

SEPTEMBER 1959

# AERO MODELLER



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Saunders Roe 177  
FULL WAKEFIELD  
CONTEST REPORT**

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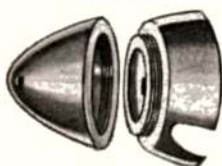
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9" "	... 2/7½
10" "	... 2/11
11" "	... 3/2½
12" "	... 3/8
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**K K FUEL CUT-OUT**  
4/10

Positive action

**K K FUEL FILTER** ... 2/6

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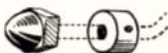
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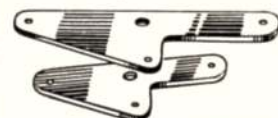
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30 c.c. "	... 3/6
15 c.c. pressurised	... 3/6
30 c.c. "	... 3/6



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# TAPLIN TWIN

BRITISH PATENT  
No. 747742

Here are some of the  
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- ✚ EASE OF STARTING: A flick and it fires—every time!
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- ✚ BARREL TYPE CARBURETTOR: Infinite adjustment just like a "fullsize" job.
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Please send me a TAPLIN TWIN (Aero : Watercooled). (Delete type NOT required.)  
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THE TAPLIN 7 c.c. TWIN is not "just another engine", it is the culmination of a lifetime's experience and over four years' specific research into multi-cylinder diesels which have produced a newcomer which is so far in advance of any other as to bear little comparison. It enjoys all the flexibility of a good petrol engine without the disadvantages of electrics, the high power output and easy starting of a glow motor without the snags of "hot" fuels and cumbersome starter batteries. It is the ideal power unit for radio control aircraft and a boat version (shown below) is also available. Every feature has been considered by a PRACTICAL user of models for which it is intended and will do its designed work without fail.

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## VITAL STATISTICS

Capacity: 7 c.c. (6.92 c.c. actual). Weight: 15oz. Engine bearers: Fixing holes 1½ in. centres laterally and longitudinally. Max. height 3½ in., max. width (excluding throttle toggle arm) 2½ in. Recommended prop. 1½ x 8 Recommended waterscrew: 2½ x 2½ (2 blader).

# £8.12

Inc. P.T., POST & PKG.



This is the watercooled TAPLIN TWIN supplied complete as illustrated.





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WEIGHT STUNTER**  
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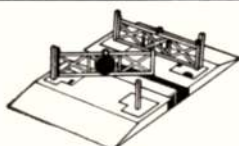
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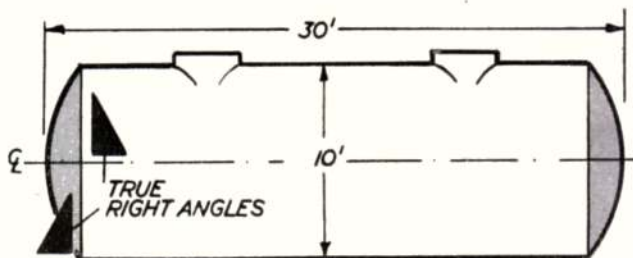
A perfect 1/72 scale model, true in every detail  
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surface parts. Travellers included. Wing span  
12". 4/6d.





# BALSA STORY

This is one of a series of articles written by John Paterson, Managing Director of Solarbo Ltd., all about Balsa Wood and its many applications in aeromodelling and other industries. This story continues describing construction of the largest item ever fabricated in balsa in this country.



THE DRAWING above shows the dimensions and general outline of the actual tank that we had to line with Balsa. Our only access was through the manholes in the top which were themselves very small, and so our apparatus had to be broken down into small pieces for working inside. Luckily we were able to clear the end of our loading bay and haul the tank inside, because this work was done in the late summer and autumn, the weather was getting cold and resin glues do not set properly unless the air is reasonably warm.

You will notice that the tank had domed ends and the first thing we had to do was to fill in these domed ends to get a flat surface from which to start building our circumferential rings. If you look at the diagram, you will see that these ends had to be truly vertical and absolutely square to the axis of the tank. This was probably the most difficult part of the whole work.

As the series of photographs show, we made a "cake" of six-inch layers of balsa wood, temporarily held together, and then shaped it by means of a jig to the true radius of the dome. The "cake" was then broken down into its original segments and finally built in layers inside the tank. Again the joints in each layer were staggered with the joints in the next layer so that there were no through joints. Having now arrived at a face to work from, we commenced building in our circumferential rings.

**Photo 1** shows the domed end blocks being shaped by a cutter moving along a steel profile which could revolve about a centre pivot.

**Photo 2** shows a finished shaped domed end. If you look, you can see the joints between the 6-inch layers.

**Photo 3** shows a domed end being erected inside the tank. The joints are being sanded ready for the next layer.

**Photo 4** is a general view of another shaping operation on part of the second domed end. Note the temporary dogs holding the sections together.

**Photo 5** a more detailed view of the equipment. The square section is part of the assembly. Here we were putting a tapered edge on a true circle to give us our final closing pieces (details in a later article).



**SPECIALISTS  
IN BALSA**

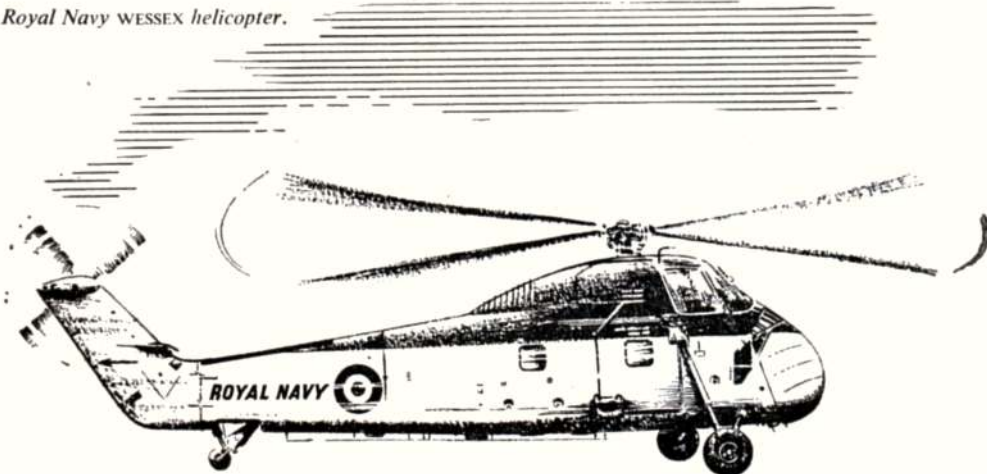
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Plans are fully illustrated with photo pictures of actual models, each one is dimensioned and priced, and suitable engines, where applicable, indicated. Group headings include the following main divisions: **FLYING SCALE AIRCRAFT** in every category : **FREE FLIGHT POWER : CONTEST POWER : A2 & OPEN CLASS GLIDERS : RUBBER MODELS : WATERPLANES : INDOOR MODELS : JETEX DESIGNS : RADIO CONTROL : DESIGNS AND EQUIPMENT : CONTROL LINE SPORT, SPEED, STUNT, TEAM RACING, COMBAT : SOLID SCALE PLANS : RACING YACHTS : SAILING CRAFT : POWER BOATS : AIRSCREW DRIVEN HYDROPLANES : STEAM ENGINES : CARS including PROTOTYPE PLANS : RAILWAYS : WORKSHOP ACCESSORIES.**

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For light and medium cutting of all kinds, including the most intricate work. The two detachable blades are of finely tempered sharpness. A flat handle gives correct upright grip and ensures that the tool won't roll away when laid down.



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There are INDIVIDUAL BIOGRAPHIES of 135 of the leading Aces of Great Britain, France, United States of America, Italy, Belgium, Russia, Germany, and Austro-Hungary; also Sections on the military backgrounds of each of these countries. The Index lists the names (with rank) of over 1,525 airmen.

There are lists, with individual scores, of: 535 British Aces and 25 airmen awarded the Victoria Cross. 158 French Aces. 88 American Aces and 4 airmen awarded the Congressional Medal of Honour. 42 Italian Aces. 17 Belgian Aces. 18 Russian Aces. 365 German Aces and 100 airmen awarded the *Pour le Merite*.

The book contains 212 large pages  $8\frac{1}{2} \times 11\frac{1}{4}$ " containing over 100,000 words and 336 photographs many of which have never before been published. In these 336 photographs may be identified over 600 airmen; also 200 aircraft (or parts thereof) many of which have been chosen on account of showing insignia and serial markings.

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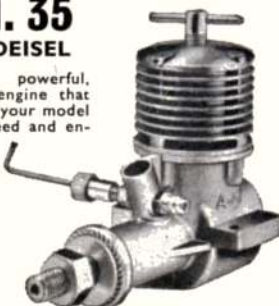
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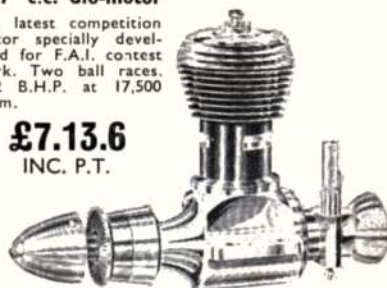
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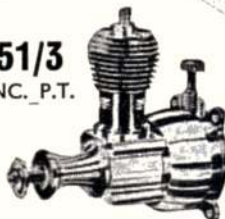
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## Value for money

This, the first edition of AEROMODELLER at the new cover price of 2s., is typical of the fare we shall be providing in the months to come, and a glance at the contents list shows the increase in the number of features (remember that we also have a full report on the World Championships for models to the Wakefield Cup formula), and we have every intention of continuing with such variety in the magazine that "covers the world of aeromodelling". Scale modellers will delight in our contrasting pair of drawings for the Saunders Roe SR 177 and Roland D. VIb, the former appearing for the very first time in print, and for those who like full-size drawings to build a model right out of the magazine pages, *Ferdinand* fills the bill exactly with ideal performance to suit the point-eight engines.

These two types of feature came high in the popularity poll we conducted last year, and which we shall use to guide the selection of content for future editions. One thing is certain—we shall not be including any more of your dislikes; a couple of regular features we used to print seem to have met with universal disapproval!

## Team effort

The British team for the Criterium d'Europe for control-line models to be held in Brussels, Belgium, September 26/27th, will be representative of considerable teamwork in the London and Wharfedale areas. F. Baxter's *Tigress* from the latter group has been well and truly developed through club teamwork, with main concentration on getting long range commensurate with high airspeed. As can be seen on the following pages, the Wharfedale lads have taken the subject of team racing most seriously, but what is less obvious is the fact that their models are very much combined efforts from a tightly knit club where knowledge, and the latest in engines and airframes, are pooled.

In the south, Speed is the subject for special effort. As ever, the expert services of Fred Carter have been indispensable in the preparation of an entirely new 2.5 c.c. engine, and with Pete Wright producing beautifully formed all metal, ribless delta airframes, and Belfair's Gordon Yeldham and John Hall working on similar lines, we shall be fielding a strong force in the International.

Whilst we would not condone violation of the "builder of the model" rule, we commend the combined efforts where a team entry is permitted, and wish our representatives in Belgium every success in bringing *Grande Bretagne* back on the Criterium leader board, and also retaining our supremacy in F.A.I. Team Racing.

Above:

Advance the Gladiators !! Scene at Brienne as the French M/Cycle squad moves up to the take-off area in line astern. Few models were lost in the relatively calm conditions, though a few went O.O.S. upwards!



## Judges Wanted

With a resurgence in interest in control-line aerobatics, thanks to the influx of larger kits and engines on the American pattern, there is also an increase in requests for more stunt contests. So far this year there have been but three such events at meetings of major consequence, but this is obviously not enough to satisfy demand. Modellers ring us to ask why rally organisers do not try to include stunt in their programmes. The answer is the simple and age-old one of organisation.

Stunt events need competent judges, and an assistant recorder/chaser. The judge has to be an experienced modeller with respected opinions. He has to be unbiased, and preferably not connected with competing individuals or to have commercial interests in the models being flown. Where are these unique people? If any nominations are forthcoming, we shall be pleased to pass on a few names to the appropriate departments.

## Electric Power for the future?

Over the past year or so, we have kept a watchful eye on progress in Germany and Japan in small, electrically powered free-flight models. Several kits are available in the Far East for models of about 30 in. span, capable of flying on pencil power with geared miniature electric motors.

Research on the same lines by a leading German designer is likely to result in a completely new approach to the ready-made flying model market. Flights of up to five minutes are commonplace, limited only by time fused switch gear in the electrical circuit. We shall be publishing more details of this fascinating new branch of the hobby just as soon as it becomes a feasible proposition with materials on the British market.

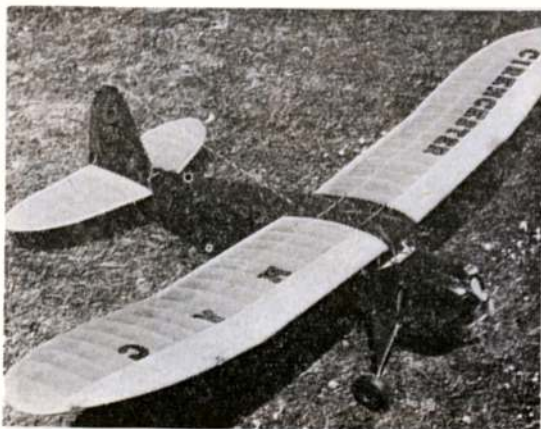
Heart of the German models is the amazing internally geared (15:1) *Gnom T 03* motor of a new construction. It has a free running speed up to 21,000 r.p.m. on 3 volts, drives a 14 in. prop. at 700 r.p.m. on 4 volts (two miniature accumulators), and will actually start on .05 v. All-up model weight is 4½ ounces.

## Early Risers?

A proposition likely to reach the C.I.A.M. committee of the F.A.I. for its 1959 winter meeting agenda is that "The first round of International contests shall commence within one hour of sunrise". Now this will apply to free-flight World Championships, and obviously owes its derivation to the type of situation as was seen at Brienne for the Wakefield finals this year. Coming as it does from Canada, who had a very strong position in that contest with two men in the fly-off, it deserves serious consideration and is likely to receive support, as it deserves. But will the proposition be popular with administrators? We doubt it, although those with young families and/or the keenness to enjoy early morning still air flying will realise the advantage of 5 a.m. first rounds, it will take a lot of persuasion to shake some of the organising bodies known to us, out of their beds at such an early hour. We hope the proposal is accepted.

## Happy Sequel

In our July issue we recounted the unfortunate story of a wayward H.V.450 which disappeared from its flyaway landing spot and was subsequently



traced to the R.A.F. who had recovered it by Helicopter. Immediately after publication of that edition we were very pleased to receive a telephone call from R.A.F. Benson where Squadron Leader Southwell said he had the model safe and sound and being looked after by R.A.F.M.A.A. flier Corporal Dickerson. We were able to pass on the good news to Mr. Roberts, the owner, who has now had the H.V.450 (above) safely delivered by the trusty Anson.

Mr. Roberts tells us that the Hill Receiver still works well but he has had to replace the engine and has given the model a couple of coats of red, **plastic emulsion paint!** This finish appears to be fuel-proof although matt, and, we might suggest, a trifle heavy.

## Modelling Stamps

Naftali Kadman from Jerusalem sends us three aero-modelling stamps which will be of interest to Aero-philatelists. First is a Russian 60 kopek showing a rubber model about to be launched; centre an earlier Hungarian issue of 1951 with similar theme; and at right a 1958 Russian 25 kopek with the young modeller holding a vintage petrol-ignition model. Another interesting stamp comes from Canada, to celebrate the 50th Anniversary of powered flight in that country. The Silver Dart is superimposed over three Avro Arrows on a blue ground to produce a most attractive effect.







### Experts Forum 8

## Ken Long of TEA

*Tigress teamsters in the hands of Wharfedale clubmen Baxter and Long. Note the smart standard colour scheme for this attractive elliptical F.A.I. Racer*

AS SOON AS the 1958 change in the international team race model specifications were announced it was decided to complete a model on these lines and "Tigress" is the subsequent development. Four prototypes were built for the 1958 qualifying trials held at Cranfield, airspeed of the two best models being between 84-87 m.p.h., but lappage was low at 23-25, not anywhere near efficient enough for international standard. Average time was around 6 min. 7 sec. for the 10 kilometre race.

