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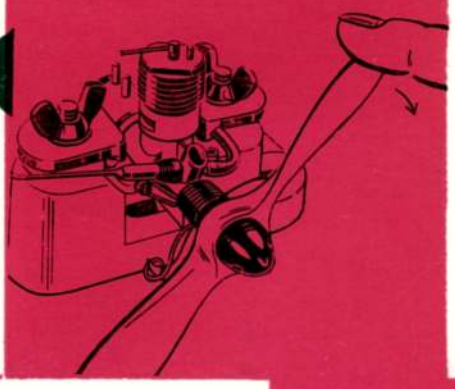

Shows the method of release in which the finger is withdrawn radially thus freeing the propeller. The recoil of the spring rotates the engine over compression at least 2 or 3 times thus ensuring a start.

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AERO MODELLER

MAP HOBBY MAGAZINE

other modelling angles . . .

Radio Control Models & Electronics starts the new year with more information that will be welcomed by radio boat enthusiasts, keeping the balance between followers of this section of the hobby and the aircraft modellers. The constructional article this month features a very simple all-transistor transmitter, which will be presented in two parts; this month deals with the basic transmitter for single channel, details for multi operation later. Needless to say, it is a piece of equipment equally suitable for aircraft or boats.

Sharing the cover with the transmitter is one of the popular Q class radio yachts, reports on a regatta appear in the contest section. Practical articles are: Installation of equipment in a model aeroplane kit with hints on flying, a comprehensive article on the art of printed circuit making and some useful theory behind the design of rudders for boat control.

Electronic theorists will be interested in a review of a variable frequency oscillator, purchasers of commercial gear will be able to read the inside story of the Telecont equipment in this month's review. Scale enthusiasts should find food for thought in the Miles "Monitor" feature.

The outstanding features of January *Model Maker & Model Cars* will be an article on the Portsmouth club's amazing power catamarans, with plans for a model, and a hovercraft designed for radio control. Car high spots will be a Maserati sports, the Meccano "Circuit 24" reviewed, and the first of a new series examining car performance in detail.

Both magazines are the same price . . . 2s. per copy. If your Hobby Shop or newsagent does not carry a stock send 2s. 4d. for a return post delivery from the address below.

January 1963

VOLUME XXVIII No. 324

contents

cover

Superb scale model of the Polish Air Force reconnaissance-bomber "Wilk" by Ireneusz Pudelko, seen at the World Control-Line Championships, at Kiev. The undercarriage is a masterpiece of model engineering and like most other components, works exactly as on the full size.

next month...

America's ace of single channel models, in particular the smaller variety, is Ken Willard. Combine his talents in a scale type and you have an exciting project. Ken details modifications to the A.P.S. *S.E.5a* and *Supermarine Spitfire* for 0.8 c.c. R/C—and proves how to do it with a magnificent colour cover photo. *Squadron Markings* will return. More contest designs and one feature revealed at this stage which will provoke much interest is on making *Boomerangs*—out on January 18th.

Editorial and Advertisement offices

38 Clarendon Road, Watford, Herts

Telephone: **Watford 32351** *(Mon.-Fri.)*

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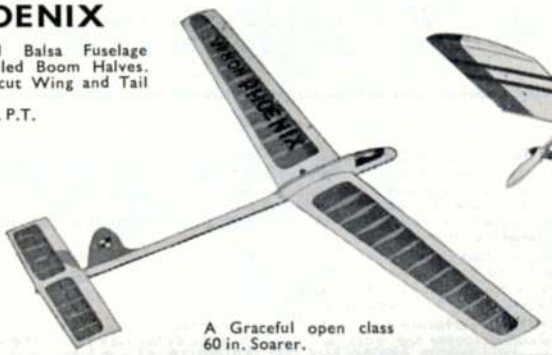

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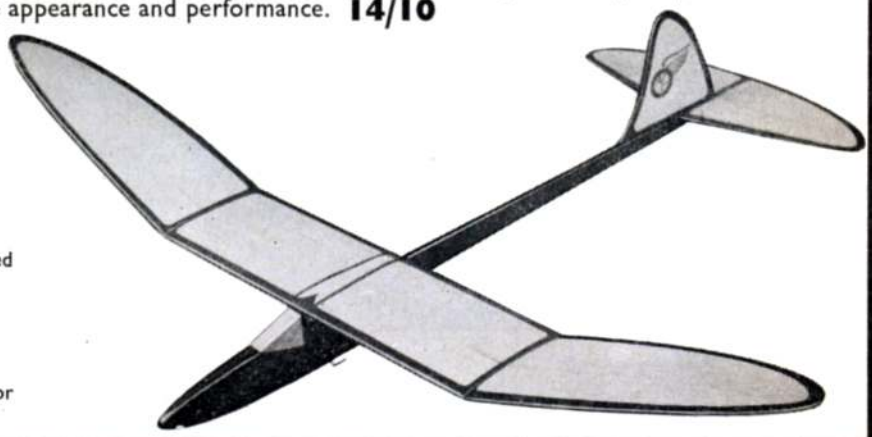

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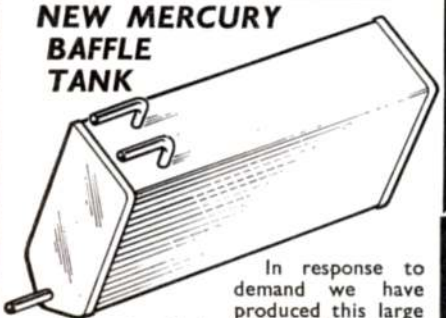

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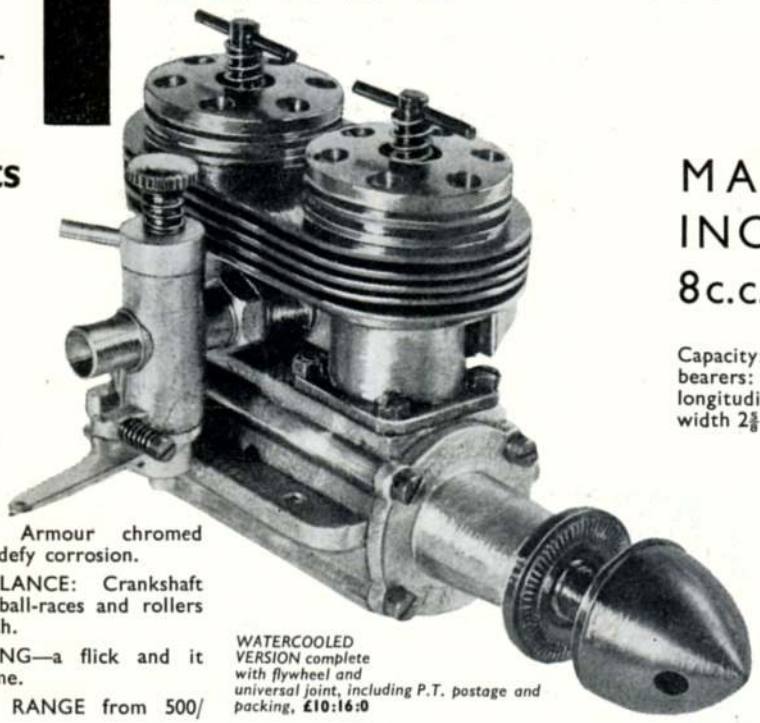

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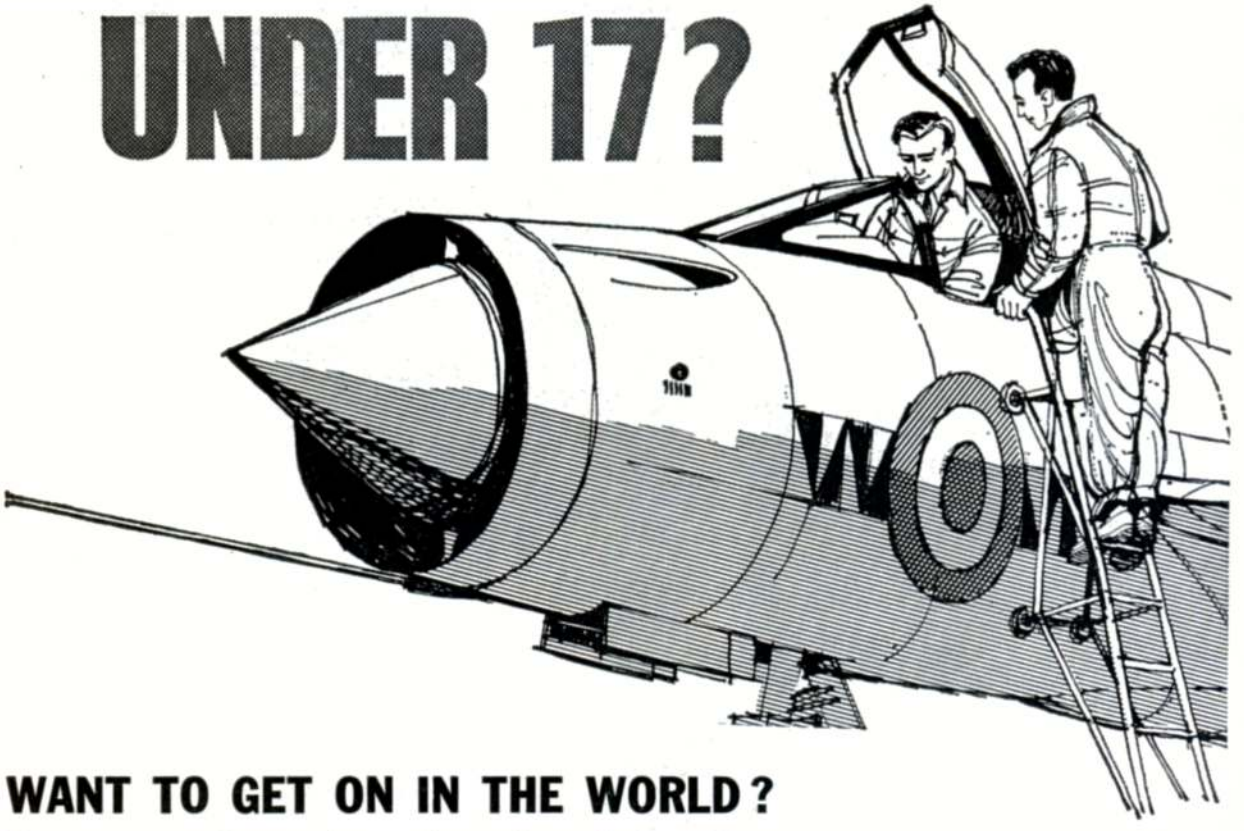

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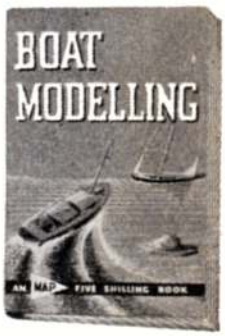

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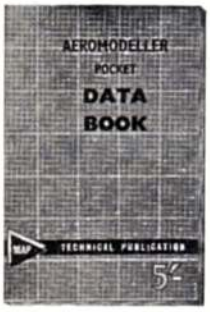

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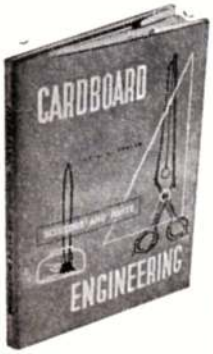

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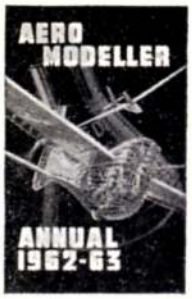

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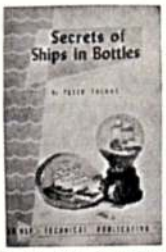

Of all the fascinating models it is possible to make, perhaps the ship-in-a-bottle is the most intriguing. Such models, made by old seadogs, have for generations puzzled the landlubber. This book solves all the problems for would-be builders in beautifully-illustrated sketches, fine photo pictures and explicit text. 64 pages, size 7¼ by 4¼ in., and 8-page art inset for photo plates. Bound in two-colour card cover.

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38 CLARENDON ROAD WATFORD HERTFORDSHIRE

Heard at the Hangar Doors

Since we published scale drawings of George Meyer's "Little Toot" in April, 1958, this subject has become a great favourite amongst model builders as well as home constructers of full-size planes. Arlo Schroeder coloured his version of this 19 ft. Biplane, which has a top speed of 125 m.p.h. on only 85 h.p., in the manner of the famous Hawk Fighters, re-naming it the "Hawk Pshaw".

A few Notes on Model Aeroplaning

TO THE BOY OF a mechanical turn of mind, flying a model aeroplane, offers ample scope. Provide him with a serviceable aeroplane and a large open space and he should be able to keep his thoughts occupied with a problem which, should he solve it, will send his name down to posterity and make his fortune.

There are hosts of designs for a model aeroplane, but a satisfactory model that will fly well is a single-screw leading elevator monoplane, with a 30 in. mainstick. This model is easy to make, at a cost of about 1s. 6d. Another type is the twin-screw monoplane, on the same principle as the former. Strictly avoid tractor-planes, if you wish to get good flights and long life for your machine.

By way of explanation, a tractor-plane is one on which the screw is placed at the prow of the machine to pull, whilst in the other type, the screw is placed at the stern to push.

The disadvantage in using a tractor is that, in turning, it creates a back-blast which provides a large amount of support, and if the tractor suddenly stops this support is lost, and the machine diving headlong to earth, suffers considerably in the resultant collision.

When you have chosen a machine, take it into a large field, wind up, and holding by the mainstick, give a slight push to the machine, so that it sets out dead against such wind as might be blowing. If, after an erratic dive or two the machine lands, there is too much elevation.

To correct this fault, ease up the elevator and move the large plane a couple of inches nearer the propeller. Then launch as before. Properly adjusted, your plane should fly 300 yards or so. Another fault is that of going smoothly for a few yards and then crashing end-on to earth. To correct, move the large plane an inch or two away from the propeller.

One often sees machines circling about 80 feet up and coming to earth with a curving glide, instead of a straight one. To get this beautiful flight, very little adjustment is necessary. Twist the elevator so that it is not quite parallel to the large plane and on launching, the desired effect is obtained.

Here are a few "don'ts" to finish up with.

Don't overwind. No prolongation of flight is obtained, whilst rubber objects, by breaking after few flights.

Don't launch in a place where the field is encumbered with fences, trees, etc., or where cattle, sheep or horses are grazing.

Don't lubricate the elastic with bought lubricants. They may enable you to get a larger number of turns, but they contain the great enemy of rubber, grease. A good lubricant may be made as follows: Boil two-pennyworth of glycerine with one-pennyworth of soft soap and half-pint of water.

Don't fly on a gusty day. If the wind be steady and fairly light you have ideal conditions. Don't forget to

Photographs of the "Hawk Pshaw" illustrate the general scheme as taken from our February, 1958, issue with black and white nose, olive fuselage, red and white rudder stripes, chrome yellow wings. Quite a modelling subject — we look forward to seeing a radio scale entry some time.

It was our recent pleasure to hand over the AERO-MODELLER—"Modele Reduit D'Avion" challenge trophy for "Coupe d'Hiver". At left, the editor is presnting the magnificent carved Eagle, which will be symbolic of team victory in this event, to Maurice Bayet, editor of "Model Reduit D'Avion" in Paris. Maurice in return is holding the individual challenge cup which will go to the competitor with leading time. February 24th is set as the contest date for the 1963 International challenge. Other view of the trophy presented by this Company at right, gives a fine impression of its unique aspect.

launch your machine against the wind.

Is this crazy? Not really—it's a reprint from a school magazine of April, 1914—almost 50 years back! Bearing in mind the date of original publication and the comment on sending names to posterity and making fortunes, we wonder if A. V. Roe, Sir F. Handley-Page and Sir Sidney Camm were pupils of this school.

Coupe d'Hiver

Arrangements are now made with the F.N.A. in France for the 1963 Inter-Nation Challenge organised by AEROMODELLER and the French magazine "*Modele Reduit D'Avion*". This contest for models to the Coupe d'Hiver specification is open to all-comers in Great Britain and France and will take place on Sunday, February 24th, 1963. Application for appropriate British entry forms should be made to the Editorial Offices. The individual winner, with the highest total flight score will be the holder of the individual challenge cup and the Nation which produces the highest score with its three leading competitors, will hold the AM/MRA challenge trophy. Three flights of two minutes maximum time are required, and for 1963, any modeller making three successive maximum flights will be required to make further flights to the same regulations until he fails to achieve a two-minute maximum.

As a reminder for those who are not familiar with the model specifications, they call for a maximum of 10 grammes of rubber (.352 ozs.), a minimum of 70 grammes of airframe (2.46 ozs.), a minimum of 20 sq. cm. fuselage cross-section (3.1 sq. ins.) and each flight must be made with an unaided rise-off-ground. We have published numerous Coupe d'Hiver designs over the past year and AEROMODELLER Plans Service includes *Garter Knight*, which was one of our free plans for December, 1961, and can be supplied through A.P.S. as drawing D.809 price 4s. including post. Further details will gladly be supplied through our Query Department.

Index

Another year gone, and it is our pleasure to enclose a copy of our fully detailed index to AEROMODELLER, Volume XXVII for 1962 for all subscribers. Those who purchase the magazine from a hobby shop or newsagent may obtain their copy by sending stamps or postal order value 1s. and a self addressed (3d. stamp) envelope for immediate return. Overseas readers, who do not receive subscription copies, may obtain a copy by sending International Reply Coupons to the value of 1s.

It is automatically incorporated in all bound copies of Volume XXVII. Orders can now be accepted for binding in red cloth with a gold blocked title on the spine. This makes a most handsome volume for your shelves. Send the twelve issues for 1962 to "Binding Department", at the Editorial Offices. Because this work is a hand operation by skilled personnel, orders are taken in strict rotation and delivery is a minimum of three weeks. A charge of 15s. is made for this service.

Bumper S.M.A.E. Function

The 1962 dinner/dance of the Society of Model Aeronatutical Engineers on November 24th was the best to date. Speeches were commendably short and to the point, the hit of the evening being Mrs. Riall's reply to the toast of The Ladies. Consisting mainly of Punch's advice to those about to get married **(don't!)** She amusingly detailed the pitfalls of becoming tied up with an aeromodeller and advocated an earnest study of the A.A. Handbook, thus ensuring that at least one good meal be enjoyed on the way home from the flying field!

Welcome guests included two stalwarts of the United States model movement in Mr. Russel W. Nichols, Director of the Academy of Model Aeronauticics, and Dr. Walter Good, a former A.M.A. President and R/C pioneer. Both American guests were awarded Honorary Life Membership to the Society, and "duly decorated" before an enthusiastic audience.

Dancing (as usual) was spasmodic, the poor Band-leader "flogging a dead horse in his endeavours to winkle modellers away from either the bar, or deep discussion; but everyone voted the evening a huge success.

The "Quickstart" trophy presented to the S.M.A.E. Ltd. by Messrs. Davies Charlton of the Isle of Man for the first S.M.A.E. ½-A free flight event for engines up to .049 cu. in. capacity. Designed and constructed by P. E. Norman, the trophy carries the twin arrow D.C. symbol and was won for the first time in 1962 by Tony Young of St. Albans M.A.C.

COUNTDOWN

MOST SUCCESSFUL CLASS ½A 1·5 c.c. TEAM RACER TO DATE, DESIGNED BY DICK PLACE

1.5c.c. Team Racing standards have improved so rapidly over the past 18 months it seems hardly creditable that their performances match that of earlier 2.5 c.c. models in the same size airframes. Undoubtedly, the most successful, and one of the best looking to date is Dick Place's "*Countdown*" and it is with special pleasure that we introduce this as the first genuine ½A Team Race design to Aeromodeller Plans Service (as distinct from Class A conversions).

1961 SUCCESSES

Event	*Placing*	*5 mile heat time*	*10 mile final time*	*Remarks*
Woodford	1st	5 : 17	9 : 59	ENGINE MK. II TIGER CUB (STANDARD). 6 x 9 Stant. prop. Range 50 laps/tank using nitro benzene, difficult starting and engine overheating.
Nats.	3rd	4 : 27	11 : 03	6 x 9 Stant. prop. No nitro benzene in fuel; starting improved, but still tending to overheat, which it did in final, laps 50/tank.
High Wycombe	1st	4 : 19	9 : 16	Engine de-coked before this event and lacquer removed from piston walls. Much better performance, prop. 6 x 9 Stant. laps 50/tank.
Northern Gala	1st	4 : 39	15 : 08	Slower times are result of taking the model to a safe take-off position due to wind and two prop changes in the final. Prop 6 x 9 Stant laps 50/tank.
R.A.F. Champs.	1st	4 : 23	4 : 27	Final was run over 90 laps. Prop 6 x 9 Stant. laps 50/tank.
South Midland	2nd	4 : 29	10 : 51	A blocked jet lost time in the final with extra pit stops. Prop 6 x 9 Stant. laps 50/tank in heat.
Air League Rally	1st	3 : 58	10 : 05	Engine again de-lacquered before this event and the performance picked up with model making fastest heat time yet. Prop 6 x 9 Stant, laps 50/tank.

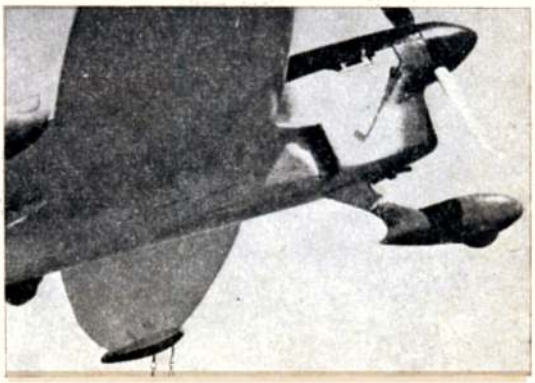
Success of Countdown in ½A Team Race contests is in no small measure due to the careful attention given to streamlining in the original design. Note the cowling outlet for hot air extraction and the spatted monowheel in view at right. Latest fin shape is given on plan opposite.

Fuel that has been used all season with the exception of the Woodford rally is: 35% Ether, 35% Paraffin, 20% Castrol M, 7½% Heptane and 2½% Amyl Nitrate.

This, together with a 6 x 9 Stant. prop, which has been thinned and balanced, will get through a heat with only one pit stop—*i.e.*, 45 laps/tank at least and gives an air speed of around 80 m.p.h.

The only other props tried are Stant. 6 x 8 and Tornado Plasticote 6 x 8, both of which gave better acceleration, but the top speed was slightly down and the laps dropped below 45, which would have meant extra pit stops. In the light of 1961 seasons flying, it is obviously better to keep a 9-in. pitch prop and trim the diameter to 5¾ in. or 5½ in. consistent with obtaining at least 45 laps if one cannot obtain the speed on a full 6 x 9 propeller.

