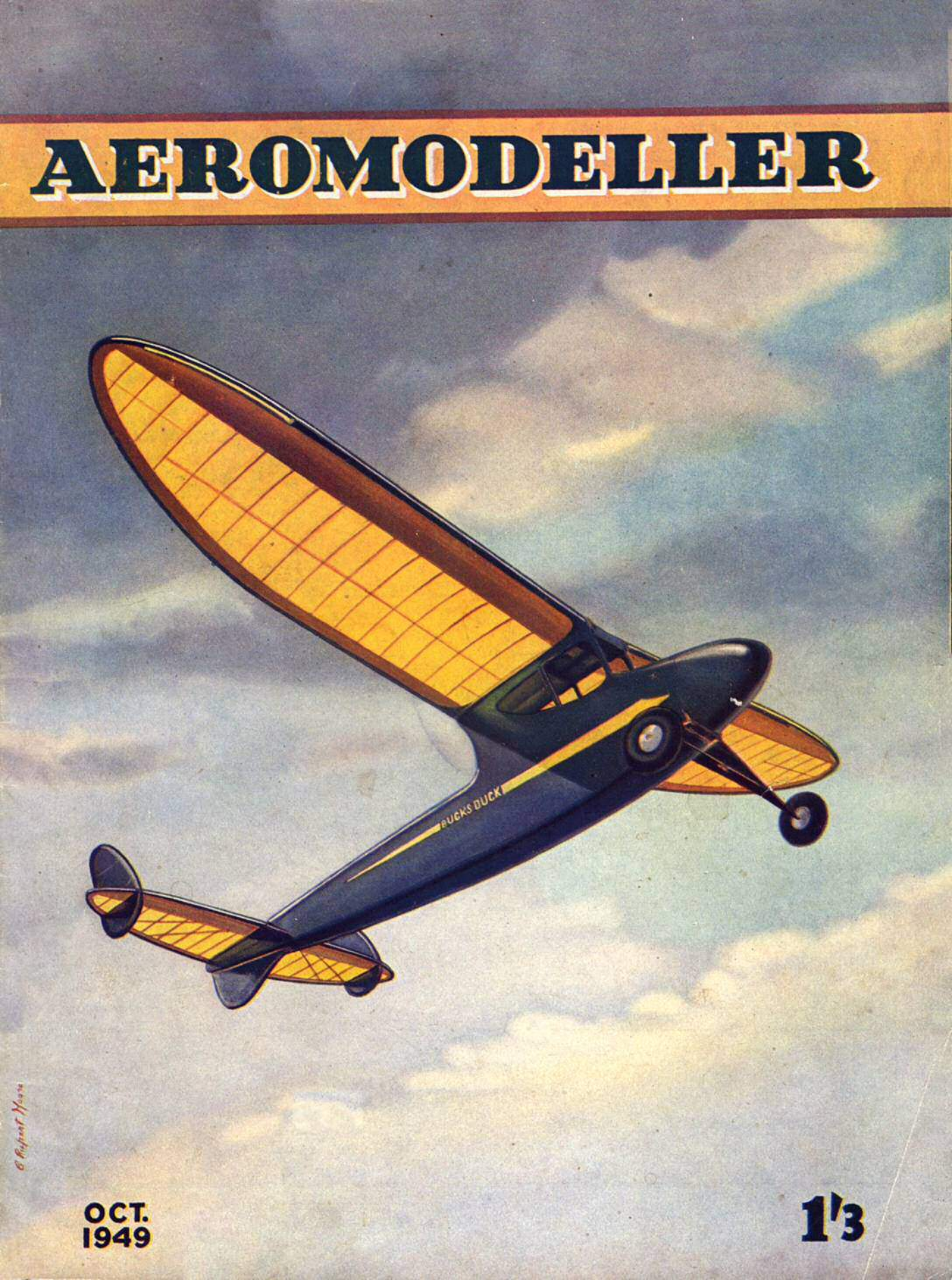
AEROMODELLER



OCT.
1949

1/3

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This, in effect, is what is said again and again by countless modellers from all over the world who write to thank us for our prompt, efficient and fair service. We publish three typical examples, and the originals of these and many more may be seen at 308.

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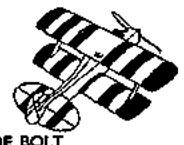
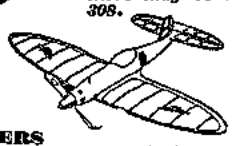
J. S. W., Sheffield. 4/7/49.

My order came to hand yesterday, and I would like to take this opportunity of expressing my deep appreciation for this service.
F. K. H., Brit. Somaliland. 24/3/49

You advertise that you have the best service in the country and you certainly keep up this. I received the parcel within 23 hours of ordering, and that is what I call good.
E. S. C., Torquay. 10/2/49


DE BOLT SUPER BIPE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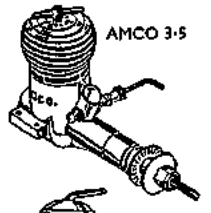
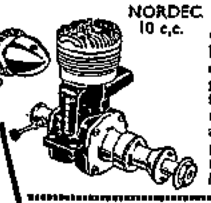

AMCO 3·5


ELFIN 2·49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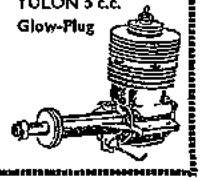
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AEROMODELLER
INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

Flying in Parks

I AM pleased to "report progress" in regard to Authorities in control of parks and other open spaces providing facilities for the flying of power-driven model aircraft—usually control line. A real step forward is the announcement that the L.C.C. have now officially "recognized" control line flying as an amusement, amenity, sport—call it what you will—which is indulged in by members of the public visiting the parks under their control—and that therefore it is up to them to provide the appropriate facilities just as it is to provide football and cricket pitches and so on.

In this connection it is as well to point out to readers that the charters under which most parks and other "controlled" public spaces are first laid out, generally incorporate a clause to the effect that such amenities that *as may be required* by the local inhabitants should, if not must, be provided.

In other words it may even be said that provided the responsible authority is satisfied that a genuine demand exists for an amenity/facility which can fairly be provided, then that authority must (repeat must) "do something about" providing that amenity/facility.

In this connection it is interesting to note an announcement made public only a few days ago that the L.C.C. is officially recognizing the latest London sport of cycle speedway racing on bombed-out sites. As recently quoted in the *Daily Mail*—"previously the L.C.C. were not prepared to support the cycle clubs, which now have 1,500 riders, more than 20 teams organized in leagues, and 'gates' of up to 4,000."

Now, in a letter to the Secretary of the Hackney Trades Council, the official attitude of the L.C.C. is stated as—"the L.C.C. has reconsidered its original view of cycle speedways and is now prepared to support the sport where practicable."

Following this revision of its original views, it is stated that sites in parks and bombed areas are to be allocated to districts as tracks, provided they are officially supervised. Similarly, the L.C.C. has now agreed to provide sites for control line flying in several of its parks, but stipulate—in my opinion quite fairly—that park keepers should be authorized to request flyers of power-driven models to produce their insurance certificates.

As I go to press with this Editorial I have received a letter from the Secretary of Swansea and District Aeromodellers Club saying that after direct negotiations with the local Council, his Club has received official permission to fly powered aircraft in Singleton Park, Swansea. The Secretary, Mr. E. C. Crumplin, reports that it has been further agreed by the park superintendent that a special site shall be allocated for flying. Mr. Crumplin adds that he received every co-operation during several negotiations with the Town Clerk of Swansea, and he was able to illustrate the points he made on behalf of his Club with appropriate cuttings from my recent Editorials. I hope that cuttings of *this* Editorial, with these further progressive arrangements recorded, will be of use to other Club Secretaries when negotiating with Local Authorities in regard to site/facilities for the flying of power-driven model aircraft.

Wanted a Caption ! ! !

We received the accompanying photograph from the *New York Times*, and at first thought that it had come from the agency's office in New York.

However, further scrutiny of the photograph and accompanying caption revealed that the photograph had come from the agency's *London* Office, that the "Bushy Park" referred to was the English Club, and that the photograph was taken at the recent All Herts Rally at Radlett Aerodrome.

Contents

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Editor :
C · S · RUSHBROOKE

Assistant Editor :
H · G · HUNDLEBY

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D · J · LAIDLAW-DICKSON

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HAPPY HANDLAUNCH! Buck's Duck climbing serenely up from the Assistant Editor's hands on a trial flight at the Aerodrome.

Somewhere we believe that there must be someone with the wit to think up a really first-class caption for this photograph!

We offer a prize of 1 Guinea for the caption judged by the Editor to be the best received, written out on a post card and addressed to our Leicester office not later than October 8th, 1949.

NOT According to Form

It has been said that aeromodellers as a body are individualistic and whilst this may be so in some respects, it is a fact that in regard to the choice of models built from published designs, a fair degree of Conservatism is still apparent. This is borne out by our sales figures of plans, where those for the " out of the ordinary " are a somewhat less than the more " normal " designs.

Be that as it may, we have always considered it one of our duties to provide for our readers as wide a range of model designs as possible; if only because this will prevent aeromodelling design getting into a groove. Further we believe strongly that designers of " original design " should be from time to time encouraged.

With this apologia we introduce, in this issue, several designs somewhat out of the ordinary. " Flap Happy " is an American record-breaking ornithopter, designed by one of America's leading exponents of the orthodox—Parnel Schoenky. It appears that flights of anything from 40 to 60 seconds can regularly be obtained.

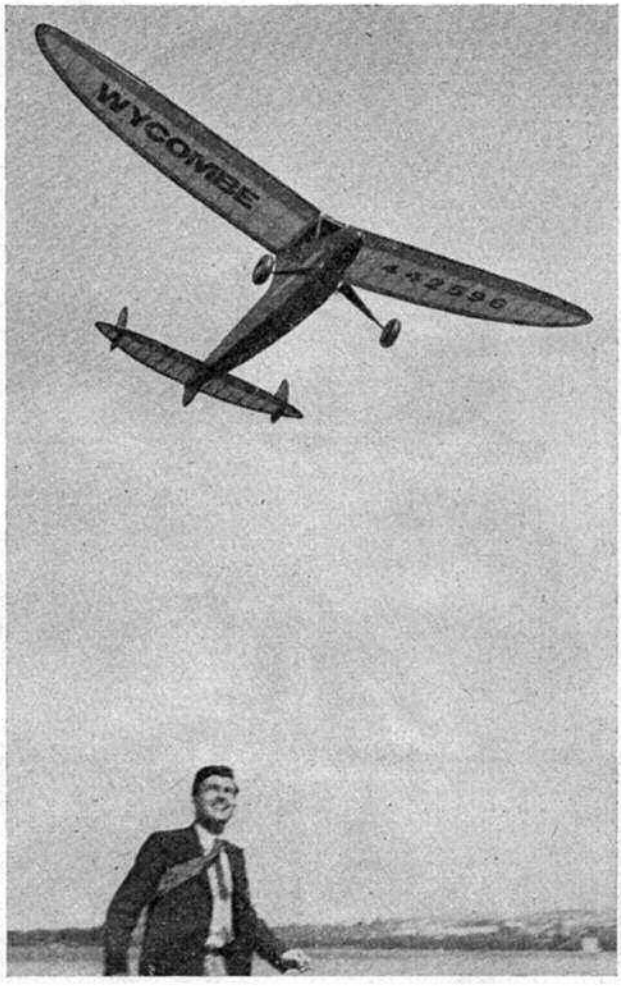
Next we have " Buck's Duck ", a pusher type high wing cabin monoplane, arranged for radio control. As will be seen from Rupert Moore's cut-away sketch, the construction is straightforward and orthodox, yet the whole concept of the model is novel and certainly up to date. A sound feature is the method of cooling the cylinder of the inverted engine—so very simple yet so effective!

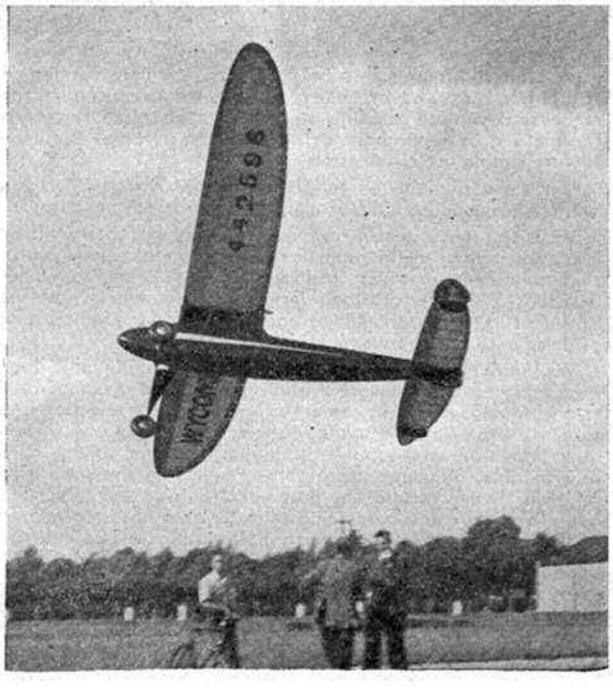
Our third unorthodox model is the " Cannellard ", by a young aeromodeller whose future designs should be watched.

With the flying season drawing to its close, there will be less space taken up in reporting meetings and consequently that much more which can be devoted to aeromodeller designs. We therefore look forward between now and the Spring of 1950 to publishing a considerably increased number of designs than in previous winter periods.

We invite builders of all types of models to send particulars, preferably accompanied by photographs and a short description *first*, so that we can make a preliminary selection and thus save those whose model designs are going to be turned down the time and trouble in preparing them fully. It is unavoidable, of course, that some readers' designs *must* be rejected. Nevertheless, the time and trouble spent in setting out a design are never wasted on the designer, for he who does this work is always that much better able to lay out the design of his next model.

Modellers whose designs pass our *first* selection will then be invited to send in full particulars, together with flying performances, so that we can make a really first class presentation in the AEROMODELLER and in our Plans Service.





• BUCK'S DUCK •

PUSHER POWER MODEL IDEAL FOR RADIO CONTROL BY A · DAY

THE DESIGNER: A. J. DAY . . . married . . . on the wrong side of forty ! . . . Has been modeller for seven years . . . now passed through most of the 'stages' . . . has finally picked on power . . . enthusiastic member of High Wycombe Club . . . by trade a joiner . . . lives, of course, at High Wycombe.

MANY advantages of the pusher layout are obvious, but nevertheless this type has been almost universally neglected in the past. The advance of radio control however to a stage where it is likely to become universally popular has reawakened interest in this oldest of layouts, and there seems every likelihood of this type coming back into its own.

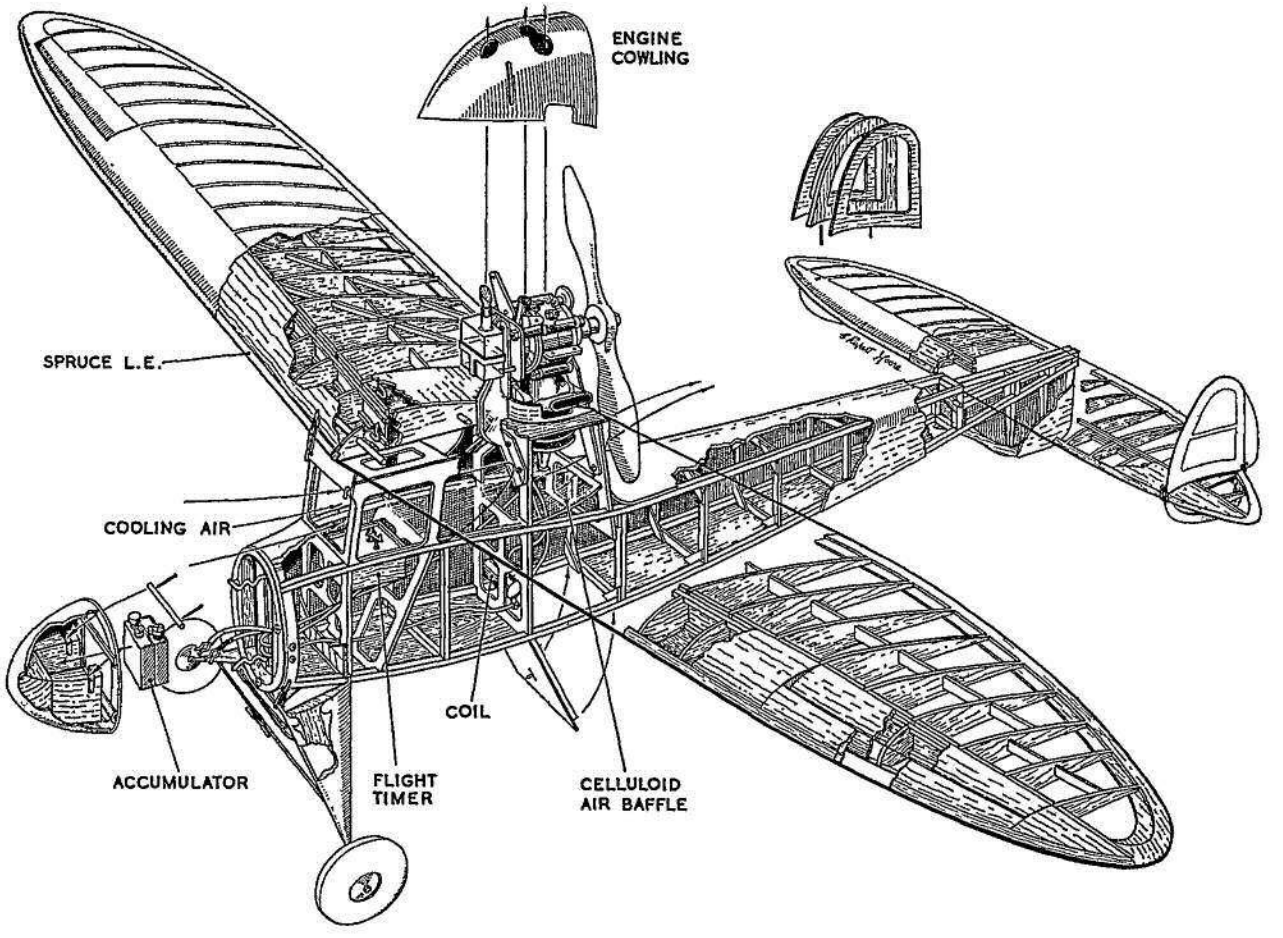
" Buck's Duck ", being a medium large machine with delightfully slow and stable flying characteristics, is an ideal model for radio control. The tremendously strong nose and rear mounted engine give an unequalled resistance to unfriendly earth, while the construction throughout is more than sufficiently robust to take care of all the ordinary mishaps a model meets with in its flying life. It is very easy to trim, and its leisurely pace is a pleasure to watch. The original model is now two years old, but despite the fact that it has been flying the whole of that time has few scars to display. Power in this case is supplied by a 7·5 c.c. Gerald Smith " Redwing ", but the model is suitable for any 5 to 10 c.c. petrol or glow-plug engine, or corresponding diesel. For radio control purposes, no doubt the petrol engine with its greater flexibility will be preferred at any rate as long as engine control is intended, but it should be stressed that " Buck's Duck " will make just as fine a model for free flight with any type of engine.

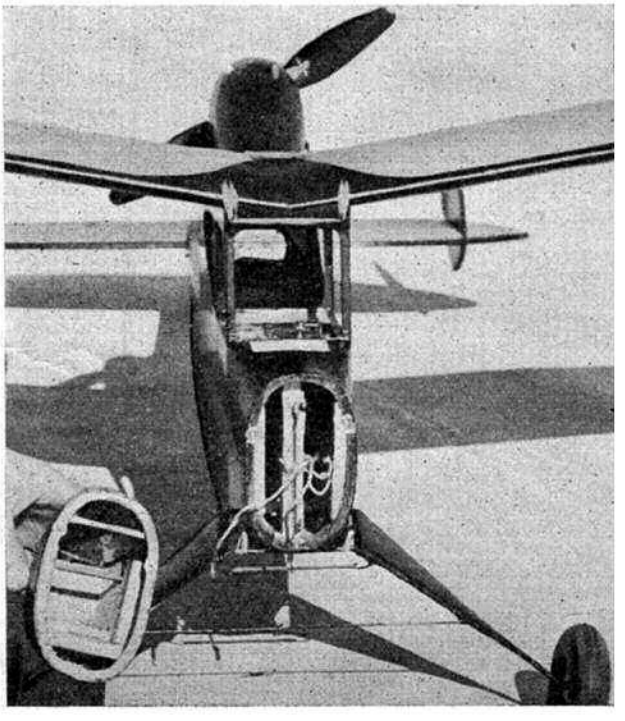
Generally, the design and construction are straightforward and are unlikely to present any difficulty to the ordinary builder. The design was based on Col. Bowden's oft-advocated principles and in many respects this model has a family resemblance to the well known Bowden Contest. In detail, however, it is soon seen that there are considerable differences arising from the pusher layout and side area arrangements.

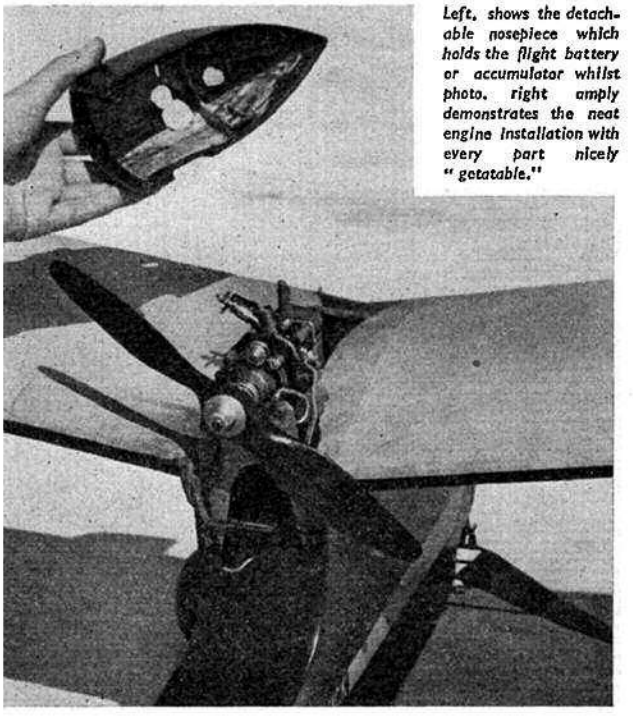
A word of warning perhaps regarding engines. Owing to the reversed action of the propeller trouble may be encountered with engines having slight taper on the crankshaft, as the taper shaft is pushed away from its bearing and allows oil to blow past and drown the spark points. This does not occur on the " Redwing ", but it would be as well to make sure of the point before installing a petrol engine.

The cabin on this model it will be noted is *not* celluloid covered in the usual fashion, but instead has a celluloid " floor " which is curved up towards the engine to make an air duct for adequate cooling. This it does very well and no trouble has ever been experienced with over heating.

These photos give a first class idea of this model both in flight and repose, while the cut-away by Rupert Moore opposite makes easy work for those building this attractive design. The stable flight of this model is a well proven asset to which the photos bear witness. *(Aeromodeller photographs.)*







Left, shows the detachable nosepiece which holds the flight battery or accumulator whilst photo. right amply demonstrates the neat engine installation with every part nicely "getatable."

A 77" WINGSPAN PUSHER TYPE POWER MODEL

BUCKS DUCK

DESIGNED BY

A. DAY.

7/-

THE AEROMODELLER PLANS SERVICE.
THE AERODROME, STANBRIDGE, NR. LEIGHTON BUZZARD, BEDS

ALL WOODS UNLESS OTHERWISE STATED ARE BALSA.

CELLULOID TANK

REAR ENGINE MOUNT BOLTED TO FS. DETAILS OF ENGINE MOUNT HAVE NOT BEEN GIVEN AS INDIVIDUAL ENGINES REQUIRE DIFFERENT MOUNTING. ORIGINAL MOUNTING IS SIMPLE DURAL 1½" UPTHRUST

SKETCH OF ENGINE MOUNT ON ORIGINAL

FORWARD ENGINE MOUNT BOLTED TO F2

16 SWG HOOK SECURE IN BLOCK OF PLASTIC WOOD

⅛" PLY WING SEATING

DO NOT COVER WINDOWS WITH CELLULOID

⅛" PLY

DOTTED LINE SHOWS CELLULOID COVERING INSIDE CABIN

16 SWG HOOK

1/32" SHEET WELL FOR ENGINE SEE PLAN VIEW

SIDE VIEW OF ENGINE COWLING PLANK WITH ⅛"x⅜ OR ⅛"x½ STRIPS HOGGED TO SUIT ENGINE USED. PLAN VIEW SHOWN ON FUSELAGE PLAN VIEW

FRONT VIEW OF ENGINE COWLING

C1 C2

C1 ¼" SHEET

C2 ¼" SHEET

TOP & BOTTOM TIP FINS CONSTRUCTED FROM 3 OUTSIDE LAMINATIONS OF 1/16" SHEET & 1/8" SHEET IN THE CENTRE. BOTTOM FIN IS GLUED TO TAILPLANE

GRAIN DIRECTION OF CENTRE LAMINATION

FIN FOR TRIM TAB ON PORT FIN ONLY OFFSET ¼" TO STARBOARD

BRASS TUBES GLUED INTO FIN & PLUGGING INTO T/PLANE

BAMBOO PEG

⅛" PLY TAIL SKID

16 SWG SKID

BOOSTER SOCKET

TIMER POSITION

⅛" SHEET WINDOW REINFORCING.

F1 F2 F3 F4 F5 F6

COIL POSITION SECURE CONDENSER TO ENGINE

⅛" TRIANGULAR GUSSETS

¼" SHEET GUSSET

Pins

⅛" SHEET

BALSA BLOCK

BAMBOO PEG FOR WIRE CLIPS

WIRE CLIPS

SHEET INSIDE OF FUSELAGE BETWEEN F1 & F2 WITH 1/16 SHEET

SCRAP BALSA SECURING WIRE CLIPS TO BLOCK

FEMALE PRESS STUDS

BOOSTER SOCKETS

16 SWG HOOKS CEMENTED INTO SPRUCE BLOCKS RUBBER BANDS PASSED OVER THESE & AROUND HOOKS ON ½" TOP FRONT CROSS STRUT

SPRUCE BLOCKS ½" FRONT CROSS STRUT RESTS AGAINST THESE

SKETCH OF WING SECURING HOOKS

BAMBOO PEG FOR WIRE CLIPS

SPRUCE BLOCKS (SEE SKETCH)

¼" PLY BISCUIT

¼" PLY

BALSA BLOCK (SEE SKETCH)

BRASS TUBE FOR REAR ½" LEG

DOTTED LINES ARE BOTTOM LONGERONS

⅛" PLY WING SEATING

BALSA OR LINEN HINGE

TRAPDOOR FOR ACCESS TO COIL

BRASS TUBE

20 SWG STAPLE SECURING TUBE TO SCRAP BALSA

ALL LONGERONS UPRIGHTS & CROSS STRUTS FROM ¼" SQ.

⅛" SHEET

1/32" SHEET WELL FOR ENGINE

CHAIN DOTTED LINES SHOW PLAN VIEW OF ENGINE COWLING

¼" SHEET BALSA FAIRING INSERT & SAND TO STREAMLINE SECTION BIND WITH SILK & DOPE

BRASS TUBE IS SOLDERED TO PORT ½" FRONT LEG ON ASSEMBLY REAR LEGS ARE PLUGGED INTO FUSELAGE TUBE & FROM ST'BD LEG INTO TUBE ON PORT LEG.

PERSPECTIVE OF UNDERCARRIAGE

FORM FROM 12 SWG ALL HOOKS FROM 16 SWG USE 1½" WHEELS

¼" PLY TAILPLANE REST.

BAMBOO DOWEL

FILL IN BETWEEN TAILPLANE SEATING WITH ⅛" SHEET.

INCLINE ROOF RIBS FORE & AFT

⅛" DIA BAMBOO LOCATING DOWELS IN ST'BD WING.

CUT HOLE IN PLY ON BOTTOM TO ALLOW ACCESS TO HOOK FOR SECURING WING.

1/32" PLY (SEE SKETCH)

WING SECURING HOOKS 16 SWG TOP & BOTTOM

1/32" PLY RIB

BALSA RIB

1/32 PLY

POSITION OF TIP FIN.

TOP & BOTTOM SPARS ½" SQ SPRUCE.

DRILL TO TAKE TIP FIN DOWEL

COVER TOP & BOTTOM WITH 1/32" SHEET.

⅜" SQ L.E.

BALSA BLOCK TO FAIR INTO FUSELAGE

½" x ⅜" CAMBER STRIPS.

ALL RIBS 1/16" SHEET.

1/32" SHEET TOP & BOTTOM

1/32" SHEET ON BOTTOM

⅛" x ⅜" T.E.

⅜" SQ HARD BALSA BRACES.

⅛" SHEET TOP & BOTTOM

⅛" SQ SPRUCE L.E.

SOLID RIB TO FORM END OF SLOT

OPENING OF TOP OF SLOT

LOWER OPENING OF SLOT

⅛" SQ SPRUCE SPARS TOP & BOTTOM

SPRUCE BLOCKS FRONT & REAR DRILL TO TAKE LOCATING DOWELS IN STARBOARD WING

A SOLID RIBLET IS GLUED HERE TO FORM END OF SLOT

THIS PART OF SLOT IS CUT FROM SOLID BALSA SHEET

STAGE 3 — VIEW SHOWING NEARLY COMPLETED BODY THE TOP OF FUSELAGE IS COVERED WITH 1/16 SHEET WING SEATING ⅛" PLY BOTTOM OF FUSELAGE 1/32 PLY UP TO TRAPDOOR 1/16 SHEET FROM DOOR TO TAIL

⅛" SHEET ON TOP 1/32 PLY ON BOTTOM

THIS RIB HAS UNDER-CAMBER.