Serious tank experiments were undertaken and lappage improved up to 28, and further development on the engine has now pushed both speed and lappage to 35/38 laps at reduced speed. The best time in competition for "Tigress" was 5:34 at the Nationals, this could now be bettered to even 4:57 under ideal conditions.

Some idea of the way in which Wharfedale and District Modellers approach the subject of team race flying seriously (and successfully) can be gained by their two guidance tables reproduced with this article. Calculations leading up to these tables are based on a most acceptable assumption of time allowance for pit stops and figures are reached as follows:—

**CLASS "A" (F.A.I.).** Times to complete 10 kilometres  
(100 laps, 52 ft. 3 in. r.)  
**Critical LAP stages**

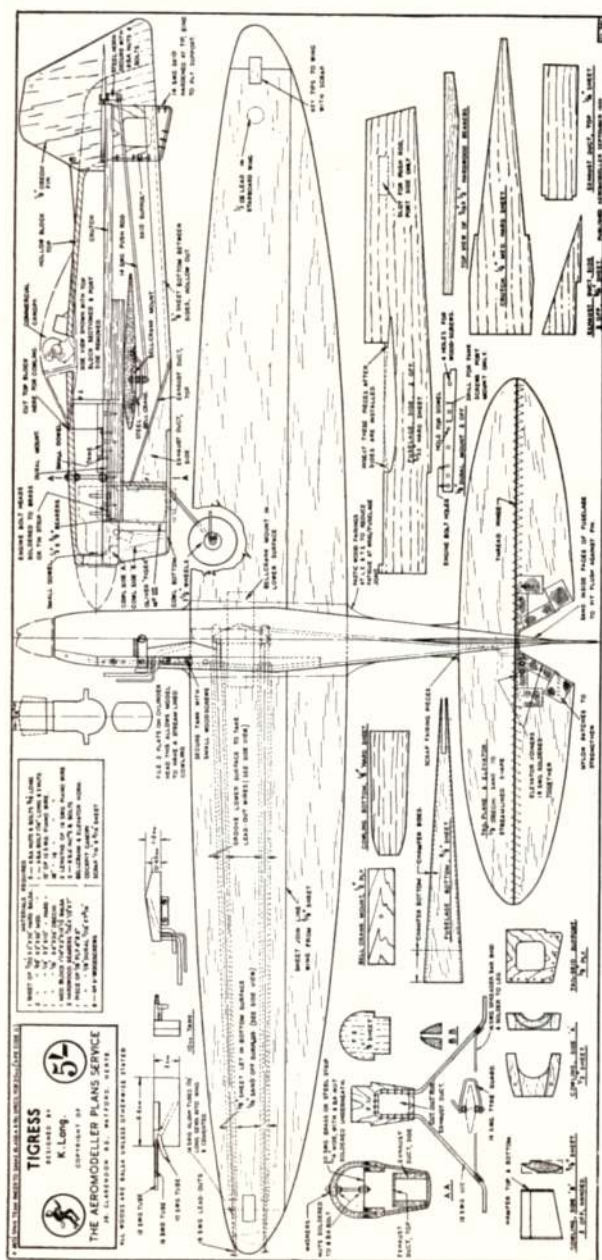
SPEED (m.p.h.)	20	25	33½	50
60	7:53	7:33	7:13	6:53
2	7:41	7:21	7:01	6:41
4	7:30	7:10	6:50	6:30
6	7:19	6:59	6:39	6:19
8	7:09	6:49	6:29	6:09
10	6:59	6:39	6:19	5:52
20	6:51	6:31	6:11	5:51
4	6:42	6:22	6:02	5:42
6	6:34	6:14	5:54	5:34
8	6:26	6:06	5:46	5:26
10	6:19	5:59	5:39	5:19
2	6:13	5:53	5:33	5:13
4	6:06	5:46	5:26	5:06
6	6:00	5:40	5:20	5:00
8	5:53	5:33	5:13	4:53
10	5:48	5:28	5:08	4:48
20	5:43	5:23	5:03	4:43
4	5:38	5:18	4:58	4:38
6	5:32	5:12	4:52	4:32
8	5:28	5:08	4:48	4:28
100	5:24	5:04	4:44	4:24
2	5:19	4:59	4:39	4:19
4	5:15	4:55	4:35	4:15
6	5:11	4:51	4:31	4:11
8	5:07	4:47	4:27	4:07
110	5:03	4:43	4:23	4:03

### Assumptions

- That the aircraft moves with uniform velocity throughout the tank run.
- That a pit stop shall include the time taken for the aircraft to accelerate to maximum velocity plus the time taken to come to rest after the engine has cut (in the air) plus the time taken by the pit crew to re-fuel and re-start the engine.

Notes on building "Tigress", plan of which is on left, will be found on page 435

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# Wharfedale on MRACING & TIGRESS

(c) That the start is counted as a pit stop and is given equal time. Allowing for errors, and in order to produce a reliable race time, the pit stop is allowed a total time of 20-sec. This is borne out by calculating back from previous timed races and checking the answers in m.p.h. with the actual speeds timed during the flight. It was found that for  $\frac{1}{2}$ A and F.A.I. pit stop times or total ground time (T.G.T.) was between 18 to 21 sec., according to the conditions under which the stop was carried out.

(c) For class "B" T.G.T. is between 20 and 28 sec., but more results at the faster times have been noticed and therefore as class "B" improves it seems logical to accept 20 sec. as being reasonable. This means that all calculations will assume 20 sec. per pit stop and this in turn will make calculation simpler and yet produce reliable results.

## Examples

**F.A.I. General Formula** —  $t = s/v + (T.G.T.)$

where  $t$  = total time to complete the race  
(minutes, seconds).

$s$  = distance to be flown (miles).

$v$  = uniform velocity of the model (m.p.h.).

**Note.** Uniform velocity may be replaced by average velocity if speed is not constant.

Use formula as:—

$t = T + T.G.T.$  where  $T = s/v$  times

60 =  $T$  min. and T.G.T. = 20 times number of pit stops.

Hence in F.A.I. if a model attains a flying speed of 90 m.p.h. and the lappage is 30 per tank, then the max. performance of the model will be:—

$$T = \frac{6.21 \text{ (miles)} \times 60}{90} = \frac{372.6}{90} = 4.14 \text{ min.}$$

$$= 4 \text{ min. } 8.4 \text{ sec.}$$

**Note.** 372.6 is constant for F.A.I. distance and radius. T.G.T. = 20 times number of pit stops.

Number of pit stops =  $\frac{100 \text{ (race distance in laps)}}{30}$

$$= 3.33$$

Obviously you cannot do .33 of a pit stop, so the result must be taken as 4, including the start. This means that because  $\frac{100}{4} = 25$ , a model doing 30 laps is no better than one doing 25 laps at the same speed. T.G.T. therefore = 20 times 4 = 1 min. 20 sec.

$$t = T + T.G.T.$$

$$t = 4 \text{ min. } 8.4 \text{ sec.} + 1 \text{ min. } 20 \text{ sec.}$$

$$= 5 \text{ min. } 28.4 \text{ sec.}$$

This is a useful result and one which is borne out by actual facts from the Nationals this year. Ken Long's model was approaching this speed and had 25 to 28 laps/tank to its credit, this fact plus a rather slow pit stop gave a time of five min. 36 sec., which compares reasonably with the calculated total, taking into account the errors made in the race itself.

Class "B" figures are similar. The constant of time times distance is equal to 10 miles times 60 = 600.

Hence  $t = 600/v + T.G.T.$

**Example.** A model with a lappage of 35 to 38 laps and an average speed throughout the tank run of 105 m.p.h. The best possible time which this performance will give is:—

$$T = \frac{600}{105} = 5.714 \text{ min.} = 5 \text{ min. } 42.84 \text{ sec.}$$

$$T.G.T. = 20 \text{ times } \frac{140 \text{ race distance}}{35 \text{ lappage}} = 20 \text{ times } 4$$

$$= 1 \text{ min. } 20 \text{ sec.}$$

$$\text{Therefore } t = 5 \text{ min. } 42.84 \text{ sec.} + 1 \text{ min. } 20 \text{ sec.} = 7 \text{ min. } 2.48 \text{ sec.}$$

This is an optimistic result but nevertheless it makes good comparison and is still a possible time. Ray Edwards has confirmed these results with a performance of 38 laps at 104 to 105.5 m.p.h. achieved a time of 7 min. 6 sec. on test this year at R.N.A.S. Stretton.

$\frac{1}{2}$ A class race times can also be calculated. Unfortunately no reliable practice times are available at present. The class "B" table includes heat times as well as final times and in all cases the critical lappages are stated.

## Class "B" Critical Lappages

Class "B" Final:

28 (5 pit stops); 35 (4 pit stops); 47 (3 pit stops).

Class "B" Heats:

25 (3 pit stops); 35 (2 pit stops); 70 (start only).

F.A.I. and  $\frac{1}{2}$ A:

25 (4 pit stops); 33.3 (3 pit stops); 50 (2 pit stops).

## CLASS "B"

Airspeed and times to complete distance at critical lap stages per tank

Speed (m.p.h.)	FINAL (10 miles) 140 laps, 60 ft. r.			HEAT (5 miles) 70 laps, 60 ft. r.		
	28	35	47	28	35	47
80	9:10	8:50	8:30	4:45	4:25	
82	8:59	8:39	8:19	4:40	4:20	
84	8:49	8:29	8:09	4:35	4:15	
86	8:39	8:19	7:59	4:30	4:10	
88	8:30	8:10	7:50	4:25	4:05	
90	8:20	8:00	7:40	4:20	4:00	
92	8:12	7:52	7:32	4:16	3:56	
94	8:03	7:43	7:23	4:12	3:52	
96	7:55	7:35	7:15	4:08	3:48	
98	7:47	7:27	7:07	4:04	3:44	
100	7:40	7:20	7:00	4:00	3:40	
102	7:33	8:13	6:53	3:57	3:37	
104	7:27	7:07	6:47	3:54	3:34	
106	7:20	7:00	6:40	3:50	3:30	
108	7:14	6:54	6:34	3:47	3:27	
110	7:08	6:48	6:28	3:44	3:24	
112	7:03	6:43	6:23	3:41	3:21	
114	6:56	6:36	6:16	3:38	3:18	
116	6:51	6:31	6:11	3:36	3:16	
118	6:46	6:26	6:06	3:34	3:14	
120	6:40	6:20	6:00	3:30	3:10	
122	6:35	6:15	5:55	3:28	3:08	
124	6:31	6:11	5:51	3:26	3:06	
126	6:26	6:06	5:46	3:23	3:03	
128	6:22	6:02	5:42	3:21	3:01	
130	5:57	5:57	5:37	3:19	2:59	

Performance no better than that of a model attaining 35 laps in the heat.

Continued on page 435





# 1959 'WAKEFIELD'

## FRANCE STAGES A MEMORABLE CHAMPIONSHIP AT CHATEAU LE BRIENNE

Frantisek Dvorak holds the coveted Wakefield Trophy, whilst being congratulated by Bob Hatschek of the victorious American team. Hair-do in the foreground belongs to Mrs. Alan King!

REPORT AND PICTURES BY RUSHY

Processing was carried out in a large hangar, rooms down each side being allocated to teams for storage and repair purposes. Most popular was the corner room where supplies of much-needed liquid refreshment were dispersed.

M. Terre, Mayor of Troyes, welcomes the British team outside the Hotel de Ville. Left to right: M. J. Desnoes, President of the Models Commission Aero Club de France, M. Terre, team manager Bop Copland, Jack North, Ray Monks and Louis Roberts. The halo effect is purely coincidental!

Below: When are we going to start? Main Control was the scene of many exciting moments... and a few frayed tempers. S.M.A.E. Chairman Alex Houlberg is seen on the left, back to camera, and with Arnold Degen (Switzerland) and G. Barthel (Italy) formed the three-man jury.

1959 CAN BE regarded as an unfortunate year when considering the subject of World Model Aircraft Championships, for the bottom seemed to have dropped out of the series when anticipated Russian sponsorship failed to materialise when the F.A.I. Commission met in late 1959.

At a later meeting, however, an offer to organise the Rubber Championships (more popularly known as the Wakefield) was received from the Aero Club de France. Thus, the twenty-third contest for the famed Trophy, donated by Sir Charles Wakefield in 1927, took place at the USAF Air Base at Brienne le Chateau (situated some 100 miles south-east of Paris) on July 19th, 1959.

On arrival at the Aero Club in Paris, acquaintance was quickly renewed with many old Wakefield friends, and it was obvious that the calibre of known competitors would make the 1959 event a hard-fought affair. M. Desnoes, President of the *Modeles Commission* (an old-timer from pre-war contests at Faireys and other venues), was struggling to cope with various last minute details, and we finally departed by coach... for Le Bourget! The mystery was soon solved, for we had to collect John Sheppard of New Zealand (who had landed at Southampton only four hours before), and the Russian team. Despite delays we finally arrived at the airfield, where the fellows were soon housed in well-equipped barrack rooms, and eating and a study of the extensive programme ensued.

The day before the contest was devoted to processing, competently carried out by a team situated within a large hangar set aside for the event, and test flying. Here the modellers came up against their first snag, for activities were confined by order to a small part of the aerodrome, and on the down-wind end at that. Fortunately there was not much drift; nevertheless, more than one competitor had his heart in his mouth when his model headed for the outskirts and the high, barbed wire fence that barred his retrieving path.

That evening saw a formal reception at the Hotel de Ville, where speeches were heard from local dignitaries and champagne

(1) Vladimar Zapachny was one of the seven to need a sixth flight, and used the unusual outrigger prop favoured by his Russian team-mates. (2) Zurad of Poland also figured in the fly-off, here assisted by Kossowski (24th), securing fourth position. (3) The ever-popular Guislo Fea (Italy) dropped 57 seconds on his third flight, thus missing the fly-off. (4) Some of the best constructed models on the field were produced by past-winners Alan King and Bond Baker, both from Doven Under. (5) Youngest competitor was 16-year-old Henning Mikkelsen of Denmark, here assisted by his compatriots Nienstadt and Christensen. (6) But for Dave Sugden's disastrous 77-sec. second round flight, Canada may have secured top placing. Model featured fuselage made from  $\frac{1}{4}$ -inch sheet, silk covered inside and out. (7) Best known Russian is perhaps Ivan Ivanikov, here preparing assisted by team manager Lissitski. (8) Another new country to the Championships was Spain, represented here by Mateu Pla Ysas. Model is reminiscent of the high-tailed designs of "Professor" Bobkowski. (9) The victorious American team of Joe Bilgri (8th), Herbe Kothe (10th), and Bob Hatschek (2nd). Gadget hung around Bob's neck is a dust mask to counteract dust and pollen, to which he is allergic. (10) Rune Johansson (Sweden) could only manage 32nd place this year, in comparison with his 3rd position last year. (11) Lennart Tysklind had better luck than his team-mate with five maxes, but had a poor flight in the vital sixth round to place 6th. (12) Bedad, it was fun, even if we finished half way down the list! George Woodworth and Alec Gordon flew Carroll's entry with varying fortunes. (13) Hefty Johannes Smolders (Holland) was usually anchor man for his team. John Osborne winds











was drunk. Then, off to the floodlit chateau, where a "pageant" was staged.

Sunday dawned hot, humid and airless, and preparations were made for the commencement of this most keenly contested event in the international calendar. Conditions were almost an exact replica of the last occasion this contest was staged in France, for at Guyencourt in 1938 models climbed immediately overhead and disappeared into the blue.

With the control area nicely decorated with tables, chairs and umbrellas, plus gendarmes and S.P.s to keep back the (as yet) absent crowd, a roar from the perimeter heralded the arrival of a squad of motor cycle retrievers, who wheeled smartly into position behind each umbrella and waited . . . and waited . . . and waited. Meanwhile the competitors were scattered over the rough ground between runways, for no cover or compounds had been provided.

