scale of drawings.

Another good guinea's worth is F. G. Swanborough's **Combat Aircraft of the World** by Temple Press which, although it does not include drawings, gives excellent factual description and photo illustration of 51 modern types, among them India's first jet fighter, the HF.24, and the Soviet Sukhoi fighters. Offset reproduction has not favoured all of the 350 photographs but nevertheless the keen scale modeller will appreciate the author's discriminating choice of pictures for each type, displaying a wealth of information in markings.

For half a guinea, volume 5 in the **War Planes** of the 2nd World War by W. Green, published by MacDonald, deals with flying boats. We have recommended the previous four volumes and this latest work (it does not complete the series, for float planes are yet to come in volume 6) may well be considered essential to the collectors' shelves. There are many unique types for the modeller to follow, e.g. the Short Scion Senior with a half scale version of the Sunderland's hull suspended beneath the fuselage like a float and the unusual retractable hull of the Blackburn B.20. Small 3-view drawings cover each aircraft, together with factual text and dimensions. Those who are making the A.P.S. Catalina control line model will find a whole host of varied colour schemes and markings among the sixteen well chosen pictures of this type alone.

Students of full-size aviation, aircraft structures, theories and all aspects connected with the modern aeroplane should not miss **Flight Handbook.** This compilation by W. T. Gunston, technical editor of Flight magazine, embraces a wide range of subjects, obviously specially prepared for easy digestion and offering a mine of information. For 35s. it represents excellent value, there are several pull out extensive cut-away drawings of typical aircraft types, ranging from the Westland Wessex helicopter to the Lockheed F.104.G and the line and tone illustrations as one would expect from such a publishing house, are of the very highest standard. Modellers would profit from a study of its content as it gives stimulating ideas for the adventurous type who likes to try out new developments. Some of the configurations for high speed flight offer model subjects.

Lighter reading, but nevertheless gripping in nature is Geoffrey Norris's **Jet Adventure** by Phoenix. This is a collection of twelve true stories dealing with adventures in full scale aviation, opening with an account of the first unfavourable meetings of Meteors and MiG-15's over Korea through to X-15 flights. At 12s. 6d. this is a pleasant present and we are pleased to see inclusion of art plates with good illustrations of those personalities and aircraft included in the text.

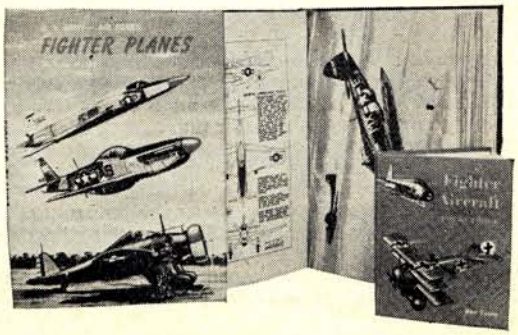
Modelling

A primer on aeromodelling has been produced for Faber & Faber by Robert R. Rodwell with the title **Your Book on Aeromodelling** at 10s. 6d. The absolute novice will find this a most helpful publication, written in easy to understand style and well illustrated with constructional photographs of the Keilkraft Cadet and Jetex types which have been chosen to introduce the hobby to the reader. Diesels, Jetex and theory are explained in addition to the basic ground work on all aspects of constructing the first model, either glider or rubber driven. The sort of book which will capture the latent interest of any budding modeller and which we hope will introduce many newcomers.

The American book, **Model Rockets for Beginners** by H. H. Gilmore, $2.50, Harper Brothers, deals in rather elementary aviation with cardboard replicas of well known rockets and missiles. It does not in any way describe working rocket models—a subject incidentally which we refrain from commenting on due to the hazardous nature of such experiments.

"Merry Mac", otherwise known as Howard G. McEntee, has produced another most useful book in the 304 page **$4.95 Radio Control Handbook** by Gernsback Library. Whilst it will have special appeal to the home constructor and experimenter it also offers basic information on radio systems other than multi channel operation, although this is mentioned in passing. Pulse and basic single channel in all its forms is fully covered and there are many gimmicks including a novel transmitter output measure incorporating a Light Meter. Illustrations are top rate and the down to earth description of how things work will be appreciated by the non-technical purchaser of ready made equipment as well as the enthusiast about to venture into construction of a kit set.

Last, but by no means least, the annual present which *we* specifically design for your enjoyment, the 10s. 6d. **AEROMODELLER ANNUAL 1962/3,**—incorporating its usual galaxy of star models culled from the world's modelling press. This edition is, we feel, one of the best ever, with some fascinating articles on man powered flight, Austrian "standard" models of sheet construction, Coupe d'Hiver and radio control, including a new all British 3 volt lightweight receiver to suit the new trend of very small single channel sport flyers. If you have been collecting Annuals year by year, this one you simply cannot miss. For the newcomer, we recommend it as a first class survey of the years efforts in retrospect.



FOR OUR OPENING gadget, let's go over to the control line circle for **A**, a positive method of holding the control lines tight against a drum, revived by 14 year old R. Craile of Goshawks M.A.C., Gosport, Hants. Rubber bands often fray when used for this purpose, but a piece of plastic covered curtain wire with a screw hook one end and a screw eye the other will clip the handle on securely. Hooks and eyes, inexpensive and readily available from ironmongers' stores, screw easily into the ends of the curtain wire which can be cut to size without any trouble and the handle can be kept on the lines too—under the same wire clip!

Gadget Review

B is an idea from another control line fan, A. R. Turner-Smith of Bournemouth, who modified a standard D.C. Control Line Handle to provide adjustable attachment points to restrict elevator sensitivity in addition to elevator neutral position adjustment. A suitable length of plastic curtain rail is fixed to the handle at the two line attachment points, with wire pegs or, far better, split-pins. An end stop is then fitted to the curtain rail and locked at any point desired by the screw eyed locking pin which doubles as a line attachment point. This system can be used to increase elevator sensitivity as well as to limit it. If the rail is larger than the handle then the span of the attachment points can also be wider and will increase throw for a given wrist movement —particularly useful to flyers with stiff wrists when "chopping" the corners in those square manoeuvres.