Start construction by assembling the engine bearers, crutch and U/C box, using Araldite. Drill the bearers, fit engine complete with spinner, after preparing "flats" on fins and carve bearers away to follow the contours of the spinner. Cut out the wing and sand roughly to shape, leaving fuselage area flat, then make up bellcrank assembly with flexible lead out wires and install in the wing ensuring that the system works freely. Cut out the tailplane and fit the elevator. Cement wing and tailplane to the crutch and Araldite the U/C box and fairing blocks in position, fit the former at section E-E, vertical crutch



Ken Long's TIGRESS

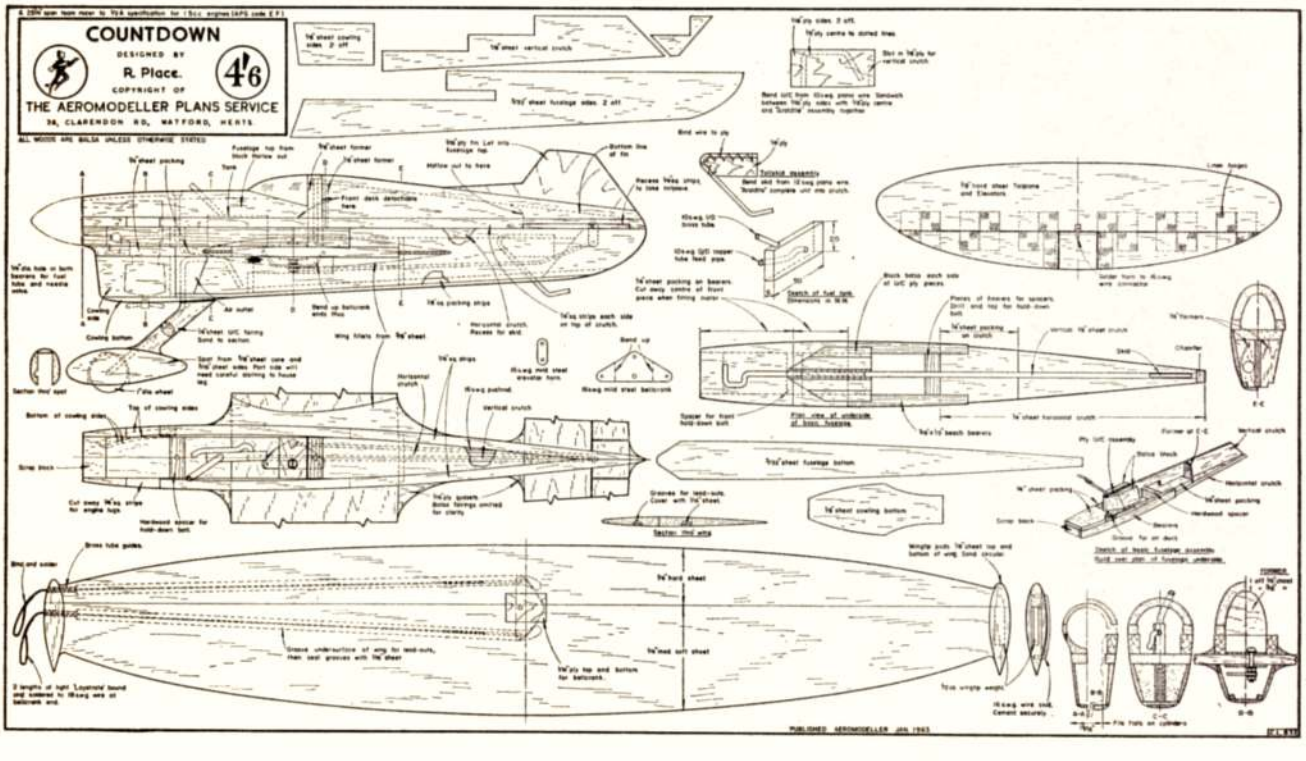
COPIES OF AEROMODELLER Plans Service drawing CL. 741 for the F.A.I. Team Racer "Tigress", are now amended to include details of the Mark VI nose. The latter version is that which accommodates the Eta 15 diesel. Engine bearers and wing are lowered slightly and the upper engine cowling extended to behind a revised cockpit so that good access is afforded to the tank compartment. A unique feature is the use of small steel blocks as a bed on which the engine is most rigidly fixed. Actual size copies of the drawing are available from A.P.S. price 5s. 6d. including post.

Nose detail of Tigress VI showing Eta 15 installation and tank mounted aft of intake, which calls for a revised upper cowling as detailed on A.P.S. Plan CL.741, now amended with Ken Long's details.

and tailskid into position, bend the pushrod and secure it in position with a washer soldered on the ends. The fuselage sides can now be cemented into place again ensuring that the control system works freely. Sand bottom of fuselage flush to the $\frac{1}{8}$ in. square strips and add the fuselage bottom. Assemble cowling ensuring that there is at least $\frac{1}{16}$ in. clear all the way round the engine. Tack cement the fuselage top block into position and carve to shape, build up the spat round the wheel and add the soft balsa fairings to the wing roots and tips. Now sand to shape. Remove the top block, hollow out and cement rear postion together with $\frac{1}{8}$ in. balsa former back in position with the $\frac{1}{16}$ in. ply fin. Block rear of top cowling with $\frac{3}{8}$ in. former. Make up the tank and wedge in position whilst the holes in the top cowling are made. Sand the whole model to a smooth finish then cover the bottom cowling wing roots, tips and spat with silk. Remainder of the model is covered with light tissue.

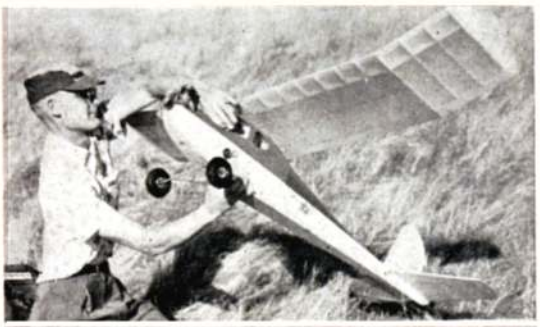
The entire model is then given three coats of sanding sealer taking care to seal the inside of the cowling and the tank compartment. Canopy and pilot can now be added. *Countdown* is then given three thin coats of colour dope, the trimmings and transfers added (don't forget your S.M.A.E. No.) and then a coat of fuel proofer. The original model weighed 14 ozs. ready to fly, a Stant. 6 x 8 or 6 x 9 prop should give approximately 50 laps on 46 ft. 8 in. lines with a heat time of around 4.20 depending on the speed of pit stops—happy flicking!

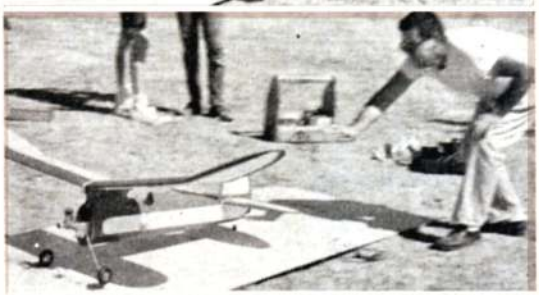
FULL SIZE COPIES OF THIS 1/5th SCALE REPRODUCTION ARE AVAILABLE AS PLAN CL833, PRICE 4/6d PLUS 6d[POST FROM PLANS SERVICE

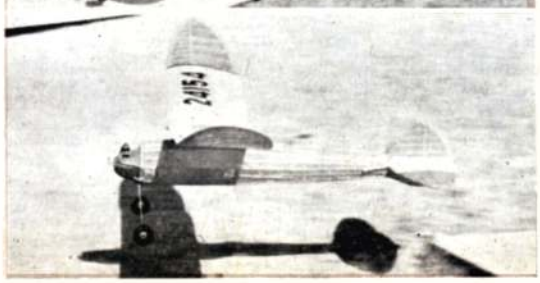


Far left, Roger Gregory of the Skyoneers prepares the winning model in cabin rubber event—a Henry Struck "Flying Cloud". To the right, Tom Protheroe of Santa Barbara makes ready another Struck design, the "Record Hound." Note monowheel and twin tail wheels at tail tips. Right, is a selection of favourite old timer power models which qualify for the events

OLD TIMER CONTEST







2nd of these popular events held in California — reported by J. POND

CAPITALISING ON THE smashing success of the 1st Old Timer Contest, (reported in May 1962 AERO-MODELLER) the *Stockton Gas. Mod. Assn.*, in California, decided to institute the old timer type contest as an Annual affair.

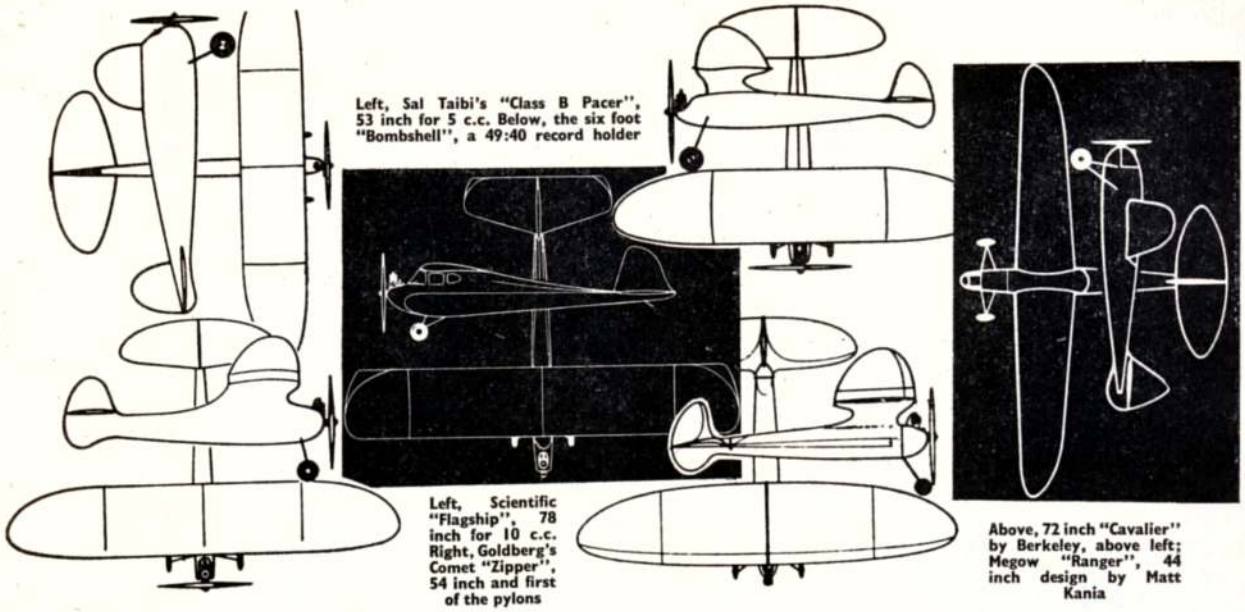
In the spirit of the old timer contests, it was agreed to add 2 rubber events. The first event, cabin, was to conform to the *Moffett* and *Wakefield* rules of 1940, while the second event was to be devoted to stick types conforming to the requirements of the *Mulvihill* Trophy.

Rules for the power models, having proven so successful, were virtually unchanged from the previous year, permitting all types older than 20 years. The rubber models, however, came in for closer scrutiny, knowing full well that the performance of rubber models depends heavily upon the propeller used, the requirements in these events specified strict adherence to the original size block and shape. In addition, the features of the propeller whether it be fixed, free wheeling, or folding were to conform to the original. Aware that the quality of rubber had changed since those days, no restrictions were placed upon the amount of power to be used.

The turnout for this contest exceeded even the optimistic estimates. Numerous groups from San Diego, Los Angeles, Santa Barbara, and other southern Californian cities were noted. One group came 525 miles just to attend this unusual contest! A large contingent travelled from Fresno.

Contestants were greeted with a brisk wind which fortunately did not increase appreciably during the day. Weather was warm which was conducive to thermal activity. Unfortunately for the majority of the contestants, the location of the take-off, although excellent, contributed heavily to the low times. Being located on the down-wind end of a down slope, only the high climbing models were able to overcome this natural "sink hole". This was sharply brought out by the fine flying 1936 "*Miss Philadelphia VI*" which in a 20-second engine run did not climb high. In spite of its excellent glide, it was never able to average over two minutes. Under normal conditions it should have floated on the early morning lift almost indefinitely.

Top left. Fifth in Cabin Power, fourth in Ignition class, was Jim Medesker with a Joe Konefes' "Buzzard Bombshell". Next is Jack Ritner launching his O.S.35 powered Cleveland "Playboy Sr." from the Rise-off-ground board. Rolling for take-off is a Henry Struck "New Ruler" entered by Ken Freese, which was second and just off, at bottom is author John Pond's own "Eastern States Champ", second in Class I



Left, Sal Taibi's "Class B Pacer", 53 inch for 5 c.c. Below, the six foot "Bombshell", a 49:40 record holder

Left, Scientific "Flagship", 78 inch for 10 c.c. Right, Goldberg's Comet "Zipper", 54 inch and first of the pylons

Above, 72 inch "Cavalier" by Berkeley, above left; Megow "Ranger", 44 inch design by Matt Kania

As the contest progressed, it was noted that entry lists were not particularly heavy. Several factors were attributed to this; the brisk breeze which discouraged some of the more timorous souls and also to the great amount of untried models. The biggest factor by far was the unusual twist the contest took on. Many modellers, rather than enter the contest, found a spirit of camaraderie in just discussing their models and the times they represented. At times the contest resembled more an old fashioned class reunion. Five distinct type groups were to be found at this meet; those who competed, those not flying, the engine collectors who came to barter and make new contacts, the host of camera hounds with both still cameras and motion picture types, and finally the spectators who had to be roped off as they became quite numerous around the more unusual models.

Despite the drawbacks to the contest, competition was extremely keen with hot flying "*So Long*" models and "*Playboy Sr.*" types dominating the power events. The most spectacular flying model on the field was the Louis Garami design, "*Strato-Streak*". Powered with a Hornet .049 with only 220 sq. in. of wing area, this proved to be the most potent combination. The general consensus of opinion by those viewing the performance was that this model would do well against modern counterparts.

Old favourites in rubber

Rubber events turned out to be the most interesting. Surprisingly the entry in the stick event was heaviest, in spite of this category being put in at the last moment. The winner was decided almost at the outset by a very fine flying 350 sq. in. Lanzo type enclosed stick type. This model, equipped with a folding propeller and weighing nine ounces proved to be an excellent soarer in the breeze.

Wally Simmers' designs such as the "*Gollywock*", "*Jabberwock*", etc., dominated the rubber events. This was to be expected as these old unchanged models are still available (!) in kit form on the dealers shelves. Nevertheless, the first 3 places in the cabin event were taken by others. Henry Struck's "*Flying Cloud*" design emerged the winner although it was generally felt the fine flying *Korda Wakefield* model would have won, had it been recovered after only one max. flight.

In a final look at the contest, most of the contestants who came to fly in the ignition event experienced none of the frustrating times of last year. Ignition engines started and ran well. Indicative of just how good can be seen by the entry in the "mixed" Classes I and II wherein a considerable number of places were taken by ignition types in spite of their more powerful glow plug competitors. It was indeed a pleasant surprise to be reminded by an *Ohlsson* .23—*Interceptor* combination that these models flew extremely well in their days. About the only real progress in model performance today can be traced to the advent of the more powerful glow plug engines.

A considerable amount of pride in constructing old time models was very pronounced as evidenced by the heavy entry in the beauty. No less than 12 models qualified for judging. As was the case in the former contest, all models to be judged for beauty had to first demonstrate airworthiness by making at least one official flight. There was no question about it, this rule again saved the judges from even more headaches as a considerable number of beautifully finished models did not qualify by 12.30. A very well finished silk covered *Berkeley Cavalier* 60 was finally adjudged the winner.

In closing, the writer would be most happy to answer all inquiries regarding old time models, engines, etc., care of AEROMODELLER.

Power Class I

1. Allen Schutz (900)	(*Strato-Streak*)	14 : 16
2. John Pond (Vultures)	(*Gas Champ*)	12 : 13
3. Clark Hahn (S.G.M.A.)	(*Wedgie*)	11 : 59
4. S. Belcher (Vultures)	(*Zipper*)	11 : 21
5. J. Bowen (S.G.M.A.)	(*Rocketeer*)	6 : 55

Power Class II

1. J. Ritner (Condors)	(*Playboy*)	10 : 46
2. K. Freese (Condors)	(*New Ruler*)	7 : 58
3. C. J. Randall (Fresno)	(*Sailplane*)	5 : 38
4. S. Belcher (Vultures)	(*Sailplane*)	2 : 51
5. J. Pond (Vultures)	(*Playboy*)	1 : 11

Power, Cabin

1. J. Bowen (S.G.M.A.)	(*Rocketeer*)	13 : 45
2. A. Schaefer (900)	(*So-Long*)	11 : 54
3. J. Schaefer (900)	(*So-Long*)	9 : 24
4. R. Fizer (S.G.M.A.)	(*So-Long*)	8 : 27
5. J. Medesker (Santa Barbara)	(*Buzzard Bombshell*)	7 : 08

Power Ignition

1. W. H. Thompson (San Diego)	(*Interceptor*)	10 : 02
2. Bert Heliot (Fresno)	(*Playboy Sr.*)	8 : 03
3. B. Heliot (Fresno)	(*Playboy Sr.*)	6 : 35
4. J. Medsker (Santa Barbara)	(*Buzzard Bombshell*)	6 : 04
5. Thomas-Powell (900)	(*Miss Philly VI*)	3 : 15

Rubber Stick

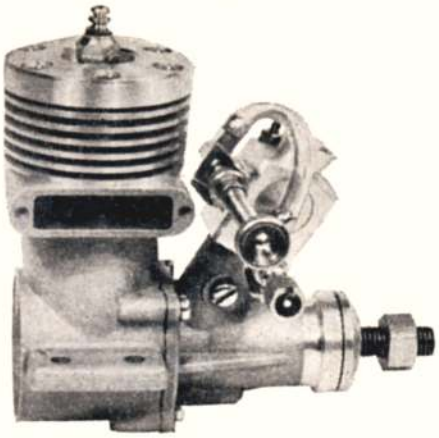
1. Barnett Kernoff (900)	(*Lanzo*)	8 : 49
2. E. Johnson (Skyoneers)	(*Gollywock*)	8 : 14
3. S. Kadlcik (Vultures)	(*Beaumont*)	6 : 15
4. J. Lenderman (900)	(*Gollywock*)	3 : 19
5. Harold Greer (Skyoneers)	(*Gollywock*)	3 : 15

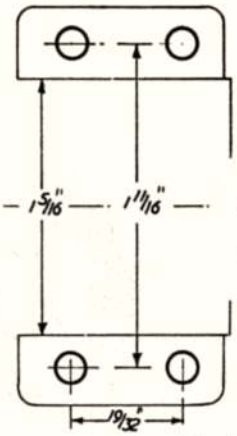
Rubber, Cabin

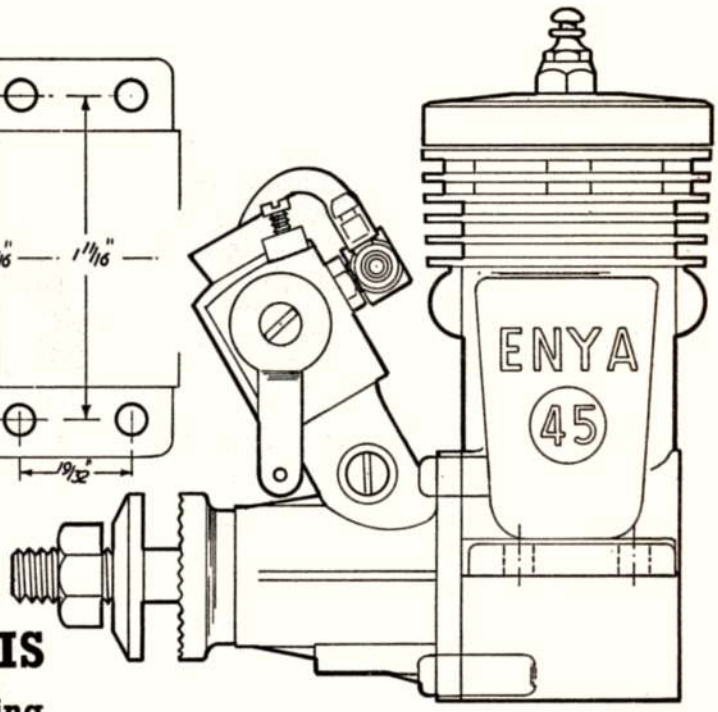
1. R. Gregory (Skyoneers)	(*Flying Cloud*)	5 : 04
2. W. H. Thompson (San Diego)	(*Korda*)	5 : 00
3. D. Smith (Vultures)	(*Whirlwind*)	2 : 25

Beauty Event

W. H. Thompson (San Diego) (*Cavalier* 60)







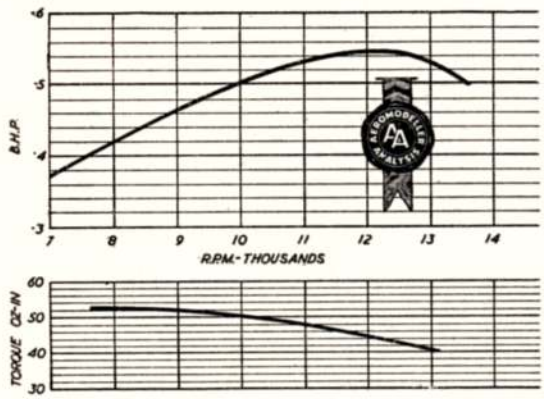
ENYA 45

ENGINE ANALYSIS

No. 103 By R. Warring

THE ENYA 45 R/C is derived from the earlier "35" and is virtually identical externally with the exception of the solid turned head replacing the finned head on the smaller capacity motor. Internally both the bore and stroke have been increased to boost the swept volume by some 1.5 c.c. and at the same time the compression ratio has been decreased slightly. The result is a somewhat more powerful engine for the same weight, and one which is quite happy to run on "straight" fuel mixtures, although a little nitromethane or equivalent additive does improve the running characteristics somewhat.

The Enya 45 is by no means outstanding in power output, but of an acceptable order for a "45" radio engine. The main feature, in any case, is the throttle control which is of quite complex design and relatively bulky. It features twin needle valves, plus the usual barrel-type valve rotated by the throttle arm. The rear needle valve controls the main jet for normal (high speed) running settings and the forward needle controls the low speed jet. The rear jet hole opens into the carburettor bore opposite a grooved passage on the barrel with a central hole. This jet remains open only over the top part of the throttle movement. Further rotation of the barrel then blanks it off, bringing the low speed jet into action as the only effective passage for the fuel supply. The only other adjustment is a screw which can be adjusted to stop the barrel rotation to establish the optimum low speed (barrel valve closed) setting.



The throttle works extremely well and maintains two-stroke running over almost the whole of the adjustable speed range. Consistent low speed running of the order of 2,500 to 2,800 r.p.m. can be held without faltering or danger of cutting. It is certainly comparable in performance and flexibility with any barrel-valve/exhaust flap link throttle, and better than many.

All test running was completed with the Enya plug, as fitted, although this was eventually burnt out.

General handling characteristics of the Enya appear to be good and starting is easy, provided the engine is not excessively flooded. In this case it is liable to kick-back sharply. Despite the heavily counterbalanced crankshaft a fair level of vibration was evident when running, although this would probably not be troublesome in an installation. Possibly the weakest part of the design is that the mounting holes are relatively close spaced, but adopting "plate" mounting (rather than bolting direct to bearers) should minimise the risk of the lugs being broken in a crash landing. From the adjustment point of

ENYA 45 RC

Propeller—r.p.m.

Propeller	*R.P.M.*
10 x 6 Top Flite nylon	10,700
11 x 4 Top Flite nylon	11,000
12 x 6 Tornado nylon	9,000
12 x 5 Tornado nylon	9,900
12 x 4 Tornado nylon	10,500
12 x 4 KK nylon	11,000

Fuel: Non-nitrated R/C glow fuel (25 per cent. castor, 75 per cent. methanol, plus additives).