Eventually the stopwatches (which had been delayed *en route*) turned up, and the first round of the contest got under way approximately one hour later than scheduled in the programme (or to time according to which version you consulted, there being two schedules, one giving an 8.30 start, and the other 9.30!).

Rounds were of one-and-a-half hours duration, and it was evident that much of the organisation had been patterned on Cranfield events. Unfortunately some features had been introduced which have been abandoned over here, particularly the division of each round into periods, it being now considered that it is the prerogative of a team manager to decide who and when a man shall fly, provided he gets his team through within the stipulated period. The three-man team system introduced this year meant that (theoretically) each competitor had 30 minutes in which to make his flight, but in practice this was not so. Due to lack of scales, a bottleneck occurred at the control point, and at times a harassed team manager got his man through and out to the take-off area with only a few minutes to spare before

a Very light went up terminating that period. With both model and motors to weigh, a Wakefield type of contest requires more than the usual amount of equipment, and it is hoped that this year's experience will be noted for the future.

With 61 competitors from 22 countries (the listed entry from Pakistan did not appear), flying got under way in conditions of almost zero drift, and it was soon evident that this contest would be a battle of maximums, 29 being listed in the initial round.

With a pair of beautifully-constructed models to his credit, eyes were on the 1958 winner, Bond Baker of Australia, but he was soon out of the running with a surprisingly poor 99 seconds, other fancied men to fall by the wayside being George Benedek (Hungary) 136 sec.; Johansson (Sweden) 56; and Matveev (Russia) 103. Poor Reuser of Holland had immediate motor troubles, and his period ended with a zero score, whilst Herbe Kothe dropped 17 seconds to spoil a maximum American team score.

The British team of Jack North (Croydon), Ray Monks (Birmingham) and Louis Roberts (Lincoln) had all managed more-or-less comfortable maximums, and the round ended with Canada, Italy and Great Britain heading the team score with 540 apiece, and the U.S.A. hard on their heels with 523.

Round 2 was marred by an attempt to pick up lost time by reducing the 30-minute periods, but a strong protest soon remedied this, particularly as important announcements were being made only in French and many team managers were not aware of the time-cut until a man was threatened with disqualification.

Conditions were unaltered, though it became even hotter as the day wore on. At times the drift direction became dicey, but few models went out of bounds, and the recovery service was both adequate and efficient. As an indication of the vagaries of drift, at one period we witnessed the six flags of nations at one end of a hundred yard

Pentti Aalto and Reino Hyvarinen did much to place their team 4th

Canadians Don Mackenzie and Jack McGillivray put up a wonderful show to gain 3rd and 6th; and 2nd place in the team event

(14) German team got well browened during practice flying. (15) Two new names in the Belgian team were Luc and Josef Mellaert; third member was well-known Edgard Balasse. (16) The much-fancied team from Hungary (Kriszma 20th, Azor 46th, and Benedek 28th) and team manager Rezzo Beck. (17) The French team of Chabert, Petiot and Terrazonni were under the able direction of Marc Cheurlot. (18) At last! Louis Roberts of Lincoln finally gets his model

line fluttering in a north/south direction, a similar number at the other end showing movement in an exactly opposite line, and the centre flags hanging lifeless on their poles!

With the nerves of the first round becoming steadied, better flying was the order of this round, and no less than 36 maximums were registered, 20 of these to the credit of those with similar scores in the preceding round. Roberts was the only G.B. contestant to secure a double, Monks catching the inevitable downdraught which is always prevalent where thermals abound, as did Jack North . . . only to land in the middle of a somewhat odorous pond. His damp clothes following a retrieving swim quickly dried out, but this was not the end of the Croydon member's misfortunes.

Dave Sugden (of Loughborough College before going to Canada) had a disastrous flight of 77 seconds, which probably cost his party the team prize; that seasoned flyer Vincenzo Scardicchio (Italy) scored only 76 secs., whilst his compatriot Taberna also lost 71 seconds to drop the Italians out of the top ten at this stage. Alec Gordon, flying the Irish entry for Johnny Carroll, followed his first round max with a 112 sec. flight. (The crowd were intrigued with Carroll's model box, which played "When Irish Eyes Are Smiling" as the lid was lifted!)

Fortunes swayed this way and that, and the lunch break came with 20 modellers still in the fight with perfect scores, and team placings considerably altered as a result of individual misfortunes.

#### Round 2

1. U.S.A. ...	1053
2. G.B. ...	1006
3. Finland ...	992
4. Canada ...	977
5. Australia ...	971
6. Hungary ...	969
7. Switzerland ...	969
8. Poland ...	929
9. Czechoslovakia ...	912
10. Italy ...	905

The third round proved the worst section

away. (19) John Sheppard (centre) came all the way from New Zealand to proxy with Jean Fontaine and Robert Guillo teau. (20) Radoslav Cizek prepares under the watchful eye of the eventual winner. (21) Young Mikkelsen (Denmark) launches for one of his three maximums. (22) The cheerful Canadian team of Sugden, McGillivray and Mackenzie. (23) Swiss entries Kaufmann (50th) and Meyer (14th), seen against the background of scrub. (24) With no protection provided for competitors, the Australian contingent soon provided their own with bunches of weeds. (25) Team manager Bob Copland tries yet another motor for Roberts

The Czechoslovakian team of Musny (39th), Frantisek Dvorak (winner) and Cizek (54th)

Portugal took part for the first time with the popular team of Cardoso Sueno, da Fonseca e Sousa, and Monturo Cavaco.









for Australia, Denmark, Switzerland, Belgium and Great Britain, their worst totals coming in this period. Whilst Alan King continued his run of maximums, Baker made his poorest flight of 90 seconds, and proxy Petiot scored only 83 with Fullerton's model.

Youngest competitor Mikkelsen (Denmark) made his worst flight of 64 secs., very disappointing after his two maxs; whilst old-hand Balasse (Belgium) had to be content with top team score for the round of 134 secs.

It was here that trouble in a big way hit the British team, for Roberts smashed three motors one after the other whilst winding, and it was only by the hard work and unselfish assistance of the whole team that he was finally able to get his model away from a disappointing 108 seconds. Ray Monks hit another downdraught, when the model looked set for a certain maximum... the kind of flight when it seems unnecessary to time any further! Joe (Old Baldilocks) Bilgri (U.S.A.) continued to score fluky maximums, his model floating around at low altitude and catching thermals almost off the deck, but with only 30 maximums recorded, the number of fellows with perfect scores had dropped to 13. Team fortunes had also fluctuated, and Canada took over second place from G.B., who had dropped down to 6th.

#### Round 3

1. King, A. (Australia) ...	540
Mackenzie, D. (Canada) ...	540
McGillivray, J. (Canada) ...	540
Hyvarinen, E. (Finland) ...	540
Krizma, G. (Hungary) ...	540
Tysklind, L. (Sweden) ...	540
Suter, H. (Switzerland) ...	540
Hatschek, B. (U.S.A.) ...	540
Bilgri, J. (U.S.A.) ...	540
Zurad, S. (Poland) ...	540
Kossowski, A. (Poland) ...	540
Zapachny, V. (Russia) ...	540
Dvorak, F. (Czechoslovakia) ...	540
14. Pla Ysas, M. (Spain) ...	533
15. Hamalainen, E. (Finland) ...	524
16. Cardoro Sueno, A. (Portugal) ...	515
17. Kothe, H. (U.S.A.) ...	513
18. North, J. (G.B.) ...	507
19. Petiot, J. (France) ...	505
20. Benedek, G. (Hungary) ...	496

#### Team

1. U.S.A. ...	1593
2. Canada ...	1517
3. Hungary ...	1496
4. Finland ...	1472
5. Poland ...	1469
6. G.B. ...	1436
7. Italy ...	1388
8. Germany ...	1363
9. Czechoslovakia ...	1340
10. Australia ...	1324

In their first attempt at Championship competition, it was good to witness the success of the Spanish and Portuguese entries, and to see Jacques Petiot up amongst the leaders. The French team, resplendent in yellow shirts and blue trousers, were led by popular Marc Cheurlot (whose home town is Brienne), and no praise is too high for his tireless efforts in connection with the meeting, for much of the liaison work had fallen on his shoulders.

Things were now really hotting up, in all senses of the word, and flights varied from the satisfaction of a maximum to frustrating below standard scores. In the fourth round maximums were again scored with monotonous regularity (31), but fickle fortune forsook Hyvarinen, Krizma, Suter, and Kossowski, and they dropped from the leader board leaving only nine men with a chance in the fifth round.

Many came up with maximums in this round, but too late to bring their scores within reach of the lead. North had the same bad luck as in his second flight, a certain max ending in a downdraught, whilst Roberts had yet more motor trouble, but only one lot of rubber rent the air (and Bob Copland's fingers!) this time. This report would not be complete without reference to the sterling work put in by

three lads from the Teeside group, who had made their own way to the contest and rendered invaluable assistance to the British team, Tom Chambers running himself almost to a standstill.

The American equipage made sure of their lead with a maximum score in this round, as did the Canadians and Italians, but both Hamalainen and Hyvarinen had their worst scores here, and with Kosihski (Poland) scoring nil, his team dropped way back. (That is one of the snags with the new three-man team regulation, for with the old system one could allow for one man having bad luck, scoring being on the best three only.)

#### Round 4

1. King, A. (Australia) ...	720
Mackenzie, D. (Canada) ...	720
McGillivray, J. (Canada) ...	720
Tysklind, L. (Sweden) ...	720
Hatschek, R. (U.S.A.) ...	720
Bilgri, J. (U.S.A.) ...	720
Zurad, S. (Poland) ...	720
Zapachny, V. (U.S.S.R.) ...	720
Dvorak, F. (Czechoslovakia) ...	720
10. Cardoro Sueno, A. (Portugal) ...	695
11. Kothe, H. (U.S.A.) ...	693
12. Hyvarinen, R. (Finland) ...	687
13. Petiot, J. (France) ...	685
14. Pla Ysas, M. (Spain) ...	676
15. Krizma, G. (Hungary) ...	670
16. Fea, G. (Italy) ...	663
17. Schilling, H. (Germany) ...	657
18. Mayer, J. (Switzerland) ...	652
19. Taberna, S. (Italy) ...	649
20. Monks, R. (G.B.) ...	641

#### Team

1. U.S.A. ...	2133
2. Canada ...	2057
3. Italy ...	1928
4. Finland ...	1909
5. G.B. ...	1892
6. Germany ...	1871
7. Hungary ...	1834
8. Australia ...	1823
9. Portugal ...	1811
10. U.S.S.R. ...	1800

And so to the fifth and (for most) final round. Hand launching now being the practice (what a pity to waste that vast stretch of dead smooth concrete!) very few models had need for repairs, and — with the exception of Navarro (Morocco), who is obviously not up to international standard yet — only three flights of under one minute had been recorded.

Drift had by this time settled in the most difficult direction, carrying many models over the hangar or behind the crowd, and all eyes were on the nine men with perfect scores at this stage. Nerves began to show as preparations were made for the vital round, and team managers (who by some queer rule interpretation were barred in the early hours from assisting their teams) were showing signs of strain.

Alan King, 1954 winner, sent his model off to his usual vocal encouragement of "Get up there you + = % ! ! ! !", but apparently this failed to influence matters and the model floated around, gradually losing height for a score of only 97 seconds. Joe Bilgri also came unstuck when his model failed to collect its usual ground thermal, and touched down at the end of 163 secs. The other seven, however, preserved their unblemished scores with further maximums, and we thus achieved a repetition of the Finthen contest with a seven-man fly-off.

Only 24 maximum flights graced the scoreboard in this round, no team scoring a treble, though some came very near to doing so. Roberts overcame his difficulties at long last and chalked up an easy max, as did Ray Monks, but the gremlins still pursued Jack North when his model landed in the top of a high tree at 156 secs., spoiling an almost certain 3 minutes. Thus he had the doubtful pleasure of having run for it, swum for it, and (almost) climbed for it. Fortunately an agile volunteer saved him the trouble and scaled a very difficult tree trunk to retrieve the model next morning.

Determined flying had brought the British team back into third place, just edging back Finland and Italy, and Sweden climbed into the top ten for the first time. Bottom markers Spain, Ireland and Morocco, could not hope to figure in group honours, neither having full teams. The Portuguese equipage are to be congratulated on their fine showing in their first incursion into the tough fight for honours in this keenly-contested Championship, and credit must also be paid to the young Finnish team who stoutly upheld the prestige set by Aarne Ellila in 1949-50.

With commendable promptitude, arrangements were made for the vital fly-off, but again the Finthen pattern was duplicated as the light had begun to fade rapidly. Crowds surrounded the keyed-up seven men as they selected their places at different points on the field, and you could feel an electric tension in the air as the pistol fired announcing the start.

Bob Hatschek, who stretches his rubber to an extraordinary length and winds in very, very slowly, was flanked by the two Canadians; Zapachny was the centre of a stolid bunch of Russians; whilst Tysklind went far away from the crowd with his team of helpers and timekeepers.

Within a few minutes the sky was full of models, and fears were expressed that timekeepers might confuse their charges as the machines drifted into the distant haze and gathering darkness. (It is my opinion that not enough thought is given to the possibility of a fly-off, for it seems illogical to waste hours of early morning daylight with a 9.30 start, necessitating a very vital flight taking place in poor light as the evening wears on. Furthermore, it would seem logical in a multi-model fly-off of such numbers to arrange the dispatch of models in pairs, thus obviating too many machines circling the same patch of sky at the same time.)

Tysklind could not gain height at this important stage (due we understand to a binding prop shaft), but was the only finalist not to record more than three minutes. The scoreboard became the centre of much anxious scrutiny as the various times were recorded, and a cheer went up as Frantisek Dvorak was shown as the holder of the coveted Trophy with a flight of 4:45. Cizek beamed all over his round face as he told us that his team-mate had used his XL-56b design, as published in our April '58 issue.

This ended a most interesting, if tiring, contest on a note of high excitement, and a return was made to billets to prepare for the evening banquet. This, probably due to the late finish to the contest, was spasmodic in its start, but soon warmed up by the time the presentations were made to the victorious Czech and the American team. Major T. J. de Sipin, Commandant of the Base, was in the seat of honour, and the applause was loud and long as the happy winners came forward to receive their trophies and medals.

The biggest cheer was heard when Marc Cheurlot was congratulated for his fine efforts, for he had done an enormous amount of work on behalf of his Aero Club, and we add our thanks to him for personal assistance received at a most memorable contest.

In retrospect, the outstanding features of this meeting are the too-good weather conditions (we would not hazard a guess at the number of Cokes consumed!); the rather overwhelming social activities endured; and a pleasant recollection of old friends met and new ones made at this most enjoyable meeting. Models? Very much the standard pattern of the day, with short, powerful motors and long fuselages, and a universal use of folding propellers. Russian models were a mixture of dural tube fuselages and their familiar reed-built machines; the Austrians demonstrated their skill in wound, circular fuselages and sheet wing construction; many all-sheet fuselages of widely varying types were seen — and not an undercarriage in sight! Rubber troubles were the outstanding difficulties with nearly all teams, and a fortune lies at the door of a manufacturer who can produce a reliable and thrust-producing grade of strip.



