

AERO MODELLER

JANUARY 1952



THIS ISSUE INCLUDES W. MUSCIANO'S C/L HAWKER
HART • CYRIL SHAW'S ENVOY • BRITISH RECORD HOLDING
A/2 SAILPLANE • A SPECIAL ARTICLE ON CHUCK GLIDERS
WITH FULL SIZE PLANS • ALL OUR REGULAR FEATURES

1'6

E.D.

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Electronic Developments

THE GREATEST ADVANCES IN RADIO CONTROL

E.D. COMPACT ESCAPEMENT

In response to many requests we can now offer the E.D. "Compact" Escapement which has under half the total area of previous escapements. The special features are: one hole fixing, redesigned magnet system giving low current consumption and obviating necessity for currency saving devices.

Price £1.2.11 incl. P.T.

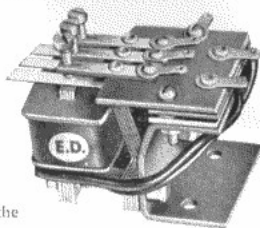


E.D. REED UNIT

We offer this Unit separately, complete with circuit diagram of a suitable transmitter and receiver to enable the more technically-minded to construct their own equipment. This is in answer to many enquiries for such components.

The reed unit can be supplied in three different frequency ranges which, when combined, will give up to nine channels. This should adequately meet the demands of the multiple control enthusiast.

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E.D. MK. II "MINIATURE 3" RADIO CONTROL UNIT COMPRISING TRANSMITTER AND RECEIVER

The great success enjoyed by our famous Mk. I Radio Control Unit has now resulted in our chief back room boy, Mr. George Honnest Redlich, producing the "E.D. Mk. II Miniature 3" which still combines the three main features of range, reliability and safety against interference, but with **reduced weight, size and battery consumption.** A standard battery pack will give over **3 hours CONTINUOUS OPERATION** with a receiver and batteries weight of only 10½ ozs. We specially emphasize that deaf aid **HARD** valves with a life of over 3,000 hours are used in the receiver.

The transmitter is wired for dual purpose use and will operate either carrier or modulated receivers.

Price—Complete, £18.10.0 incl. P.T.
Receiver, £11.10.0 incl. P.T.
Transmitter, £7.0.0 incl. P.T.



E.D. Mk. IV RADIO CONTROL UNIT, TUNED REED, 3 CHANNELS

Comprising transmitter, control box and receiver incorporating reed unit giving output for three separate channels. The channels can operate either escapements and/or electric motors.

Convincing proof of its stability and reliability was given when used in the recent cross-Channel success of 9 hours duration under extremely adverse conditions.

HARD valves with a life of over 3,000 hours are used throughout.

	Price
Unit complete	£25.0.0 incl. P.T.
Receiver	£15.0.0 " "
Transmitter and Control Box	£10.0.0 " "

E.D. POLARIZED RELAY

Constant research into the design of relays for Radio Control has developed this new compact unit which is polarized by a triconal magnet and employs a fully balanced leaf armature.

Great stress has been laid on mechanical construction which eliminates unreliable operation and hit and miss adjustments. Unaffected by vibration, it stands up to rough usage.

In spite of its robustness it is capable of operating on current changes of under 1 M.A. The light weight of the leaf armature enables it to positively follow signals of up to 30 per second and is therefore ideally suitable for all types of pulse operation.

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Photo by
E. Stoffel

Here's proof

Mr. W. G. Piper of Tottenham and his son, Alan, are Monocoupe enthusiasts. Mr. P. senior, flies a 40 (with Mills 0-75) and to date (20/11/51) has completed over 80 perfect flights (no crashes or major damage). Mr. P. junior, went for the 64 and with a Mills 1-3 fitted has made over 120 perfect flights to date. Father and son are a familiar sight at Fairlop each Sunday, and will tell you themselves just how highly they think of Mercury Kits, and why. Both Mr. Piper senior and junior, have no special claims to aeromodelling beyond enthusiasm, which is but one more proof that in the hands of average modellers, Mercury Kits combine first-class performance with long working life.

MONOCOUPÉ 64
Builds into 2" to 1 ft. scale model, for 1.5-2.5 diesels. Ideal for E.D. Radio Control equipment. **66/-**

MONOCOUPÉ 40
Smaller version for 0.5 to 0.87 c.c. diesels. **26/7**

MERCURY MARTIN SAILPLANE
Mercury's latest, an intermediate pre-contest 40" towline sailplane, is fast winning adherents everywhere. Specially recommended as a follow-on from the Maggie. **8/3**



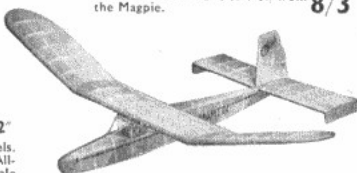
CHRISLEA SKYJEEP

A beautiful replica of a famous British light plane. 45" wing span. For 0.5 to 0.87 diesels. Outstanding in the Mercury flying scale series. **Now 29/7**



STINSON VOYAGER 42"

For 0.5 c.c. to 0.87 diesels. Came 1st and 2nd in All-Britain R.A.F. F/F Scale Championships, 1951. **Now 28/8**



★ MERCURY ACCESSORIES

MERCURY also manufacture a wide range of accessories for aeromodelling, beautifully designed and finished. These include many C/L accessories, special fuel tanks, G.P. box spanner, etc. Ask if MERCURY make it first.

Why you should choose MERCURY

- The materials in Mercury Kits are so good, and so accurately and thoughtfully prepared.
- Mercury Models give "expert performance" in the hands of average modellers.
- Structurally, Mercury Models are exceptionally robust, so extra long flying life may be expected.
- Every Mercury Kit includes full-sized beautifully detailed plan and comprehensive building instructions.
- For quality, performance, design and value, Mercury lead every time—and there are models for all.

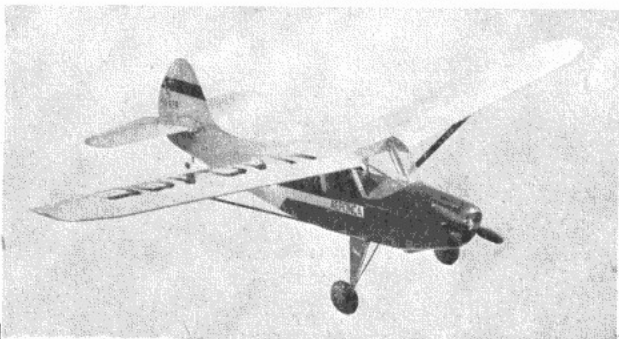
Announcing another Mercury super kit

Here is the finest Kit yet to come from Ron Young's drawing board. Mercury's ace designer brings you a model with appearance and style great even by Mercury's classic standards of design and quality. The photo shown here is of the actual model, not the original from which it is so faithfully scaled down. The Mercury Aeronca Sedan is a 66" job for 1.5 to 2.5 c.c. diesels and is perfect with radio control. We have given this model terrific punishment before approving for kitting, and it has come out magnificently. Here indeed is the connoisseur's kit for all experienced builders. Price (inc. P. Tax) 69/6. The Aeronca Sedan will be at your dealers from 31st January.

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**MERCURY
AERONCA SEDAN**

RELEASE DATE—JANUARY 31st, 1952



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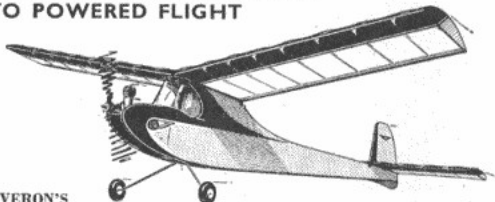
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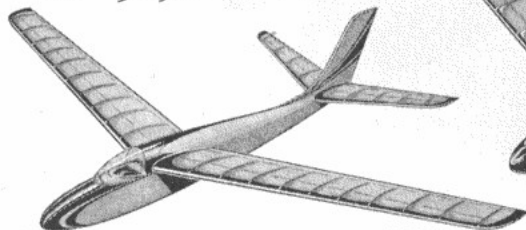
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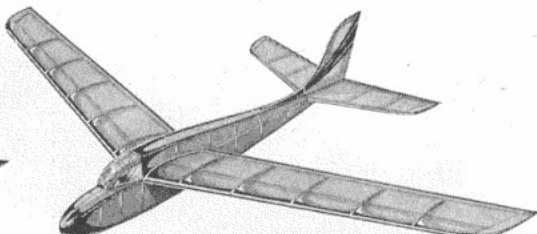
KIT PRICE
17/8
(inc. P.T.)



The "VEROSONIC 46"

A graceful F.A.I. soaring sailplane with the "Supersonic" look! Sweep-back wings and empennage not only gives superb appearance but perfect towline stability and flight characteristics. Kit is complete with a ready-moulded plastic cockpit cover. Details given for "Adaptation" to Jetex 100 Unit Power.

KIT PRICE
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The "CORONETTE"

A slick little lightweight version of the larger "VEROSONIC 46". Of essentially simple design and construction, this appealing model is ideally suited for the newcomer to modelling, and has an unmatched flight performance for its class.

KIT PRICE
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The "SKYSKOOTER"

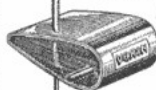
Specially designed to suit ultra-lightweight R.K. 61 Radio Control systems with the "HIVAC" Thyatron Valves. Exceptional stability is due to the thick high lift wing section. On test the model lifted 12 ozs. of ballast with an E.D. Bee 1 c.c. after a straight take off run of approximately 20 yards. The realistic take off, superb glide and life-like landing which can be attributed to this Veron model make it completely revolutionary in the field of model aeronautics.

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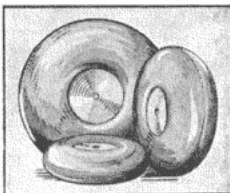


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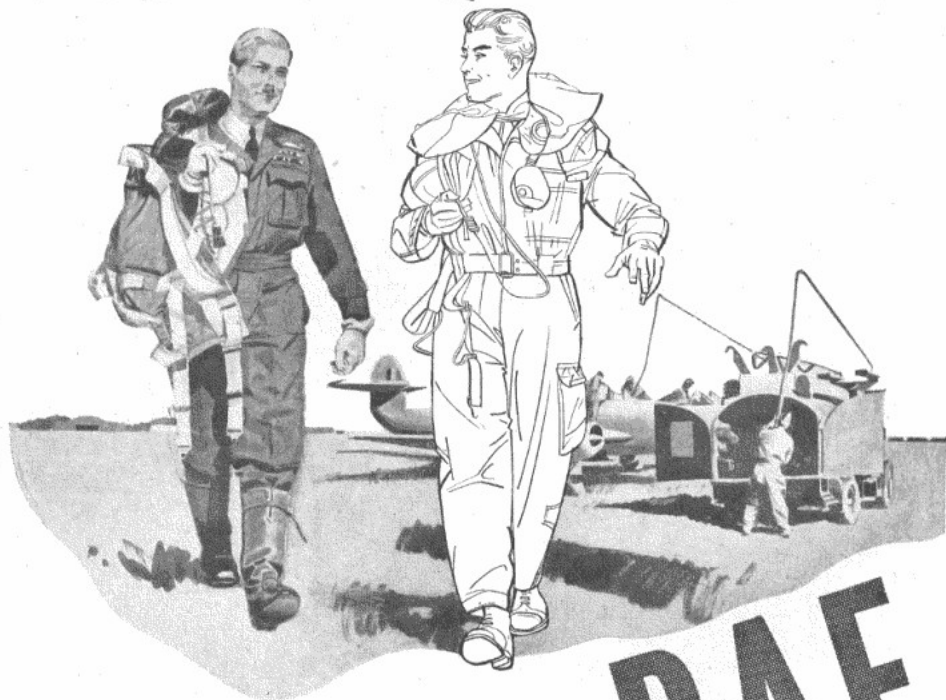
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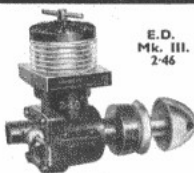
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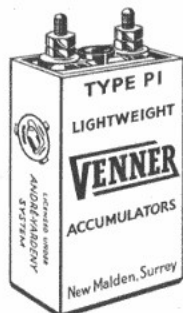
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YOUR OPINION IS REQUESTED

AS our older readers will know, we have always made it a policy of this magazine to periodically conduct a form of Gallup Poll as the means of obtaining direct information from our readers as to their current likes and dislikes, both in the fare we produce each month, and in connection with the particular class of model they are directly interested in.

In the early days of the magazine it was a fairly easy matter for us personally to contact the majority of readers who influenced modelling opinion, but with the rapid growth of our Circulation and Model Movement in general, it is very obvious that a large body of opinion can only be contacted through our columns and the medium of correspondence.

It is some time since we conducted our last poll of "reader opinion", and this issue contains a specially printed sheet containing a series of vital questions on which we solicit the co-operation of our readers, enabling us to prepare and formulate editorial policy for the immediate future—which we feel will be to our mutual advantage. We would stress that this sheet has been prepared in such a way that its removal from the magazine will in no way detract from the issue.

Readers will note that, in the main, questions are grouped into two distinct sections; the first of these being in connection with our regular features and model design preferences; the replies to these will enable us to compile some very valuable statistics for future reference. Trends in modern aeromodelling have changed so rapidly in recent years (and even months) that it is only too easy for presentation to lag behind current tendencies.

We have done our best to present the questions in such forms that they can be easily answered, this applying particularly to the series on model design and types. We are only too well aware of the fact that the vast majority of our readers are non-contest minded, and prefer to fly for fun. At the same time, we do not lose sight of the fact that it is through the keen contest-minded minority that the most rapid progress and development of any specific type of model is brought about, and their activities are followed with keen interest by the large number who do not enter a contest from one year's end to another.

In addition to questions of a purely magazine nature, we solicit readers' answers to a number of more "personal" questions. Although on the face of it some of these may appear irrelevant, we nevertheless ask for their attention to the correct answering of these points, for we anticipate being able to place a comprehensive dossier before our advertisers and other interested groups, this being—to the best of our knowledge—the first time such statistics relative to the Aeromodelling Movement have been secured.

In the past, polls have been well received by our readers, and the percentage of replies has been of great service to us, and in turn, our readers. We ask for their full co-operation in completing the questionnaire and returning it to our offices at Allen House, Newark Street, Leicester, at their very earliest convenience. By so doing, they will be helping both us and themselves in maintaining the standards of the magazine—a standard we aim to improve on each and every occasion.

Cover Picture

Charles Gardner, B.B.C. air correspondent, who opened a recent exhibition organised by the Epsom & District Model Flying Club, examines one of the many flying models built by M. Shepherd who is on the left in the picture. The model, which is Mills 1-3 c.c. powered appears to be based on the Aero Ashton and was one of sixty participating in this most successful show.



A Reet Good 'Do'

The 1951 Annual Dinner and Prizegiving of the S.M.A.E. took place at the "Horseshoe Hotel" on the 17th November, and in our opinion was the best post-war effort to date, reflecting great credit on those responsible for the organisation of this important social function.

Air Commodore Whitney Straight was the principal guest, and made a concise and encouraging speech during which he emphasised his appreciation of the importance and benefits of aeromodelling, confirming opinions published in the Report bearing his name. He further expressed surprise at the imposing array of trophies displayed, later distributing the silverware to the successful fliers during the 1951 season.

After-dinner activities were lively in the extreme, including a cabaret which introduced Miss Joy O'Neil, the now (infamous) West Essex Singing Waiters, and—surprise item of the evening—an "Arthur English" act by Phil Guilment, who admitted he had left his "barrer" outside, from which he was conducting a flourishing business by "flogging Fairlop filched Frog 500's".

There was a wide representation from many parts of the country, and the demand for tickets created a sell-out. Early application for the 1952 function will be necessary following the success of the last affair.

Delayed Action

Mr. D. A. Gordon, Honorary General Secretary of the S.M.A.E. for the past four years, was awarded a Fellowship of the Society on a unanimous vote at the Annual General Meeting which took place the day following the Dinner. Readers will remember that the Council's recommendation was vetoed at the 1950 A.G.M., but the absence of disruptive elements at the 1951 function was very welcome.

We extend our congratulations to Mr. Gordon on his award, and couple our appreciation of his good work over the past few very difficult years.

And Peace Reigned

For the first time in years we are pleased to be able to report an orderly—albeit poorly attended—S.M.A.E. annual general meeting. Those in attendance were obviously keen on getting the business of the Society

completed without acrimony, and the majority of discussion was constructive and forthright—a distinct and pleasant change from some earlier functions of a like nature.

With the Chairman, Mr. A. F. Houlberg, and the Hon. General Secretary, Mr. D. A. Gordon, returned to office unopposed, the only positions put to the ballot were those for Vice-chairmanship and Public Relations Officer. Messrs. R. F. L. Gosling and K. R. Brookes were returned to office with big majorities, thus bringing about no change in duties for the new season.

We doubt the advisability or even the constitutional correctness—of having "Any Other Business" on the Agenda for an A.G.M., for this portion of the meeting took some three hours! We would prefer to see the ordinary business meeting closed, followed by a general discussion and exchange of opinions amongst those who can rarely meet others in far distant parts of the country, rather than have official decisions taken on the proposition of individuals before such matters have been taken back to clubs or areas for wider consideration. This method would in no way handicap those interested enough to attend an A.G.M., but it would prevent items being put through by a proposer being able to persuade a relatively small gathering, a practice that invariably results in second thoughts and rescindments when the matter has received more general consideration.

In a Nutshell!

We are indebted to a reader for the following quotation, which would put a tightly fitting cap on many aeromodellers of our acquaintance!

"I hate the guys
who criticise
and minimise
the other guys,
whose enterprise
has made them rise
above the guys
who criticise!"

How now, Brown Cow?

We learn that a well-known Surrey model club has arranged to move its flying field as proximity to local cows was affecting their milk yield. What is this puny race of modern cow that is daunted by control-line flying, where is the breed of bovine Churchills that braved the Battle of Britain and never flattered in their gallanage? We fear that the modern cow is not what she used to be; Daisy and Buttercup must now be milked by machinery in white-tiled magnificence, lulled by soothing "music while you jerk", no bebop thank you! not casually by a camping modeller into an old fuel can! But we find it difficult to reconcile this seeming lack of stamina with the prodigious appetite that has only so recently manifested itself upon a staff R/C model. Our Bedfordshire milker we

are happy to say suffered no ill effects from the consumption of a complete tail unit and fin, and only balked at the aluminium finish of the mainplane. Our bulls, too, we can honestly say are full of . . . but perhaps we had better leave it at that.

R.A.F. Championships at Coningsby

Contrary to our usual custom we grouped author and photographer together as a team in our report of the above meeting in a recent *AEROMODELLER*. Bill Dean asks us to give him credit for the pictures: while Vic Smeed is of course the author.

Aeromodelling's Loss

We learn with deep personal regret of the sudden death on the 14th November, 1951, of J. W. (Joe) Kenworthy, winner of the Wakefield Trophy in 1933, and one of the best model builders this country has produced. Founder of the Northern Model Aircraft Co. in Manchester, Joe was cursed with very poor health following gassing in the first World War, and had to leave the North of England some years ago to take up residence in the South. Here he acted for some years as Southern Counties representative for Model Aircraft (Bournemouth) Ltd., manufacturers of the "Veron" kits.

His many North country friends will remember his helpful instruction to all aeromodellers, and his painstaking attention to detail that made any Kenworthy model a masterpiece. Your Editor owes a great deal to Joe's expert guidance, for it was mainly through his tuition—and candid criticism—that he was able to engender the keen interest in model aviation that eventually led to his position on the staff of this magazine.

With the passing of "J. W. K." British aeromodelling loses one of its best types, and an early enthusiast who did so much to start the hobby on its present course.

Index for 1951

Those farseeing readers who make a point of saving their *AEROMODELLERS* will be glad to know that Indices for 1951 are now ready, and will be sent free of charge to those sending 2½d. stamped and addressed envelope to our Leighton Buzzard Offices.

For those who have managed to save their copies from the ravages of their friends, binding is the only way to ensure their future permanence. Our covers are finished in gold foil lettering on a neat red cloth and will enhance the appearance of any bookshelf.

Copies for binding should be sent securely packed together with remittance for 10/6, which includes cost of return postage. Delivery is usually made in about 10/14 days after receipt. In the case of recent volumes an Index is automatically inserted.

Guest of honour at the S.M.A.E. Prizegiving Dinner, Air Commodore Whitney Straight, C.B.E., M.C., D.F.C., author of the *Whitney Straight Report on private flying*, proposes the toast to the Society. Note the imposing array of prizes.



Aeromodeller Annual 1951

That hardy annual is here again! Your model shop or bookseller should—for a few days at any rate—be bright with the gay jackets of "Aeromodeller Annual" 1951, now making its bow for the fourth year. Wiser aeromodellers will already have placed their orders, or ensured that a copy is high on their present priority list, others are urged to secure that casual copy without delay, or if their local shops have cleared out the initial supply, see that your copy is not forgotten in the "repeat". Last year many home readers were disappointed in view of unexpectedly large—though welcome—export demands: this year again the Dominions and America will be taking a good share, so be advised, we cannot reprint, get your copy right away!

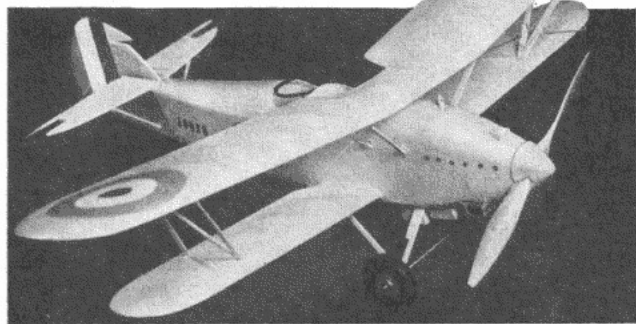
If you have *never* seen an "Aeromodeller Annual", go along and thumb over a copy—we know you will be thrilled.

Prices and Profits

On page 40 of this issue will be found a letter by a Mr. Netherclift first published in our contemporary "Model Aircraft", which we have reprinted by their kind permission, together with a reply from Mr. Paterson of Plantation Wood (Lancing) Ltd. The subject under discussion, "Prices and Profits", is of considerable importance to the whole of the Aeromodelling Movement and we ourselves feel that thorough ventilation of the subject will do much to prevent such misinformed opinions as those expressed by Mr. Netherclift.

In case any budding financiers amongst our readers should still raise eyebrows at the apparent "Alice in Wonderland" trading so aptly described by Mr. Paterson, we would point out that not only is balsa wood (and even for that fact the *AEROMODELLER* itself) exported at a virtual loss, but that many of our best dollar earners, including the vast car export business are necessarily conducted in the same manner to obtain those vital dollars.

Mr. Netherclift must take comfort from the fact that in this way he is sharing a very necessary burden with every other inhabitant of these isles.



WALTER MUSCIANO'S
3/4" TO 1' SCALE

HAWKER HART

Control-line Biplane
fans will like this
stunter which will
take from 2.5 to 5 c.c.

WITH slight deviations from true scale to enhance its stunting abilities, this "Hawker Hart" by American designer Walter A. Musciano is a model that will win top points both for stunting and appearance.