Displacement: 7.36 c.c. (.449 cu. in.)
Bore: .874 in.
Stroke: .748 in.
Weight: 10 ounces
Max. power: .55 B.H.P. at 12,400.
Max. torque: 52.5 ounce-inches at 7,800 r.p.m.
Power rating: .075 B.H.P. per c.c.
Power-weight ratio: .056 B.H.P. per ounce
Material specification:
Cylinder/crankcase unit: pressure die casting in light alloy, sand-blast finish
Cylinder liner: mild steel
Piston: cast iron
Con. rod: light alloy forging
Crankshaft: hardened steel
Main bearing: plain (bronze bush)
Front bearing unit: pressure die casting in light alloy
Cylinderhead: plain type, machined from dural
Throttlebody: machined from dural
Barrel valve: brass.

view both the forward needle valve and "fast" position of the throttle arm are dangerously near the propeller.

Apart from the throttle unit, design and construction are straightforward. The cylinder/crankcase unit is a very nice pressure die casting housing a relatively thin soft steel liner. Exhaust and transfer ports are purely rectangular, diametrically opposed and with some 90 per cent. overlap. The transfer passage is formed in the casting. No gasket is used to seal the liner which is simply held down by the head attached with six Phillips head screws. The piston is of cast iron machined to relatively thin walls and carrying a plain deflector on the head. The gudgeon pin is hollow with brass end pads and the forged light alloy connecting rod is bushed at the big end. Fits and finishes are extremely good.

The $\frac{1}{2}$ inch diameter hardened steel crankshaft is carried in a die-cast front housing fitted with a bronze bush. This housing attaches to the front of the crankcase with four Phillips head screws and seals on a gasket. The crankshaft port opening is rectangular—$\frac{1}{2}$ in. by 5/16 in. and the $\frac{1}{4}$ in. diameter crankpin is hollow. The front of the shaft steps down to $\frac{1}{4}$ in. diameter, with the dural propeller driver fitting on to a taper length immediately forward of the front of the bearing. The front housing unit incorporates a stun intake tube into which the throttle unit fits and is held in position with a screw on either side. The throttle body is machined from dural with the barrel valve of brass. Jet assemblies which screw into the throttle body are plated brass. The two needle valves are not interchangeable as different taper needles are required—the main jet being an annular orifice and the slow speed jet a "wall" hole.

Summarising, we rate the Enya 45 R/C a very good general-purpose radio control engine for large "multi" models, with a particularly good and effective throttle. It is an extremely well made and finished engine, with a lot of attention given to obtaining "optimum" fits and running clearances. It appears to need a fair amount of running in to develop consistent performance, when it is quite happy running on straight fuels. Peak performance on test was reached at just over 12,000 r.p.m., which is the usually accepted figure for R/C work.

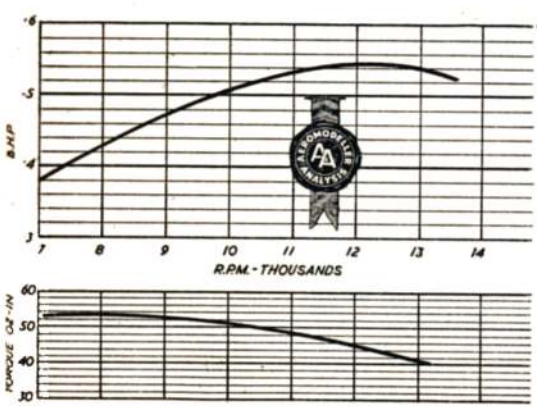
THE O.S. MAX "49" will obviously be favoured by a number of R/C "multi" enthusiasts seeking a powerful 8 c.c. multi-speed engine at a moderate price. Certainly this engine represents excellent value for money, with first-class workmanship throughout in a very "clean" and attractive design. The throttle control is of the conventional barrel type, linked to an exhaust flap. The design is, however, quite original with the exhaust flap a die casting actually pivoted in the exhaust stub extension (this unit bolted onto the cylinder stub exhaust). The main fuel jet is located in an extension of the throttle body (and behind it), opening into a grooved passageway under the barrel. Bleed air control via a screw passing into a forward facing hole provides an additional adjustment for low speed setting, whilst a vertically mounted screw provides adjustment for the stop position of the barrel valve.

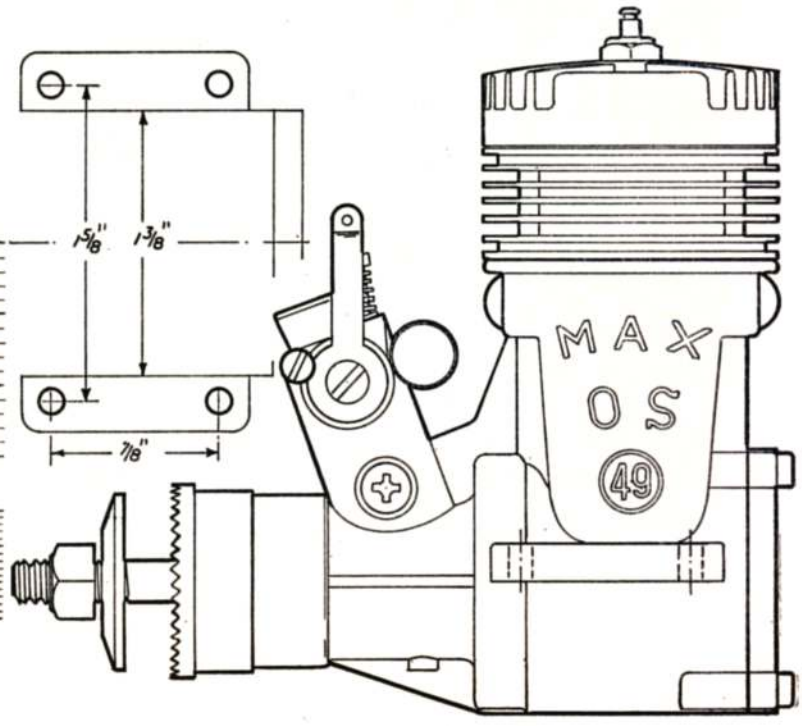
The engine as supplied needed a considerable amount of running in before the throttle action could be checked. Some half an hour's running was needed to achieve consistent high speed settings and a further hour or so before consistent slow running could be obtained on the throttle. It was then possible to adjust for a steady low speed of circa 3,000 r.p.m. with no tendency to stop and good response to opening up again. The variable speed range was possibly not as good as we would like, with the engine four-stroking over the majority of the throttle movement away from normal fast running and not being as rapid in pick-up from idling as some motors we have tested. This feature may, however, have been improved upon with further running, or possible change of glow plug or fuel.

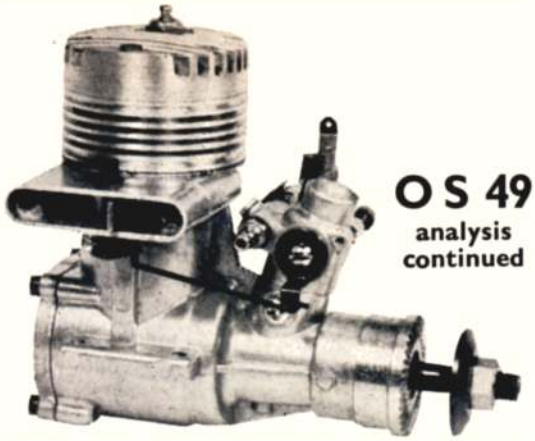
We found the Max "49" an easy enough engine to handle, despite a moderately high compression ratio which led to a tendency to "kick-back" when starting

Analysis No. 104

OS 49 R/C







OS 49
analysis continued

(especially with the engine very wet). A fair amount of vibration was noticed at all running speeds, despite the use of a balanced crankshaft and counterbalanced prop. driver, although what useful effect the latter has we do not know.

The driver is actually a die casting, basically hollow on the back (i.e. like two concentric shells), but with a solid section at one side to act as a counterweight. The driver keys onto the shaft to fit in one position only. The unit is actually quite a sloppy fit and the central boss (at the back) stands a little proud. It could be possible to pull the driver and prop out of line when tightening up the prop nut and the whole unit seems too weak to stand up to much hard usage*.

Constructionally the Max "49" follows typical large glow motor layout, as originally evolved in the United States, but with added detail design improvements which have been a characteristic of the post-war Japanese industry. The typical Jap glow motor is now at least as good as its American counterpart, and often better in the matter of individual time and workmanship which has been put into it. About the only point on which the Max "49" falls down (or our particular example, at least) is that the power output was not as high as we anticipated. Possibly the engine has been designed with "steady" rather than "outstanding" performance in mind and could be improved upon, if necessary. The full speed intake opening, for example, is relatively small for an engine of this size, being only a matter of some 3/16 in. at the barrel. Peak performance on test, we found to be .55 B.H.P., developed at 12,400 r.p.m., but with a marked tendency to develop higher than average torque at lower speeds.

The crankcase unit is a magnificent pressure die casting, the product of a masterpiece of toolmaking and "tumbled" to a bright finish. The finned cylinder unit is a separate turning in dural which fits over the hardened steel liner, the bottom length of the liner then fitting into the crankcase unit. Three short screws hold the head to the jacket and three long screws passing down into the crankcase unit complete the assembly.

The liner itself has a wall thickness of approx. 1/16 in. Twin rectangular exhaust ports and rectangular top transfer port are cut in the walls, diametrically opposed, with two drilled holes near the bottom of the liner forming the bottom transfer ports. The transfer passage is formed in the casting and transfer of crankcase gases is effected by two drilled ports in the piston overlapping the corresponding ports in the liner at the appropriate part of the stroke. The piston itself is of cast iron, machined away to very thin walls below the gudgeon pin boss. The deflector plate on the flat top is filleted on the exhaust side. The combustion chamber (formed by the plug-in section of the head) is contoured and carries the plug offset markedly to the transfer side—actually lining up vertically with the deflector position. The head itself is a die casting, heavily finned and machined on the underside to fit, and circumferentially for appearance. The .216 in. diameter silver steel gudgeon pin is hollow with aluminium end pads. The connecting rod is of substantial "flat" section, machined from solid dural. Big and little ends are unbushed, but the big end is drilled for an oilway.

The ½ in. diameter hardened steel crankshaft has a very thick web, machined away to provide counterbalance. The induction port opening is rectangular, approximately ⅜ in. by ¼ in., opening into a ⅜ in. diameter hole in the shaft. The crankpin is hollow and .240 in. diameter. The shaft is carried in a ball race pressed into a housing machined in the front of the crankcase section and a short length of thick-walled brass bushing pressed into the front of the main casting, forming a front bearing. The intermediate plain bearing length appears to be unrelieved and the shaft is a fairly tight, but accurate fit. The whole crankcase unit appears to be very robust with a good length of bearing lug for support, and at the same time not unduly heavy.

The throttle body is a die casting which fits into a stub intake tube and is held by screws either side. The barrel throttle is of brass with steel end fittings and throttle lever. Jet and needle assemblies are of plated brass, the needle thimble having a flexible extension. Being located behind the throttle and on the opposite side to the exhaust the needle valve is in about the most convenient position possible for handling with a front rotary engine. Only the air bleed screw means getting near to the propeller disc to adjust, but this is slotted and can be reached with a screwdriver, if preferred.

Summarising, a more or less conventional multi-speed glow motor of sturdy construction with first class workmanship and a reliable, if not spectacular, performance. It incorporates a number of extremely neat detail design features (such as the exhaust flap and throttle design). Apart from the peculiar prop. driver it does not appear to have any potential weaknesses, and it has a good enough performance on straight fuels to suit most "multi" R/C needs. It is, however, an engine which appears to need a lot of running in before installing in a model.

** Reader K. J. Kidd has suggested a suitable and simple modification to strengthen, after suffering a shattered prop. driver in a backfire when starting. This consists of turning off 30 thou. from the back face, with an extra 5 thou from the outer diameter, to produce a snug fitting unit.*

OS MAX 49

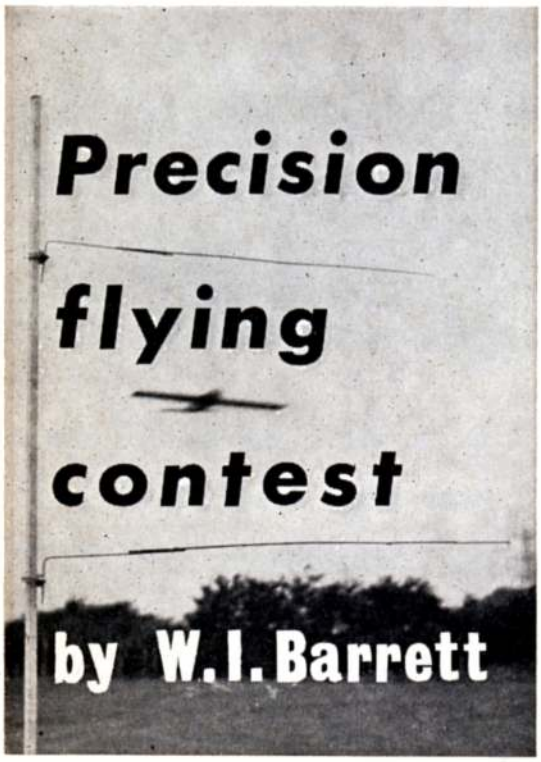
Propeller r.p.m.

10 x 6 Top Flite nylon	10,900
11 x 4 Top Flite nylon	11,000
12 x 6 Tornado nylon	9,200
12 x 5 Tornado nylon	10,000
12 x 4 Tornado nylon	10,700
12 x 4 KK nylon	11,000

Fuel used: 75:25 methanol:castor plus additives (equivalent performance to 5 per cent. nitromethane fuel).

Data

Displacement: 8.288 c.c. (.5055 cu. in.)
Bore: .897 in.
Stroke: .800
Bare weight: 10½ ounces
Max. power: .55 B.H.P. at 12,200
Max. torque: 53:5 ounce-inches at 8,000 r.p.m.
Power rating: .0665 B.H.P. per c.c.
Power weight ratio: .0485 B.H.P. per ounce
Material specification:
Crankcase/cylinder unit: light alloy pressure die casting
Cylinder liner: hardened steel
Cylinder jacket: turned dural
Head: light alloy die casting
Piston, cast iron
Connecting rod: machined from light alloy
Crankshaft: hardened steel
Crankcase back cover: light alloy die casting
Bearings: ball race (rear) and bronze bush (front)
Prop. driver: light alloy die casting: patented counterbalanced type
Throttle body: pressure die casting in light alloy
Barrel throttle: brass.



Something new for fun flying on the local field

NEW FORMS OF club competitions are always required to keep interest alive, and Urmston & D.M.A.C. has had a long run of competitions of standard form. Since the club flying ground is more suited to control-line flying, a new form of contest for this branch of the hobby was devised on one wet and windy afternoon in the cramped confines of a van, the weather precluding even the hardier members from flying.

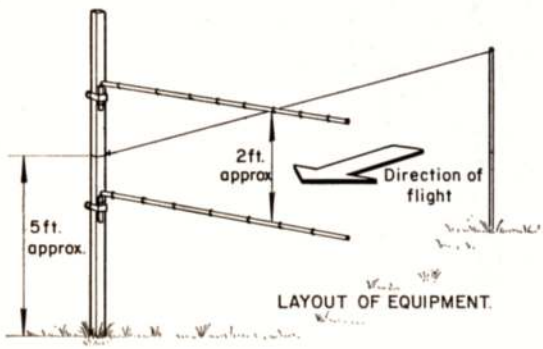
The competition consists basically of flying any control-line model through two horizontal canes attached to a vertical support. Original idea was to have the gap between the canes adjustable, so that they would be moved closer together until the model touched either one or the other while flying through. This proved in practise to be complicated and time wasting, so the idea was modified. The distance between the horizontal canes was to be fixed at about 24 inches, and the pilot, by raising his hand, would indicate the start of ten consecutive laps, during which he would attempt to fly between the canes as often as possible. A strike on either cane would be classed as a miss, the pilot with the least faults being adjudged the winner.

Details of the set up can be seen in the illustrations. The vertical pole is a piece of 1 in. by 1 in. timber, to which are attached by hose clips two light alloy tubes about 4 in. long. The hose clips are to enable the position of the tubes to be varied. Into the tubes drop "L" shaped pieces of wire (say about 10 s.w.g.—we used welding rod). Tied to the horizontal portions of the rods are light canes, which, if hit, swivel out of the way. We have tried 9 foot canes, but these are rather heavy, tending to pull over the upright and inflict damage on the model.

A guide-in for the pilot is required, and this consists of a horizontal piece of string, one end tied to the upright midway between the canes, and the other, 10 to 15 feet away along the circumference of the circle, to the top of another cane. The pilot sights his model along the string, and if he is flying accurately, should pass between the horizontal canes. Some means of marking the circle centre should be used, to prevent the pilot wandering and flying his model into the upright.

Slow, small models are obviously best for this type of flying, and Urmston have imposed a minimum line length of 35 ft. Combat models are quite suitable, being built to withstand minor collisions, but fins are the most vulnerable. The more skilled pilots can do the job inverted, and one member showed his prowess by doing consecutive loops through the canes! Why not try it yourselves?

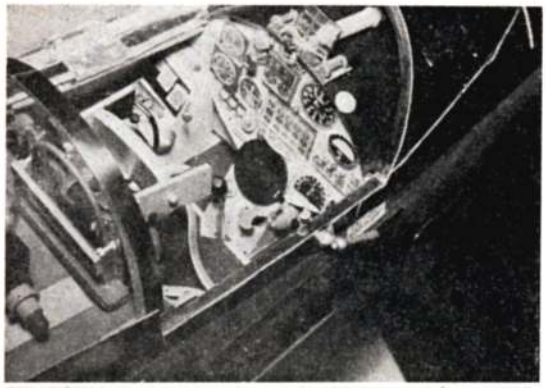
Checking for line length and gap between canes before a flight at Urmston. Canes swivel out of way when hit—they rarely damage a model. Idea allows plenty of scope for development—especially at club displays

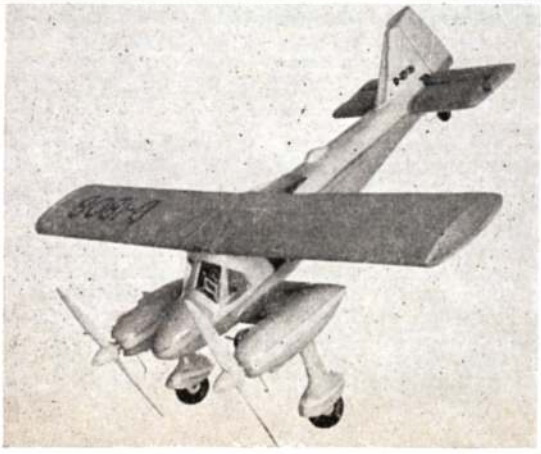


LAYOUT OF EQUIPMENT.

Scale model news

A review of some novel scale types which have come to our attention in recent weeks





THE HANDLEY-PAGE HP.42 **Helena** at top is a much travelled model. It was started by A. M. Langston while he was in New York during May, '61. Framework was brought back to England for completion and it is at the moment in Iran, where it has been fitted with two Taifun Hobby 1 c.c. diesels regulated by a central remote controlled cut out. All up weight is 2½ lbs. and the model is adapted for radio control. Incidentally—a tip for modellers, the lettering is by Letraset instant application lettering as available from many art shops.

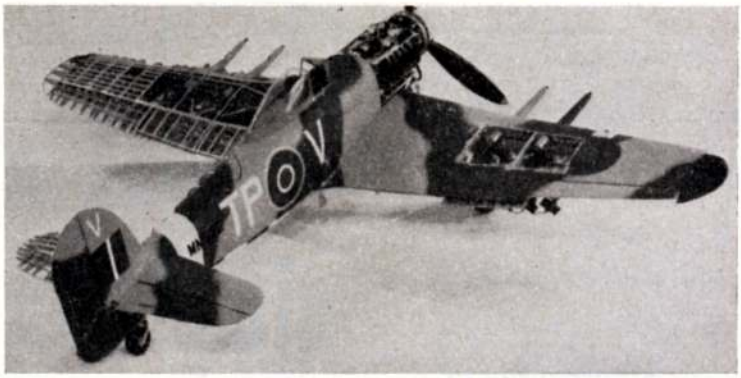
Top of the left hand column is what *appears* to be an excellent solid scale model of a Lockheed F.104 Starfighter. In fact, it is a little more than that since Klaus Stark of Germany made this control line model for three line system, operating throttle and flaps. The model contains five Rulag accumulators for lights. Unfortunately, flight attempts have proven that the pusher engine installed is not quite man enough for the job, as it demands a high take-off speed, like the full-size aeroplane. Klaus is about to tackle the Convair XF.92, which has a more generous wing area. Note the cockpit interior of his F.104 in the second photograph.

A German subject but made in England by D. Banks of Cheadle, is the Dornier Do.28. Scaled up from our 1/72nd drawings to 1/18th, which gives it a wing span of 30½ ins. The tail area is increased slightly and the dimensions of the undercarriage and stub wings extended to accommodate larger than scale size engines. At the moment the model has a mixture of 1 and 1.5 c.c. and is decorated in the manner of the full-size prototype. Fifteen-year-old Dennis Banks, should be congratulated for his enterprise in producing an unusual twin, which radio controllers might also consider.

Top right is a non-flying 1/12th scale model of the Hawker Typhoon Mark IB, made by C. V. McCann over the past three years, in spare time, for the Imperial War Museum. It has joined the models he has previously made, the Gladiator, Spitfire, Hurricane, Lancaster and Mosquito. It carries the markings of 198 Sqdn. and, as can be seen, incorporates full structural detail, including

the intricate Sabre engine.

Situated amid realistic background for camouflage, is an army D.H.C. Beaver, made by Captain Lindsey G. Smith of the Royal Tank Regiment. This is his second model of the type made with 20-in. wing span, the first was of lightweight construction, mainly 1/32nd sheet, but Captain Smith did not appreciate the power of the Cox Tee Dee 010! This second model is more robust. Dimensions were taken from the actual aircraft in the Army Air Corps with transfers made by the sticky label system. Hawkeyes, who might consider the fuselage markings too small, should be told that this is absolutely correct, since the same size roundels are used on the Auster VI and IX and are naturally dwarfed on the larger Beaver. Incidentally, XP.816 is unfortunately no more as it dunked in the channel during a flight back from Germany.

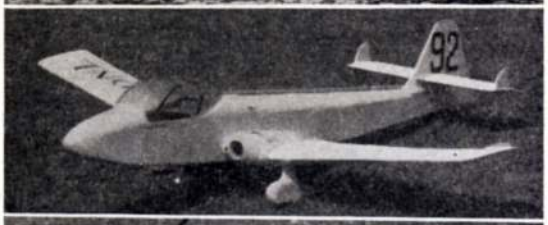


The S.E.5 was made by W. V. Symes of Exmouth and also Malaya, where is is Vice-President of the Malayan Modelcraft Society. Constructed from a Frog kit, it offers a fine degree of realism in this view, particularly through the use of a pilot in the cockpit and the mock spoked wheels and Lewis gun above the centre section.

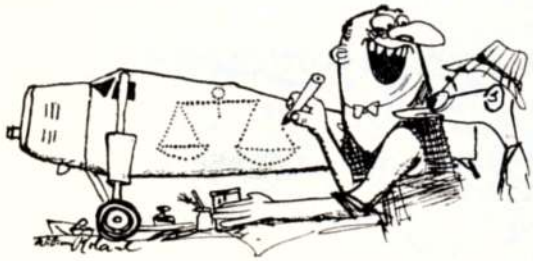
Two Jetex 200 units power D.P. Goldings' 34-in. Sparrowjet in the next photograph. The model weighs 8 ozs. and has been fitted with pendulum controlled elevators to cut down the power surge at the end of the motor run. Connecting rod stands above the fuselage and can be seen in the view. Model is to absolute scale with the sole exception of a slight twist at the wing tips to compensate for the shallow dihedral angle.