## WAKEFIELD TROPHY (Individual)

1. Dvorak, F. ... Czechoslovakia	180	180	180	180	180	900
2. Hatschek, R. ... U.S.A.	180	180	180	180	180	+285
3. McGillivray, J. ... Canada	180	180	180	180	180	+256
4. Zurad, S. ... Poland	180	180	180	180	180	+245
5. Zapachny, V. ... U.S.S.R.	180	180	180	180	180	+230
6. Mackenzie, D. ... Canada	180	180	180	180	180	+198
7. Tyskind, L. ... Sweden	180	180	180	180	180	+184
8. Bilgri, J. ... U.S.A.	180	180	180	180	163	+121
9. Cardoro Sueno, A. ... Portugal	155	180	180	180	180	875
10. Kothe, H. ... U.S.A.	163	170	180	180	180	873
11. Petiot, J. ... France	145	180	180	180	180	865
12. Hyvarinen, R. ... Finland	180	180	180	147	160	847
13. Fea, G. ... Italy	180	180	123	180	180	843
14. Meyer, J. ... Switzerland	180	180	112	180	180	832
15. Schilling, H. ... Germany	137	160	180	180	174	831
16. MONKS, R. ... Great Britain	180	139	142	180	180	821
17. King, A. ... Australia	180	180	180	180	180	817
18. Hamalainen, E. ... Finland	164	180	180	110	180	814
19. Van Mellaert, J. ... Belgium	143	180	130	180	180	813
20. Krizma, G. ... Hungary	180	180	180	130	138	808
21. Pla Ysas, M. ... Spain	180	180	173	143	128	804
22. ROBERTS, G. L. ... Great Britain	180	180	108	129	180	797
23. NORTH, R. J. ... Great Britain	180	147	180	127	156	790
24. Kossowski, A. ... Poland	180	180	180	88	159	787
25. Fullarton, J. (P) ... Australia	180	180	83	180	158	781
26. Rupp, G. ... Germany	91	180	180	148	180	779
27. Suter, H. ... Switzerland	180	180	180	78	159	777
28. Benedek, G. ... Hungary	136	180	180	97	180	773
29. Cooke, W. (P) ... New Zealand	81	151	180	180	180	772
30. Sugden, D. ... Canada	180	77	180	180	154	771
31. Taberna, S. ... Italy	180	109	180	180	118	767
32. Johansson, R. ... Sweden	56	180	178	180	170	764
33. Smolders, J. ... Holland	180	138	76	180	180	754
34. Scardicchio, V. ... Italy	180	76	180	180	132	748
35. Nimptsch, W. ... Germany	150	180	105	180	132	747
36. Aalto, P. ... Finland	108	180	120	180	157	745
37. Ivannikov, I. ... U.S.S.R.	123	180	180	126	121	730
38. Da Fonseca e Sousa, M. ... Portugal	96	118	180	180	140	714
39. Muzny, L. ... Czechoslovakia	107	180	138	105	180	710
40. Carroll, J. (P) ... Ireland	180	112	111	180	127	710
41. Mikkelsen, H. ... Denmark	180	180	64	180	95	699
42. Kennedy, D. (P) ... New Zealand	180	180	67	119	150	696
43. Terrazzoni, D. ... France	109	110	140	180	151	690
44. Monturo Cavaco, M. ... Portugal	78	180	106	178	144	686
45. Chabert, J. ... France	105	123	106	169	180	683
46. Azor, L. ... Hungary	113	180	167	111	105	676
47. Lust, P. ... Holland	180	93	103	180	103	659
48. Van Mellaert, L. ... Belgium	142	180	120	107	108	657
49. Matveev, V. ... U.S.S.R.	103	72	131	165	180	651
50. Kaufmann, B. ... Switzerland	69	180	60	154	180	643
51. Baker, B. ... Australia	99	152	90	139	159	639
52. Qvarnstrom, A. ... Sweden	180	71	78	152	156	637
53. Balasse, E. ... Belgium	138	80	134	132	142	626
54. Cizek, R. ... Czechoslovakia	118	147	110	96	139	610
55. Reuser, B. ... Holland	—	180	180	137	101	598
56. Merseburger Baldy, C. ... Spain	137	144	89	75	102	547
57. Christensen, N. ... Denmark	121	118	133	69	85	526
58. Clarke, A. (P) ... New Zealand	65	56	180	109	113	523
59. Kosihski, J. ... Poland	112	97	180	—	129	518
60. Nienstaedt, E. ... Denmark	107	86	27	61	119	400
61. Navarro, G. ... Morocco	12	39	48	44	—	143

## PENAUD CUP (Team)

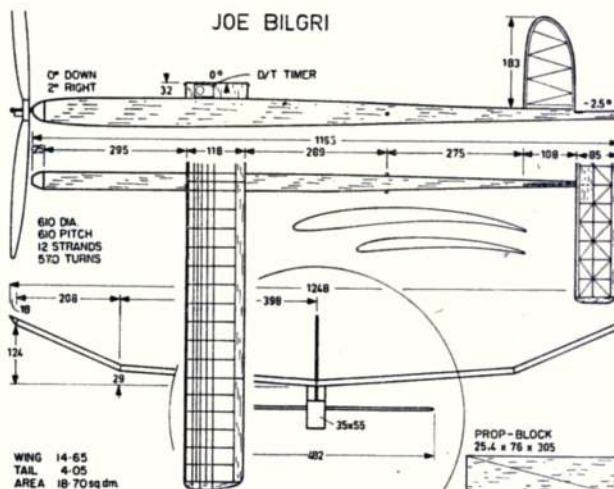
1. U.S.A. ...	2,656	12. France ...	2,238
2. Canada ...	2,571	13. Australia ...	2,237
3. Great Britain ...	2,408	14. Czechoslovakia ...	2,220
4. Finland ...	2,406	15. Poland ...	2,205
5. Italy ...	2,358	16. Belgium ...	2,096
6. Germany ...	2,357	17. Holland ...	2,011
7. Sweden ...	2,301	18. New Zealand ...	1,991
8. U.S.S.R. ...	2,281	19. Denmark ...	1,625
9. Portugal ...	2,275	20. Spain ...	1,351
10. Hungary ...	2,257	21. Ireland ...	710
11. Switzerland ...	2,252	22. Morocco ...	143

At right are the three models flown by the winning team from the United States, as drawn by Karl Heinz-Denzin at the Brienne contest

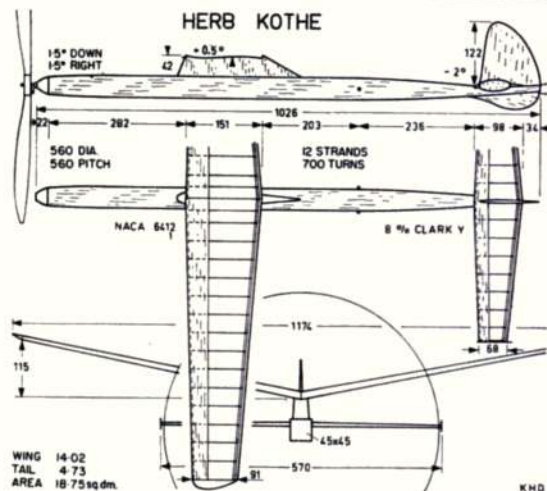
## Aeromodeller Plans Service Success!

Radoslav Cizek's popular XL-56b Wakefield design, A.P.S. Plan Number D/690, price 5s. 6d. inc. post, has now been modified to include XL-59 detail as used by Dvorak to win the coveted World Championship this year. So for actual fullsize plans of the Wakefield Winner — send to A.P.S.!

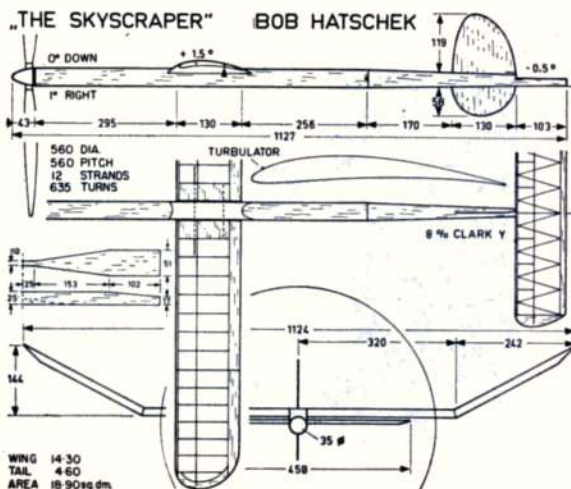
## JOE BILGRI



## HERB KOTHE



## "THE SKYSCRAPER" BOB HATSCHKE

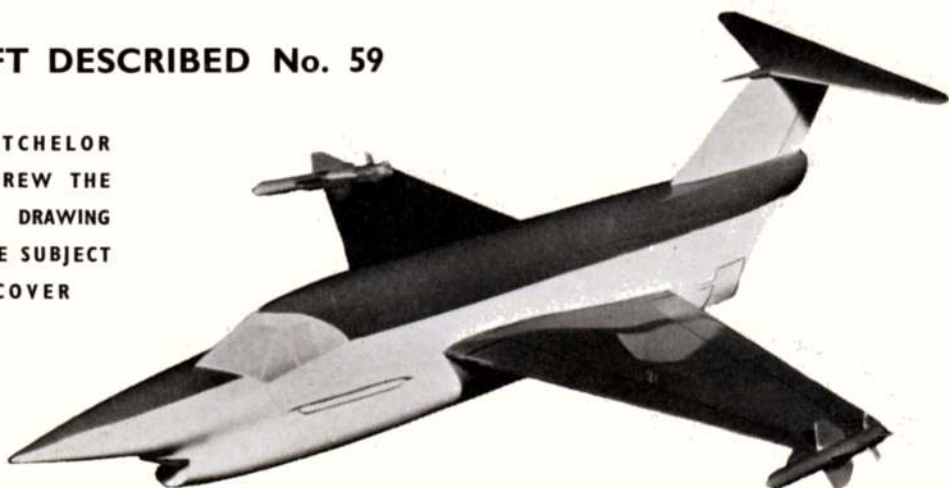


NOTE ALL DIMENSIONS IN MILLIMETRES



## AIRCRAFT DESCRIBED No. 59

BY J. H. BATCHELOR  
WHO ALSO DREW THE  
SCRAPERBOARD DRAWING  
WHICH IS THE SUBJECT  
OF THE COVER



# Saunders-Roe SR.177

ALL AIRCRAFT MANUFACTURERS are constantly engaged in design studies and investigation of projects to meet government contracts.

A surprisingly low proportion proceed beyond the tunnel model and stress investigation stage and even a few of those that do manage to gain government sanction for prototype construction fall by the wayside with changes in government policy. Such was the misfortune which befell the SR. 177.

The Saunders-Roe SR. 177 was to be a mixed power plant aircraft with heavy dependency on De Havilland products. It was preceded by what was virtually a flying testbed in the SR. 53, which employed a Viper jet turbine with Spectre H.T.P./Paraffin rocket engine for ultra rapid climb. The SR. 53 did not complete its test programme in full before an unfortunate accident destroyed one aircraft and the government cut-back in aircraft supply in favour of a missile programme, prevented the completion of the 177 prototypes which were laid down and are said to have been very near to completion.

The SR. 177, though primarily a day interceptor, has limited night and bad weather capabilities, with full navigation, interception and radar facilities installed in the large pressurised radome in the nose. Main armament to be carried was two "Blue Jay", otherwise known as

the Firestreak, pursuit weapons with an alternative of two rocket launchers each carrying a battery of 24.2 inch air-to-air ballistic rockets.

Two versions of the SR. 177 were designed; one a land-based aircraft and the other version was designed primarily for the Navy, having high lift devices, catapulting and deck arresting gear. As far as possible, components and equipment were made common to both. Had the German Defence Ministry selected the SR. 177, this Naval version might well have entered production.

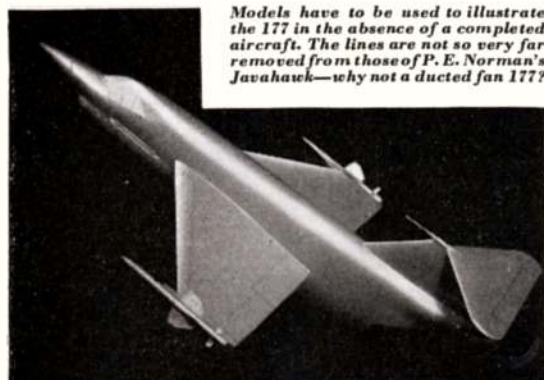
The principal characteristic of the 177 was to be its ability to cruise on its turbo engine at most economical speeds, and then accelerate to supersonic speeds while in a steep climb after the pilot received the position of the enemy aircraft from either his own radar or ground stations. In a secondary role it could be used as a ground strike aircraft without any structural changes. The only difference being the types of weapons and that the rocket fuel tanks are filled with turbo fuel instead.

The turbo-jet engine is a D.H. Gyron Junior rated at 8,000 lbs. thrust, rising to 11,000 lbs. without afterburner (which can boost power to the region of 14,000 lbs.).

The rocket engine used in the SR. 177 is the De Havilland Spectre 5A. A bipropellant engine, it burns hydrogen peroxide, which is a non-toxic, non-poisonous non-flammable liquid which in some ways resembles water. At sea especially, it is a boon because of the ease in which it can be stored. It remains potent, and can be pumped into the aircraft with little risk to personnel engaged on this task. The Spectre is controllable from 10% to 100% of available power and will produce 8,000 lbs. thrust at sea level which is worth three times this amount at altitude.

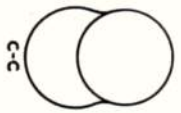
This combination would have made the SR. 177 a very formidable aircraft from ground level, up to and in excess of 60,000 ft.

We include this unusual mixed power interceptor in our scale plans range as an exception to our normal policy of only dealing with types that have been manufactured in numbers, mainly because we feel that the appearance of the model will attract solid model constructors and ducted fan enthusiasts to make an unique subject which could be called a "might have-been".

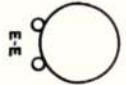
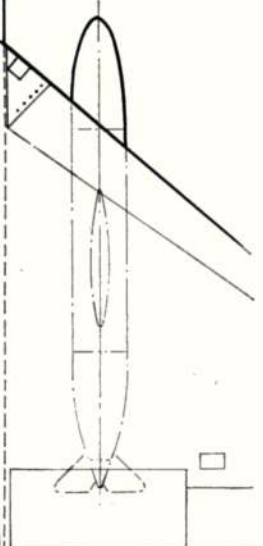
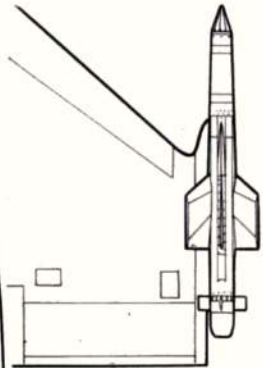


*Models have to be used to illustrate the 177 in the absence of a completed aircraft. The lines are not so very far removed from those of P. E. Norman's Javahawk—why not a ducted fan 177?*