With the current trend toward the scale model, this colourful subject should be a popular choice for all scale-stunt fliers.

Fuselage. Cut the sides from hard $\frac{1}{8}$ in. sheet and join at rear while installing the $\frac{3}{32}$ in. bulkheads. Now cement the engine mounts and formers in place. The landing gear is then bent to shape and the joints soldered before installation. Bind the landing gear to the two $\frac{1}{8}$ in. plywood supports with strong thread and cement well. Then cement to the fuselage. Fit the fuel tank. When installing the tank be sure the feed line is on the same level as the needle valve body on the engine in order to ensure a continuous flow when flying inverted. Now the nose pieces can be carved and hollowed. Cut away for the engine cylinder.

Cement these blocks in place. Attach the lead-out wires to the bell-crank and install the latter securely in the fuselage. Cut the tail surfaces from $\frac{1}{8}$ in. sheet and sand to a streamline cross section. Hinge the elevator to the tailplane and bolt the metal horn to the elevator. Cement the stabilizer to the fuselage now. When dry, the control rod is bent to shape and connected. Add the fuselage bottom, using plenty of cement. The turtledeck strips and forward sheet covering are now added, followed by the landing gear fairings.

Wings. Cut the ribs for the lower wings, and slide onto the spar, attach the leading and trailing edges and cement all joints well. Cover the leading surface with $\frac{1}{16}$ in. sheet and add the solid tip. Cut and sand to shape when dry. Do not forget to allow the spar to protrude as the plans indicate.

Begin the upper wing construction by assembling the leading edge (three pieces) to the correct dihedral and sweepback. While this dries, cut out the ribs and slide on, and cement to the spar. Add the trailing edge. Assemble the centre section onto the leading edge and then the two outer panels

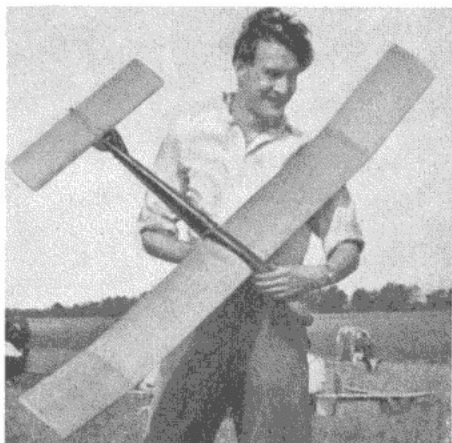
are added by sliding the outer panel spar stub through the centre section ribs and cementing it to the centre section spar. Centre panel ribs are well cemented to the leading edge. Add the leading-edge surface covering and solid wing tips to complete the structure.

Assembly. Cut the wing struts from pine or other hardwood and sand to a streamline cross section. When cutting the struts to length make certain they are at least $\frac{1}{8}$ in. longer at each end. This is necessary because they must be embedded into the wing ribs and fuselage side during the assembling. It is suggested that at least the lower surface of the upper wing centre section and the top of the fuselage forward of the cockpits be painted before assembly. Cut into the fuselage side for the lower wing spar stub and cement the lower panels in place, to the correct dihedral and incidence. Using a sharp tool, pierce holes into the fuselage side and wing ribs where the struts are to be inserted. Insert the struts into the fuselage and lower wing, using plenty of cement. The upper wing is now added by inserting the struts into the holes previously provided. Cement well.

Finish. The model is coloured all silver with black serial numbers and red, white and blue roundels. A very light sanding with finishing paper should follow each coat after it is thoroughly dry. The last coat can be rubbed briskly with a good grade of rubbing compound to obtain that "professional" look.

Flying. A point $\frac{1}{8}$ in. behind the forward control wire is where the model should balance. Use .012 in. dia. steel flying wire or heavier. Lines can be from 30 to 50 feet long, the longer lines preferred for stunting. Begin inside loops when flying downwind and outside loops into the wind. Figure eights, etc., are performed best with the wind on your back. When flying inverted do not forget that your controls are reversed, up is down and down is up!

The "Hart" will go through the S.M.A.E. Stunt schedule with the persuasion of a skilled pilot, or be as docile as a trainer for any beginner. Try one—you'll like it.



BRITISH OPEN & A/2 RECORD HOLDER

by

MAURICE F. PETRIE

Secretary of Sutton Coldfield M.A.C. . . aged 28 . . . Export sales manager with Tube Investments . . . married, has one small daughter . . . no time to spare for other hobbies, except an interest in model boats.

DESIGNED as a "toughie" to stand up to British weather conditions, Veronica is as ladylike as her name; but one of the roaming kind. On her very first airing, with a trial tow on only 100 ft. of line, she decided to wander from the flying field and was finally recovered six miles away. After a repeat of that same performance on the second test, Maurice Petrie decided it was high time to temper the roving instincts of his nomadic model, and fitted a tip-up tail dethermaliser. Then club-mate H. L. G. Campbell-Kelly tried a duplicate version for hand-launched slope soaring, and after a steady run of two to three minute flights, established the new British record for H/L Open and A/2 on July 29th, 1951, with a super flight lasting 24 minutes, 30 seconds. With its hollow-log type of fuselage, carved from block balsa, this tough soarer is one of the kind that last until lost.

CONSTRUCTION

The Fuselage. Two blocks of soft balsa $4 \times 1 \times 36$ ins. are cemented together lightly enough to enable the composite block to be carved to the outline in one piece. The two halves are then carefully separated and hollowed out with small gouges as shown, to a $\frac{1}{4}$ in. wall thickness. Halves can now be cemented firmly together, fitting into their appropriate positions, the $1/16$ in. ply keel former, and the $\frac{1}{4}$ in. balsa sheet fin. The designer's original model was left natural colour and french polished. In this way it was found possible to keep the weight of the fuselage lower than by numerous coats of dope.

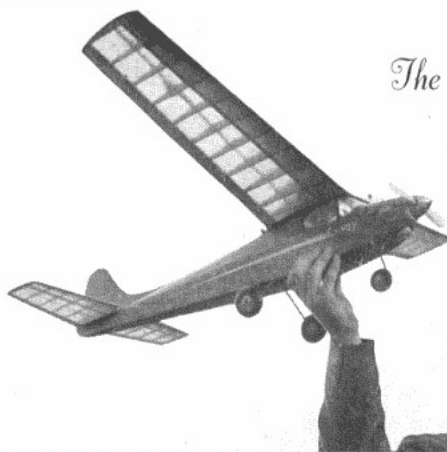
Long flat centre section, forward fin and square tips are features of this record-holding A/2. Upper photo of clean-shaven Maurice is 'as-normal' . . . the beard worn at right covers a Chicken-pox rash.

The Wing. The method of mounting the wing on the fuselage has been adopted as the most crash-proof arrangement which can be devised. The holding down block is first cut to the rib contour of the wing. It is then fitted carefully to cut away portion of the fuselage and lightly cemented into position without the wing in place. It is then shaped to the exterior contour of the fuselage. If desired, the faces of the block butting onto the fuselage itself may be faced with thin celluloid, as also the corresponding faces on the fuselage. On the original model the block was securely cemented in position, but subsequent models have shown that the mounting is more resilient to shock if it is not attached, and the wing is held quite securely by a separate block provided it is well fitted.

The Tailplane and Fin. Again the construction is fairly straightforward, and needs no comment. It should be built as lightly as possible although the leading edge should be sturdy. Diagonal ribs are completely warp resistant and no more difficult to assemble.

Full-size copies of the $\frac{1}{4}$ scale reproduction opposite, may be obtained, price 4/6 post free from the Aeromodeller Plans Service.





The

ENVOY

by Cyril Shaw

AN EASY-TO-BUILD
40 INCH WINGSPAN
CABIN POWER MODEL
FOR .5 TO 1.5 c.c.

CYRIL Shaw's Envoy is not new. It first appeared as a kit early in 1950, and a number of these kits were circulated by Shaw's of Norbury, London. Now, Cyril has emigrated to Canada and the kit is no longer in production.

So attractive are the lines of this high wing tricycle design that we feel the demand for full full size plans should not be neglected. All the printed parts, formers and ribs are now shown full size on the drawing, and slight modifications here and there have enabled us to present the Envoy in the popular A.P.S. series.

First test flown over Epsom Downs in cold windy weather, the prototype flew "straight off the board" with a steep power climb and impressive glide. Using an E.D. Bee diesel for power,

the flying speed is fast, but because of the inherent stability, is also very safe.

Large enough to accommodate any of the latest 1.5 diesels, and yet still not too large for the .5 c.c. Dart, we know that the Envoy will continue to be one of the most popular sport designs in the country.

Construction

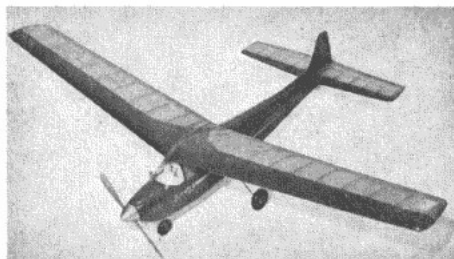
The **fuselage** is a simple box construction of $\frac{1}{8} \times \frac{1}{8}$ in. and $\frac{1}{4}$ in. sheet balsa. Join the fuselage halves by formers 1, 2, 3, and rear ply U/C former, after the undercarriage has been sewn on to the latter. Join fuselage at rear and complete basic construction. Slip engine bearers through formers 1 and 2, after pre-cementing. Mount motor and attach cowling blocks, which are then carved to shape, and finally sanded when the motor is removed. Now add formers 4-8, stringers, wing platform and dorsal fairing.

The **wing** and **tail** construction is simple and needs no special instruction. Each wing-half is built on the plan, and when dry, the halves are joined by the dihedral brace so that there is $3\frac{1}{2}$ ins. dihedral under each tip.

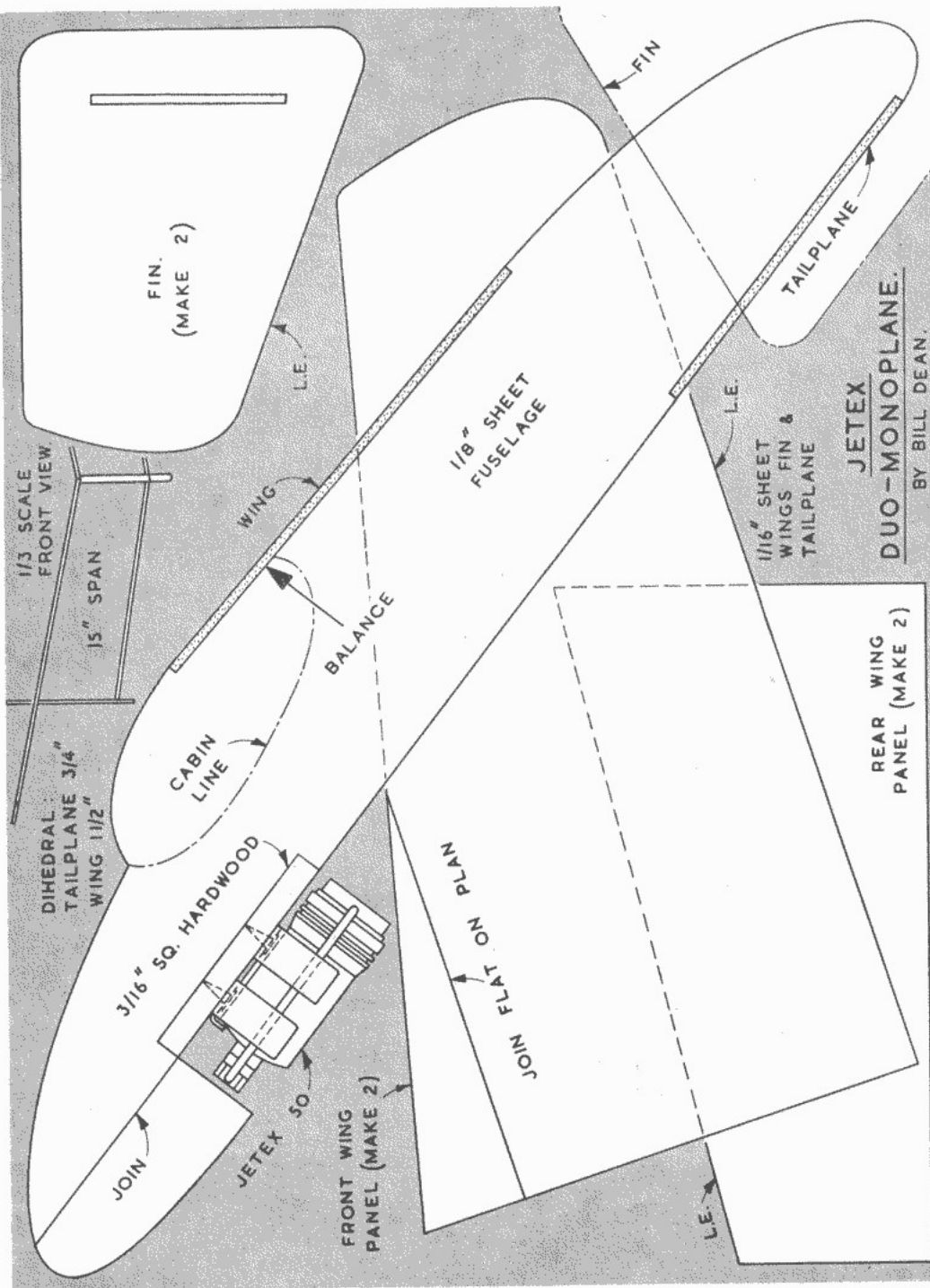
Cement the fin into the space between the tail-plane centre ribs after each part has been covered: but before they have been doped. Use lightweight Modelsplan, with at least two coats of clear and one coat of colour dope for decoration.

Flying

The Envoy flies perfectly without any thrust adjustment and has a natural climb to the left. Only the glide trim need be altered to tighten or open the radius of turn by adjustment of the rudder trim-tab.



Cyril Shaw's flair for designing models with distinct "eye-appeal" is well exemplified in the Envoy, with its neat cabin, cowled engine, dorsal fin and tricycle undercarriage.



**JETEX
DUO-MONOPLANE.**

BY BILL DEAN.

REAR WING
PANEL (MAKE 2)

1/8" SHEET
FUSELAGE

1/16" SHEET
WINGS FIN &
TAILPLANE

FIN.
(MAKE 2)

CABIN
LINE

BALANCE

JOIN FLAT ON
PLAN

JOIN

3/16" SQ. HARDWOOD

JETEX 50

FRONT WING
PANEL (MAKE 2)

1/3 SCALE
FRONT VIEW

15" SPAN

DIHEDRAL
TAILPLANE 3/4"
WING 1 1/2"

FIN

TAILPLANE

L.E.

L.E.

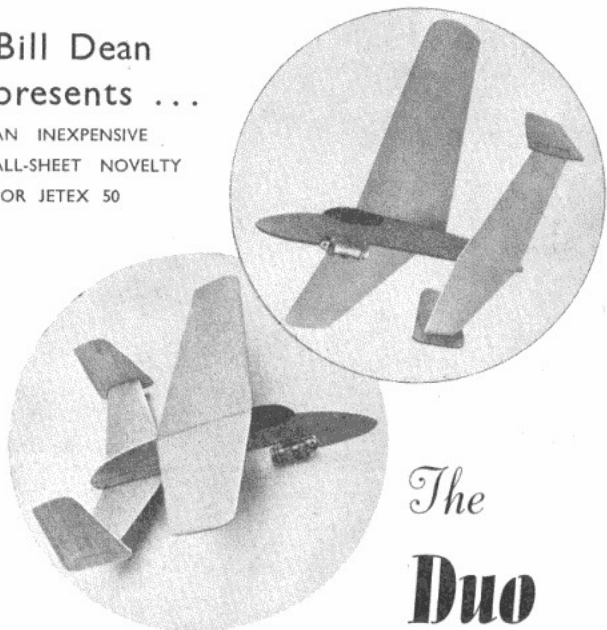
GLANCING through the 6 pages of a recent American aviation magazine, we came across an interesting article on Duo-Monoplanes—those unusual aircraft that are something like a DeBolt Biplane, minus the tailplane! We had never seen a model based on the Dual-Mono layout, so the decision was made to build a Jetex 50 powered version and see if they really worked. All-sheet construction was chosen for simplicity and the Jetex unit was shifted along the fuselage until the glide had been perfected. No alterations to the incidence settings were necessary and the model performed just as well as other more conventional designs that we had previously built. We were pleased to find that if the model happened to be climbing vertically when the charge expired, the stall recovery was remarkably good. Building time should not be more than two hours, so you need only set aside a short evening for this 15-in. span Jetex model.

Construction The plans on the adjoining page are given full size, so the patterns may be transferred directly on to the balsa sheet by means of carbon paper. Choose light, strong 1/16 in. sheet for the flying surfaces and medium 1/8 in. for the fuselage. Taper the leading and trailing edges of the wings (on top) and join the panels at the indicated dihedral angles—pinning the left hand panels flat on the building board and cementing the right ones to them (propping up the latter with books). Notch the fins on to the rear wing and check that they are quite vertical.

Next cut the fuselage pieces from 1/8 in. sheet and join them flat on the plan. When dry, lift up and cement the 3/16 in. square hardwood motor mount in the notch provided. Carve away the front and upper corners of the motor mount so that it fits into the fuselage. Round off the edges of the fuselage except at the wing positions. Screw the Jetex clip in position, making sure that it is lined up centrally. Attach the wings in the upper and lower notches, building up cement fairings on either side. Before the cement has had time to set, see that the wings are aligned correctly in the top and front views. Give the entire model a coat of banana oil, then check that the model balances at the point indicated (1 in. behind the L.E. of the front wing). A few drawing pins may be added to the nose to correct tail heaviness—but if nose heavy, move the Jetex clip further back.

Bill Dean presents ...

AN INEXPENSIVE
ALL-SHEET NOVELTY
FOR JETEX 50



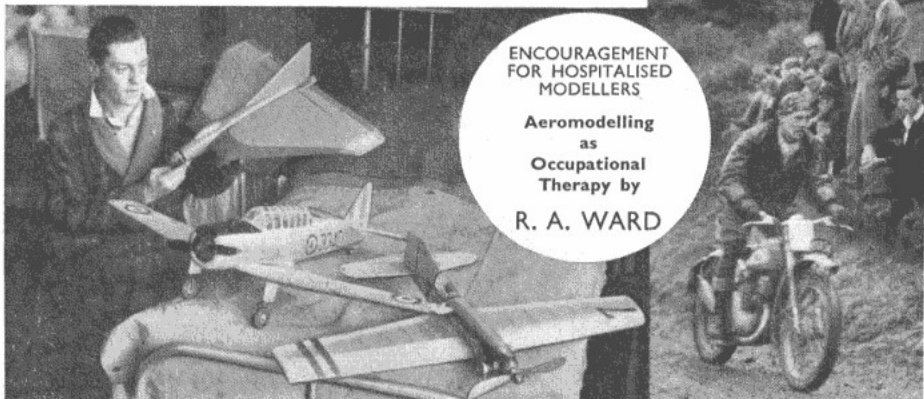
The Duo Monoplane

Keeping the weight down is all important with a Jetex-powered model, so any decoration should be applied sparingly. The cabin (see plan) may be filled in with black dope, but on no account colour dope the entire fuselage. All-up weight should not be more than one ounce.

Trimming Check the model to make certain that there are no warps, then clip in the loaded Jetex motor. Launched on a gentle downward path, the model should touch down some twenty feet away. Any suspicion of a stall must be trimmed out by adding weight to the nose or by twisting slight positive incidence into the rear wing panels. Make the model turn in either direction by warping the fins. Avoid flying over damp grass as these all-sheet models are prone to warping under these conditions—and this makes trimming extremely difficult.

Once the model is gliding well, light the fuse and as the thrust develops, launch at about the same speed as is usual with a rubber model. To get maximum height, the model must be trimmed into circling flight. Finally, put your name and address on the fuselage, as these little jobs frequently fly out of sight—even in the winter time.

BEDBORNE MODELLING



ENCOURAGEMENT
FOR HOSPITALISED
MODELLERS

Aeromodelling
as
Occupational
Therapy by

R. A. WARD

At left: The author admires three of the control-line models he will be able to test when fully recovered, and perhaps he is reflecting on his very active life before entering the sanatorium, shown in the right-hand photo, where he is manhandling a competition Bantam at a West Country trial.

TRY to imagine what your feelings would be if you were suddenly told, as I was, that you were seriously ill and that you would have to spend the next nine or twelve months in bed, in a sanatorium. You would probably react in exactly the same way as I did, by being plunged into the deepest gloom. I had led a particularly active life, and I reflected bitterly: no more modelling, football and motor cycling, for a year, anyhow. How wrong I was I soon learned. I have now spent nine months in bed, to date, and I expect to be on my feet once more within the next few weeks. Reposing on the top of the ward-cupboard at the side of my bed, and hung on the walls, are five control-line models, one powered free-flight model and many chuck gliders, all built within the last nine months whilst I was lying in bed. I sincerely hope none of you ever share my experience, but if by any chance you do, perhaps the following story will lighten your hearts and make your hospitalization (dreadful word) more cheerful.

I quickly settled down to hospital routine, and immediately noticed that occupational therapy played a very prominent part in the treatment of my particular ailment—T.B. Fortunately, tuberculosis in its milder forms does not seriously incapacitate the patient, and lying in bed, while feeling perfectly fit and well, can be very irksome and wearying. And so most of the patients, during their allotted working hours, were busy painting, weaving, embroidering and making leatherwork. I was not particularly interested in any of these pursuits, and being a rabid, almost fanatical aeromodeller, began debating whether I could possibly carry on modelling within the confines of a hospital ward.

The ward itself was a great barn-like room with a very lofty ceiling and its possibilities as a flying

ground for small chuck-gliders were immediately apparent. I prevailed upon my wife to bring with her on her next visit a supply of balsa wood and cement and commenced manufacture. By keeping the size of the gliders down to 8 ins. span, many hours of flying were enjoyed by myself and several other patients who became interested in my activities. There were numerous reasons for being out of bed at different times of the day, and, by pure coincidence, of course, flying occurred at these times.

However, I was not satisfied with chuck-gliders for long, and my wife soon found that she had not rid herself of the aura of aeromodelling, for at each weekly visit, she was asked to supply dope, tissue, rubber, balsa and cement for her crazy husband, who had now decided to try to build rubber-powered models while lying in bed. In this I was helped by the more advanced patients, who were allowed out of the building for walking and light exercise. As soon as a model was finished it was roughly trimmed in the ward and then taken outside to the lawns to be flown. The accident rate was quite high to begin with, as none of the up-patients had flown a model before and they had to rely on my shouted instructions from the window of the ward. Nevertheless, plenty of amusement was provided by these budding Wakefield flyers. A hint to anyone following my example will not be out of place here; don't try to beat any British records with your models. Be content with short-duration sport-flying. Hospital authorities do not take kindly to patients on light exercise tramping miles across the countryside after flyaway models!