Few *Gadget Reviews* go by now without at least one silencer among the ideas. Lt. D. Yates, Stewart A.F.B., New York, U.S.A., produced the silencer system in **C** for side-stack engines. This is made from a spent CO_2 cartridge used as an expansion chamber. All one has to do is to drill out the lead plug. Then face off the body of the capsule to fit flat against the exhaust stack. Drill a row of holes along the faced off portion of the body, spacing them to be obscured from view when the capsule is in place against the stack. The expansion chamber is retained against the exhaust stack by a metal strap around the crankcase and cylinder of the engine and is secured to the chamber by two nut-and-bolt attachments. In some cases it may be necessary to fit a gasket between the stack and the chamber where they meet, in order to prevent gas leakage. This should be made from proper cylinder head, non-flammable gasket material, obtainable from good garages. Lt. Yates used a Fox Combat 35 as the "guinea-pig" for this experiment and reduced noise to a level barely audible at any reasonable distance, with little power loss. To use the system as a throttle, fashion a cone sliding plug to open and close the chamber orifice where the lead plug was drilled out.

Here's another use for those pliable liquid detergent containers, favourite with modellers as "squeeze" bottles for fuel. Martin McIntosh from Sutton Coldfied converted one for use as a water spray for tissue covering as illustrated in **D**. A fuel can spout is forced through the bung in the neck of the bottle and a piece of narrow gauge neoprene fuel tubing attached to the inside end of the spout. To obtain a spray from the spout rather than a fine jet of water, it is necessary to induce air into the tube when the water is ejected under the influence of a squeeze on the body of the bottle. To allow this induction of air the neoprene tube is holed just below the point where it attaches to the metal spout. Hole size is difficult to judge so the best method of arriving at a satisfactory spray is to continue *pin* holing the neoprene until the jet of water from the spout changes to a spray.

A simple idea from H.C. Quek of London is **E** which overcomes the problem of cementing in awkward and inaccessible corners. Connect a piece of brass or aluminium tubing to the nozzle of the cement tube with the aid of a $\frac{1}{2}$ in. length of neoprene tube to direct the flow of cement. Ah, the simplest of ideas are always the best! Additional suggestion is to then replace the tube with a thin walled polythene bottle.

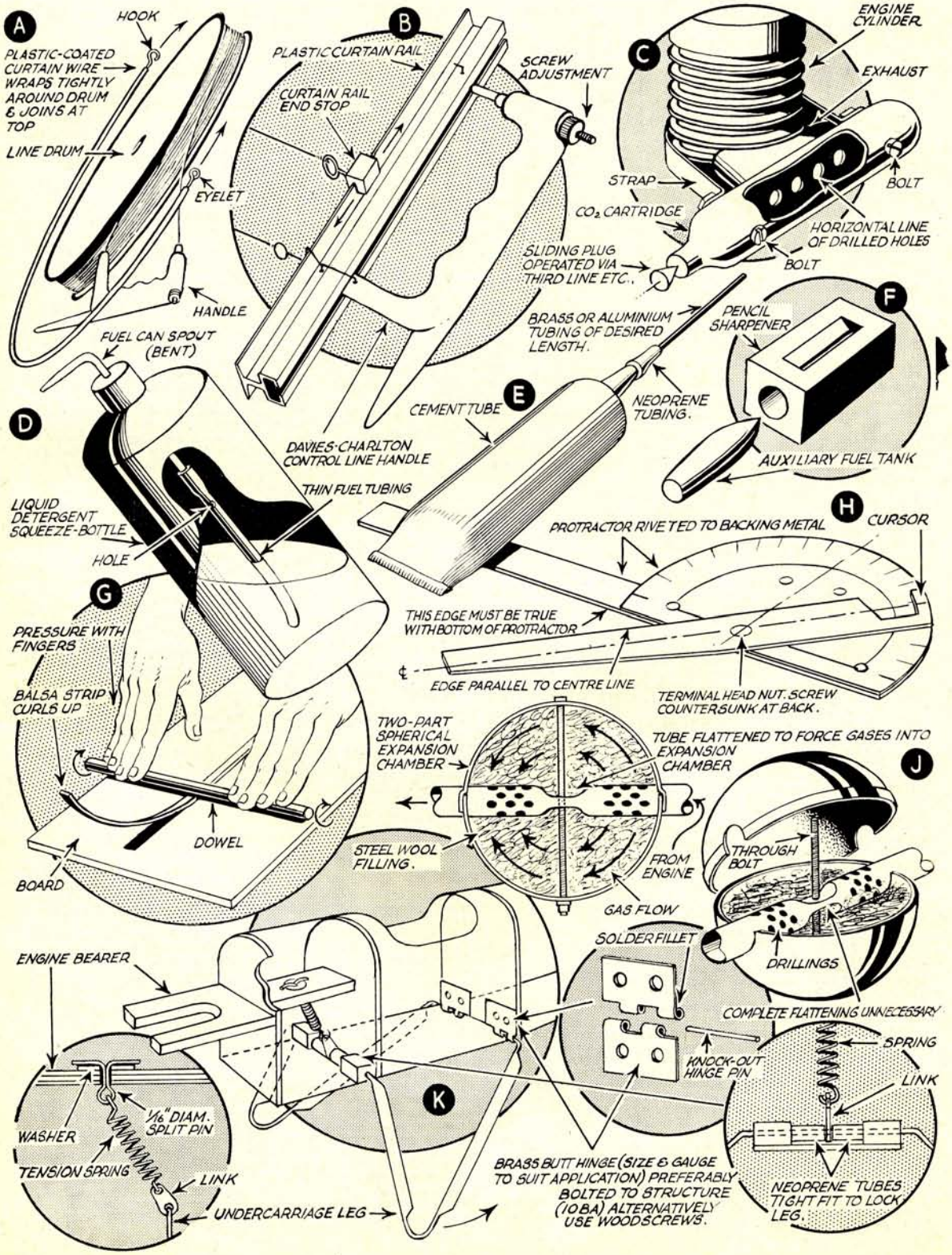
Another "quickie" is **F**, suggested by J. Pyne, Dartford Heath, Kent, a Solid Scale enthusiast. He used a pencil sharpener as an aid to shaping those auxiliary fuel tanks often carried as external loads by jet aircraft. The method is ideal for 1/72nd scale models and similar, can be employed for spinners, cowls, etc.