⅛" SHEET HERRING GRAIN VERTICAL.

⅛" x ⅛" HARD BALSA TAPER TO ⅜" x ⅛"

⅛" x ⅛" HARD BALSA BRACE

BAMBOO PEG AT L & T.E.

U337

FUSELAGE CONSTRUCTION.

STAGE 1 — PLACE 1/16 SHEET BENEATH SIDE ELEVATION & PRODUCE FUSELAGE SHAPE ONTO THE WOOD BY MEANS OF CARBON PAPER. DRAW IN POSITIONS OF LONGERONS UPRIGHTS & FORMERS. CUT OUT SHEET TO ACCURATE OUTLINE OF FUSELAGE & PROCEED TO CEMENT SPACERS & LONGERONS ON MARKED OUT POSITIONS.

STAGE 2 — CEMENT FORMERS TO ONE SIDE OF FUSELAGE & WHEN DRY CEMENT THE OTHER SIDE IN POSITION MAKING CERTAIN TO SEE IT IS SQUARE.

NOSE FORMER ½" PLY.

F1 ½" PLY.

⅜" x ⅜" HARD BALSA TAPER TO ¼" x ⅛"

⅛" x ⅛" CEMENTED TO BOTTOM OF RIBS

⅜" x ⅛" T.E.

WING RIBS MAKE 2 OFF EACH IN FROM HARD ⅛" SHEET

F2. ⅛" PLY. SCORE & BEND AT THIS LINE.

F3. ⅛" PLY CEMENT CELLULOID COVERING HERE. SCORE & BEND AT THIS LINE.

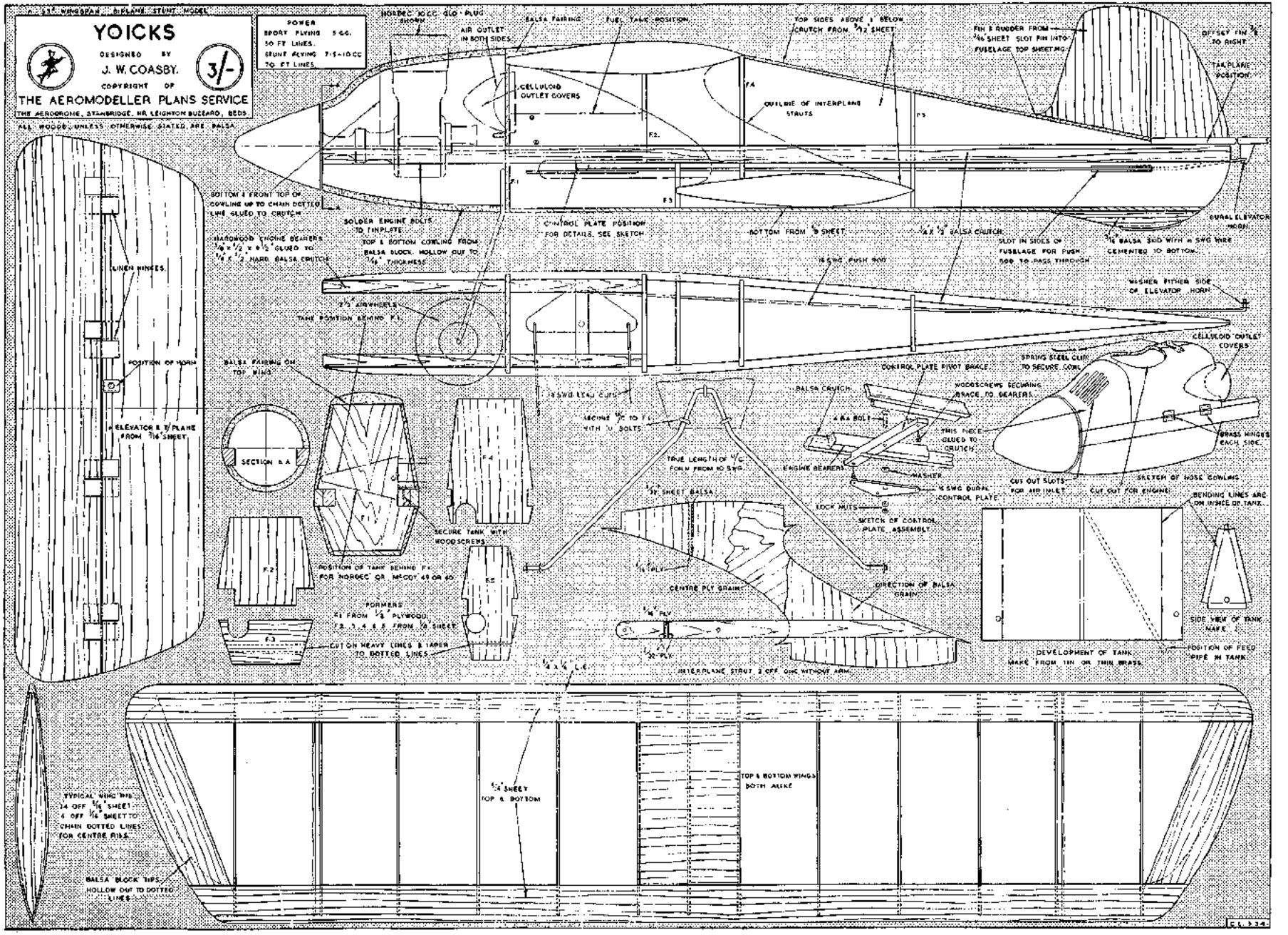
F4. ⅛" PLY. CEMENT CELLULOID COVERING HERE.

F5. 1/32 PLY

F6. 1/32 PLY

WING RIB MAKE 2 OFF ⅛" SHEET. 2 OFF ⅛" SHEET WITH FLAT BOTTOM SURFACE. 1 OFF ⅛" SHEET & 2 OFF 1/32 PLY TO DOTTED LINE WITH FLAT BOTTOM. 2 OFF ⅛" SHEET TO CHAIN DOTTED LINE WITH FLAT BOTTOM

THIS IS A ½ SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 7/- FROM THE AEROMODELLER PLANS SERVICE.



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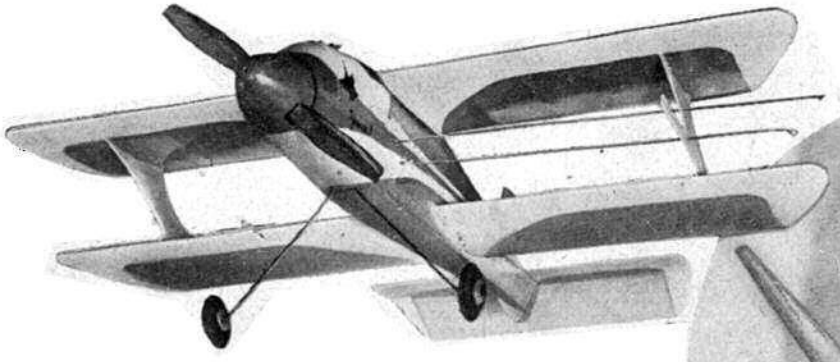
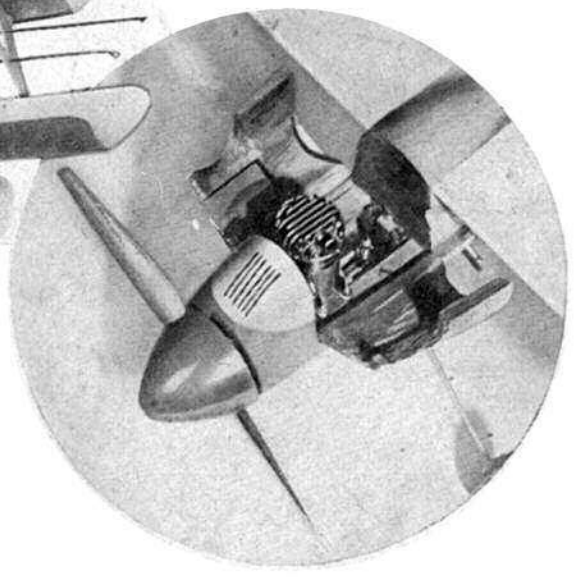
'YOICKS!'





A 450 SQUARE INCH BIPLANE STUNTER FOR 10 c.c. ENGINES

DESIGNED BY JOHN · W · COASBY

INTERESTED in the monoplane versus biplane stunting controversy, impressed by Henry Nicholls' performance with his de Bolt Bipe and H.N.7, and encouraged by the advent of a beautiful new shining Fox 59 from America, the designer set about designing himself a real stunt bipe capable of all the manoeuvres of the original onzlem. With a Fox in front—well, obviously it had to be *Yoicks* and so this attractive machine materialised. Construction is all balsa, simple but sturdy, and the finished weight with the Fox was only 2½ lbs. However, any 10 c.c. engine will take it through its paces and the plan is drawn for a Nordec even with which the weight should still be under 3 lbs.

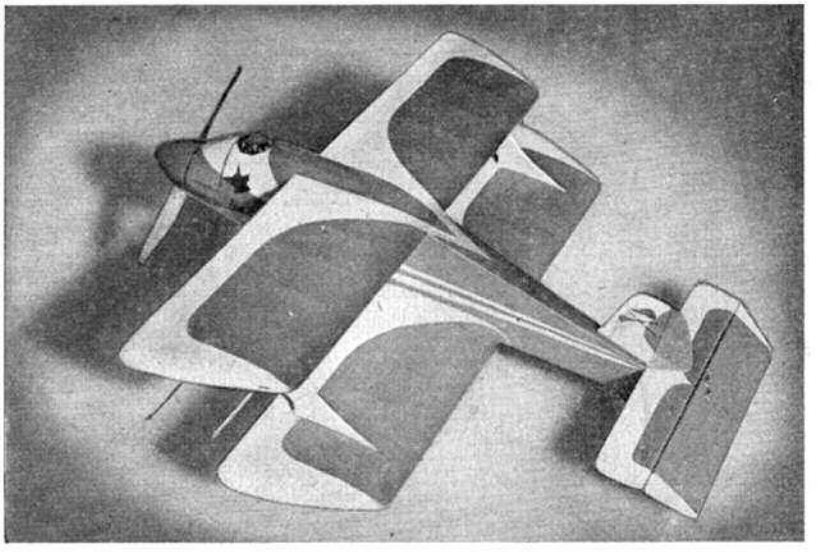
The cowling question was settled once and for all by a neat arrangement using baby brass hinges for the flaps, and spring steel clips locating on wire or gramophone needle pegs as the snap-shut fixture. No trouble was ever experienced with shutting this cowling or keeping it shut in flight.

The model as might be expected flies fast and long lines can be used without fear of any tendency to turn in. Seventy feet lines were originally used, but eighty to ninety feet will give considerably less armache. Very sensitive, the model will perform anything in the book plus extras, but is none the less easy to handle for anyone with average stunt experience. A special feature of the design, laminar flow wings were used after reading some notes of H.J.N's on the subject—and a truly amazing glide is a characteristic of this model which it is often felt the section should perhaps take credit for. The model was designed with a fully fixed undercarriage to comply with the S.M.A.E. rules, as it seems silly to learn a model's characteristics without an undercarriage, then equip it with one for a contest only to find that the model's behaviour is distinctly different.

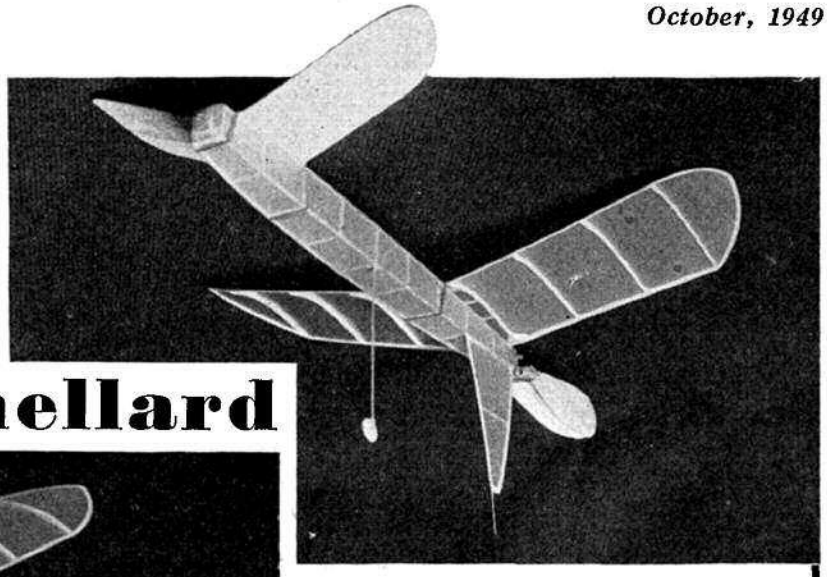
Take offs are a joy to behold, and many a time the model has been airborne before it was placed on the ground—one almost places it in the air and watches it carry on from there! Being so fast it is wise to hold the stick hard back and let it get right off and up before levelling out, as otherwise a slight over-controlling on take off will tip the model straight in, which is bad for airscrews.

Warning: Don't use this or any other fast heavy model on a U-Reely as the brake on the handle won't usually stand it—the lines suddenly jerk out and comes disaster, witness *Yoicks'* untimely end at Aldermaston earlier in the year.

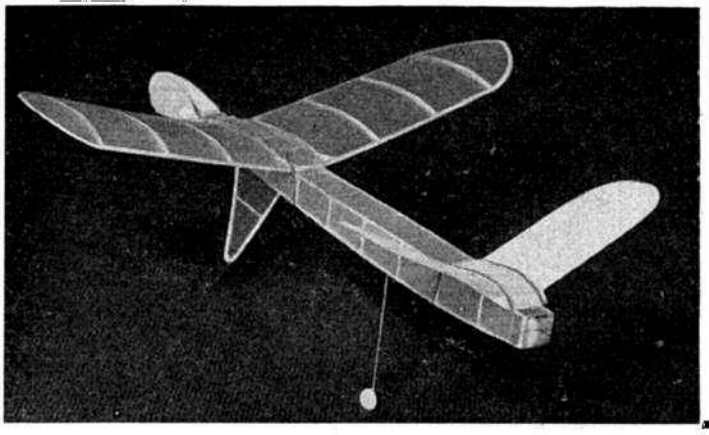
Grace with efficiency are the keynotes of this design as the accompanying photos show. Below left are Assistant Editor Harry Hundleby and the designer "doin' a bit of shortin' " . . .



AN EASY TO BUILD AND EASY TO FLY TWENTY-INCH SPAN RUBBER-DRIVEN CANARD DESIGN



The Cannellard



BY P · J · CANNELL

THE DESIGNER: P. J. CANNELL . . . 21 . . . started aeromodelling in 1938 . . . been at it ever since . . . doesn't specialize although pet type is canards . . . was a member of Loughborough College M.A.C. whilst completing four years in the Aero Dept. . . . now working for Rolls-Royce as metallurgist . . . shortly adding husband to his other qualifications . . . dabbles in photography . . . lives at Nottingham.

THE spice of the unorthodox is again provided by this attractive little rubber-driven canard which is capable of a consistent 1½–2 minutes in still air. Despite its small size this model is a good and regular performer and is not too difficult to fly well in the hands of any but a complete novice. It possesses all the inherent stability long associated with the tail first design and with a normal amount of care should give many hours of pleasant flying. A particular advantage is of course the greatly decreased mortality as far as airscrews are concerned. For anyone who likes the idea of something a little different that does not entail too much labour and materials the Cannellard will prove a welcome change.

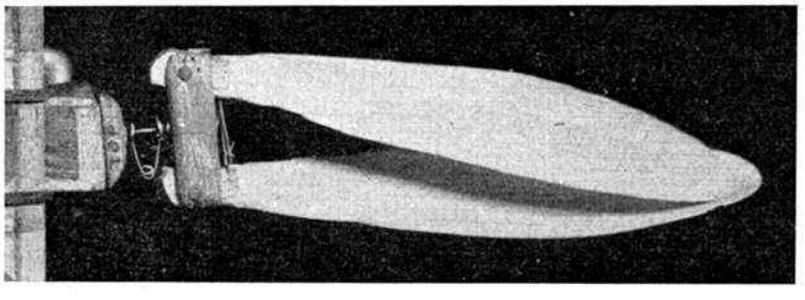
The fuselage is a simple box structure and requires no explanation. The wing is likewise very simple but remember that all the ribs cut are tip ribs and a little wood must be removed from the rear end of each other rib to allow for the tapered T.E. An all balsa front wing was chosen because this part of the structure comes in for some nasty knocks even on a lightweight. The wood should be well sanded, particularly towards the tips and a careful sanding after each coat of dope is also recommended. The prop must be carved almost microfilm fashion as any extra weight on a prop in this position is just so much dead weight. Plenty of undercamber is carved in and the blades should be 1/16 in. thick at the roots and 1/32 in. at the tips (the tips being rounded off after carving). One big advantage of the pusher prop is that it lasts as long as the rest of the model and bent prop shafts are non-existent. The nose block and prop block are carved from 1/8 in. sheet laminations. The rubber prop tensioner must be made just strong enough to fold the prop and no more. The position of the wood screw stop must be such that the blades fold from the horizontal position. The lower photo shows the ample sidethrust used and how the blades fold off centre so that they are parallel to the flight path. Otherwise a spin may result as soon as the blades have folded.

The rear wing and fin are single surface covered and are given one coat of 1/3rd dope, 2/3rds thinners on **both** sides. The fuselage, front wing and prop are given two coats.

Trimming for flight is carried out as on an orthodox model but remember to keep the wings as far apart as possible, i.e., if the model dives move the front wing as far forward as possible before moving the rear wing forward and vice versa.

Try to avoid altering the relative angular settings of the front and rear wings unless it is absolutely necessary.

H.L. flights are best made without the U/C and if the model is really light four strands of 3/16 in. × 1/30 in. rubber may be used to advantage. On the original the power was five strands of 3/16 in. × 1/30 in., 22 ins. long, which gives a comfortable 800 turns maximum although with careful winding in of rubber 900 turns may be tried—but don't blame me if a new fuselage is soon required! R.O.G. is done comfortably on the one leg as long as there is a smooth run of three to four feet. The model will get off in two feet if there is about a foot drop at the end. On 800 turns the original whistles off the deck doing the first half of a loop up to fifteen feet, rolls out of this position in three to four feet and then finishes off the power run by a steady climb for about a minute.



A 20" WINGSPAN RUBBER POWERED CANARD.

CANNELLARD 3B

DESIGNED BY P. CANNELL.

2/-

THE AERODROME, STAMBRIDGE, NR LEIGHTON BUZZARD, BDS

ALL WOODS UNLESS OTHERWISE STATED ARE BALSA

POWER 4 - 5 STRANDS OF 1/30" X 3/16" X 22" LONG
NO. OF TURNS 800

MATERIALS REQUIRED

STRIP.
5 STRIPS OF 1/16" X 1/16" X 36" HARD BALSA
1 STRIP " 1/16" X 1/8" X 36" MED "
1 " 1/16" X 1/4" X 36" " "
SHEET.
1 SHEET OF 1/32" X 3" X 24" MED BALSA
1 " " 1/16" X 3" X 12" " "
1 " " 1/8" X 3" X 6" " "

MISCELLANEOUS
6" OF 3/32" X 1/16" BAMBOO
6" OF 18 S.W.G. PIANO WIRE
2" " 20 " " "
2" " 36 " " "
1 BALSA BLOCK 1"X 1"X 10" HARD
1" OF 1/16" DIA DOWLING

NOTE: POSITION OF WOODSCREW IN PROP BLANK MUST BE SUCH THAT PROP BLADES FOLD FROM HORIZONTAL POSITION. BLADES MUST FOLD PARALLEL TO FLIGHT PATH, OTHERWISE MODEL MAY SPIN WHEN BLADES FOLD.

1/32" SHEET RIB
1/16 X 1/4"
18 S.W.G.
6 SHEET LAMINATIONS 1/16" HARD SHEET PLUG
3/32" SHEET PACKING FOR WING INCIDENCE
18 S.W.G. PROP SHAFT
WOODSCREW STOP
1/16" SHEET PLUG
36 S.W.G. TENSIONER
1/2" RUBBER PROP FOLDER
1/16" DIA DOWEL
PAPER TUBE FOR 1/16" TO PLUG INTO
DO NOT MOVE C.G. AFT OF THIS POINT
C.G.
3/32 X 1/16" BAMBOO 1/16 LEG TAPER TO 3/64" X 1/16"
1/8 X 1/16" MED.
1/16" SQ.
2 1/2"
2 1/4"
1/32" SHEET RIB
20 S.W.G. AXLE BEND TO LEG
1/16" SQ. PLY DIHEDRAL KEEPER. 2 OF.
SKETCH SHOWING CONSTRUCTION OF FRONT WING CENTRE SECTION ALL PIECES FROM 1/32" SHEET
3/16 X 1/4 X 3/8" BALSA
1/16 DIA HINGE PIN
1/16" SHEET
1/32" SHEET
20 S.W.G.
ENLARGED SECTION THRO' PROP HUB
CUT OUT TO ALLOW FOR CURVATURE OF WING & DIHEDRAL
TIP RIB SHOWN FOR REST OF RIBS. CUT T.E. AWAY TO SIZE OF RIBS REQUIRED.
3/4" DIA WHEEL 3 LAYERS OF 3/16" SHEET.
ALL LONGERONS, UPRIGHTS & CROSS STRUTS FROM 1/16" SQ. HARD.
L.E. SECTION BETWEEN RIBS
T.E. SECTION BETWEEN RIBS
1/4" X 1/16"
1/16" SHEET GUSSET TOP & BOTTOM
1/16" SQ. REINFORCING STRIP ON BOTTOM ONLY
DOTTED LINES SHOW POSITION OF FIN.
FRONT WING 1/32" SHEET WELL SANDED.
1/32" SHEET RIB
1/16 X 1/8" L.E.
1/16" SQ. DIHEDRAL KEEPER
1/16" SQ.
TIPS 3 LAMINATIONS OF 1/32" X 1/16"
1/16" SHEET GUSSETS
T.E. 1/8" X 1/16" TAPER TO 1/8" X 1/16"

COVERING.
REAR WING & FIN, SINGLE SURFACE COVERED 1 COAT OF 1/3 DOPE 2/3 THINNERS BOTH SIDES. FUSELAGE, TISSUE COVERED. FRONT WING & FUSELAGE 2 COATS.

PROP BLANK. HARD BALSA
CARVE PROP WITH PLENTY OF UNDERCAMBER
PROP SHOULD BE 1/16" THICK AT ROOT & 1/32" AT TIPS

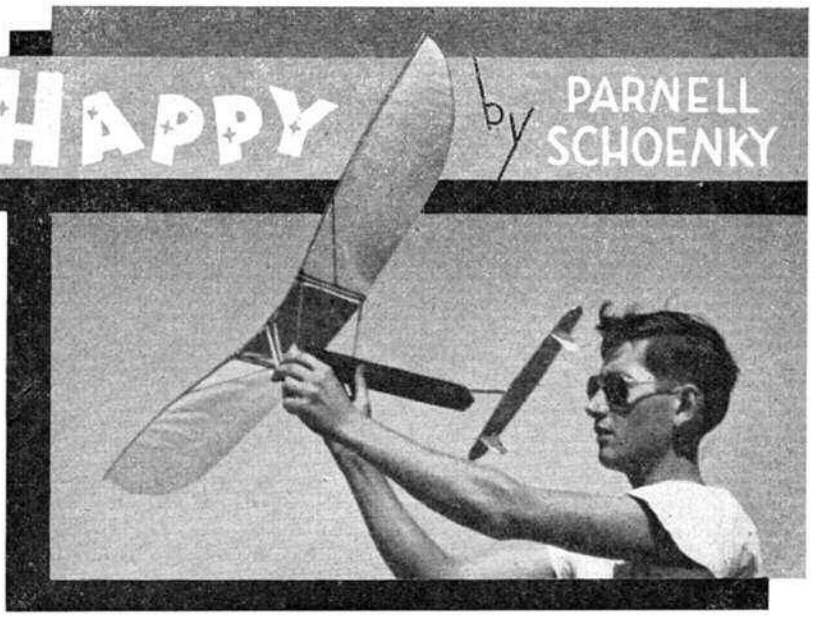
U. 335.

THIS IS A 1/4-SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 2/- FROM THE AEROMODELLER PLANS SERVICE

FLAP-HAPPY

by PARNELL SCHOENKY

A 40-INCH SPAN RUBBER-POWERED RECORD ORNITHOPTER



In the following four pages we present plans, photographs and full details of this outstanding American record-holding ornithopter, designed by a leading exponent of the unorthodox. This model flies!—and flies better than many an orthodox wing duration model.

General Description.

ALL modellers are familiar with the beautiful soaring flight of the larger birds, and most have taken a turn at the efficient albatross-like gliders, so highly developed in Britain and on the Continent, which very nearly put the birds to shame at their own game. However; when modellers have attempted to further imitate bird flight with flapping wing craft, most have given up after disheartening experiments—or at best produced complex craft of very limited duration capacities. That is not surprising, for as brought out in the recent comprehensive discussion of ornithopters by Mr. Laidlaw-Dickson (October, 1946), the development of successful designs has been limited to advanced experimenters and engineers, and the models produced have generally been of a complicated nature and with temperamental flying characteristics not suited to the skill and patience of the average builder. The author's preference as to the definition of a true ornithopter—one which derives not only its propulsion but its lift as well from its flapping wings—would tend to eliminate many craft by classing them as semi-ornithopters; this would include most of the designs of the well-known Dr. Lippisch.

The ornithopter here presented is reasonably simple to construct and trim, and a consistent flier of no mean duration when using the good rubber strip once again to be had. It has no inhibitions toward performing for the beginner, save the aversion of all light models towards high winds, and is capable of flapping skyward at a heartening rate, followed by a cruise of as much as a minute and then a slow, steep glide. Let not the angle of this glide deceive one, for it gives the craft an uncanny ability to pick up small air currents and hang onto them.

Of all powered aeromodels, the ornithopter is the easiest to construct. The few critical points in the construction are carefully noted, and if the builder takes his time in selecting good, wiry balsa, and cements and aligns the centre section and flappers according to directions, he will have a model capable of withstanding the severe jerking stresses to which most ornithopters are subject, and as durable and flyable a craft as is the average rubber model. The writer's first model of this design is still intact after hundreds of flights in fair weather and foul—and not a few landings in tall trees. The lad with a tow glider and a few rubber models to his credit should turn in flights of 30 to 45 seconds with a "flapper" that is slightly over-weight, misaligned or out of trim, while his more experienced brothers will clock their models at over a minute consistently. Flights under non-thermal conditions have reached 1 : 38 at this writing, and two minutes is the goal as experiments continue.

Flying and Trimming.

The trimming of this craft should not be at all difficult, provided that the modeller selects a calm day and bears in

mind the several characteristics of this flapper which set it apart from the average outdoor rubber model. The flapper has a much slower airspeed than a Wakefield-type ship, and it points its nose upwards at a great angle as long as there is any power remaining. This angle is easily understood when one recalls that in this approach to bird-flight the flappers provide the greatest part of the lift—as well as propulsion. Therefore, the flapper resultant force may be resolved into vertical as well as horizontal components. The centre panel serves as a dampener to retard the oscillation of the fuselage itself, while adding slightly to the lift in the bargain.

The stabilizer setting is approximately as shown on the plans, and once this angle has been adjusted more closely on a calm day, the craft will need little further attention in windy weather. But before winding the flapper for its first test flight, check to see that the nose-piece is secured in place with small rubber bands and hooks. The leverage and force on the crank tend to work the nose-piece out, with resultant stresses upon the cabanne struts for which the latter were not designed.

Test glides are not required with flapper. Using the front crank pin extension, put about 75 hand turns in your model. Holding it at the nose, point upwards at about twenty degrees and release with a very light forward movement. While the craft will not stall in a 50 degree climb when properly adjusted, it will stall rather easily if launched rapidly—particularly into a breeze. Watching your model's first flights closely, determine if it requires a greater negative angle in the stabilizer (as when the craft moves rapidly ahead and gains no altitude) or a lesser angle if the model tends to settle or " mush " down instead of climbing. Very little stabilizer change may be made on windy days, but in calmer weather the ship will fly on a wide range of tail settings. A good bit of initial power is required to get an ornithopter " up and on its own ", so if the first few test flights are inconclusive, try more turns. Our larger flappers have always tended to climb in rapid spirals to about a hundred feet, after which they level off (still nose-up) into a long cruise. You will likely be surprised at the ability of your flapper, once it has attained some altitude, to cruise around maintaining its altitude with only a lazy flip-flop action —picking up tiny thermal currents that any other craft would sail right on through.

The climb of a fully-wound flapper is very noisy due to the snapping of the taut tissue, and you need not fear that the model will tear itself to pieces, as the angry sounds would indicate. Many long flights have been made (and tall trees climbed) as the result of hand turns alone, but if your flapper is adjusted and flying space permits, long flights may then be attempted using a geared winder. As with other rubber-powered craft, the safe limit for hand turns is about one third of safe maximum, or around 150 to 200 turns for your motor. In winding mechanically, stretch the motor to about three feet from the tail opening and put in half of your intended total before starting to move toward the fuselage. Rubber lubricant is of course a necessity with this as with any other rubber-powered model. The most convenient manner of holding the model for winding is on its side, with the tail boom extending away on the opposite side from the crank side of the winder. The fellow holding the model has the important job of withstanding the pull of the stretched rubber without crushing the light fuselage, and there is the crank to be kept from rotating as well. He should take the pull on the fuselage by placing his left thumb and forefinger across the end of the fuselage, the right thumb and forefinger cupping the crank arm and gripping the nose-piece and fuselage so as to take a portion of the rubber pull. In readying the model for a launch under full power, remember that the crank has more leverage on your fingers than a prop blade and is harder to hold.