Logically, of course, the next step was powered flying. However, with this I could visualize a few obstacles. Soldering, drilling and sawing are inseparable from powered modelling; I decided



Doctors and nurses soon became interested in Mr. Ward's aeromodelling. This lassie appears to have been well instructed on how and where to hold a model correctly!

that I would do well to go cautiously at first. To that end, I started with a good pre-fabricated kit, the Veron Panther. I had chosen control-line flying for the simple reason that the grounds of the hospital were dotted here and there with clumps of trees, which would have proved disastrous to freeflight models.

The Panther kit proved ideal for its purpose and was quickly finished, but my ambitions were still not realized. In my spare(?) time I was painting and sketching and had been provided with a drawing board and tee-square. I decided, therefore, to design and attempt to build a scale sports model I had long had in mind—the North American Yale.

In the meantime, two of the up-patients had been badly bitten by the modelling bug and had invested in a Keil Kraft Phantom and an Elfin 1.49 c.c. engine. It was a great moment when the model was finished and the two proud builders, neither of whom had ever seen a control-line model in flight before, sallied out on to the lawns to commence flying. Once again, shouted instructions from the window were necessary before the engine was started. When that happened they were well and truly on their own, for I could not hope to make myself heard above the whine of the Elfin at full revs. It speaks well for the Phantom and the skill (or

luck) of the two beginners, when they found that, at the end of the afternoon's flying, they could both make a reasonably good flight, and that, more important, the Phantom was still in one piece!

Returning to my experience, I quickly designed the Yale and commenced building. I had, by now, obtained almost all my modelling materials and tools from home, including a small twist drill and an electric soldering iron. My hobby attracted everyone's attention, including doctors and nurses, and the progress of the model was a daily topic of conversation throughout the sanatorium. It was eventually finished and, at the moment, is occupying pride of place in a disabled men's exhibition of work at the local Red Cross and British Legion Headquarters. I found that as I was in no hurry to finish the model, I had not skimmed any detail.

Now I have all my engines with me and have built one, and in some cases, two models for each motor. Apart from the Panther and a Ladybird free-flight model, all of them have been designed on a drawing board measuring 27 x 19 ins. and built, down to the smallest part, whilst lying in bed. I am now anxiously awaiting the happy day when I can get out of bed and commence flying my stable of hospital-built models.

In conclusion, if any reader finding himself under the same circumstances as myself, desires to continue modelling during the time he is in bed, the following hints may prove useful:—Do not attempt to carry out any work without first obtaining the permission of the medical supervisors. Do not break any hospital rules while working or flying. You will find there are plenty. Try to keep dope and cement off the sheets if you wish to remain popular with Matron. Please do not test-run engines in the wards until you are sure no-one else is inconvenienced. Kitted models are more suitable for building in bed, but if you think it can be done, by all means try designing and building your own.

Finally, any reader who does undergo my experience has my deepest sympathy and I wish him all the luck in the world. He will find that he can make his stay in hospital shorter and infinitely more happy and interesting by carrying on with our grand hobby.

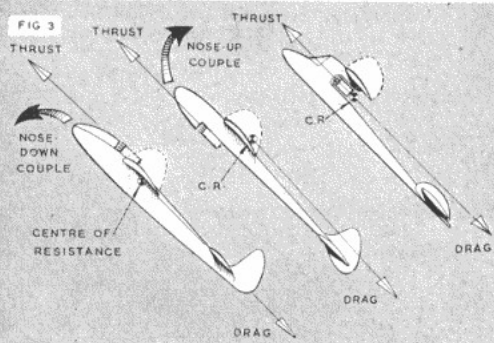
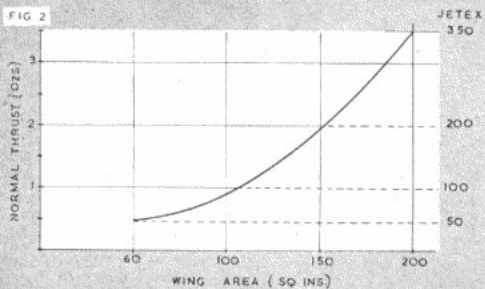
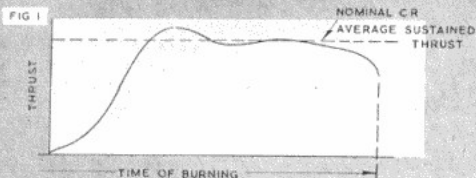
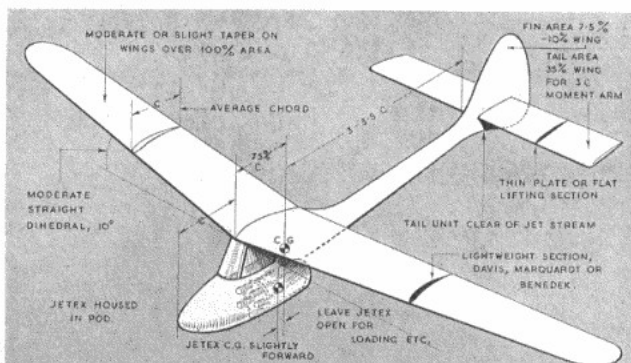


The realism of this North American Yale speaks well for Mr. Ward's patience. Built to one-twelfth scale, it has an American Forster 29 motor.

It's Designed for YOU!

NUMBER
SIXTEEN

JETEX



JETEX is a most interesting form of power unit, available as it is in four distinct "motor" sizes suitable for powering models of between 12 and 45 ins. span. The Jetex motor has the singular advantage of being a completely self-contained power unit which is located by a simple clip. A single motor, in other words, can be used in a number of different models. Servicing is reduced to a minimum, since about the only attention the Jetex needs is a regular cleaning and occasional replacement of the sealing washers and gauzes. There are no moving parts, and hence there is no wear. The power unit, too, is virtually indestructible.

Thrust is produced directly by the expanding gases of the burning charge and is almost a pure *straight* thrust, as well as being appreciably constant over the bulk of the power run. There is no torque as there would be with thrust developed by a propeller, whilst the actual power output is characterised by the graph in Fig. 1.

It will be noticed from this that the thrust builds up slowly at first after the charge is ignited, reaching a peak value in a reasonably short time. It remains roughly at this peak value until the end of the burning time, when it tapers off. Although all the charges are prepared to the same close specification there is, in practice, some variation in the actual thrust output from individual charges in the same motor. Thrust output may also be modified by such physical conditions as the cleanliness of the jet hole in the motor, the state of the interior gauze, and so on. All things considered, however, it is reasonable to assume that the power output of the motor will remain substantially the same, flight by flight, without adjustment.

The number of the Jetex motor is actually a designation of the thrust output it is intended to give. Thus the Jetex "50" gives a thrust of approximately 0.5 ounces;

a Jetex "100" 1.0 ounces, and so on. These figures are a useful guide in the proportioning of suitable models for maximum performance. The leading physical characteristics of the various sizes of Jetex units are summarized in Table I.

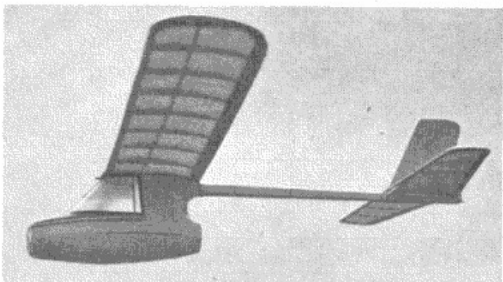
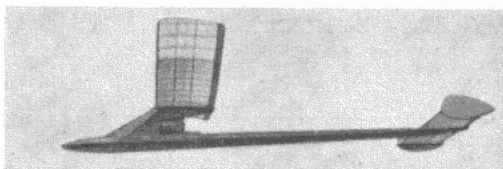
The Jetex-powered model designed for duration work is in a similar category to the power duration model. Power run is limited, in this case by the time of burning of the charge, and so the main object of design is to produce a model which will have a good flight ratio (total duration: duration of power run), which means in effect, a fast climb to a good height, followed by the best possible glide at minimum sinking speed.

In this respect the Jetex motor is very well suited to duration work, for the weight of the complete motor is less than the sustained thrust it is capable of developing. It is not in the same category as some internal combustion engines, however, where the thrust developed is so high, for the size and weight of the motor, that it is possible to produce a complete model with a total weight less than the thrust developed by the motor. Such a model, of course, could climb vertically under propeller thrust alone, although this would not necessarily be achieving the fastest rate of climb possible with that particular model, quite apart from the problem of stabilising such a climb.

The Jetex may be regarded as a more "moderate" power unit where the resulting model climbs largely by wing lift. This is an important factor in determining the best size of model for a particular Jetex unit.

Experience has dictated a range of wing area sizes which appear best suited to the various Jetex units. These we have plotted in Fig. 2, where it will be noticed that the curve tapers off sharply with the larger sizes of Jetex, i.e., increasing thrust. The inference is that size is likely to be less critical using the larger Jetex motors than the smallest ones in the present range. The wing area sizes indicated by the graph appear to be the optimum for a good rate of climb, whilst still enabling low wing loading figures to be achieved for a satisfactory glide performance. The main disadvantages of using a model smaller than that indicated for a particular motor unit is first that it may be rather difficult to trim under power, and secondly that the smaller area may result in too high a wing loading for optimum glide performance, particularly in the smaller sizes.

A suggested maximum all-up weight for a "200" is 3 ounces (with unit empty), and for a "350" is 6 ounces (unit empty). No amount of streamlining will compensate for the performance losses which will be suffered if the model is overweight.



Using a "350" unit, Bill Henderson (N. Kent) won the '51 S.M.A.E. Jetex Contest with the model shown in the upper photo. The wing is supported by a cantilever structure. Lower photo shows Kit Carson's semi-scale pod and boom design, with completely coiled Jetex unit. Part of the pod detaches for access to the Jet.

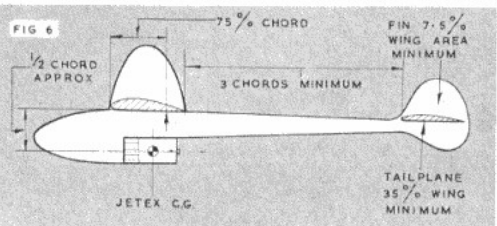
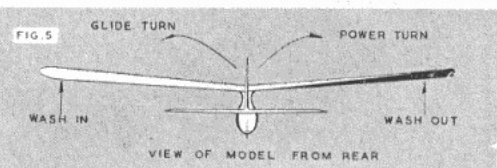
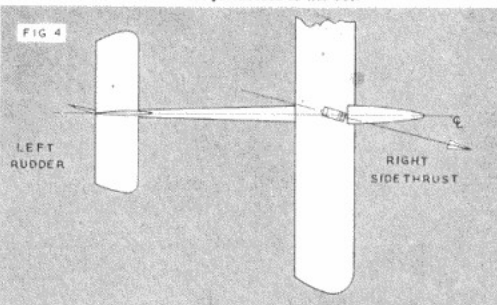


TABLE I.

Jetex	Nominal Thrust (ozs.)	Overall Length (ins.)	Overall Diameter (ins.)	Empty Weight (ozs.)	Weight of Charge (ozs.)
50	0.5	1½	21/64	½	½
100	1.0	2½	1	¾	¾
200	2.0	2-13/16	1-9/64	1½	5/16*
350	3.5	3½	1-25/64	2½	13/32*

* Single charge.

TABLE II.

MODEL SPECIFICATIONS				
Jetex	Wing Area (sq. ins.)	Chord (ins.)	Span (ins.)	Total Weight (ozs.)
50	50	3	18	2-1
100	100-120	4	30	1-1½
200	140-160	4½	34	2-3
350	180-240	5*	40	5-6

* Average chord on taper wings.

Model specifications for the various Jetex units are summarized in Table II. It is usual to work to empty weights for design purposes since we are mainly concerned with weight as affecting glide performance, and on the glide the charge has been consumed.

Thrust-line and trim

As to the layout of the design, here the Jetex power unit opens up a range of possibilities. Being such a compact power unit it will fit almost anywhere into a conventional or unorthodox outline.



"New boy; Whittle, I believe his name is."

It would appear an almost ideal layout for flying wings, for example. If we are primarily concerned with duration, however, we are more concerned with finding the most efficient, or what is apparently the best layout.

Both high and low thrust-line positions have been used successfully, and as a matter of fact the I.C.I. Challenge Trophy has been won by each.

After trying both, Dick Twomey prefers the high thrust-line layout, believing that such a model has less tendency to loop under high power, and does not waste power in down-thrust. A typical high thrust-line layout may in fact be rigged (taking the tailplane as the datum line) with wings at +3° and thrust at +3° also, so making the most of its available power.

However, both layouts have their supporters and neither can be condemned. A happy medium may well be that used on the "Durajet" and Bill Henderson's models where the thrust-line just about coincides with the line of drag, see Fig. 3. All these points are inseparable from considerations of wing mounting, and lightness and simplicity may again prove the decisive factors.

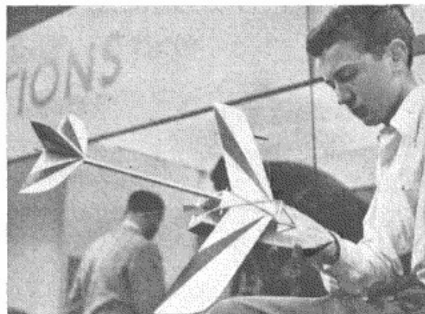
Recommended practice is normally to fly Jetex models straight or nearly straight under power. Dick Twomey advises:—

"Granted a tight spiral climb is a good thing; but the ideal is a straight climb and a circling glide, which can be achieved with a little juggling and a modicum of patience. With very high power (it will be shown how Jetex power can be increased) nothing but this trim will stave off disaster.

First mount the jet unit with built-in side-thrust. This is quite effective, since our unit has already been mounted ahead of the model's C.G. However, since this distance is not great, one or two degrees of sidethrust would have little effect. On my models 10° has been found to be the best setting (Fig. 4). Rudder is balanced against side-thrust, and produces very satisfactory results.

When the glide is a satisfactory circle, begin powered flights with small amounts of fuel, i.e., one charge halved. Increase to one full charge and so arrive gradually at full power. "350" fuel is already gouged out at one end to ensure a good "change-over", but on "200" pellets you must do this for yourself. It often helps to insert a small coil of Jetex fuse in this "dug-out". It is recommended that all adjoining faces of charges be scraped on the surface, and it is essential to press the charges hard down against each other."

The principle of wing warping for turn is illustrated in Fig. 5. One wing is given wash-in and the other wash-out. On the glide, where the wing is operating at a high angle of attack, the wing with greater incidence drags more and turns the model in that direction. Speed the model up, as under power, and this wing with greater incidence now tends to lift more and roll the model into a turn in the opposite direction.



A central thrustline is favoured by the Surbiton Club, as J. Hancock demonstrates in this view of his Jetex "200" entry at the I.C.I. Contest. At right: Peter Ward and one of the Jetex "100" flying boats which were flown round-the-pole over the water tank at the 1951 Model Engineer Exhibition.

We can complete our summary of the basic layout requirements by reference to Fig. 6, which summarises the main requirements of what should be a good duration design. The Jetex motor itself should be located with its centre of gravity slightly forward of the design C.G. of the completed model to add a slight stabilising nose-down or under-elevated effect when loaded, *i.e.*, under power. This will assist in promoting the acceleration into fast climbing flight as the thrust builds up, for in this flight attitude the wing angle of attack will have to decrease.

After this, the remainder of the design layout is fairly non-critical. The one really important factor is the size and disposition of the fin or vertical tail surface(s), but this is just the one point on which no empirical rules can be given! A fin area of around 7.5 per cent. of the wing area should be more than adequate (up to 10 per cent. total fin area on a twin-fin design) and would appear best with at least two thirds of this area placed above the tailplane, assuming that the tailplane is roughly in line with the wings.

In the main it is best to design the wing and tailplane basically on structural considerations. Small wing chords should be avoided, as these will introduce inefficiency. Accepting a figure of 3 ins. as the minimum wing chord to be used, this immediately fixes the maximum aspect ratio of a Jetex "50" wing as 6. Lower aspect ratios are not desirable in any case, and so 6:1 will serve as a good *minimum* figure for all the other model sizes. Above an aspect ratio of about 8:1 the normal parallel wing chord ceases to be a good proposition, and if higher aspect ratios are to be used, tapered wings are called for.

The balance of the design data required can be drawn from the heading illustration. Construction is normal lightweight practice, as exemplified by current rubber model and glider practice. It is an advantage as far as possible to reduce the nose length as this will have a beneficial effect on stability during turning flight. This calls for light rear fuselage and tail unit construction, when it

should be possible to reduce the nose length to one chord and still require little or no ballast to trim.

For competition performance the efficiency of the model design can be brought to the highest standard by improvements in the thrust obtained from the Jetex unit. Dick Twomey offers his tips on this subject as follows:—

Increasing thrust

The power in a "200" unit can be increased to about twice the thrust by the following method, not to be used without a great deal of caution. When your model is well trimmed and climbing straight on normal "200" fuel, try cutting down the diameter of "350" pellets until they just fit your "200" unit. "350" fuel is much more concentrated, and performance is tremendously increased. Jet run will now be 10 to 15 seconds, depending on the closeness of the fit of the charges inside the cylinder. The *more* the air gap between the charges and the cylinder walls, the *more* the power, and the *shorter* the "engine run". This method of fuelling may eventually cause the metal end-cap to burn through, but it will last for many contests, and is ideal for ratio events, where the *actual* engine run is timed. In the I.C.I. event, of course, where jet run is measured on the makers' assumed average figures, this charging system is not helpful, and orthodox burning should be retained.

There are ways and means of "hotting up" the Jetex "350" also, but it will suffice to say that it can be done and leave the reader to sort out the best and safest method for himself. A word of warning: modifications of this nature are very satisfying when successful (the writer's "200" size model produced ratios of 21:1 and 24:1 when thus treated) but it needs a stable model and painstaking trimming.

A final recommendation regarding trimming is to have positive fixing of all component parts, *i.e.*, wing, tailplane, and jet mountings secure, and fin and rudder attached preferably to the fuselage and not to the tailplane. This is the only safe way to avoid undesirable changes of trim.

SPLIT RUDDER For Radio Control

by

F. B. THOMAS and E. D. CABLE

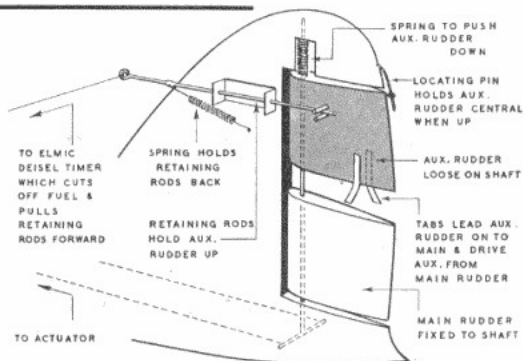
THE average R.C. model is over-ruddered under power and under-ruddered on the glide. A little explanation of this statement is perhaps necessary for those with little experience of R.C. flying. When a model is flying under power, a small deflection of the rudder produces a quick rate of turn because the speed of the slipstream past the tail is added to the airspeed of the model. If the small rudder deflection is held on, the model quickly gains excessive speed and loses height in a spiralling dive.

When the motor stops, or is cut off by a timer, there is still the same small rudder deflection to turn the model in gliding flight, and the slipstream is no longer present. The rudder is usually less effective, and has to be held on for many seconds before a slow turn develops.

It occurred to the authors some time ago that the ideal method of overcoming all these snags would be to increase the total rudder area the moment the motor stops. The soundness of this idea cannot be denied; but it took a long time to solve a simple, light and foolproof method.

The lower rudder is connected direct to the actuator, and controls the model during the engine-on phase of the flight. A timer is essential, and we use an "electric" diesel type. When the timer operates and cuts off the fuel supply to the motor, it also trips the upper rudder, which drops and engages the lower rudder. Thus at the moment the engine is stopped and for the remainder of the flight, the rudder area is doubled.

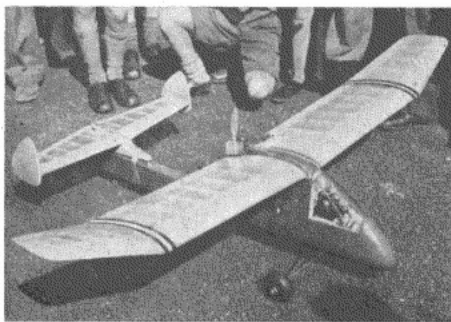
Referring again to the diagram, it will be seen that the upper rudder is held in the "up" position



by the trip-wire, against a light compression spring. When the trip-line is pulled forward by the timer arm, the wire is disengaged from the upper rudder, which is driven strongly downwards to the lower portion. It may happen that the timer operates when right or left rudder is being held on. The inverted "Y"-shaped tabs ensure that the upper and lower rudders engage correctly with one another. When the rudder is in the "up" (engine-on) state, it is held accurately in a neutral position by the locating pin and looped wire. When the rudder drops into the "down" (engine-off, or glide) position, the locating pin is drawn out of the wire loop, leaving the rudder free. The wire loop can be bent slightly to one side or the other to apply rudder bias, if necessary.

The device can be fitted to any single-fin model, and the weight increase is negligible. Some trial and error experiments are necessary to discover the optimum rudder areas. As a rough guide, however, the lower rudder should be equal in area to the entire area of the original single rudder on any given model. The upper rudder should be approximately equal in area to the lower, though it may be found necessary to make it even larger. Fishing line should be used for the trip-line. A metal line will interfere with the aerial.

We have fitted the split rudder to our two-year-old "Rudderbug", and the results have been extremely gratifying—almost spectacular. Under power an easy turn can be held on for 180° before any appreciable speed is picked up, or height lost. When the motor cuts, the rate of turn on the glide is almost identical to the power-on turn. If rudder is held on for more than a 360° turn, some extra speed is picked up, and this can be "spilled-off" by alternate applications of right and left rudder, until the model has taken up its normal gliding angle and speed again. Gliding turns can be continued to within 10-15 feet of the ground.



Another answer to adequate glide response is twin rudders out of the slipstream, as used on this latest version of Eric Cable's "Cat's Whisker".

CONTEST CAPERS FROM DOWN-UNDER BY THAT GLOBE-TROTTING AUSTRALIAN

Adrian Bryant

ARE English aeromodellers and Clubs too contest-minded? Whilst waiting around in England recently prior to going on to the Wakefield in Finland, I had a good look at some of your Clubs and contests. Every week there seemed to be at least two contests of the Area, Centralised or decentralised nature coming up!

This is alright for those of us who thrive on contest work, but what of the fellow who flies for fun? Why not arrange a little fun for him.

There are many types of contest that you can run to fill in that odd weekend. Give the non-competitive flier an airing, and have a lot of fun yourself. Back in Australia we call them "fun contests", but for the most part they are pure nonsense!!

The first of these is the Power Scramble, and for the life of me I cannot see why this type of flying hasn't caught on in England yet. When it does, it will be the biggest thing to hit free flight since the Zipper! There is less luck, and more is left to the builder and flier than in any of the other free flight contests.

Rules for this type of contest are simple, and there is nothing to stop you from changing them to suit your own particular Club. The object is to see who can put up the highest total flying time in one hour; any type of power model can be used; and you are allowed one helper to help retrieve the model. In no case is a duration of above 2 minutes counted, there is no limit to the number of entrants, and the more the better.