G "Lamination with lamentation", that's how R. F. Brownson from Altrincham, Cheshire, styles his method of curving those "wrap round" laminations on wing tips, particularly popular for rubber models, without resorting to steaming. The lamination strips (say $\frac{1}{4}$ in. x 8 in.) can be cut from medium soft, straight grain 1/32 in. sheet. By placing the strips flat on a board and rolling them with a $\frac{3}{4}$ in. diameter rod or dowel (handle of Xacto knife is ideal), the strips take on a natural curve which allows them to follow the curve of the wing tip without cracking or splitting, when cemented in place. Technique when rolling is to apply greatest pressure where the greatest amount of curvature is required.

H is an extended protractor, the work of J. H. Wilcox, Croydon, Surrey. The basis of the whole thing is a simple protractor which is riveted to a metal backing plate with a straight edge down one side parallel with the base of the protractor. The moving arm is then shaped as shown. The arm could have straight edges either side but in the event of difficulty in making the two edges parallel, the shape illustrated, which provides only one straight edge, is advised. The cut-out in the arm at the cursor end is necessary to leave the figures on the protractor visible and the shape shown is probably the best. Accurately scribe a centre line on the arm, parallel to the straight edge and drill the arm and protractor for the pivot bolt. It is most important to remember that without *accurate* construction, the unit is useless for incidence checking etc.

Another suggestion for an engine silencer comes from B. Foster, Southborough, Kent, who took the idea illustrated in **J** from *The Motor* magazine. The muffler illustrated, known as the Eclipse silencer, was designed for cars way back in 1920 and Mr. Foster feels the system has possibilities for model use. The basis of the muffler is a sphere and a readily available example is obtainable as a pencil sharpener from Woolworths. The globe, already split at its equator, is then cut out to pass the exhaust pipe, which is drilled at the portion where it passes through the globe and flattened to release the exhaust gasses into the globe, which acts as an expansion chamber. The simplicity of the construction, two hemispheres held together by a single bolt, is extremely inexpensive and lends itself to experiment with various expansion chamber fittings. The biggest problem, that of connecting this silencer to an engine, Mr. Foster leaves unsolved.

K is Dennis Rattle's (Brockworth, Glos.) method of shock absorbing a truss type undercarriage, so common of World War 1 scale models. The rear cross bar of the rear struts pivots in its brass or nylon butt hinge attachments which are ideal load bearing gimmicks and the undercarriage is held in position by tension springs on the cross-bar of the front legs. On his B.E.2e, Mr. Rattle anchored the tension springs to the engine bearers with 1/16 in. split pins and washers as shown in the sketch.


A
HOOK
PLASTIC-COATED CURTAIN WIRE WRAPS TIGHTLY AROUND DRUM & JOINS AT TOP
LINE DRUM
EYELET
HANDLE
B
PLASTIC CURTAIN RAIL
SCREW ADJUSTMENT
CURTAIN RAIL END STOP
C
ENGINE CYLINDER
EXHAUST
STRAP
BOLT
CO_2 CARTRIDGE
HORIZONTAL LINE OF DRILLED HOLES
SLIDING PLUG OPERATED VIA THIRD LINE ETC.
BOLT
F
PENCIL SHARPENER
BRASS OR ALUMINIUM TUBING OF DESIRED LENGTH.
NEOPRENE TUBING.
AUXILIARY FUEL TANK
FUEL CAN SPOUT (BENT)
D
E
CEMENT TUBE
DAVIES-CHARLTON CONTROL LINE HANDLE
THIN FUEL TUBING
LIQUID DETERGENT SQUEEZE-BOTTLE
HOLE
H
PROTRACTOR RIVETED TO BACKING METAL
CURSOR
G
PRESSURE WITH FINGERS
THIS EDGE MUST BE TRUE WITH BOTTOM OF PROTRACTOR
BALSA STRIP CURLS UP
EDGE PARALLEL TO CENTRE LINE
TERMINAL HEAD NUT. SCREW COUNTERSUNK AT BACK.
DOWEL
BOARD
TWO-PART SPHERICAL EXPANSION CHAMBER
TUBE FLATTENED TO FORCE GASES INTO EXPANSION CHAMBER
J
STEEL WOOL FILLING.
FROM ENGINE
GAS FLOW
THROUGH BOLT
SOLDER FILLET
DRILLINGS
ENGINE BEARER
COMPLETE FLATTENING UNNECESSARY
SPRING
KNOCK-OUT HINGE PIN
LINK
K
WASHER
1/16" DIAM. SPLIT PIN
TENSION SPRING
LINK
UNDERCARRIAGE LEG
BRASS BUTT HINGE (SIZE & GAUGE TO SUIT APPLICATION) PREFERABLY BOLTED TO STRUCTURE (10BA) ALTERNATIVELY USE WOODSCREWS.
NEOPRENE TUBES TIGHT FIT TO LOCK LEG.

Reader's Letters

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, must accompany letters.

Contest thoughts

DEAR SIR,

I have read with interest, comments on rubber flying and Wakefields, in *Northern Area News* and in AEROMODELLER. Now, I have never built a Wakefield but I have a few thoughts on the contest subject.