Finally, a scale DH. TK.4 by E. Townley of Rotherham. Made from AEROMODELLER plans, using a Webra Winner 2.5 c.c. engine, this particular angle illustrates the tiny wings on the real racer, which made it rather hot to handle. Original colours were bright red and white.

AEROMODELLER Plans Service drawing CL/411 which costs four shillings including return postage, includes details for two TK4 Racers. One, for 2.5 c.c. has scale wing area offering 70 square inches, and the other has a semi-scale, enlarged wing of 125 square inches to suit 5 c.c. engines. The latter variant was among the first of the British team racers to exceed 90 m.p.h. but of course, it does not meet latest specification requirements for team race models.



Of special interest to all scale enthusiasts is the 1963 S.M.A.E. Contest Programme just released. Qualification flights for the Control-line, Free-flight and Radio Control categories take place on June 2nd, and Judging on June 3rd at the British National Championships, R.A.F. Barkston Heath.



"The decor is for nudging the judging—a broad hint for scale points—eh?

Fire wall. Plywood
$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{8}$ thick.

Wing section

Reinforcing member
both sides. $\frac{1}{4}$ thick.

full si

$\frac{3}{16}$

3

simpleton

The success of this model is de
upon the relative positions of f
surfaces, the curves are reason
unimportant.

$\frac{5}{16}$

Skid made fr
16 s.w.g. w

$1\frac{1}{4}$

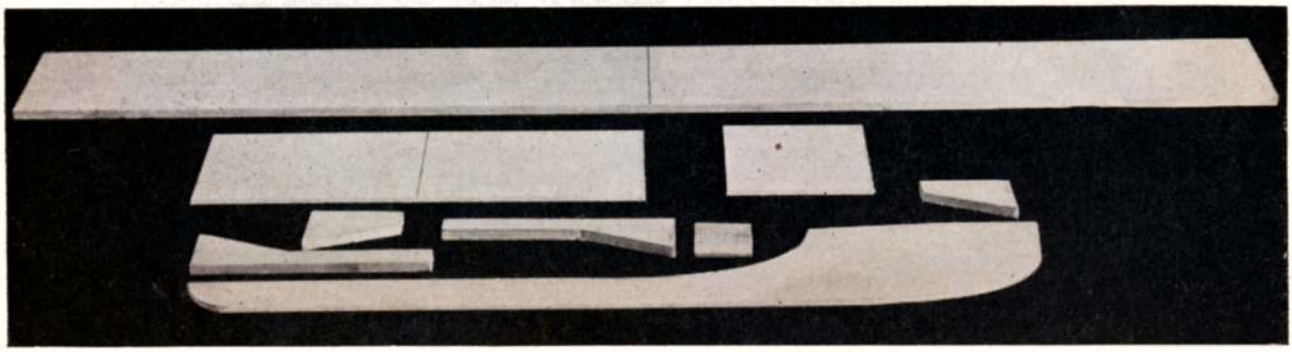
Filler from
scrap. $\frac{1}{4}$ thick.

plan view of nose

Mount an .020 "Peewee"
or similar engine, with
the thrust line as high as
possible.

The model should balance and glide as
a hand launched glider. The final test
glides should be made by hooking a
finger over one wing.

Flying surfaces
to the fuselage,
being reinforced
"Nylon".



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Die-hard purists will shake their heads at this one!

Power modelling reduced to the most simple state for small engines

SIMPLETON

by Dick Stouffer

WHAT WOULD HAPPEN if one were to power a simple, all balsa, hand launched glider? In three hours flat at the work bench *you* can find out—so let's not waste time.

Starting with the wing, select medium soft balsa sheet $\frac{1}{4}$ x 3 x 36. Cut off 30 inches and draw a line across the midpoint at 15 inches from one end. Use a square to aid in truing and cutting straight lines.

Use a razor plane, knife, and coarse sandpaper to shape the airfoil indicated on the plans. After shaping, sand with fine sandpaper, and coat with clear dope. Next, cut the wing in two at the midpoint. Using a firm sanding block, sand $\frac{1}{2}$ the dihedral angle in each wing butt. (See front view). Pin one half of the wing down firmly to the bench, stand the 6 inch left-over piece of wing sheet on end to block up the outboard tip of the wing, butt the two halves together, and glue firmly. Lay a piece of nylon, cotton, or linen over this centre joint, and work glue into the fabric and joint.

Grab a $\frac{1}{8}$ x 3 x 36 in. sheet of soft balsa and cut off 10 inches for the tailplane and $3\frac{1}{4}$ inches for the fin. Sand a lifting section on the elevator, as shown on plan and round the edges of the fin, then sand and coat with clear dope. Draw a line across the tailplane at the midpoint. Draw the line of the airfoil of the tailplane on the bottom side of the rudder, cut away and sand smooth. Cement the fin to the tailplane at the mid line. Set the fin and tailplane assembly aside to dry.

The fuselage is made from medium hard balsa, $\frac{3}{16}$ x 3 x 15 inches. Be careful of the area where the wing seats. This is the angle of incidence, so make it accurate then draw in the remaining outlines, on the sheet.

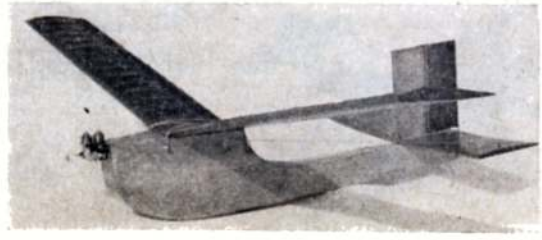
Now that the fuselage is properly marked on the sheet of balsa, cut it out and true up all straight lines. Use a straight edge to aid in cutting the wing incidence line. Cut the four small pieces of wing mount and engine block material from the $\frac{1}{4}$ x 6 inch wing sheet. Cement the 5 inch wing blocks, one to each side of the fuselage. Cement the 2 inch motor blocks, one to each side of the fuselage and on top of the wing blocks. Be sure these last four pieces are parallel to the front and top lines. Cut a piece of $\frac{1}{8}$ inch ply, $1\frac{1}{8}$ x $1\frac{1}{8}$ inches square. Be sure the front is still true and glue this ply piece to the front. Cut an over-size piece of the same material you used on the wing centre section. Cement and lap it over the four edges of the motor block and plywood. Rub cement well into the fibres to seal the patch on the motor block.

So far so good. Relax for a while. Let everything set while reading your favourite magazine—AEROMODELLER. You have been working about two hours to this point.

All set? Back to the salt mine. Pick up the fuselage and cut a vee in the wing mount to accept the wing. Block up the fuselage, perpendicular to the work bench. Put plenty of cement in the wing vee and on the bottom of the wing centre joint. Lay the wing in the vee and block up the tips 6 inches. Be sure that the wing is perpendicular to the fuselage along the leading edge, as seen from above. While the fuselage is blocked up for the wing, cement the fin and tail assembly to the top of the fuselage. Be sure the rudder lines up parallel with the fuselage and the tail plane perpendicular to the fuselage, as seen from above. Check that there is one inch clearance under each tailplane tip. Now leave everything alone until the glue dries. Do not pull blocks and pins away until everything is thoroughly dry for at least half an hour.

After everything is dry, dope the fuselage, motor block and glue joints. Print your name and address on the fuselage. Mount a *Pee Wee* or similar radial mount motor to the plate with small wood screws. No down thrust or side thrust is needed. Just straight thrust with a high position thrust line on *Simpleton*.

Simpleton theory extends a long way. Dick Stouffer has a range of 'em including this box fuselage one for a K & B/Allyn twin cylinder engine and yes, you guessed right . . . radio control! More to come too on the same theme. Latest is even more simple!



Graupner

for

KITS
ENGINES
RADIO
& ACCESSORIES

CONTROL LINE SCALE MODELS

74/9

FOCKE WULF 190

This high altitude fighter version (TA 152 H 1) has been faithfully reproduced from the original plans and is authentic in every detail. A superb performer, the deluxe kit contains selected printed sheet and ply parts, 12 diecut sheets, moulded cowl, fairings air intake, etc., all wheels, metal parts, decals and four sheet full sized plans plus elaborate detailed instructions.
Wingspan: 39 in.
Length: 28 in.
Motor size: 2.5 c.c.

62/6

P6 MEW GULL

Based on the famous Percival racer this scale model is ideal for team racing or sport flying and has been timed at over 85 m.p.h.! All balsa construction. The kit contains many spindle moulded and turned parts, and comes complete with wheels, glue, U/C, pilot, dope, screws, bolts.
Wingspan: 27½ in.
Length: 22 in.
Motor size: 2.5 c.c.

62/6

DORNIER DO 27

Again factory plans have been used to ensure the authentic detail for this superb low speed reconnaissance craft which is a scale modellers dream come true. Nothing has been spared in the production of the kit which contains many die cut parts, moulded cowl and wing tips, wheels, glue, wire, control plate, and all metal parts, screws, paste, decals, plus super plans.
Wingspan: 31½ in.
Length: 25½ in.
Motor size: 1.5 c.c.

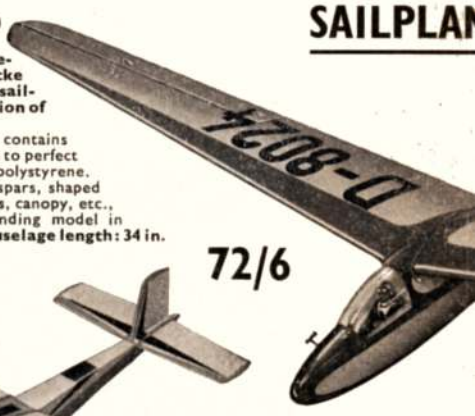
52/6

MESSERSCHMITT ME109H

This kit contains many die cut and spindle moulded parts. All the "hard work" has been done, making it an ideal "first" for scale modelling. Wheels, wire, transfers, glue, metal parts, etc. plus 2 Sheet plans and instructions. A most popular choice.
Wingspan: 25½ in.
Length: 20½ in.
Motor size: 2.5 c.c.

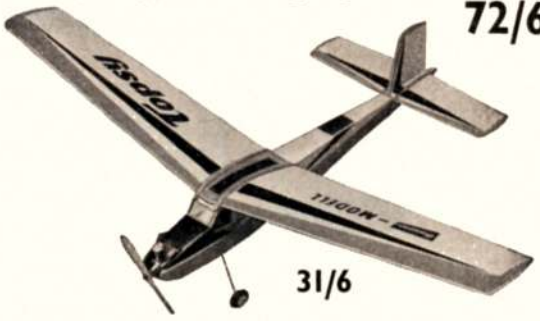
WEIHE 50 (*scale*)

Taken from the original blue-blueprints supplied by Focke Wulf this high performance sail-plane is ideal for the installation of Radio Control Equipment.
The kit is unique in that it contains finished moulded fuselage halves to perfect scale in high density expanded polystyrene. Diecut wingribs, formers and spars, shaped LE & TE, decals, tissue, cements, canopy, etc., and 2 sheet plans. An outstanding model in every way. **Wingspan: 71 in. Fuselage length: 34 in.**



72/6

SAILPLAN



31/6

53/6

TOPSY is a delightful "quick-build" kit, ideal for beginners and most suitable for sport radio flying in restricted spaces. With all sheet diecut, shaped LE & TE, wheels shaped U/C, cement, transfers etc., included, it can be built in a couple of evenings following the excellent 2 sheet plans and instructions. **Span: 32 in. Engine size: up to 1 c.c.**

KAPITAN is sim the ac a biplane giving ad capacity and lower f Radio. The kit inclu formers and fuselag TE & LE, wheels, dop **Span: 43 in. Motors**

Graupner FOR GRUNDIG RADIO

A NEW CONCEPTION OF R/C!!

Yes, all you've dreamed of and hoped for in one unit! This is the ultimate in R/C—simplicity, reliability, and complete control.
From 2—8 channels in plug-together 2-Channel stages it is tailor made by the famous GRUNDIG company to suit you and your model—and is backed by a 6 month guarantee.

Superbly engineered and fully transistorised. THIS IS THE RADIO FOR YOU ! !
Crystal stabilised hand held transmitter with 50" chrome telescopic aerial and strap, is all transistor

4 Chan. Transmitter	...	**£34 15 0**
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The last word in R/C receivers. Fully transistorised pretuned uni with add on 2 channel tone filter giving up to 8 channels. Compact, lightweight, adaptable, and com pletely reliable. Can be used in th smallest of models.

Grundig Tone Receiver	**£7 15 0**
Tone Filter Units (2ch)	**£7 15 0**

The New Bellamatic II has been specially designed for use with Grundig Radio, and is selfcentering using the Micromax motor. **Unique clutch system eliminates limit switches, and 8 pin miniplug fits into filter units for solderless installation. Size 1½ x 1 x 1½.**
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Also available are Unimatic, Motormatic, Duomatic and for boats Kinematic. See them at your local Model Shop Today!!

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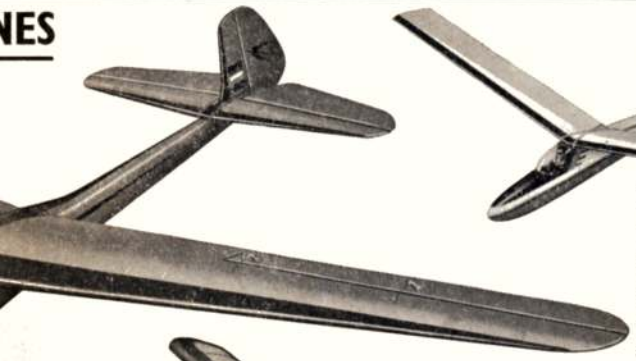
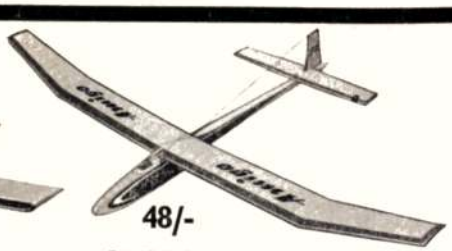


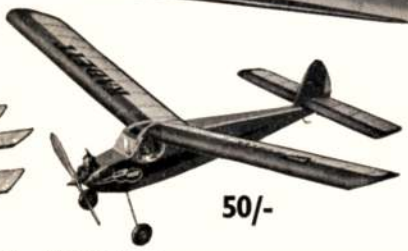
25/6



48/-

BEGINNER is truly the ideal model for a "first" built up glider. A Quickie kit designed for ease of construction almost completely prefabricated. To build and fly you only need a little clear dope and a few hours time to complete this fine flyer. **Span: 38 in.**

AMIGO combines a first class A/2 contest design with ample room for Radio Control installation, and has the added facility of a pylon mounted motor unit for powered soaring. (*Pylon pack* **7/6** *extra*). Strong but lightweight construction gives an outstanding performance in either version. Graphically clear 2 sheet plans. **Span: 69½ in.**



50/-

nilar to the Kadett with dded attraction of being ldditional load carrying flying speed. Ideal for udes diecut wing ribs ge sides—*plus* shaped pe, cement, tissue, etc. 1.5—2 c.c.

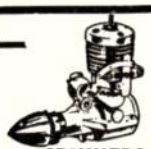
KADETT This rugged highwing model is an all weather performer and is equally suitable for F/F or Radio. Easy to build and very stable in the air. The comprehensive kit is full of specially selected printed wood, and includes wheels, dope, tissue, cement etc. **Span 46 in. Engine size: 1½—2 c.c.**

GRAUPNER QUALITY KITS must be seen to be fully appreciated. It is very difficult with words to do full justice to the contents of each kit, nor is it possible to describe the clarity and detail of the plans plus the comprehensiveness of the instructions. Each kit is "full" of the finest selected materials, and the quality of the cutting is second to none; whilst the accessories which are included and the prefabrication which is provided make them outstanding for value and quality. **PLEASE ask your dealer to show you the kit of your choice—WE KNOW YOU WILL LIKE IT!**

ACCESSORIES include:—

ENGINES Famous range of Taifun Diesels

Hobby–1 c.c.	79/6	Blizzard–2.49 c.c.	118/6
Hurrican–1.48 c.c.	98/6	Bison–3.5 c.c.	122/–
Tornado–2.47 c.c.	102/6	Zyklon–2.47c.c.	119/6



SPINNERS

1¼ in. Plastic 2 blade 2/6
1½ in. Plastic 2 blade 3/–
1¾ in. Plastic 2 blade 3/6
1½ in. Plastic 3 blade 4/3
1½ in. Plastic 3 blade 4/9

WHEELS

1⅞ in. per pair 5/–
2 in. per pair 5/–
2⅜ in. per pair 7/–
2½ in. per pair 11/–
3½ in. per pair 17/9

R/C LINKAGES

Rudder/Elevator Horn 2/3
Moulded end linkage 2/11
Metal linkage 4/3
Extension tube for moulded linkage (20") 2/4

Graupner **SUPER 16 PAGE BOOKLET**

Just out! This 16 Page booklet printed in FULL COLOURS shows the complete GRAUPNER range of over 50 models of all kinds, plus engines, propellers, spinners, tanks, wheels, accessories, **and the Famous GRUNDIG Radio** and range of Servos. Every model, engine, accessory, etc. is illustrated in colour, together with a brief specification. Besides being a guide to the world's finest range of model kits and accessories, this booklet is packed full of interest for any model enthusiast.

GET ONE TODAY!

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FREE FLIGHT-SCALE & R/C

PIPER TRI PACER

79/6

Supreme R/C Scale model with sprung nose wheel, exhaust ducts, provision for spats and 3 colour working navigational winking lights. Super detailed plans and kit. A deluxe production.
Wingspan: 44 in.
Engine size: up to 2.5 c.c.
Spat set—11/6.
Light set—10/8.

BOLKOW JUNIOR

62/6

A superb new scale model for R/C or Free Flight. Authentic in detail and a delight to fly. Very stable, yet easily manoeuvrable. With ample room for R/C this fine kit contains selected top quality materials, 3 wheels, tissue, moulded canopy, and the usual detailed plans/building instructions. *Nothing has been spared in this kit.*
Wingspan: 33 in.
Engine size: up to 1.5 c.c.

PIAGGIO P149D

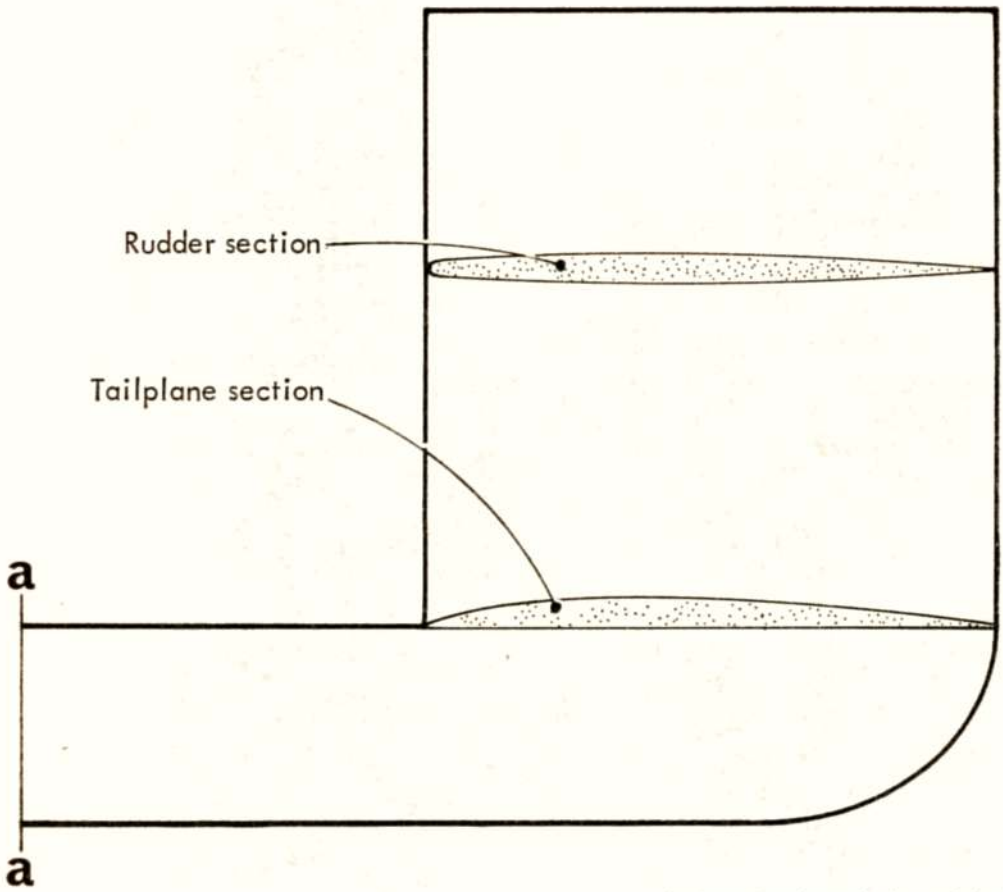
105/-

A delightful low wing R/C or F/F model, based on authentic plans. Extensively prefabricated, this kit contains selected materials, shaped wire parts, moulded cockpit canopy, 3 wheels, tissue cement, decals and all small parts.
Wingspan: 44 in.
Engine size: up to 2.5 c.c.

De Bolt SATELLIT

117/6

Without doubt this is the ideal R/C trainer. **Super complete kit has wheels, formed U/C, cement, tissue, plus ample materials much diecut. Excellent value. A Contest Winner.**
Wingspan: 48 in.
Engine size: 2.5 c.c.



Stouffer Jr., heaves ho and off climbs the sheet simpleton. It's surprising what the modern small engine makes possible.

simpleton continued

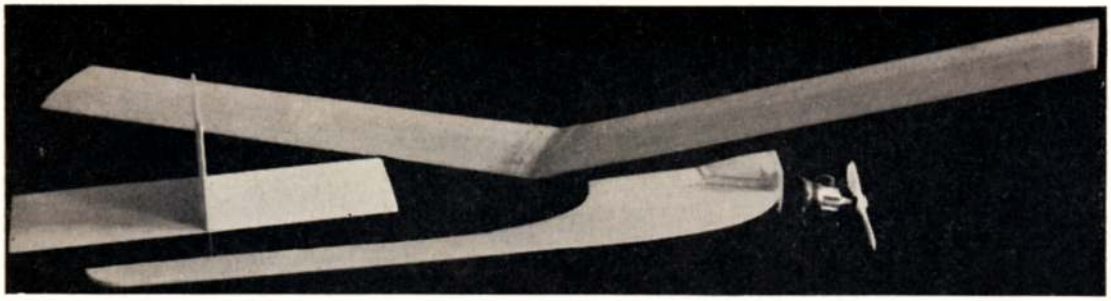
Before flying, check that the model balances at a point between 1/3 and ¼ the distance back from the leading edge. Try a test glide over tall grass. The model should glide straight ahead—fast and flat. Do not adjust the model by warping surfaces at this time. All surfaces should be in neutral positions. Adjust the glide by adding small weights to the tail to correct a steep glide, or weight the nose for slight stalling or ballooning. When the model is gliding straight ahead as though it were sliding down a slanted board, you're all set to try to get a curve in the glide. Twist the upper rear corner of the rudder to the right. Test glide for a 60 or 80 foot diameter circle. Should the model seem to glide steeper as a result of the turn, adjust the weight to bring the rate of descent back to what it was in the straight ahead glide. Hook an index finger over the trailing edge and give the model a good heave-ho. She'll take off like a regular hand launched glider.