There must be one timekeeper for each competitor, and it is better that he does not know the entrant he is timing for. The Recorder has a sheet of paper ruled into about 20 columns, and in these are entered the competitors' flights.

All competitors arrange themselves around a circle, or in some order picked by the judges, each "team" consisting of the contestant, helper and timekeeper. When the Recorder gives the signal, it's just fuel, flip, fly and retrieve—fuel, flip, fly and retrieve until he gives the word to stop. You start your model, send it up, you and your helper run after it, grab it when it lands and tear back to the starting point to repeat as before. Meanwhile your timer has taken the watch to the Recorder, and is back ready for the next flight.

This goes on for one hour (or longer, but an hour is quite long enough!). The first half hour is terrific, but after that it slows down into a steady slaughter with prangs, mid-air crashes, aches, pains, sore feet, etc., all taking their toll. A de-thermaliser is a must. It's a real bind to have a plane up over the 2 minute mark.

As one bod, put it—"like the opening day of



After winning the Queensland sailplane championship, Adrian donned footsore and hitch-hiked his way around Australia before setting forth for Finland, where he proxy flew pal Loneragan's Wakefield into 18th place. Currently in London, Adrian wrote this article whilst working as an instructor at Jami-Jarcl.

the duck shooting season". The idea is, as most people know, a New Zealand conception, and power scrambles have been included in the N.S.W. Championships on two occasions, proving to be the most popular event. They are usually last event of the day, and anyone with a model enters.

Don't by-pass power scrambling—give it go! No special type of model has shown up yet, but the physical condition of the flier counts a lot. The small model is easier to run with than the 10 footer, and there is less chance of it being hit in mid-air. As there is no limit to the engine run, is a high climbing model on a 10 second engine run better than a Frog 45 on a minute run? Who is to say?

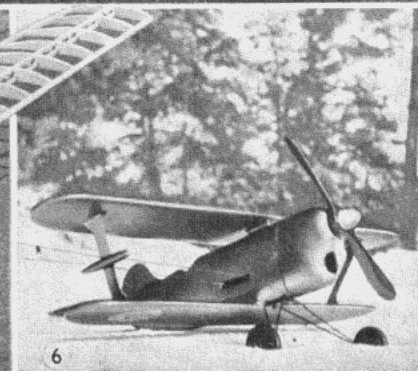
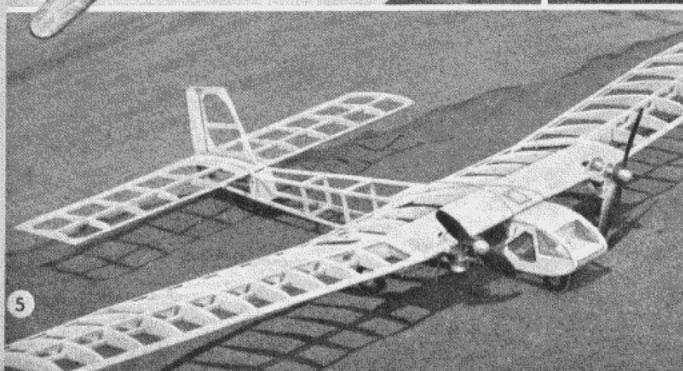
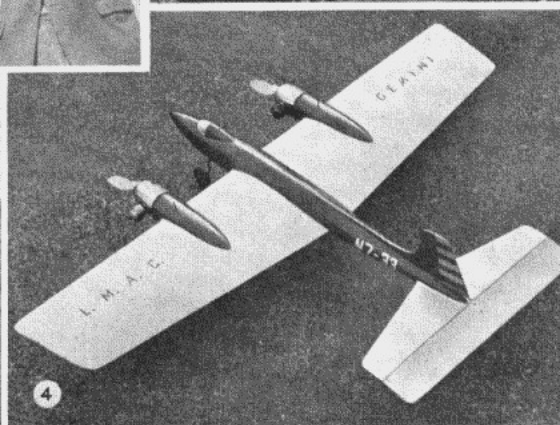
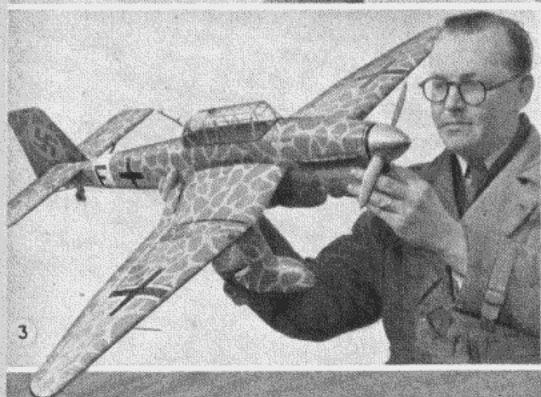
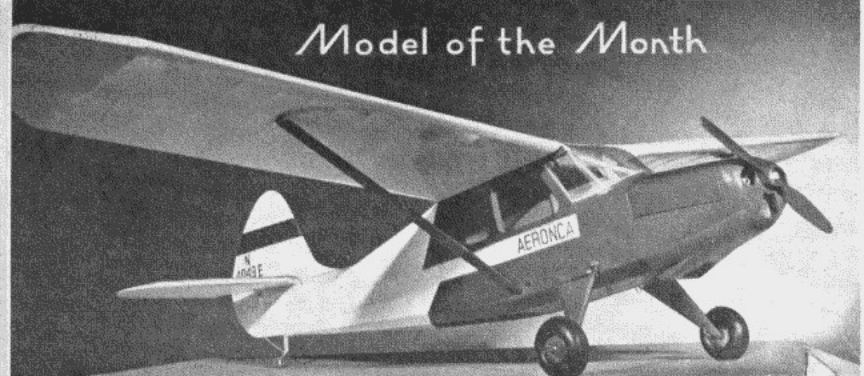
Most power scrambles are hand-launched these days, but R.O.G. adds that little extra thrill for the crowd, providing there is a good take-off area and there are not too many competitors. Contest Committees will be doing the right thing to include a scramble in their next Gala.

Straight line racing can be fun, and a class for this type is included in F.A.I. world records. Races can be run with both power and rubber models, and the old A-frame pusher is a great model for this type of racing. Built all of wood, with twin high pitch props. and 1/2-in. square rubber, they really move.

Don't dismiss all this as nonsense. If you think your club is getting into a rut, try them out. Don't build special jobs, use just what you have on hand. These contests are "just for fun"—try them and see if I'm not right.

Model of the Month

MODEL



NEWS



CAUGHT alone in the den, and with the old round-the-pole rubber job just pleading for a spot of circulating, its motor hanging out at the mere mention of a wheelbrace, your pal Phil was at a loss for an extra pair of hands to help with the stretch-winding, when presto!! Straight out of the TV screen came a friend indeed, none other than that cheerful character, Terry Titmouse! A fairy story? We e e lll, it could happen by a stretch (h,mmm) of the imagination!

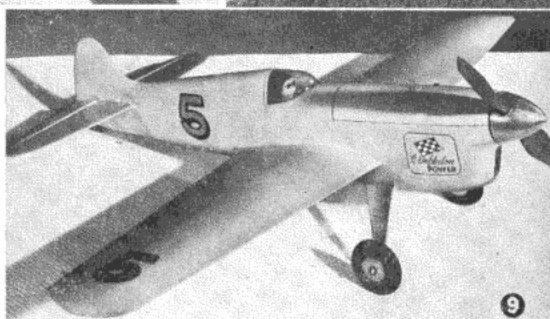
That gleaming scale Aeronca Sedan, chosen as Model of the Month is certainly no figment of imagination. Hats off to designer Ron Young of the Mercury Models team who developed this perfect scale model for either free-flight or radio control. Spanning 65½ ins., it has passed all flight tests using an Elfin 2-49, and is now scheduled for kit production. Photography in the modern style is by Ronald A. Adams.

Seeing double? That cannot be helped if you are studying pic. 1, of brothers F. and O. Fisher and their similar 6 ft. free-flying wings. O. Fisher's wing has a D.C.350, whilst brother Frank uses a Yulon 30. Between them the Fisher Bros. have made eight "wings", so they should be pteroperters. No-tail to fish-tail in the next photo! There's something finny about those tips, in No. 2, which is P. W. Hales' novel diversion from the otherwise very plain speed model design. Curved tips help to straighten out turbulent airflow, as witness the 90 m.p.h. performance with Frog 500.

Last month we published an action shot of a model Stuka by G. V. Potterton, and now, in photo 3, we have yet another Ju 87b, this time by W. H. Smith. An additional feature of this blue and white camouflaged version is its delayed action bomb release—really a case of Ware Stuka!!

The very sleek red and silver twin Elfined stunter in picture 4 is the handiwork of J. B. Moorhouse (Lockwood M.A.C.). Careful construction has kept the weight down to 30 ounces and allows a speed of 75-80 m.p.h. Wing area is 300 sq. ins. Another "twin" comes in the next picture (5), only this time, it's a free-flight job with two E.D. Bee's, designed, and built by G. W. Dodwell of Mitcham. A pendulum rudder of generous proportions is fitted as a safety measure in the event of unequal power. Area is 544 sq. ins., span 62 ins., and weight, 18 ounces.

Brrrr! but it's cold outside! And over in Sweden, Cecil Törner of Modellracerklubben



Raketerna, is used to flying in sub-zero conditions. Take a look at No. 6 where his smart green bronzed biplane control-liner rests in the snow. Powered by D.C.350, the Biipe's fuselage is made of papier maché, which gives a perfectly smooth finish.

The thought that a sailplane design, with suitable engine attached, could be a good idea for duration contests, has apparently influenced G. A. Sayce in building No. 7. 54 in. span and powered by the baby Allbon Dart mounted up on a pylon, this job has a shallow climb: but what a glide! The nose is also a handy prop-saver.

Another "baby-engine" fan, is Les Clarke of Sunderland, seen in picture 8. The engine he uses for this all-sheet "Golliwog" biipe, is the tiny .32 c.c. Kalper diesel. And how's this for a record; the Kalper is now in its fourth year of use, and the model, originally built by Jim Robson, the club Chairman, is completing its third season.

It has been lost five times, had no major repairs, weighs 9 ozs. as a monoplane—14 ozs. as a biipe, and still stooges at a very slow flying speed for 3 to 4 minutes under power! Sounds like just the job for beginners! Incidentally, the tail is nibbled for special trimming reasons.

And so to number 9, another example of Ronald Adams' photography in the modern style, this time of Phil Landray's new class B racer. The cowl hides a McCoy 29 engine which tugs this neat model around at 75 m.p.h. plus—very smart Phil, and realistic too.

At which Fliar Phil rests his pen and wishes one and all the very best of good fortune for the 1952 flying season.

CONTROL - LINE DECK LANDING

By R. O'BRIEN

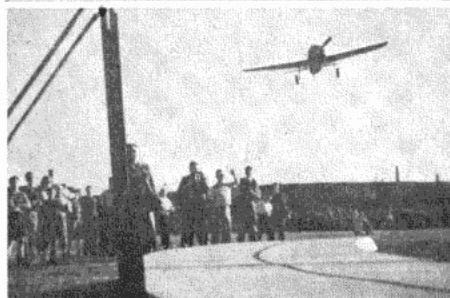
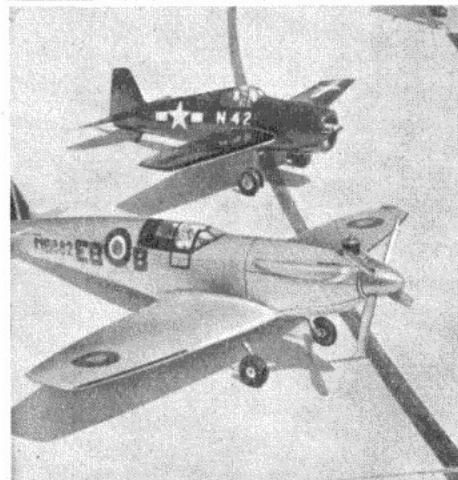
ONE particularly interesting feature of the State Jubilee Championships organised by the M.F.C. of Australia and East Coast Speed Club over 30th September-1st October was the introduction of a Navy Carrier Deck event.

Held in Erskineville Oval, Sidney, New South Wales, this new form of control-line contest did not attract a huge entry, but the fact that it was a great success with spectators and was very popular with the modellers augurs well for this novelty at future meetings.

The deck, made of marine plywood (and guaranteed to last for fifty years!), is 50 ft. long, 7 ft. wide and is curved to a circle of 60 ft. radius. It has a scale superstructure of a present-day aircraft carrier and the flight deck has downward sloping approach at each end to facilitate the landing. Six nylon lines with small sandbags attached are stretched across the deck, and models are fitted with arrestor hooks and motor control. Models are judged for appearance, take off and landing, and are timed for six laps fast, and then slow speed flying, gaining points for the difference between the two speeds. The carrier deck was very kindly donated by Mr. Ralph Symonds of Sydney.

The event was won by Arthur Larritt flying a Frog 500 powered Focke Wulf 190, and Peter Sandford was second with his scale Hellcat. A strong wind made the landing approach particularly difficult for both the plane and pilot. Under favourable conditions and with plenty of suitable models, the event should prove to be a great boost to control-line flying.

Top: Winning F.W.190 gets the 'all clear' as it leaves the deck. Centre: A Hellcat and Spitfire, the same Hellcat is seen in a glide landing which appears to have over-shot, in the bottom left photo. Below: Dummy superstructure adds realism to the Australian C/L carrier, which is 6 ft. longer and 2 ft. wider than those used in the U.S.A.



Yes! Why not? With everything in our modelling world becoming more and more complicated it is a welcome change to return to one of the more simple forms of flying. And for those who derive pleasure from the skill of physical effort lies the satisfaction to be gained from the efforts of a first-class throw.

THE chuck glider is often regarded as the lowest form of life in the model world, and a very unworthy cousin of the more popular types of model. But those who deride the chuck glider because of its similarity to the 2s. beginner's model only show how little thought they have given to the matter. Regarded in the proper light, it will be seen that they possess exclusive advantages. To name just a few, they are inexpensive, their solidity and small wind resistance enable them to be flown in almost any weather, and almost any place, and a fly-away is by no means an impossible achievement, so put your name on even this small model.

Few good chuck gliders are seen in this country, and this article has been written in the hope that it will arouse a greater interest in the model. A welcome step in the right direction was taken this year by the many clubs who introduced an event for chuck gliders at their galas.

Design

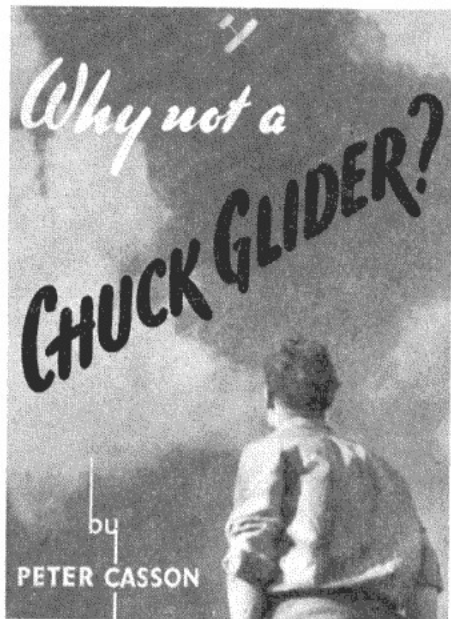
When launched they are called upon to withstand loads often 36 times in excess of those when in normal flight, due to the initially high velocity. Consequently, construction is usually solid. The high drag due to this speed tends to retard the model during the climb, and for this reason the frontal area is reduced to a minimum, while the skin friction is reduced by a smooth finish.

To guard against any looping tendency during the climb, a low lift section at 0° incidence is usually employed. This, together with about 10° sweep back on each wing and about 3 ins. of dihedral per foot of semi span ensures an efficient climb, and facilitates a quick pull out at the top before the model has had time to lose height. The best weight for a model of the size illustrated is between 0.4 and 0.5 ozs. and on no account should it be heavier than 0.7 ozs.

Construction

The model described here is perhaps smaller than that generally accepted as the optimum, although its consistent flight average of 45 secs. is proof of its suitability. The fuselage is very similar to the American style and is made from 3/32 in. sheet spruce sanded to a streamlined section. The wings are cut from 1/2 in. medium balsa and sanded to the section shown. When cutting the wings in half, the correct sweep-back is obtained by removing a triangular piece of wood with an angle of 20 at its apex, which is on the leading edge. The wing roots are then chamfered carefully to give one wing 4 ins. tip rise (2 ins. dihedral on each wing). The tail surfaces are quite straightforward, being from 1/32 in. very hard balsa sheet. Note the opposite-grain gusset let in at the leading edge of the fin. This is to strengthen the fuselage at its thinnest and weakest point.

Before assembling, two coats of clear dope and a



good sanding should be given, as it is obviously easier to perform these preliminaries to each part individually. When assembling, give the wing fuselage junctions three separate coats of cement, each being applied after the preceding coat has had time to dry. The final gloss is obtained by giving one coat of grain-filler (a thick creamy mixture of clear dope and boracic powder), and thoroughly rubbing it off before applying several generous coats of thick clear dope, sanding down well between each coat. A useful tip is to mix a few drops of castor oil with the dope, as this gives a slightly better gloss. If the dope is thick, less coats need be applied, and consequently (the writer blushes) less hard work is needed in rubbing down.

Flying

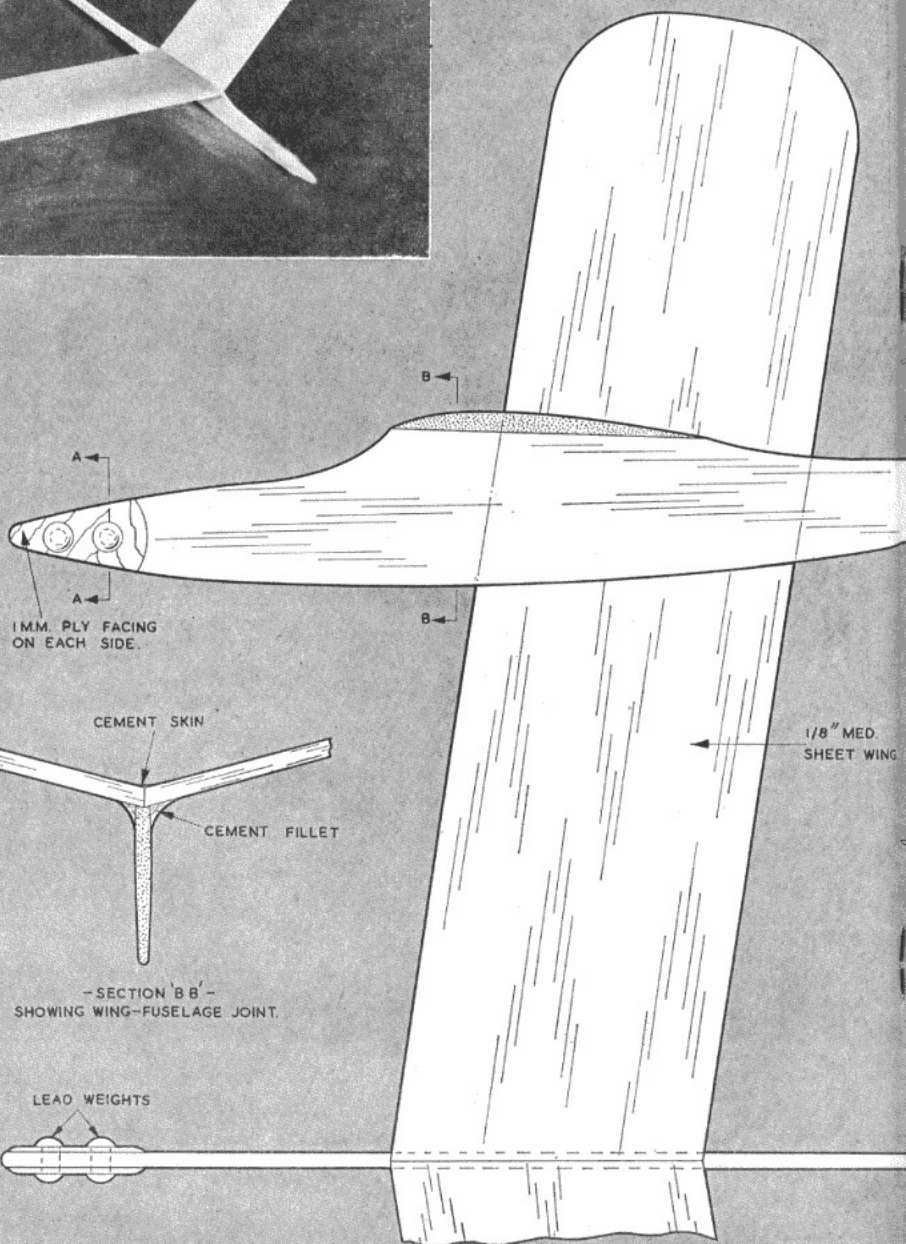
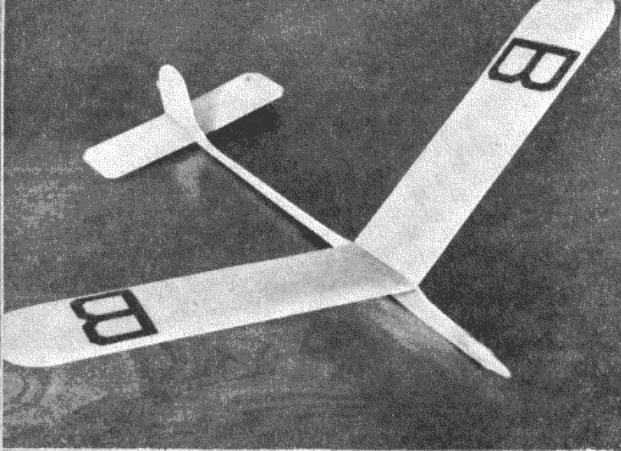
Trimming a chuck glider is the essence of simplicity, being performed by pressing small lead plugs into the reinforced nose, and cutting the plugs down until a long flat glide is achieved, after which they may be lightly riveted over. First see that the model is

(continued overleaf)

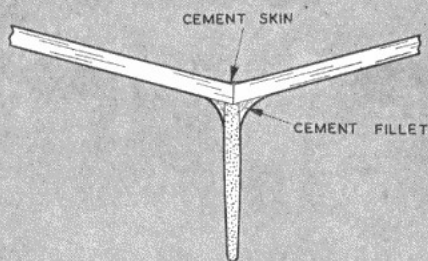
"I've had it!"



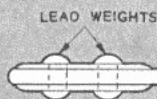
FULL SIZE PLANS.



1MM. PLY FACING
ON EACH SIDE.



-SECTION 'B B'-
SHOWING WING-FUSELAGE JOINT.



LEAD WEIGHTS

(Continued from previous page)

flying in approximately 50 ft. dia. and, for a right-handed person, anti-clockwise circles, by warping down the trailing edge of one half of the tailplane. You may also find a little rudder adjustment necessary to get the model off the top cleanly before it has lost much height. It is seldom that a chuck glider remains in trim for two successive outings, owing to changed wind and weather conditions, but even if the weather remains completely unchanged for a week, it is a rare occasion when the model does not need slight alteration in trim. The diminutive and solid construction of the chuck glider leads one to believe that it could not alter its shape so quickly, and yet how else is this phenomenon to be explained? It is a bouquet of the sensitiveness of the model that these slight warpings due to humidity changes make such a difference to the trim.