The A/1 glider seems to be regarded as suitable mainly for 10 year olds, the Wakefield only for the most expert of experts yet the only real difference is the propeller and rubber. If the rules allowed the use of a commercially made prop, or more important a ready-made front end, and if they were available, should we get more rubber flyers? Or did, and does, all the writing about Wakefields and their flyers especially in the World Championships effectively stop the ordinary person from attempting one? E.g. "1/100 *in. under the tailplane alters duration by—(was it minutes?)*"—R.H.W. *circa* 1950. "*Balsa of only* 3-4 *lb./cu. ft.—or was it* 10-12 *lb./cu. ft.*"—various authors *circa* 1952-54—and now the depressing news that one cannot buy any decent rubber anywhere unless the modeller either goes down a mine or works in a vineyard!

Personally, I think that rubber models and Wakes in particular will only be built by modellers who are in Clubs. Firstly because of the advice and encouragement given by older members and the useful instruction. Most boys still build a rubber model or two from a kit, but they never fly so well as gliders, C/L or even F/F.

They will progress to Wakefields because they admire the beautiful models and because they feel they can attempt them. After all some of them are built by members only a little older, and some of them are not all that well made.

Many years ago, in the Fairlop days, a friend of mine suggested that all flights which finished outside the airfield should not score. In these days of clockwork timers and improved technique this might be a feasible proposition. If competitors can estimate when a thermal is due they ought to be able to estimate the time to the boundary.

The rules shape the models and to some extent the flying. Intelligent consideration of rule changes should enable us to predict future trends. The unlimited rubber rules encouraged light structures, but became unfair, when only the few could obtain special balsa. Limited rubber encouraged good finish, good aerodynamics and good props. Now (it seems) that with all models highly developed the quality of the rubber is all important. If very small quantities of powerful rubber were available at very high prices then I think we should have to go back to unlimited rubber.

If models are to be handicapped in some way, say by having to carry ballast it might be possible to test the energy content of the rubber by stretching it and ballast accordingly.

When a model reaches the World Champs it is presumably a very good model, well designed and well built. The winner will then be found by flying skill and luck, just as in Grand Prix racing. If we accept this we could make contests more a test of this than of the model.

How would it be if each contestant announced what his "maximum" (or should it be minimum?) was going to be before say the first round? Only maxes (or minis!) would count. Out of sight would not count either, and if one wants to be really fiendish, "out of field" would score a zero too.

Now the experts would give careful estimates. The aimed for times would be written on a board. We might allow figures to be altered resulting in "bidding". It might be better to allow each round separately or on the other hand better to fly all rounds at same figure. The not-so-expert could give lesser "minis" and hope the expert went bust or a higher "mini" and hope that he could do it—perhaps he would hit a thermal or the wind would drop.

The winner would be the one who nominated the highest "mini" and did say 3/3 or 3/4. Less than the "mini" = zero. Over the mini = mini.

It could be quite exciting—equally so for onlookers. The difference between it and present system making it a little like cricket.

A contest on these lines would not however be in the best interests of modelling in my opinion as it would not encourage better models.

J. BOOKER.

Birdwell, Nr. Barnsley.

Tough whirly bird

DEAR SIR,

I feel that I must write and tell you how much I enjoyed building the control-line Autogiro for a 1.5 c.c. engine, the ¼ size plans of which were published in AEROMODELLER, September issue.

I flew it this afternoon. First flight it took off on a very bumpy field, almost vertically. I was not ready for this. It performed a beautiful wingover worthy of any stunt model, hit the ground at about 45 m.p.h. The tail fell off, that was all. Stuck tail on. Plane (rather 'giro), took off again, vertically as before, but this time a beautiful flight resulted. I attempted the vertical landing described, but the engine slowed, and it taxied two laps along the ground (to my great surprise) without mishap. My luck cannot last. So up she goes again. The strength of this model genuinely surprised me because the taxiing landing was very rough, but it took the treatment well.

Thank you again for the plan, and I think that all control-line enthusiasts with any amount of patience (which I do not possess sometimes) should build this model. It really gives you a kick out of flying it.

D. W. HEELEY.

Sittingbourne, Kent.

S.M.A.E. structure

DEAR SIR,

It was only to be expected that there would be an outcry from someone, now that the Society's membership fees have been brought nearer to a realistic figure. While Mr. Marsh's letter (November AEROMODELLER) on this subject is obviously a sincere expression of his feelings, I cannot agree with some of his conclusions. Firstly, even the highest rate (£2 per annum) is not what in these days can be considered a large amount; having worked for some years (Saturdays) in a model shop, I can assure him that many a youngster spends this much every other week. Secondly, from past experience, it should be obvious that the Society cannot afford *not* to have a permanent paid Secretary.

What Mr. Marsh, and many other people, don't seem to appreciate is that regardless of the size of an organisation, a certain level of membership fee is necessary merely to administer the organisation; until this level has been exceeded, its members cannot expect any services. However, any increase beyond the minimum will make possible a far greater return, in terms of service and efficiency.

Certainly there are problems to be solved within the S.M.A.E., but I cannot see that any of Mr. Marsh's suggestions will be useful in this. For one thing, how is it possible at one and the same time to "simplify *and* decentralize" the Society? Why should about a dozen voluntary secretaries scattered all over the country be more effective than one full-time secretary?

The question of "membership selection by cost" is to my mind a little premature; the figures are scarcely enough to discourage any reasonably interested modeller. In any case, it is preferable to "Members at any cost". Certainly, you could increase the number of *new* members by, for instance, allowing anyone who sent in the top of a kit box to join free; but how long would such members remain in the Society? No, Mr. Marsh, let's do without the "box-top members"; belonging to the S.M.A.E. should involve more than merely buying a badge and a couple of transfers.