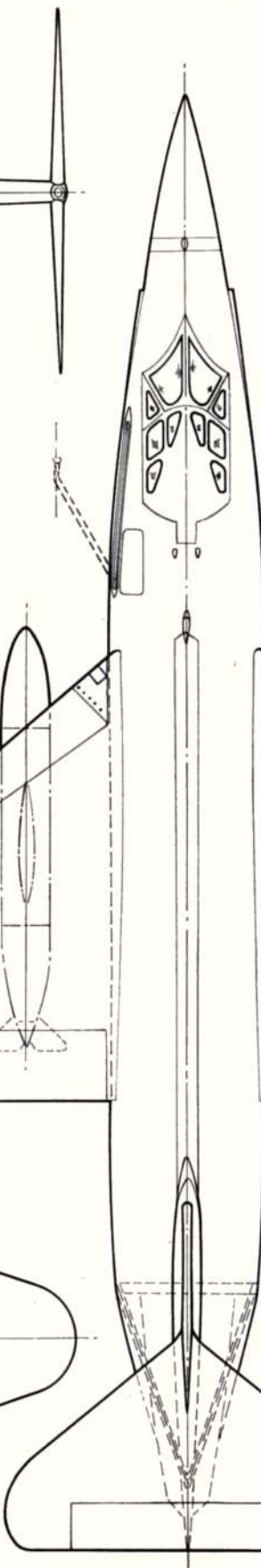




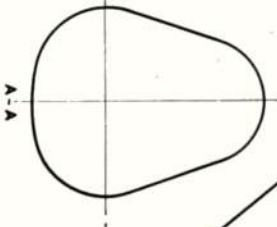
C-C



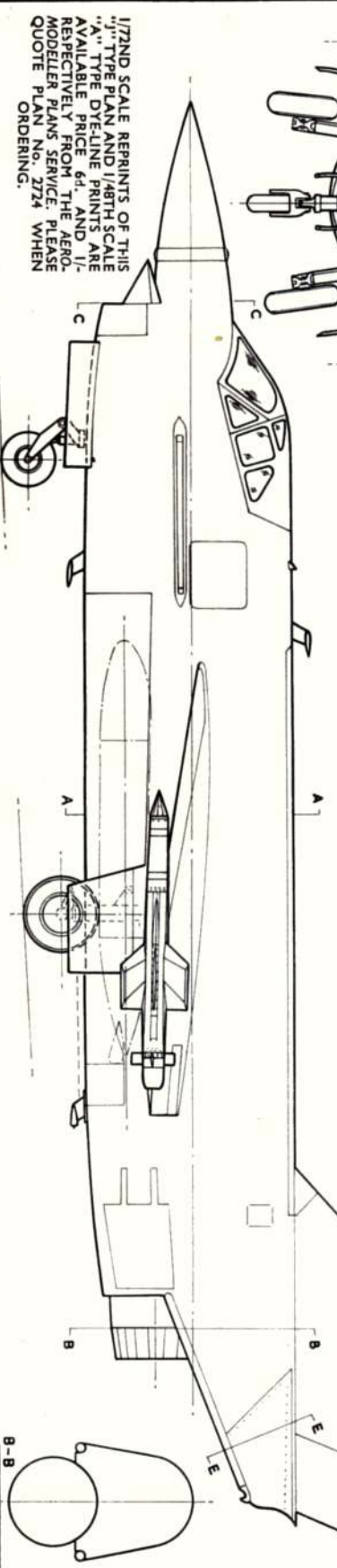
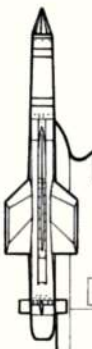
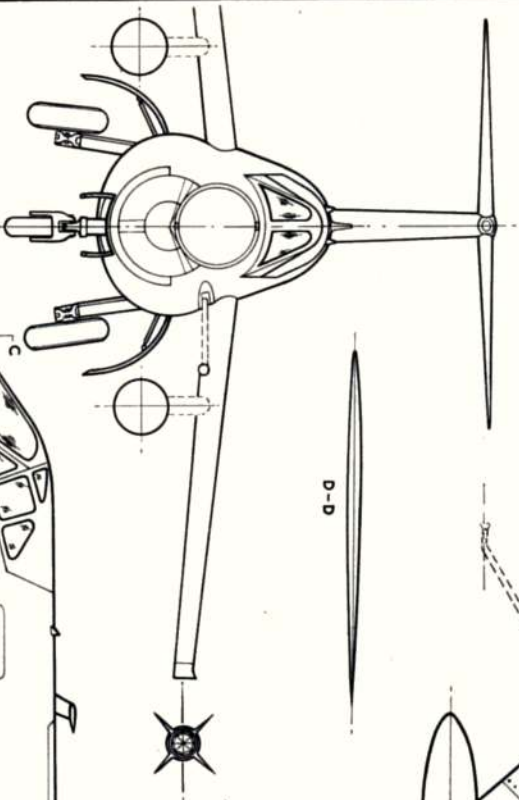
E-E



D-D



A-A



1/72ND SCALE REPRINTS OF THIS  
"A" TYPE PLAN AND 1/48TH SCALE  
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QUOTE PLAN NO. 2724 WHEN  
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SAUNDERS-ROE S.R.177

FT. 8-B





# The life . . . and death of a MERMAID

Burmese fun and  
games recalled  
by Douglas Young

*Those who might be encouraged to try their hand at flying boats can learn a lot from the hidden moral of this little story. Mermaid is APS No. WP162, 8s. inc. Post.*

LIVING BY THE EDGE of a lake first brought to mind the exciting idea of building a model flying boat, and on next home leave from Burma the AEROMODELLER Plans Handbook was studied and the *Mermaid* selected as just the very thing. A solid-looking model with a 6-ft. wingspan; and a very romantic name to add just that touch of "something in the air". Whilst the would-be aeronaut had been given a mild warning that the model was suitable for "advanced builders only", he had no idea then of the frustrations—and thrills—that were to lie ahead.

In due course the model was built. It took about six months, working in a somewhat careful and leisurely manner in deference to Rangoon climate, with temperatures between 90 and 100 degrees in the hot weather. It was built solidly, using thin ply for the bottom of the hull and the sponsons and covering with silk, and carefully planking the after part of the hull as befitted a "boat". Finished with aluminium dope and bright red trimmings, she looked a very fine craft indeed. All that remained it seemed was to let her take to the air.

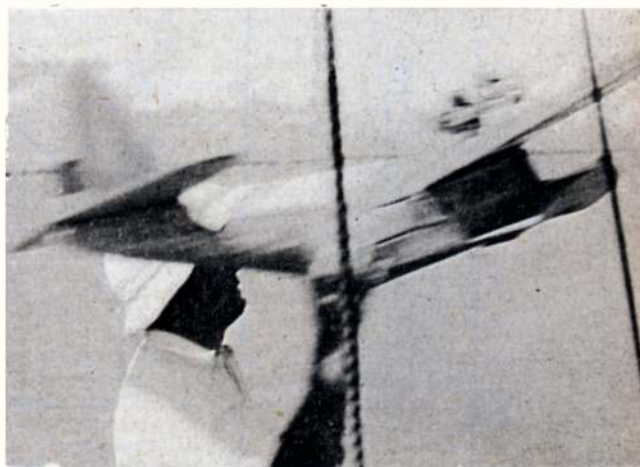
However, one or two snags became apparent. An E.D. 3.46 diesel was mounted high above the wing, and it was found that it took just over 12-oz. of lead at the bow to get the C.G. at 33 per cent. chord. This at once transformed what had felt like an excellent planing hull into a good imitation of a carpenter's hammer. In a fit of misgiving, two-thirds of the ballast was removed.

A few experimental glides at varying speeds gave widely differing results, from a long steady descent to a splash like a ton of bricks. Emboldened by a couple of the former types, it was decided to see what happened under power. The *Mermaid* was then taken out in a dinghy, the motor started and hand launched into a gentle breeze. She went away steadily for perhaps twenty yards then began to climb, turned left, more left, the wing dropped and appeared to stall and she plunged at a steep angle into the lake.

After this, and spread over several week-ends, the same sort of flight pattern persisted in spite of continual efforts to rectify matters. With numerous fabric and windshield repairs and patches the airframe survived this battering in amazing fashion.

Meantime a friend, seized with the same spring fever, had also built a *Mermaid* and precisely the same sort of afflictions became apparent in *his* model. From then progress came by slow stages towards balanced flight, somewhat as follows.

The weight had to go back in the nose. The rudder trim tab proved useless to correct the sharp turn to port and thoughts turned to offsetting the motor, cautiously



Top left: "A few more revs and we're in business and over the side she goes" *Mermaid* gets a tune up on deck

Above: "Off she goes". A fast launch and *Mermaid* takes the air, all fingers crossed and hopes high for a successful flight

Right: "The end." Sad finale to a hectic adventure. Note that the engine bearers are from miniature *Dexion*

at first, and this apparently failing, it was made a full 7 degrees. An almost straight flight proved success was at least possible. At this point ambition took over and a Miles 5 c.c. special was substituted for the Hunter.

*Mermaid* was taken down the Rangoon river on one of the sails in a five-ton sloop, plus a launch at hand for recovery purposes. With miles of open water all around, we filled her up and let her rip; the result was certainly spectacular. She threw up her chin and climbed at a somewhat fighter-like speed and eventually began a series



of switchback undulations which culminated in two superb loops. (Did you ever see a flying boat looping?) Unfortunately the second one finished in a power dive straight into the drink.

Nerves were temporarily shattered but recovered sufficiently in due course to enable repairs and amendments governed by inspiration—or desperation? 10 in. was added to each wing-tip, these sections being given extra dihedral of 20 degrees, and two degrees of down-thrust was applied to the motor.

### Success !

The next flight was fully successful with a long steady climb of several hundred feet and a gentle glide to the water in the sort of landing that would make a safety harness superfluous.

In order to get a close-up of the next landing, *Mermaid* went airborne and then her admirers stood off in the launch a little way downwind to await developments. She circled steadily above the ship but refused perversely to drift more than very slightly with the admittedly gentle air. After three or four minutes the motor cut and she began a gentle and silent descent. The launch was well placed and onlookers waited expectantly. On her final circuit she straightened up and under helpless gaze, headed straight for the anchored and abandoned yacht striking the standing rigging fair and square, rebounding from the wire shrouds about 12 feet with an ominous calico-tearing noise. Eyes were covered as she splashed ignominiously into the swift tide.

After rescue and inspection, the fabric seemed to be the main damage, although one wing spar showed unmistakable signs of a weakness under steady hand pressure.

It was perfect flying weather and it seemed a pity to wait for a "major inspection". So repairs were done on the spot and with an overflowing tank and the famous last words, "it'll last one more flight", she was launched yet again.

She roared away in a steady climb and circled in the brilliant tropical sunshine, higher and higher. After several minutes, and at what was estimated to be an altitude of about 500 feet, she began to bank more steeply. Then, very slowly, the starboard wing folded up and the dear old *Mermaid* turned over in a vertical diving spiral and with the motor still bellowing, headed for the drink. A moment later the wing severed from the hull and began to flutter gently down after the now rapidly-spinning remains. There was a loud crack, a splash, and then a silence.

"Oh well", as the enthusiasts said afterwards over tankards at the club bar, "We'd had a lot of fun . . . really . . . and the *Mermaid* does fly. She just needed a little care and understanding that's all."



## FERDINAND

by W. I. Barrett

ORIGINALLY DESIGNED FOR the McCoy .049 "Duro-glo", this pert little model biplane suitable for any British diesel of 0.5 c.c. to 0.9 c.c. capacity—just right in fact for the new .049 glow engines about to hit the market.

Begin by making up the engine and undercarriage assembly. The undercarriage is clamped between the ply faces of the engine former. For radial mounting, drill through to take the engine bolts, which are held secure by soldering the piece of tinplate across them as shown. Beam mounted engines require two bearers, which are cemented to the engine former and former "A", fitting into the slots as detailed. Next, add the fuselage sides, lining them up accurately at the tail. The top front edge is then formed by bringing the sides together as shown in the small sketch. The gap is filled in with  $\frac{1}{8}$  in. sheet. Now fit the tank in position, with the fuel tubing running out through the fuselage side to the engine spray bar. Do not add the top and bottom decking until the wings and tailplanes are fitted.

Flying surfaces are made from sheet, the wings being sanded to section, but this is not critical. Cut slots in both wings for the interplane struts, which are made from  $\frac{1}{8}$  in. ply. Insert a piece of  $\frac{1}{8}$  in. ply into the lower wing to take the bellcrank assembly, which can now be fastened in place.

Cement the tailplane in its slot, and fasten the push-pull rod to the elevator horn. The wings can now be cemented in place. When these joints are dry, deck the top and bottom of the fuselage, add the fin and interplane struts, and give the model three coats of clear dope, sanding between each coat. Colour dope as required to your own scheme and Ferdinand is ready to take the air.

Balance the model on the front line, and fly on 25 to 30 foot lines. Full size plans will be found on the following pages.





Allbon 'Merlin'

When using  
Frog 50, etc.)  
3 in. long, cer

Fuselage tapers to tail  
aft of this line

## FUSELAGE SIDES, TOP AND BOTTOM FROM 1/16 in. SHEET

Former 'A'  
1/16 in. sheet balsa  
rectangular former

Stunt  
tank 15 c.c.

Engine  
bearer  
position

Undercarriage  
sandwiched between  
engine formers

Tinplate soldered  
across mounting screws  
on radially mounted  
engines

1 1/2 in. diam.  
wheels

Cut out for  
1/4 in. x 1/4 in.  
bearers if using  
beam mounted  
engines

22 s.w.g. l

WINGS

Former 'A'

Engine former  
1/8 in. sheet balsa  
faced both sides  
with 1/16th in. ply

14 s.w.g.  
undercarriage

Cut out for beam-  
mounted engines

## 1/16 in. SHEET BALSA TAIL SURFACES

Cloth hinges



using beam-mounted engines (Allbon Dart, 0, etc.) use  $\frac{1}{4}$  in. sq. hardwood engine bearers long, cemented to front former and former 'A'

TOP AND BOTTOM  
SHEET BALSA.

1/16 in. SHEET  
BALSA FIN.

18 s.w.g. push-pull rod

18 s.w.g.  
elevator  
horn

18 s.w.g. tailskid

s.w.g. lead out wires

Dural or ply bellcrank

NGS FROM 1/8 in. SHEET BALSA 2-OFF

Ply insert  
on lower  
wing only

Offset fin

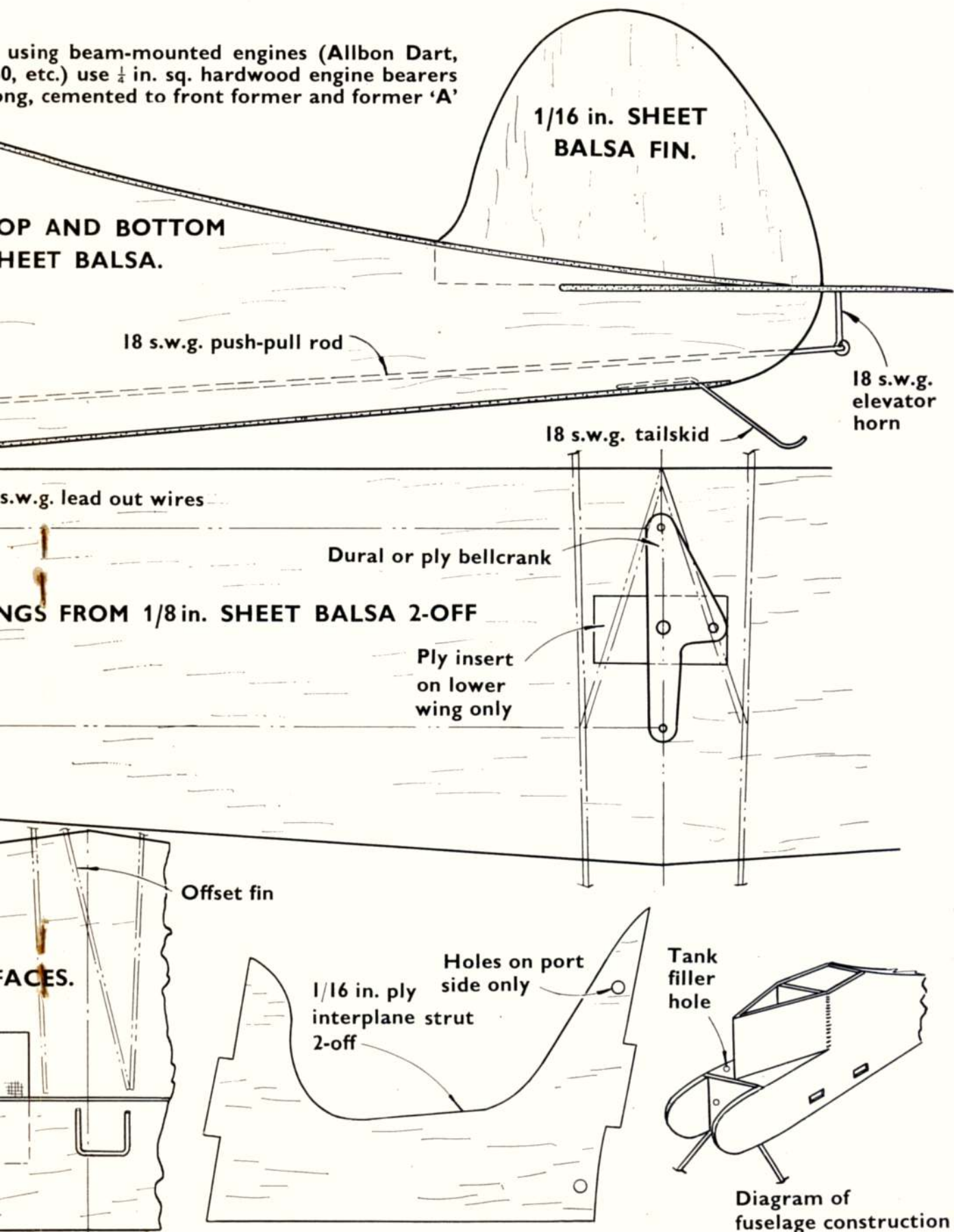
FACES.