To throw the model 40 or 50 feet into the air by the strength of the arm alone is energetic work, and until the knack has been acquired it seems a difficult feat, as the model will frequently fail to pull out, hurtling earthwards at its terminal velocity (another reason why construction is solid). It is futile to try and describe how to throw a chuck glider. Only practice makes perfect, so get chucking!

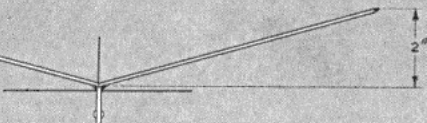
Bicep Builder

1/32" HARD SHEET
BALSA FIN.

3/32" SPRUCE FUSELAGE.

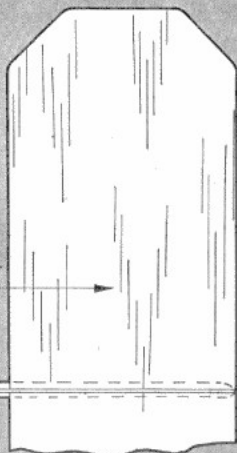


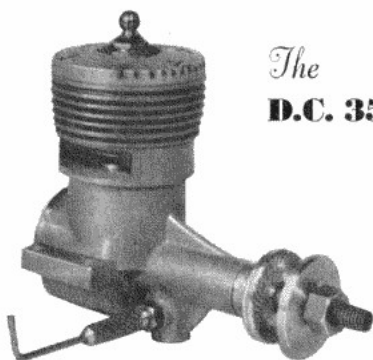
-SECTION 'AA'-
SHOWING METHOD OF FIXING WEIGHT.



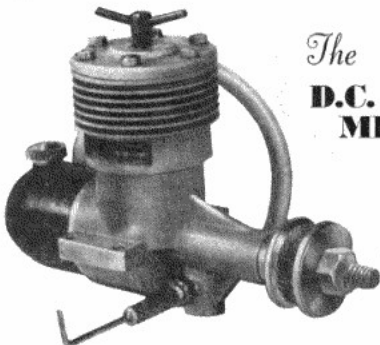
- FRONT VIEW. 1/4" SIZE. -

1/32" HARD SHEET
BALSA TAIL.





The
D.C. 35(G)



The
**D.C. 350
MK. II**

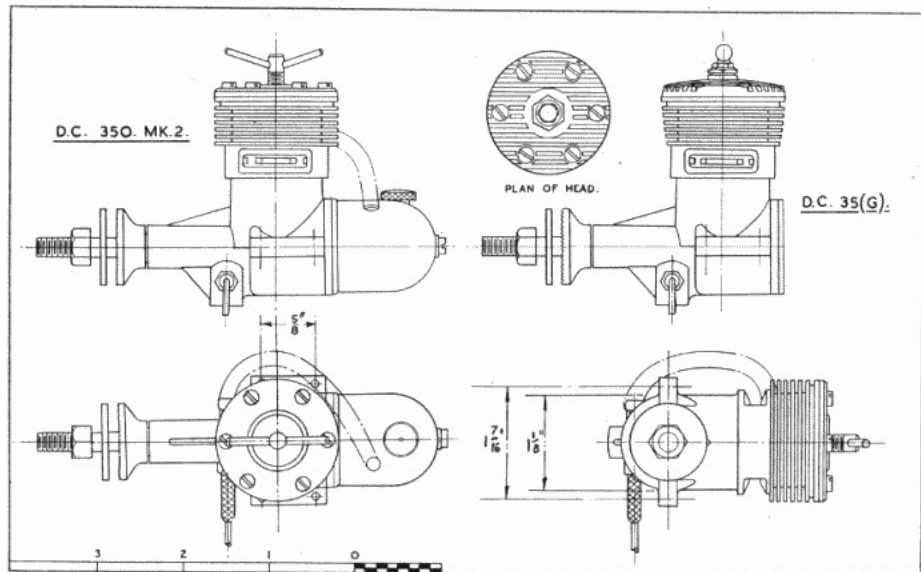
ENGINE

KNOwn as the D.C. 350 Mk. II, the new diesel analysed in this series in the November, 1950, issue, particularly in its increased power output which now ranks highest in the 3.5 c.c. class.

In its glowplug form, as the 35 (G), the peak output falls slightly short of the diesel figure, though in practice this difference will not be readily apparent. The small capacity diesel has always been recognised as an engine with greater power than its glowplugged equivalent, and we have no doubt that those who prefer glowplug operation will concede the superiority.

Externally, the Mk. II diesel looks different only in its new "Vee" type compression screw, decreased fin area (there is one less fin, and the fin thickness is increased), and the spinner nut is replaced by a tougher hex. nut.

Internally, there are alterations to the porting and mode of assembly. By-pass channels in the cylinder liner are deeper though narrower, the carburettor bore is increased, and because of the revised assembly, it is now possible to ensure that two of the four exhaust ports register centrally with the slots in the cylinder jacket. This new "plain" liner is slightly heavier and still retains the unusual lack of contact with the cylinder finning. As before, the crankcase back-plug is left plain and screwed home tightly to discourage unwarranted and often harmful dismantling.



ANALYSIS

TEST

D.C. 350 DIESEL, 3.5 c.c.

Fuel: Mercury No. 8. **Starting:** Excellent.

Running: Excellent at all speeds. Needle control flexible and easy to handle.

B.H.P.: Flat curve to maximum of .281 b.h.p. at 11,300 r.p.m. Fall-off not so sudden as with the glowplug version.

Checked Weight: 5.71 ozs. (with fuel tank).

Power/Weight Ratio: .7808 b.h.p./lb.

Remarks: The attractive grey finish to the clean castings of this motor are well displayed by the contrasting amber coloured plastic fuel tank. Its robust construction should make it an ideal choice for the radio control enthusiasts.

D.C. 35 (G) GLOWPLUG, 3.5 c.c.

Fuel: Mercury No. 5.

Starting: Excellent, facilitated by priming through exhaust port.

Running: Very flexible needle control, and smooth running are characteristics of D.C. motors and are well evident in the 35 (G).

B.H.P.: A good flat curve is obtained, with maximum output of .262 b.h.p. at 11,100 r.p.m.

Checked Weight: 5.4 ozs. (less tank).

Power/Weight Ratio: .776 b.h.p./lb.

Remarks: There is very little difference in the performance of these two motors, showing that there is considerable research in the glowplug version.

GENERAL CONSTRUCTION DATA

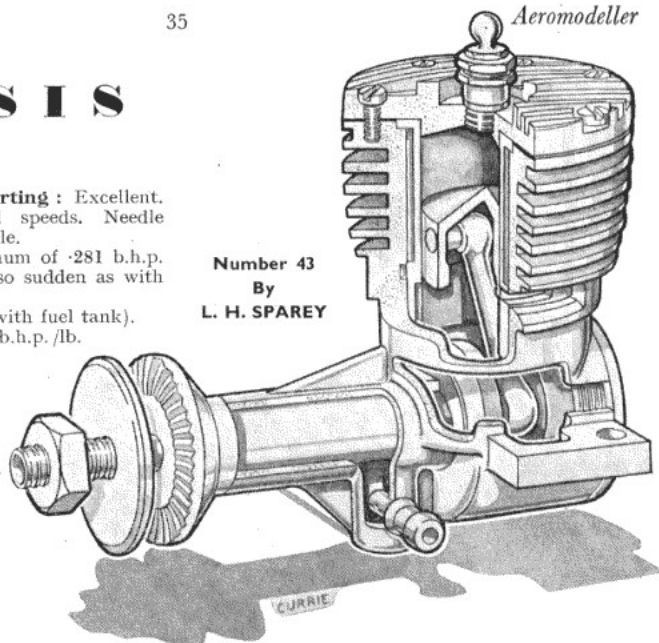
Name: D.C. 350 Mark II, and D.C. 35 (G).

Manufacturers: Davies-Charlton & Co., 13, Rainhall Road, Barnoldswick, via Colne, Lancs.

Number 43

By

L. H. SPAREY



Retail Price: D.C. 350 Mark II, £3. 6s. 8d.

D.C. 35 (G), £3. 5s. 0d.

Capacity: 3.44 c.c., .21 cu./in.

Compression Ratio: 350 Mk. II, Variable. 35 (G), 8.65:1.

Mounting: Beam.

Recommended Airscrew: Free flight, 10 x 6 ins. Control line, 9 x 8 ins.

Bore: 11/16 in.

Stroke: 9/16 in.

Cylinder: Nickel chrome steel.

Cylinder Head: Alloy, retained by six screws.

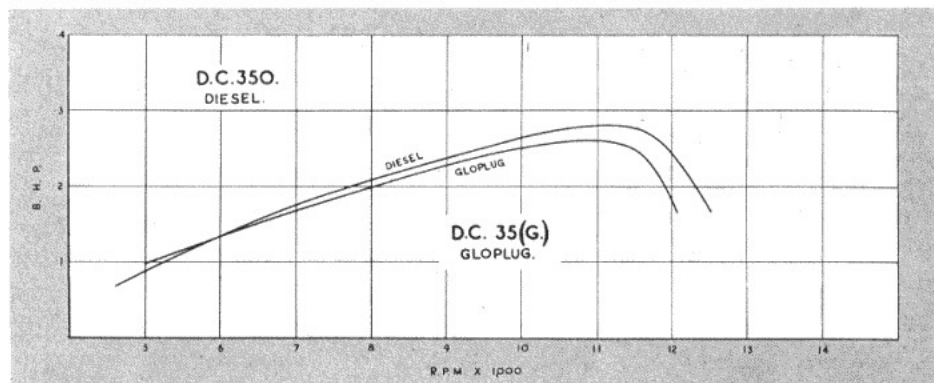
Crankcase: Die-cast D.T.D. 424.

Piston: Meehanite, ground and honed.

Connecting Rod: Duralumin.

Crankshaft: Nickel chrome, ground and honed.

Induction: Rotary crankshaft valve.



GADGET REVIEW

ONCE more, we dip into our bulging files of gadgetry to give yet nine more ideas submitted by the ingenious in our ranks. There's something for everyone this month, whether you be scale, rubber, power or control-line fan, so why not settle back and digest these gems of usefulness and incorporate them in your future designs?

Among the most useful of ideas introduced to aeromodeling in recent years, and one which the *AEROMODELLER* has proudly introduced, is that classic safety device for all scale models or designs with doubtful stability characteristics... the Pendulum Rudder. The Belgians had their pet version, our scale design contributors have other ideas on the subject, and now, that well-known Northerner, Vic Dubery, introduces the simplest form we have seen.

Claiming three distinct advantages, the Dubery Pendulum Rudder "A" will (1) not flap in slipstream, (2) not operate until the model banks beyond a certain angle, and (3) applies correcting rudder progressively. A simple balance arm pivots at R in the rudder, and rolls in a specially shaped bulkhead to give the required corrections. When straight and level, the rudder is safe and rigid, with the balance arm nestling in the base of the curved bulkhead. But when the fuselage banks to right or left more than the pre-arranged 5° to 10° angle, the arm is free to swing, and operate the rudder. Radius S should be at least 1½ ins.

That age-old problem, how to transfer wing-ribs, bulkheads, formers and other specially shaped parts from plan to balsa wood, has been answered many times in this Gadget Review series. But the introduction of the now very popular ball-point type of pen, using a form of printers' ink, has added a new slant to building from plans, as J. Spain suggests in "B". Just trace the part you want to cut out on to thin, or tracing, paper, reverse the paper, rub the lines with the other end of the pen, lift the paper, and presto! An exact reprint of the required part is transferred to the wood.

"C" is a B-knop. Well, that is what it is known as in Sweden where many a Wakefield motor is held tight and secure by this reef knot with a little bit extra. And we really must apologize for having dropped the "p" out of "Special" in the sketch; but we are quite correct

for calling it a B-knop, which, we presume, is Swedish for knot—thank you Mr. Børgesson.

If we had a pound with every request for gen on twin-engine control for free-flight, we would have retired as millionaires long ago. Not that we have been able to answer all the queries on the problems of the "multi", but now we can at least refer to J. D. W. Croasdel's solution, shown as "D". Should one engine exert itself a trifle more than the other, then the rudders will automatically compensate for straight and level flight. Then, if one engine cuts suddenly, it will admittedly swing into a dangerous thrust angle; but the rudders can be arranged to correct the offthrust accordingly. We would advise a limitation of 5° movement each way on the main pivoted bar, as a safety measure.

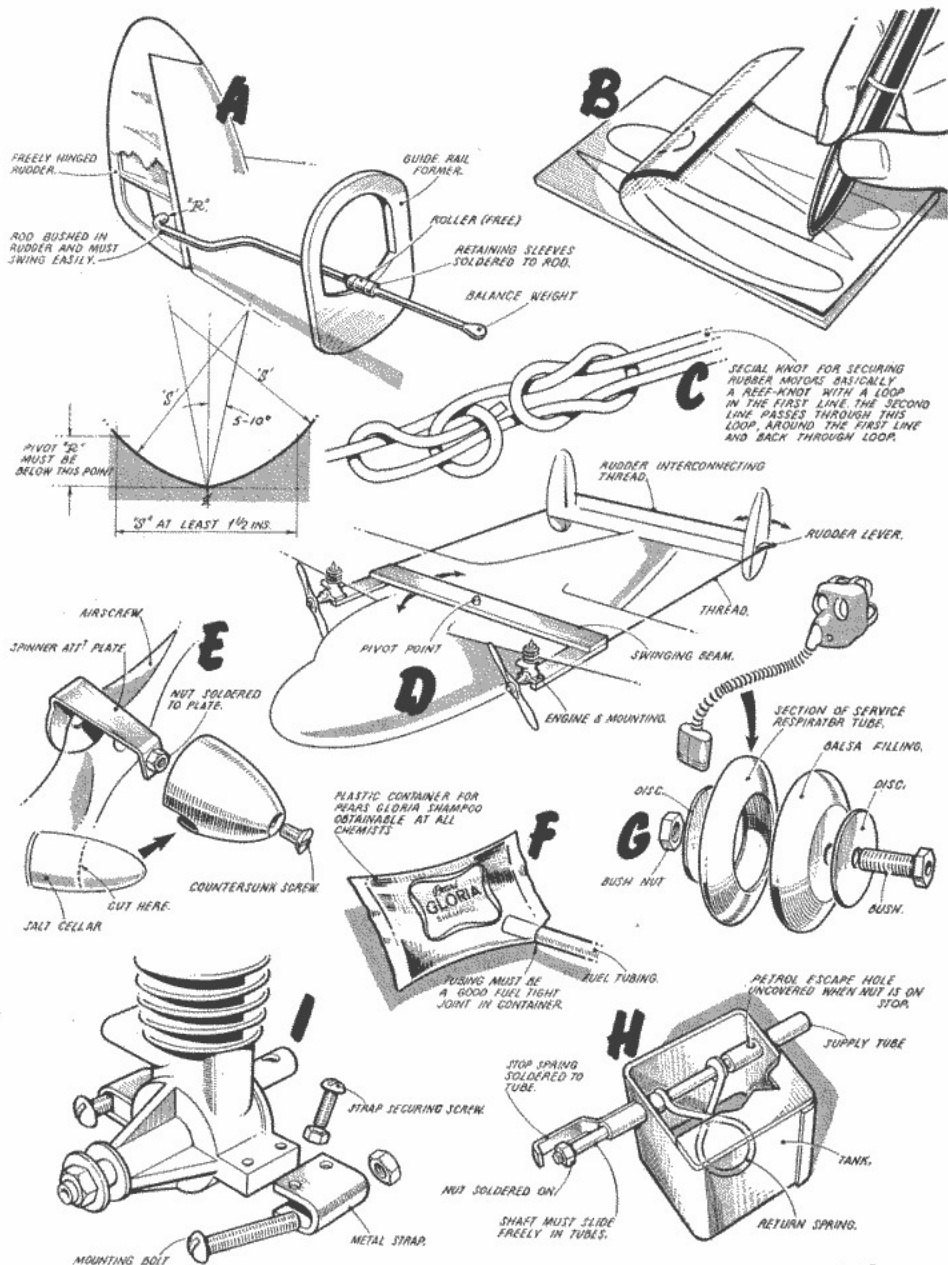
Reach for the salt, tip out the salt and keep the cellar! It's a useful substitute for a spinner (see "E") says Mr. A. J. Munt. The plastic variety are easy to cut in half, to file for the prop, and drill for the front bolt. Rear plate is made of tin plate or brass, with nut soldered on to take the bolt thread.

F. Stanton must have been watching Mum or Sis in action washing their hair, and at the same time noting the very useful transparent plastic container "F" they used to supply the necessary "suds". Full of GLORIA shampoo liquid, and to be seen in their thousands at departmental stores, chemists and the like, they are ideal for fuel tanks and unaffected by either diesel or glow-plug fuels. Just snip off the corner to let out the shampoo, insert a fuel lead and you have a perfect flexible tank.

"G" is another economic brainwave, cheap wheels made from sections of respirator tube. M. R. Bromige uses a corrugation cut from old gas mask tube to form a tyre over a balsa former. A 12 g. bush, and ply facing discs on each side of the balsa core make a cheap but tough wheel that is much lighter than the solid rubber type.

And so to "H" which is R. W. Cheeseman's simplified free-flight "shut-off" tank, which is so easy to make, that it should be within the capabilities of any modeller. The sketch is self-explanatory, the only additional spot of advice we would offer, is that the stop spring be made of really springy brass. This is connected to any type of timer, and when pulled free of the nut on the shaft, the internal single coil return spring pushes the shaft to cover the fuel outlet.

Radial or Beam? . . . that is a question that crops up with great regularity in power circles, and idea "I" which we saw in a recent copy of *Air Trails* provides the answer for all who wish to mount their "beam" motors radially. Coming originally from Charles Atkinson of Jennings, Louisiana, this simple device should meet with worldwide approval, and, in fact, we would not be surprised if these mounting converters were put into production by an enterprising manufacturer.





WORLD NEWS

by ARIEL

COMPLIMENTS of the Season and good wishes for your activities in 1952, to the contributors and readers of this international feature, from its compiler, who looks forward to keeping the world's aeromodellers "in touch" during the coming year.

Item of interest from 1951 A/2 Champion Oskar Czepa, is that the 1952 Contest will be held at Graz, near Vienna.

Italy. The XIVth Italian Nationals were held at Bresso Airfield, Milan, on the 25th, 26th and 27th of October, and we thank Ing. Nino Frachetti, Contest Director of C.A.M., Italy's largest aeromodelling organisation, for his report and photo. Contests in all classes were flown and all clubs were represented in strength. With ideal weather some excellent performances were recorded.

National Champions were as follows:—Sailplanes: Cassio Pisani, Pisa Club—2 flight, agg. 391 secs. Rubber: Alberto Leardi, Milan Club—3 flight, agg. 843 secs. F/F Power: Giorgio, Genoa—3 flight, agg. 663 secs. Junior National Champion: G. Vincenti, Bologna. C/L Stunt: Pierluigi Gnesi, Pisa—305 points. Champion Club of 1951: Aero Club of Pisa.

The heading photo shows, from left to right, Edgardo Sadorin, Wakefield specialist, Ing. Frachetti, Col. Jacopani, Sec. the Aero Club of Milan and General Leoni, who flew the Atlantic with General Balbo in 1933.

India. Of the many "lone wolf" modellers with whom we correspond in all parts of the world, D. Hardaker of Shimshapura, Mysore State, Southern India, must be one of the most isolated. He estimates that the nearest enthusiasts to him are in Calcutta, some 900 miles away, where is his nearest model shop also. His flying field is eighty miles from home, and as he is a keen Power modeller this must be somewhat of a hardship.

In his last letter to us his main worry was about the rubber in a newly-built Wakefield; temperatures at that time were 133°F in the sun, though, as he puts it, but 100°F in the shade. Despite these inconveniences, modeller Hardaker carries on with most commendable keenness.

Also in India, although some distance from Mysore, are Messrs. Gilmour and Gottlieb at St. George's College, Mussoorie, United Provinces, who feel that, if they are not the second highest modellers in the World, assuming that Mr. Hemp-

hill of Mau Summit, Kenya, is right on top, (8,400 ft.), they are among the highest.

Mussoorie is 6,000 feet above sea level and it has been noticed that the power of their motors leaves much to be desired. There is very little that can be done about it in such rarefied air, for even at peak revs. the power is greatly reduced.

These modellers, also, have their nearest model shop in Calcutta, 980 miles away, and supplies take over eight days to reach them. Unfortunately, the balsa is often damaged beyond recognition by the time it has completed its journey.

South Africa. A correspondent who writes in as the result of a previous letter in "World News" is Gerald Matchett, Hon. Sec. of the Pretoria Aeromodellers Club, and one of the Union's leading Stunt fliers.

This is what he has to say:—

"I noticed in your July issue an interesting letter from R. v. d. Merwe from Grahamstown. I know Roux very well, but his letter somehow gave the impression that the only flying done in the Union was by the East London, Port Elizabeth and Capetown coastal areas. Personally, I think that more flying is done near Pretoria than by any other two clubs put together. This is proved at every S.A. National Championship, when Pretoria has won more than half the country's hardware!" We pass on, without comment.

Matchett goes on to tell us of some of his Club's 1951 activities, including demonstration flying at the Benoni Air Club (full scale) Rally. The four Stunt Kings of the Club, who gained the first four places in the S.A. Nationals, namely Gerald Matchett, Cliff Culverwell, Monty Malherbe and Bill Kotze, flew four "Chiefs" in a circle, followed by synchronised aerobatics and dog fights, in pairs. They have practised the latter to a point where they fly one inverted and one right way up, and can manage the "opposite directions" act with three in a circle.

Not to be outdone by a full-scale demonstration of balloon bursting, they promptly tethered a balloon and proceeded to burst it.

Pretoria is another place where they go in for the "marathon" free flight business; maximum time in the air during a two hour period, with flights of three minutes and under only counting.

Due to two flyaways (32 and 35 minutes) our correspondent made second place in the last of these events.

On Sundays at the Club flying field at Waverly there is always plenty of activity, including three or four members with R/C jobs. They have really progressed in this direction and perfectly controlled flights are the order of the day.

Member Carl von Ahlefeldt came out with a new twist one Sunday; he tied a chuck glider to an arrow and then shot the arrow with a proper bow—some flights!

In closing, reader Matchett mentions "dog-fighting in Stunt". This comprises four or five jobs in a circle with 6 feet long paper windsocks tied to the tailskids; the chap with the most paper left is the winner! We believe that this has been tried elsewhere, but the Pretoria boys do it as a regular thing.

Southern Rhodesia Flight Lieutenant W. G. Drinkell, R.A.F. Heany, Bulawayo, has written us an interesting letter about aeromodelling at 4,500 feet and higher, for that is the height above sea level at which one finds R.A.F. Heany.