The proposed new membership scheme will no doubt be found to have some faults, but it is the outcome of a good deal of trial and error, and long and frequent discussions by members all over the country. Let's give it a chance—it might even work!

P. MULLER.

London, S.E.15.

Catch your tail

DEAR SIR,

I read with interest in a 1958 (?) issue of your magazine about an Oliver Tiger combat model being unable to cut its own 50 foot streamer.

Last week some friends and I attached a 100 ft. ¼ inch wide streamer to my P.A.W. 2.49 *Razorblade*. While flying a loop I succeeded in cutting the streamer at the 67 foot mark.

I was flying on 50 foot lines and so when watching the model I could not see the end of the streamer.

You have probably heard of other instances of this but I thought you might be interested to hear of my experience.

R. P. LAWSON.

Colinton, Edinburgh.

Care with your hair

DEAR SIR,

Referring to "*Lube shampoo*" in November issue, Mr. Keegan may not have been the first person to confuse hair shampoo and rubber lubricant. Could it be that "*Silvikrin*" puts the I.T.V. "OO!" in those "Maxies"?

I visualise this remark triggering off full scale research and heated arguments into the wee small hours over the merits of "beer" and "egg" lubricants and the necessity of rubber completely free of dandruff. No doubt something worth 9 gns. a bottle will be found to improve the curves of the torque output, not to mention those of one's winding assistant, and soon it will be the thermals that do the sniffing.

Yes, the max. factor will soon depend on *Max Factor* and Wakefields will once more be the romantic elite of the modelling world with Madame Clare of the famous Parisiene beauty salon securing the coveted trophy, using a lemon mud pack and some bikini elastic. Let's face it, rubber shall have to be immaculately groomed, disturbingly healthy and must not sting the eyes when junior's "Matey" design becomes overloaded as he stares blissfully at his pig-tailed assistant.

D. W. OGLESBY.

West Hartlepool.

Club News

Mike Thomas, well established back into the hobby in G.B. after his spell in Canada, made a great first showing in F.A.I. indoor with two over 23 min. flights at Cardington eliminators for British team.

END OF THE year once again, magazine wise at least and what a year for comps! Hardly a free week-end from April to mid November and all the rallies supported reasonably well. With that lot behind us, let's look forward to a bright and not so breezy '63. Do have a thought chaps and keep those reports up to date so we do not have to look back too much in your reports after the turn of the year. We have enjoyed passing on the news of your club activities, hilarious and amusing incidents and modelling tips. Keep up the good work.

First news this month from the **LONDON AREA** where **Hayes & D.M.A.C.** announce details of the rally they intend to hold at their control line circuit, Charville Lane, Hayes, Middlesex on December 16th. They have one good tarmac circle for Speed and two grass ones for Combat and these will be the only two classes flown. Actually, Combat will be for up to 3.5 c.c. to S.M.A.E. rules, limited to 64 entries, and all the Speed classes will be flown. That is classes 0, 1, F.A.I., 2, 3, 4, to S.M.A.E. and F.A.I. rules, *plus* a *special beginners class* for .049 motors. This too will be a speed event, models to be flown on 42 ft. lines and timed over ¼ mile which is five laps. Propellers (Frog 5 x 6) and Fuel (Mercury Super 7) will be supplied free by the organisers for this event. Entry fees for Combat and Speed will be 2s. 6d., while for the beginners event will be 1s. Pre-entry is requested and entry fee for Combat will be double on the day. Send entries and monies, plus any enquiries you may have to D. Balch, 364 Cranford Lane, Harlington, Middlesex. The Hayes circuit lies north off the Uxbridge Road, (A4020) via Pole Hill Road, between Hayes and Uxbridge but for anyone who does not know his way around, the event will be signposted from A4020 to the site. Speed boys note; there will be a special prize for the most outstanding flight of the day.

The hectic rally going pace which **Hornchurch M.A.C.'s** free flight contingent have maintained throughout the season shows no sign of slackening during the "season of mists", but the Hayes F/F Rally turned out to be quite breezy and although A. Wells managed six minutes in Rubber, it was only sufficient for third place. They say the odds of winning a rubber event are about ten to one . . . Barr one! Another windy occasion was the Model Engineer Cup, where the whole twelve flights made by their team was satisfaction enough. Their best effort was at the Crawley Rally though, where G. Sherwood emerged Junior Champion. Another Junior, R. Fleetwood, won Chuck Glider and A. Wells again took third place in Rubber. They were still hoping to record a few more successes before the end of the year, and stay out and about to escape the gloom which the local flying field situation causes.

Northwood M.A.C. made the long trek to the Devon Rally, which, with its excellent flying weather made the very pleasant week-end. Stoo Holland eventually beat Pete Perry in the final to make it another all Kombo win. The South Midland Area rally left less happy memories for them however where a large entry in the Combat event, which they ran, gave some headaches. Pete Tribe forsook Comba. on October 14th to drop his chuck glider over the edge at Ivinghoe Beacon—and won! He got enough exercise in running and climbing to last all of '63!

SOUTH EASTERN AREA'S Brighton M.A.C. members were also at the South Midland Area Rally on September 16th. Where John West added one more to his list of wins in the F/F Power event. More activity at the Crawley Rally on 23rd of that month where it was the turn of Dave Welch to win Power with a *Dixielander* and where Roger Muzzelle was first in Glider and Tich Garner third in rubber. Just to prove how busy they are, a week later they had a good turn out for the Model Engineer Cup, their team of Dennis Latter, John West and Ken Winstanley totalled 25:20 in the strong winds and rain. The week after that at the Hayes Rally on October 7th, Roger Muzzelle placed third in Glider and Fred Boxall reached the Rubrbe fly-off but did not place.