The motors used in this design have varied from 20 to 24 strands of 1/8 in. width American brown rubber. Converting this to the thicker Dunlop type of rubber would give 8 to 10 strands (4 to 5 loops) of 1/4 in. rubber or 10 to 14 strands of 3/16 in. Use about 1½ in. of slack to begin with, and lengthen your motor up to 3 in. of slack if its performance is too

snappy. The overall efficiency of ornithopters being far below that of Wakefield models, motor runs must be short and powerful and the slack is obviously limited under such conditions.

Since winder turns on stretched rubber lower the torque compared to that obtained by hand-winding, do not use a winder on your model unless it is to be given 200 to 500 turns. For less, the torque and hence the climb, is superior with hand turns and motor unstretched.

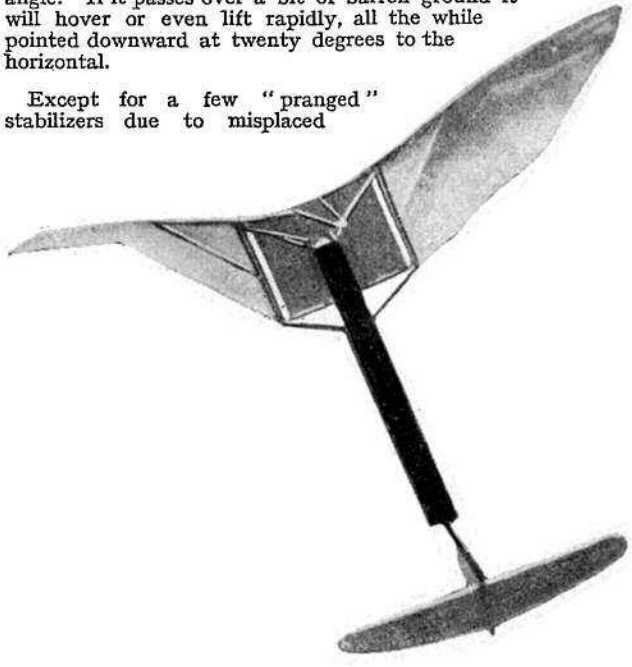
The launching of your flapper in the face of a breeze is best accomplished by simply releasing the craft with no push at all, and in the case of stronger winds we have even released it while rapidly walking backwards, with very good results. Once the flapper is on its own and floating with the breeze the stalling tendencies will tend to disappear It is interesting to note that our original American A.M.A. record in the Open Class (set in 1946) was made under very gusty wind conditions and late enough in the afternoon that thermal activity was at a minimum, and yet the model hit a high of 54 seconds on its third flight. Considering that the strong winds caused stalls and spirals which several times brought the model down from 30 feet to within inches of the ground, the record times were

very good, averaging 43·8 seconds. Under reasonable weather conditions and maximum turns this design has exceeded 1 min. and 30 secs., and the number of flights from 45 to 60 secs. in duration number into the hundreds. Unless one is out to crack records or really satisfy himself as to the ultimate possibilities of his model, the best procedure is to confine oneself to hand turns or to several hundred winder turns and to fly over an athletic field or on a gentle slope where weak currents may be picked up. This will prolong the life of your rubber, the flapper covering, and of the mechanical parts in general. If you do put plenty of turns into a well-trimmed model, it is not too optimistic to say that you should also have your name affixed to the craft; we have had even tiny and inefficient flappers pick up rising currents for as long as three and four minutes and one was lost for good.

The rudder adjustment is not critical, and should give no trouble. If a short piece of aluminum rod is used to join the tail assembly to the boom it may be necessary to use two pairs of pliers to apply the slight bends required for rudder and stabilizer adjustments. If undue spiralling appears, look for the source in uneven flapper covering tautness or area.

It is quite normal for your flapper to land with a few beats still left in its wings, but should it expend all its turns aloft and begin to glide do not be surprised at the downward angle. If it passes over a bit of barren ground it will hover or even lift rapidly, all the while pointed downward at twenty degrees to the horizontal.

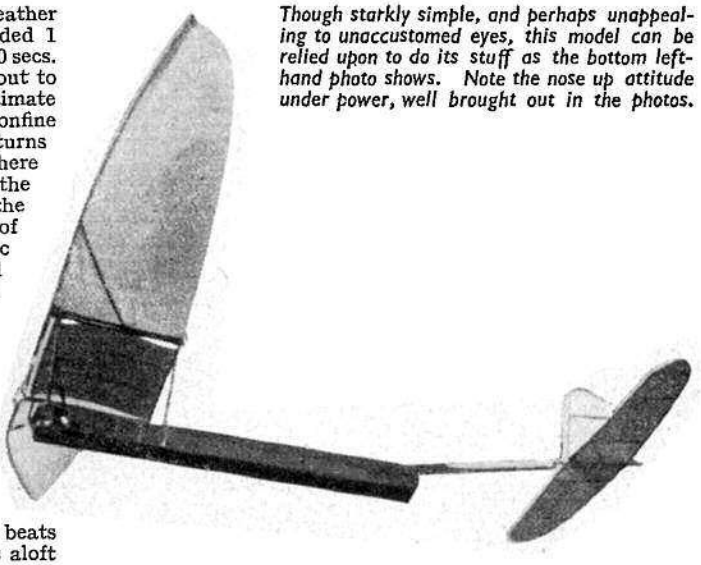
Except for a few "pranged" stabilizers due to misplaced



trees near our flying fields, we have had no structural failures with the various models built to this design other than what could be traced directly to our own carelessness. One more reminder that may prolong the life of your model: birds, dogs and cats take it for feathered prey with gusto, and you will do well to be on the spot when your craft comes down if there are any pets about.

Design Notes and Duration Refinements.

It may be noticed that several features of this design appear to violate good practice in rubber-powered design. The centre of lateral area is high and forward, and the angle of attack is apparently excessive. The latter point has been explained under Trimming, and is not likely to be of concern to the modeller who follows the trimming directions. The C.L.A.

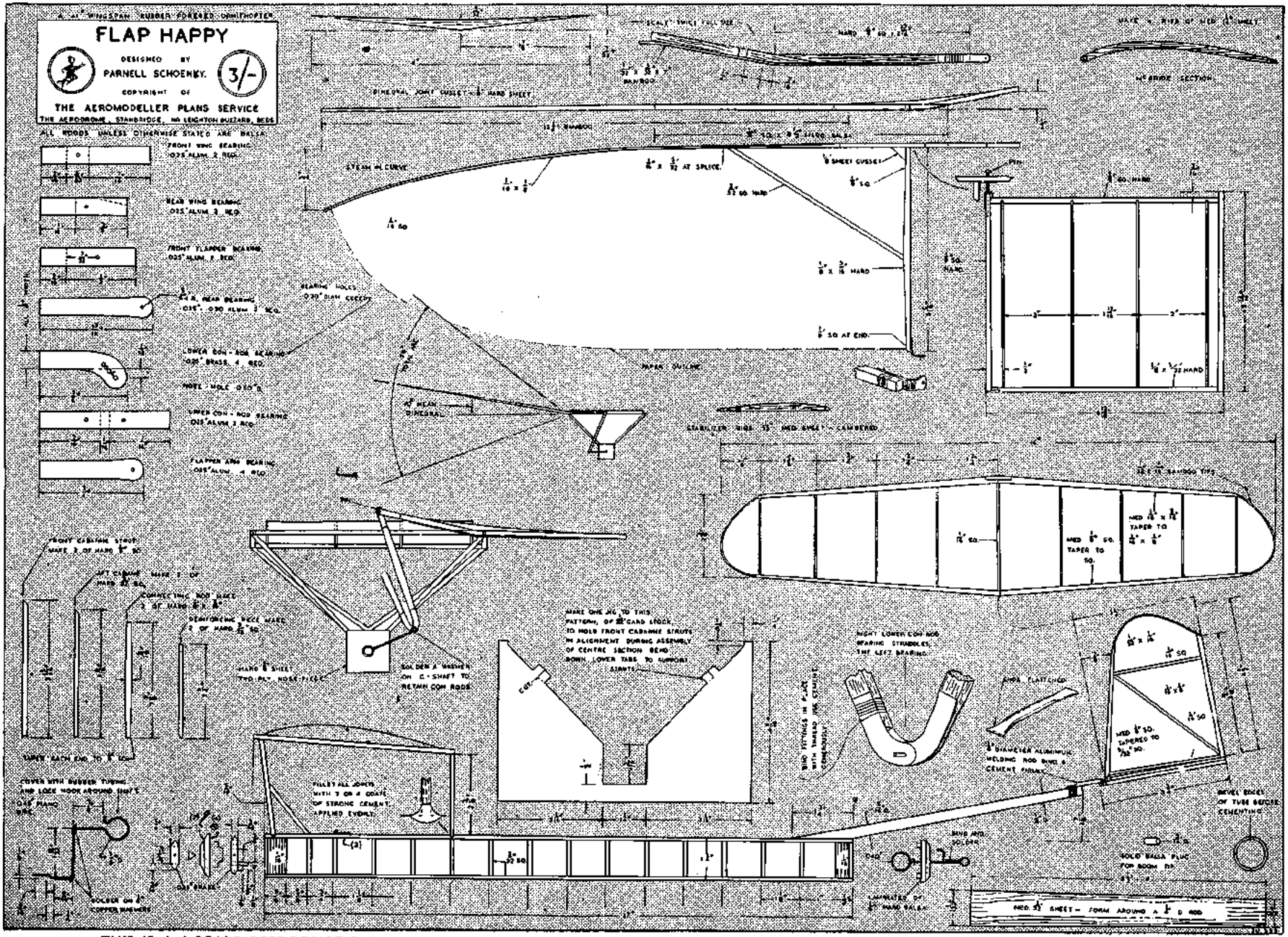


Though starkly simple, and perhaps unappealing to unaccustomed eyes, this model can be relied upon to do its stuff as the bottom left-hand photo shows. Note the nose up attitude under power, well brought out in the photos.

matter represents a compromise between maximum duration under ideal conditions and the requirements of stability under gusty conditions. Provided that the dihedral is at least as great as shown and further provided that the ship was carefully trimmed during calm weather, the adverse effects of the C.L.A. position may be minimized and even eliminated completely. Various sizes and locations of fins under the fuselages have been tried in the course of our experiments, many with considerable success in preventing spiral instability, but inasmuch as the efficiency of this type of ornithopter (with a minimum of fixed lifting surface) is at present so low it is our general practice to dispense with under-fins. The present arrangement of the components and the structural set-up appears to give the best combination of strength and low wing-loading, as well as ease of construction, of any design in our 13 or 14 years of experimentation and it is rather typical of American ornithopter design.

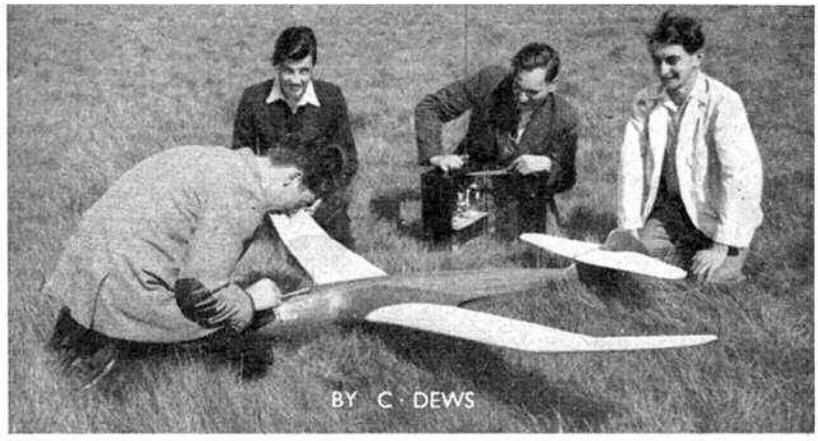
For the modeller who has considerable patience and experience and who desires to take as much pains with the construction of this craft as he would expend upon a Wakefield Trophy or Gamage Cup model, additional data and suggestions are offered. The author will be happy to hear from any modellers regarding their success with this design, and will be glad to answer any questions that may arise.

The heaviest models of this design have weighed 2·7 ozs., of which 45 per cent. constituted rubber. The weight should be kept to 2·4 ozs. if possible, and the careful builder can lower this to 2·1 ozs. with light doping, minimum wire sizes, a light tail assembly—and even the substitution of hard wiry balsa for the bamboo pinions. Lengthening of the rubber beyond the maximum of 3 ins. of slack is not recommended due to the space in the fuselage. More consistent flight results are obtained with the shorter and more powerful motors. For long flights and for record trials be certain that the flapper coverings are fresh and snap during flight. Higher aspect ratios have been tried with no recognizable improvement, and lower aspect ratios appear to be quite as efficient as this; they are frequently seen on indoor type models such as Goldberg's 4 min. record-holder flapper. The addition of a rubber tensioner to stop the flappers at about 15 degrees dihedral is worth while if the added weight does not exceed about ·15 ozs. For ease of transport and storage the tail assembly may be made removable by fitting half an inch or so of aluminium tubing in the end of the boom and pinning the aluminium adjustment rod therein with a tight-fitting straight pin.



THIS IS A ½-SCALE REPRODUCTION OF THE FULL SIZE PLANS, WHICH ARE AVAILABLE PRICE 3/- FROM THE AEROMODELLER PLANS SERVICE

Your Own Radio Control Set



Here is a practical radio control outfit proved in the field which can be built for as little as £3. It employs a 2-valve transmitter and a single valve receiver. All of the components are readily obtainable in this country and the author will be pleased to answer any technical queries from readers who may care to attempt their own set. As can be seen the original was fitted in the author's "Fillon's Champion" but the set is of course equally suitable for power driven models.

Theory.

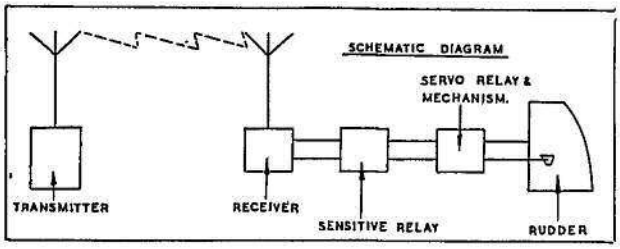
The receiver, on the reception of a signal, causes less current to pass through the sensitive relay, which closes contacts supplying the servo relay and mechanism with current, thereby pulling the rudder through the desired angle. When transmission ceases the current through sensitive relay increases and contacts open, breaking current from servo relay, etc., i.e., rudder returns to central position or full turn.

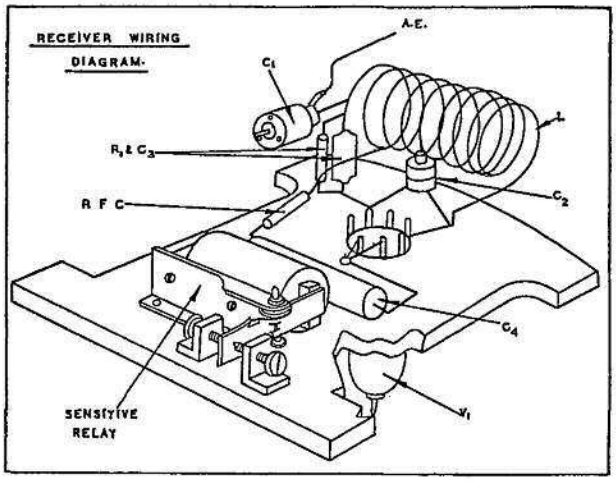
Receiver.

This is a simple, super regenerative, single valve squegging receiver, working on the P.O. allotted frequency of 27 M.cs. On the reception of a signal, the current through the valve decreases due to cumulative grid rectification, and the sensitive relay is adjusted to operate in this current difference.

Circuit Values.

C1 .. .. Condenser—3–30 mm.fd. Phillips type.
C2 .. .. Condenser—3–30 mm.fd. Phillips type.
C3 .. .. Condenser—100 mm.fd., fixed type—mica.
C4 .. .. Condenser—0·05 m.fd., 250 v. working—paper





V .. .. Valve—DL.92 (Mullard).
AE .. .. Aerial—50 ins. of 18-gauge copper wire.
R_1 .. .. Grid resistance—2 M-ohm, ½ watt.
R_2 .. .. Potentiometer—30 K-ohm, small, wire wound.
L .. .. Main turning coil—18-gauge copper wire, 8 turns, wound on a 1-in. dia. former spaced the wire diameter apart.
The former is removed after winding and the coil is soldered directly to the valve base as shown in diagram. The R.F.C. is soldered to the centre tap of the coil.
R.F.C. .. High frequency choke — 110 ins. of 36-gauge enamelled copper wire, wound on any ½-watt resistor of greater value than 3 M-ohm.

Sensitive Relay.

This is the "core" of the whole unit. A number of suitable types can be purchased through the local radio dealer and there are also a few obtainable from ex W.D. radio gear, i.e., the "noise limiter" relay from the set 522 or the U.S.A. relay Sigma 4F.

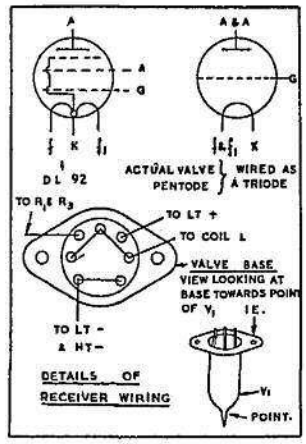
The important features of this relay are:—

(a) That the resistance of the coil should be between 5,000 ohms and 10,000 ohms.
(b) The armature tension must be adjustable.
(c) The relay should be light—say 1–2½ ozs.

See sketch for other details.

Battery Supplies.

HT .. 67½ v.—made up from 3 DH.522 deaf aid batteries in series, these batteries weigh only 1 oz. each and with a valve current of 1·0–1·5 ma. last about 10 hours. Cost 3/– each.
LT .. 1½ v.—This can be either half a single pen cell or a U.11 cell—the latter being heavier but lasting several times longer.



Servo Relay Supply.

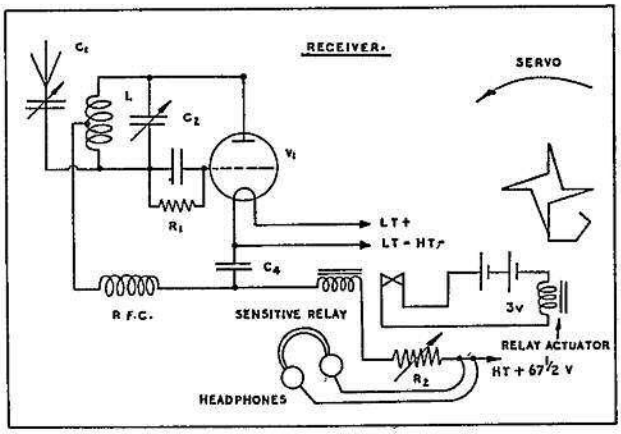
A 4½ v. flat battery is probably the most economical but 2 pen cells in parallel will work for several flights.

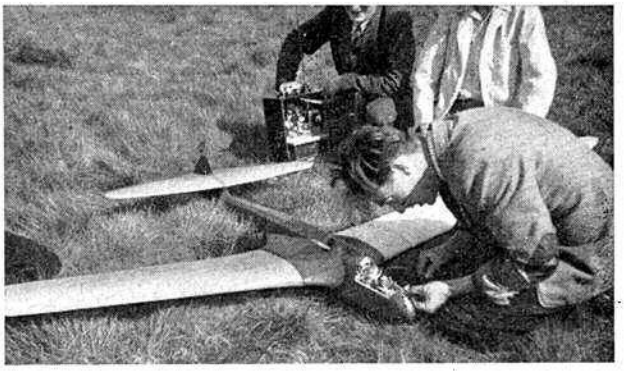
Servo Relay & Mechanism.

For successful operation this piece of the apparatus must be simple, light and reliable. It consists essentially of a low resistance relay, the armature of which is spring loaded and prevents the rotation of the ratchet wheel.

The unit should be constructed as shown in the diagrams.

The relay is wound with 603 turns of 36-gauge enamelled copper wire as shown on diagram.





Photos on these two pages show Mr. Dews making adjustments in the field.

Housing the receiver in the plane.

This, of course, depends upon the type of plane. In my case, the base of the receiver was designed for mounting in the "Fillon's Champion" in the cockpit, and rested on sorbo rubber cushions, the whole being secured by elastic bands.

Wherever possible the receiver should be mounted around the C.G. to minimize the risk of damage due to crash and effects of inertia on the sensitive relay.

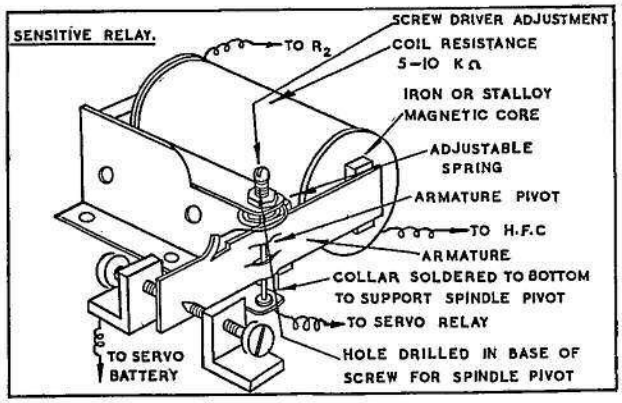
The servo mechanism can be placed anywhere, but once again the weight if placed far from the C.G. may have inertia effects on the model itself—room must be left for at least 8 ins. of rubber motor.

Batteries.

It is best to place the HT and LT batteries as near to the receiver as possible to avoid long leads which may have "negative feed back" inter-action with the aerial.

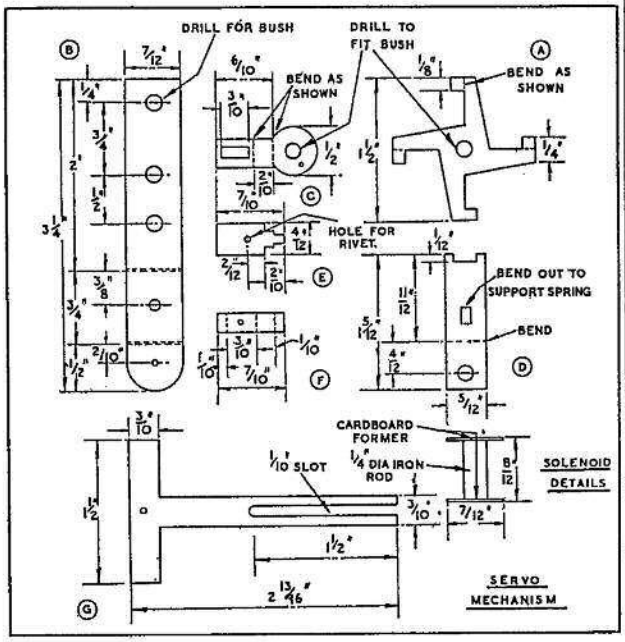
The servo battery can be used as the "balancer" of the model.

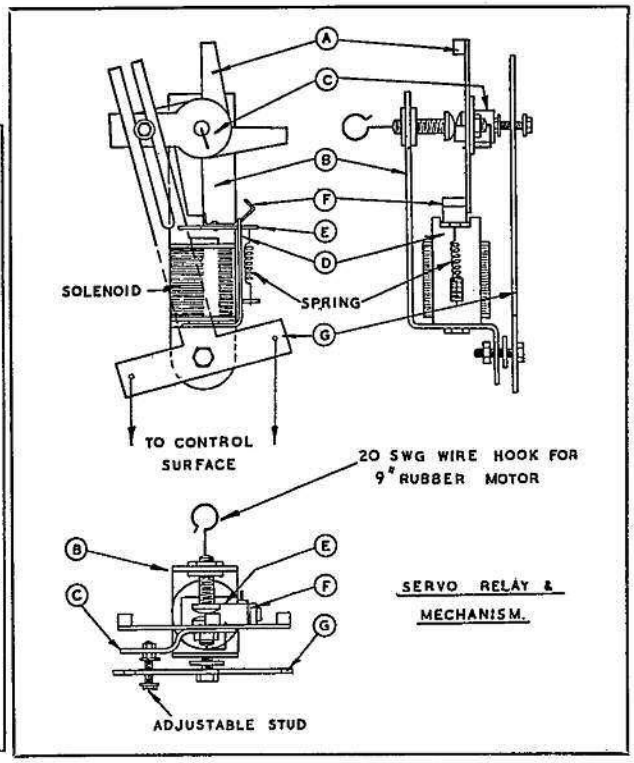
My receiver weighs	3 ozs.
The batteries—HT weighs	3 ozs.
LT weighs	1 oz.
Servo mechanism and relay	2½ ozs.
Servo batteries (pen cells in parallel)	2 ozs.
Wiring—aerial, etc.	½ oz.
Total flying weight	12 ozs.

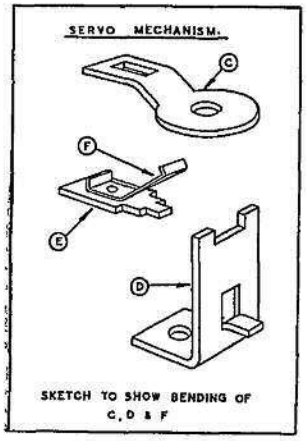


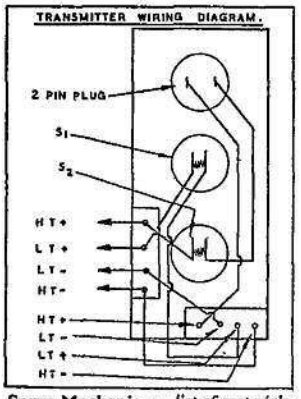
Solenoid constructional details.

Core ¾" length of ¼" dia. iron rod tapped to take 6 B.A. steel bolt.
Wind 600 turns of 36 gauge copper wire (enamelled) onto the cardboard former leaving at least 1" of wire protruding from each end for connecting to supply, etc.

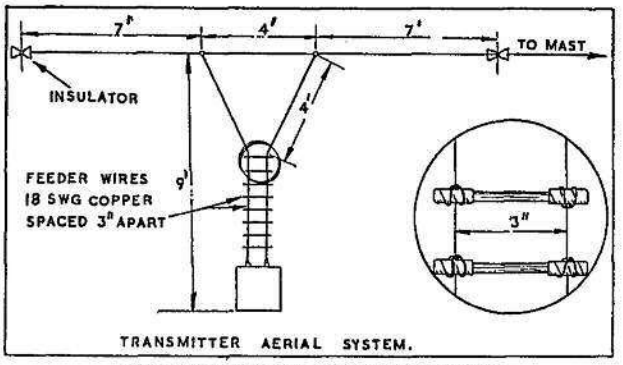








Servo Mechanism—*list of materials. A.B.G. made from Aluminium. C.D.E.F. made from iron.*



Spacers made from scrap hardwood, ends bound with insulating tape and secured to line by rbbber bands.

The Transmitter.

This is a two-valve push-pull oscillator having the tuned circuit across the anodes.

Circuit Values.

V1 and V2 .. LP2. R1 and R2 .. 15 K-ohm, ½-watt.
C1 .. .. 3 to 30 mm.fd. Phillips type condenser.
C2 and C3 .. 25 mm.fd. fixed mica condenser.
C4 .. .. 0·1 mf. fixed condenser.
L1 .. .. Aerial coupling coil—1 turn 18-gauge tinned copper wire, wound on a 1-in. dia. former, the former afterwards being removed.
L2 .. .. 8 turns of 18-gauge copper wire wound as for L1.
HT .. .. 90-volt portable receiver battery.
LT .. .. 2-volt accumulator or 3-volt dry battery.
R.F.C. .. 110 ins. of 36-gauge copper wire (enamelled) wound on a ½-watt resistance of greater value than 3 M-ohm.

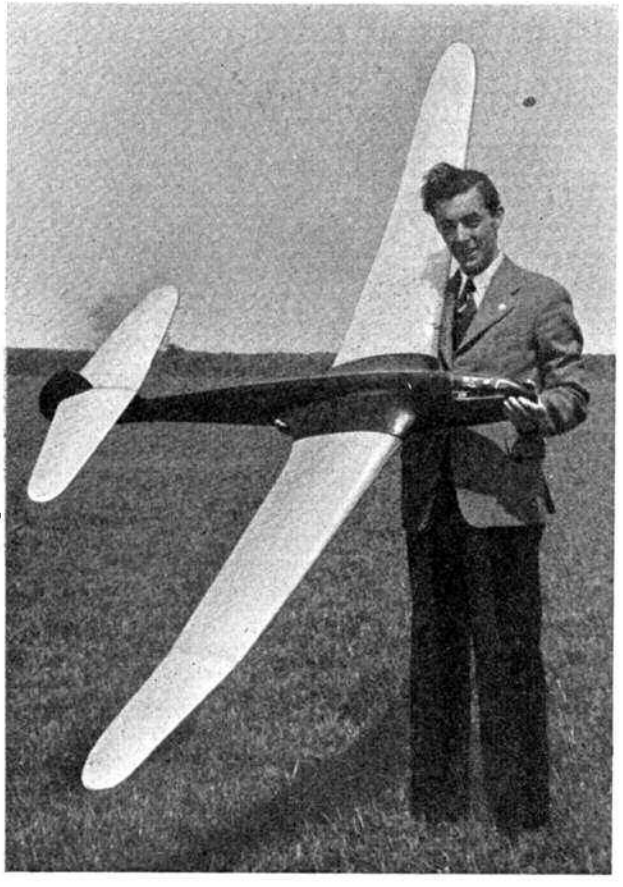
The wiring and transmitter construction is self evident from the diagrams.