1/16 in. ply  
interplane strut  
2-off

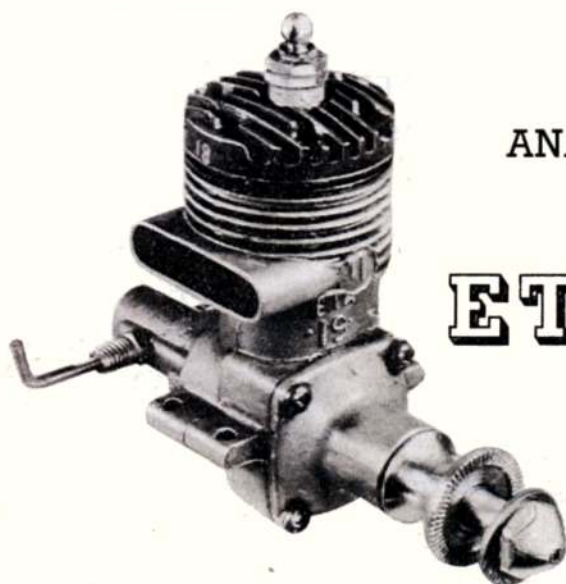
Holes on port  
side only

Tank  
filler  
hole

Diagram of  
fuselage construction







## ENGINE ANALYSIS No. 63

By R. H. Warring

# ETA 19

## Mark 2

*Lapped piston version shows vast improvement over original 19 and provides exhilarating performance, especially for combat. Rear view shows distinctive bars on rear of crankcase of latest version*

THIS NEW VERSION of an established design is a really beautiful job throughout, and wonderfully easy to handle. On starting characteristics it could be rated "an ideal engine for the beginner", for it is a genuine first-flick starter with any propeller load, following a suitable prime, and the needle valve so flexible as to make adjustment a matter of leisure—gradually turning down to the setting you want from steady four-stroke running. The beginner might, however, be rather put off by the fact that this is a racing engine and wants to run fast. Peak power is developed around 17,000 r.p.m.—and it is real high power for a glow motor of this capacity—so small diameter propellers with fine pitches are the order of the day to get the best out of this new "19". The accompanying noise is shattering—or very pleasurable, depending on how you view these things.

Frankly, the old Eta "19" never was a truly "good" engine, its main limitation being the ringed piston. The new "19" employs a lapped piston and, we understand, that by far the majority of the development work which went into bringing this new model up to production standard went into finalising the piston. Certainly it now appears "just right"—slack enough for low friction, tight enough for adequate compression and above all a true fit in the bore.

Other differences between the old and new models are not so obvious. The same crankcase die appears to have been used, but reworked slightly so that the external appearance differs in the shape of the transfer fairing, and the strut on the other side. The rear face of the crankcase is "relieved" or "decorated" with horizontal strips and the integral intake tube is a slightly different shape.

The head has been slightly modified in depth and the clearance holes in the fins enlarged to take standard Phillips head screws (the old model had non-standard screws with very narrow heads). Internally the combustion chamber shape is considerably modified to accommodate the new piston shape. The piston is also very slightly lower in the bore at top dead centre.

The piston itself is of simple form with a flat top and

### PROPELLER—R.P.M. FIGURES

Propeller dia. x pitch		r.p.m.
10 x 6	Frog nylon	7,300
9 x 6	Frog nylon	10,500
8 x 5	Frog nylon	10,800
9 x 4	Trucut	11,400
8 x 4	Trucut	14,000
7 x 4	Trucut	16,600
7 x 3	Trucut	18,000 plus

Fuel used: Standard methanol; castor mixture made up to the equivalent of 20 per cent. nitromethane.

### SPECIFICATION

Displacement: 3.254 c.c. (-1985 cu. in.)  
Bore: .640 in.  
Stroke: .617 in.  
Bore/Stroke ratio: 1.04  
Bare weight: 4½ oz.  
Max. B.H.P.: .30 at 16,800 r.p.m.  
Max. Torque: 22.6 ounce-inches at 9,800 r.p.m.  
Power rating: .093 B.H.P. per c.c.  
Power/Weight ratio: .067 B.H.P. per oz

Manufacturers: E.T.A. Instruments Ltd  
28 High Street, Watford, Herts.  
Price: £6/15/5 inc. P.T.

### Material Specification

Crankcase: Light alloy pressure die-casting, vapour blast finish  
Cylinder: Cast iron  
Piston: Cast iron  
Cylinder head: Light alloy  
Crankshaft: Hardened steel  
Rotor disc: Tufnol  
Bearings: ½ in. ball race (rear); 3/16 in. lightweight ball race (front)  
Propeller driver: Dural  
Prop. nut sleeve: Dural  
Con. rod: Dural  
Glow plug: Standard K.L.G. (long reach)

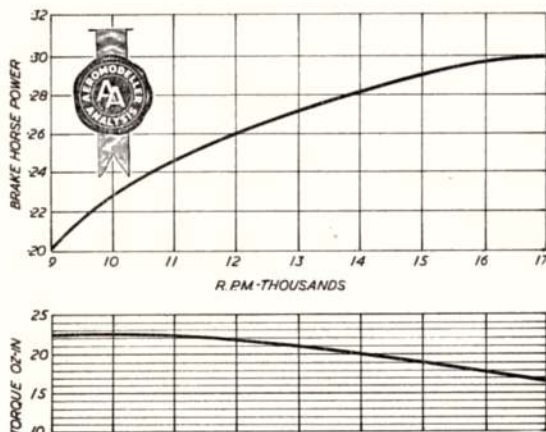


purely rectangular deflector. It is fully machined from cast iron and has an oil groove around the skirt. Dural for the connecting rod is now machined from bar stock, and mounted on a ⅝ in. diameter hollow (hard steel) gudgeon pin press fitted in the piston. A spacer is wisely mounted on the gudgeon pin to prevent the con. rod from floating rearwards and possible fouling the rotor.

Large rectangular transfer and exhaust ports are diametrically opposed on the cast iron cylinder, with considerable overlap. External walls have an ordinary machined finish and the cylinder is quite a loose fit in the crankcase unit. It is simply locked in place by bolting down the head. Wall thickness is increased over the original "19" which employed a hardened cylinder. The transfer passage is cast in the crankcase unit and appears substantially the same size as before, although both the cylinder ports are enlarged over the previous design, whilst retaining similar timing.

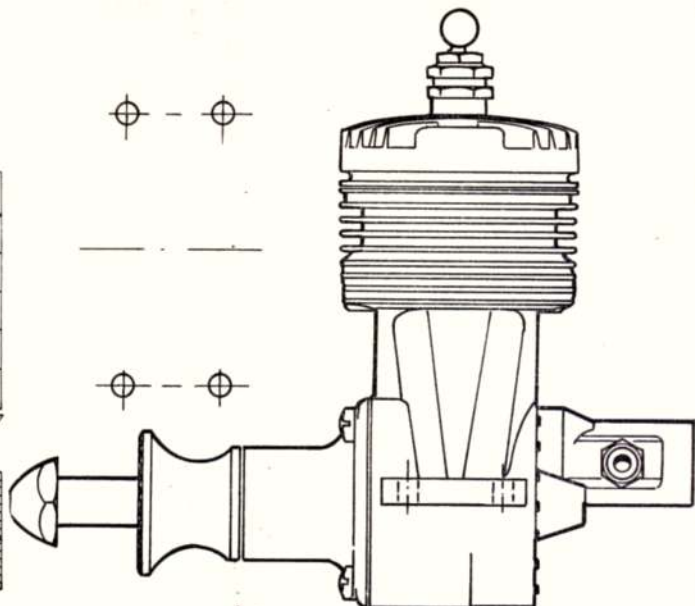
The rear rotor disc follows latest practice and is machined from Tufnol (with quite an amount of intricate work done on it) and is mounted on a .165 in. diameter steel screw with a ½ in. left hand thread screwing into the crankcase spigot. This rotor runs very smoothly and is completely free from "play" after many hours of running time. Design of the rotor differs appreciably from the original model and induction period is very much reduced. Drive is taken up in the conventional manner by the end of the crankpin engaging a hole in the rotor disc, and although this hole is placed very near the edge of the disc, material strength remaining appears adequate.





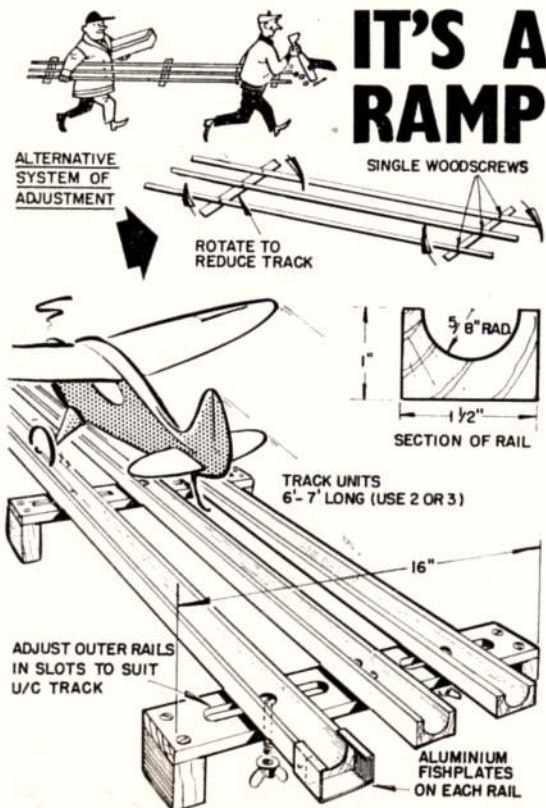
The crankshaft is  $\frac{1}{8}$  in. diameter, stepping down to  $\frac{1}{16}$  in. diameter and threaded 2 BA. at the front end. It is hardened and ground on the journal faces, but not on the crankpin. The web incorporates rather more counterbalance than on the earlier model. Crankpin diameter remains the same at  $\frac{1}{16}$  in.

The shaft is supported by a  $\frac{1}{8}$  in. ball race at the rear and  $\frac{1}{16}$  in. bore lightweight ballrace at the front, both races being very accurately press fitted into the crankcase unit. The use of a "lightweight" front race means a substantial reduction in race outer ring diameter and in consequence, the front bearing diameter can be kept down. The bearing length is also quite small, being just under  $\frac{1}{8}$  in.. The dural driver is locked on to the shaft with a spring collet, whilst the propeller nut incorporates a sleeve length screwing over the threaded shaft. Diameter of this sleeve is annoyingly just over  $\frac{1}{8}$  in. so that



a  $\frac{1}{8}$  in. drilled hole in a propeller does not quite clear. Also, for fitting low pitch propellers, additional washers have to be used (or the sleeve length reduced to eliminate bottoming against the driver before the propeller is tight).

Summarising, really an engine to enjoy and one which, judging from the test results, could give a good account of itself against most opposition for sheer performance. It runs consistently at any load speed, although it is obviously ported for high speed running and is happiest going really fast. Below about 12,000 r.p.m. it is "over timed" to the extent of spraying fuel back out of the intake, but it still starts just as easily and runs just as well. Everything that wants to be right appears to be right and the new "19" would appear to offer extremely good value for money.



GOT A ROUGH FLYING field and heavy model? The answer to those who are obliged to make their model take off the ground or else want to enjoy realistic flight under adverse ground conditions, is this Czechoslovakian idea for universal ramp with three guide rails. Dimensions and construction are not critical, but the original Czech device is shown in detail for those who want to emulate the Continental approach.

The ramp is reasonably portable, the model is guided throughout the length of its run and the only limitation is that you cannot get it back on the same spot for the landing!

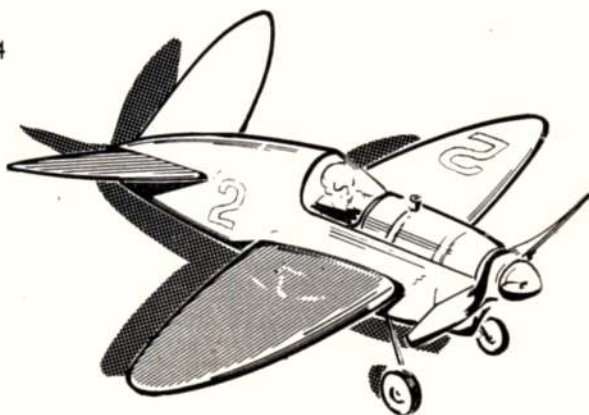




## World News



Top: Niemi Bros. and record breaking F.A.I. racer, did 5 kilometres in 4:32. Above is Charlie Choong's daughter (Malaya) and Elfin 249 Spitfire from Mercury kit. Below: Big Australian model by Max Haysom, Melbourne, is 84-in., has O.S. 35 engine



FIGURES QUOTED FOR entries in national contests always make interesting reading, especially if they enable an immediate comparison with other countries. Consider the size and populations of New Zealand, Germany and Poland, then reflect on these figures for the number of competitors who actually flew in the three main International class free flight events. Wakefield, N.Z.35, Germany 37, Poland 30. A/2 Glider, N.Z.76, Germany 76, Poland 52. Power, N.Z.57, Germany 35, Poland 20. The New Zealanders did not fly strictly to current F.A.I. Power rules, which explains that high figure, the only one which is, in fact out of proportion to the rest. Odd thing which strikes us is doubled interest in the only class which has not been subjected to rule changes—hands off the A/2 did someone say?

At the **New Zealand Nats**, a main high (f)light was a whopper thermal at Rukuhia which held ten models at various heights without drift. Eric Arkinstall towed a glider into it and picked the model up 15 minutes later (no d/t!) a few yards from release point. In **Germany**, Nats were at Manching, near Ingolstadt/Bavaria where Me 163's used to sear the sky. Meeting also incorporated team eliminators, Willy Oberdorf averaging no less than 2.50 to top the A/2 team, this over ten flights. R/C was spoiled by stormy conditions, Stegmaier carrying off an easy multi victory. Held at Krosno, the Nats in **Poland** brought modellers from 34 clubs together, indicating the growth of the hobby in that country despite lack of accessories and supplies as we know them. Warsaw is strongest centre, and Wieslaw Schier's Kormoranter power design with its novel pendant "boot", gained 2nd and 3rd places, which would have made an interesting complement in the Polish team. Design was detailed in December, 1958, issue. Schier has just had his book on control-line published—320 pages of solid matter on gyro forces, flap loads, design, construction and theory.

The annual meeting sponsored by Chrysler-Plymouth in **Finland** saw a considerable improvement in control-line standards. Influx of 35 size engines, used in small, very fast combat designs, made this event even more exciting than those epic finals in Brussels last year (incidentally, the Criterium of Europe is in Brussels for 1959). Jami Valo was king of the cuts, Olaf Sundell top in stunt to the AMA schedule with an APS Blue Pants design, and in team race, the Niemi brothers put up that fantastic time of 4.32 for the 10 kilometres. Osmo Niemi's model is a one-stopper with a 58 lap tank. Class B racing was marred by Jami Valo's crash at 120 m.p.h., from which not one part of a very fast Fox 29X survived! Jet was held for the first time, Olli Fovero making 212 k.p.h. with an OS pulse unit—a new Finnish record speed.