Engine timing system

Since there is no fuel shut off timer on this model, the length of the power flight must be regulated by the amount of fuel in the tank. This is done in three ways with a Pee Wee. The least amount of fuel is put in the tank by pointing the engine straight up so that the filler tubes are both horizontal. In other words the back plate of the tank is in a horizontal position. Fuel is added to the tank until fuel runs out the other filler tube. Set the engine upright and cease fuelling at the same time. With prime in the engine for a quick start, this will give you about 15 seconds engine run. Time this yourself to see how much you can get. For a 30 second run, lay the engine on its side and fill the tank from the upper vent tube until fuel runs out of the lower vent tube. For longer flights, again turn the engine on its side and fuel from the lower vent until fuel runs out of the upper vent. This will give you about 40 to 50 seconds engine run. A little practice in starting and adjusting will soon tell you which of these three methods of fuel regulation is for you. Now start up the engine and let the model go. She'll climb smoothly and glide flat. On calm evenings you should expect to get about 1½ minutes on about a 20 second motor run.

Have fun—I'm heading for the pasture!

ize plan



Assembled components above; parts ready to shape, below left on page 26

pendent
he flying
ably

om
ire

are cemented
the wing joint
with a strip of

Wing. Medium Balsa
3 x 13 x $\frac{1}{4}$ thick.

a

Join with a-a on
separate drawing.

a

Tailplane. Soft Balsa
3 x 10 x $\frac{1}{8}$ thick

3

3

30

10

2

Rudder. Soft Balsa
3 x 3$\frac{1}{4}$ x $\frac{1}{8}$ thick.

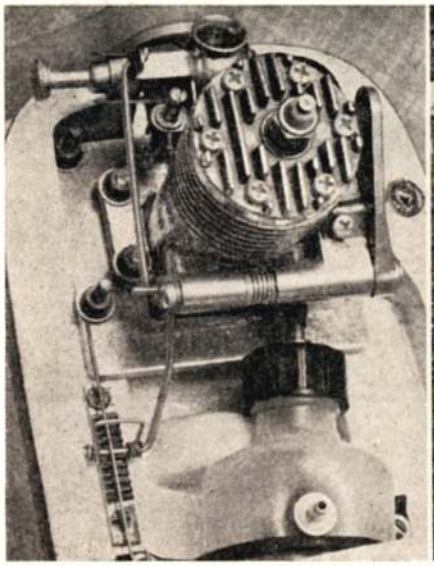
3

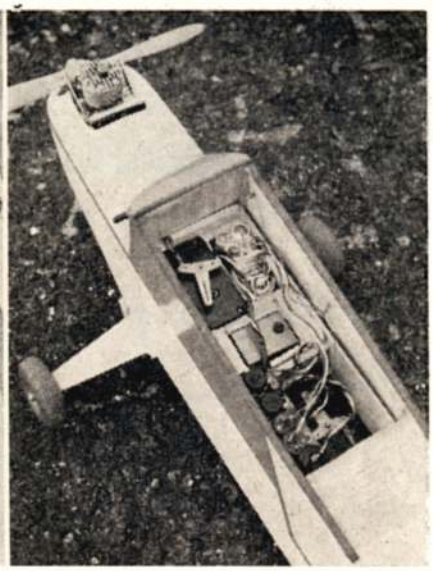
Fuselage. Hard Balsa
3 x 18 x $\frac{1}{8}$ thick.

18

eneral arrangement

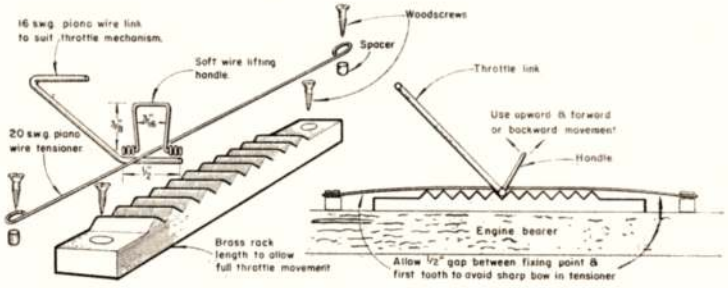
All dimensions are in inches





OVER THE WAVES

Top left, ratchet catch for the throttle lock can be seen bottom left-hand corner. Piano wire tensioner, throttle link and wire handle are above left engine bearer. Function of device is easy to understand with the aid of this illustration. Top right, installation of equipment in Mr. Wildman's Champion after re-equipment with a Graupner Unimatic throttle servo. Receiver is R.E.P. Unitone. Model is nylon covered, weighs 4½ lbs. Right, working and constructional sketches of the ratchet lock.



THE NEWCOMER TO radio control flying very soon learns the value of an engine with throttle control. If he is well advised he will probably have invested in such an engine right from the start, whether he intends to use single or multi channel equipment. For his first flights, however, he may not feel able to cope with the extra complication of throttle control—so that the clever and easily constructed throttle device described below should make an immediate appeal.

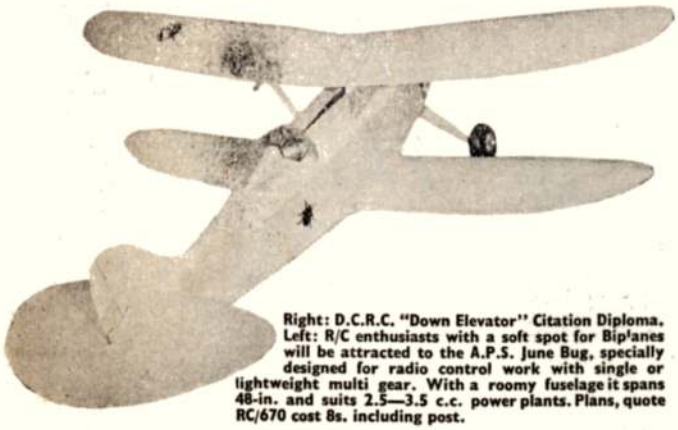
The simple and very positive throttle setting device featured here was originated by Mr. B. Wildman of Edmonton, who successfully used it in his Veco 19 R/C powered DeBolt Live Wire Champion. Properly constructed it provides a means of setting and locking the engine throttle in any position between fully open and closed and any engine setting can be accurately repeated by carefully noting the needle valve setting and notch number used on the ratchet lock.

The system is simplicity itself. The unconnected end of a 16 s.w.g. piano wire throttle link is positioned to run along the length of a strip of ratchet teeth constructed from a piece of brass pinion rack. The throttle link is held tight against the ratchet by a length of 20 s.w.g. piano wire, which forms a spring loading.

Start construction by cutting a length of 3/16 in. wide brass rack long enough to contain sufficient number of teeth to cover the full movement of the throttle (10 for Veco .19) with a bit to spare and enough to allow a ¼ in. flat at either end for mounting screws. File away the teeth over ¼ in. at each end and drill each flat so formed to pass a woodscrew. Fashion the 16 s.w.g. piano wire throttle link to suit the particular throttle mechanism involved and then a lifting handle from a paper clip This should be ⅜ in. high and 3/16 in. wide. The handle is shaped on the piano wire link by winding the soft piano wire round the right angled catch of the throttle line, then taking the soft wire up and over to form a handle and down again to coil twice again. Make sure the handle grips the catch tightly and does not flop.

Screw the brass rack in position (the engine bearer is most convenient) and form the 20 s.w.g. piano wire tensioner, with loops at the extremities. The tensioner should be long enough to give even pressure over all the teeth of the rack without causing trapping due to an acute angle at each end. To prevent it from bowing when screwed in place over the rack the mounting points should be ¼ in. from the outermost teeth of the rack and pressure may be adjusted with spacers under the loops. Having mounted the unit in position, adjustments to the throttle position are effected by exerting an upward and forward or upward and backward force on the throttle link handle to lift the link to clear the teeth of the rack for repositioning.

This method of setting and locking throttle position, thus regulating engine power enhances the versatility of an engine which can thus be used for a much wider range of aircraft sizes. We must add that Mr. Wildman's Live-Wire Champion is a beautifully finished model and



Right: D.C.R.C. "Down Elevator" Citation Diploma. Left: R/C enthusiasts with a soft spot for Bip'anes will be attracted to the A.P.S. June Bug, specially designed for radio control work with single or lightweight multi gear. With a roomy fuselage it spans 48-in. and suits 2.5—3.5 c.c. power plants. Plans, quote RC/670 cost 8s. including post.

the radio installation of equally high standard.

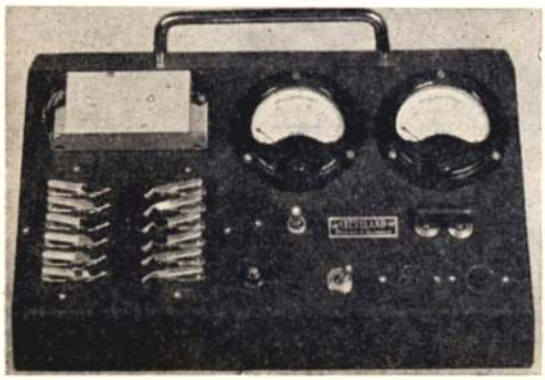
Brass rack can be obtained from that model makers' emporium of non-ferrous metals and piano wire, Smiths, St. John's Square, Clerkenwell, London, E.C.2.

Servo Tester

Harry Brooks of Southern Radio Controls, appointed U/K service station for Bonner Servos, sent along pictures of his new Transmite servo test monitor constructed from Bonner's own circuit and identical to that used at the Bonner factory. The two meters at the top left of the case (illustrated below) read 0—1.5 Amps. The right hand bank of clips are for Transmite servos, while the left hand bank are to couple a transistor servo amplifier to a Duramite servo as shown mounted in test position. The monitor provides checks on the output of the power and neutralising switching transistors while condensers can be switched out of the circuit for checking. Results of these tests give a clear indication of the condition of the amplifier. The push button on the bottom centre of the control panel is to simulate simultaneous switching of two adjacent reeds so that the diode which protects the power transistors during such an occurrence, may be tested.

Maintenance Mounting Stand

Recently at a friendly get-together with some radio fliers from Leicester, we were very much taken by the mounting stand used by well known multi enthusiast Maurice Franklin for his new *Taurus*. This consisted



Southern Radio Controls Bonner Transmite servo tester is portable for field tests. Servo can be seen top left of case ready for testing.

simply of a thick cardboard carton with a half oval cut-out at either end shaped to accept the half-round contour of the Taurus fuselage resting in inverted attitude. Anyone who has a large low wing R/C model will know that the task of strapping on the wings single-handed is a ticklish business indeed, but this mounting box solves the problem and doubles as a handy carry-all. No hard construction work is involved; cartons are readily obtainable from the local greengrocer and easily replaceable if soaked by rain water. Foam rubber around the cut-outs protects the fuselage finish against rubbing.

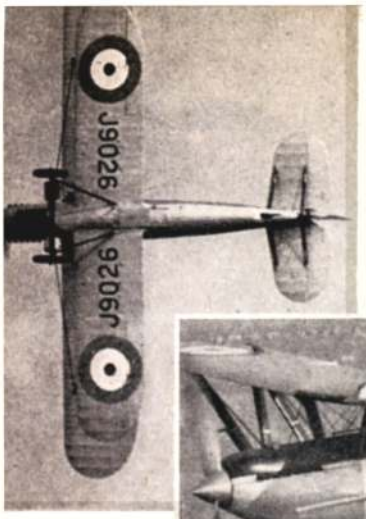
Prang Presentation

R/C enthusiasts will recall Frank Van den Bergh's spectacular crash at the World Radio Control Championships held at R.A.F. Kenley last August. Crashing in competition against U.S.A. modellers Frank thereby qualified for a "Down Elevator Club" citation and diploma presented by U.S.A.'s Dr. Walter Good. For readers inquisitive of the nature of the diploma the illustration at the head of this column will satisfy curiosity.

Trends for 1963

What new developments in radio control will 1963 hold? This is surely the question all R/C enthusiasts ask at the turn of the year. Looking into our crystal ball we see perhaps an increased range of twelve channel radio equipment and some very useful developments on the single channel side which will greatly contribute to trouble free sport flying.

On the model side we see a few design changes and multi types may appear with extra tall fins so pilots can say "Oh yes old boy—wiped the tip off during a low inverted run down the runway last weekend."



Two air to air shots of Fairey Fox Type Ia fitted with Rolls Royce F Engine, forerunner of the famous Kestrel series. (Photos by courtesy of "Flight".)

AIRCRAFT DESCRIBED No. 119

FAIREY FOX

Described and Drawn by
G. R. DUVAL

THIS MACHINE WAS yet another example of a highly successful design stemming from the Schneider Trophy racing seaplanes, in this case, the American *Curtiss* type of 1923.

When on a visit to the United States, Mr. C. R. Fairey was impressed by the performance of the Curtiss biplanes developed from the Schneider machine, and particularly by their Curtiss-Wright D.12 engines. He purchased a batch of these engines, along with some Curtiss designs and brought them back to England. The result was the subsequent production in Great Britain, in 1926, of the Fairey Fox day bomber, fitted with the Curtiss-Wright D.12 engine.

It was the small frontal area of the D.12 that made the production of such a compact and fast machine possible, and when the aeroplane was demonstrated to Air Ministry officials, it fairly astonished them. There was, however opposition in certain quarters to the use of American engines in British aircraft, but such an obviously high performance aircraft could not be ignored, and so it was decided to order enough machines to equip one Squadron, No. 12.

The first machine was delivered to the Squadron at Andover in June, 1926 and within twelve months the re-equipment had been completed.

No. 12 Squadron became the envy of all the others, for the Fox proved far superior to any R.A.F. machine in service, and was actually faster than the current first line fighter, the *Gamecock*. In Air Exercises, the Fox proved almost impossible to intercept, and at the Hendon Air Displays it became the star performer, opening the show with a spectacular dive over the stands at full throttle.

The Curtiss engine, with its unfamiliar layout and systems, gave some trouble, however and several forced landings resulted. This spurred Rolls-Royce to even greater efforts in their developments of an engine of low frontal area to outrival the Curtiss product. This was the F. XII, forerunner of the famous Kestrel series.

In January, 1929, the first Kestrel-engined Fox was delivered to No. 12 Squadron, designated Fox IA. This machine had a larger propeller to absorb the greater power of the Kestrel, and the top speed was increased by 30 miles per hour. "A" Flight of the Squadron was equipped with the IA. the other Flights retaining the original version.

By now, the fame of the Fox was indelibly recorded in the Squadron's crest, officially approved as a fox's head and painted upon all their aircraft.

The Fox remained in service until 1931, the last two Foxes going to Special Duty Flight, Boscombe Down on the 9th of March, leaving behind them many memories and an illustrious record of service.

Technical Data:

Type: Two-seater light day bomber.

Engine: Fox I—Curtiss-Wright D.12, 480 h.p.
Fox IA—Rolls Royce Kestrel, Ib, 525 h.p.

Dimensions: Span—38 ft. Length—29 ft. Height— 11 ft.

Performance: Fox I. Fox IA ( ).
Max. speed at sea level—156.5 m.p.h. (184 m.p.h.).
Max. speed at 5,000 ft.—154.5 m.p.h.
Max. speed at 10,000 ft.—150.0 m.p.h.
Max. speed at 19,000 ft.—123.5 m.p.h.
Climb to 10,000 ft.—11.25 mins.
Rage—500 miles.

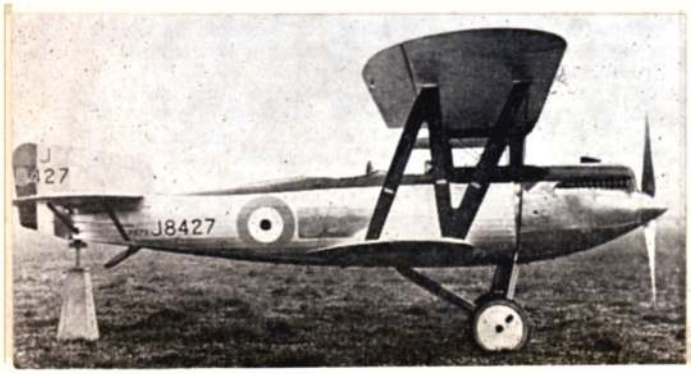
Loaded weight: 4,117 lbs.

Fuel capacity: 78 gals.

Armament: Front—synchronised Vickers gun. Rear—Lewis gun, on Fairey high speed mounting. Bombs—2 x 230 lb. or 4 x 112 lb.

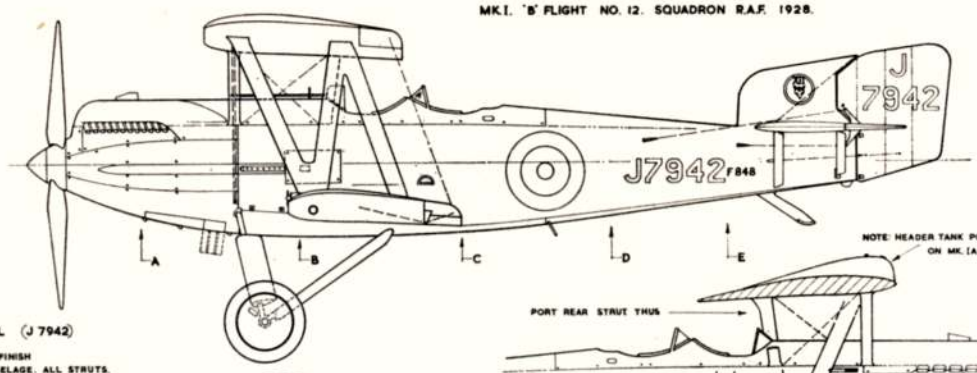
Construction: (Wings)—wooden structure, fabric covered. Leading edges ply-covered on top.
(Fuselage)—forward section metal cowled steel tube. (Fox I cowling was polished alumium, Fox IA was anodised dural). Rear section wire braced wooden frame, faired to oval section.
(Undercarriage)—cross-axle wire braced, with rubber in compression shock absorbers. Streamlined tail skid.

Serials: J 7941 to J 7958; J 8423 to J 8427; J 9025 to J 9028.
(J 7941 was fitted with dual control, J 7943, J 7945, J 7949, J 7958, J 9026 and J 9028 had Kestrel engine, including Curtiss-engined versions re-engined with Kestrel.)



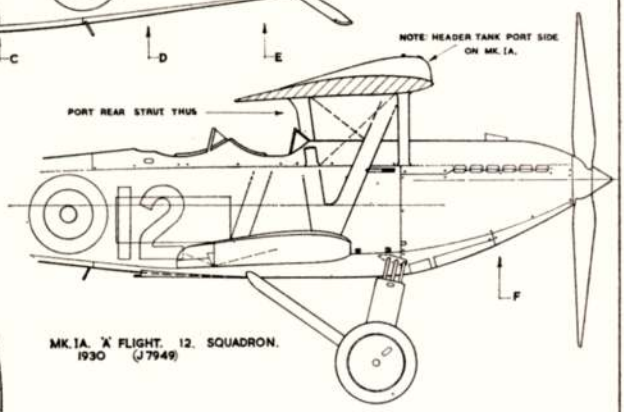
Left: Fairey Fox I which used the original Curtiss D.12 engine. (Courtesy: Real Photographs Co. Ltd.)
Right: Fairey Fox of B Flight No. 12 Squadron, fitted with the Kestrel engine or F12 Rolls Royce as from January, 1929. (Air Ministry Photo

MK.I. 'B' FLIGHT NO. 12. SQUADRON R.A.F. 1928.



NOTE: HEADER TANK PORT SIDE ON MK.IA.

PORT REAR STRUT THUS



MK.IA. 'A' FLIGHT. 12. SQUADRON. 1930 (J 7949)

MK.I. COLOUR DETAIL (J 7942)

STANDARD SILVER:- GENERAL FINISH
BLACK:- TOP DECKING OF FUSELAGE. ALL STRUTS. OIL & COOLANT RADIATORS UNDER NOSE & COOLANT RADIATOR UNDER CENTRE SECTION SERIAL NUMBERS & LETTERS. 'XII' ON FIN BADGE. REAR FACES OF PROP. BLADES PITOT HEAD.

BLUE:- WHEEL DISCS. CIRCLE AROUND BADGE ON FIN.
WHITE:- OUTLINE TO FUSELAGE & FIN SERIALS.

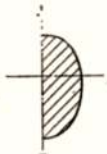
SERVICE ROUNDELS:- AS DRAWN
N.B. RUDDER STRIPES HAD RED AFT (PRE 1930)

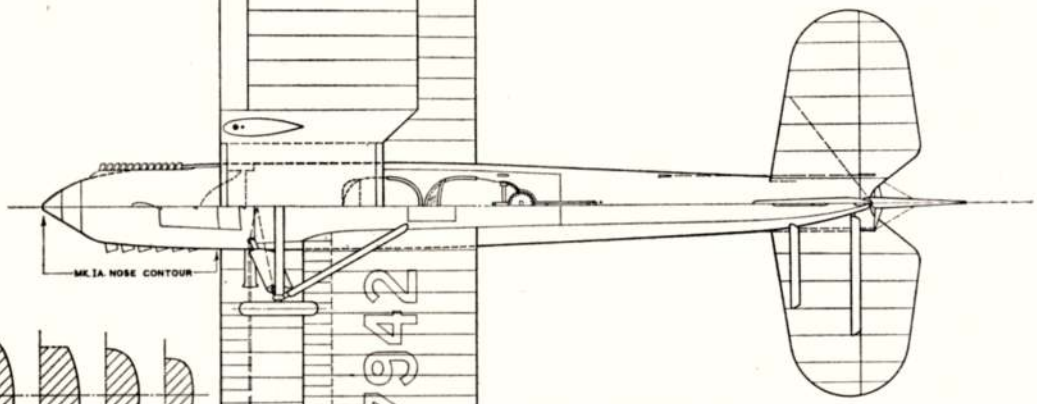
FOX HEAD BADGE
RED:-FOREHEAD & EAR OUTLINE, YELLOW:-CHEEKS
WHITE:-MUZZLE SMALL DETAIL:-BLACK

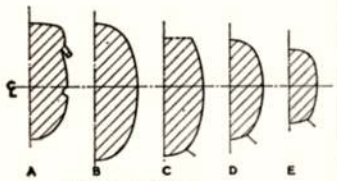
'C' FLIGHT DETAIL
WHEEL DISCS & CIRCLE AROUND FIN BADGE:- YELLOW

MK.IA. COLOUR DETAIL

GENERALLY AS FOR MK.I BUT RED WHEEL DISCS RED '12' AS DRAWN & RED CIRCLE AROUND FOX HEAD BADGE ON FIN. RUDDER STRIPES (POST 1930) WERE IN THE ORDER RED WHITE BLUE READING FORE TO AFT.
N.B. THE SQUADRON MARKING '12' WAS PAINTED ON ALL THE AIRCRAFT AROUND 1930 IN RED ('A' FLT.) BLUE ('B' FLT.) AND YELLOW ('C' FLT.)