In the **WEST, Bristol Aces** held their annual Bartlett Trophy on October 14th in perfect flying conditions. The trophy presented as a team prize to clubs from South Wales and the Western Area was won by **Glevum M.A.C.** who narrowly beat Aces, the holders of the trophy for the past three years. A booby prize a large 3 ft. wooden spoon, intended for the biggest prang of the day which did not occur, was presented instead to Jim Berryman of **Bristol & West M.A.C.** who missed the fly-off in Rudder by only 1 second.

Found at the **S. Midland Gala**—a scruffy Cox Golden Bee powered F/F pylon model with sheet wing, send claims c/o Clubman.

Two very interesting and entertaining newsletters come from clubs in the **SOUTH MIDLAND AREA.** First "*News from* **Northampton M.A.C.**" relates an interesting and painful happening during a recent R/C session, where a Super Tigre 51 power A.P.S. *G-String* made its first flight. Following this into the air was a *Junior* 60, but the radio packed up and the model went free-flight in ever decreasing circles. Prof. Payne rushed off in pursuance of the model and when the rest of the lads caught up, Prof. was lying on the ground with a *broken ankle*! Their Balloon Bursting Competition on September 30th, was the first in a series of comps. to count in their Control Line Championship. Six entered, one senior and five juniors (Juniors seem very active in this club). Points awarded under their scheme are 4 for a win, 3 for second place, 2 points for third and all who enters get a point. In the gusty conditions which prevailed the larger models had a distinct advantage, R. Ashby's P.A.W. 2.49 model being the only one to burst a balloon in its two minute time limit. Simple things are sometimes the most useful they say. Take a 3-4 ft. length of rubber strip, knot the ends together and then tie knots along it to form a series of 4 or 5 loops. Pin the ends to your workroom wall or cupboard at a suitable height and use it to hold your balsa stock in neat and visible manner. Can also be used to stack fuselages and . . . well you name it. How do you clean down your models after a flying session? Northampton boys find Turps Substitute (white spirit) very satisfactory, it removes all traces of stickiness without harming the covering and decor.

September/October edition of **Stevenage M.A.C.'s** *News and Views* newsletter contains report and impressions of the World Indoor Championships. There's also a three view of Peter Seaton's 1962 Wakefield and a cut-away illustration of the propeller assembly of this model that deserves close study.

A re-formed club in the **MIDLAND AREA** is the **Ceders Modelling Club,** formed out of the old *Ceders Aeromodelling Club* with wider modelling interests. Anyone interested in joining should contact the Secretary B. Bates, 7 Shilton Road, Barwell, Leics. or attend one of the Monday or Thursday evening meetings, 7.30 p.m. at the Ceders Community Centre, Barwell, Leics.

Sutton Coldfield R.C.M.A.C.'s winter programme is well under way. A series of film shows and lectures by representatives of various firms manufacturing accessories and equipment for radio control model aircraft has been arranged which should prove most interesting. Annual subscription has been fixed to cover all the facilities of the club, including a flying field which the club is now renting. A coach trip to the S.B.A.C. display at Farnborough was arranged by J. Willett and greatly enjoyed by all who attended, including a party of A.T.C. Cadets from the local unit.

NORTH now to **Wharfedale M.A.C.** whose last big meet of the season was the South Midland Area Rally at Cranfield, where Ken Long and Les Davy won F.A.I. Team Race, and beat the British heat record with 4:21 and British record for a 200 lap final in this event with 9:48. Official claims have been made for these records. Ken and Les were less fortunate at the World Control Line Champs in Kiev where they had to be satisfied with 8th place in Team Race. Next year Wharfedale will be withdrawing some of their services at rallies and will run only one event at any one rally in an effort to make their own members more free for competition work. They feel that if all clubs were to run one event per rally, there would be no shortage of officials. They now look forward to indoor activities in their club room and building during the long winter evenings and there are plenty of projects afoot. John Simmance, who won F/F scale at the Nats, the E. J. Riding Trophy at Woodford and the Selby Trophy has at last decided to build some new models. We wait to see what they'll be.

NORTH EASTERN AREA'S West Hartlepool M.F.C. recently gave a three hour control line demonstration at R.A.F. Middleton St. George "At Home" day in conjunction with Horlington model club. Several reels of C/L wire, a handle and a vacuum flask were left around the control line circle and owners of these may regain their property from L. Nicholson, Rynnfield School House, Pease St., West Hartlepool upon correct indentification of the goods. Originally a control line club, West Hartlepool are now turning more to free flight and R/C.

NORTH WESTERN AREA'S Culcheth club have changed their title to **Warrington M.A.C.** brought about by the loss of their club room and subsequent move to much better accommodation in Warrington. A Static exhibition and a hot Combat duel in aid of the local youth effort set their winter programme under way. The exhibition was well attended by both public and local press. Thirty members

CLUB NEWS (cont.)

Derl Morley, was third in Wakefield at the first Northern Area F.A.I. meeting, Rufforth, with this beautifully constructed model that made 13 : 02.

now meet each Thursday evening 7.45 p.m. at the Recreation Club o Stubbs Ltd., off Scotland Road, Warrington. Team race enthusiasts have their own little strip of tarmac and between skirmishes with the weeds, they manage to put in some flying. Combat is the big trend at the moment and a few indulge in radio control activities. **Poulton D.M.A.C.** hold their meetings every other Friday and flying takes place on alternate Sundays at their extensive flying field near Staining Windmill. An A/1 Glider competition is arranged for the near future and the winners will receive a trophy donated by the onwer of their local model shop, Mr. P. Troughton. **Sharston D.M.S.** recently travelled to Tern Hill airfield to fly in the Model Engineer Cup, they managed only 5:45 total in the bad conditions. Present leaders in their F/F and C/L Championships are John Feeney and Warick Clegg, but with two rounds in each still to go there's still time for some changes. John has raised the club glider record to 35:34, the model landing just ½ mile from point of release. All modellers are welcome at Sharston Hall on Friday evenings around 8.30 p.m. **Whitefield M.A.C.** were guests of neighbouring **Middleton** club for an interclub rat race, and nineteen competitors and a sizeable crowd of spectators enjoyed the days flying. Even old man weather smiled on the occasion enough to allow shirt sleeve order. Whitefield members took first four places in the 150 lap final, but the Middleton lads have a chance to reverse this next time. Regular weekly meetings are held on Fridays at Whitefield County Junior School, Victoria Avenue, Whitefield. Why not call in around 7.30 p.m. enjoy a couple of hours of clubroom activity? There'll be a warm welcome.