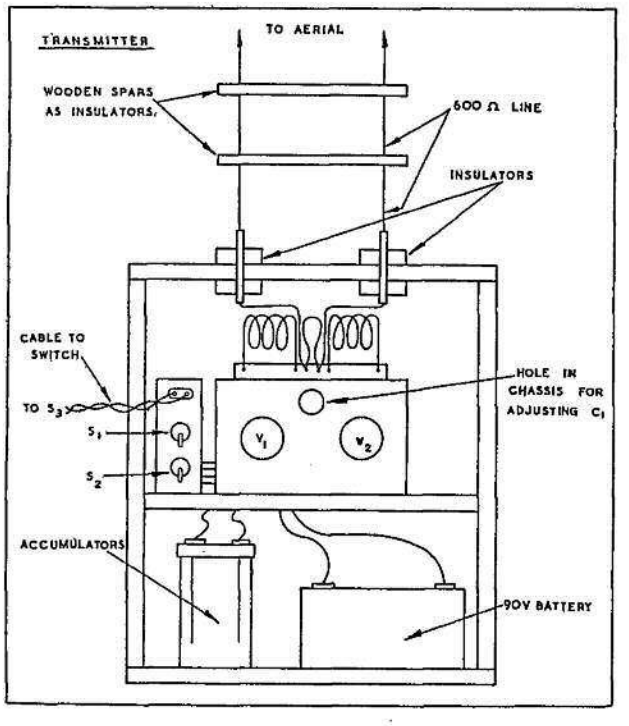
Experiments have shown that the horizontal aerial has better radiation properties than the vertical, particularly when the model is high above the transmitter.

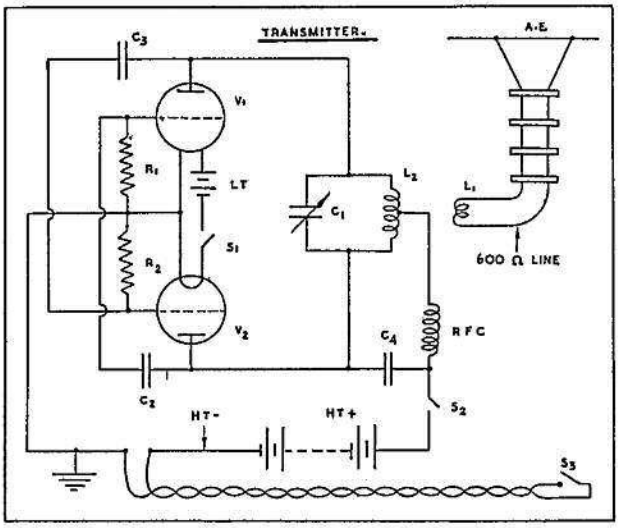
Operating Instructions.

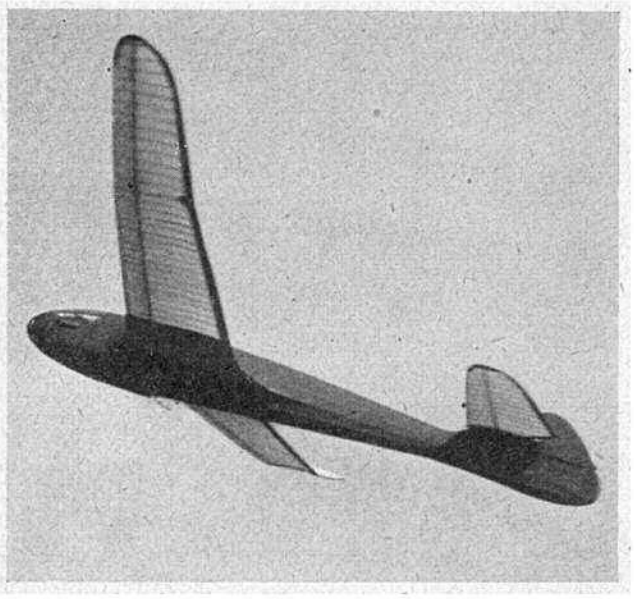
The first job is to tune the transmitter on 27 M.cs. unless the builder is familiar with "Letcher wire" systems, this is best done by taking the transmitter to the local radio engineer—he will be able to do the job in a matter of minutes with instruments.

The receiver should then be connected up to the battery supply, and headphones connected in series with HT× and R_2. With the transmitter switched on C_1 should be turned through half its full capacitance and C_2 adjusted until the signal is heard. Under no signal conditions a low "hiss" will be heard, this will die away to silence when the signal is tuned in. When adjusting these condensers, a balsa spanner must be

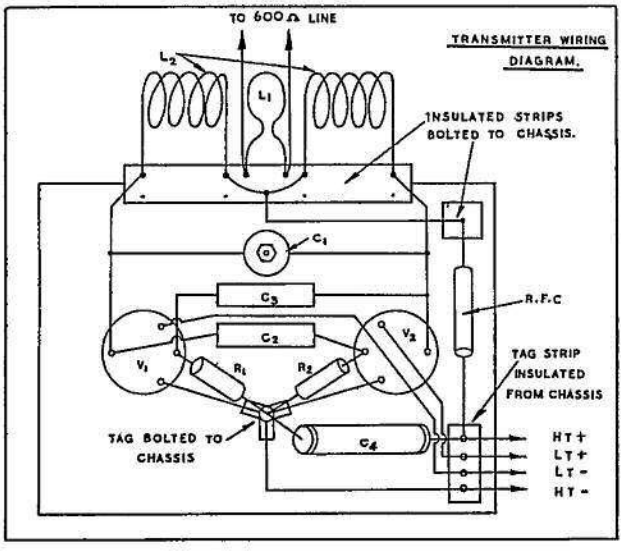








Bottom left shows the author with his model, and right "Fillon's Champion" in flight.



used because of hand capacities which cause mistuning. C_1 is the aerial coupling condenser and should be adjusted for optimum results with the receiver at a distance from the transmitter.

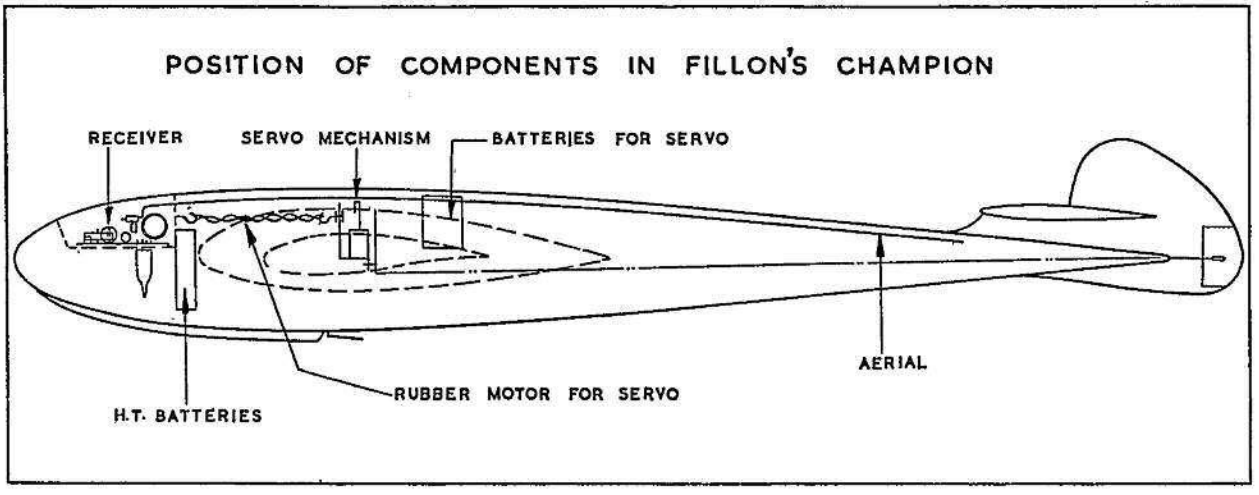
Having "tuned in" the Signal, Relay (1) should then be adjusted to just "break" at the value of receiver current with the transmitter **on.** When the transmitter is off the relay should make. A rough adjustment can be made by altering the armature spring tension. For fine adjustment R2 the 30,000 potentiometer should be used.

The last stage is connecting the servo mechanism and supply to the sensitive relay. It may be found that slight mistuning occurs when the servo circuits are connected; if this is so, by carefully retuning and repeating the above procedure the slight error can be overcome.

I have operated my own unit over a ground range of 800 yds., which I think is further than that required by a model plane enthusiast.

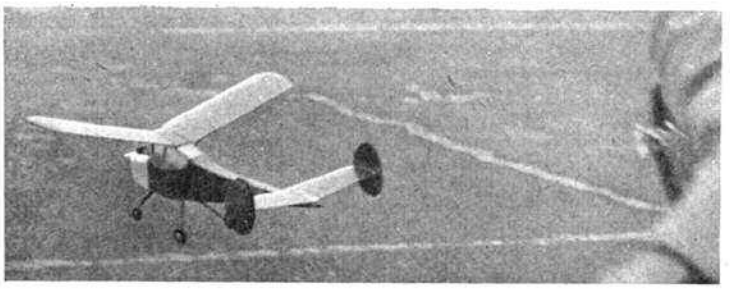
Since writing this article my Fillon's Champion "nosed in" due to a bad launch and smashed my receiver but I salvaged the sensitive relay and other components.

Prior to this we had a 2½ min. flight during which the model passed directly overhead at a height of some 300 ft. and due to the transmitter having a vertical aerial it was not possible to control the model until it was 100 yds. past the transmitter. With the present horizontal aerial system we can control the model in any position.



THE INTERNATIONAL POWER EVENTS

THE BOWDEN TROPHY



BOWDEN TROPHY RESULTS

1.	Dumore, G. E.	Leicester
2.	Poile, W.	Folkestone
3.	Bateman, D.	Dunstable
4.	Osbourne, N.	Belfast
5.	Chatwin, F.	Birmingham
6.	Minney, R.	Luton

SCHEDULED to take place during the " Wakefield Week-end ", the International power contests for the " Bowden Trophy " and a ratio event for a cup to be won outright were something of a flop for two reasons. Firstly (and one for which no-one could be blamed) was the weather which following a dry but windy performance the day previous for the Wakefield Contest, turned on its full venom for the Monday and plagued the contestants with a much stronger breeze, and shower upon shower of rain—much to everyone's evident disgust and discomfort.

The second contributory factor that spoilt these contests was the very evident reaction that had set in from the excitement of the day before, resulting in something of a " couldn't care less " complex that reacted to the detriment of the events. This again could not be blamed on the organisers, who had scheduled the events to take place when a large foreign contingent would be able to participate, and the misfire was just one of those things.

The Bowden Trophy event, in contrast to last year's contest, was poorly supported with an entry of only twenty-one, and of these very few progressed further than the concours judging. Some fine workmanship was evident in the machines on view, models ranging from semi-semi-scale to straightforward duration types obviously out to gain their spurs on flight performance alone.

Although six countries had entries for this event, the top three places went to the home country, Geoff. Dunmore of Leicester being at long last rewarded for his well-known excellence of workmanship by another win, his previous success this year being the collection of the " Halfax Trophy ". Evidently his flying has started to catch up with his building technique !

Poile and Bateman were good runners-up, and full credit must go to the next man in, Norman Osbourne of Ireland, who gained 4th in this event, 5th in the power/ratio, and 18th in the Wakefield—no mean achievement for his first incursion into International affairs.

The power/ratio contest attracted a better field, no less than 41 stalwarts braving the elements. Both France and Belgium had sent teams specially for the event, eleven countries providing one or more competitors. The British

Heading photos. are of Geoff Dunmore and his dimunitive Bowden winner; note the tricycle undercart. Next we have J. Guillemard of France with a massive low wing model and then R. Teasell of Great Britain with a scale Magister. Left, J. van de Caay, well known to readers, starts up his lone Dutch entry.

AT CRANFIELD, MONDAY, AUGUST 1st, 1949

& POWER RATIO CONTEST

Aeromdoeller Photos:

OWER/RATIO |CONTEST

1.	Thiebaut, P.	France	Ratio 11·23
2.	Gunter, B. C.	G.B.	9·14
3.	Kannenworff, L.	Italy	7·56
4.	Drew, G. W.	Ireland	6·47
5.	Osbourne, N.	Ireland	6·34
6.	Boyle, J. R.	U.S.A.	5·59

entry had been limited to six in order to avoid the foreign contingent being swamped by the "local" entry, our representatives being selected from the results of the "Sir John Shelley" contest held last Whitsun.

Some very fine flying was witnessed in this contest, despite the poor conditions, and a number of flyaways took place. As the contest progressed, it was evident that the biggest threat was that provided by the Italian entry of Kannenworff, a large green model that climbed steadily and had a perfect glide.

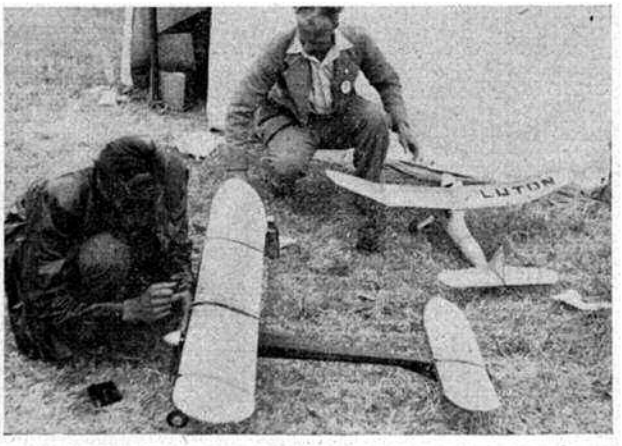
This was in direct contrast to the main British hope, Gus Gunter, whose well-known "Banshee" design had a screaming climb but seemed a bit troubled on the glide. Gus himself was not at all satisfied with things, but managed to improve matters as the rounds went by. Stothers, another British entry, had trouble after a crack-up at the end of his first round flight, which was a good one, and ended up with a wrecked model.

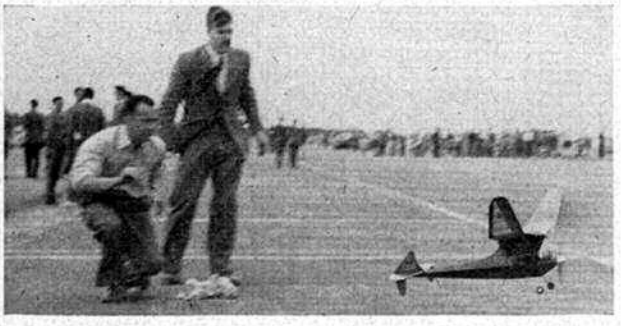
Other competitors were plugging away steadily, but it was obvious that no-one was really happy, and the contest drew to a close with more and more long faces as both models and motors were written off.

It was towards the finish that the eventual winner, Thiebaut of France, provided the best flight of the day, sufficient to win him the contest on a two-flight total. The expected American threat did not materialise, Boyle placing best at 6th, but their machines were at least notable for fine construction and finish—more than could be said for some entries!

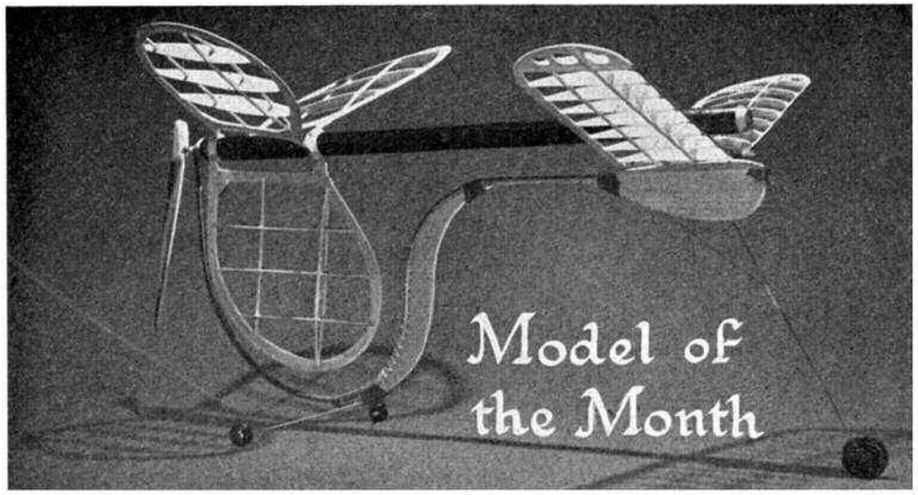
Thus the day finished with the remnant of a crowd that had dwindled away as the afternoon progressed, most people obviously having in mind the Wakefield presentation due to take place shortly, and in fact very few were available to cheer the winners when the final announcements were made. To say the least, this day was something of a damp squib after the unusual excitement of the day before, and I feel that the only remedy would have been a bright sunny day, which unfortunately did not materialise.

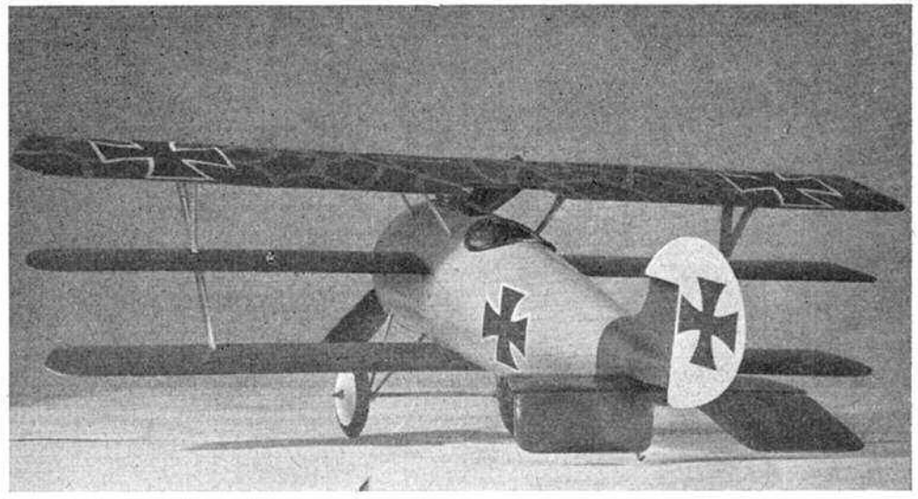
So ended the International Power events that had been looked to with such anticipation, and full marks go to those competitors who braved the elements to put on something of a show in spite of the conditions.





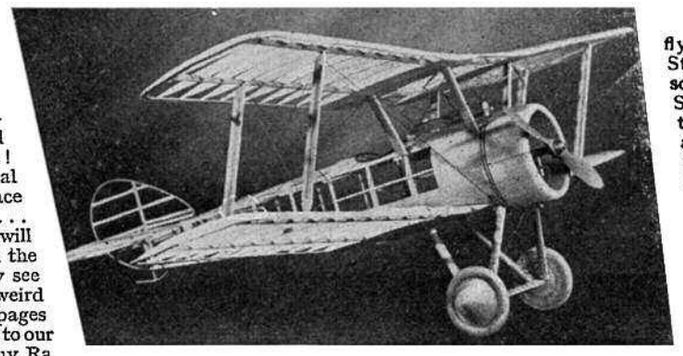
Top left depicts Kannenworff of Italy who placed third, and photo. top right demonstrates the excessive downthrust used by Lippens of Belgium. We then have two Luton Club members with Minney who placed 6th in the foreground. Next an action shot featuring Des Woods of Ireland, who watches his Banshee wail, and finally Christianson of Denmark being assisted by his wife.

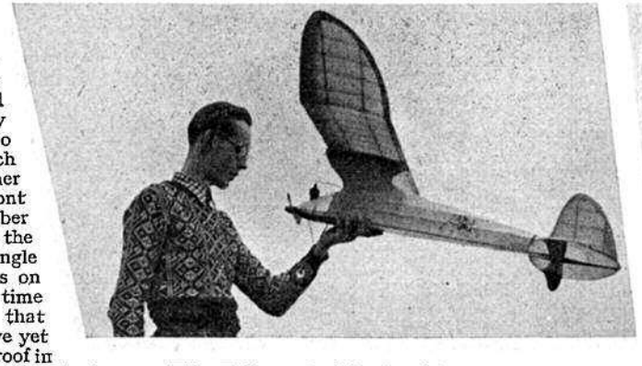




FLIAR Phil knows very little about grass cutting in or out of season, but he will go in and out of the Barley Mow any time—*in* if it's within licensing hours and *out* (on his ear) if it's not! Still, it takes a good deal of Dutch courage to face his readers every month . . .

Model News readers will by now be familiar with the fact that whenever they see something especially weird and wonderful in these pages it can often be attributed to our Belgian experimenter Guy Ramaekers, and so it is with our Model of the Month. It bring with it another word for the Aeromodeller's Encyclopaedia Britannica, for his term for this apparition is a Rotoscrew—and he invites us to note particularly "tricycle undercarriage, the banjo fuselage made from quarter inch aluminium, the single bladed pusher prop, the canard butterfly front tail (!), and the trirotor." Rubber powered, the length is 30 ins. and the rotor diameter 18 ins. Flying angle is from 10 degrees to 70 degrees on the motor run, the average time nearly 50 seconds and he insists that this type of model, which we have yet to see over here, is absolutely fool proof in the hands of beginners or experts. A sort of "even Fliar Phil can fly it" effort!!



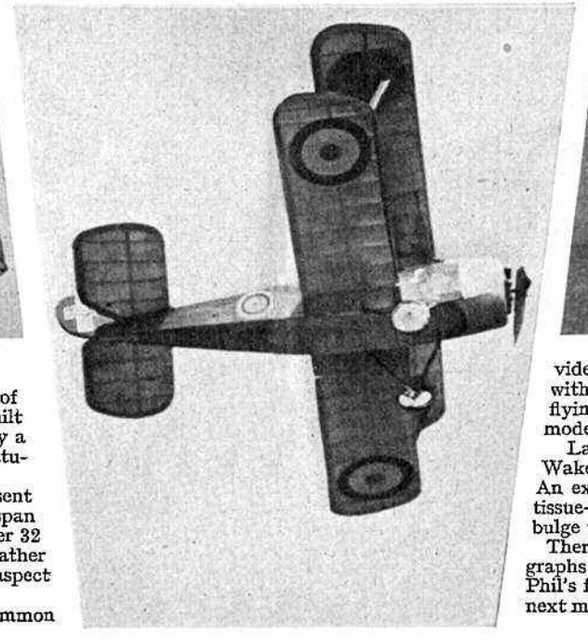


Working down the page we come next to a very fine piece of flying scale modelling by H. L. Mann of Leeds, fully done justice by a first-class photo by the Yorkshire Post. The Model, a Sopwith Pup built from A.P.S. Plans, is ⅛ scale and took the builder 80 working hours to complete. It is powered by a Frog 100 fitted with a 9×4 prop. and stability is achieved with the usual pendulum rudder. Congratulations to Mr. Mann for the quality of the construction so well brought out by the photo.

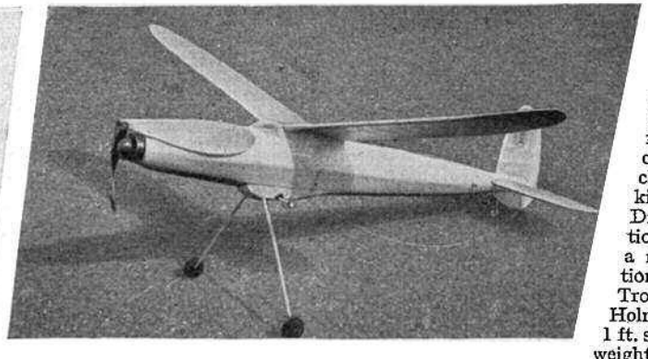
News from Germany still arrives in disjointed correspondence, and photos also occasionally present themselves. In the next photo, by our correspondent Hans Pfeil, an elderly "Kaiman" 5 foot span petrol model designed around 1941 to '43 is shown, powered by an Eisfeld 7·5 c.c. Weighing just under 32 ounces it still puts up a consistent three minutes on 30 seconds, the claimed rate of climb being the rather optimistic figure of 2,000 feet per minute. Note the large single wheel undercarriage and the low aspect ratio tailplane with twin anti-spin finlets.

Bottom centre is another of J. A. Mountain's first-class action photos, this time of a less common flying scale model though still of the Sopwith family—the 1½ Strutter. The photo was taken at the Southampton Club's flying scale contest which this model won. It was designed and built by A. Sanger of Southampton and appears to be powered by a baby diesel, though as no further details are to hand it is hard to say with any accuracy. This illustrates Fliar Phil's often reiterated plea to supply plenty of gen with the photos you send in—otherwise he has to use his pea-brain and guess, which often gets him a thick ear from the customers.

Over to the right and our last three photographs. Top is a flying scale control-liner, notable not only for the subject but also for the excellence of construction and finish. In case it should puzzle readers as it did Fliar Phil, it is a Pfalz Triplane, and was designed and built by J. L. Garwood of Beckenham, who some of you may remember, built a very attractive Fokker Tripe that was featured in Model News not very



long ago. The scale is 1 in. to 1 ft. and the model must look very pretty indeed in its colour scheme of yellow fuselage, blue tail, dark grey wings with pale green camouflage, and pale grey under surfaces. Powered with an E.D. Comp. Special, it gave trouble at first owing to over-sensitive controls, but now after suitable adjustments to the control system no more trouble has been experienced—it is still tricky but the builder at any rate has got the hang of it! All up weight incidentally is 16½ ounces.

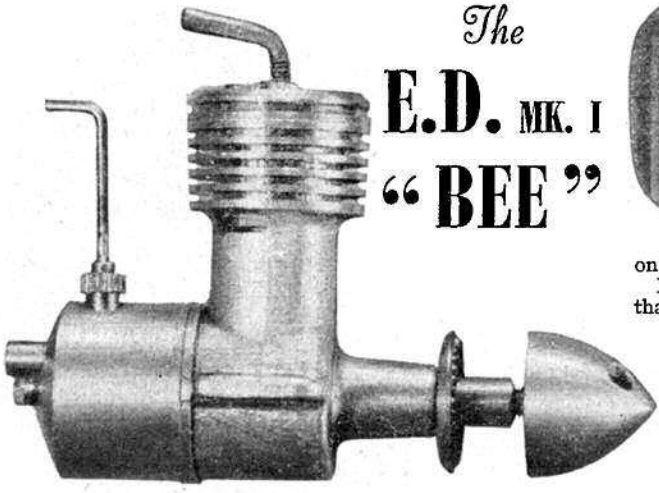


Something which you have not seen much of in this country so far is the super detailed flying scale control-liner such as is fairly common in America, where contests are specially run for this class. A typical example of the kind of entry is Californian reader Dick Schumacher's "Laird Solution", illustrated above, which is a model of the first "Laird Solution" which won the Thompson Trophy in 1930, flown by "Speed" Holman. The model is 1-1/3 ins. to 1 ft. scale giving a span of 28 ins., and weight of around 2½ lbs. Power is provided by a Vivell 49 which has been continuously plagued however by engine trouble. The wing is braced with individually sprung fishing-leader nylons which are always taut, while the black fuselage and gold flying surfaces are decorated with home-made transfers. A very nice set up and altogether a fascinating model which Fliar Phil would certainly like to see in flight some time.

Lastly, Pete Montgomery of Kirkcaldy, well-known hat at National events, built this most unusual Wakefield and flew it at Fairlop in the eliminating finals, unfortunately without the auspices of Lady Luck. An extremely interesting model featuring a sheet balsa fuselage, sheet balsa top surface to wings with tissue-covered lower surfaces, and airdraulic operation of chute dethermaliser housed in the streamlined bulge under the fuselage.

There we have the assortment for October—so before those very dark days if you get any good photographs of anything interesting or unusual in the model line—well, send them along. Try not to forget Fliar Phil's frequent cajolings—enlargements and/or negatives please—and plenty of gen on the subject. Till next month then—good focussing!