The Station Club, formed just about eighteen months ago, has overcome its initial set-back of shortage of supplies with the aid of one of Bulawayo's leading Sports' shops, and is now making healthy progress. Free Flight, English diesel powered, has led the field, gliders and C/L Stunt collecting their following during 1951. The Club hopes to tackle C/L Speed seriously.

The only other club in Rhodesia is the Mashonaland Model Engineering Society, at Salisbury, among whose members is Bill Heckler, National Champion of Southern Rhodesia for two years running. His eleven-year-old son is being brought up to a high standard of aeromodelling and should enhance the family reputation.

Three contests have been held during the past eighteen months; the first, in October, 1950, was at Salisbury, and the Heany contingent travelled the two hundred miles in four Harvards. L.A.C. Cowley returned with first place in the Sailplane event. A return contest was held on Easter Monday in which over eighty models were entered. Cowley again won the Sailplane event, F/Lt. Drinkell taking second place with a newly-finished "Nord". The Power contest was won by Bill Heckler with an Ohlsson powered "Sailplane" and he put up a speed of 101 m.p.h. in the Class V Speed event.

The last contest reported, at Salisbury last Whitsun, was attended with the aid of a well-loaded Anson, for model transport, one car and eight Harvards. The Club members piloting the latter aircraft were, of course, on training flights. On

this occasion the R.A.F. carried off eleven of the first twelve places in the Sailplane event, the exception being sixth place. Cowley made his "hat trick" with another first. Carter came top in Rubber for the R.A.F., but Bill Heckler and his "Sailplane" repeated the Power success. The latter flier obtained second place also in the Power, flying a "Playboy", while third and fifth places went to the R.A.F., Parker taking both of these. Flying at 5,000 feet altitude, Bill Heckler raised his own speed record to 107 m.p.h. with a McCoy powered deBolt design.

At the Empire Air Show at R.A.F. Heany, the Club put on a static and a flying display. During this display four members built a "Nord" which was raffled, raising ten guineas for the R.A.F. Benevolent Fund.

The next big date was in October—the Rhodesian Nationals, at which visitors were expected from South Africa to increase the competition, and we look to F/Lt. Drinkell for a report of this meeting. He tells us that the Club is a member of the R.A.F. Model Association, and that its members are all insured. They are all firm believers in dethermalisers and, except in contests, no model flying is carried on between 10 a.m. and 3 p.m., due to the strength of the thermals. F/Lt. Drinkell asks us to add a footnote for the benefit of R.A.F. modellers posted to Rhodesia—pack your modelling equipment, for a warm welcome awaits you at Heany. Local prices are about the same as in the U.K.—less the Purchase Tax!



Officer Cadet Goddard (R.A.F.) with his "Stunt Queen" at S. Rhodesian Air Force station, Cranbourne, Salisbury. Lunch interval at Contest explains the lack of "bods".

Readers' Letters

Prices and Profits

In view of the importance of the subject matter, we reproduce below a letter and editorial comment reprinted from our contemporary "Model Aircraft", followed by a reply to Mr. Netherclift from Mr. Paterson of Plantation Wood. Our own comments on the subject will be found in "Heard at the Hangar Doors".

DEAR SIR,

I would like to point out a fallacy in your "Here and There" paragraph entitled "Hard and Heavy—Light and Strong", September, 1951. You point out that the price of balsa wood in U.S.A., in spite of being nearer to the source, is the same price as here, whereas in fact it is cheaper than here to the actual user, for both wages and prices are higher in the U.S.A.

The advent of purchase tax must have made it clear to all those who can put two and two together that profit levels on aeromodelling supplies are not by any means meagre at the present time.

As a club treasurer I know only too well the difficulty of members, especially juniors, to keep up with club subscriptions, increased cost of their hobby, and associated activities and I would respectfully suggest to the trade that our interests are their interests and that all increases should be shared by all, not borne by the modeller alone. It would no doubt be very interesting if the leading firms concerned published their audited annual accounts in the journals. G. J. NETHERCLIFT.

Hon. Treasurer, Ilford & Dist. M.A.C.

Our correspondent's implication that profit margins in the model aircraft trade are higher than those in other trades is very far from fact. In few industries is competition so keen and only by large scale production have the prices of most products been kept down to their present level in spite of greatly increased costs of raw materials, labour, and the imposition of purchase tax.—The Editor, "Model Aircraft."

DEAR SIR,

I invite Mr. Netherclift to visit me here at these Works, when I could very clearly give him a picture of the difficulties of maintaining supplies of balsa wood at reasonable prices. The only reason that there are supplies of balsa wood for aeromodellers in this country is because of the stupendous efforts that manufacturers have made on export sales. This Company has to maintain higher prices for sheet and strip in retail shops in this country so that we can sell sheet and strip abroad at lower prices and keep down the price of balsa wood to manufacturers in order that their kits will sell abroad.

Mr. Netherclift little knows the risks that the majority of manufacturers took in endeavouring to avoid the imposition of Purchase Tax on Model Aircraft materials, and how desperate a fight has been carried on for two years to keep the majority of the trade in being. Every manufacturer has demands for Purchase Tax uncollected from the aeromodelling fraternity for a period of eighteen months, and the size of the figures are such as

to force many firms into liquidation if Customs and Excise can ultimately demand full payment.

May I inform Mr. Netherclift that my own business showed a trading loss of £7,000 for the year ending April 1950 as the result of our endeavours to get balsa wood out of Trinidad. This could only have been avoided by increasing our prices which, on a long-term policy, we had decided to be bad for the trade as a whole, but which, in the long run, was nearly our undoing. It was these Trinidad supplies which literally kept the trade going for some two years.

It is so easy to make the suggestions contained in Mr. Netherclift's letter, so much of which we have heard during the last Election campaign. It is only those of us who have to run businesses in these present very difficult times who know the risks and difficulties which have to be overcome.

On one hand, Mr. Netherclift says that the increased cost of the hobby should be shared by all interests and, on the other hand, in his second paragraph, implies that because, with the advent of Purchase Tax, full Purchase Tax has not been put on, there must have been more than adequate margins to absorb the difference. He really cannot have it both ways.

J. V. PATERSON.

Plantation Wood (Lancing) Limited.

The Junior Question

DEAR SIR,

With reference to the article on page 713 of your December issue, I should like to put in my "two cents" on the Junior question. Just so that you know without delay which side I take, let me state that in my opinion Juniors are the bane of Model Clubs—the greater majority of them are, as your correspondent says, unduly noisy and utterly unproductive. They are useless as far as contests are concerned, will not take building or flying tips from Seniors, and are apt to cause discredit to clubs by their generally low standard of construction of what models they do produce. There are, of course, notable examples of this, as there are equally notable exceptions (two of our four Juniors got awards at the M.E. Exhibitors!). And my answer to those who try to palm off the platitude that "the future contest men are now Juniors", I say this: A lot of now good contest men started aeromodelling at an adult age. Keenness is what counts. Aeromodelling is a sport which cannot be identified as a game, as with toys. It is a serious, scientific and great hobby, as adult as any you can think of, and the difference of the opinion of the public will be determined by the attitude, behaviour, and performance of those people seen on the flying field!

I wish to specify quite clearly that I have stated my own personal opinions throughout.

West Middlesex M.F.C.

J. C. PLANK.

INFALLIBLE GLIDER

BY JULIAN ALLEN

(Reprinted by courtesy of "Flight")

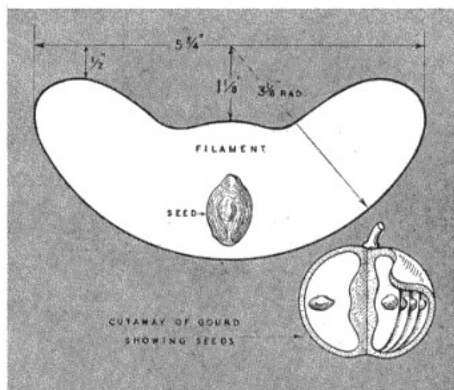
AN engineer (who in his youth had been a "bug-hunter") stood on a mountain crest in Malaya, prospecting for a road. Below him was a little valley, where grew tree-ferns like palms and yellow rhododendrons. His attention was fastened on what seemed to be an unfamiliar butterfly down in the valley; it was not its colouring that was striking but its curious, lilted flight.

As he watched he saw that it was meandering up the hillside and would cross the ridge nearby. He ran to get a closer view; and as it passed twenty feet overhead, he threw his hat at it. By great good luck he brought it down and discovered it was not a butterfly at all, but an extraordinary gliding seed.

Many seeds are great aeronauts. They balloon, parachute, rocket and auto-rotate; but only this one actually glides. The specimen caught by the engineer on the mountain at an altitude of six thousand feet was still rising. Being a glider of perfect performance, at such an altitude it might well have covered hundreds of miles. These seeds have, in fact, been seen flying over ships six hundred miles from land.

Its botanical name is *Macrozanonia Macrocarpa*. It is a kind of climbing gourd that grows in the jungles of the Malayan Archipelago and is about as large as a football. Each seed, very flattened and approximately the size of a shilling, is embedded at the centre of a diaphanous filament of half-moon shape; these filaments lie within axial planes, like the pips of an orange. When the fruit decays, it falls apart and the hot sun dries the filaments, which then float away on the breeze.

Each filament is semi-transparent and has a silky sheen, which glimmers silver and gold in the sunlight. Its wing-thickness is delicately graded so that the margins, including that of the leading edge, are flexible. About six inches in span, it is



of the tailless or pterodactyl type. The flexible wing-tips act as automatic stabilizers.

In performance this glider is infallible. Nothing one can do prevents it from automatically resuming its flying attitude. Its progress is as follows: a nose-dive flattening out into a gentle glide, then a climb to a stall (a tail-slide is prevented by the flexible trailing-edges): the nose dips, and the process repeats itself.

It can be released from the hand head-first, tail-first, or with wing-tips pointing vertically down—in fact, released anyhow—and immediately it becomes stable and goes sedately on its way.

Sounds almost too good to be true, doesn't it? Nature's own design for an automatically stable tailless might be the basis for a good model design. The flexible edges could be difficult to reproduce: but doubtless some enterprising modeller will find the solution to that problem. Inquisitive readers may care to visit No. 3 museum at Kew Gardens where they may find a specimen and form their own opinions. Re-classified as *Alsomitra Macrocarpa*, the remarkable fruit and its seeds are exhibited for all to see and admire, though not in action we regret to say.

READERS' LETTERS (continued)

Sportsmanship

DEAR SIR,

I have been an aeromodeller for some 18 years, and although my activities have been reduced recently because of family ties, still keep as closely in touch with the movement as I can. For some time I have noted with regret the decline, particularly since the war, in the sportsmanship and general atmosphere of friendship that I have always associated with our hobby.

With the November issue of the *AEROMODELLER* it seems matters are going from bad to worse—a few quotations will serve to make my point:—

1. *The Yorkshire Evening News Festival* (p. 663). "A brickbat for the individual who spent no less than seven minutes trying to get a spark out of his

motor, and played heck when he was told he would have to be disqualified for that round."

2. *Indoors at Manchester* (p. 665). "The incident when Maxwell's model was 'written off' through lack of consideration on someone's part."
3. *All Herts. Rally* (p. 667). "The poor sport who continued to operate his equipment on the hangar apron during the contest, and was probably responsible for the destruction of Roger Clark's enlarged Gipsy."

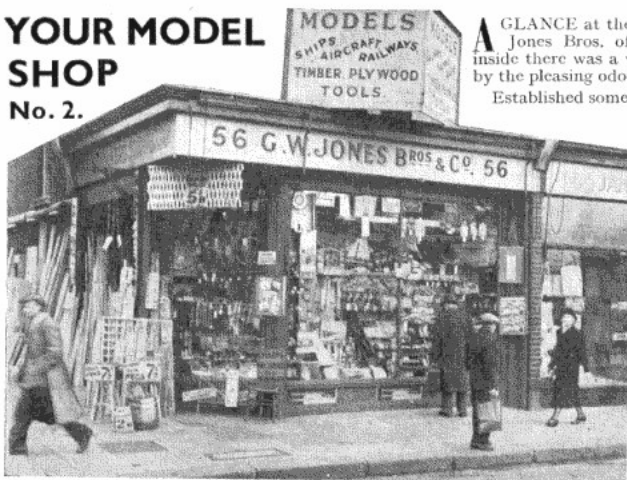
On the whole a pretty poor show, and strangely enough, covering most of the aspects of our hobby, i.e., Power, Indoor and Radio Control.

Surely we can do better than this?

T. N. SIMPSON.

YOUR MODEL SHOP

No. 2.



A GLANCE at the window left no doubt that Messrs. Jones Bros. of Chiswick was a model shop, and inside there was a warm friendly atmosphere enriched by the pleasing odour of fresh cut timber.

Established some forty years ago by two brothers the business originally catered for the needs of the amateur wood-worker and handyman, and started selling A-frame Warneford pushers directly after the first World War. One of the oldest, if not the oldest Model shop still in business, it is now run by Mr. A. D. Jones, following the sad loss of his brother "G. W." five years ago. Mr. Jones is ably assisted by Messrs. Tolley and Frye who have been with the shop for twenty and ten years respectively, surely a record in Model shop service? We were not altogether surprised at this, as there is an air of homely efficiency surrounding the proprietor and his premises which evidently inspires customers' confidence as well as that of his staff. Both assistants are practical modellers, not only in the aeromodelling sense, for Mr. Frye is Chairman of the local Model Railway Club, and besides building over 100 aircraft, even finds time for model boats.

We were told that the aeromodelling side of the business had grown tremendously during the past fifteen years. Due, according to Mr. Jones, to their untiring efforts to maintain an up-to-date and comprehensive stock, plus attention to the speedy dispatch of home and overseas mail orders.

We noted with pleasure that customers purchasing engines were invited to a test rig at the rear of the shop where the engine was demonstrated to their satisfaction. Apparently this is carried a stage further with beginners, who are shown how to start their engine, and who leave, confident in their ability to operate it. This is an excellent scheme as so many newcomers are discouraged through what is, in actual fact, their own inexperience, with the unhappy result that they blame the motor, and their subsequent disillusionment loses aeromodelling another recruit.

It is Messrs. Jones Bros. boast that their stock is as comprehensive as can be found in the modelling trade and we can well believe it. The well-lit interior was the most orderly example of a quart in a pint pot as we have ever seen; with kit boxes stretching from the floor to the ceiling; with shelves groaning under the weight of dope jars; and with balsa of all shapes and sizes in neat racks along the counters and walls. The way the staff managed to remember the home of each individual item, as customer after customer received his requirements with unflinching promptitude, was a source of amazement to us. Possibly the answer lay in the firm's motto handed to us by Mr. Jones as we were taking our leave:—

*"Don't dabble with dozens and dwindle,
But grapple with grosses and grow."*



RADIO CONTROL NOTES

BY HOWARD BOYS

Author Howard Boys displays one of his radio-controlled flying wings which he flew when on a recent visit to Eaton Bray. Full span trailing edge flaps are used for trimming. Receiver fits inside the small fuselage.



THIS being the first Notes for 1952, here is wishing you all a Happy New Year.

First letter this month is an appeal from a beginner, and were it not for the humour it would be enough to make a chap cry. It is from Mr. J. Holland of Warminster; he writes:—

"Once again I write to you, for your guidance. I read your radio articles avidly in the hope of learning something, but this month's notes really lost me. It looks like knitting instructions!"

Anyway, I have at long last installed my E.D. Mk. III receiver in a boat. Then came the great moment. I switched on and adjusted the resistance until I got 1.5 m.a. Keyed the transmitter and got a drop O.K. but nothing from the actuator. Switched off again and fooled about blowing imaginary dust out of everything and tried again. The actuator spun round about six times! The transmitter wasn't even switched on. On closer examination the actuator contacts were closed and the only way to unlock them was to switch off! More blowing down things. Tried again. 'Click!' went the actuator and remained locked, the meter needle being almost zero.

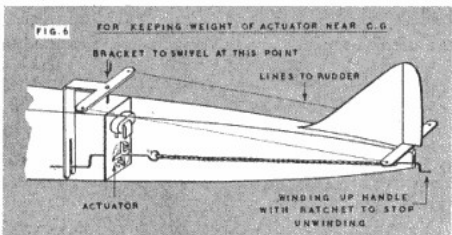
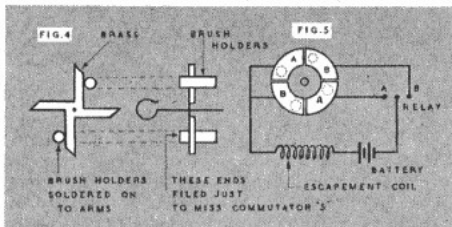
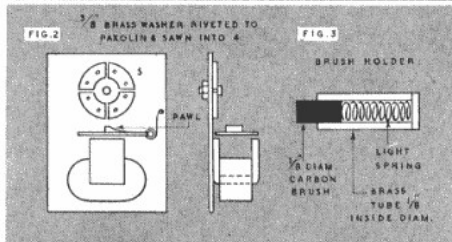
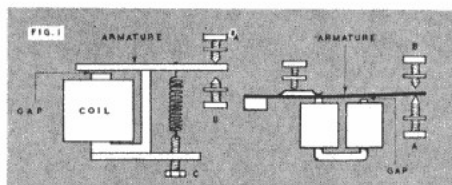
So I waded through about six months' Radio Control Notes, found no help and finally upended the receiver and peered into it. Well, by this time I was ready to take a chance, so I messed about touching a brass spring with a matchstick and the contacts opened. Curiouser and curiouser! Breathing heavily and thinking hard, I decided that the small screw opposite the spring wanted unscrewing. I now call this piece of equipment the relay, by the way, rightly or wrongly. "The thing was sent out with the contacts out of adjustment". Eventually, by trial and error, I got the thing to work. Following the maker's instructions I set the receiver at 1.3 m.a., keyed and attempted to tune. Huh!—dead loss! For a kick off the needle was about as low as it could go without bursting the side out, and secondly I couldn't get anywhere near the coil lever without it going still lower. But even then that lever didn't make any difference that I could see. In the end I had turned it about so much that I didn't know where the original setting was. At the moment range is more than I shall need at about 1.3 m.a. and the drop

is pretty well down to zero, but it still closes the actuator points when I switch the set on, but they open again immediately, and the escapement slips with medium turns on the rubber.

Can you please advise—before the week-end if possible? And that tuning lever—does it work round so far and then if continued in the same direction, raise the current again. Or would it if turned several complete turns either way completely raise or lower the current?

It takes a letter like that to make one appreciate the difficulties of a beginner. Actually, with the relay now adjusted, and range as much as needed, there seems nothing to worry about. However, let us look into these troubles for the benefit of other beginners who are bound to have similar experiences. Let us start with the tuning lever, as that is the most easily disposed of. In some receivers, such as the E.D. and E.C.C., the tuning is by screwing a dust iron core in and out of the coil, and the screw has to rotate a few times to make very much difference. This helps to tune-in exactly to a weak signal. With the transmitter close by, the receiver is swamped with the signal. The answer is to take the receiver some distance away, $\frac{1}{4}$ mile at least. With the receiver in tune the current will be low, and out of tune, with the lever rotated either way, the current will rise. The lever may rotate three or four times between the two out of tune positions but the centre position should be found by counting the number of turns. A rod of insulating material (three or four matchsticks long) should be used to rotate the lever to keep the hand well away, as the hand held close can alter the tuning.

Now for relay adjustment. Fig. 1 shows two different types of relay. The screw A adjusts the width of the gap when current is flowing through the relay coil. There must always be a gap or there will be a danger of the relay sticking, though the gap may be so small that it needs a light behind to see it. The smaller the gap, the more pressure will be applied to the contacts, which makes for reliability, but this also means a greater current change to operate the relay. Screw B determines the amount the armature moves. The greater the movement, the greater the current change required. There must however be an appreciable opening of the contacts. Sometimes both screws A and B are used as contacts, but sometimes only one screw is used, according to the actuating system. When the current through the coil is reduced, a spring pulls the armature to close contact B, and the strength of this spring is usually adjusted by a



screw C. The strength of the magnet depends on the current flowing through the coil. When the current rises above a certain value the armature is pulled against the spring and closes against screw A. When the current is reduced below a certain value the spring pulls the armature to close against the screw B. This screw is used as the contact for ordinary working with an escapement. The best current values for operating the relay depends on the receiver, with the XFG1 valve, the current usually drops from about 1.3 m.a. to about zero right up to the limit of its range, but with some hard valve receivers the current drop gets less as the range is extended. With the XFG1 type, then, it is best to operate the relay at about the .7 m.a. position, and with the other type the contact B should open with the current about

$\frac{1}{2}$ m.a. below the idling value, and the contact should close with the current about $\frac{1}{4}$ m.a. below this. There will usually be a difference of about $\frac{1}{4}$ m.a. between the opening and closing positions.

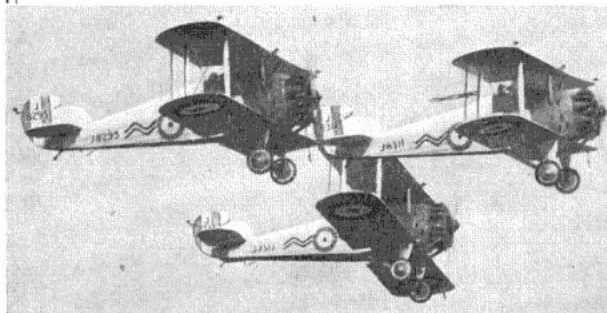
When adjusting a relay then, start with a small gap, and small movement, about 2 to 4 thousandths of an inch if you have means such as "feelers" to measure with. A piece of newspaper will be tight in this gap. Then adjust the spring to try to get the movement at the right values of current. Relays are a bit delicate to adjust, but it is well worth while being patient.

The next item is from Mr. F. Sale of Oldham, who has one of those ideas that makes you wonder why no one has thought of it before. A four-position (not self-centering) type actuator has been converted to self-centering in such a way that current is only used to change from one position to the next. Turn is held on so long as the transmitter button is kept pressed, but the escapement battery is not being used all the time. Fig. 2 shows how a washer is riveted to the paxolin base concentric with the escapement shaft, and saw-cut to form the commutator. Note that countersunk rivets must be used and the surface made smooth. Brush holders, fig. 3, are soldered to the escapement arms as shown in fig. 4. The carbon for the brushes can be obtained from the centre rod of an old dry cell. Fig. 5 is to explain the working. Take relay contact A to be closed with no signal. The brushes will then be across B.B. and the rudder will be at neutral. On receipt of a signal, relay contact B will close, and cause current to flow through the escapement across the segments B.B. energising the coil. This releases the escapement, and the brushes move from A.A. to B.B. As soon as the brushes have passed the cuts, current is cut off, and the pawl catches the next escapement arm. This moves the rudder over. When the signal ceases the relay makes contact A, and current then flows across A.A. and the escapement makes another step to give neutral rudder, and so on.

Another scheme from Mr. Sale is shown in fig. 6, for keeping the actuator near the c.g. of the model.