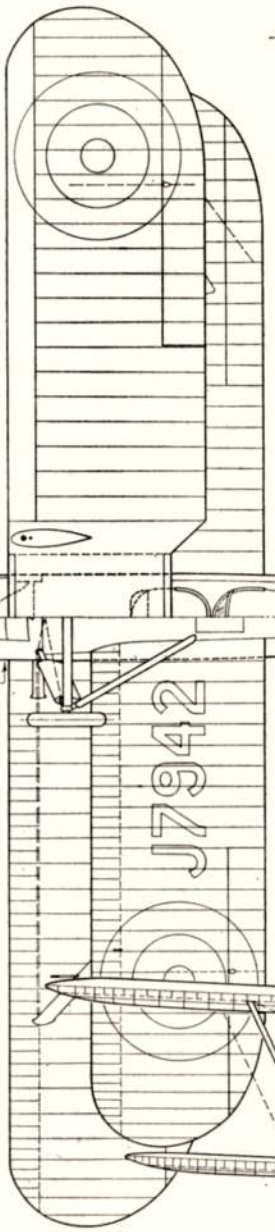




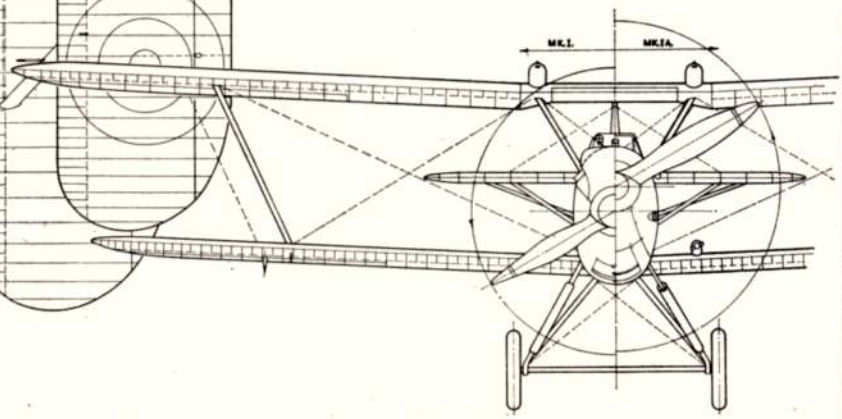
FUSELAGE SECTIONS

UPPER WING SECTION WITH MK.I. HEADER TANK

LOWER WING SECTION WITH GENERATOR (BOTH MARKS)

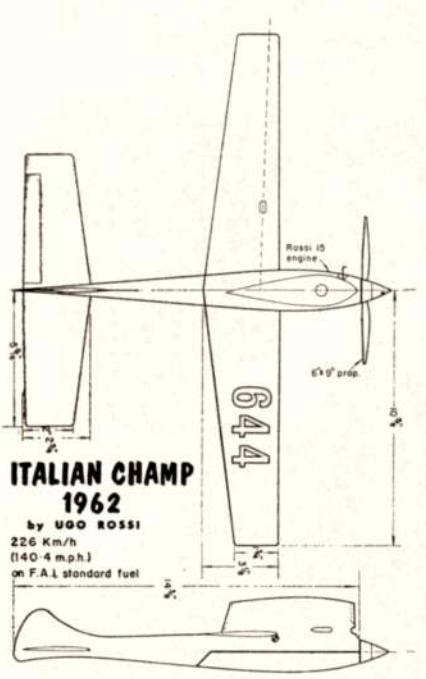


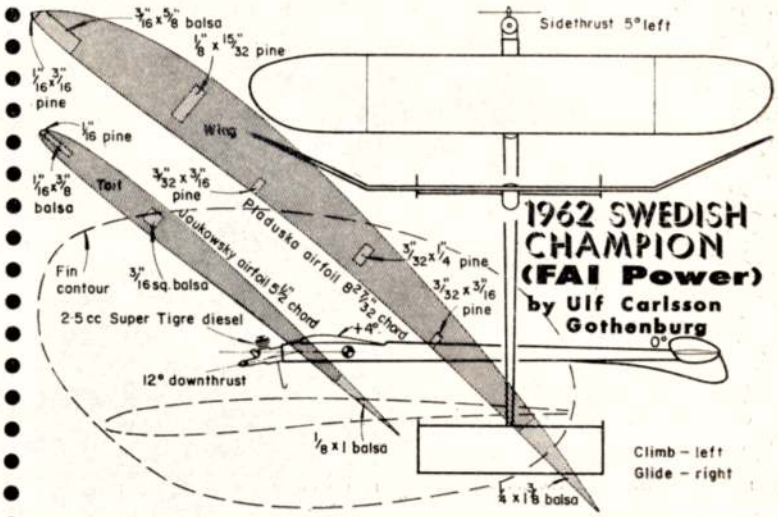
Reprints of this 1/72 scale plan and dye-line prints of the 1/24th scale drawing are available as plan pack AH/2763 Price 2/6 plus 6d. post from AEROMODELLER Plans Service



FAIREY FOX. MK.I. & IA.

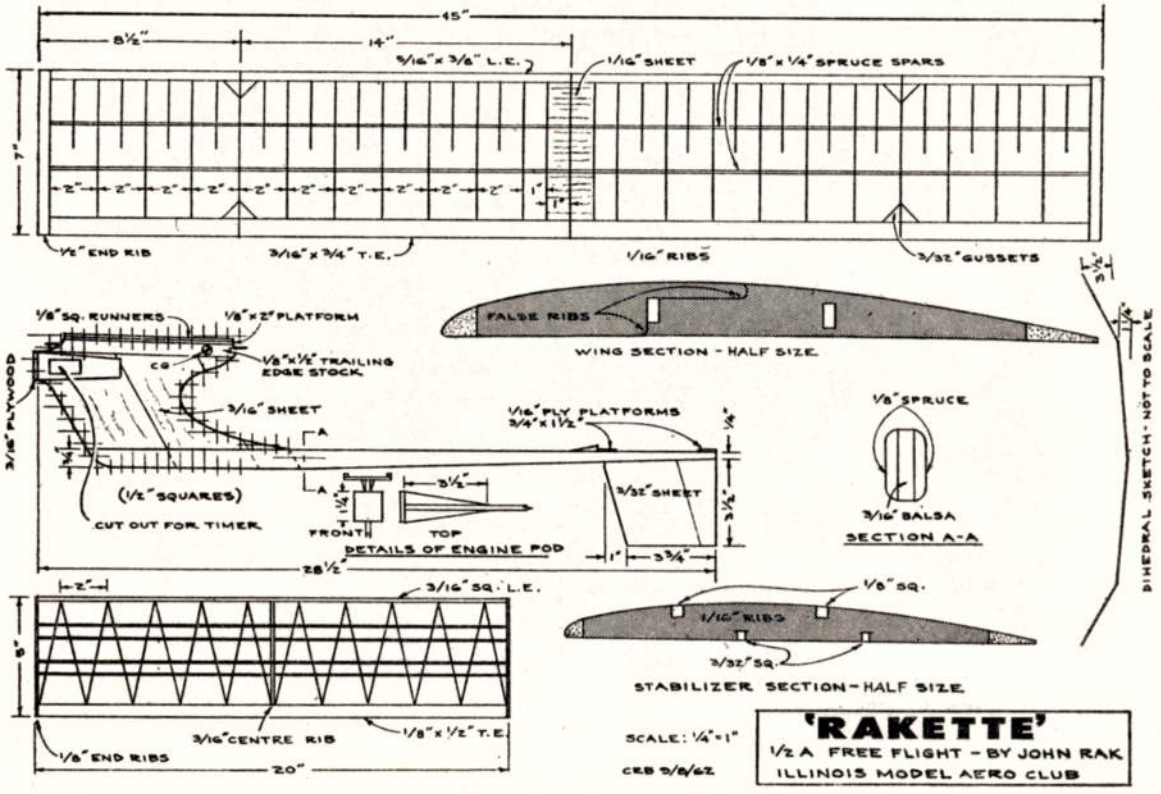
F.T.





Contest designs

Four models from other countries which offer fresh design inspiration



'RAKETTE'

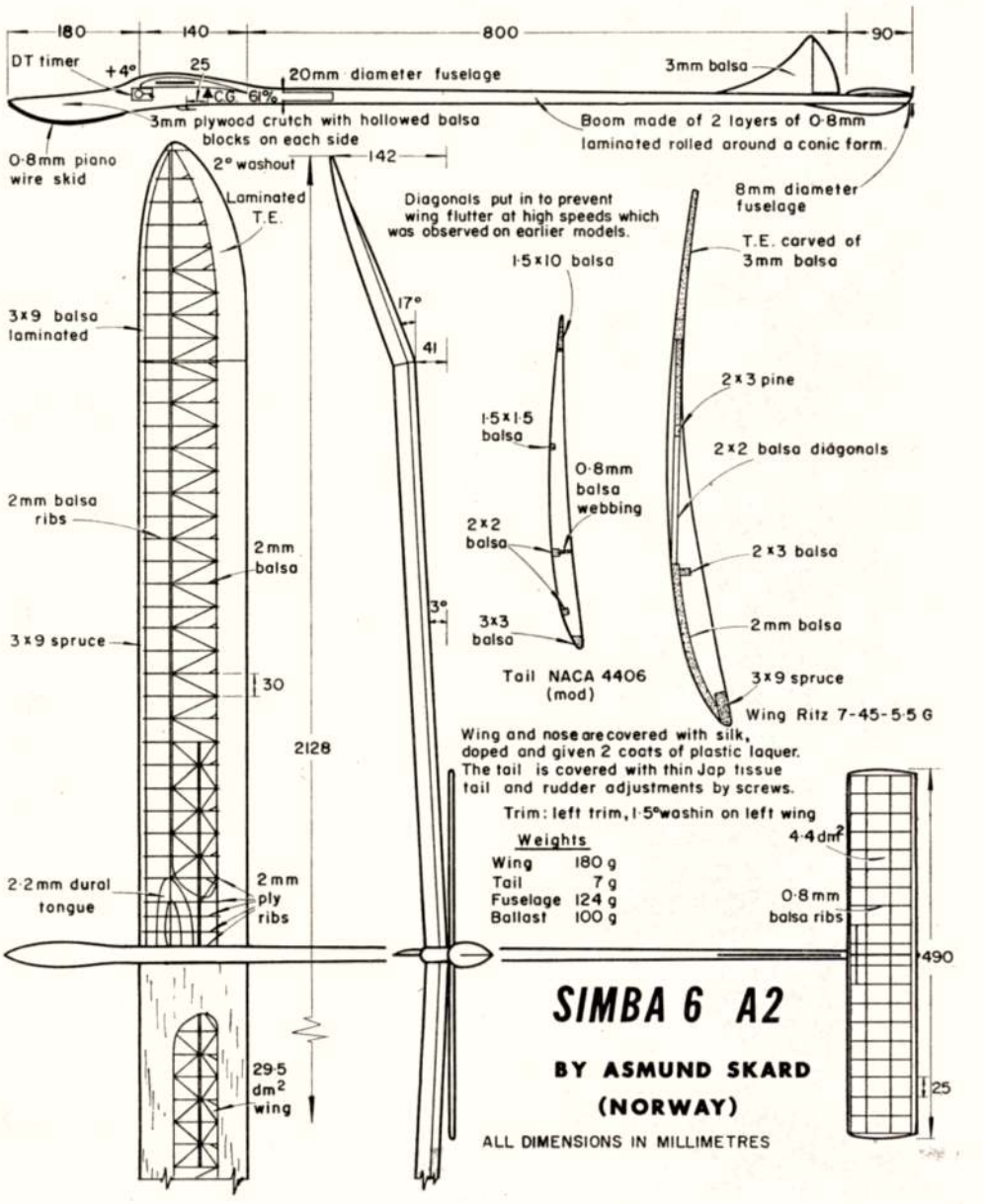
½A FREE FLIGHT – BY JOHN RAK
ILLINOIS MODEL AERO CLUB

SWEDISH POWER CHAMP

The shoulder wing contest power design is a comparative rarity. Borje Borjeson introduced them to Sweden in the early 50's and won five Championships. Now, the Gothenburg flyers, Ulf Carlsson and Ove Pettersson (5th), have shown their worth in '62. Tricky to trim for the power climb, but possessing superb gliding characteristics, the shoulder wing is typified by large downthrust angle and long tail moment. Twin fins are a feature of many Swedish power models.

ITALIAN SPEED CHAMP

Ugo Rossi's exclusion from the Italian 1962 Control-line speed team has drawn harsh comment in the Italian modelling press. The record time of 140.4 m.p.h established with Standard F.A.I. fuel, makes this model fastest in the world thus far for the F.A.I. 2.5 c.c. class. It is similar in many respects to the World Championship winning model (135.4 m.p.h.) by G. Krizsma, which we shall be detailing next month.



RAKETTE

High thrust-line power designs have long been the prerogative of Chicagoan modellers, especially in the ½A class for up to .8 c.c. engines. This one by John Rak, as published in the *I.M.A.C. Bulletin*, is a simple layout with many contest proven features. Particular emphasis is made of anti warp structure in the tailplane and the false ribs in the wing, offering a spacing of only one inch between, maintain the important fore part of the airfoil. Note the use of spruce plates either side of the centre fuselage and the solid sheet underfin. Builders should endeavour to use light wood for the structure.

SIMBA 6

This model placed 18th at the World Champs in 1961 and 4th in the Nordic Countries Champs, 1962. It was designed specially for the anticipated hot air, with plenty of thermal activity at Leutkirch, the German location of the '61 contest. Tail boom is made of .8 m.m sheet, soaked in water then wrapped over the form with cold water glue as adhesive. It is finally shaped, sanded and doped on the inside. The wing has been prone to high speed flutter, hence the use of diagonal stiffeners inside the thin airfoil section. Capable of holding a thermal well, Simba also tows like a faithful dog on the line.

Ready to fly . . . for fun

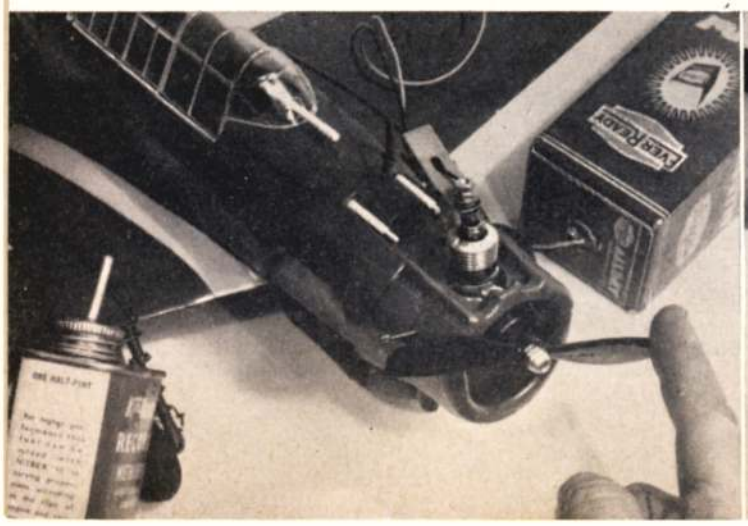
Heading shows P-39 Airacobra at left and Cessna 175 basic trainer at right, each by Wen-Mac. Air tests proved them most satisfactory trainers. This photo shows same pair, together with two U.S. Army Douglas A-24 bombers, also by Wen-Mac. Below: auxiliary equipment is top quality fuel and a reliable 1.5 v battery with fool-proof clip for glow plug. Below right: use of proper spanner is essential for engine maintenance. Glow plug being removed from Wen-Mac 049 Mark II in the Cessna.

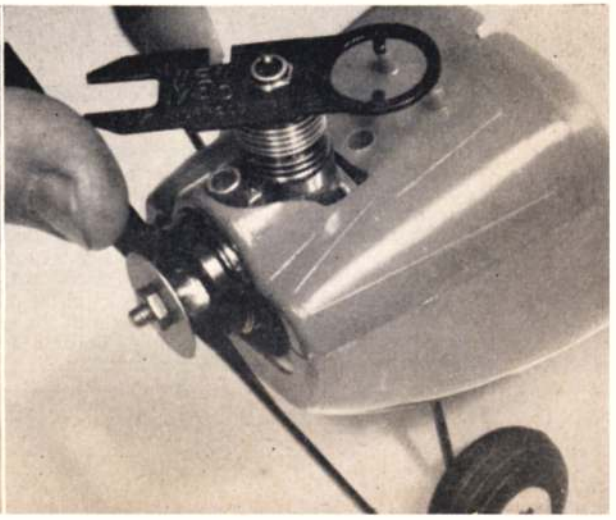
CHRISTMAS 1962 WILL bring for many youngsters between the ages of perhaps 7 and 12 years, their first contact with powered model aeroplanes in the shape of a ready to fly control line model.

Without a doubt, the person who can enlist the help of an experienced modeller/pilot has a fairly easy road to success, but to most this kind of help just will not be available. First and most important thing is to learn how to start the engine and we add that this is by far the biggest hurdle. Begin by reading the instructions supplied for engine starting and re-read them until you understand just what will happen during this operation. Fill the tank with fuel (use Keil Kraft Nitrex 15) first remembering to shut off the fuel from the engine by closing the needle valve (turning clockwise as far as possible). Next open the needle four (4) whole turns (in anti-clockwise direction). Now place one finger over the round air intake and turn the propeller anti-clockwise three or four turns, which will draw fuel from the tank into the engine and also fill the fuel line from the tank to the engine to ensure the fuel will flow to the engine when it starts.

Connect up a 1.5 volt battery to the plug. We recommend the Ever Ready AD1 or equivalent and a special connector is necessary. The Keil Kraft connector clip is specially designed for the job; a two pin connector at one end fits the socket of the AD1 battery and a specially designed spring clip at the other end of the wire grips the cylinder of the engine and fits over the plug. Attach the clip and prime the engine through the exhaust ports at the base of the cylinder fins. A prime is a trickle of raw fuel, straight from the can which is allowed to enter the engine through the exhaust ports.

Now the big moment. Turn the propeller clockwise 1½ turns against the spring starter and whip your finger away smartly. The engine should start and continue to run, making a "Burp-Burp" noise. The engine is now running in a "rich" condition. That is to say an excess of fuel is entering the engine and since the engine is receiving





too much, it runs slowly! So we reduce the flow of fuel by closing down the needle valve. Turn the needle clockwise slowly. As you do so you will hear the noise of the engine "pick-up". The "Burp-Burp" will gradually fade as a much higher pitch note takes its place which culminates in a high pitched scream at which point the engine is running at maximum speed, enough to lift the model off the ground and fly it. You will at this point feel a steady blast of air rushing back from the propeller and noticeable "pull" away from your grip. Remove the clip from the cylinder, it is no longer needed. Remember not to turn down the fuel more than is necessary. Once an even note has been reached just leave well alone.

It is quite likely however that the engine will not start or continue to run at first try, which can be due to any one combination of several causes. Firstly, if the engine does not "Burp-Burp", but just screams and then stops, the fuel needle is most probably not open enough so open it another couple of turns and start the whole procedure again. If there is no response at all to the first spin try again a couple more times. If still no response then inject another trickle of fuel into the ports and listen close to the cylinder for a "hiss" with the battery clip connected. If the hiss is not apparent, choke the engine three or four times again with your finger over the air intake and then put just another trickle of fuel into the ports. When you let the propeller spin again the engine should fire. If a "hiss" was apparent, then disconnect the battery clip and blow hard through the exhaust ports to clear excess fuel, the engine should fire with a spin of the prop if the battery is new and plug properly connected.

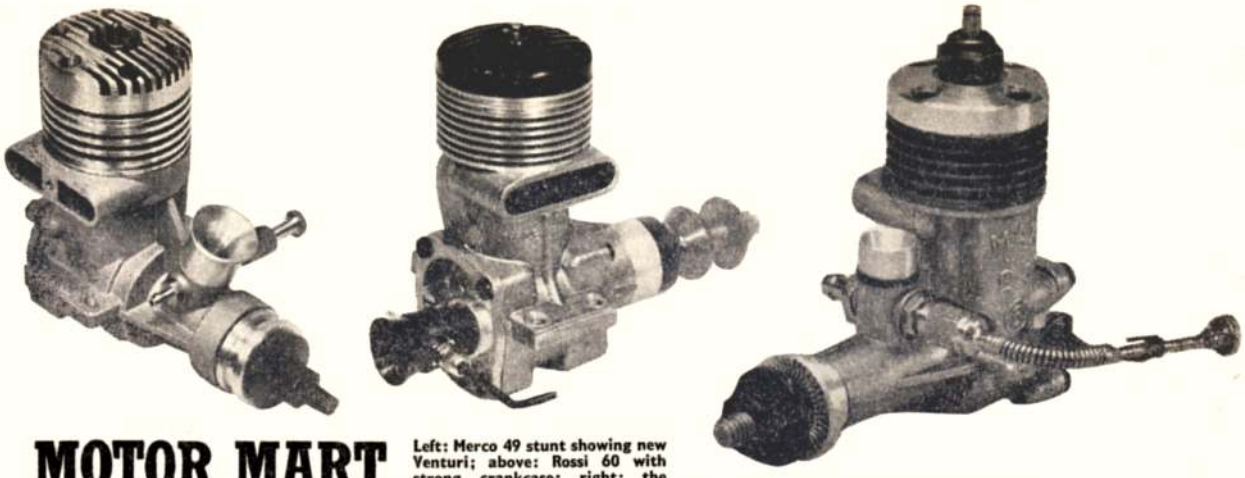
Flying these models is also rather like riding a bicycle. It just comes naturally with practice and any corrections become natural reactions rather than deliberate movements. First connect the lines to the model. Thread lines and a control handle are provided with the model and by dividing the length in half we have two lines. Connect these correctly to the handle and the model so that when the handle is held vertically upright the elevator is at the exact neutral position. Now for some pre-flight instruction. Take hold of the handle with the "up" line uppermost. The word "Up" is inscribed at this end of the handle and will always be an easy check. Take the tension on the lines and point your arm straight out in front of you so that between the model and your shoulder, the lines and your arm make a straight, unbroken line, in which attitude the elevator is neither deflected up nor down. This is the "elevator neutral" position. By raising your arm the elevator will deflect upwards and lowering the arm will do the opposite. This is the basis of control. Always keep that arm straight, and never, never use a wrist action to apply control.

So here you are ready to fly. If your flying site is a really smooth surface your model will take off! Giddiness will be a big problem with all that whirling round so do not completely fill the fuel tank. With the engine screaming healthily tell your helper to point the model slightly outwards from the circle. Advance to the centre of the circle, take the control handle the right way up and check the controls. If all is satisfactory signal your helper to release the model. Make this a visual signal, the noise of the engine may well drown your shouts.

When the model is released, keep your arm straight out in front and the model should lift off the ground and climb to about shoulder height. Provided the arm is straight and not raised the model will maintain this height but do not try to fly higher. By now you may be feeling rather giddy. Don't worry. Just hang on and wait for the motor to cut, which it will do shortly if the tank was not filled to overflowing. When the motor cuts, allow the model to glide in to land.

Smooth surface flying sites are most often not to hand so choose a soft grass field. In this case the model will not take-off and will require hand launching, a technique which your helper must learn. With the motor running he'll take up position at the end of the lines. Helper then lifts model from ground to waist height and holds it out in front of himself, gripping by the rear fuselage between wing and tailplane and steadying at the outer wing tip. On a signal from the pilot the helper runs forward to gather momentum for the launch maintaining line tension and after about ten strides, releases the model in a perfectly level attitude, the nose pointing slightly outwards. At the moment of release the pilot must really be on his toes. As the model leaves the launcher's hands the pilot must catch her with a "touch" of "up" elevator. Just raise your arm to "catch" her. This holds the model in the air, but do not over-control, and apply only for a second or two, then neutralise the controls, otherwise the model will, we found, just sink to the ground. Don't try any fancy stuff, these models are not really designed for it. However, if you, like our test pilot, enjoy take-offs and landing most of all, then plenty of fun is assured.

Top: Douglas A-24 moulded in olive green with red tipped bomb beneath fuselage. Shows single surface cambered wing at this angle. Below it is P.39 fitted with the spring loaded rockets, showing hinged canopy (suitable for ejector seat conversion) and detachable engine cowl. At left, the 30-in. Cessna, largest in the range, of vacuum formed plastic.