The E.D. MK. I "BEE"



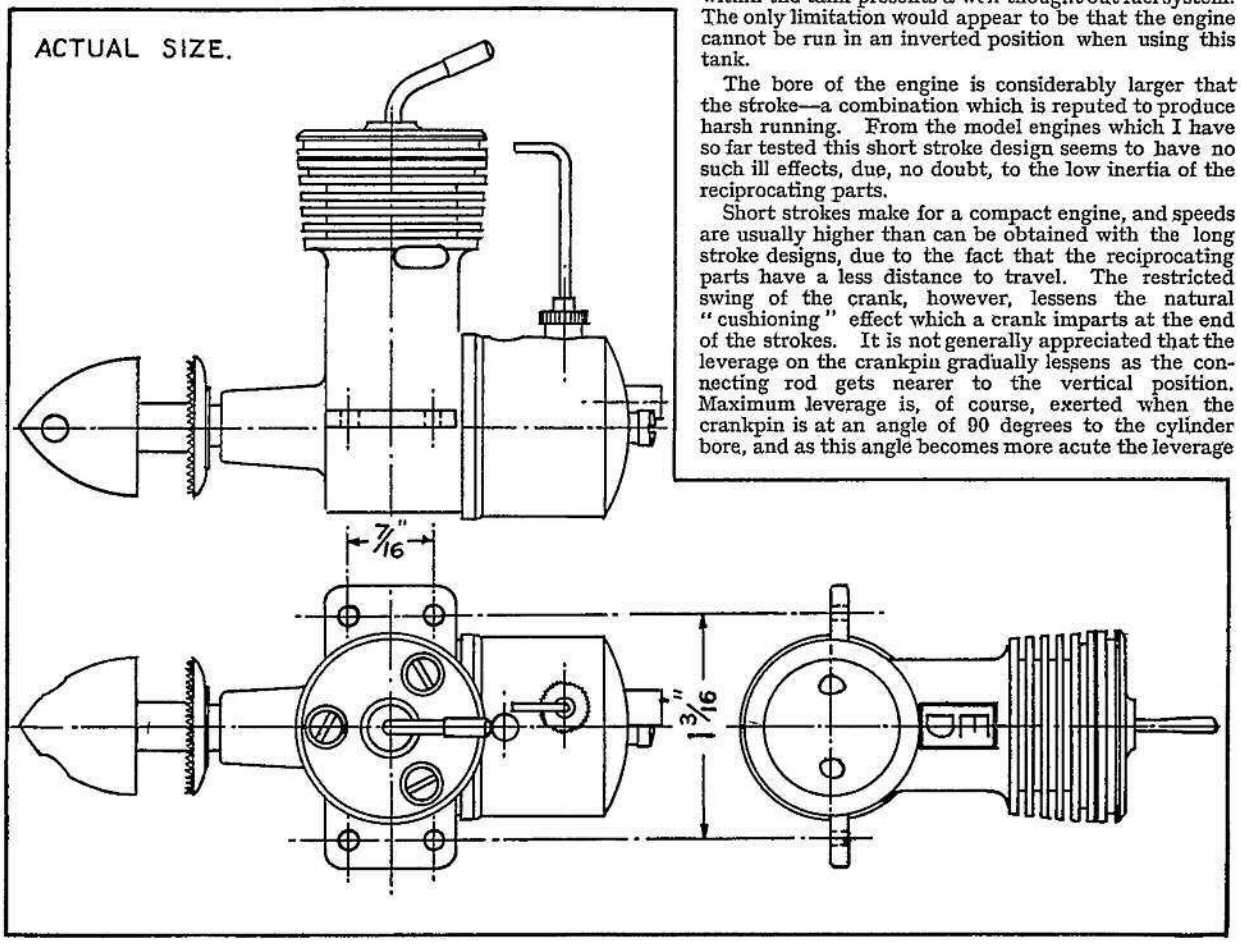
ONE of the greatest virtues of the compression-ignition type of engine is that it may be successfully made in the very small sizes; in fact, it is doubtful if the lowest limit of size has yet been reached, although a diesel of only ·08 c.c. has been successfully run. Interesting as these real miniatures are, it would seem that engines around 1 c.c. capacity are quite small enough for the average aeromodeller who is not particularly anxious to carry his aeroplane in his waistcoat pocket. Several good engines of about 1 c.c. capacity are now on the market; the E.D. Mk. I being a typical example.

During a protracted test of the E.D. "Bee", I cannot say that I discovered anything about which to complain: in fact, I was impressed with the reliability, easy starting qualities, and general handiness of the engine. The controls are particularly well placed, all of them being out of range of the spinning propeller. I must confess that when an engine is easy to test—that is, when it will run steadily over a wide range of speeds—I am, perhaps, rather prejudiced in its favour, although I do feel that any engine which performs well under test conditions is also likely to be equally good in actual flight. This does not always follow, of course, because I am unable to say, for instance, whether a fuel tank is correctly placed for, say, control line work.

Speaking of fuel tanks, I am also predisposed to any engine in which this component forms an integral part, as not only is the engine extremely simple to install, but the structure of the 'plane itself can be simplified. The tank of the "Bee" engine is conveniently placed, and of useful capacity, while the extremely neat manner in which the carburetter is embodied within the tank presents a well thought out fuel system. The only limitation would appear to be that the engine cannot be run in an inverted position when using this tank.

The bore of the engine is considerably larger that the stroke—a combination which is reputed to produce harsh running. From the model engines which I have so far tested this short stroke design seems to have no such ill effects, due, no doubt, to the low inertia of the reciprocating parts.

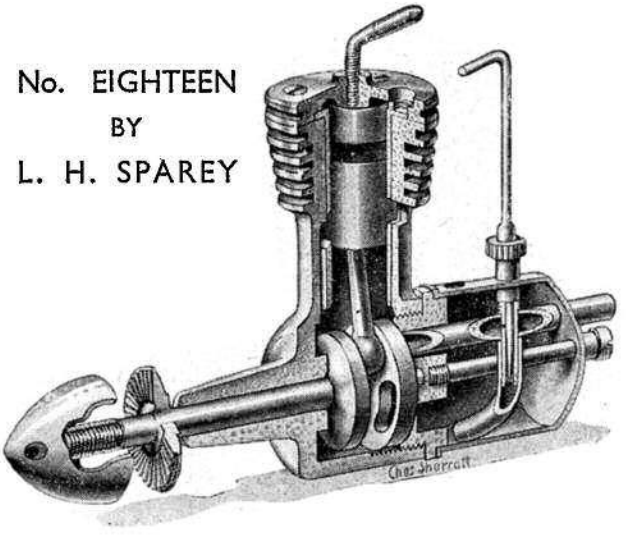
Short strokes make for a compact engine, and speeds are usually higher than can be obtained with the long stroke designs, due to the fact that the reciprocating parts have a less distance to travel. The restricted swing of the crank, however, lessens the natural "cushioning" effect which a crank imparts at the end of the strokes. It is not generally appreciated that the leverage on the crankpin gradually lessens as the connecting rod gets nearer to the vertical position. Maximum leverage is, of course, exerted when the crankpin is at an angle of 90 degrees to the cylinder bore, and as this angle becomes more acute the leverage



No. EIGHTEEN

BY

L. H. SPAREY



becomes less. With long stroke engines, having a large crank swing, this tapering-off effect is naturally greater, and it is, therefore, surprising that the effects of a short stroke do not seem to be noticeable in miniature engines.

TEST

Engine : E.D. Mk. I " Bee," ·9 c.c.
Fuel : Maker's recommended.
Starting : Following my usual practice pulley and cord starting was generally used for convenience, but the engine was experimentally started by hand from time to time. Starting was simple with engine hot or cold, and needle settings were not unduly critical.

Running : The b.h.p. graph embracing, as it does, speeds from 3,000 to almost 13,000 r.p.m. says all that is necessary about the extreme versatility of this engine. It ran steadily at almost all speeds, although the controls were wickedly maladjusted to obtain the speeds below about 4,000 r.p.m. Strictly speaking the tests on the very lowest speeds serve no useful purpose, and were undertaken from motives of mere curiosity.

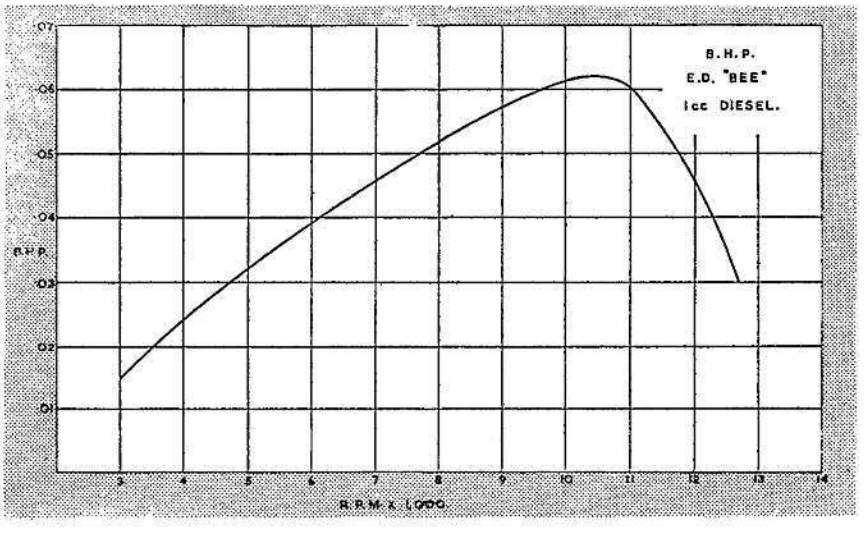
B.H.P. : Apart from the rotary-disc inlet valve, the porting of the engine seems quite orthodox, and the 360 degree exhaust porting which seems to have become a feature of " hotted-up " engines is not employed. This moderation probably accounts for the easy handling qualities of the engine, but, nevertheless, the extremely good figure of ·062 b.h.p. was recorded at 10,600 r.p.m. The curve is extremely flat, and power does not fall off in the abrupt manner usually associated with diesels after the peak has been reached. Apart from allowing of a little misadjustment of settings, however, a flat curve has little virtue for model aeroplane work, where flexibility of running is little asset, and no object can be gained by " revving " beyond the speed of maximum output. On the other hand, from the viewpoint of the bench-tester, flexibility is the answer to the maiden's prayer.

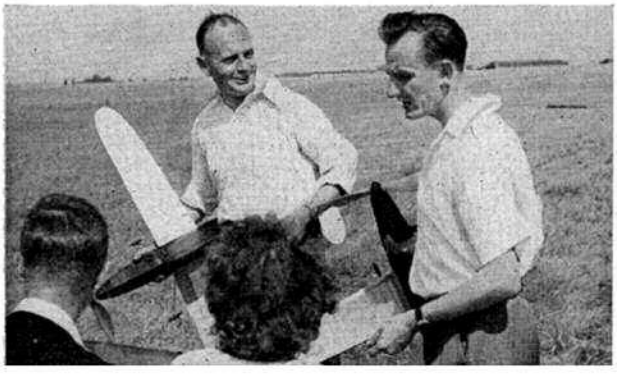
Checked Weight : 2·7 ozs. complete with tank.
Power / Weight Ratio : ·368 b.h.p. /lb.
Remarks : No mechanical failures were experienced, and the engine seemed none the worse for the rather gruelling test conditions. The engine seems to be a reliable general-purpose unit.

GENERAL CONSTRUCTIONAL DATA

Name : E.D. Mk. I " Bee " Diesel.
Manufacturers : Electronic Developments (Surrey) Ltd., Villiers Road, Kingston-on-Thames, Surrey.
Retail Price : £2. 5s. 0d.
Delivery : Stock.
Spares : Complete service.
Type : Diesel.
Fuel Specified : E.D. Standard fuel.
Capacity : ·9 c.c.
Weight, bare : 2¾ ozs.
Compression Ratio : 16 : 1 approx.
Mounting : Beam upright.

Recommended Airscrew : 8 in. D., 4 in. P for free flight 7×6 in. control line.
Recommended Flywheel : As supplied complete with coupling.
Tank : Metal : affixed to crankcase, detachable for C/L.
Bore : ·437.
Stroke : ·4 in.
Cylinder : Aluminium alloy casting. One piece with crankcase with integral fins, two exhaust ports and transfer duct.
Cylinder Head: Plain, 3 retaining screws.
Contra Piston : Case hardened steel.
Crankcase : Aluminium alloy (see cylinder).
Piston : Flat top, cast iron, ground and lapped.
Connecting Rod Type : Case-hardened steel.
Crankpin Bearing : Plain.
Crankshaft : Case-hardened steel, ground and honed.
Main Bearing : Plain.
Little End Bearing: Plain, hardened steel, honed.
Crankshaft Valve : Rotary disc.
Max. Revs. Claimed, Airscrew : 9,000 r.p.m.
Cylinder Liner : Case-hardened steel.
Special Features : For inverted flying or for use in a control-line model where a larger tank may be necessary, the fitted tank can be easily removed by taking out the needle and unscrewing the retaining screw under the air inlet tube. The needle is then replaced and fuel lead attached to new tank.





The 1949 IRISH NATIONALS

DESCRIBED BY C. S. RUSHBROOKE

HELD as usual at Baldonnel Aerodrome, just outside Dublin, the 1949 Irish Nationals lived up to its tradition of being an enjoyable, free-and-easy affair, that took one's memory back to the days before huge meetings with their attendant worries and niggling.

Again blessed with a fine day, the wind—in contrast to last year's "magnificent" effort—was steady and not too strong, and the models were not unduly handicapped. With entries from most of the Irish clubs, and a fair contingent from England, the 1949 affair was notable for the entry of two American modellers: Joe Boyle of the American Wakefield Team, and Jimmy Tangney, who had flown proxy for Lim Joon of Australia a fortnight earlier.

Flying started with a Wakefield type contest, and it was evident that some pretty good times would be recorded. Copland put up a fine, steady flight of 4 : 07·5 in the first round, only to have this time bettered by Pollard of the Dublin club, who made a flight of 5 : 32·5—losing his model in the process. Tommy Daulman clocked just over 3 minutes, but Boyle had the bad luck to hit an unstable patch, and collected a machine badly in need of repairs after a flip of only 12·2 secs.

Don Brockman, flying proxy for clubmate Warring (detained in England by domestic illness) worked well to get a time of just under two minutes, and boosted this up to 4 : 47·25 in the second round to put the "Zombie" well in the running.

This was the top time for the middle round, next best being Irish Team member Fitzpatrick of Crea, who lost his model following a flight of nearly 4 minutes. Copland, always a strong contender for this event, got a poor flight of 1 : 22·2, thus putting himself some 90 seconds behind Warring. Tinnion and Daulman meanwhile were putting in consistent flights, to bring up a strong rearguard action, though as time went on it was evident that Pollard and Fitzpatrick might not be able to complete their flights.

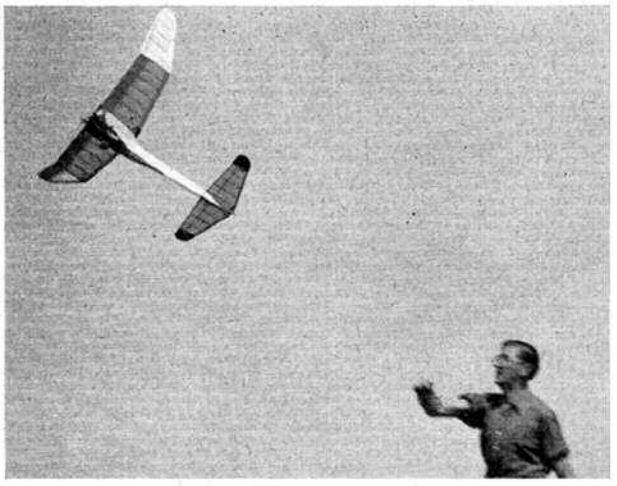
This proved to be the case eventually, as neither machine had been returned by closing time, which was a great pity, as with a bit of luck either of these entrants could have altered the final decision.

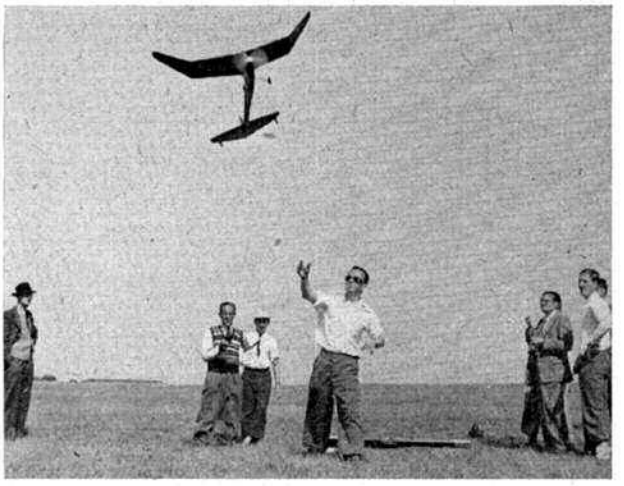
The third and final round took place concurrently with the power contest, and although Copland pulled out a bit more for this round, it was not quite enough to put him ahead of Warring, Brockman getting a final flight of 1 : 49·8 to head the list, and take the Irish trophy back to England for yet another year.

Boyle meanwhile had produced some good repair work, and got in two consistent flights, but his low first time put him out of the running. For consistency, Tangney took some beating with times of 2 : 07·7, 1 : 55·7 and 2 : 07·4, whilst Tinnion pulled out his best flight of 2 : 48·8 to bring him up into third position, this also being the best time of the final round.

With 28 entries, the Power event was a somewhat patchy affair from the flying viewpoint, this seemingly being a regular happening with these contests. Crashes were mixed with one or two outstandingly good flights, one of the former being

Photos from top to bottom are as follows;—1. Chris. Bruton, popular commentator at the mike, with Gilbert Roe and a fair helper seated at the control table. 2. Don Brockman disengages after winding, anxiously watched by Joe Boyle of U.S.A. 3. Copland and Tinnion report at control. (They were incidentally placed first and second when this photo was taken.) 4. A winding session featuring Brazier left and Dunleavy right.





Doc Charles of Dublin, second man in the power event, applies a little elbow grease to assist his Banshee on its way, whilst right, Des Woods adopts a less forceful style with his winning Banshee. Below, we have probably the most attractive model seen, in the power event, a semi-scale Mills '75 c.c. job by Woosnan.

Warring's ancient " Banshee ", which took a real purler to finish its chances in this (or any other ?) contest.

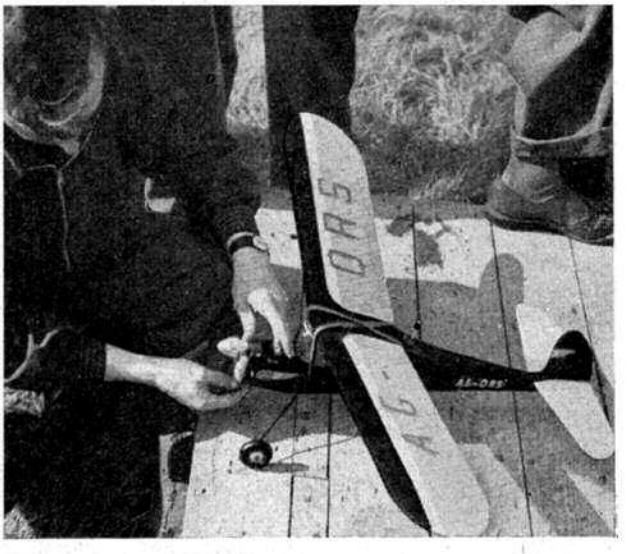
However, the " Banshee " reputation was upheld by Dennis Woods (Phoenix) who flew his version for three fine, stable flights of 1 : 39, 1 : 43 and 1 : 29, the nearest to this being Doc Charles with 0 : 51, 2 : 07 and 1 : 24. Norman Osbourne was the biggest threat in this event, but following two good flights, spoiled his chances by going over the limit with engine run on the final round.

Generally, the models were all kit or plan designs, with a meagre sprinkling of own designs—the latter generally being better flown. It is rather surprising how few basically good commercial designs are properly flown by their builders. (There's a clue there somewhere !)

The official social event which followed the contests was an enjoyable affair, with the usual speeches cut to a minimum by the orators ! The gem was that by Doc Charles, who, following insistent demand for a speech got up and said " I've had a foine time—thank you "—and sat down.

Frank Zaic, taking in his first Irish event as a hors d'oeuvre to his continental tour, gave a typical " Francis O'Zaic " speech by reference to the old song " My Wild Irish Rose ", stating that he had noticed a number of " roses " but had had no time to find what made them wild !

Thus ended another fine Irish Nationals, which, coupled with the many friendly contacts made and renewed, and that welcome re-union with steaks and potteen, makes this meeting a " must " on the calendar from now onwards.



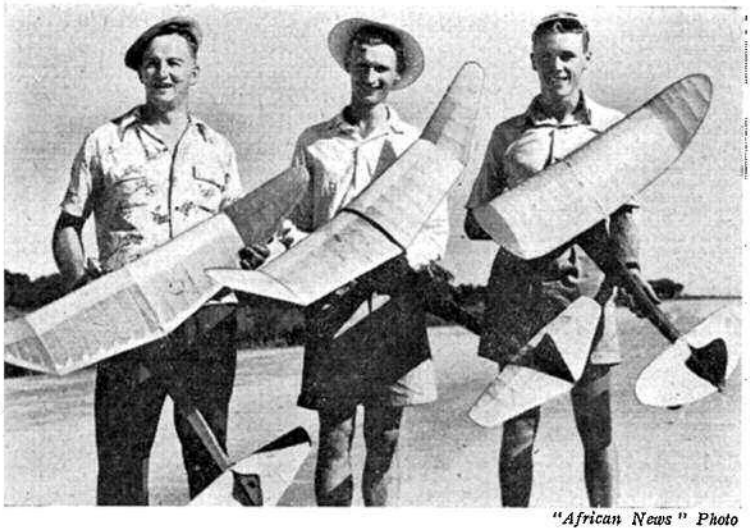
WAKEFIELD CONTEST RESULT

1.	Warring, R. H. (Brockman)	Zombies	516·4
2.	Copland, R.	N. Heights	464·9
3.	Tinnion, W.	Dublin	430·5
4.	Daulman, T.	Belfast	413·7
5.	Tangney, J.	Chicago	370·8
6.	Osbourne, N.	Belfast	365·9

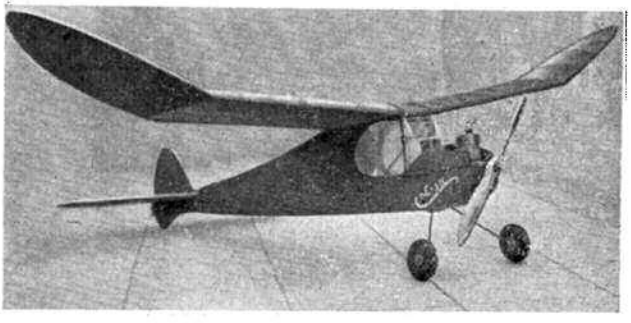
POWER CONTEST RESULT

1.	Woods, D	Phoenix	291
2.	Charles, Dr. H.	Dublin	262
3.	Osbourne, N.	Belfast	208
4.	Young, S.	Belfast	199·2
5.	Austin, C.	Londonderry	195·2
6.	McDonnell, F.	Belfast	180·7

Imbibing Ireland's National brew, we have from left to right:—Harry Hundleby and "Rushy" "Aeromodeller", Eddie Cosh of "Model Aircraft" and Frank Zaic who covered the event for "Air Trails". By the look of it a typical Zaic "line" has incurred disbelief amongst his companions.

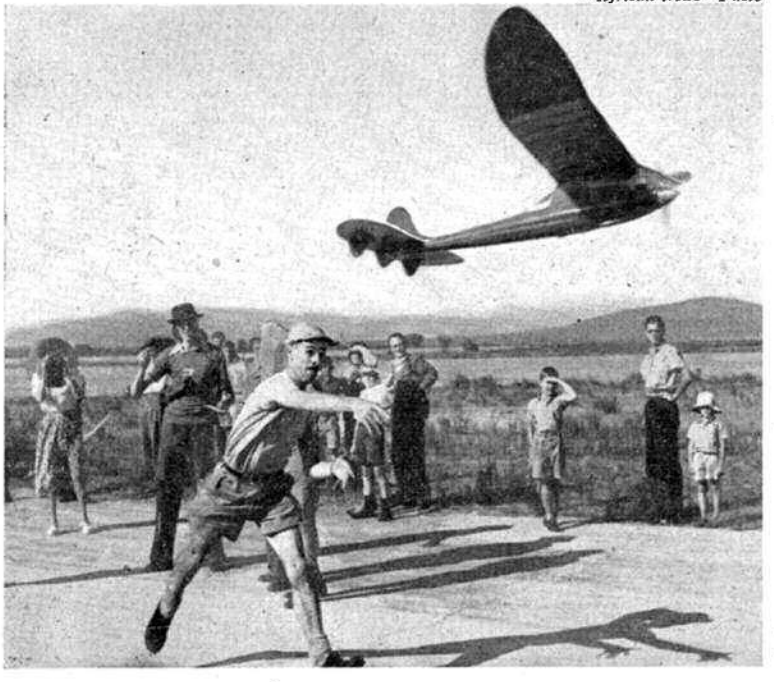


"African News" Photo



Heading picture shows Messrs. Boxall, Rowe and Vos winners of recent South African Nationals at Phesantekraal Aerodrome, nr. Capetown. Centre : Highwing Israelite power model built by Abe Guttmann of Tel Aviv. Below : An action shot from the South African Nationals, featuring E. Wannenburg of Western Province.

"African News" Photo



OVER TO YOU

THE BOFFIN'S NEWS OF MODELLERS OVERSEAS

OUR far-flung correspondents have now rallied round to enable the Boffin to offer a further miscellany of news, introducing one or two new aeromodellands, and some of the good old regulars.

Lebanon Lament.

Heart cry from Lebanese Rene Abdulla that neighbours got all the publicity in our columns was backed up with appropriate gen on their activities. Quoting from his letter : " . . . there are five Lebanese aeromodellers and a newly-founded American club, mostly tapline employees —they are rather kit building . . . Recently we acquired a 3 c.c. petrol engine but it suffers from ' startisis ' probably because of its coil being boiled. Our resources are a balsa raft, found astray on the seashore and some birch ply . . . We have about twenty-five sailplanes . . . mostly heavyweight as thermals are almost entirely absent. Each of us designs his own models but we are persecuted by all those who observe us flying models ! We have never exceeded 90 feet altitude or 100 secs. duration. A gliding club was to have been formed but was given up owing to unfavourable climate." The Boffin can sympathise : he too has been persecuted not only by brutal spectators but also by Frankenstein models turning on him, and those he assists swearing he has deliberately pranged their controliners.

Old Pals in Israel.

Young Abraham Guttmann gives us the story of his introduction to aeromodelling in Tel Aviv, by way of a kind aunt in Canada who sent him an engine. After fruitless efforts to start it he was introduced to Dr. Sultan, whose models have appeared in these columns before, after which everything was plain sailing ! The good doctor not only put our young friend on the right lines but produced supplies of hard to get items such as dope, and even revealed an occasional source of supply. Abraham learned his first aeromodelling as a refugee in Cyprus where he saw some solids, since then he has built about twenty of them. Early efforts at kit-building were spoiled by impatience (an international failing !) so that his power model illustrated can be described as virtually a first off flying model !

Bulawayo Bods.

Chas. Landry of Bulawayo, Southern Rhodesia, who is a member of the club there, feels we might be interested in local activities in a part of the world where the intense heat of the sun destroys insulation of the secondary windings of their coils. For that reason, amongst others, they would welcome some enterprising British firm marketing a good series of engines. Several British diesels have performed well, after initial trouble sorting out a suitable fuel mixture for the climate. Control line flying has not proved very popular but a number of U.S. power kits have been built and the ever-popular A.P.S. Eros and Overlander. Beam mountings are most in use rather than radial or knock-off fittings : engine cowling has been abandoned in favour of accessibility because of the number of fires ! Rubber models have been troublesome—the ground is so hard that balsa props. are usually shattered on the first ropy landing. Other local hazards include thorn bushes, which spell disaster to any model.

These litter the so-called wide open spaces.

Guff from the Gulf of Aden.

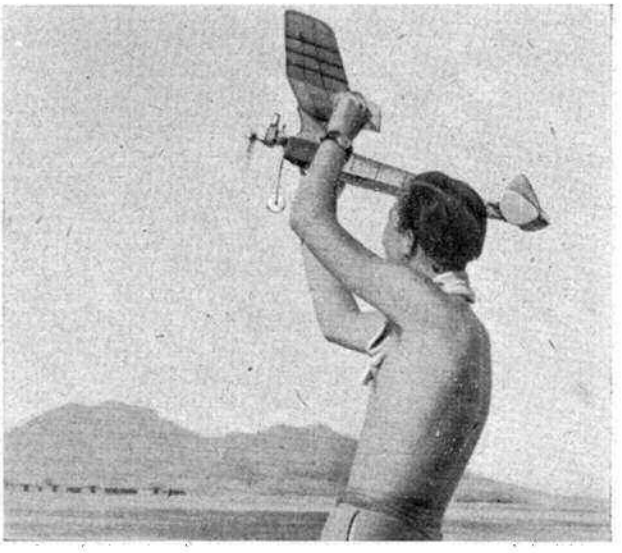
Those fine old colonisers the R.A.F. have got going with aeromodelling in Aden. Much of their flying seems in the nature of an Arabian night's entertainment as between 8 a.m. and 6 p.m. even the mad dogs and Englishmen take shelter from the sun. Usual practice is to have an " early call " for enthusiasts who get in their flight quota before breakfast. Rock hard ground here too takes its toll—seldom a prop. lasting more than a bare half-dozen flights. Thermals are much in evidence and a timer is essential for the shortest of power flights. Station free-flight record has just been broken by a Mills-powered Slicker 50 at 6 : 15 on a fifteen-second engine run. Anything more ambitious loses the model—a companion Slicker was last seen at a terrific height heading over the Gulf, presumably some Indian or Pakistanian is now the richer by a somewhat monsoon-battered model ! In spite of a regular 110 degrees in the shade however, the balsa chippings still fly according to our correspondent, A. M. Robson, now due for " repatriation."

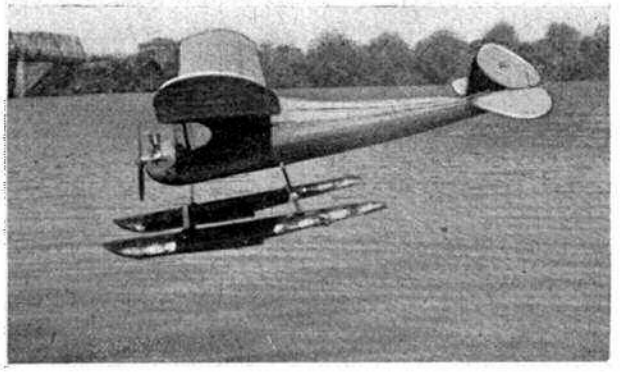
It's Not All Bull in Spain !

The land of toreadors and courtesy is our new boy this month. Recent frontispiece caption that deplored lack of news of aeromodelling over there has brought pages of information and pictures, which have taxed the Boffin's fragmentary knowledge of Spanish to the full. Full governmental support is given to their activities—the Caudillo himself turning up to hand round the prizes at their Nationals. Spanish record for " aeromodelos sin motor "—presumably open glider—is claimed at 2 hours 1 min. 30 sec., but to best of our knowledge is not F.A.I. ratified. Over fifty clubs are now functioning, and 392 entrants flew nearly nine hundred models at their latest Nationals. This marks an increase from three clubs only in 1941. There are no less than 474 registered aeromodelling instructors, sixteen Chief Instructors and a total of 22,116 active aeromodellers.