Some welcome letters from **SCOTLAND** this month. **Glasgow Hornets** send news of the **Scottish Control Line Nationals** which took place at Abbotsinch on September 16th in better conditions than have been experienced in other Scottish Champs this year. Consequently the large entry proved something of a handful for the organising Hornets. Their J. Agnew managed a 4th in ½A T/R. A carload travelled down to Elvington for the Air League Rally the following weekend to find a good competition. On September 30th they went to **Kirkcaldy M.A.C.**'s Rat Race and Combat meeting. A combined effort involving almost the whole party and a box of pins enabled I. Carson to take the M.A.T.A. Combat Cup back to Glasgow and place 4th in the Rat Race. **Irvine & D.M.A.C.** have 26 members, majority of whom are combat enthusiasts, though a few fly Team Race and R/C. One member is at present building his own R/C receiver, while another is building an R/C model of his own design. They want more competitions in Scotland and feel there must be many clubs like themselves who would like to try their skill in contest work. Are you prepared to help organise things yourselves lads? That's what it all boils down to in the end! New members are welcome at 38 High Street, Irvine any Friday or Sunday evening. **Dumbarton M.F.C.** rounded off their season at the Scottish Control Line Nats, where their Marshbanks/Gordon/Rae, team won Class B Team Race in 8:42, defeating 2nd and 3rd placed Prestwick M.A.C. models using Don Gordon's ETA 29-6c powered *Cossack*. They lost what looked like almost certain victory for their Reid/Bisland team in the F.A.I. T/R final, after recording fastest heat time. J. Ried's model, *Oliver Tiger Mk* 3 powered does 96 m.p.h. for 40 laps. They use hand carved maple props, by Bob Rae.

Eight members of **NORTHERN IRELAND'S Belfast M.A.C.** travelled to Dublin for the Leinster Control-Line Nationals on September 30th. Gale force winds proved too much for several members and one Class B racer broke up in mid air for no apparent reason (there could be many really when you start to think about it). Graham Dickson collected 2nd in Combat, ½A, F.A.I. and B Team Races (he must be a busy lad). The **Ulster Control Line Nationals** were held on October 6th at Kirkiston, the only available venue, and here, due to the very poor surface of the runways, team racing had to be abandoned. Maurice Doyle won Stunt with his Fox 35 powered *Jupiter*, Robin Noble was 2nd with a Merco 35 *U*-2, and 3rd was Graham Dickson who might have received higher marks had not his model not almost cleaved the judges on occasions. Combat saw plenty of incidents. In tangles, free flying models and bad tempers. In the final, Dickson was beaten by Barry MacGrath who, after pranging during practice, was loaned a model by the very competitor he eventually defeated in the final.—there's gratitude for you!

Contest Calendar

December 16th — *Hayes & D.M.A.C. Control Line Rally.* S.M.A.E. Combat, Speed Classes, 0, 1, F.A.I., 2, 3 ,4, plus beginners .049 speed event (see December Club News). Pre-entry and enquiries to D. Balch, 364 Cranford Lane, Harlington, Middlesex, Fees 2s. 6d. per event, 1s. Beginners Speed. Venue: Hayes Control Line Circuit, Charville Lane, Hayes, Middlesex. North of A4020.

1963

January 20th — *Northern Area Winter Rally*, Open Glider, Rubber, Power, ½A Power, F.A.I. T/R, Combat, Scramble, Chuck Glider. Pre-entry 1s. 6d., late entry 3s. Chuck Glider 1s. Address not yet supplied. Tentative venue R.A.F. Elvington, York.

Pen pals

For Swiss modeller, U. Shalber, Glaserbergstr. 74, Basel, Switzerland who wants a British Pen Pal interested in Wakefields. For Murray John Gilbert, 4, Minora Road, Dalkeith, Perth, Western Australia, 15 years old and interested in contest F/F, Glider Rubber and Power. For I. Anderson, "Halyards", 9 Westfield Close, Uphill, Weston-S-Mare, Somerset, G.B., specially interested in Slope soaring and all F/F classes except Rubber. Also interested in Tape Recording and would correspond by tape (3¾ in. speed only) with an American modeller around 16 years of age.

THE CLUBMAN.

S.M.A.E. Results

September 30th, 1962 (*Area Centralised*)
Model Engineer Cup (*Team Glider*)
27 *Teams flew*

1. *Norwich*	M. Woodhouse	7 : 36	
	B. Halford	7 : 55	
26 : 16	S. Bowles	6 : 07	
	A. Abbs (Jr.)	4 : 38	
2. *Brighton*	F. H. Boxall	6 : 53	
	D. Latter	6 : 44	
25 : 20	K. Winstanley	6 : 09	
	J. West	5 : 34	
3. *Stevenage*	P. Giggle	7 : 28	
	J. N. Brookes	7 : 19	
25 : 02	G. W. Dallimer	5 : 41	
	Mrs. M. Giggle	4 : 34	

4. *St. Albans* 24 : 40; 5. *Anglia* 23 : 24; 6. *Canterbury* 19 : 14.