MOTOR MART

Left: Merco 49 stunt showing new Venturi; above: Rossi 60 with strong crankcase; right: the diminutive O.S. I c.c. glow engine

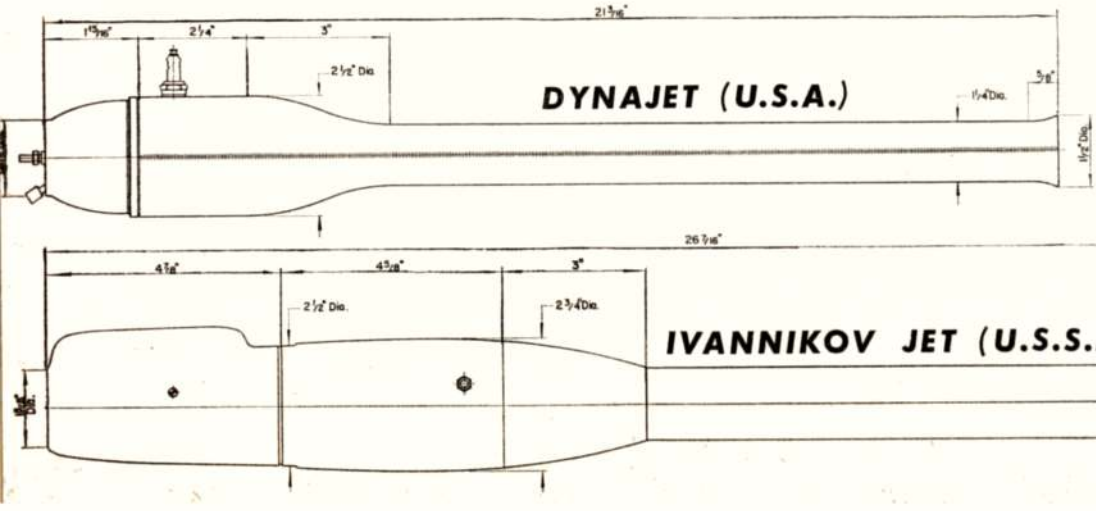
THE WONDERFUL International spirit of camaraderie which exists at World Championship meetings usually extends to swapping of various engines, accessories and equipment. We were especially pleased to return from Kiev with one of Ivan Ivannikov's home constructed jets. In fact, it was the actual jet featured in the AEROMODELLER ANNUAL, 1957/8; as used for the 275 Km/h. world record established in August, 1955, and similar to the jet which we featured in March, 1962. The opportunity of making a comparison with the American **Dynajet** reveals several most interesting distinctions, some of which must undoubtedly account for the superior speed performance attained by the Russian unit. It must be remembered that until quite recently, Ivannikov held the world record of 301 Km./h. and has also flown at 310 Km./h. These speeds in the 190 mile per hour range are not to be taken lightly.

We borrowed Flt. Lt. Ralph Gould's Dynajet, current British record holder, for the purpose of this assessment. Immediate impression is the extraordinary lightness of the Ivannikov unit. Complete and ready to be fitted with strap-on Delta wings or separate wings and tail, it weighs only 13 ozs. including the tank and undercarriage. A static thrust of approximately 4½ lbs. is claimed. The Dynajet, although smaller, weighs 14 ozs. without the tank or any other fitting. Ivannikov's is very neatly electrically welded in a series of sections, some of which have distorted through continual use, but not enough to affect performance. The Dynajet is welded along its length in a protruding seam. Whilst the combustion chambers are of almost identical diameter, the Russian unit has almost three times the combustion capacity. Its plug, a rudimentary piece of wire held in place with replaceable ceramic tube, is at the mid-point of the combustion chamber between two conic rings, which have been welded in after original construction. The scale drawings show, the jet pipe is practically identical in each case as far as length is concerned, but the Russian jet has a larger bore.

Since power is naturally a function of the amount of fuel that can be consumed, it is evident that every effort has been made by Ivannikov to obtain best rate of induction volume and subsequent firing. This is shown by the very large valve aperture area behind a long venturi shaped throat, which is surrounded by the tank. Petrol is metered by an adjustable screw and passes through a venturi spraybar in which there are approximately 14 holes capable of spreading the neat fuel over the full valve area. As we have described before in the Annual and AEROMODELLER, a multiple valve system is used which compares with the single valve plate on the Dynajet. By contrast, the Dynajet is extraordinarily simple. Induction is through a single hole, but a fitting is supplied for starting, whereas the Russian unit relies on an open tube carrying pumped air through the front. Photographs convey more of the comparison and field tests will shortly take place, for Ralph Gould has taken over the jet from us and will be able to make a more practical examination in a model.

In the past month we have had the opportunity of studying for ourselves three new engines. First is the **Merco 49 stunt.** Having a rather denuded appearance with its throttle addenda taken away, the 49 stunt has a beautifully polished venturi, replacing the normal carburettor and is of most handsome appearance. There can be little doubt that this unit is the most advanced in its category and it seems the D. J. Allen Engineering are being very hard pressed to meet the world-wide demand which so fine a product has created.

Next the **Rossi 60** from Italy, produced as a standard



Dimensional comparison of two outstanding pulse jet designs. Dynajet retails approximately £14/10/0 through importers such as Roland Scott, Ivannikov's is, of course, hand made. This one-fourth scale comparison emphasises basic combustion chamber differences.

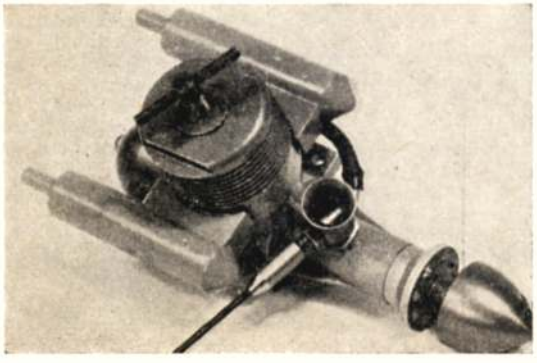
version for £13 10s. 0d., or modified with chrome liner £17 ex Italy. An independent report by Gus Johnson will shortly appear in these columns, but first impressions are that the design carries a lot of very sensible modifications to the traditional speed engine design. It is very rugged and special effort has been made to minimise crankshaft damage. In particular, the disc induction unit is one of the finest yet seen on a production engine. Salient features are the single pinned piston ring, a nylon rotor and very strong sandcast crankcase.

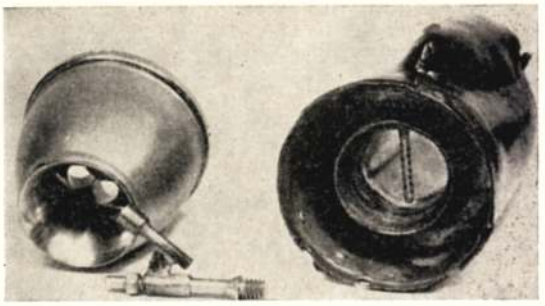
Next to come was the diminutive **Max OS 6,** kindly loaned to us by P. Read of Norwich. Carrying every impression of being a scaled down version of its famous bigger brothers, this 1 c.c. glow plug engine is also destined for a throttle we understand and should, therefore, have a very special application for radio control. Its weight of just under 2 ozs. should make it most useful for models of about 40-in. wing span. Bore 11 m.m., stroke 10.4 m.m. and compression ratio 9:1.

Messrs. Keilkraft are distributing the **Wen-Mac Mark II** .049 glow plug engines in two versions. The *Rotomatic* with coil flat spring starter encased around the shaft with automatic disengagement for starting, is to sell at £1 19s. 4d. and the simplified *Hustler*, which is virtually the same engine without the starter, at only £1 9s. 0d. These new prices set a record for low figures in the British model trade at a time when it is generally accepted that rising costs of production are obliging the manufacturers to apply price increases. Wen-Mac are able to effect such price cuts through their fantastic rate of mass production in the U.S.A. A division of A.M.F. (responsible for many of the bowling alleys recently instituted in this country) Wen-Mac produce for the mass market, including distribution through large stores as distinct from the normal model retail outlets. A large proportion of their engines go to the ready-to-fly range of models, some of which are described on pages 38 and 39 in this issue.

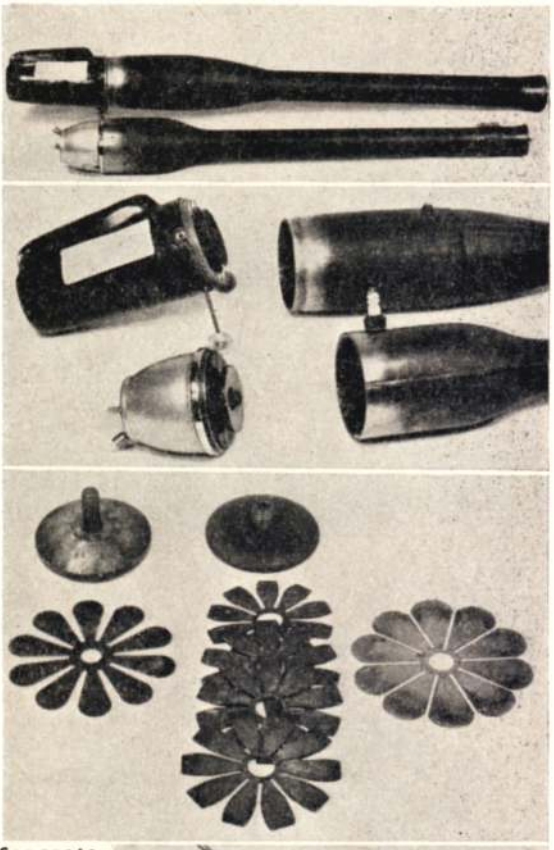
Silencers

Our world wide search for commercial silencer examples has resulted in the accumulation of a number of interesting types which will be described next month. Meanwhile, if any reader thinks he has an example which may have escaped our attention, we would welcome details. It would seem that a number of silencers have been withdrawn from the market due to lack of sales, some of them only reaching the attention of modellers local to the manufacturer. Currently, several Nations are taking up the matter most seriously, a design contest is being organised in Switzerland and it is most likely that strong recommendations will be issued by official organisations that manufacturers give more attention to the subject.

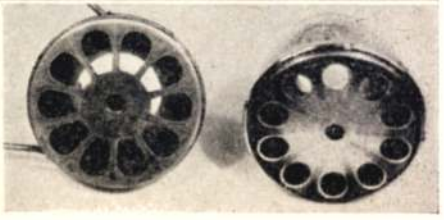


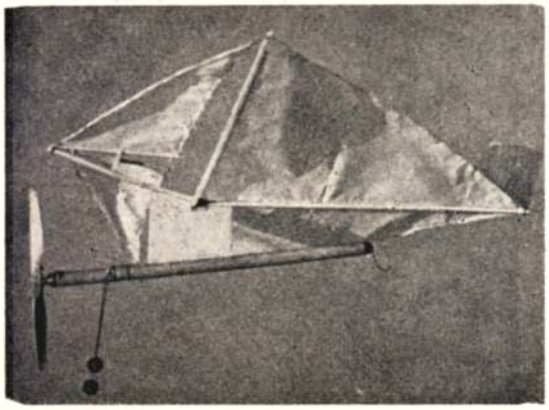


Dynajet (left) shows single fuel feed compared with spraybar in Russian unit. Below, direct photographic comparison emphasises differences in combustion chamber and nose cones, particularly single petal valve (left) for Dynajet and multiple valves used by Ivannikov (right) in third photo. Bottom picture emphasises enlarged valve ports of the Russian unit compared with the round holes in the Dynajet.

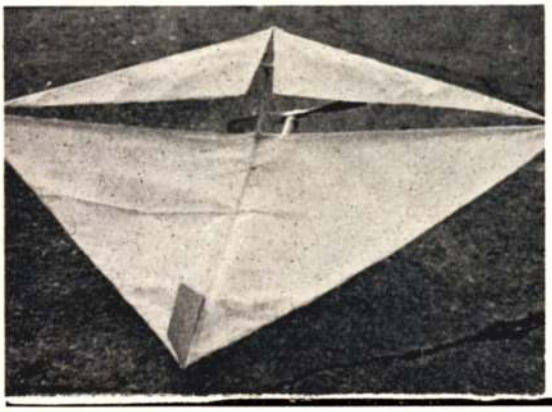


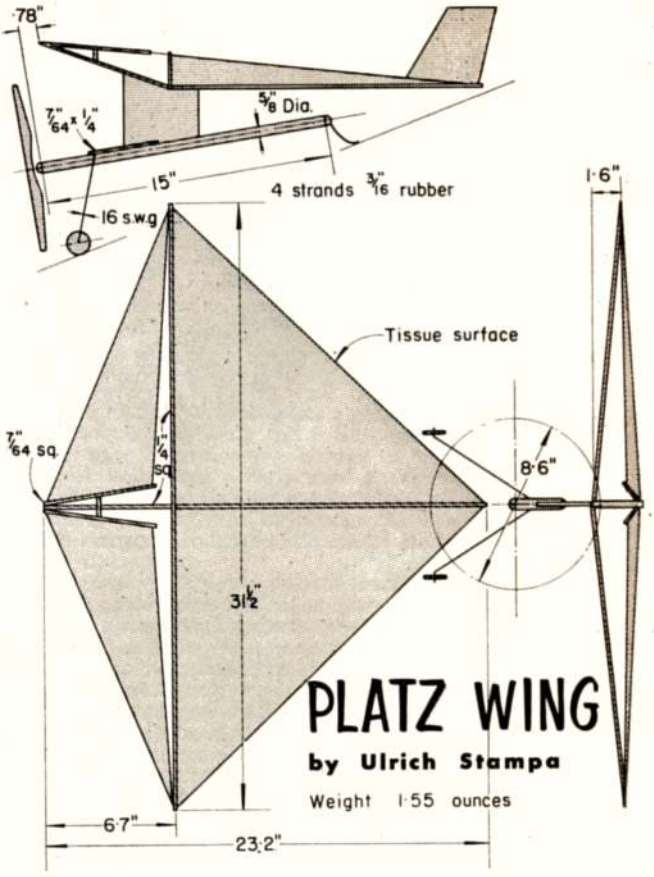
Congrats to Marown for producing most efficient silencers for the Snipe 1.5 c.c. which we have tested to our full satisfaction.





"PROJECT PARASOL", our unique flexible wing experiment published in August, 1962, has aroused universal interest. In November edition, we mentioned that Reinhold Platz of Fokker Aircraft was experimenting with sail wings during the early 1920's and produced a man-carrying type. Application of a fore-sail or jib would, to some extent, provide an inherent longitudinal stability which has been a problem with the standard flexible wing.





PLATZ WING

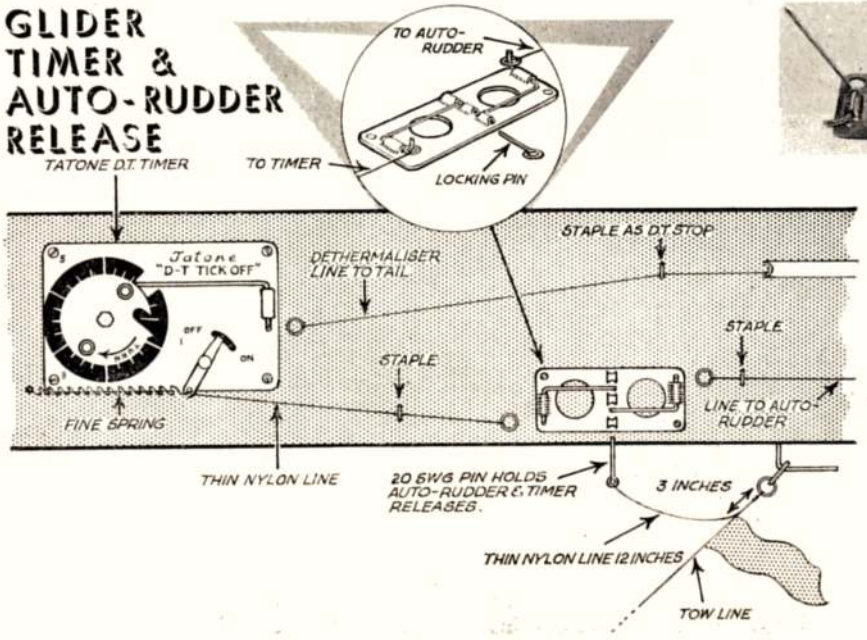
by Ulrich Stampa

Weight 1·55 ounces

Ulrich Stampa has produced a rubber powered model as detailed here and while this proved to offer better longitudinal stability, a Cox Pee-Wee powered version developed spiral instability. As can be seen in the photograph at top right, showing model in flight, the fore-sail is elevated at a higher level, extending straight from tip to tip across the dihedral of the mainsail. The slot effect thus produced provides a beneficial air flow.

We look forward to hearing of further experiments in this direction.

GLIDER TIMER & AUTO-RUDDER RELEASE



Application of the clockwork dethermaliser timer to gliders has brought forth a variety of gimmicks to permit the modeller to retain his glider on the tow-line for an indefinite period. Sgt. Jackson of R.A.F. Yatesbury submits a sketch at left and an actual "mousetrap" pictured above. Two free pivoted arms are held down by an pin attached to the tow-line, one holding the auto rudder for towing setting, the other retaining the timer stop in the "off" position. When the pin is released as the line falls away, both auto rudder and timer are set for flight action. Fabricated from brass tube and tin plate, the mousetrap is a most worthwhile gadget.

more new books

CONTINUING OUR REVIEW of the extensive aeronautical collection released over the last few months, we open this second part with a very special recommendation to all who have an interest in the modern jet transport. F. G. Swanborough's **"Turbine-Engined Airliners of the World"**, published by Temple Press at 25s. is a 130 page summary of all those aircraft which could be embraced by such a title, extending to an extraordinary amount of detail. This includes not only the engineering facts and figures, performance and type history, but also a complete production record of all the aircraft produced in the western world. One has only to refer to the registration and the record provides the constructor's number, any changes of markings, sub-type detail and delivery date. Additionally, there are excellent 3-view tone drawings which, although not to any specific scale, give fine suggestions for airline livery. The selection of photographs has obviously been chosen by this painstaking author to depict the most interesting variety of markings. This extends to as many as 24 photographs of the Britannia, 26 of the Boeing 707. Altogether a fine compendium of information and one which does not skimp in any way, though we would have preferred letterpress reproduction of some of the photographs, which are not favoured by the offset processing.

Putnam books are now recognised as painstaking examples of specialisation. A. J. Jackson's **"De Havilland Aircraft Since 1915"**, which has been in circulation since July, has already achieved a tremendous international reputation for the wealth of information it imparts, in particular the many hitherto unknown asides, connected with some of the D.H. types. For example who knows today that a certain Laura Ingalls established a record of 344 continuous loops in a Gipsy Moth? . . . Or knows of the experimental Puss-Moth which could fly as slow as 35 m.p.h.? . . . Or heard of the Australian troop carrying glider utilising the D.H. Dragon nose section, subsequently flown with a suction wing, operated by a Ford V8 engine in the fuselage? 491 pages with precious little white space cover the vast range from D.H.1 to 129, plus the experimentals and others associated with De Havillands. For 63s. this book offers the aeromodeller a tremendous amount of information, many scale 3-view drawings and useful photographs. We especially like Mr. Jackson's choice of a frontispiece which illustrates the renowned Geoffrey Tyson at the moment executing his handkerchief pick-up with a Tiger Moth wing tip. This was a great feature of those fondly remembered Air Displays of the 1930's.

Another 602 page volume from Putnam is **"German Aircraft of the First World War"** by Peter Gray and Owen Thetford. For the first time, over 500 German aircraft of the 1914-18 period are detailed in one volume. Photographs and scale drawings provide an invaluable aid to the historian and the modeller and it is quite obvious that the authors have extended their searches to all corners of the globe in order to achieve their very high standard of authenticity. In the first section all of the most commonly used types are fully described and illustrated with scale drawings. The lesser known types, most of which did not proceed beyond prototype stage or small scale production batch stage, are covered by a well chosen selection of photographs and such information as is available. Such a catalogue of early German aircraft will be indispensable to the aero-enthusiast and we are sure that the book will become a standard reference work, often to be quoted in future.

Last month we mentioned that Volume VI of

MacDonalds **War Planes of the Second World War** series by William Green, was yet to come. This volume on *Floatplanes* follows hard on the heels of volume V on *Flying Boats* and now completes the range. For 10s. 6d. we are once again treated to a delightful summary of all those aircraft which could possibly be covered within the scope of the title, in this case including such attractive modelling subjects as the French Besson MB-411, Spitfire Mk IX on floats and the Japanese Aichi M6A1 Seiran (Mountain Haze). Among other types of interest are the venerable Douglas Dakota and the Grumman Wildcat, equipped for water-borne activity, and some shapes are seen for the first time in three-view arrangement among the drawings for the wide range of types. Now that the War Planes series is completed as far as the production types and most of the experiments are concerned, one wonders if this publishing house will now turn to aircraft of the First World War in similar manner.

Also from MacDonalds, comes the second of their monographs, dealing with the **Gloster Meteor** by Edward Shacklady. Once more this is a scintillating collection of information, much of it previously unpublished and all concentrated on the development of the one aircraft type. There are many unique revelations and six three-view tone drawings (alas not to particular modelling scale) to cover the principle variants. In addition, production details and service allocation covers the eventual application of the aircraft when newly delivered. Individual squadron notes give marking information and this is amply illustrated with a description of camouflage schemes. For the student of aircraft, which have established specially fine reputations, this book will have a particular appeal. A surprising omission is the complete lack of any information on the cockpit layout, which we are sure will be regretted by those who have had the fortunate experience of handling one of the Royal Air Force's favourite aircraft.

CLUB NEWS

LONDON AREA's Hayes & D.M.A.C. lost the final of the London District Inter-Club Challenge Cup for 1962 to St. Albans. This contest, for Team Rubber, Glider and Power was flown off under, miserable conditions of cold, strong easterly wind and low visibility at Chobham. Laurie Barr's *Tripstick* was the most consistent model, topping 4 mins. each flight, even though little more than half of each flight was visible to the time keepers. With their last flight in hand Hayes needed about 2½ minutes to win, which Jim Baguley covered with 2:50, unfortunately after a ½ second engine overrun. Frank Bradley took first place in Junior Rat Race at the Wanstead C/L Rally and Keith Fuller was 2nd in Class B Combat.

Chingford M.F.C. members were in luck at the U.S.A.F. Lakenheath Meeting, where Kit Sumner was 1st in the Junior Rat Race event using a *Fox* 35. Mick Atwell was 3rd flying a *Johnson* .35 power entry, while Bob Ives was close behind, flying his *Veco* 35 power Rat to 4th position. The rally was very much enjoyed, for its slick organisation and excellent evening meal. At the Crawley Rally Atwell reached the Combat semi-final, Sumner having fallen by the wayside in the quarter final, like Atwell, at the hand of a certain fellow named Tribe—heard that name before in Combat circles!

The commencement of **St. Albans M.A.C.'s** winter programme was marked by a Club Night engine starting competition, won by "Happy" Tipper who fired up a *Mills* .75 engine in just 4.4 secs. Carl Simeons and Ron Scales were both only 0.2 secs. slower, tying for second place, Carl with an *Oliver* and Ron using a *Taifun Hurricane*. They're all ready now for an Auction and some R.T.P. flying to follow up the recent film show of the World Control Line Championships. Another St. Albans Gala is now behind them. 1962 event was graced with quite reasonable weather they say and express their thanks to those who assisted in timekeeping for the 77 entries.