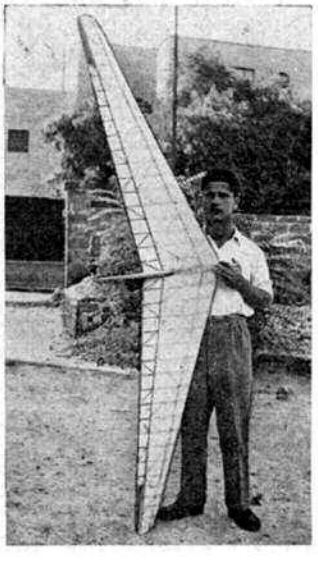
New Zealand News.

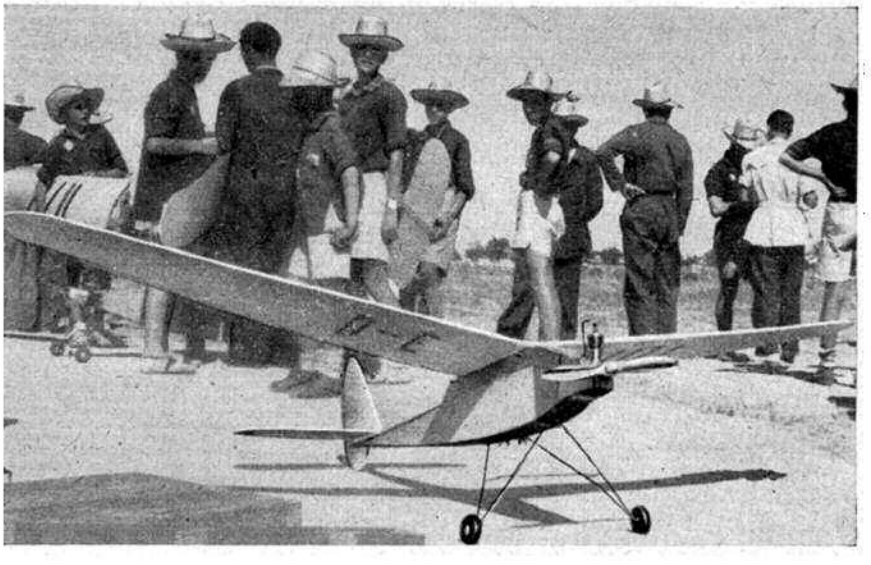
Last year all outdoor rules were revised, records re-started and a general revival of interest noted in N.Z. model circles. B. Reid of the Wanganui Model Club who writes us managed to capture one of the old class records just before the change-over and must take a mixed view of all this. Grey of Auckland recently nipped over to the U.S.A. to snatch an indoor world record from the Americans—good work ! Most popular diesel is native-produced Pepperell, 1·6 c.c., selling at £N.Z.8. 5s. 0d. (about £6 sterling equivalent), followed by U.S. Ohlsson and Bunch and British E.D. U-control, speed and stunt, power and glider have big following, while Wakefield class continues to attract the best of N.Z. ingenuity.

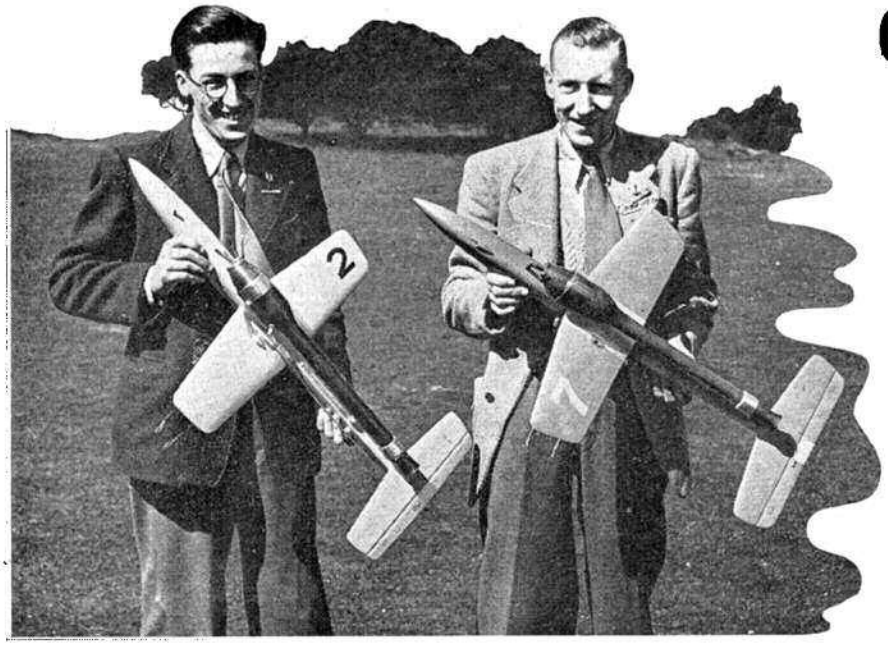




Correspondent Robson demonstrates appropriate dress for aeromodelling in Aden—model is " Hell's Angel " station record-holder. Centre : Pepperell 1·6 c.c. powered seaplane coming in to land, built and flown by B. Reid of Wanganui M.C., New Zealand. Bottom left : Lebanese Rene Abdulla with his 8 ft. tailless model. Bottom right : Typical Spanish power model at their Nationals : (Fashion note—" Donkey Serenade " hats are now being worn.)







CONTROL-LINE JET SPEED MODELS

A COMPREHENSIVE SURVEY

BY R. H. WARRING

Projectiles with a point! R. Stovold (left) and D. Foskett of Guildford with their Dynajetted weapons. D. Foskett has achieved close on 116 m.p.h., while R. Stovold has the equally proud record of making the finest prang at the Dover Rally!

MINIATURE jet engines, as typified by the American Dynajet, have reached the stage of being just about foolproof. In fact, once starting technique has been mastered the miniature jet is easier—and considerably cheaper—to operate than an orthodox miniature motor. Its chief limitation is the noise it makes, which means that the flying of jet models other than from perfectly open spaces is almost invariably bound to lead to complaints. Where such ideal flying grounds are available—and particularly in America—jet powered control liners have been widely used for sporting flying.

The use of jet engines for any but control line models is now banned. The high thrust developed is particularly suited to speed flying and hence, as an almost universal rule, jet control-liners are speed models. A few semi-stunt models have been produced which are capable of looping and similar straightforward manœuvres. The Boxcar Jet (see tables) originally developed as a jet trainer is one of the models which has been looped.

Design of the successful jet control liner is very much standardised. One of the first really successful models of this type is the Fallo design produced for the Aeromarine Company, makers of the Dynajet—Fig. 2—and basic layout of the most modern models is still essentially similar. Several models have been produced with the jet unit completely enclosed in the fuselage, but these, as yet, have not been wholly successful. Insulation and cooling presents a very real problem in such cases and some of the models of this type have ended up with a fuselage so bulky that the overall drag is probably higher than that of the original Fallo layout. No models of this type are covered in this survey, being still in the experimental stage. The modern tendency is to get the jet unit as low as possible, partly with a view to improving the streamline form of the whole model and partly to reduce the nose-down moment given by a high-mounted power unit. Typical of such practice is the present world record holder designed by G. Tempte and R. Thor where the lower half of the jet is faired into the fuselage with aluminium sheeting—Fig. 7.

As to the jet engines themselves, all of the really successful units are essentially similar to the original Dynajet unit and, in fact, have similar overall dimensions—hence a standardisation in model size. Table I lists the chief commercial jet engines which have appeared since the end of the war, of which the Dynajet Redhead is undoubtedly the best example. The other American jet unit—the Minijet—appeared at about the same time, but had an inferior performance and was extremely difficult to start. The original Dynajets also suffered from starting trouble, but this has now been completely overcome and starting equipment can be reduced to a very minimum. Much depends upon the tank location—i.e. a small X dimension—and once the optimum position has been found, only an ordinary cycle pump is necessary.

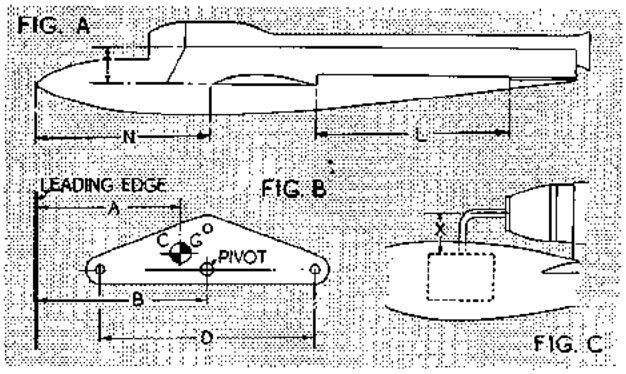
The Dynajet now has an almost complete monopoly of American sales. The Minijet unit is no longer manufactured as a complete engine, although kits of finished parts are still available. Its performance is definitely inferior to that of the Dynajet, as detailed in Table I.

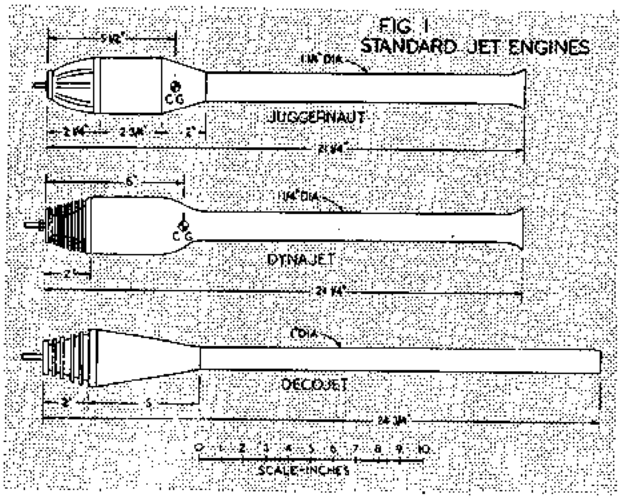
The British Juggernaut is essentially similar to the Dynajet and appeared in three different forms. All figures quoted here are manufacturer's data and it would appear that the given weight of the Juggernaut Redhead is rather low for a production unit. The combustion chamber-tail pipe unit alone of most standard jet engines weighs considerably more than the 8½ ozs. mentioned.

The new British Decojet is a very straightforward unit with dimensions resembling the original Minijet, although different in many other essential features. It is a very easy unit to start and develops a static thrust comparable with the original Dynajet, albeit at a slightly higher total weight.

For S.M.A.E. contest and record work the size of the jet engine is not limited, but F.A.I. world record rules state that the maximum weight for the jet engine is 17·637 ozs. (500 grammes), which would rule the latter unit out. However, the F.A.I. rules are most unattractive on this score, calling also for a total model weight of at least four times the bare weight of the jet engine. This is in direct contrast to modern practice as Table III will show.

Table II details typical successful jet models, roughly in chronological order (with the exception of the twin jet, which, strictly speaking, appeared at about the same time as the pod jet. But the "twin" is essentially an experimental sports model and has no contest record). The original Fallo design was commercialised, in plan form, by the makers of the Dynajet as a suitable model for what was then an extremely unorthodox power plant.





Probably all the original jet models were based on this layout. Guest of Bushy Park was certainly one of the first, if not the first, aero-modellers in this country to fly a jet control liner and his model was based on this same layout.

This design had one grave weakness. The end plate fins were extremely vulnerable. Also the undercarriage was not rigid enough to withstand really high speed landings, splaying out and letting the fuselage strike the ground with considerable force. The extreme nose-down moment created by the high thrust line was particularly apparent on take-off, tending to tip the model up and run the underpart of the fuselage, forebody along the ground. Fixed undercarriages, in fact, have to be located as far forward as possible. At the same time a secure anchorage is necessary, and this usually means behind the tank. Hence the exaggerated forward rake on the fixed undercarriage unit alternative for the Dynastreak—Fig. 4. Whilst serving the purpose of improving ground stability by bringing the wheels forward this renders the unit very ineffective as a shock absorber during landing.

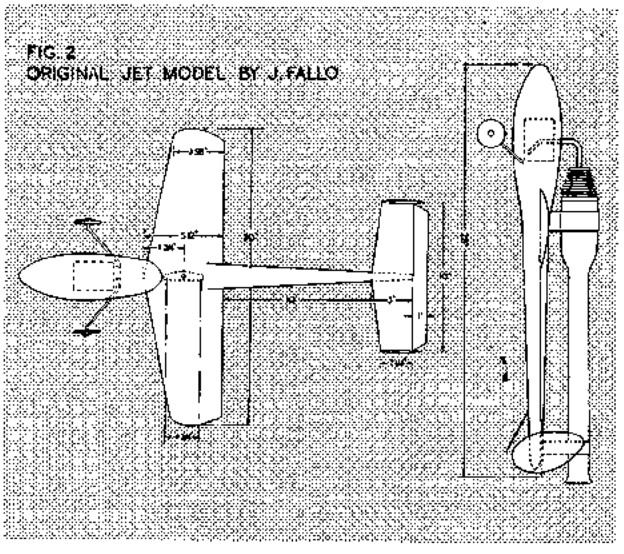
Dolly undercarriages are now almost universally used on jet models, providing better ground stability and also reducing the overall drag of the model. The most favoured type of dolly is the three-wheel layout, with two main wheels forward and wide track. A tricycle dolly with a single wheel forward is not stable enough. Some dollies—e.g. the one employed for the record model—are of the four-wheel type.

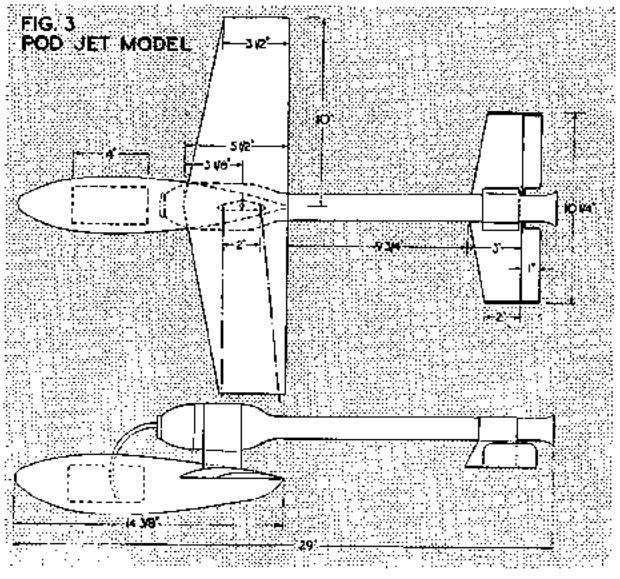
With a dolly, some method of preventing the tail from rising off the dolly is generally necessary. This can take the form of a suitable lock or clip engaging the rear of the fuselage, still leaving the model free to fly off the dolly forwards and upwards. Take-off is then made with full up elevator, levelling off as soon as the model is airborne. The one modern model dispensing with a dolly is the Squirt, Fig. 5, where a monowheel is employed partially buried in the fuselage. Even so, the Squirt is often best flown with a dolly.

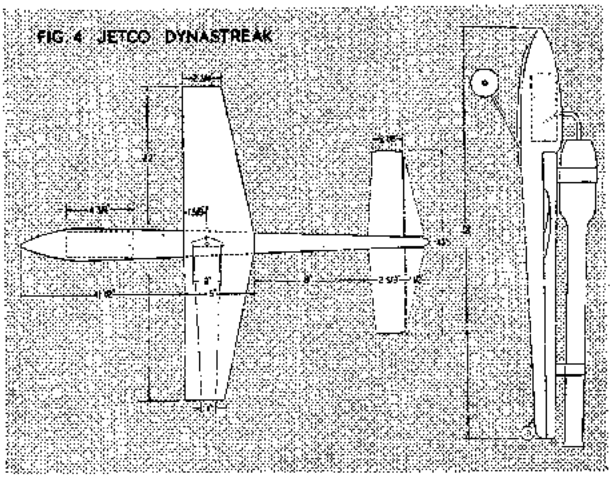
The Boxcar jet is an elementary model primarily developed as a trainer and one, which, surprisingly enough, has proved capable of looping. It cannot, however, be considered a contest model in any category.

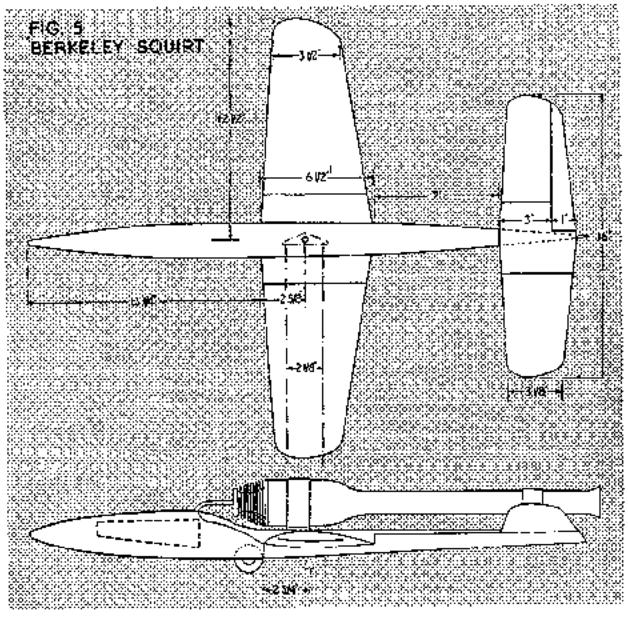
The Pod jet—Fig.3—is an example of simplification of design, where the fuselage is merely a fairing to house the fuel tank and provide a fixing between tank and jet engine. The tailplane is of metal and located on the tailpipe of the jet. Soldered joints are quite useless near the tailpipe of a jet and so the attachment straps have to be riveted or bolted in such a case. This principle does, in fact, apply to all models. Control horns, for example, should be made as integral units and never soft soldered owing to the danger of parting under the heat radiated from the jet tube.

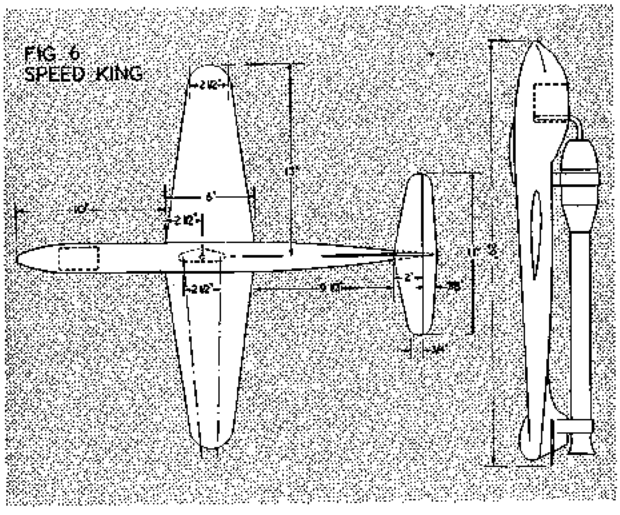
The Dynastreak—Fig. 4—is an example of how heat insulation can be tackled. The upper shell of the fuselage immediately under the tail pipe of the jet is an Alclad shell, effectively shielding the lower balsa fuselage. The wings and tail are also of metal, the former formed to aerofoil section and spot welded along the trailing edge. The tailplane is simply cut from 1/16 sheet Alclad and is, in fact, rather too











flexible for comfort. Although this particular model has been operated quite successfully there is always the possibility of tail flutter being set up.

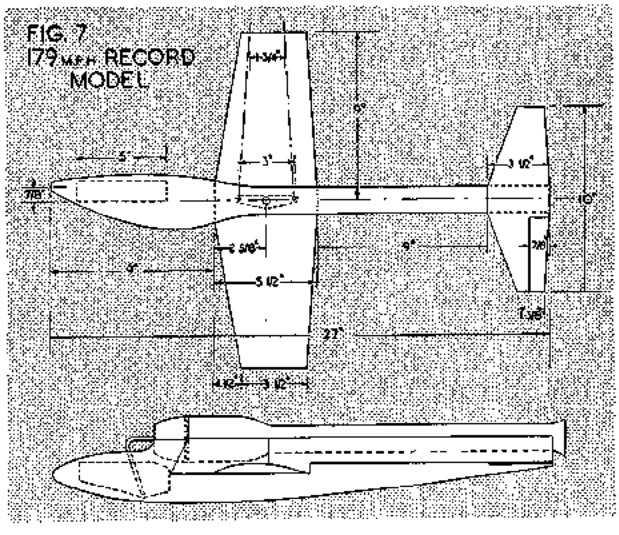
The outstanding commercial jet model is undoubtedly the Berkeley Squirt—Fig. 5. This is a very clean design where most of the original bugs associated with jet control liners have been ironed out. It is, however, weak just forward of the wing and broken fuselages are common in rough landings. Whilst actual outline proportions need not be held to very close limits, tank shape and installation is all important and the tank system used in the Squirt is about the best to date. This design has a very fine contest record, including a first at the 1948 American nationals (flown by Harold de Bolt).

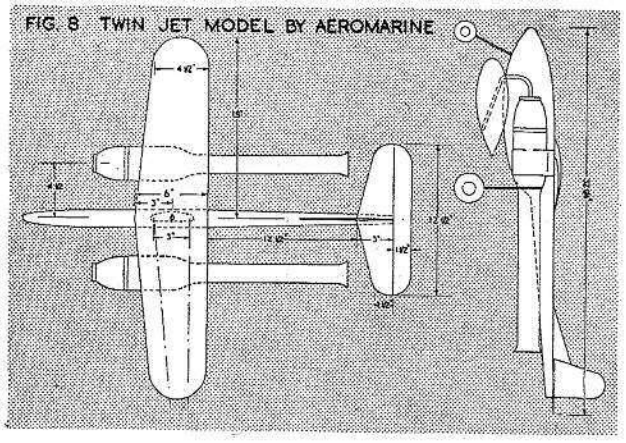
The present world record holder—179·03 m.p.h.—is typical of the present trend to lower the jet unit as far as practicable and fair in the whole as far as possible. In common with most other designs no fin surfaces are used. Sheet aluminium is used for the fairings and the basic balsa fuselage under the tail pipe is also protected by a layer of 1/16 in. asbestos mill board. This particular model has been developed through a series and has a consistently high performance.

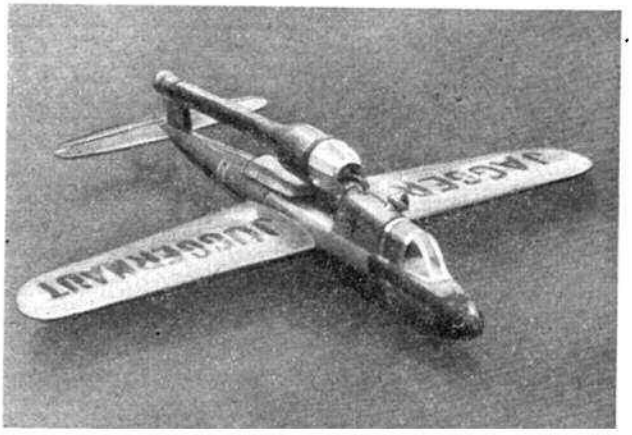
Rigging data is summarised in Table III, where it is interesting to note that the two most advanced designs—the Squirt and the Record holder—have comparatively low total weights and wing loadings. It is now recognised that the ideal total weight for a jet model employing a standard 16 oz. jet engine is in the region of 25 ozs. The original models were built strong and heavy—and consequently had an inferior performance.

There is quite a difference of opinion as regards the best C.G. position for racing jet models. The general rule is that the model should balance slightly nose down when supported at the pivot point with tank full, i.e. the C.G. should be slightly in front of the pivot. The Squirt, on the other hand, definitely flies best with the C.G. *behind* the pivot—a most unusual rig for a control line model. The designer claims that this gives better control, particularly with power off. A C.G. forward position tends to make for loss of control and instability.

Undoubtedly a forward position of the C.G. is not safe for jet models, but the general rule appears to hold good for most types. As an extreme case, a Squirt has actually been flown quite successfully with the C.G. on the rear line. However, there is one significant factor here in that on the Squirt the control horn is *below* the elevator (making the rear line the "up" line) instead of the orthodox speed model rigging where the control horn is *above* the elevator and the *front* line becomes the "up" line.

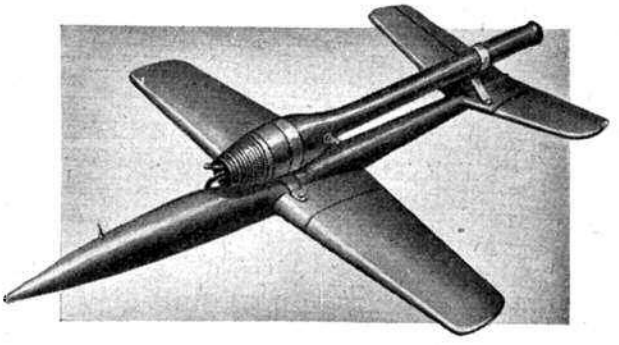






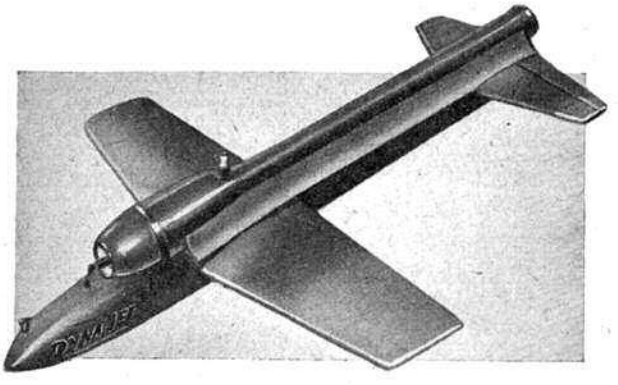
Rather than attempt to go into detail on this and other design features, basic data is summarised in the various tables which should provide prospective designers with all the information necessary. Typical outlines follow from the general arrangement drawings. The most common fault is to get a C.G. much too far aft due to locating the jet engine too far aft and provision should be made in the design for shifting the jet engine to obtain final balance.

That apparently identical models should have a different performance is strange at first sight. But apart from slight manufacturing differences, jet engines are susceptible to relative humidity and other atmospheric conditions. There is no adequate counter to this at present as change of fuel produces very little effect. Straight petrol is still the most efficient fuel.



Most jet engines—particularly the Dynajet—can be improved from the aero-dynamic standpoint. The Dynajet head is finned at right angles to the airflow and to reduce drag this finning must be machined right off—a recommended modification for the Squirt—or the whole head enclosed by a close-fitting cowling—as in the Dynastreak. The latter method definitely gives the better airflow conditions.

Actual thrust output can be improved by careful attention to jet size, i.e. the actual diameter of the metering jet through which fuel is sprayed into the combustion chamber. Some models, in fact, will run static quite satisfactorily with one jet, but cut out almost immediately on gathering speed for the take-off. Other models will cut as soon as even the mildest climb or dive is attempted. The cause is a combination of incorrect jet size and tank location faults. Once the latter has been corrected, different jets can be tried.



The highest speeds have been obtained with slightly over-size jets, although this greatly increases any starting difficulties. With the extreme jet size for satisfactory flight performance it may be necessary to incorporate a pump in the fuel line for lifting the fuel in a continuous column from the tank. This for starting only. If the fuel is only drawn up in spurts the motor will cut out quickly.

Best performance *only* comes by correct fuel system (i.e. correct tank shape and location and correct fuel pipe dia.) coupled with the optimum jet size, the which can only be determined experimentally. Extremely high speeds are then possible with a model of clean design. The present average figures for the best jet models appear to be between 135 and 145 m.p.h. The ultra-high speeds are the exception rather than the rule and contests are frequently won with speeds around the lower figure mentioned.

(*All tables overleaf*)

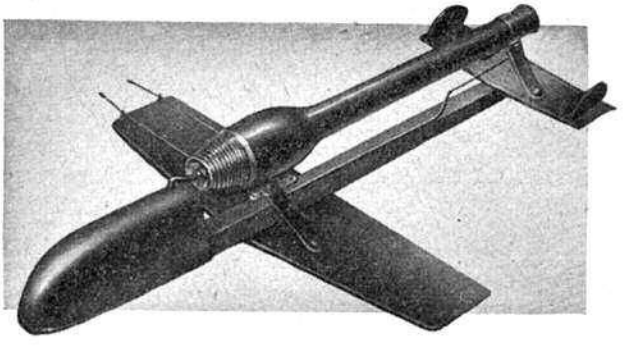


Photo at the top of the page shows E. A. Jaggers's own model powered by one of his Juggernaut jet units, closely resembling the standard "Speed King." Top centre is a view of the Berkeley Squirt-which shows its graceful needlenose lines. Lower centre, the world record holder by Glenn Tempte, note the fairing along the fuselage top to the jet unit. Both models are Dynajet powered. Bottom is an unusual model for again with a Dynajet, by J. O. Shafer of Jackson, Missouri. It has done 111 m.p.h. and appears to be a trainer of semi-metal construction.

TABLE I. COMMERCIAL JET ENGINES (Impulse Duct Type) *Maker's figure.

Engine	Manufacturers	Weight	Static Thrust	Length (ins.)	Diameter (ins.) Combustion Chamber	Diameter (ins.) Tail Pipe	C.G. from Front (ins.)	Remarks
Minijet	Minijet (U.S.A.)	16 ozs.	2 lbs.*	27	2	1	—	No longer in production.
Dynajet	Aeromarine (U.S.A.)	16 ozs.	3 lbs.	21½	2½	1½	6	Original production engine.
Dynajet Redhead	Aeromarine (U.S.A.)	16 ozs.	4 lbs.*	21½	2½	1½	6	Standard racing engine.
Juggernaut...	E. A. Jaggers	15 ozs.	3 lbs.	21½	2½	1½	5½	British version of Dynajet.
Juggernaut Baby	E. A. Jaggers	8 ozs.	2 lbs.	—	—	—	—	Smaller version of Juggernaut.
Juggernaut Redhead ...	E. A. Jaggers	8½ ozs.	4½ lbs.	21½	2½	1½	5½	Development of original Juggernaut.
Decojet	Decolette	20 ozs.	3 lbs.	24½	2½	1	—	—

TABLE II. DESIGN CHARACTERISTICS FIG. A * Total area including elevators. † All areas are calculated gross areas.