Enquiries are received at times about the use of ex-government equipment. There is a little useful stuff about suitable for transmitters, but not much for receivers. Hard valves for receivers are the 1S4 and 3S4 at 9/- or 10/- each, also Aladdin coil formers with dust iron cores at 4d., though the new price is only 8d. Small tuning condensers can also be obtained, but here again the saving is only a few coppers. Transmitters can, however, be made up economically, chiefly by using accumulators that can be recharged, for the low tension, and at the same time drive a motor generator, or vibrator pack to provide high tension. Two-volt accumulators are available at 5/- to 7/- each, and three of them will drive a 20-watt motor generator rated at 11 or 12 volts. With 6 volts in, up to 7 watts H.T. is available, and the M.G. costs 10/- . With 12 volts input it gives 480 volts at 40 m.a. H.T. A 6-volt vibrator pack delivering 180 volts

AIRCRAFT DESCRIBED No. 47 By G. A. CULL

The **HAWKER WOODCOCK**

THIS month's subject forms a comparison with the currently sensational Hawker P.1067 fighter for, while this is the latest, the Woodcock was the very first of the long line of Hawker fighters.

When the old Sopwith Co. dissolved in 1920 the Hawker Engineering Co. was formed to provide employment for the Sopwith employees who built motor cycles until new aircraft work came along. In 1922 the "Duiker" monoplane was produced, and in the next year a new single seat interceptor took shape and two differing prototypes appeared. One had single-bay wings, and its ancestry was obvious, for the fin and rudder shape of the wartime Sopwith scouts was preserved, together with the humped fuselage. Each cylinder of the 360 h.p. Jupiter engine was enclosed in a streamline helmet with a controllable shutter. The other machine had two-bay wings, horn-balanced rudder and an A.S. "Jaguar" engine was fitted, but this version was not continued and it was the Jupiter prototype J6988 which made the first public appearance at the Hendon Air Pageant in 1924. Here, the Woodcock was flown by (then) F/Lt. Bulman who had become Hawker test pilot, and later the usual trials at Martlesham convinced the Air Ministry that the R.A.F. should have the Woodcock.

The first R.A.F. machine to be specifically designated as a night fighter, the Woodcock was issued to No. 3 Squadron at Upavon and to No. 17 at Hawkinge in mid-1925, and gained popularity because of its comfortable cockpit and good manoeuvrability, despite its clumsy looks. This service version was the Woodcock II with 380 h.p. Jupiter IV, and had two machine guns

Above left, a flight of No. 17 Squadron showing squadron marks and streamers on the flight leader's machine, and above right, "George" Bulman banks a Woodcock over Brooklands. (Photos courtesy of "Aeroplane" and "Flight".)

mounted on the fuselage sides, well clear of the cockpit to shield the pilot from muzzle-flash at night. The usual four 20 lb. bombs could be carried on racks below the bottom wings and an 18-gallon centre-section tank could be fitted for extra range.

Entered in the 1925 King's Cup Race was the "civvy" Woodcock G-EBMA, but during the race fog caused Bulman to hit a hedge and a tree, and so completely write-off MA while attempting a forced landing near Luton.

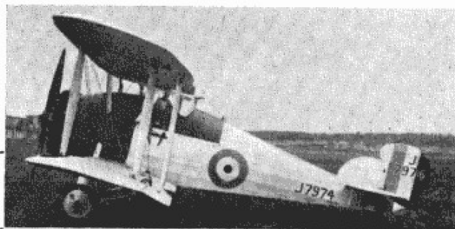
The Woodcock was retired in 1929, by which time the new all-metal Hawker Heron, Hornfinch and Hornbill fighters were on the scene.

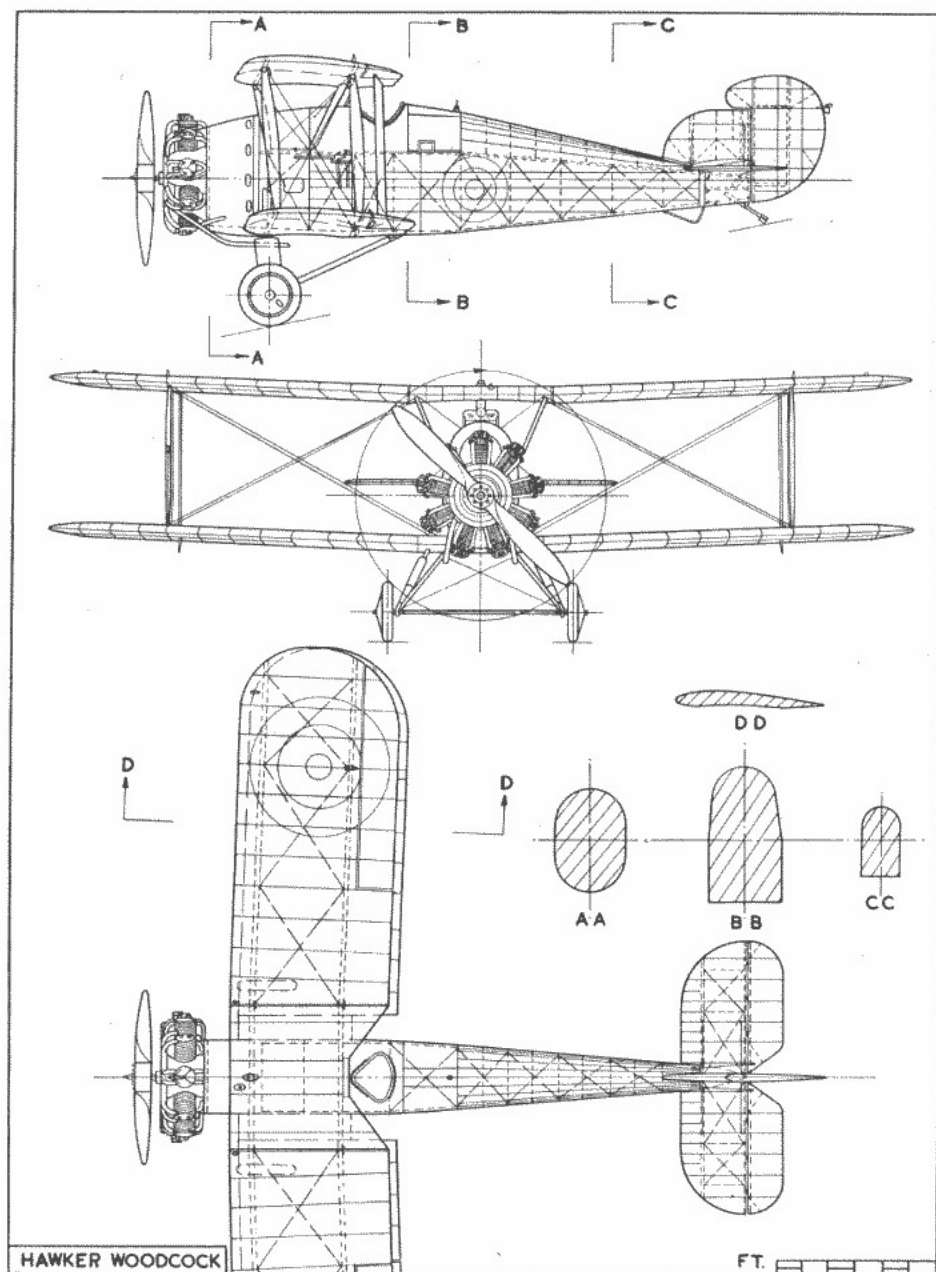
Colour. Matt silver dope with usual R.A.F. roundels, stripes and serials. No. 3 Squadron marking was a green band along fuselage sides and on top wing, and No. 17 Squadron had double black zig-zag in similar position. Cowling and cockpit coaming was dark grey.

Construction. All wood. Fuselage had ash longerons and spruce struts with tie-rod bracing. Wings had two spruce spars with built up ribs and internal bracing. Tail surfaces had steel tube spars and outlines with wooden ribs.

Specification. Span: 32 ft. 6 ins.; Length: 26 ft. 3 ins.; Loaded Weight: 3,040 lbs.; Maximum Speed: 143 m.p.h. at sea-level, 115 m.p.h. at 20,000 ft.; Climb to 15,000 ft. in 16 mins. Service ceiling: 21,500 ft.; Duration: 3½ hrs.

A Woodcock II experimentally fitted with leading edge slats on both wings and connected to the ailerons by external push-pull rods. (Photo by courtesy of Hawker.)





HAWKER WOODCOCK

FT.

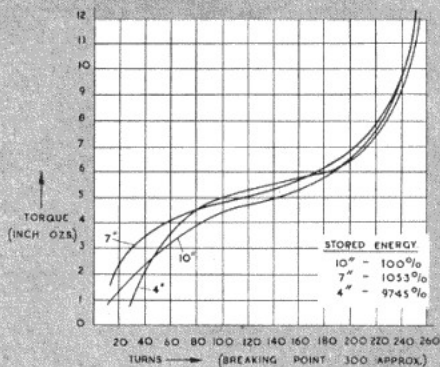
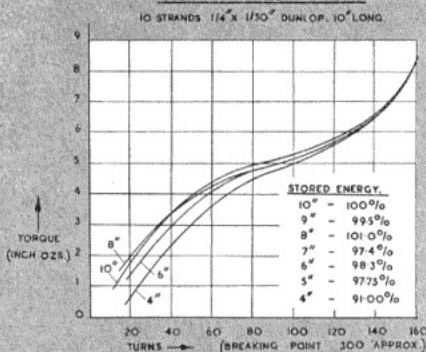
RUBBER MOTORS TENSIONED OR UNTENSIONED?

Wakefield fans the world over are faced with three alternatives for 1952. Some will use the new long fuselage idea to accommodate lengthy untensioned motors. Others will enter the realm of gears, and the rest will be using longer but tensioned motors. Which of these will prove superior remains to be seen in the field.

FRANK BETHWAITE

offers a practical comparison of tensioned and untensioned rubber motors which should serve as a guide for those who are not contemplating gears. The upper graph shows the greater output of tensioned over the untensioned motor, in the lower graph.

COMPARISON OF TORQUES OF TENSIONED & UNTENSIONED MOTORS.



DESPITE the revival of interest in geared motors during the last two years, I have been unable to find any published work which compares the behaviour of tensioned motors with that of untensioned ones. Several authorities have stated that "they were sure that the untensioned motor gave more torque", and that is all. It has always seemed sense to me to try to find the answers in these cases, and the answers here presented are so surprising that I feel them to be of interest to all serious rubber enthusiasts.

The tests were made on a motor of ten strands of $\frac{1}{4} \times \frac{1}{30}$ Dunlop rubber, ten inches long. Rubber is chancy stuff to handle when looking for accurate results—the graphs shown here are the average of a large number of separate runs, any one of which may have varied quite appreciably from the final average result shown. One thing is sure, however—the variation was not due to fatigue, for I was very naturally on guard against this, and detected no sign of it.

The first test was to wind the motor to about half turns, and then take torques every twenty turns unwinding. This was repeated several times with the rubber stretched between hooks 10, 9, 8, 7, 6, 5 and 4 ins. apart. It was instantly apparent that there was precious little difference between the various "hook lengths", except for the increasing number of turns lost as the slack was increased. As the graphs needed considerable smoothing even after a large number of repetitions, I felt that the most accurate way of comparing the various tests was to compute the actual stored energy of each group of runs: that is, to multiply turns by the average torque. These figures are presented as a percentage of the energy stored in the untensioned motor.

Finally, the tests were made at high turns—about 80 per cent. of the calculated breaking point. Here again, a number of repetitions indicated no noticeable fatigue, and again the stored energy figure gives the most accurate result. Here, however, the shape of the graphs is of interest. Notice particularly that as the slack is increased, the slope of the graph is reduced through the "cruising climb" range, in other words, a longer and more powerful climb is gained with the slacker motor. Obviously, the turns "lost", as the slack is increased, have a much smaller effect at near maximum turns, and it is this condition which is of paramount interest—contests are not won on half turns.

It is not claimed that these few tests, concentrated as they are on one size of motor, necessarily give the whole story. As far as they go they are accurate and consistent. And the conclusion is that for the best climb, a rubber motor should be stretched between hooks some 60 to 70 per cent. of its unstretched length apart, and obviously some tensioning device will have to be used. Gears appear at best to be an undesirable complication, and at worst merely dead weight.

CLUB NEWS

By
CLUBMAN



There's a place for YOU! R.A.F. West Malling Model Club uses this enterprising publicity bill.

I SUPPOSE it had to happen, but I trust all our readers will have an immediate check up on their Insurance to ensure that it is valid and up-to-date! The recent serious accident at Fairlop, when a spectator was struck in the face by a jet-propelled control line model, has made a number of "insurance shirkers" wake up to the dangers of such negligence, and I can only stress the utter stupidity of trying to dodge the issue of undertaking this very necessary safeguard. Don't waste any time—check up *now*. It's no good saying to yourself, "Oh, it can wait until the start of the flying season"—you are just as liable to have a claim made against you whilst test flying on that odd Sunday as at any other time.

Who lost a Halfax Rapier model at the British Championships at Digby? The Secretary of the Lincoln & D.M.A.S. informs us that the fuselage of such a job has been found at Longwood Quarries, Blankney, near Lincoln, and as there is an E.D. engine, Truflex prop. and Snip timer on board, I presume the owner will be anxious to collect!

As a result of the "Yorkshire Evening News" Rally at Sherburn, the **NORTHERN AREA** are some £100 better off, and plans are already under weigh for next year's event. Certain capital equipment will be purchased for the Area, which should benefit all and sundry at future meetings. I note with interest that this Area is another to adopt pre-entry requirements for Area contests—a practice followed in my own district for some years. It is only logical to take this step, for only by this means can the comp. sec. and other organisers have any idea of the anticipated entry, and cope accordingly.

The final round of the **LONDON AREA** inter-club challenge contest was flown off at Fairlop on October 21st. Thirty-two entries were originally received, necessitating a five round affair, the two clubs reaching

the finals being Croydon and Northern Heights. As usual, the weather was unco-operative, but both teams achieved a high standard, Croydon winning the Trophy for the third time in their history. Though the Heights boys were better in rubber, the well-known Croydon ability with gliders gave them their win, full times being as follows:—

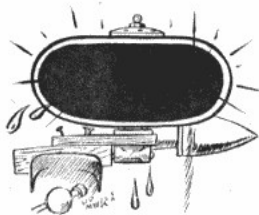
Croydon— (Rubber)	R. Palmer	11 : 06	J. North	5 : 14
(Glider)	R. Gilroy	11 : 07	D. Yeabsley	8 : 55
N. Heights— (Rubber)	R. Gambin	7 : 51	R. Copland	10 : 50
(Glider)	G. Fever	8 : 55	R. Teasell	4 : 09

Bob Bennet of the Leicester M.A.C. takes over secretaryship of the **MIDLAND AREA** following the resignation of Mr. C. S. Rushbrooke, the recent A.G.M. again showing good working on the previous season, with a substantial cash balance forward. Numerous successes went to the Midland Area last season, culminating in Birmingham winning the honour of Champion Club by a very small margin from Croydon.

EVESHAM & D.M.A.C. are fortunate in having one of the best fields in the midlands for flying, i.e., Pershore Aerodrome, where the local boys have been hosts to the Area twice during the 1951 season. The main theme with this club is to fly for fun, but some nevertheless manage to get very creditable times, M. Bird getting into the A/2 Trials.

The **WIGAN M.A.C.** held its 5th annual "Club Comp." on the 30th September when high winds were the order of the day. R. Baldwin proved to be Senior Champ., and R. Chisnall took junior honours. The club has had a successful year, three members getting into the Area teams and the Championships at Digby, also good placings in the various Area events. Indoor meetings will commence as soon as a clubroom is found, members being anxious to swell their numbers.

In an endeavour to promote interest throughout the **PLYMOUTH M.F.C.**, club championships were instituted on a points basis spreading over seven rounds. In 1950 five rounds were flown, two having to be cancelled on account of bad weather. Winner of the Rubber class was P. J. Ash with 147 points out of a possible 150, he also being runner-up in the Glider section with 138 points against the winner—Mr. K. Slocombe—147. The power class was more open, and was finally won by a junior A. Thomas. On September 30th the Plymouth club entertained the Exeter and Torquay groups to a triangular match which went to Plymouth at the finish. During flying for the "Flight



The 'outsiders' impression of a model racing motor!

Cup" Mr. Richards put up a flight of 4 : 47 with his "Trump Card", only to have this club record broken a little later by Mr. Robins, who scored a maximum (actual time 5 : 13) on his third flight.

By courtesy of a local cinema, the **CRYSTAL PALACE M.A.C.** staged a comprehensive exhibition of model aircraft, which proved a huge success. Several new members have been enrolled as a result of this show, and with the standard of construction and flying improving all the time, the club is optimistic for the future.

The **CONGLETON M.A.C.** held their third annual rally on the 28th October, the event being well supported by four neighbouring clubs. Gig Eifflander of Macclesfield put in the outstanding performance of the day in the speed event. Flying a Class II model of his own design, and powered with one of his own P.A.W. 2:46 diesels he clocked 98.5 m.p.h. to win first place in the contest. Standard of flying in the free flight events was also very high, and of eighty officially timed flights, only three resulted in crack-ups in spite of a fresh wind that blew throughout the day. Results :—

Power :	J. Cooke	(Congleton)	4 : 07
	G. Eifflander	(Macclesfield)	3 : 38
	E. Clutton	(Five Towns)	2 : 55
Glider :	N. Bradford	(Cheadle)	5 : 29
	J. Sharples	(Cheadle)	4 : 41
	G. Roberts	(Five Towns)	4 : 34

After an enjoyable season's flying, the members of the **STREATHAM & D.M.A.C.** held their annual club contest on Epsom Downs when, despite lack of lift, times were good and the glider boys proved victorious. In spite of the calm conditions, Churcher towed his nine-footer into first place with an aggregate of 10 : 41, followed by D. Swale 9 : 11 and K. Morgan 8 : 57. Indoor flying, with the accent on r.t.p., is starting again with comps, for paper covered jobs every Friday at 8.15 p.m., and there is a rumour that certain members are thinking of regaining their former records now that interest is being revived.

Local modellers are asked to note that meetings of the **LAMBETH M.F.C.** now take place on Friday evenings instead of Mondays. Venue is still the Beaufoy Institute, Black Prince Road, S.E.11, where there is full use of metal and woodwork shops, playground and hall.

The **BRIGHTON M.F.C.** followed up its fourth place in the "M.E. Cup" by winning the club championship at the S.E. Rally with an aggregate of 32 : 04 out of a possible 45 : 00. F. H. Boxall was top man in the glider contest, one flight being a maximum in a heavy shower! He has also produced his 1952 Wakefield—an American influenced "longer and lighter" model which is averaging 3 : 45 in evening air.

Things seem to be improving in the **SOUTH BRISTOL M.A.C.**, many members turning up on Sundays for a spot of flying—those without models busy telling those with the best way to fly 'em! In

spite of a nasty wind, good flying was seen at the end of season contest staged at Lulsgate 'Drome, G. Mills winning the power event with a ratio of 14:6, J. Mayes did 54 secs. with a chuck glider, and D. Ramsay clocked 1 : 38 to win the rubber class.

Plans for next year's All Herts Rally are already under weigh, the provisional date being August 24th. They are naturally hoping that this date will not again clash with any other affair, and are all out to make their "do" the biggest event in the calendar. October 14th saw a three cornered contest with the Luton and Icarian clubs, run in conjunction with the "Flight Cup", when St. Albans took top place in three of the four events, Eric Smith of Icarians being the only one to break their progress. (Last year's All Herts Rally recovery service worked well. They brought back many models during the day, but there's many a modeller who has not removed the aerodrome phone number from his model, and the organisers are still getting many phone calls from all over the country. It's not too bad until someone from up North reverses the charges!)

Lack of support has brought about a near demise of the **FALCON M.A.C.**, chief cause probably being the ill health of the chief organiser cum club secretary. Mr. Brown would now like to contact the members once more with a view to reviving the club, so what about it lads? Address is A. Brown, 4, Selston Road, Jacksdale, Notts.

Who said **CHINGFORD M.F.C.** are a model flying club? A few weeks ago "some clot" took a microfilm job along; now there are flimsies floating around in dozens, and the bods that do not fly such machines have to sit around the canteen because the fliers are afraid they will knock the models out of the air! At floor level, Jetex-powered cars and an electric r.t.p. car are causing risks to ankles and anything that lands in their path, so things are lively down Chingford way!!

The contest season being over, the **LANARK M.F.C.** is getting down to an intensive construction programme, and winter activities will include an inter-club contest with the Motherwell M.F.C. and film shows. Free flight Power has proved the most popular class, and a number of club records have been broken. A. Taylor made a ratio of 43:7 whilst the duration record of 8 : 17 is held by A. Wallace. A junior member has the credit for a time of 15 : 00 o.o.s. with a glider, this being an improvement on a 13-minute flip by the same model. At the club's recent gala, a strong wind made flying difficult and the flight times of the top three in each class are evidence of this. Results :—

Power ratio :	J. McMaster	(Paisley)	23:31
	G. Blair	(Edinburgh)	21:47
	R. H. Murdoch	(Glasgow)	15:03
Open Glider :	T. Clark	(Glasgow)	4 : 49
	V. Wannop	(Bucksburn)	3 : 43
	W. McConnachie	(Glasgow)	2 : 35

The comp. sec. of the **SOUTHERN CROSS M.A.C.** has had a busy time getting out the statistics for the 1951 season, the clubs most successful and busiest. Senior Champ. proved to be Grahame Gates, an aeronautical stressman by profession, who started the season well by winning the Pilcher Cup—followed by Bill Gravett, now known as the man who had the Lady Shelley Cup! Many of the club's records have been broken recently: K. Donald now holds the A/2 H.L. record of 2 : 44, and the tow launch figure goes to Bill Gravett. M. Bristow put up the Class A light-weight power duration record to 7 : 07, and the club is pleased to hold a British Record, that of 5 : 18 put up by Grahame Gates with his 12-ft. span sailplane.



I altered the compression a little for easier starting!

First club report from the **WELLINGBOROUGH M.A.C.** reports an inter-club contest staged with the Northampton boys. Leicester were invited, but the notice was too short, though support is promised for next year. Arrangements were helped by the finest flying day for months, and some good flying resulted, as follows:—

Power :	P. Snodin	(Northampton)	6 : 58
	B. Bailey	(Wellingborough)	4 : 42
	C. Longstaff	do.	3 : 50
Glider :	P. Wicks	(Northampton)	6 : 23
	P. Wilkinson	do.	5 : 00
	B. Bailey	(Wellingborough)	4 : 21
Rubber :	T. Dunkley	(Northampton)	5 : 31
	H. W. Revell	do.	5 : 06
C/L Stunt	B. Ravine	(Wellingborough)	177 points
	C. Boddington	do.	160
	K. Ward	do.	142

Another club to make its first appearance in Club News is the **HENLEY M.A.C.** with results of their 1951 contest. The Aston Challenge Shield for rubber-powered model was won by R. F. Sandy, with A. W. M. Cooke a close second—both flying Wakefields. Club Sec. J. G. Waldron won the glider class with his o.d. 10-footer, and power honours went to Mr. Cook. Membership has fallen to a mere dozen, with four more in the Forces, but all are dead keen types and eagerly awaiting the 1952 season when they hope to better even their 1951 record.