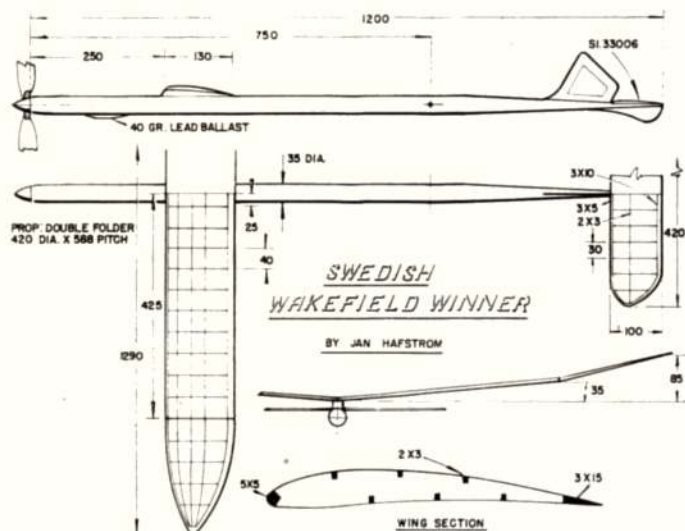
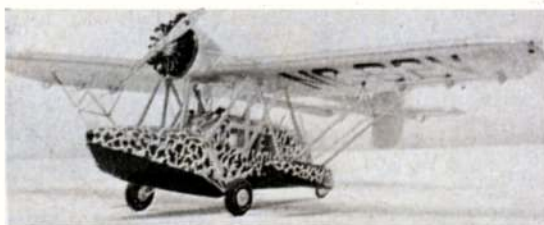
In freeflight, the entry, times, and the winds were



Left: Fravega's F.A.I. racer in the Argentine has enormous butterfly tail. Right: Solid Sikorsky S-39 "Spirit of Africa" is 1/48th scale by Paul Matt, note the leopard finish! P-38 Lightning has two 3.5s, flies at 50 m.p.h., by Pietro Frillici, Italy

high! Besides the three International classes, A/1, 1/4A power and C/1 rubber were run for smaller size models, the latter class going to Sans Egal designer Reino Hyvarinen with a full maximum score. Reino's approach to little rubber job is a long fuselage equally long and powerful motor, folding prop and a fast climb to avoid the model rolling against torque from the big prop. This way he gets a still air time of over 4½ minutes. Rules allow 9 square decimetres total area, loading 12 grammes per sq. dm.

It is with great regret that we report the death of **Switzerland's** Hans Schnabel in a mountaineering accident. Hans had flown for his country in 5 internationals, and was well known for his prowess in A/2: but was also a keen power flier and placed 4th in that first of the important FAI power events, at Dubendorf in 1952.



Above right is surprise Finnish Wake contest winner, Seppo Pohjola. Below, at Polish Championships, the Power winner Bredsznajder is in left picture and A/2 Champ, Bruno Haase at right with very Anglican looking model









Bill Newman of Harlow shows off the sesquiplane effect of that small lower wing. Pander is a "natural" for a simple, easy-to-build and fly scale model

of dihedral (other than the upward taper or the under-surface of the upper wing) but a pendulum rudder can quite easily be incorporated if desired. It is advisable to use medium to heavy wheels as a stability aid, and in this connection we should mention that Weaver race-car wheels are ideal, and have good scale appearance.

Constructionally there are no problems. The fuselage formers are assembled between the sheet side panels, and the undercarriage, cabane assembly, and lower wing centre-section built in before sheeting the nose. If a .75 or .8 c.c. motor is to be fitted, it may be advisable to cheat a little and widen the cowling by about  $\frac{1}{8}$  in., which may slightly affect the width of the soft block fillet on the fuselage top; this block should not be finally shaped until fitting the cowling. Note the slight difference in the depth of this block if the two-seat version is to be built.

Wing and tail are fairly conventional and call for no special comment. Boxes should be a good sliding fit on the tongues, and the strut pegs should fit reasonably firmly in their holes. All strut fairing details, etc., are given on the drawing.

Covering is lightweight Modelspan and finish colour is silver all over; we can trace no positive alternative scheme for the 100 version. The metal panelling (above the top line of the fuselage side sheets from F5 forward and the entire cowling from F2 forward) was engine-turned on most *Panders*, so that Polyfoil covering and a spinning rubber to reproduce this effect will be a must for realism enthusiasts (see Ryan NYP, June, 1957,



AEROMODELLER). One two-seat aircraft was PH-AFM, which had wing markings as on the drawing, but white fuselage lettering on a broad red flash terminating at F2 and the rudder stripes confined in a small circle on the rudder. Reference to a Jane's circa 1933 (see your Public Library) will help with one or two useful photographs.

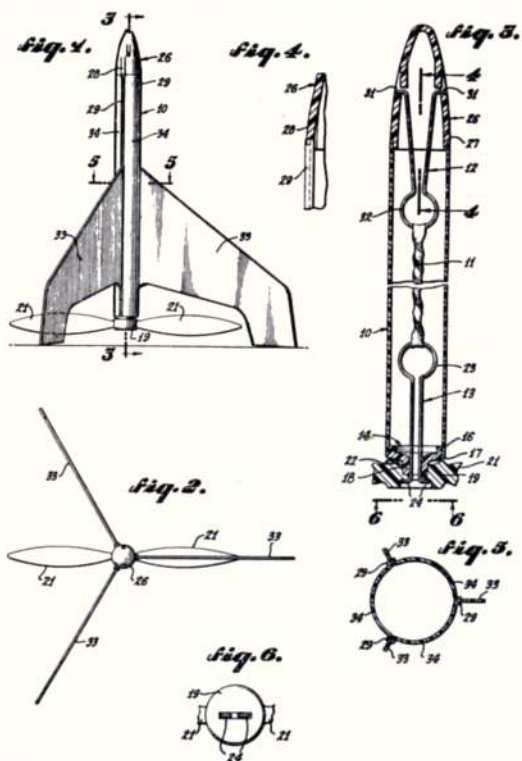
Balance the model at the point shown (with heavier motors some slight tail ballast may be needed) and check for glide. Initial power flights should be made on reduced power, aiming for a wide left-hand climb and wide right-hand glide. Do not attempt to achieve a very tight turn, especially on the glide.

## Important Patents

U.S.A. 2845746 G. W. KINNEY April 14th, 1955

THIS interesting invention was evolved in 1955 and apparently was intended to be produced commercially from plastic materials. The drawings are self-explanatory and would appear to be nearly scale; the body is generally cylindrical and includes a detachable nose plug for retaining, and possibly rewinding the rubber motor while the propeller runs on a bearing in a cap which closes the rear body end. Flying surfaces are disposed at 120 deg. stations about the rear body portion and extend rearwardly beyond the propeller to support the body for V.T.O. These appear to be plane surfaces and the specification gives no indication of any means for counteracting the effects of torque so presumably a degree of autorotation is permitted and may be favourable to stability.

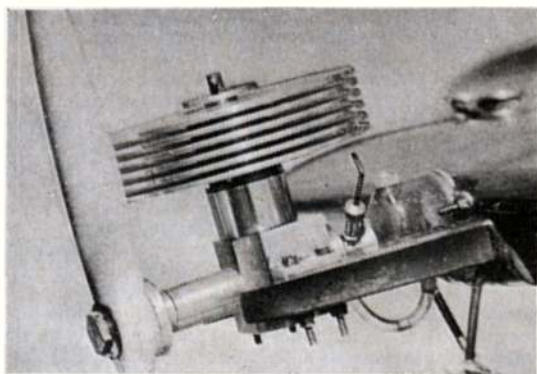
According to the inventor this machine was developed specifically to permit operation in confined areas and by suitable location of the c.g. it may be made to glide after the power run.







Left: We tested the D.C. Tornado in a stunt job. Verdict—terrific! Increase in revs after take-off is much more than expected. Right: Big 'ead is on home-built 3.5 by F. R. Fisher on tailless from Coventry



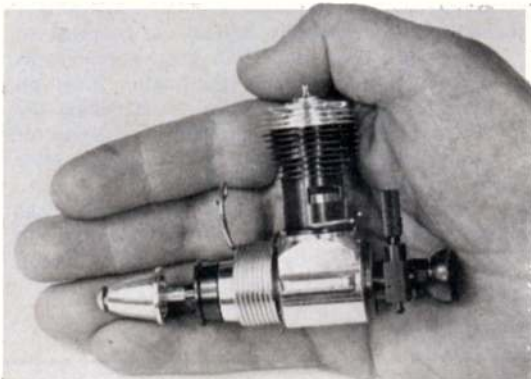
## Motor Mart

PRICE TUMBLES in the model motor market are almost incredible in these days of rising cost of living; but the influx of power units from overseas, and the development of at least three British .049s has produced a bright and competitive range for the man with about £2 to spend. The new **Frog .049** is based on the "80" diesel crankcase, using the same shaft and con rod; but the piston and cylinder are entirely new, and the use of integral cooling fins on the barrel provides an "American" appearance. From the Isle of Man, the **Davies Charlton Bantam** is similarly based on existing castings, those for the popular Dart diesel, but again the cylinder is an entirely new design, with 360 deg. shallow ports, alloy jacket carrying fins, metal tank and, of course, a Quickstart spring. In the case of the Bantam, the Quickstart uses a clawed engaging plate to offer a better contact point than the prop. The **Allen Mercury A.M. .049** is an entirely new motor as far as Britain is concerned although it owes appearance and proportions to the WenMac from California thanks to agreement between the two companies. The A.M. starter is based on a return spring, wound up by rotating the propeller, and which drives the motor on release of the prop.

When our first **Cox Olympic** arrived, we were a trifle disappointed in bench performance. The engine needed partial choking to maintain good fuel supply, and top reading on an 8 x 4 was 12,800 r.p.m. Investigation showed that we had probably got the only dud Cox ever to leave the factory! The reed valve was not seating properly. Now we have the latest version, and the figures are equal to all that is claimed. 12,200 r.p.m. on our standard test 9 x 3, 14,100 on the stock 8 x 4 and this on a standard fuel. Mods include an enlarged jet hole and restricted intake. This is now a mere 0.125 in. clearance and truly remarkable.



Above right: Fred Carter and J. Hall check Fred's special 2.5 made for this year's Criterion. Right: The Cox Olympic is both small and light—will establish itself in open power. Left: How to make an Enya 29 into a pusher using standard props. Rotate the crankcase front bearing 90 deg. Efficiency loss is slight





## READERS WRITE...

## Reader's request

DEAR SIR,

With reference to the letter from V. C. Redfern in the June issue of your excellent magazine regarding a reader's request column.

I have been trying for months now to obtain some thin wall brass or steel tubing of about 1-in. diameter so that I can attempt to make up some form of sprung under-carriage for the A.P.S. D.H. Mosquito. To date I have not had any luck with my search, in fact I wrote to one establishment twice during May, the first time enclosing a S.A.E. and have still had no reply. I am sure both letters can't have gone astray in the post.

Keep up the good work, your magazine is the only thing that keeps us "backwoodsmen" who have no club available, in touch, but let's have more of your excellent scale subjects.

D. DABBS.

Bedale, Yorks.

## That Airfix Lancaster

DEAR SIR,

I think I may be able to answer Mr. P. Scott's request for information on the Lancaster G for George now "living in retirement" in the Australian War Memorial in Canberra A.C.T.

According to the official Guide Book, G for George "was estimated to have flown 90 sorties" (including strikes on Berlin,

Munich, Hanover and other well-known German targets) and to have been shot-up at least thirty times during the 1939-45 War. Small yellow bombs painted on the nose of G for George represent raids by the bomber over Europe, but additional markings shown on the bombs are also of particular interest. Alongside each of the first 15 bombs is a sketch of the "Saint" insignia (made famous in fiction) and it is reported that these indicate the strikes made by the aircraft under the command of its first regular Captain, Flt./Lieut. J. Saint-Smith, D.F.M., who lost his life in operations in 1944. It is also reported that the red diagonal stripes and the blue Vs appearing on other bombs indicate flights made by other regular Captains. Awards earned by members of the squadron, other than Immediate Awards, were usually made after a tour of duty on operations (30 trips) and this is understood to be the significance of the coloured medal ribbons appearing after each thirtieth bomb as being considered by crew members that "G for George" had thoroughly earned these honours.

As can be seen from the above, the bomb markings have been simplified somewhat in the "Airfix" kit. The most notable difference between G for George of 1959 and the Airfix markings is the fact that no squadron markings are painted on the original now. I have heard that this aircraft was rather bent during a prang whilst on "War Bond" flights in 1945 and possibly during the repairs, the AR-G was painted out. Another point is that the original bears the serial V 4783 instead of W 4783.

J. PRENDERGAST.

Bairnsdale, Victoria,  
Australia.

(With this excellent information from one

Letters to the Editor should always be accompanied by a stamped and self-addressed envelope for the convenience of our reply. We regret that without this gesture we cannot undertake either to acknowledge correspondence or provide answers to readers' queries.

of many enthusiastic Australian readers who have written in answer to Mr. Scott's request—we close this correspondence.—Ed.)

## Organisation wanted

DEAR SIR,

Kenton club would like to know why clubs that are willing to go to great lengths to compete in combat competitions are never willing to organise such comps. Of the clubs that were asked to organise the combat at the Nationals very few came forward. Yet these unco-operative clubs are the first to complain when a comp. is not organised to their satisfaction. The most frustrating thing organisers have to contend with is that the competitors are never available at the right time; this was the trouble at the Nationals, and to make matters worse we had no public address system as a main transformer had broken down. We would be obliged if entrants would find out on arriving what time they are due to fly and be ready five minutes before that time at the control point. How many times does one find that the competitor has arrived with no pit-crew or has just snapped his lines test-flying and "won't be five minutes".

G. H. COPEMAN.

Kenton.

\*\*\*\*\*



**THE EAGLE BOOK OF MODEL AIRCRAFT**, by Ray Malmstrom, 64 pages, stiff bound, illustrated, 7 full size plans. 8 in. x 10 1/2 in. Hulton Press, 8s. 6d.

Ray Malmstrom's characterised models need no introduction to AEROMODELLER readers and his prolific output of all sorts of simple designs has long entertained the sport flyers of this country. By specially producing this course of aeromodelling with no less than seven actual size plans in the book for building a range of attractive models, Ray gives the purchaser of this book far more than expected value for money. Scale, semi-scale and pure sports designs are described, explained and sketched in a way that only leaves few questions on the hobby unanswered, and the author's long

## Book reviews

experience of our educational system is most obvious in his explicit style. Two little controliners, the Hall Racer and Gee Bee, will be favourites, we are sure, with those many thousand of modellers who like scale "quickness", and the free flight "Skygipsy" with its high mounted engine offers a prop-saving variation on the simple sport model theme. Rubber, power, Jetex and gliders are covered in detail, and a photographic summary of advanced and expert class models rounds off a perfectly balanced content. Congrats to the author on his industry, and for a job well done.

## World War I

**ACES OF THE 1914-1918 WAR.** Harleford Publications, 200 pages, 11 1/2 in. x 8 1/2 in., stiff bound, 45s.

This latest production by Harleford does not claim to be the "be all and end all" of its subject, but probably comes nearer to that object than any of its predecessors. With such talented contributors it could hardly fail. Much praise is due to Bruce Robertson who has so well achieved a remarkable uniformity of style without losing the individuality of his contributors.

Each section of the book is divided into two parts. The first deals with the military background of each nation concerned and the second records the biographical details of the "ace" airmen. This followed by an appendix of victory scores, as complete as possible, down to five victories. A praiseworthy degree of comprehensiveness has been attained taking into account the economy of words an omnibus work of this nature demands.

Undoubtedly there will be controversy,

but the book does make an honest attempt to correct many of the errors of the past and not to once again perpetuate them. It also presents a great deal of information that is new. It is surprising how many "aces" of some nations ran up a sizeable number of victories. With very little being known of them—until now! How many, for instance, have heard of Josef Jacobs who registered 41 kills for the German Air Force and survived World War I to become a member of the Luftwaffe?

Of photographs there are 338 and many have been selected for "interest value", rather than for out-and-out quality. Quite a few of these are collectors items and none that have appeared in previous Harleford books have been repeated—an admirable policy.