Model	Span ins.	(Sw)† Area sq. ins.	Aspect Ratio	Chord (ins.) Root	Chord (ins.) Tip	Aerofoil Section	Tailplane* Area sq. ins.	Tailplane* %Sw	Elevators Area sq. ins.	Elevators %St	Elevators Range Up	Elevators Range Down	N ins.	X ins.	L ins.
Fallo (original)...	20	90	4·5	5½	3½	Clark Y	45	50	9	20	15°	10°	9	2½	10
Fallo (modified)	20	90	4·5	5½	3½	Clark Y	45	50	9	20	—	—	9	2½	10
Boxcar Jet ...	24	144	4·0	6	—	Clark Y	50	35	14	28	30°	15°	8½	2½	8
Pod Jet ...	20	90	4·5	5½	3½	Clark Y type	35	39	8	23	—	—	9	2½	9½
Dynastreak ...	22	85	5·7	5	2½	Clark Y	39	46	8	20.5	30°	20°	11½	2½	8
Speed King ...	26	105	6·4	6	2½	Bi-Convex	31·5	30	8	25	30°	20°	10	3	9½
Squirt	25	120	5·2	6½	3½	Bi-convex	58	48	6.5	11	—	—	13½	2½	7
Record Holder	18	18	4·0	5½	3½	Clark Y type	25	31	4	16	—	—	9	1½	9
Twin Jet ...	30	155	5·8	6	4½	Clark Y type	45	29	17	38	15°	10°	9½	—2	12½

TABLE III. RIGGING DATA FIG. B *Tank full.

Model	Area sq. ins.	Weight ozs.	Loading ozs./100 sq. ins.	Loading ozs./sq. ft.	C.G.* Dimension A	Pivot Dimension B	D (ins.)	Jet Thrust	Remarks
Fallo (original) ...	90	40	44·5	64·0	2½	2½	1½	Zero	—
Fallo (modified) ...	90	40	44·5	64·0	2½	2½	1½	Zero	D Dimension 1½" at tip.
Boxcar Jet	144	40	27·5	39·5	2½	3	2	Zero	—
Pod Jet	90	32	35·5	51·0	2½	3½	2	Zero	D Dimension 3½" at tip
Dynastreak	85	34	40·0	57·5	1½	1⅞	2	Zero	D Dimension 1" at tip
Speed King	105	37	35·0	50·0	—	2½	2½	Zero	D Dimension 1½" at tip
Squirt	120	25–26	21–22	30–31.5	2½	2⅝	2½	Offset as reqd.	Adjust jet thrust line for best performance
Record Holder ...	81	25–27	31–33	44.5–47.5	—	2⅝	3	Zero	D Dimension 1½" at tip
Twin Jet	155	50	32	46.0	2½	3	3	Zero	D Dimension at 1½" at tip

TABLE IV. STRUCTURAL DATA

Model	Fuselage Type	Fuselage Construction	Wings Type	Wings Construction	Tail Unit	Undercarriage	Insulation	Remarks
Fallo (original)	Solid	Balsa	Solid	¼" Balsa	¼" Balsa	Fixed 2-wheel	1/16" Asbestos	Endplate fins
Fallo (modified)	Solid	Balsa	Solid	¼" Balsa	1/16" Ply	Dolly	1/16" Asbestos	No fins
Boxcar Jet ...	Box	⅛" Balsa	Monospar	1/16" Balsa covering	1/16" Ply	Dolly	1/16" Asbestos	Fixed U/C optional
Pod Jet ...	Solid	Balsa	Solid	¼" Balsa	1/16" Dural	Dolly	1/16" Asbestos	Pod fuselage housing tank
Dynastreak ...	Solid	Alclad upper shell	Metal	.015 Alclad	1/16" Alclad	Dolly	None	Fixed 2-wheel U/C optional
Speed King ...	Solid	Balsa-ply inserts	Solid	⅛" Balsa	⅛" Balsa or 1/16 Ply	Dolly	Tinplate	—
Squirt ...	Hollow Lug	Balsa	Sparless	1/16" Balsa covering	1/16" Balsa	Monowheel	1/16" Asbestos	Dihedralled tailplane
Record Holder	Solid	Balsa-Aluminium fairing	Monospar	1/16" Balsa covering	1/16" Balsa or 1/32" Ply	Dolly	1/16" Asbestos and alumn.	Jet faired into fuselage asymmetric nose
Twin Jet ...	Solid	Balsa	Solid	¼" Balsa	1/16" Ply	Fixed "Trike"	None	Underslung twin jets

TABLE V. ENGINE TANK DATA FIG. C.

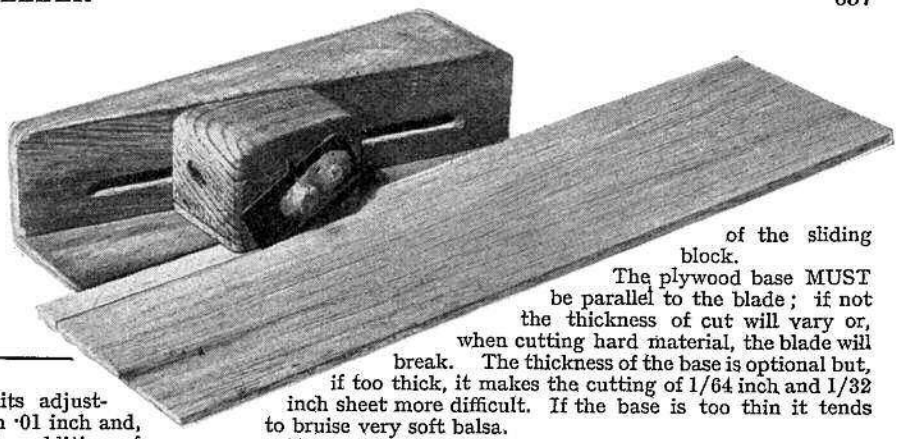
Model	Engine	Jet Size	Tank Dimensions	Tank Capacity	Feed Pipe Dia.	Suction lift ins.	Remarks
Fallo (original) ...	Dynajet	No. 5	2½"×2" dia.	4½ ozs.	1/16"O/D	1½	Original jet model
Fallo (modified) ...	Dynajet Redhead	No. 5	2½"×2" dia.	4½ ozs.	1/16" O/D	1½"	Development
Boxcar Jet ...	Dynajet	No. 5	4"×2½"×1½"	5 ozs.	1/16" I/D	2½"	Trainer Type
Pod Jet	Dynajet	No. 5	4"×2" dia.	7 ozs.	⅛" I/D	2	Tail anchored to tail pipe
Dynastreak... ...	Dynajet Redhead	No. 7	4½"×1⅞" dia.	6 ozs.	1/16" O/D	1	Head of jet engine cowled
Speed King... ...	Juggernaut	—	2½"×1⅞"×2"	4 ozs.	1/16" I/D	2"	British kit model
Squirt	Dynajet Redhead	No. 7 ·002 oversize	6"×4" long 1½"×1" av.	6 ozs.	⅛" I/D	1	Kit model
Record Holder ...	Dynajet Redhead	No. 7	5"×1"×2"	5 ozs.	⅛" I/D	1	Head of jet engine cowled
Twin Jet	Two Dynajets	—	8" Teardrop	3 oz. each	⅛" I/D	2"	Underslung tanks

TABLE VI. PERFORMANCE DATA

Model	Designer	Engine	Line Length	Line Dia.	Normal Speed m.p.h.	Best Speed m.p.h.
Fallo (original)	J. Fallo	Dynajet	70 ft.	·015 stranded	110–125	—
Fallo (modified)	J. Fallo	Dynajet Redhead	70 ft.	·015 stranded	125–135	—
Boxcar Jet	—	Dynajet	70 ft.	·015	100–110	—
Pod Jet	—	Dynajet	70 ft.	·015	130–135	—
Dynastreak	—	Dynajet Redhead	70 ft.	·015	125–135	137–25
Speed King	J. Nunn	Juggernaut	70 ft.	·015 stranded	120	143
Squirt	H. Bunting	Dynajet Redhead	52–70 ft.	·010–·015	135–145	159 on 52 ft. lines
Record Holder	G. Tempte	Dynajet Redhead	52–70 ft.	·010–·012	140–160	179.03 on 52 ft. lines .008 dia.
Twin Jet	—	Twin dynajets	70–100 ft.	·015 stranded	135–145	—

PRECISION BALSA CUTTER

BY F. LINDSLEY A.R.Ae.S.



THE cutter described below permits adjustments of width to be made within ·01 inch and, exercising some care, finer still. The addition of a depth adjustment not only eliminates whip of the blade but enables "L" section to be cut. Using this type of cutter I usually laminate everything that requires a bend of some strength and can easily wrap a trailing edge round the wing tip to join the leading edge by making a series of ·02 inch approx. cuts.

The device uses a standard three hole razor blade which can be changed in a few seconds. The cover plate protects the other three corners which remain sharp for future use. When not in use the blade is set at zero width and depth and the baby can safely use the cutter as a teething gadget.

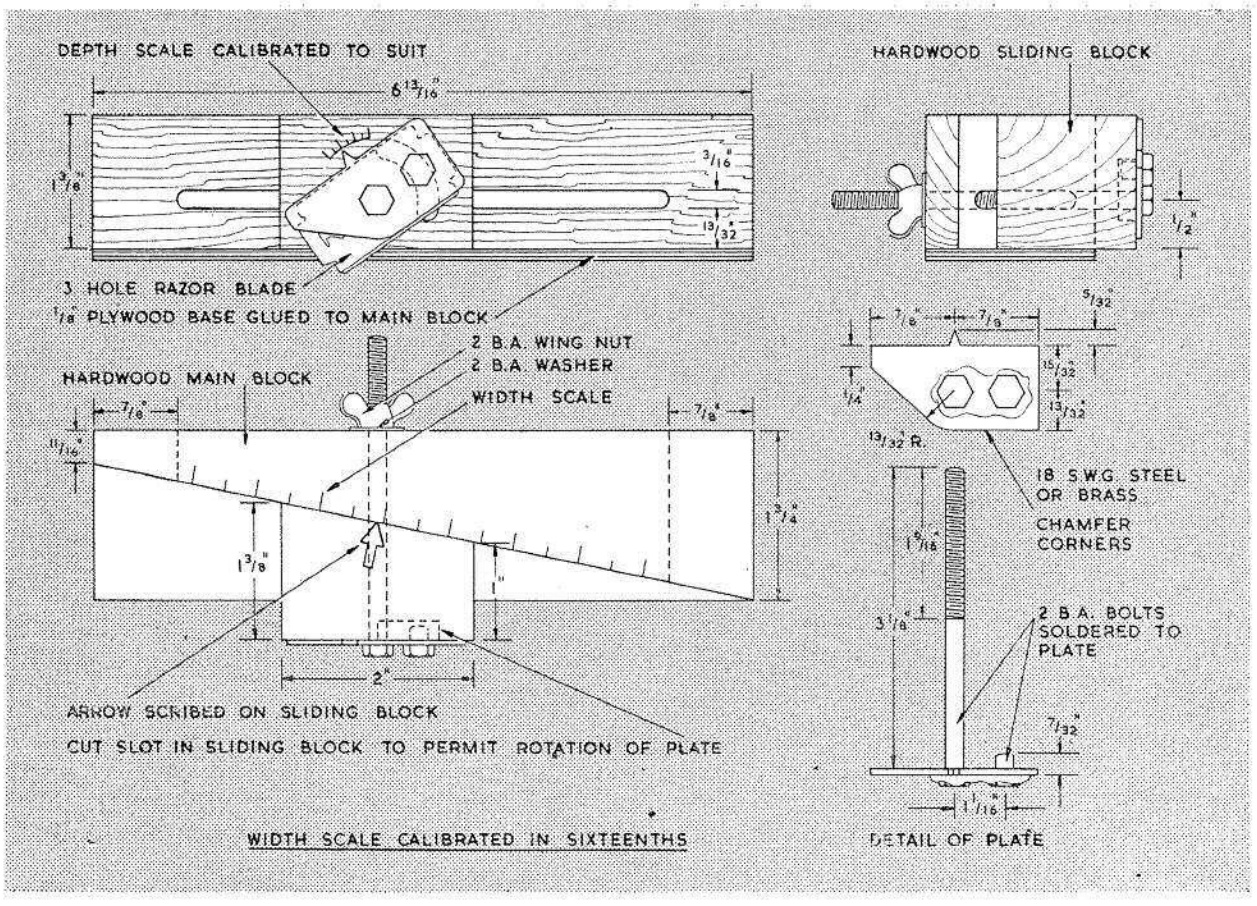
For every inch the sliding block traverses the width scale the blade moves outwards ·2 inches. The depth scale must be calibrated by direct measurement as it is not linear; I set mine at zero when the blade tip is level with the bottom of the sliding block.

The plywood base MUST be parallel to the blade; if not the thickness of cut will vary or, when cutting hard material, the blade will break. The thickness of the base is optional but, if too thick, it makes the cutting of 1/64 inch and 1/32 inch sheet more difficult. If the base is too thin it tends to bruise very soft balsa.

The slot should be just wide enough to allow the bolt to slide the full length without up and down play. In addition a recessed curved slot must be cut in the sliding block to clear the blade locating peg. While a short 2BA bolt is shown as the locating peg it is perhaps better to use a piece of tapered pin so that there is no sloppiness of the blade on the peg.

To use the cutter merely set it for the required width and depth of cut, tighten the wing nut and draw the cutter down the edge of the selected balsa sheet. If the balsa is very hard it is advisable to tackle it in easy stages, a 1/16 inch of depth at a time or else by taking a cut on each side.

As this precision cutter will produce sectioned balsa from sheet for approximately one third of its normal cost this device might stimulate many of the younger modellers to further activity . . . and some of the older ones to a more lively technical appreciation of their structures.



American News Letter

Bill Winter writes . . . . .

WITH the annual pilgrimage to the Nationals almost at hand, it is difficult to keep one's mind on business! Especially, after having finished two days of intensive radio model flying in windy weather tests.

By the time you read this, another Wakefield will be history. Over here, the eliminations were so chaotic that complete details were unknown even to maestro Frank Zaic. Between Frank and C. O. Wright we learnt that, despite frayed nerves and some bad tempers, another excellent team resulted. From the Coast there was Bob Hanford and Andy Peterson, Ed Lidgard from Chicago, Warren Fletcher from New York, Joe Boyle from Virginia, Ed Naudzius from Detroit. Whilst the Korda, Cahill glamour was missing, all these men can be considered dependable performers who were certain to put up a creditable performance. Ed Naudzius once won the Moffett. Lidgard is a brilliant flier, who has produced some of the finest looking machines at many a Nationals, but always ill luck has dogged the Chicago lad at the biggest meet of all. Ed is almost always near the top at many big contests. Hanford and Peterson, the latter an old timer, have good records on the Coast Fletcher, perhaps not so widely known, actually is one of the best rubber men in the New York area, and put up two flights over the limit in his area elimination. While we haven't met Boyle officially, he, too, is a veteran who has earned his spurs in many of those keenly contested bouts put on by the Langley Field Brain Busters. To our way of thinking, this group is distinguished by the evenness in strength from top to bottom.

Winning team in the first Wakefield Team Competition held in the States in which each of five contestants contributed towards total time. They are from left to right Warren Williams, Joe Weathers, John Kienen, Tom Stevens and Andy Petersen.

Roy Mayes who has a way with a scale U-control model—he almost upset the event at last year's Nationals by producing a Buster (a Goodyear type racer) that excelled in stunt performance—has given us considerable dope on local proto models. These ships, you will remember, are close to scale, in contrast to the team racers, which are semi-scale. The latter are flown by twos, threes, fours, etc., simultaneously in various type races. Proto, as operated on the Coast, operates either on team racing rules or by speed against time. Sizes are keyed to engine displacements. This probably will thrill you, as it did us, for Clare Bussard flew a 48 inch Minnow, beautifully done and finished by the way, for a 105 m.p.h. average over 24 laps from a standing start. In second place in the same race was Mayes' Buster, and a Caudron took third. These proto models have proved so popular that the Palo Alto U-Liners, one of the leading speed clubs of the powerful A.M.A. of N.C. (Aeromodellers Association of Northern California—1,600 members) is substituting such an event for speed at their annual fracas in August. This may prove the event that will spark a national trend.

Divided into four classes, A at a minimum span of 18 inches, B at 24 inches, C at 30 inches, and D at 36 inches, these ships now prove to weigh, on the average, 2½ pounds in D, 1¾ pounds in C, 1½ pounds in B, and 1¼ pounds in A. Typical construction is paper covered wings, with planked fuselages. Acceleration required from the standing start (no dolly to help !) which is counted in the time, makes necessary light weight.

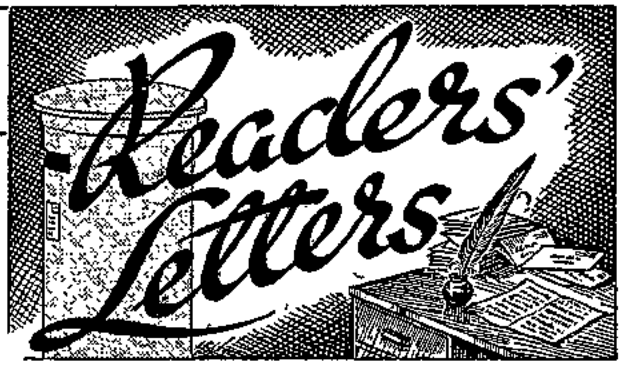
What is happening so far, is that the stunt men are building these ships. Speed boys won't really take the plunge until rules are forthcoming, either for FAST type models (First All Speed Team) or racing models, and the proto jobs. Team racing rules are a virtual certainty this year. In fact, the original FAST rules, which will be followed closely, may be obtained from Duro-Matic who have printed a nicely illustrated booklet. And while on the subject, our west coast spies rumour that such people as Keith Storey, well-known speed man and one of the pioneers of team racing, is interested in radio control. The description of the airplane in which he is interested suggests it has minimum climb. Putting two and two together, do you suppose that Keith could be thinking of a radio controlled racer for Nationals race competition ?

The baby engine trend still accelerates. Started by the ·02 Infant, followed up by the ·045 Baby Spitfire, and the ·049 Cub, this trend should be a shot in the arm for free flight. The writer has been startled by getting still-air times with a Cub that far surpass his best time two years ago with the big C and D jobs. Poor terrain had stopped our free flighting, but these baby-engined jobs permit small, hot airplanes, without damage from landing collisions with trees, fences, and outer obstacles. A good " half-class A " job should do 2 : 30 in still air as a minimum for contest work.

Hearing of E. L. Rockwood's radio developments in California, we managed to learn that his present development is in two forms—one multi-channel and the other single channel. The difference between the Rockwood equipment and the Goods, Aerotrols, etc., is that Rockwood modulates the carrier wave with a tone or tones. It is said to be more sensitive—getting the same range on ·45 watts that others get with three watts input—and is stable, not being subject to finicky adjustments for successful operation. The standard job is a three-channel set, but a one-channel unit is in the offing at a reduced price for beginners. The standard unit employs an electric motor servo, rather than the usual escapement.

Rockwood's group have been working with five-to-six foot jobs with a small motor that can be flown from small fields. The old Comet Clipper, a six foot cabin model, performs well with an ·099 ! It uses one channel with rudder-vator, and weighs but 3¾ pounds complete. A six-foot Scientific Mercury is flown with retarded spark when powered by an Ohlsson 23. Another job flown by Rockwell is a five-foot Pacificoaster, a Joe Weathers design, but powered by the Orwick ! That combination requires top-notch control and experience, it seems to us.

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



DEAR SIR,

Some few months ago you published a letter from Mr. Rowdy, which brought a flood of replies from indignant tradespeople-cum-contest flyers. To these same people, I would put the questionnaire below:

(*a*) Tradespeople can, to my mind, spend a far greater percentage of the day in making, flying, and trimming models than the enthusiastic "ham" who perchance has to work for a living. Is that fair?

(*b*) Judging from contest wins it appears that tradespeople can test and select their motors or acquire motors not readily available to the public. Can John Smith do that as easily?

(*c*) What is the percentage of trades to non-trades in the average contest wins? (e.g., Gold Cup and others).

(*d*) What would be the cost of a radio controlled job or even a small stunter if I made one, as compared to the trade builder making one?

(*e*) With all the resources of time and materials on the side of the trade entrant is it such an achievement to win a contest and is it such a good advertisement to win it using an American motor?

(*f*) Is a "Phantom" a "Phantom" with an "Arden" installed, similarly is a Ford a Ford with a Rolls Bentley engine?

The answer to these questions will indicate how fair the contest system is at present.

I would suggest that the professional pot-hunter go easy, and not scare the new-comer or enthusiast away, and that if the professional wants to give a show and demonstrate his new kits, designs, etc., he do it in a series of "professional only" contests. Then we could see how comparatively good or otherwise his design and ability is.

I am led to believe that in America trade entrants are not encouraged to enter competitions.

Mansfield, Notts. ALISTAIR B. SWANSTON.

While no one doubts the keen interest of traders in the game as such, it cannot be denied that for a trader to win with his own kit model can give quite a fillip to the sales. To exclude traders from all contests would be a very shortsighted policy, but the suggestion that 'Professional Only' contests be held bears consideration. Such an affair annually would provide an excellent 'Trade Fair' to display new lines and give traders a real chance to prove their own models in a sporting competition. Would traders be willing to participate? (*Ed.*)

DEAR SIR,

Many thanks for the interesting article by Mr. R. P. Grimmer of Mann & Grimmer fame.

In the year 1912 (or was it 1913?) I owned a Mann Monoplane. It cost one guinea. It was guaranteed to fly a quarter mile; and it did so with the utmost regularity; and when the power had run out and the skeins of rubber sagged loose it would return to Mother Earth quietly and without damage. But (and this is the point of my letter) it differed in one vital detail from the photograph and the picture you reproduced in the AEROMODELLER. In my machine, the elevator was right in front; not more than 2 in. back from the wire loop shock absorber. And it was made of thin sheet birch set at a large dihedral angle.

This true canard arrangement is I suggest, the chief reason for the remarkable flight efficiency of those early models. The front elevator was set at an angle of incidence greater than the main plane behind. Thus it stalled first while the main plane was still developing lift. Therefore the nose went down gently instead of steeply to regain flying speed. I would strongly recommend any of your readers, who would like to try their hand at one of these real flying machines, not to put the small plane behind, but to put it in front. The main plane is made out of piano wire covered with jap silk, single surface. Bent wood props., 6 strands ¼ in. rubber for each.

Sussex. W. R. E. HARRISON.

FIN(N) AREA

With many a subtle line
Of imaginative design
We've tried to cure the evil of the spin.
To locate the C.L.A.,
In the most propitious way
By variations on the normal fin.

And different schools of thought,
Each, in their way, have sought
To instrument the perfect Wakefield flights,
Though bitter feuds have raged
Between master minds engaged
On chart and theory through the Winter nights.

The warring tribes of Ron
With Voodoo chants have gone
Against the scribing Payne with strong assail,
Whose Nomogrammatic wit
In nowise would admit
Of saucy little tabs perched on the tail.

And many an æsthetic gent
Has voiced his strong dissent
(While yet apace the fashion seems to grow)
Of that queer inverted rudder,
Protruding like an udder,
That irrupts the slinky Jaguar's graceful flow.

But no more our minds to vex
With this problem most complex
To ensure our future efforts will not flop,
For in spite of all our zeal
The Wakefield lists reveal
The position of the Finn is at the top.

Essex. L. RANSON.

DEAR SIR,

Like many other aeromodellers I have been taken by control line flying, especially stunting? but, and I now quote the flying speeds of some well-known designs:—

(*a*)	Phantom	40 m.p.h.
(*b*)	Weather Man	45 ,,
(*c*)	Barnstormer	65 ,,
(*d*)	Hot Rock	55 ,,
(*e*)	Box Car	70 ,,
(*f*)	P.D.Q.6	70 ,,
(*g*)	Magnette	45 ,,

So to my plea, cannot these speeds be considerably reduced to say 25 m.p.h. and still have a plane which will perform all the stunts?

My P.D.Q.6 ploughed into the deck (concrete) at 70 m.p.h. and the wings and wheels were the only items salvaged from the wreck. If the speed had been 25 m.p.h., P.D.Q.6 might still be flying.

Can a really slow stunter be designed? Over to you experts, over.

R.N.A.S. Culdrose. S/LT.(A) L. M. COHEN, R.N.

AIRCRAFT DESCRIBED
No. 23 BY E. J. RIDING

D.H. C-2 "BEAVER"

"Aeromodeller" photos.

A RECENT arrival from Canada to this country is the de Havilland D.H. C-2 "Beaver," now being used as a hack machine for conveying key personnel between the various factories of the de Hayilland Enterprise. According to the manufacturer's brochure, the "Beaver" is "a sturdy, rugged airplane designed to survive continuous hard use under the most strenuous operating conditions."

It has been designed primarily for duties in the far North of Canada, where of necessity it may be required to act as freighter, passenger carrier, seaplane, skiplane or ambulance with the minimum amount of servicing under all climatic conditions. Briefly, the designers have aimed at a class of machine which, as well as being capable of fulfilling all the tasks enumerated above, must be able to take off from extremely small spaces of land or water and maintain a high initial climb in addition to being an economical proposition to the operating company.

With thirty degrees of flap, zero wind and full load the take-off run is 550 feet, and under the same conditions it can be put down safely in a field 500 feet in length. The initial rate of climb is 1,310 ft. /min. for the landplane version, and 1,200 ft. /min. for the seaplane. As will be seen from the G.A. drawing and photographs, the "Beaver" is fitted with four doors, affording easy entry and exit for the crew, and enabling bulky freight items to be loaded with ease.

The pilot's control column is mounted centrally between the two front seats, the wheel being of the "swing-over" pattern, enabling the machine to be flown from either seat, although the pilot normally occupies the port side.

Our heading photograph shows the "Beaver" en route to Chester, piloted by Mr. F. P. I. Fillingham, Chief Production Test Pilot at Hatfield.

Construction. All metal. From the engine bay back to the cabin the fuselage is of steel tubular construction, fitted with detachable metal panels. Aft of the cabin it is of normal stressed skin construction, built up from frames and stringers. The wing employs one main spar, to which the steel tubular wing struts are attached, and a subsidiary spar carrying the flaps and ailerons. The wings, tail surfaces, etc., are covered with light alloy sheet, the rudder, elevators, flaps and ailerons having little or no internal structure, relying on chordwise corrugations for torsional rigidity.

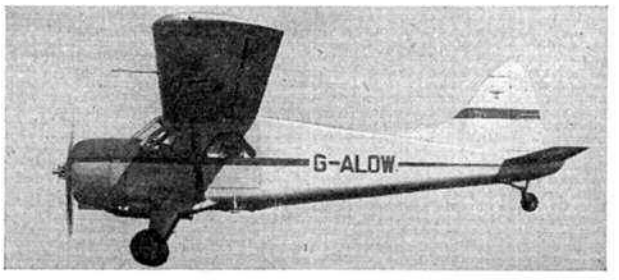
The cabin is fitted out to carry four, five or six passengers, or it can be stripped out to carry 135 cu. ft. of cargo.

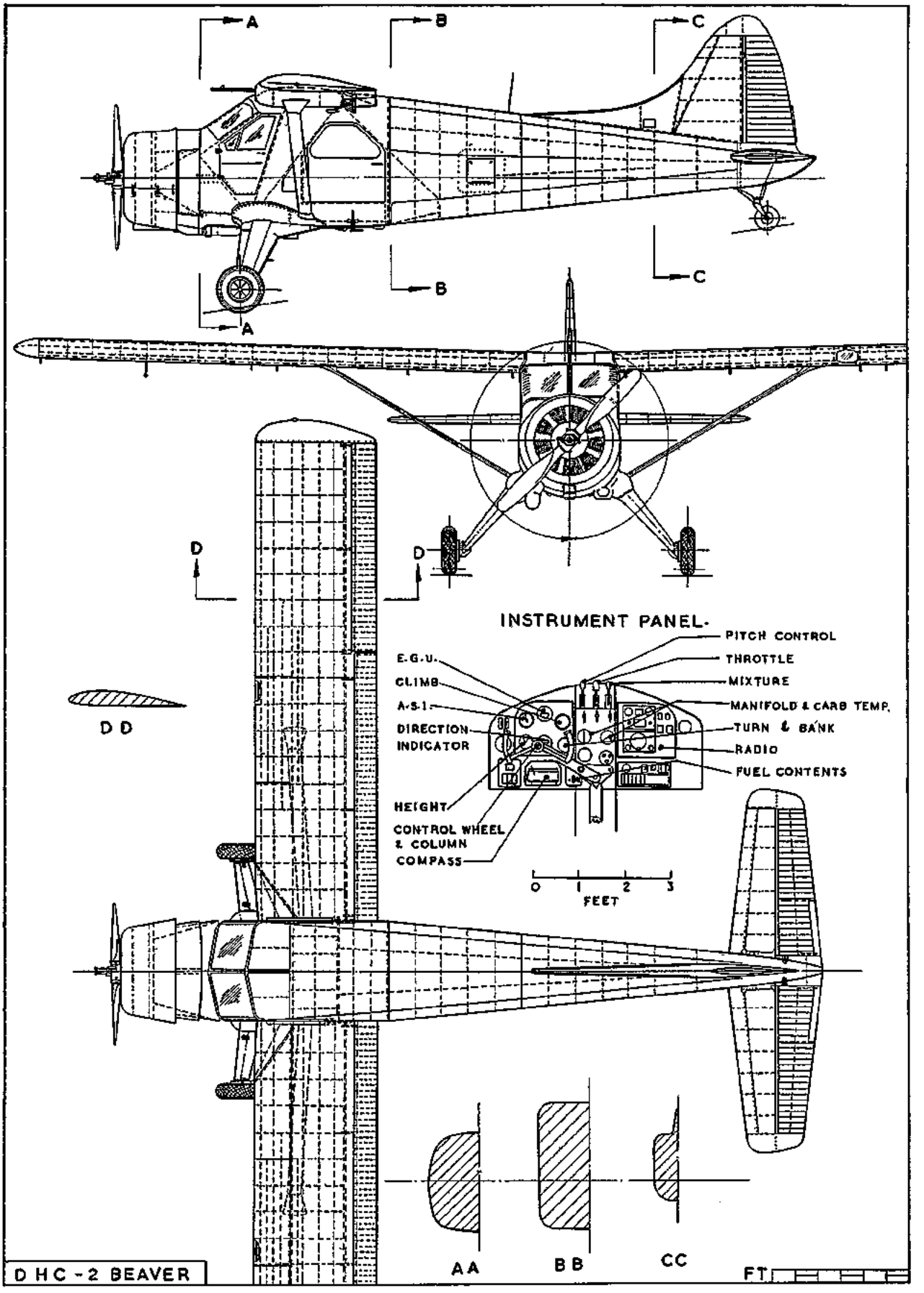
Power is supplied by a nine-cylinder air-cooled radial Pratt & Whitney Wasp Junior R 985 AN 6B engine of 450 h.p., driving a two-bladed metal constant speed Hamilton standard airscrew.