Weston Trophy (*F.A.I. Rubber*). 14 *entries*

1. N. Elliott	*Croydon*	13 : 25
2. H. Tubbs	*Baildon*	12 : 04
3. J. O. D.	*Whitefield*	11 : 35
4. M. Woodhouse	*Norwich*	11 : 30
5. T. Stoker	*Baildon*	10 : 35
6. M. Bayram	*Lincoln*	10 : 02

Quickstart Trophy (½*A Power*). 20 *entries.*

1. A. G. Young	*St. Albans*	9 : 00
2. P. Giggle	*Stevenage*	8 : 58
3. D. Pepperall	*Stevenage*	8 : 10
4. J. Boxall	*Portsmouth*	7 : 50
5. M. Burrows	*St. Albans*	7 : 47
6. A. Wisher	*Croydon*	7 : 45

September 19th. *Area Centralised.*
Farrow Shield (*Team Rubber*). 8 *Teams flew.*

1. *Stevenage*	... ...	25:52
2. *St. Albans*	... ...	14:20
3. *Brighton*	... ...	11:15

Top Junior C. Sherwood. *Hornchurch*

Halfax Trophy. (*F.A.I. Power*) 16 entires.

1. S. Savani	*Liverpool*	... 8:29
2. V. Jays	*Surbiton*	... 6:50
3. M. Proctor	*Baildon*	... 6:12

U/R Glider 34 *entries.*

1. J. O'Donnell	*Whitefield*	... 7:16
2. A. Wisher	*Croydon*	... 7:04
3. D. B. Spencer	*Ashton*	... 6:04

Open Power. 18 *entries.* **September 30th**

1. S. Marshall	*Boston*	8 : 23
2. D. Furbank,	*Lincoln*	6 : 13
3. M. Proctor	*Baildon*	4 : 32

Plugge Cup.

1. *Stevenage*	1401.894 Pts.
2. *St. Albans*	1197.536 ,,
3. *Brighton*	1180.572 ,,

August 19th, 1962 (*Area Centralised*).
Keil Trophy (*Team Power*). 38 *Teams.*

1. *Surbiton*	34 : 32
2. *Brighton* (*A*)	32 : 05
3. *Baildon* (*A*)	31 : 32
4. *Rotherham* (*A*)	30 : 03
5. *Stevenage* (*A*)	29 : 56
6. *St. Albans*	29 : 53

S.M.A.E. Cup (*A/2 Glider*). 92 *entries.*

1. J. Abbs (Jr.)	*Norwich*	14 : 04
2. R. Monks	*Birmingham*	13 : 45
3. T. Toolan	*Whitefield*	13 : 37
4. S. R. Bowles	*Norwich*	13 : 27
5. L. Moore	*Leamington*	13 : 22
6. A. F. Wisher	*Croydon*	13 : 19

October 14th, 1962 (*Decentralised*)
White Cup (*U/R Power*)

1. D. Furbank	*Lincoln*	9.00+6.02
2. G. French	*Anglia*	9.00+5.33
3. W. Daniel	*Walsall*	9.00+5.30

Frog Junior Trophy (*U/R Rubber-Glider*)

1. M. B. Bayram*	*Lincoln*	9.00+5.05
2. I. Penn	*Littleover*	9.00+2.53
3. P. Ball	*Littleover*	8.25

*Now named Junior Champion, 1962, with gross total of 58 mins. 29 secs.

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Copy received after first post on the 19th will be held over until the next issue, unless cancelled in writing before 10th of following month.

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Almost unused Rivers 3.5, A.M.15, Peacemaker, AEROMODELLERS, plans, books. £4 10s. 0d. the lot. Ross, 133 Anson Road, London, N.W.2. GLA 7748.

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"*American Modeler*"; 70 mint copies, complete to September. Subscription cost, £18. Offers please by 30th. Pierce, 69 Petersfield Road, Bournemouth.

Bound copies of AEROMODELLER for 1944, 1945, 1946, 1947, 30s. Sheldon, Batlers Green House, Radlett, Herts. RAD 6620.

2 Miles 5 c.c. diesel motors with throttles, £2 10s. 0d. each. Miles 8 c.c. with throttle, £4. All in good cond. R. J. Cooke, 9 Broadway, London Fields, London, E.8. Phone: CLE. 6458.

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Merco 35, as new, £4 10s. 0d; Frog 249 BB Mod., and Enya 19 Glow, £3 10s. 0d. each; "35" stunt model, £2; All o.n.o. Selection AEROMODELLERS. Millar, C.15 St. Salvators Hall, St. Andrews, Fife.

Very good E.D. Racer, A.M.25, A.M.10, O.K. Cub, worn Bee, A.M.25, tanks, props, wheels, several plans. £5 o.n.o. or separate offers. 35 Wings Road, Lakenheath Brandon, Suffolk.

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Frog .50 Engines ig good working order, please state price. Camp, 16 South Esk Road, Forest Gate, E.7.

Large Model over 6 ft. span for R/C. In state of near completion or abandoned damaged carcass will do. Send full details and price to Box No. 675.

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American Magazines. Year's subscription *Model Airplane News*, 39s. Full catalogue free. Willen Ltd. (Dept 1), 9 Drapers Gardens, London, E.C.2.

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Tatone Timers—Standard or ½A Fuel Shut-Offs and D-Ts. 30s. each post free from Dave Posner, 61b Canfield Gardens, London, N.W.6.

Portsmouth & Southsea's largest Hobby Shop is "Robin Thwaites", 28 Arundel Street, Portsmouth.

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Rossi 60, 10 c.c., £17; G.20 Super Tigre Rossi, modified, £8; G.21 5 c.c., modified, £10; Speed pan for G.20 with spinner, £1; G.21 pan, £1 5s. 0d.; G.20 etc. team race pan, 13s.; 4 grades glow plugs, 4s. each; Vulcan jet, £12; 6 x 8, 6 x 9, 6 x 10 speed props, 3s.; 7 x 8, 7 x 9, 7 x 10, 3s. 2d.; Rossi, Via Pace 13, Brescia, Italy.

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For and on behalf of Model Aeronautical Press Ltd.
K. M. EVANS
Secretary

Sworn to and subscribed before me this 8th day of October, 1962.

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