Results:—

Open Power
1. A. Wisher ... ... Croydon 5:31
Glider
1. B. Hughes ... ... Hornchurch 8:10
Open Rubber
1. N. Elliot ... ... Croydon 9:09
½*A.*
1. D. J. Cuthbert ... ... Surbiton 9:00
Chuck Glider
1. D. G. England ... Leicester 1:35

Plenty of news from the **SOUTH EASTERN AREA** this month. H. Stewart, A. Neville and R. Hibbin of **Gravesend M.A.C.** teamed up with a Rat Race entry at the Wanstead Rally, and although the wing of their *ETA* 29 racer was ripped off during practice, the aid of the **Sidcup A.S.** Combat boys and 12 ft. of bandage, put the model back into flyable condition for the heats.

Bognor Regis Technical Institute are currently running an aeromodelling study and instruction course in conjunction with **Chichester and D.M.A.C.** who organise the lessons on Friday evenings 7-9 p.m. A dozen members, mostly juniors, attend, lectured by club secretary M. Devenish. The course provides students with full use of all institute facilities, lathes, drilling machines, testing equipment etc.

There's a swing to F/F power in **Ashford M.A.C.** where a *Gipsy*, *Dixielander* and *Junior* 60 have been logging air time, and now their keenest F.A.I. T/R fan has built a *Veron Skyrod*.

Leatherhead & D.M.F.C.'s recent exhibition at the Gas Showrooms, North Street, Leatherhead, received wide press coverage, if the newspaper cuttings we saw are any judge. Stuart Tucker's Bleriot Monoplane & Fokker E.V. were much appreciated it seems. Their model aircraft carrier for control line deck landings is an interesting departure from normal club activities, and one we would like to see more of.

The third and final round of the *R.A.F.A. Shield* was flown off at Ashdown Forest on October 14th, a day of kind weather enjoyed by all competitors who nearly all clocked good flights. **Crawley** club took 1st place in Glider, 1st and 2nd in Power and 2nd in Rubber to score 255 points. **Tunbridge Wells** placed 2nd, scoring 145 and **East Grinstead** came 3rd, fresh out of luck with only 10 points. Aggregate winners were D. Plunkett (Crawley) 18:11, P. Cameron (Crawley) 15:35 and J. Whitaker (Tunbridge Wells) 13:23.

A new club has been formed in **EAST ANGLIA** at **Burnham-on-Crouch, Essex**, where 14 members, four of whom are adults, enjoy their flying. This is the first successful attempt out of several tries to form a club at Burnham and we wish them every success.

SOUTHERN AREA's Reigate & Salfords M.A.C. met with some success at the Ivinghoe Slope Soaring meeting last October 14th where N. Ward placed second in Single Channel, only three seconds in error of the five minutes nominated air-time. An R/C glider is planned as a club effort, to give their not-so-wealthy juniors a chance to fly.

Over in the **WESTERN AREA Glevum M.A.C.** made a great effort to win the interclub Bartlett Trophy contest held at Blakehill on 14th October. This is the first time Glevum has won the trophy, beating their friendly rivals Bristol Aces by a matter of seven minutes.

Glevum took 1, 2, 3 in the Glider section, Derek Harper's Lucifer leading the field. The Power section was topped by Brian Perry's hot *Cox Special* powered *Dixielander*, other members placing 3rd and 5th. In Rubber, Glevum's weakest section, Elton Drew reached the five man fly off to place 3rd, and was unlucky not to have taken 2nd (1 second difference at 4:41!) The Club Scramble for the Newman Cup was held at Brockworth on October 21st, and produced eight entries. Victory went to Junior Dick Smart, flying his *Garter Knight* Coupe d'Hiver model. It doesn't take long to wind up 10 gm. of rubber! Indoor meetings are scheduled to be held fortnightly at Longlevens village hall.

Now here's a rally date for your new diary. **Bristol & West M.A.C.** will hold a *Winter Rally* at Blakehill Farm Aerodrome (near Cricklade, Wilts) on February 3rd. Events to be Open Glider, Rubber and Power, ½A Power. Pre-entries, at 1s. 6d. per event should be sent to J. K. Cartwright, 10 Bush Avenue, Little Stoke, Bristol. Entry on the day will cost 2s. 6d. per event and re-entry will be permitted *provided previous entries are discounted.*

Weston Controliners (despite their name) show an active interest in R/C and F/F Slope Soaring and some lessons were learned at the **Luton D.M.A.C.** Rally at Ivinghoe Beacon on October 14th. Colin Hunt placed 2nd in F/F section with his *Ko II* glider. No doubt this upswing of interest is due to the excellent ridge locally, where the R/C boys have put in soaring flights of anything from five minutes up to one hour on several occasions.

New club in the **SOUTH MIDLAND AREA** is **Long Crendon & D.M.F.C.** who have twenty keen members, mostly interested in control line flying with stunt models and trainers. Radio Control is receiving keen interest too, all single channel at the moment, members possessing several brands of receivers, including two *Terrytones*, *Mini-Reptone*, an *Ivy-AM* and an *Aeromodeller Transistor Rx*. Possessing between them 60 assorted engines, they're not short of power plants to fly at their two large flying fields and the two airfields they hope to be able to use in the near future. Seems they are a lucky bunch of aeromodellers. Anyone in the neighbourhood who wishes to join up should contact the Secretary, Mr. B. Lack at Springfield Cottage, Burts Lane, Long Crendon, Bucks.

Hatfield M.A.C. scored their biggest success to date in the "B" Combat event at Wanstead on November 4th, when R. Hindness won both the Senior Trophy and the top junior prize. Three *Hovercraft* have appeared from the building boards, the smallest, a 12 in. diameter *Cox Pee Wee* powered version having its trials over the clubroom floor, thus rendering redundant one item of club equipment, their broom.

After a not-too-successful competition season **NORTHERN AREA's Sheffield S.A.** members suddenly put in a finishing sprint when at the Air League Rally three late-in-the-day rush flights placed him top in Glider, while John Shaw finished Junior Champion. At the Lincoln Rally, John won the Rubber fly-off, so as mainstay of the junior Knock-Out Team (2nd in Northern Area) he has had a very successful final year as a Junior and should, if his present performance is any judge, provide the seniors with plenty of competition.

Five Towns M.A.C. and **Clayton M.A.C.** are to compete regularly for their Bryan Trophy, won and retained in the first two competitions by Five Towns.

The **Northern Area Winter Rally**, scheduled for January 20th (*NOT* 26th as in November Contest Calendar), first detailed in November Club News, will now definitely be held at R.A.F. Elvington, near York. Pre-entries should be made to G. E. Stringwell, 11 Green Lane, Wickersley, Rotherham.

Yet another *Winter Rally* is the **NORTH WESTERN AREA's** at R.A.F. Tern Hill on January 6th. Events will be Open, Glider, Rubber, Power, Radio Control, Mono-Control to F.A.I. Rules and S.M.A.E. Combat. A "Y" Class Rat Race event will be for up to 0.2 cu. ins. powered models, flying on 50 ft. lines for 100 lap heats with one stop and 200 lap final with three stops. Rat Race Class "Z" will be for models with 0.201 cu. in. and over capacity power plants. 60 ft. lines will be used here with the same lap and pit stops details for heats and finals as for class "Y". Cash prizes for 1st, 2nd and 3rd places in each event will be £3, £2 and £1 respectively. Not pre-entry, on the field the entry fee per event will be 2s. 6d. for Seniors, but for Juniors only 1s. 6d.

Membership at **Cheadle M.A.S.** has dropped to below twenty since they lost their flying field back in 1960, resulting in a difficult period. But now thanks to a new flying field rented from the local council, enthusiasm is growing and membership increasing monthly. Control line holds most interest, but F/F Glider, Rubber and Power also have a following. Ideal Slope Soaring sites within 10 miles sustain an interest in this branch of the hobby here too (looks like Slope Soaring, particularly R/C, is on the up-and-up). Club meetings are held on the last Tuesday of each month at the Headquarters 284 Squadron A.T.C., Bank St., Cheadle and new members are welcome here and at the Saturday and Sunday flying sessions, Richardsons Farm, Cheadle, Hulme.

Up in **SCOTLAND**, only a very small party from **Glasgow Hornets M.A.C.** were able to attend the R.A.F. Leuchars C/L Contest on October 21st, but John Agnew placed 2nd in F.A.I. T/R, some 22 laps behind the winner after being hustled through two heats and the final within 45 minutes of arrival.

Modellers in the Pontllanfraith, Mon., area of **WALES** interested in clubroom competitions should welcome the Concours competition to be organised by **Blackwood & D.M.A.C.** at their Headquarters, British Legion Hall, Gellignaes Road, Pontllanfraith on Thursday, January 10th 7.30 p.m. The competition is open to all and the models displayed will be judged on appearance only. Entry forms may be obtained from Raley Morgan, Penmain Road, Portllanfraith, Mon.

Pen Pals

For B. H. Dawson, 102 Latham St., Marewa, Napier, New Zealand, a keen F/F Sport and Contest enthusiast, who would like to correspond with a similarly interested British modellers aged between 25 and 30.

Well that's it for another month chaps so here's wishing you a happy successful and very flyable new year.

Cheers!
THE CLUBMAN.

Above left: Paul Brennan, North Dublin A.C., winner ½A T/R at Leinster C/L Champs with his Oliver Tiger Cub powered racer. Right: Col. Petit, U.S.A.F. makes trophy presentations to Lakenheath meet winners, left to right Frank Warburton B. Bumstead, Kit Sumner and Chas. Taylor.

Rallies

HELD AT THE famous Santry Stadium on 30th September, the **1st Leinster C/L Championships** proved a considerable success despite the grass surface which hampered Team Racing and the inclement weather, which did not prevent the event from receiving entries from as far as Belfast and Cork. Though T/R flying lacked standard, the models were generally greatly improved and ½A Winners Brennan and Redmond led all the way with an Oliver Tiger Cub powered racer that handled better in the high wind than many a "B" machine. Junior Peter Bedell made second best heat time in ½A T/R, flying a modified *Super Fury* power racer, leading many of the "experts".

Wind blew hardest during the F.A.I. T/R Final which not one model managed to finish! Gerry Hand of Dun Laoghaire M.F.C. covered the greatest distance to win.

Combat flying has visibly improved with decisive results in each heat. Graham Dickson of Belfast M.F.C. was the victor, defeating Michael Feeney of Limerick M.F.C. with an Oliver Tiger powered model, the engine of which, he ran in during his competition flights.

Results

½A T/R	1st	P. Brennan	(North Dublin A.M.C.)
Combat	1st	G. Dickson	(Belfast M.F.C.)
F.A.I. T/R	1st	G. Hand	(Dun Laoghaire M.F.C.)
(B) T/R	1st	V. Corwell	(North Dublin A.M.C.)

F.A.S.T.E. Control Line Meeting at **R.A.F. Lakenheath** on October 13th was held to mark the inauguration of a model shop on the base. Four competition circles were separated from twelve practice circles, so there was plenty of opportunity for a pre-competition warm-up. Stunt was a 588 points victory from Frank Warburton flying his *Kawasaki Hien*, Dave Day placing 2nd with 516 points, while 3rd placer J. Perry scored 490 points.

The four Combat finalists, Bumstead, Caie, Lyn and Degg fought a hard battle to finish in that order. Trend in design seems to be towards the sidewinder mounted engine on a thick wing with well rounded leading edge, plus a stabilator mounted about three inches behind the wing trailing edge.

Junior Rat Race for competitors up to 18 years of age received a much larger entry than anticipated. Models, engines, pit work and speeds being much improved. Chingford M.A.C.'s King/Sumner team were first home in the final followed by the Hinton/Evans team from W.H.E.W. M.A.C. (*Wow*—what a name),

A real thriller was the Senior Rat Race for 19 years and older competitors, with no less than *six* finalists. Five of these finished the course although all agreed "*never again!*" The Oates/Taylor/Whitbread team from West Essex romped in 1st. Gold Cups on marble bases were presented as trophies down to third place in each event. These will be mailed to winners at a later date, meanwhile the address of Mr. Caie, 2nd in Combat would be appreciated.

Wanstead M.A.C.'s Rat Race and "35" Combat Rally at Wanstead Flats on November 4th was a successful affair, the Rat Race event attracting 27 entries, fastest of whom was K. Day of High Wycombe with a heat time of 3:59. The six man final was a spectacular affair with all six models in the air together for about 20 laps. Winner was B. Dodds of Sidcup.

Highlight of the "35" Combat event with a 30 man entry was a spectacular mid-air collision between Hatfield M.A.C.'s R. Meekins and K. Fuller of Hayes M.A.C. whose models where complete write-offs. Hatfield M.A.C. used mechanical starters to achieve very fast pit stops, to the benefit of R. Hindess, first in both Junior and Senior.

On the same day Wharfedale M.A.C. ran their **"Rufforth 1000" Team Race** event, entries and support for which were good. During the first 300 laps of the final it seemed that a fast time, somewhere in the region of 50 minutes, would be possible. But a crash put paid to this early promise and the final time by the winning team, Fitzgerald and Hollingworth of Halifax flying an ETA 29 powered Dalesman, was 75:01.

November 11th brought a stiffish wind and intermittent drizzle for **Croydon M.A.C.'s Gala** at Chobham. Don Butler was back in his 1950 form to win glider and ex-Croydon member Des Charge, now living in Gravesend, took a day off from power models to place 2nd in A/1 Glider. When Martin Dilly blew the head off a Cox Tee Dee 15, Dave Welch made a sporting gesture by loaning the unfortunate Martin a T.D. Special, which in two subsequent incidents was almost lost, before assisting Dilly to tie with John West in the fly-off.

Results

Rubber (15 entries)			
1. J. O'Donnell	*Whitefield*	... ...	6:00
Glider (15 entries)			
1. D. Butler	*Surbiton* ...	... ...	3:37
Power (13 entries)			
1. J. West	*Brighton* ...	}	6:00 + 2:34
M. Dilly	*Croydon*	}	
Coupe D'Hiver (3 entries)			
1. J. O'Donnell	*Whitefield*	... ...	2:32
½A Power (9 entries)			
1. Hipperson	*Croydon* ...	... ...	4:10
A/1 Glider (8 entries)			
1. Wells	*Hornchurch*	... ...	2:50

Contest Calendar

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

1963

January 6th — *North Western Area Winter Rally*. Open Glider/Rubber/Power, R/C Mono-Control (F.A.I. Rules), S.M.A.E. Combat. Rat Race Classes "Y" & "Z" (see January Club News Columns). No pre-entry. Seniors 2s. 6d., Juniors 1s. 6d. per event. R.A.F. Tern Hill (A.41 between Newport and Whitchurch).

January 10th (*Thursday*) — *Blackwood & D.M.A.C.* Concours Competition, British Legion Hdqtrs., Galligraes Road, Pontllanfraith, Mon. Entry forms from R. Morgan, Penmain Rd., Pontllanfraith. Commences 7.30 p.m.

January 20th — *Northern Area Winter Rally*. Open Glider, Rubber, Power, ½A Power, F.A.I. T/R, Combat, Scramble Chuck Glider. Pre-entry 1s. 6d., late entry 3s., Chuck Glider 1s. to G. E. Stringwell, 11 Green Lane, Wickersley, Rotherham. R.A.F. Elvington, Nr. York.

February 3rd — *Bristol & West M.A.C.* Winter Rally. Open Glider/Rubber/Power, ½A Power. Blakehill Aerodrome (Nr. Cricklade, Wilts). Pre-entry 1s. 6d. (2s. 6d. on day) to J. K. Cartwright, 10 Bush Avenue, Little Stoke, Bristol. Starts 10 a.m.

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"Tauri" Multi Trainer ...	185/–
"White Cloud" 57 in. S. or M.	120/–
"Weihe" 72 in. R/C Glider ...	68/–
Veron "Robot" 45 in. Trainer	79/6
"Cessna Skylane" 54 in. Scale	99/6
Veron "Viscount" 54 in. S. or M.	115/–
Goldberg "Falcon" 54 in. Trnr.	95/–
"Super 60" 60 in. Trainer ...	107/–
"Charger" 48 in. Contest ...	158/–
"Jackdaw" 60 in. S. or M. ...	117/6
"Freedom 7" 40 in. Single ...	75/–
"Viscount" 60 in. Multi ...	225/–

★ SELECTED C/L KITS ★

Ambroid "Ares" Stunt	89/–
Topflite "Nobler" Stunt ...	89/–
Topflite "Junior Nobler" ...	59/–
Veco "Thunderbird" Stunt ...	89/–
Veco "Mustang" Scale ...	89/–
KK "Spectre" 2.5-3.5 c.c. ...	39/9
KK "Talon" Combat ...	27/–
KK "Marquis" 1-1.5 c.c. ...	35/–
KK "Gazelle" Trainer 1.5 c.c.	21/6
Mercury "Crusader" Stunt ...	69/8
Mercury "Marvin" 1.5 c.c. ...	19/3
Mercury "Spitfire' Scale ...	36/7
Graupner ME109 Scale ...	52/6
Graupner DO27 Scale ...	62/6
Veron "Colt" Trainer ...	28/9

★ SELECTED F/F KITS ★

Veron Cessna Skylane ...	99/6
KK "Ladybird" Semi Scale ...	25/10
KK "Snipe" 40 in. Sport ...	21/6
Veco "Navajo" Contest 049 ...	27/11
Veco "Comanche" Sport 049	35/–
Yeoman "Dixielander" 50 in.	27/6
Veron "Cardinal" Sport ...	19/8
Veron "Velox" Pusher ...	41/9
Graupner Kadett 46 in. ...	47/6

★ SELECTED GLIDERS ★

Graupner "Weihe" 72 in. ...	72/–
Graupner "Passat" 74 in. ...	46/–
Graupner "Amigo" 70 in. ...	48/–
Contest "Inchworm" 66 in. ...	23/3
Contest "Empress" 79 in. ...	31/4
KK "Caprice" 51 in.	17/5
Veron "Phoenix" Kwik Fix ...	36/3

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Fox 35X 6 c.c. Glow	99/6
Cox Tee Dee 010 Glow ...	65/–
Cox Tee Dee 049 Glow ...	77/6
Cox Pee Wee 020 Glow ...	38/6
Cox Babe Bee 049 Glow ...	38/6
Cox Special 15 Glow ...	146/–
P.A.W. 149 c.c. Diesel ...	86/–
P.A.W. 19 3.2 c.c. Diesel ...	104/6
M.E. Heron 1 c.c. Diesel ...	53/6
M.E. Snipe 1.5 c.c. Diesel ...	61/–
E.D. 2.46 c.c. Racer	82/7
A.M. 15 1.5 c.c. Diesel ...	63/–
A.M. 35 3.5 c.c. Diesel ...	72/10
Merco 35 6 c.c. Glow ...	119/6
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K & B Torp 35R Glow ...	157/6
Veco 35 Stunt Glow	155/–
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Relay Rx	19 15 0	3 12 0	23 7 0
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Sleek cabin model. Construction is very simple, and the number of cut out sheet parts have been kept to a minimum. Wingspan 30 in. **7/4**

PIXIE

An attractive semi-scale design with realistic cabin, knock-off wings, and plastic propeller. Very interesting model to build. Wingspan 23 in. **6/5**

For the finest rubber powered models — choose KEILKRAFT

They fly better!

GEMINI

A beginners duration model with fuselage parts, tailplane, and fins in pre-cut, pre-decorated sheet balsa. Wingspan 22 in. **8/11**

OVER 100 MODELS IN THE KEILKRAFT RANGE

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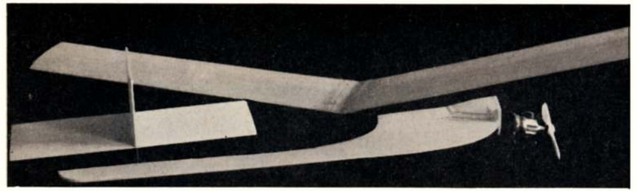
simpleton

full size plan



Assembled components above; parts ready to shape, below left on page 26

Stouffer Jr., heaves ho and off climbs the sheet simpleton. It's surprising what the modern small engine makes possible.

The success of this model is dependent upon the relative positions of the flying surfaces, the curves are reasonably unimportant.

Fire wall. Plywood $1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{8}$ thick.

Wing section

Reinforcing member both sides. $\frac{1}{4}$ thick.

$\frac{3}{16}$

3

$\frac{5}{16}$

Skid made from 16 s.w.g. wire

Wing. Medium Balsa $3 \times 13 \times \frac{1}{4}$ thick.

Rudder section

Tailplane section

a

Join with a–a on separate drawing.

a

$1\frac{1}{4}$

Filler from scrap. $\frac{1}{4}$ thick.

plan view of nose

Mount an .020 "Peewee" or similar engine, with the thrust line as high as possible.

The model should balance and glide as a hand launched glider. The final test glides should be made by hooking a finger over one wing.

Flying surfaces are cemented to the fuselage, the wing joint being reinforced with a strip of "Nylon".

3

3

30

10

2

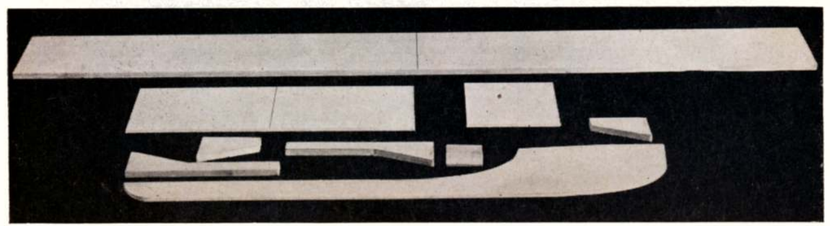
Tailplane. Soft Balsa $3 \times 10 \times \frac{1}{8}$ thick

Rudder. Soft Balsa $3 \times 3\frac{1}{4} \times \frac{1}{8}$ thick

3

Fuselage. Hard Balsa $3 \times 18 \times \frac{1}{8}$ thick.

18



general arrangement

All dimensions are in inches

simpleton continued

Before flying, check that the model balances at a point between 1/3 and $\frac{1}{2}$ the distance back from the leading edge. Try a test glide over tall grass. The model should glide straight ahead—fast and flat. Do not adjust the model by warping surfaces at this time. All surfaces should be in neutral positions. Adjust the glide by adding small weights to the tail to correct a steep glide, or weight the nose for slight stalling or ballooning. When the model is gliding straight ahead as though it were sliding down a slanted board, you're all set to try to get a curve in the glide. Twist the upper rear corner of the rudder to the right. Test glide for a 60 or 80 foot diameter circle. Should the model seem to glide steeper as a result of the turn, adjust the weight to bring the rate of descent back to what it was in the straight ahead glide. Hook an index finger over the trailing edge and give the model a good heave-ho. She'll take off like a regular hand launched glider.

Engine timing system

Since there is no fuel shut off timer on this model, the length of the power flight must be regulated by the amount of fuel in the tank. This is done in three ways with a Pee Wee. The least amount of fuel is put in the tank by pointing the engine straight up so that the filler tubes are both horizontal. In other words the back plate of the tank is in a horizontal position. Fuel is added to the tank until fuel runs out the other filler tube. Set the engine upright and cease fuelling at the same time. With prime in the engine for a quick start, this will give you about 15 seconds engine run. Time this yourself to see how much you can get. For a 30 second run, lay the engine on its side and fill the tank from the upper vent tube until fuel runs out of the lower vent tube. For longer flights, again turn the engine on its side and fuel from the lower vent until fuel runs out of the upper vent. This will give you about 40 to 50 seconds engine run. A little practice in starting and adjusting will soon tell you which of these three methods of fuel regulation is for you. Now start up the engine and let the model go. She'll climb smoothly and glide flat. On calm evenings you should expect to get about $1\frac{1}{2}$ minutes on about a 20 second motor run.

Have fun—I'm heading for the pasture!