Colour. Natural metallic finish. Marroon. Registration letters on fuselage, wings, fin flash and nose apron.

Copies of the G.A. drawing, price 1/–, from Aeromodeller Plans Service; photographs, flying and static views, price 2/– each (6 in. × 4 in.) or 6/– per set of four from Eaton Bray Studios.

Specification:
Length: 31 ft. 0 in.
Span: 48 ft. 0 in.
Height: 10 ft. 7 in.
Wing Area: 250 sq. ft.
Tare Weight: 2,800 lbs.
Loaded Weight: 4,500 lbs.
Max. Speed: 171 m.p.h.
Cruising Speed: 153 m.p.h.
Stalling Speed: 47 m.p.h. (45 degree flap).
Service Ceiling: 26,000 ft.
Range: 465 miles (4¼ hours) with 80 gallons of fuel.

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INSTRUMENT PANEL
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TURN & BANK
RADIO
FUEL CONTENTS
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DIRECTION INDICATOR
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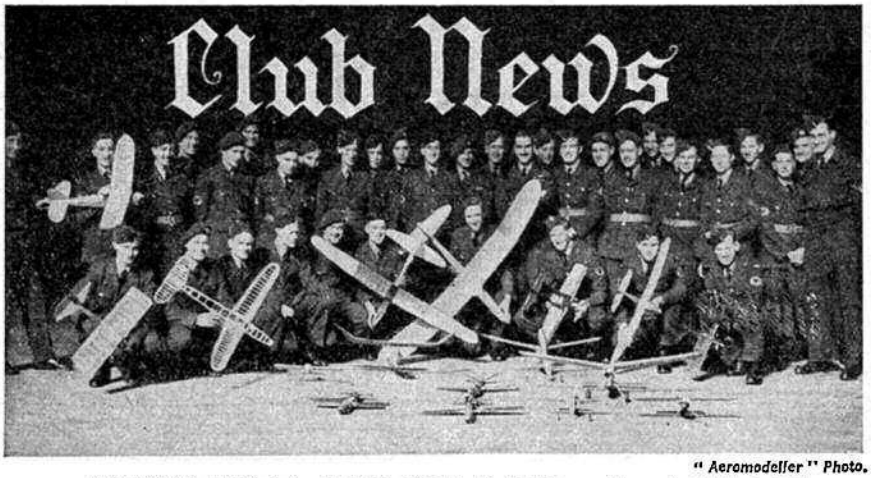
BY CLUBMAN

Club News



"Aeromodeller" Photo.

A cheery R.A.F. group featuring No.1 I.T.S. Wittering Model Club very ably run by S/L. Lord, A.F.C.

HAVING got back to normal with this issue I am naturally faced with a whole spate of club reports, many of which had to be carried over from the previous issue as explained in my September notes.

One thing becomes apparent from a general study of Club News, and that is the general all-round improvement in contest and individual flight times as a result of the generally fine weather which has prevailed through this flying season. 1949 will undoubtedly be remembered for the unusual number of fine Sundays which has enabled model flying to be carried out with far less trouble than we usually experience.

Controversy still rages around the subject of whether or not the onus (and possible penalties) should be passed on to a club whose members' models are found not up to specification. I would welcome your individual views on this vexed subject with a view to publishing a "pro and con" feature in the near future.

I wonder how many of you studied the full Wakefield results, considering matters from a team basis. On holiday I amused myself by studying this aspect, and the following list is of interest in showing the all round efficiency of the various teams.

America	127·82	Australia	59·24
N. Zealand	102·2	Czecho.	49·53
G.B.	86·85	Switzerland	45·6
Canada	81·55	S. Africa	44·38
Sweden	79·76	Trinidad	38·39
France	75·22	Holland	33·02
Ireland	69·27	Denmark	11·02
Italy	64·87	Monaco	10·4
Belgium / Norway	62·9		

A point of controversy that has rankled in some places for a long time has at last been cleared up, and from now onwards all S.M.A.E. National Contests will close at 7 p.m. Many thought this time limit was only a war-time measure, but the obvious reason for such a ruling was to have some slight consideration for the organisers of a meeting, who at times have been kept hanging about waiting for some thoughtless competitors to make their minds up—also waiting for that last bit of wind to die out! Personally, I should like to see all such contests run on a strict flight order pattern as at the Wakefield Trials this year, thus spreading each contestant's flights over the same time period in each round, and as far as possible letting each man take his luck with the weather. We've seen far too many comps where certain top-liners have deliberately stuck their heads in the sand until they thought they would get the edge over their fellow competitors.

The **SOUTH WESTERN AREA** held its first Area Rally for 1949 at Exeter Airport on the 24th July, and enjoyed perfect flying weather—though a bit too hot to make model chasing pleasant. Several machines flew away, P. Ash of Plymouth having the bad luck to lose his glider on its first flight after clocking a time of 4 : 32. Results :—

Power/Ratio	B. Gardiner	(Fulham)	8·1 ratio
	E. Godwin	(Torquay)	6·6 "
	G. Rogers	(Exeter)	4·23 "
Gliders	R. Densham	(Exeter)	9 : 53·8
	J. Higgins	(Torquay)	7 : 37·1
	L. Long	(Torquay)	6 : 49·5
Rubber	G.Woodfine	(Plymouth)	9 : 08·2
	M. D. Richards	(Plymouth)	8 : 50·1
	D. Tancock	(Plymouth)	8 : 30

Held at the Loughborough College Aerodrome, the **MIDLAND AREA** Rally held on August 21st was also blessed with fine weather, and good entries received for the S.M.A.E. events held in conjunction with other contests. Senior Champion was R. Monks (Birmingham) with Junior honours going to J. S. Richmond of the Wolves club, both these chaps receiving trophies awarded by the "Birmingham Post." Full results were :—

Concours	E. W. Evans	(Northampton)	
	E. Roberts	(Coventry)	
	F. Adams	(Northampton)	
	K. L. Stothers	(Leicester)	
Rubber	S. A.Wade	(Loughboro' Coll.)	12 : 20
	E. W. Evans	(Northampton)	11 : 51·7
	H. W. Revell	(Northampton)	10 : 45·1
Gliders	R. Monks	(Birmingham)	10 : 24·2
	J. S. Richmond	(Wolves)	9 : 04·5
	C. H. Abbey	(Loughboro' Coll.)	8 : 48·45
Precision Power	F. A. Chatwin	(Birmingham)	
	R. C. Monks	(Birmingham)	
	K. L. Stothers	(Leicester)	

In perfect weather conditions, the 1949 "Daily Dispatch" Rally held at Woodford Aerodrome under the auspices of the **NORTH WESTERN AREA**, produced a crowd of some 10,000, who saw some first class flying, with many models lost on their first flights, one radio/control job going a distance of three miles. Nearly 500 competitors were handled by the organisers from 11 a.m. to 5.15 p.m., the prizes being awarded by Siddeley Trophy winner, Mr. Dunkeley of the Lancashire Aero Club, who flew in in his Miles Gemini. Many competitors travelled a long way, and the Championship actually went to a Midland Area representative, Des Allen of London taking honours in the R/C event. Full results :—

Gliders	C. Christianson	(Sale)	9 : 42
	P. J. Ashton	(Rochdale)	9 : 37·6
	J. O'Donnell	(Whitefield)	8 : 58·8
(Junior)	R. Tasker	(Blackpool)	5 : 58·8
Rubber	R. Woodhouse	(Whitefield)	9 : 07
	J. R. Parson	(Sheffield)	8 : 49
	G. Guimaraes	(Crosby)	7 : 08
(Junior	D. Faulkner	(Whitefield)	5 : 55·9
Power/Ratio	J. Eifflander	(Macclesfield)	
	J. Roberts	(Five Towns)	
	A. C. Higson	(Macclesfield)	
C/L Stunt	J. Eifflander	(Macclesfield)	267 pts.
	P. Ridgeway	(Macclesfield)	266 "
Radio Control	S. Allen	(West Essex)	—
	G. Honnest-Redlich	(Surrey)	—
Jetex	D. Salloway	(Rochdale)	1 : 26.5
	C. J. Davey	(Blackpool)	: 56
Rally Champion	J. Roberts	(Five Towns)	

Yet another Area to hold a Rally was the **SOUTHERN AREA**, theirs taking place on July 17th at Stoney Cross Airfield. In spite of adverse weather conditions, some 400 competitors and spectators turned up, and the sun showed through during the afternoon, and brought some excellent flying conditions. Southampton M.A.C. distinguished itself by being the first winners of the newly presented Southern Area Challenge Trophy with a margin of nearly 100 points over their nearest rivals, Portsmouth R.Ae.S. Results :—

Glider	V. Johnson	(Southampton)	6 : 10
	R. Day	(Portsmouth)	5 : 00
	—. Brookes	(Portsmouth)	4 : 42·7
Rubber	—. Elliott	(Portsmouth)	3 : 21
	J. Harmer	(Eastleigh)	3 : 06
	N. Hudson	(Gosport)	3 : 02·6

Power		
J. A. Mountain	(Southampton)	6 : 49
C. M. Willmott	—	6 : 16
R. Harris	(Gosport)	5 : 06

During the Northern Heights Gala at Langley, M/s Ripmax conducted a Balloon Race which provided a lot of fun. The winner proved to be R. Hawkins of Evesham, whose balloon was retrieved from south of Le Mans, France, next being J. Nunn of Barking, his bag of wind landing at Portsmouth.

Most popular design with the **UPTON M.F.C.** is undoubtedly the "Dreamer," designed by club-member S. Reynolds. He won a recent glider contest staged at Fairlop with a total time of 7 : 52, whilst a junior—P. Carpenter—won the youngsters event with a time of 3 : 58 with the same design. Mrs. Eves also flew this design in the Women's Challenge Cup on July 17th and put in some good times.

C/L enthusiasts would appear to predominate in the Whyteleafe Area M.F.C.

With National and local successes, the **LEEDS M.F.C.** is showing decided improvement this year. Glider champ is G. Joyce, who beats the lot with 1949 time of 21 minutes tow launched, and 5 : 30 hand ditto. His favourite model from a comprehensive stable is a 1½-size Sunnanvind with minor modifications and a 5 oz. loading. Another member who has made rapid strides this year is Les Fox, whose ETA powered "Senator" has to be seen to be believed!

A club com. held by the **FIVE TOWNS M.A.C.** produced thermals in abundance, the only disadvantage being a wind that took models o.o.s. far too soon. Best flights of the day were put up by gliders, G. Roberts getting 10 : 21 and G. Wytcherley 9 : 37, both o.s.s. Full results were :—

Wakefield	E. Gater	6 : 57
	G. Wytcherley	5 : 29
Glider	G. Roberts	12 : 45
	G. Wytcherley	10 : 15
Power/Ratio	D. Smith	18·2 ratio
	G. Roberts	12·7 "

About two months ago the **WEST KENT M.F.C.** had a "clean out" of club members, returning fees to non-enthusiasts and generally unreliable members, leaving about a dozen really keen members who can be relied upon! Since then, much improvement has been seen in contests, etc., as the following list of records (mostly set up quite recently) bear witness: Glider, J. Blount 8 : 58·8; tailless, M. Dilly 0 : 41; Rubber, r.o.g., I. Agutter, 8 : 57·5; h.l., A. Wraight, 14 : 31·6; Wakefield I, Aggutter 2 : 45; Biplane, V. Attfield 0 : 56·7.

The **SOUTHGATE & D.M.F.C.** accepted an invitation to give a display of models and c/l demonstrations at the Hadley House Fete at Barnett, when about 10,000 people attended—most of whom kept outside the roped off area! The club laid on some very good flying, which was thoroughly enjoyed by the crowd, a balloon busting event really getting them on their toes.

With membership nearly trebled during this season, the **WIGAN M.A.C.** has every reason to be proud of its efforts. In spite of flying ground difficulties, club records have been consistently broken, with an unofficial speed put up in Class II of over 90 m.p.h. with an "Elfin".

Grand weather attended the **CRYSTAL PALACE M.A.C.** contest on July 24th, though crashes and losses the previous week at the Blackheath Gala kept the entries low. Coote's first power model shook the regulars by walking off with the event with a 16·3 ratio, while N. Whistler took both the rubber and glider events with times of 4 : 26 and 3 : 07. The club is suffering from shortage of good members owing to National Service call-ups but it hoped that others will come forward.

For once in a while the Clerk of the Weather produced decent weather for the **SOUTH COAST GALA DAY** staged by the **BRIGHTON M.D.A.C.** London supported the events better than the S.E. Area clubs, and duly walked off with most of the prizes. Josh Marshall (Hayes) early contacted a weak thermal with his power job, and clocked 5 : 25·5, to be followed shortly after by the largest model at the meeting, A. Mussell's 88-in. span "Cosmic Rave". Following a spectacular climb, the model flattened out in a nice glide, but after about 90 seconds it gradually went into an almost vertical dive to provide the most complete prang of the day. The booby prize of a stick of Brighton rock went to Bradshaw (Southern Cross), other awards being as follows :—

Class A Power	H. Marshall	(Hayes)	309·2
	F. H. Boxall	(Brighton)	242·3
	N. Pilgrim	(Birmingham)	205·2
Class B	R. H. Warring	(Zombies)	370·2
	A. Munday	(Zombies)	235·8
	I. C. Lucas	(Brighton)	198·6
Class C	A. H. Wilson	(Hayes)	431·6
	I. C. Lucas	(Brighton)	429·7
	A. Mussell	(Brighton)	210

R. Moon of the **BRISTOL & WEST M.A.C.** took first place in the Western Area open power ratio contest at Lulsgate on August 7th, his 40-in. span Mills Mk. II powered model making its maiden flight of 74 secs. from a 13 sec. motor run in a 40 m.p.h. wind and rain. The club also took the Bartlett Trophy, open to all clubs in the West of England and South Wales.

Suffering from a temporary shortage of active fliers, the **BLACKHEATH M.F.C.** is to divide its total membership into three teams to compete against one another during the autumn. These contests should finally expose those "arm-chair enthusiasts". The first comp. for the Bill White Memorial Trophy was recently flown off at Fairlop, winner T. Hewitt scoring 80·2 marks out of a possible 100. Secretary Bishop now holds the Wakefield class record with a time of 6 : 13, and J. Holmes set up a new Class A power record with 4 : 20 on a 20-second motor run, the model being found ten miles from the take-off point.

The finals of the London & District Inter Club Challenge Cup was fought out between Surbiton and North Kent on August 14th. After a keen struggle the N. Kent boys emerged the winners by a margin of some seven minutes. Their aggregate of 33 minutes was chiefly due to good work by J. Rumley and E. J. Russell, flying a 10-ft. F.A.I. glider and an F.A.I. rubber job respectively. Last year's winners, Park M.A.L., showed a fine spirit by turning up to act as timekeepers.

Though fine, the weather could have been kinder for the **SEVENOAKS & D.M.A.C.** 3rd annual Gala, the gusty wind (constantly changing direction) making take-offs extremely difficult. Some 16 clubs provided an entry list of approx. 150, who suffered a fairly high mortality rate with their models, but that did not prevent a thoroughly enjoyable day—if I can believe my reporter! Probably he wasn't flying! Results :—

Rubber	Parker	(North Kent)	5 : 00
	Brooker	(Maidstone)	3 : 28·6
	Mason	(Sevenoaks)	2 : 35

Glider	R. Boxall	(Brighton)	5 : 00
	Giggle	(Brighton)	3 : 00
	Hodgson	(Regents Pk.)	1 : 53
Power	Hodgson	(Regents Pk.)	2 : 19·5
	Annells	—	1 : 06·5
	Grimmett	(Regents Pk.)	1 : 05
C/L Stunt	Butcher	(Hastings)	280 pts.
	Bowles	(Hastings)	228
	Westbrook	(Zombies)	152

Flying at Baildon Moor, the **OLDHAM & D.M.A.C.** h.l. glider record was broken three times in one day, the current holder being K. Stott with 2 : 42, his machine being a silk covered " King Falcon ". A claim has been submitted for the Gosling Distance Trophy by F. Palmer, whose model landed 4·8 miles away. The club practice of bringing drawings to the club for discussion and criticism was proven advantageous when L. Gorings' design for an 80-in. span job was found to have two port wings ! Who wants an 80-in. biplane anyway ?

The fourth exhibition of models held by the **READING SOLID MODEL SOCIETY** was a great success, among the more interesting exhibits being a working wind-tunnel and jet propelled speedboat. Many visitors ordered models to be made by club members, so here's a new idea for those of you who want to make a bit on the side.

The **ODIHAM & D.M.F.C.** are organising an end of the season Rally at R.A.F. Station, Odiham, Hants, to be known as the " North Hants Rally ". Canteen facilities will be available, and the usual run of contests will take place. Full details to be obtained from C. R. Foot, " Jolly Miller Cottage," North Warnborough, Odiham, Hants.

D. Baldwin of the **PETERBOROUGH M.A.C.** won the club's " Embassy Trophy " for the second year running, flying his Mills-powered " Scorpion " to score only one point error, the contest being on Bowden Trophy lines. A sailplane contest held on the same day went to R. P. Francis, who, flying a lightweight design, hooked the only thermal of the day on his second flight, giving him a total of 8 : 48. This chap holds the club glider record with a time of 8 : 23.

Full results of the All Control Line Rally staged by the **WALSALL M.A.C.** on August 1st are now to hand, being as follows :—

Speed—			
Class I	V. Collins	(Dudley) Mills Mk. II	50 m.p.h.
Class II	K. Muscutt	(West Essex) Elfin	62·07 m.p.h.
	K. Goodchild	(Wolverhampton) E.D.	58·07 "
	C. Snow	(Five Towns)	56·96 "
Class IIIa	F. G. Buck	(Five Towns) Amco 35	62·25 "
	A. R. Buck	(Five Towns) Amco 35	59 "
Class IIIb	A. J. Partridge	(Blackheath) Yulon	63·15 "
	B. G. Hewitt	(Sth Birmingham) Yulon	62·25 "
	N. A. Long	(Sth Birmingham) Yulon	57 "
Stunt—	A. Hewitt	(Sth Birmingham)	280 points
	B. G. Hewitt	(Sth Birmingham)	280 "
	B. Brown	—	245 "

Members of the **WHITEFIELD M.A.C.** have been collecting prizes from all around their area, junior lads putting up as good a show as the seniors. Three juniors lost their gliders on their first flights at the Woodford meeting, B. J. Williams (10 : 10), D. Bennett (9 : 45) and H. O'Donnell (7 : 22).

The radio-controlled glider belonging to the **NORTHERN HEIGHTS M.F.C.** is being fitted with a 5 c.c. diesel in an effort to decrease the sinking speed. It was found that the length of flight of the glider was not sufficient to enable much knowledge to be gained about the radio equipment. Ron Meade has now taken up power flying as a sideline, and is currently trimming a 7-ft. span pylon job powered with an Ohlsson 60. Free flight power models are receiving a great deal of attention at the moment, Bill Postill consistently getting ratios of over 14 with his Forster 29 powered " Climax."

The first of our monthly prizes of a free subscription to the AEROMODELLER goes to reader R. Brown of Grimsby, who relates the following : " I was flying a baby stunt c/l model (5¼ ozs.) when there appeared a large petrol model of the type used for precision flying. It was on me before I could effect any evasive action, and striking my lines about half way along, it carried away the lines and model (still stunting !), I having released the handle in an attempt to prevent a crash.

" For the next few seconds I beheld the unusual sight of this large model flying steadily on with my little c/l flying around it a few feet away. I was certain that a costly pile-up would result, but by some miracle, my model—complete with lines and handle—fell clear, leaving the petrol job to continue its flight unhindered. The only damage was a tear in the tissue of my model, inflicted on landing, but I hate to visualise the result had the lines fouled the prop of the other model ! "

Well, who can beat this one—there should be plenty of incidents worth reporting, so let's continue to have your tall stories (true of course) and qualify for a full year's supply of the AEROMODELLER at no cost to yourself.

Well chaps, that's all for this month, and let us hope the weather continues to hold fine for us, thus completing what must be one of the finest seasons of flying weather we have yet experienced. About time we had a good break—we've had enough of the others.

The CLUBMAN

NEW CLUBS

CHILTERN HUNDREDS M.A.C.
G. J. Moore, " Hillberry," Ruckers Lane, King's Langley, Herts.
PENSEY VALE M.F.C.
J. E. Roberts, " The Firs," Manningford Brace, Marlborough, Wilts.
BISHOP AUCKLAND AND DISTRICT M.A.C.
R. Hymers, 8, Ashley Street, South Church, Bishop Auckland, Co. Durham.
POLLICSAFFS M.C.
B. J. Francis, 61, Ynyowen Road, Treorchy, Rhondda, Glam., S. Wales.
SHEPPEY M.A.C.
P. Peters, 29, St. Helen's Road, Sheerness, Sheppey, Kent.

SECRETARIAL CHANGES

CROSBY M.A.C.
D. Moore, 16, Walmer Road, Waterloo, Liverpool 22.
FINCHLEY M.A.C.
J. T. Covington, 23, Brownlow Road, Finchley, N.3.
MID-SUSSEX A.M.C.
W. Robbins, 11, Hanbury Lane, Haywards Heath, Sussex.
BUCKSBURN AEROMODELLING TEAM.
C. M. Christie, 7, Scinttie Circle, Bucksburn, Aberdeenshire.

ERRATUM

In the Wakefield Supplement of our last issue, on page 579, caption 3, N.G. Marcus is credited with flying proxy for B. A. Bland of Trinidad. Actually, Mr. Bland's machine was flown by J. L. Pitcher, whilst the model depicted being flown by N. G. Marcus belongs to H. Pina of of Trinidad. We apologise to Messrs. Marcus & Pitcher for any inconvenience which may have resulted from this error.

CLASSIFIED ADVERTISEMENTS

PRESS DATE for Dec. issue—Oct. 20th, 1949.
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Private Minimum 18 words 4s., and 4d. per word for each subsequent word.
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Ohlsson 23 rotary conversion unit, coil condenser, spark and Glo-plugs, £5. Hot Mills Mk. 1, £2. Hot re-worked comp. E.D. rotary valve, £1. 10s. 8d. Box No. 235.

E.D. Mk. II. Good condition, £2 Numerous AEROMODELLERS and Aeromodelling books, S.A.E. list. Vann, 22, Burgess Street, Leominster, Herefordshire.

American Morton M-5 five-cylinder, four-stroke petrol engine, approx. 16 c.c., with 3-blade V.P. prop. Has only been bench run twice. Offers. Reynolds, 21, Sycamore Road, Worcester.

Mills Mk. I, 30/-. Two E.D.'s Mk. II, 35/-, 45/-. Kemp 4·4, £3. Perfect condition. Bowden "White Wings", nylon covered, perfect, £4. Blincow, 47, Moffat Avenue, Ipswich.

·099 Arden complete, timer, first over £4 secures. American Cavalier, 5 ft., kit £3. Ouragan powered 5 ft. Quaker Flash, best over £7. Photos, further details. Lieut. Gathercole, T.T.C.R.M., Fort Cumberland, Southsea.

Almost new Lapwing, 10 c.c. Petrol, £8. Details on request. Woods, 23 News Lane, Rainford, nr. St. Helens, Lancs.

McCoy '49, glow-plugged, prop, and stunt model, £10. Ohlsson ·19 full electrics and glow plug, £6. 10s. Both excellent condition. Batts, 29, the Oval, Farncombe, Surrey.

Engine sale, all new, E.D. Comps., Mark III, "K" Vulture, 70-/; Nordec, 210/-; Juggernaut, 90/-; Falcon, 50/-; O.K. Twin (Complete), £16. Orwick (used), £10. Morris, 75, Cottimore Avenue, Walton-on-Thames, Surrey.

8-ft. span Vulcan, complete with 10 c.c. engine, airwheels and timer and all necessary accessories, £15. Winter, 14, Mill Road, Royston, Herts.

"A.F.P." Vols. II–V inclusive; "Aeroplane," 1942–1946 (36 vols.); "Flight," 1942–1946 (48 vols.); AEROMODELLER, Aug. 1943–Aug. 1949 (complete series). Miscellaneous "Aeronautics," "A.T.C. Gazettes," "Model Gliders," etc. Partially completed Howard Boy's Lysander kit. What offers the lot or any part? Taggart, 60, Bushmore Road, Hall Green, Birmingham 28.

AEROMODELLERS, Dec., 1941–Dec., 1945, June and Nov., 1945, missing; "Aircraft of the Fighting Powers," Vol. 2; "Aeromodelling"; "Radio Control for Model Aircraft"; "Petrol Engines for Model Aircraft," £2. 15s. lot. I. McCutcheon, Bank House, Denny, Stirlingshire.

Frog 100, powered "Bandit," £3. E.D., powered "Outlaw," £4. Cl. "Sea Fury," airframe, £1. Cl. "Tiger Moth," airframe, £1. Cl. "Cobra" stunt biplane airframe, £1. Photos available. A. McMillan, 4, York Road, St. Albans.

59 "Flights," between August, 1941, May, 1943: 51 AEROMODELLERS, between August, 1943, February, 1948. 35/-. Jolly, South Parade, Ossett, Yorks.

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E.D. Mark III, very little used, good condition, complete, £3. Box No. 236.

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Anderson Spitfire, as new, £12. Attwood Champion, bench run only, £8. Ohlsson 60, new plus some spares, £6. Super Cyclone 60, as new, £10. Vivell 35, £2. Box No. 237.

New Vivell 35's still boxed £6 each. Also new wood Lathe 2½" centre, 16" bed with motor and accessories £7. Box No. 239.

Brand New Mechanair 6 c.c., petrol or glow plug. 2 petrol plugs, glow plug and adapter, coil, condenser, fly wheel, prop. £7. Box 238.

10 c.c. "Dennymite." Excellent condition, only run 15 minutes. Complete coil, condenser, prop. £7.10s. Benson, 3 Berwyn Avenue, Hoylake, Wirral.

Aircraft of the Fighting Powers, volume 1-5 inclusive. Good condition. £3. 10s. McIsaac, 58, Arbor Avenue, Burnage, Manchester, 19.

15 c.c. Magpie engine. Coils, Condenser; bench run only. £10. Partly finished "Vulcan". Offers—Wolfson, 53, Wellesly Court, Maida Vale, W.9.

WANTED

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(Continued on page 664)

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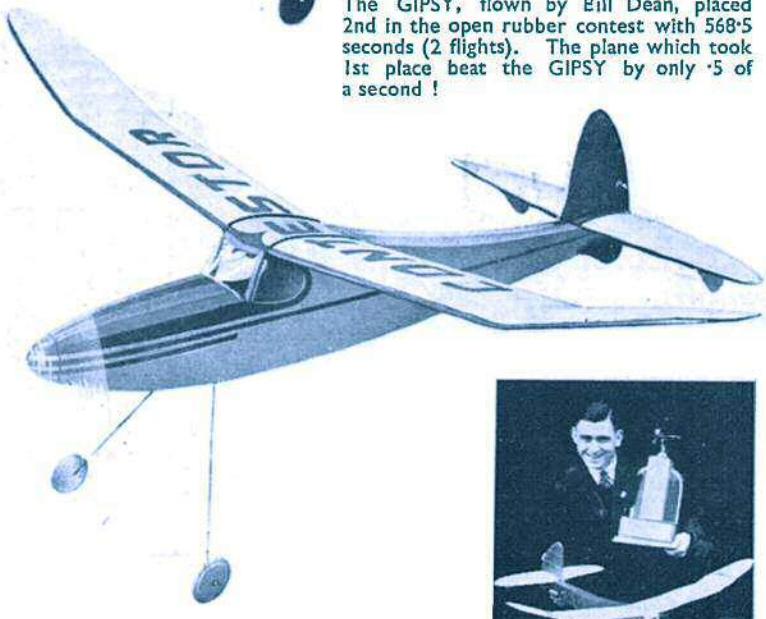

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