Faced with an ever decreasing flying field, owing to the encroachment of housing estates, interest of the **CHEADLE & D.M.A.S.** is turning to team-racing. Held at Tilstock on October 14th the club championships were blessed with perfect weather, a new 56-inch span Nordic club design sweeping the board. I. Harrison won the rubber event with a fairly standard type Wakefield, getting flights of 3 : 20, 3 : 41 and 2 : 40, but W. Nield eclipsed these times with two maximums and a 2 : 07 in the glider class. A new glider record was set up by N. Bradford, flying a modified "Waltham" for 15 : 00.

For the second year in succession the **SHEFFIELD S.A.M.** have won the coveted Roote's Trophy, this rounding off a very successful season. Club Champion for 1951 is W. Nelson, with last year's champ, G. H. Wilkins as runner-up. Junior champ is K. Emmett. An extensive programme of indoor interests has been drawn up, and any club wishing to attend will be very welcome.

WHITEFIELD M.A.C. report the highlight of the past month as H. O'Donnell's winning of the "Frog Junior Cup" with the only treble maximum to be secured during the whole of the national programme in 1951. He capped this three maximums with a 12 : 23 just to round matters off! Good times were made in the "Flight Cup", J. O'Donnell scoring 12 : 10, followed by A. Wrigley with 11 : 05, both flying diamond pylon Wakefields. Ten-year-old Wendy Bennett clocked 10 : 40 with a "Raff V", whilst her brother aggregated 9 : 38 with a replica of Stark's Wakefield. The club visited the Five Towns M.A.C. open day and were met with a 30 m.p.h. wind and continuous rain all day! H. O'D won the rubber event with a three-flight aggregate of 2 : 42 flying a light-weight, closely followed by A. Wrigley who had the misfortune to wreck his Wakefield on the third flight.

With four clubs now in existence it seems that Northern Ireland can become an S.M.A.E. Area. The **BELFAST M.F.C.** report plenty of Wakefields and Nordics under construction, and it is hoped to send a really strong team for the U.K. Championships in 1952.

Dammit... I've forgotten to make one a reverse pitch !



At the end of the 1951 season, the **REGENTS PARK M.F.C.** are pleased to report that five "A" and two "B" Merit Certificates have been gained by their members, four of these being juniors. This proves that a little time spent on the junior element pays dividends! It was noticed that several times during the year juniors did not turn up because they could not afford a new rubber motor or some other article, so a Savings Bank has been started where members pay in any odd coppers they can spare, and draw out any time they require a new motor, etc. The idea was greeted with great enthusiasm—and not by the juniors alone!

Following a control-line demonstration at the local Drill Hall, practically every model owned by the **OLDHAM & D.M.A.C.** is out of action! Models got hung up in the rafters, jobs dropping out into the middle of team racing, etc., and a hectic time was had by all. Scale flying and speed (the latter on 30 ft. lines) rounded off the show, the speed job reaching 70 m.p.h. and leaving the flier proper spin-dizzy. The club understands that other groups have put on similar demonstrations and made them pay—suggestions and advice will be welcomed.

With two members already successful, members of the **ISLE OF THANET M.A.C.** are going to have a crack at obtaining their Class A Merit Certificates. J. Devereaux, J. Martin and H. Barker were successful in the club's end of season comps. for the Club Trophies, and a new club power duration record has been set up by junior member W. J. McEvoy's Elfyn-powered job, time being 3 : 23.7 from a 10-second engine run.

The Club Championship Cup of the **SOLIHULL M.F.C.** has been won by Maurice Hanson, scoring being on a points system throughout the year. Successes have been gained in the final National contests, and Ken Lloyd proved to be top man at the last Area Rally at Loughborough with a first in rubber and second in glider.

Anent my remarks on clubs who hibernate through the winter months, the **SLOUGH M.A.C.** have sent in a list of their future activities. They will definitely not go rusty, for a full list of various activities will take some getting through.

1951 was the most successful season of the **FORESTERS (Nottingham) M.F.C.**, to which the use of Tollerton Aerodrome, with its clubhouse facilities has largely contributed. In the competition sphere the best achievement was second place in the Taplin Trophy by Jim Weston and Duggie Bolton; Mike Crawforth placed second in the Midland Area Rally Class A team race event—in spite of an overheating engine; and at Pershore the club did reasonably well in the glider event. In spite of this, one member (who shall be nameless) left his model so long in its coffin that it was covered in mildew!

We are advised of an incorrect statement that appeared in our last issue in connection with the Northern Area knock-out competition. It appears that our informant got his figures crossed, for the comp.

sec. of the **HALIFAX M.A.C.** reports that it was in fact *his* club that won this closely contested affair! The surprising part of this contest was that on the first meeting on October 21st both teams scored 11:56—then at Baildon a week later both tied again with 19:56. Almost impossible you'll say, but true nevertheless. Representatives from each club then flew off the decider, and David Haley of Halifax scored 3:25 against York's Ron Firth, who could only manage 2:24, thus giving Halifax the win by only 1:01. Pity all such comps. cannot be so exciting!

The CLUBMAN.

S.M.A.E. Contest Results

FLIGHT CUP		
1. Dubery, V. R.	(Leeds)	14:12
2. Knight, J. B.	(Kentish Nomads)	13:51
3. Royle, J.	(Littleover)	13:47
4. Gorkham, J. A.	(Gorham)	13:40
5. Palmer, J.	(Croydon)	13:30
6. Smith, E.	(Icarians)	12:31
FROG JUNIOR CUP		
1. O'Donnell, H.	(Whitefield)	15:00
2. Kelley, W.	(Regents Park)	12:18
3. Marsh, C.	(Ilford)	12:12
4. Farrance, K.	(West Yorks.)	11:25
5. Farrance, B.	(West Yorks.)	11:03
6. Rumley, D. H.	(Kentish Nomads)	11:00
HAMLEY TROPHY		
1. Collins, E.	(Port Talbot)	14:17
2. Buskell, P.	(Surbiton)	13:27
3. Averill, R.	(Solihull)	13:18
4. Byrd, G.	(Loughborough Coll.)	12:31
5. Wyatt, P.	(Ipswich)	11:54
6. Sprason, E.	(Solihull)	11:45

NEW CLUBS

ILMINSTER & D.M.A.C.
A. R. Peppit, 16, Blackdown View, Ilminster, Somerset.
R.A.F. DALCROSS M.A.C.
Hon. Sec. Sgt. Hannigan, Sgts. Mess, 8 A.F.T.S., R.A.F. Dalcross, Inverness.
WEST HARTLEPOOL & D.M.A.C.
Miss J. Kingston, 23, Torquay Avenue, Owton Manor, West Hartlepool, Co. Durham.
WEST BIRMINGHAM M.A.C.
C. Harris, 132, World's End Lane, Quinton, Birmingham.
WREKIN COLLEGE M.C.
W. B. Marley, Norman House, Wrekin College, Wellington, Salop.

SECRETARIAL CHANGES

SEATON (Devon) M.F.C.
L. W. G. Nothcott, 26, Fore Street, Seaton, Devon.
OUTLAWS (Cannock) M.A.C.
R. Harper, 166, Stafford Road, Cannock, Staffs.
WOLVES M.A.C.
J. S. Richmond, 151, Bushbury Road, Wolverhampton.
ROCHDALE & D.M.F.C.
W. Lingard, 2, Warren Street, Rochdale, Lancs.
ZOMBIES M.A.C.
R. H. Warrick, 10a, Hayne Road, Beckenham, Kent.
DEFORD M.A.C.
R. A. Daniels, M.O.S. Station, Deford, Worcs.
EDMONTON A.C.
A. W. Dance, 266, Hertford Road, Lower Edmonton, N.9.
ESTUARY POWER MODELLERS.
G. Medhurst, 16, Rylands Road, Southchurch, Southend-on-Sea.
GLASGOW M.A.C.
R. F. K. Taylor, 2, Hillkirk Street, Springburn, Glasgow, N.
CRANWELL APPRENTICES M.A.C.
586613 A. A. Newnham, E Flight, C Squadron, Block 325, Apps Wing, R.A.F. Cranwell, Lincs.

THE F.A.I. REPORT

IN presenting the accompanying report of the F.A.I. meeting at Brussels, we do so in the knowledge that it will greatly interest the many hundreds of aeromodellers in this country who are keen competition fans, and at the same time those who whilst not necessarily competition minded are nevertheless influenced in their flying by the various rules and regulations introduced into the hobby from time to time.

It is gratifying to note that the F.A.I. Models Commission is demonstrating a better approach to the subject these days, for much of the criticism levelled in the past has been that they seemed to have little appreciation of the modeller's real requirements.

As stated in an earlier editorial, we are of the opinion that the sooner our National rules are brought more into line with those in the International Code the better, for we have seen it clearly demonstrated at various meetings, both at home and abroad, that individuals can become sorely perplexed—and indeed handicapped—when operating under a code of regulations with which they are not familiar.

One very vital modification to earlier rules is that mentioned in (9), for the old regulation relative to the maximum weight of model has been amended and the new requirements are much more reasonable.

We particularly welcome the unification of conditions for contest and merit certificates, and strongly uphold the opinion that it is time world records came in for a general reshuffle. We in this country are severely handicapped when it comes to making unlimited engine run flights, and we are certain that a much better indication of model ability will become apparent at such time as a series of records using the 20 second maximum run are instituted. The F.A.I. are putting out a

questionnaire on the subject of international and world records, and we have no doubt the Council of the S.M.A.E. will strongly recommend the imposition of a standard 20-second motor run for all power classes.

It has long been apparent that the Wakefield rules, amended and modified as they have been from time to time, now require a thorough vetting to bring them fully into line with International requirements. We understand a special sub-committee is currently considering this very important requirement.

Item 17 is of interest, particularly in view of the present indecisive state of officials timing in this country, and it will be interesting to see in what form and manner the list of official Timekeepers for Great Britain is prepared. This will, we hope, be the thin end of the wedge by the S.M.A.E. to bring this very vexed question under proper discussion, for we regret to say that the general standard of timekeeping in this country leaves a lot to be desired. In our opinion a first-class timekeeper should be able to operate and read a chronometer properly, be fully conversant with the requirements of all classes of contest, and be strong-minded enough to report breaches of regulations and to further ignore remarks of overkeen bystanders whilst undertaking his duties. The possession of good eyesight is hardly necessary to mention!

The new Code Sportif and Annex set things out very explicitly, but unfortunately is far too extensive to comment upon in detail. An improvement we would like to see is in regard to the characteristics of model aircraft for the Championship classes, for whilst a complete specification is given for the rubber driven class (Wakefield) and gliders (A/2), models with mechanical motors are limited solely to an upper cylinder capacity limit of 2.5 c.c. and a minimum

weight of 200 grammes per c.c. We feel it would be much better were definite surface areas to be laid down as in the other two classes.

Our one other criticism is relative to the definition of an attempt (false start); in our opinion it is ambiguous to fix a maximum engine run of 20 seconds

and then allow a competitor a further attempt if he exceeds this time. Surely if the breaking of a glider line is the responsibility of the competitor, the proper regulation of an engine run comes under the same category! We would like to hear our readers' opinions on this particular point.

★ FEDERATION AERONAUTIQUE INTERNATIONALE

Commission Internationale des Modeles Reduits.

Report of Meeting held at Brussels, June 5th and 6th, 1951.

Delegates present:—

- | | |
|------------------------------------------------|-------------------------|
| A. F. Houlberg (President),
United Kingdom. | A. Degen, Switzerland. |
| G. Derantz (Vice-President),
Sweden. | J. Guillemard, France. |
| J. van Hattum (Secretary),
Netherlands. | A. Hellemaans, Belgium. |
| | A. Roussel, Belgium. |

- Immediately prior to the meeting proposals were received from the Academy of Model Aeronautics of the United States and from the Danish Royal Aero Club indicating their views concerning various points arising from the present regulations.
- The minutes of the meetings held at Stockholm and Brussels during 1950 were approved as published without amendment.
- The secretary read his report of the activities of the Commission during the past year which was approved and will be published as a separate document.
- It is hoped that national aero clubs will give more attention to the points raised in this during the coming year, particularly in view of the present rapid growth of the model aeroplane movement.
- The chief work of the Commission this year has been the preparation of the *Code-Sportif de l'Aeromodélisme*. It has been evident for some time that the General Code-Sportif of the F.A.I. was not applicable to models in many instances, and that many special features concerning models were not dealt with at all.
- A separate Code-Sportif for Aeromodels has therefore been prepared together with an "Annex" dealing with the control and organisation of model aircraft sporting events, which should place the conduct of contests on a sounder basis.
- In the course of this, one important point discussed was Article 2.2.3 of the Code dealing with the time period of the notices of events which national aero clubs must give to the F.A.I. and other national aero clubs. At the moment it stands at one month in the "Code-Sportif General" and we find this period far too short to enable an aero club to organise and send a team at such short notice. The C.I.M.E. would like to extend the period to three months, as decided in Stockholm, for models and it is thought that the present time period in the "Code-Sportif General" must also be too short for the other committees.
- Article 2.2.3.4d. It was decided in Geneva in 1948 that no cash prizes should be given. The text is amended by introducing the word "or their value". In the same article (f) the word "application" in the English text is changed to "entries". The French text was considered correct.
- The use of reaction models has already been restricted to control-line flying and recent experience has indicated that the method originally adopted to limit their possible size and weight is capable of improvement. As suggested by the A.M.A., Article 3.3.5, concerning the rule that the "total weight of the model must not be less than four times the weight of the re-action motor" has been amended and the maximum total weight of the model has now been fixed at 1 kg. The maximum weight of the re-action motor remaining at 500 grammes.
- In order to unify the conditions for certificates and contests the limit placed on the motor run in Article 5.3. has been fixed at 20 seconds making the conditions identical for both. For records the motor run is still unlimited although it is the general opinion of the Commission that the time has come for the imposition of a limit in the case of records.
- This, however, raises the point that the whole of the list of records are in need of revision in view of developments in recent years and it was decided to ask the co-operation of the national aero clubs in establishing a revised list for the proposed December meeting of the C.I.M.E. through the medium of a questionnaire.
- Belgium had proposed re-considering the introduction of the ratio-method for judging models in power contests, but it was pointed out that the subject was fully dealt with in Stockholm and such results are unreliable. (See Doc. MRA50/R.). A discussion on the present Wakefield Rules shows that they are not fully correspondent with the F.A.I. rules. The President explained that they have been amended and the alterations made known in Finland.

- Belgium proposed that the method of releasing a rubber-driven model be changed and replaced by the propeller and wing-tip rule. There were objections to this; one being that with light and fragile models it may cause damage and it was decided to leave Article 4.2 as it stands.
- The Belgian proposal that in international championship contests one of two timekeepers should be of a different nationality than the organising country was adopted as a strong recommendation. The difficulty of ensuring the presence of suitable timekeepers on all occasions makes insistence impossible however.
- It was also recommended that in control-line flying one of the three judges should be of a different nationality.
- The Belgian proposals to correct Articles 1.1.3. and 1.1.2. by the inclusion of "Ac.C.N." were adopted.
- The attention of national aero clubs is drawn to the fact that the new Code-Sportif calls for a list of official timekeepers and judges from the clubs. Compliance with this request will greatly facilitate the organisation of international contests.
- The proposal from Denmark that control-line model certificates should be established was again considered. It is the opinion of the Commission that in the case of certificates issued for aerobatic performances the quality of the manoeuvres should not be taken into consideration; the only requirement being that the applicant should have executed them. As the certificates for the various classes of models recognised by the F.A.I. are interrelated, the subject was considered too involved for discussion at this meeting. Mr. van Hattum was charged, therefore, with the study of this matter and asked to prepare a report for the next meeting of the committee. It was decided that this meeting will take place at The Hague on December 8th and 9th, 1951.
- Britain proposed that Olympic meetings shall be held where all four World's Championships are flown. For various practical reasons, such as the time a full staff must be in attendance and the difficulty for countries far away from the place of the contest to travel with a large team, the proposal was not adopted. A vote showed that there were four in favour and five against.
- As a result of a Belgian proposal, the limits of line-lengths for control-line aerobatics are changed to 15 metres minimum and 20 metres maximum.
- The Belgian proposal to limit the engine size for models in free-flight to 5 c.c. was considered to be worthy of further study in view of modern developments.
- A Swiss proposal to use the best speed of three flights to determine the placing of models in speed contests was adopted.

Annex to the Code-Sportif de l'Aeromodélisme.

- Various corrections and changes were discussed and adopted and will be found in a new text to be published shortly.
- A new ruling has been established defining attempted flights in contests as the previous definition has not been considered satisfactory for some time past.
- It was decided that in international aerobatic control-line contests, the flight is ended when the competitor has landed his model. A re-start is not allowed and the time limit allowed for completing the manoeuvres is abolished.

Election of Bureau.

The new Bureau is composed as follows:—

- | | |
|--------------------------------------------|--|
| A. F. Houlberg, President (Great Britain). | |
| G. Derantz, Vice-President (Sweden). | |
| J. Guillemard, Secretary (France). | |
| A. Roussel, Assistant-Secretary (Belgium). | |
- In conclusion the President on behalf of the Commission expressed its sincere thanks to Mr. Gillman, the general secretary, for the tremendous amount of work he has carried out for the committee and to Mr. Guillemard, the new secretary of the committee, for good work he has done on the new Code-Sportif and its Annex. Many thanks were also due to Mr. van Hattum, the secretary of the committee for 1950, who had carried out some valuable work for the committee during his term of office.

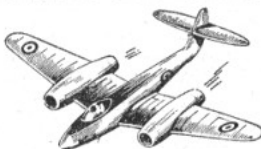
JETEX

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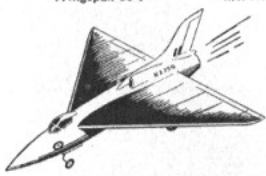
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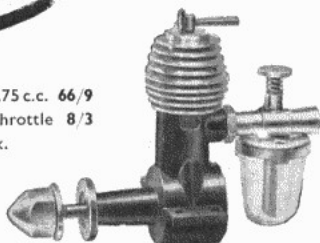
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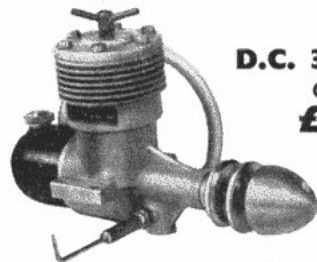


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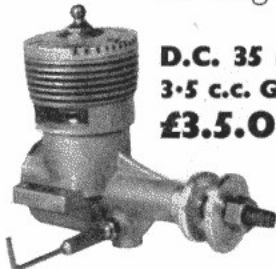


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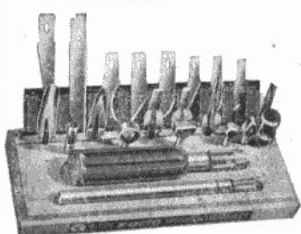
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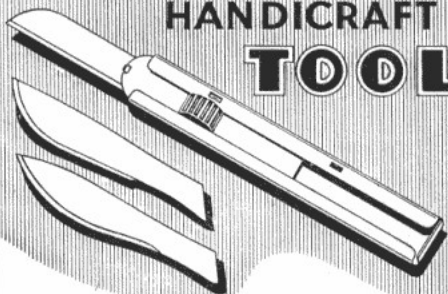
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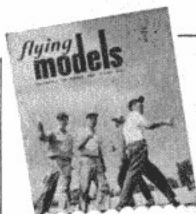
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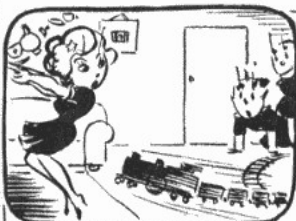
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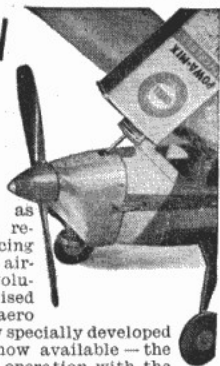
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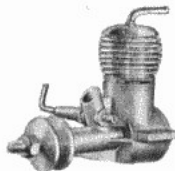
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Do you build from Kits ?.....

Published plans ?..... Own designs ?.....

Have you a flying field ?.....

By arrangement with the Local Council ?.....

How do you normally travel to your flying ground ?

By motor car..... By motor cycle.....

By cycle..... By public transport.....

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 (Name of hobbies)

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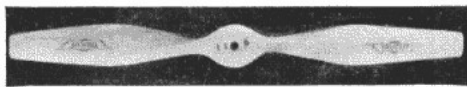
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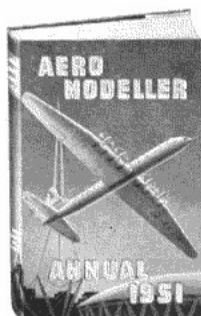
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The initial range consists of Six authentic Jet Fighters
SWIFT METEOR VII ATTACKER
THUNDERJET SABRE MIG-15
Selling price (including P.T.) - - 2/6

HALFAX MODELS LIMITED

GREEN MOUNT WORKS, HALIFAX, YORKS.

Have a jolly, interesting Xmas this year

-with KEILKRAFT

We present this Christmas Shopping Guide of the more simple kits in the Keilcraft range. You will find endless pleasure in the building of these models. Of course, if you fancy something more advanced—ask your dealer to show you the unrivalled Keilcraft control line and free flight power models.



KEILKRAFT ORION



KEILKRAFT PIXIE



Orion 23" span	...	4/3
Pixie 23" span	...	4/11
Playboy 20" span	...	4/1
Ajax 30" span	...	7/4

All prices include tax



KEILKRAFT AJAX



KEILKRAFT INVADER



KEILKRAFT SOARER



KEILKRAFT CUB



KEILKRAFT CADET

Minimoa 50" span	...	8/7
Invader 40" span	...	7/11
Soarer Baby 36"	...	6/1
Soarer Minor 48"	...	9/9
Soarer Major 60"	...	14/1
Cub 20" span	...	3/1
(Kit also contains plan for Jetex 50 powered version)		
Cadet 30" span	...	4/11
(Design and appearance as Cub)		

All prices include tax



Powered by Jetex 50



KEILKRAFT ATTACKER



KEILKRAFT BATOR



KEILKRAFT MIG-15



KEILKRAFT GUMMAN PANTHER

By far the least expensive Jetex powered flying scale kits on the market today. Each kit contains—Full Size Plan, Building and Flying Instructions, ample Building and Covering Materials and Bubble Canopies.

EACH
3/8

INC. TAX



KEILKRAFT PERCIVAL P6A

RUBBER POWER FLYING SCALE
This series contains 14 popular light planes. Ask your dealer to show you.

Kits contain full-size plan, building and flying instructions, plastic propeller, plastic wheels and nose plug, ample building materials.

ALL ONE PRICE 3/8d. INC. TAX

Choose one of these to build during the holidays

Keilcraft sends the season's greetings to friends and customers everywhere. Happy Landings in 1952

SEND STAMPED, ADDRESSED
ENVELOPE FOR OUR NEW
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KITS

Distributors for E.D., ELFIN, YULON, AMCO, and NORDEC
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SOLARBO: E.C.C. Radio Control Equipment.