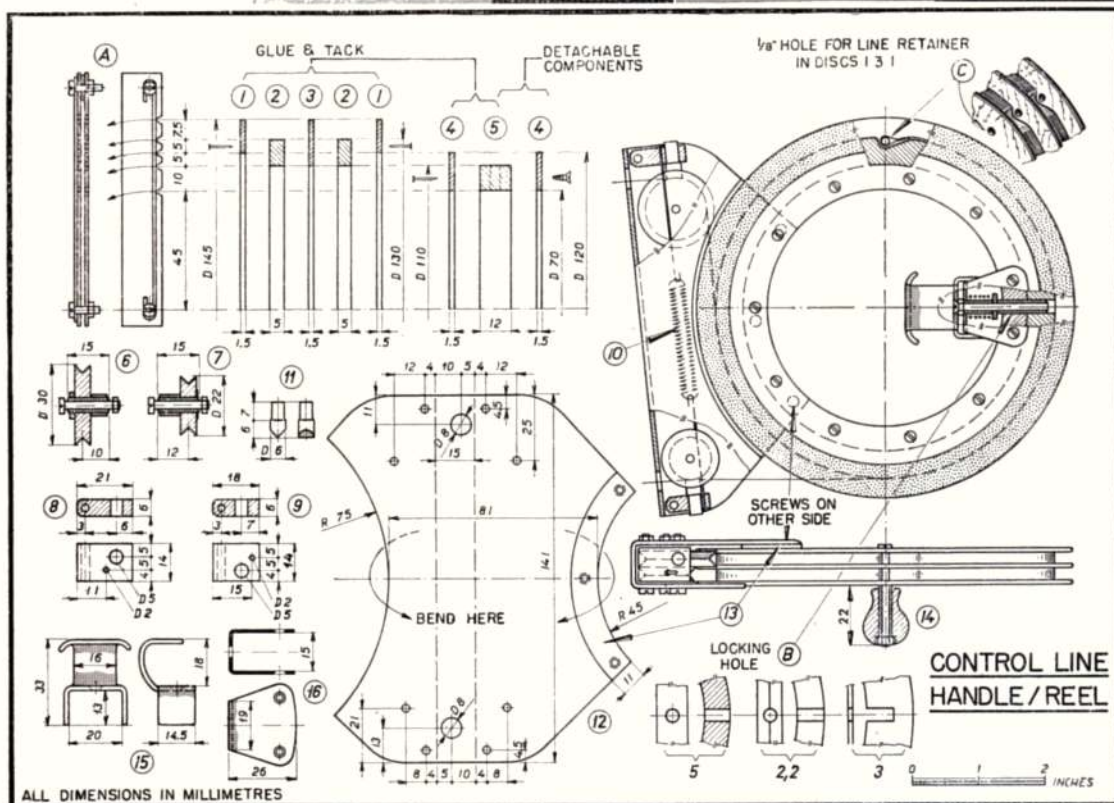
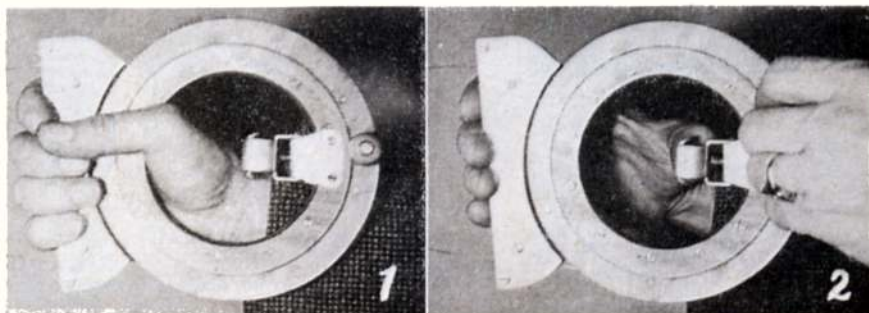
Modellers will be pleased to find reference to colour schemes and markings, also aircraft serial numbers are quoted in many instances which lends considerably more authenticity to the narrative.

The frontispiece photograph could have well been replaced by a further reproduction of J. D. Carrick's beautiful dust jacket study of a Pfalz D.III—a most satisfying work both technically and artistically. There are minor spelling errors, and inconsistencies in the German names, e.g., Allmenroeder/Allmenroder, etc., in a historical work it is probably best to adhere to the original (native) spelling of names and not to use the anglicised version, but that is only a matter of opinion. Albatros DV and DVa are sometimes wrongly designated in captions, i.e., the aircraft of Jasta 2 (page 17) are DVs (without headstuds), but these two types are inordinately difficult to positively identify. One certain means is by the ailerons—DV aileron cables ran through the top wing and had small shrouds where they ran over the actuating pulley; on the DVa the cables ran through the lower wing and out towards the tip, to operate the ailerons by a crank lever as on the D.III. But how refreshing to find the word Albatros correctly spelt throughout the book.

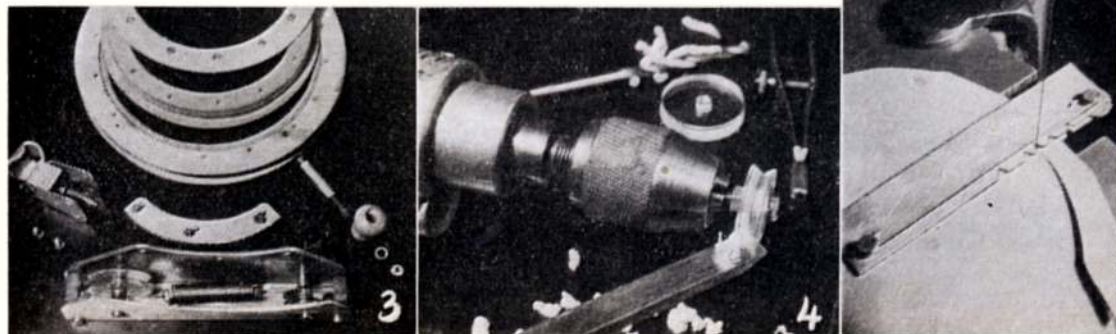
P. L. G.



Photographs show the general principles of this simple handle/reel devised by Czechoslovakian E. F. Brauner. It makes an admirable workshop project for those at Technical Colleges and if fitted with long lines, can be used for any size of model, simply by limiting the amount of cable paid out. Material sizes are not critical and construction should be within the capabilities of any competent modeller



Below are three views to show the components dismantled at left. The method of turning guide reels, using a chisel and electric drill, centre, and at right, the cutting jig for the circular parts.





## Make your own Control-line Handle/Reel

THIS HANDLE/REEL is a simplified version of E. F. Brauner's original all-metal handle which had to be made on a lathe, but all one requires to make this unit is an electric drill or wheel brace, a fretsaw and the ability to bend sheet metal. The final result is a very convenient reel which enables one to secure the lines safely on the drums when not in use and to reel them out to any particular length required without incurring differences between the individual lengths of the two wires. As will be seen in photograph 1, the handle is normally held between the outlet guides and to release the wire one extends a trigger which in turn releases the drums, as seen in photo 2. So much for the operation, now for construction.

A cutting jig as seen in picture 5 is essential. This is drawn as part (A) and is simply a means for fixing the various diameters of the drums, with a wire stop to act as a backing guide for the saw which uses the vee-cut at the appropriate diameter. This guide can be fabricated from dural sheet, the material is not critical and it enables one to cut out parts 1, 3 and 4 from  $\frac{1}{16}$  in. ply, part 2 in  $\frac{1}{8}$  in. ply and part 5 in  $\frac{3}{16}$  in. ply. The small cutaway in the reel cores seen in the sketch (C) and the holes drilled through the flanges should be carefully aligned as these retain the line ends.

Assembly of the reels is self-explanatory on study of the drawing, but particular note should be made of detail

(B) for the drilling of the locking hole in parts 2, 3 and 5. It is important that the reels spin easily over the centre core 5, and that there is a reasonably free fit between outer clamps 4 which retain the reels in their position. What are known as guide reels parts, 6 and 7 are ineffect the reels over which the lines pass before leaving the handle and were fabricated from perspex on the original, which can be easily worked as seen in photo 4, where a chisel is used to make the grooves. Lines are held in these grooves by pressure pads in parts 8 and 9, pulled in place by the spring 10. The holes in 8 and 9 should be made to accommodate the most convenient size of rubber or leather block available to make friction pads. Parts 15 and 16 are the trigger arrangement for the release lock which is spring loaded to engage in the outer reels at single revolution stages. Part 12, the handle and retaining frame for the guiding reels can be made from any material, aluminium being preferable in view of the number of bends required over fairly small radii.

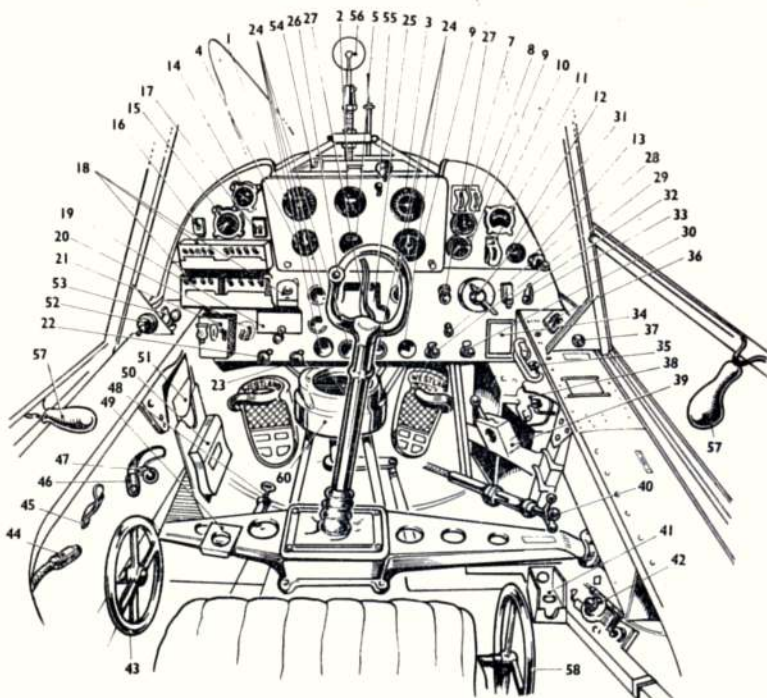
The whole idea is a praiseworthy effort, showing some ingenuity on the part of this Czechoslovakian modeller, who will be remembered for his other admirable product, the Brauner pulse jet. The dismantled reel is seen in photo 3, and we have no doubt that many a modeller seeking a workshop project at his Technical College, will find this unit an excellent exercise, and one with unusually useful application when complete.

## Detail for Scale Enthusiasts

(especially those building the APS Lysander)

### Cockpit Layout of the Westland Lysander

1. Airspeed indicator. 2. Artificial horizon. 3. Rate of climb indicator. 4. Altimeter. 5. Artificial horizon. 6. Turn and bank indicator. 7. Fuel pressure gauges. 8. Boost gauge. 9. R.p.m. indicator. 10. Cylinder temperature. 11. Oil pressure gauge. 12. Oil thermometer. 13. Switch for compass lamp. 14. Brake and gun air pressure gauge. 15. Clock. 16. Flare isolating switch. 17. Magneto switches. 18. Bomb selector switches. 19. Aircrew pitch control. 20. Bomb fusing switches. 21. Bomb releaser indicator and jettison switch. 22. Carburettor. 23. Rudder bar adjusting control. 24. Stowage for eight signal cartridges. 25. Oxygen regulator. 26. Gun firing button. 27(a). Brakes operating lever. 27(b). Priming pump. 28. Oil warming control. 29. Cockpit heating control. 30. Air intake control. 31. Priming cock. 32. Starting magneto switch. 33. Starter push button. 34. Engine data plate. 35. W/T morse key. 36. Switchbox for navigation lamps and gun heating and pressure head heating (A.S.I.). 37. Gunner's warming lamp push button. 38. Identification lamps switchbox. 39. Forced landing flares release. 40. Cowl-gill-control. 41. Signal pistol stowage. 42. Wireless remote controls. 43. Tail plane incidence handwheel. 44. Microphone and telephone socket. 45. Flap locking lever. 46. Bomb firing switch. 47. Throttle and mixture levers. 48. Camera sight which is used through lens in floor. 49. Camera control mounting. 50. Stowage for course and drift calculator. 51. Stowage for maps. 52. Landing lamp switch. 53. Fuel cock. 54. Reflector gun-sight master switch. 55. Dimmer switch for reflector gun-sight. 56. Ring and bead gun sight. 57. Sliding window catch. 58. Seat adjusting hand wheel. 60. Compass just forward of the control column.





## AIRCRAFT DESCRIBED

NUMBER 97

## Roland DV1b

described by P. L. GRAY

*Experimental version of DV1b at right with double bay I struts. Presumably no increase in performance was achieved. — Photos by A. Imrie*



LUFT FAHRZEUG GESELLSCHAFT m.b.h. was formed in 1908, and before the war was mainly concerned with the construction of non-rigid airships. When aircraft manufacture was embarked upon from 1909 onwards, the trade name "Roland" was adopted to avoid confusion with the L.V.G. firm.

Early in the war, Albatros two-seaters were built under licence at the Adlershof (Berlin) factory. Fire destroyed this factory in September 1916, but the Exhibition Hall at Charlottenburg was requisitioned and production continued, mainly at this time on the first successful L.F.G. design, the famous CII "Walfisch". First of a long line of some 12 fighters, the D.I. appeared in 1916 and this was developed through to the D.V; but only the D.II was built in any quantity. In the D.VI series which followed, a different style of fuselage construction was pioneered. At least four prototypes were built initially with variations in the control surfaces, one aircraft having double bay "I" struts to dispense with incidence bracing.

Produced to compete in the 1918 "fighter trials" held at Adlershof airfield, to decide which aircraft should be selected for production. Originally this elegant looking aeroplane was fitted with the 160 h.p. Mercedes D.III engine, when it was known as the D.VIA, but as supplies of this engine were restricted, it was reworked to take the Benz motor. Although the main production order went to the Fokker D.VII an order was placed for a small batch of Roland D.VI's as a precaution (in the same way the Pfalz D.XII was ordered) against Fokker D.VII supplies breaking down for any reason.

Distinctive features of the D.VI were its "clinker" built fuselage, keel mounted lower wing and rather "droop snoot" nose. The proportions of the aeroplane were nicely balanced and it was of distinctly clean and racy appearance: its performance was good and it was probably only the somewhat intricate fuselage construction, and resultant increase in manufacture time, that precluded the placing of a larger order.

The fuselage was "clinker" planked, after the style of small boat construction, with slightly tapered strips of spruce fastened to a basic structure of formers and

longerons. The Benz Bz IIIa motor was cleanly installed in the nose with easily removed metal panels in the immediate vicinity of the cylinder block and aft of the neatly spinnery airscrew, a saxophone type manifold was fitted which exhausted to starboard. The main and under fins were both integrally built with the fuselage and covered with plywood. The keel, to which the lower wing panels were fitted, was also part of the fuselage structure. A bucket seat was fitted in the cockpit, the cross bearers of which dropped into spaced slots to afford some degree of adjustment. The control column was of steel tube with a grip top and auxiliary throttle adjustment very similar to that of the Fokker DR. I. The main throttle quadrant was on the left-hand side of the cockpit.

A tailplane of inverted airfoil section and trapezoidal shape was fitted, to which were attached the ovoid steel tube elevators; it appears that both balanced and unbalanced elevators were fitted. The rudder was also of steel tube construction and all these members were fabric covered.

Undercarriage was of streamlined steel tube and sprung with elastic shock cord wrapped around the apex of the Vees, the spreader bars were neatly enclosed in a light fairing. Centre-section struts were a welded steel tube structure, flattened at the lower attachment ends, slotted into their fixtures and secured with a bolt. The ash tailskid was hinged to the underfin and sprung at its top end with elastic cord.

Flight characteristics of the Roland were normal; slight nose heaviness with engine throttled well down and slightly tail heavy at full throttle. Manoeuvrability was assessed above that of the average single seater. Take off run was short and the machine could be landed very slowly, however, the somewhat narrow track produced a tendency to pirouette. Visibility from the cockpit was very good and its roominess afforded considerable freedom of movement for the pilot, which contributed largely to the elimination of blind spots.

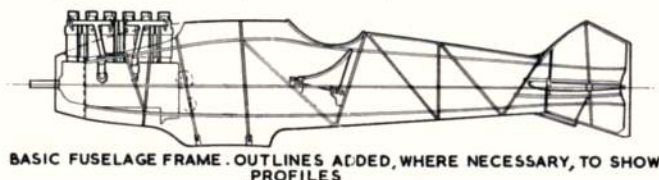
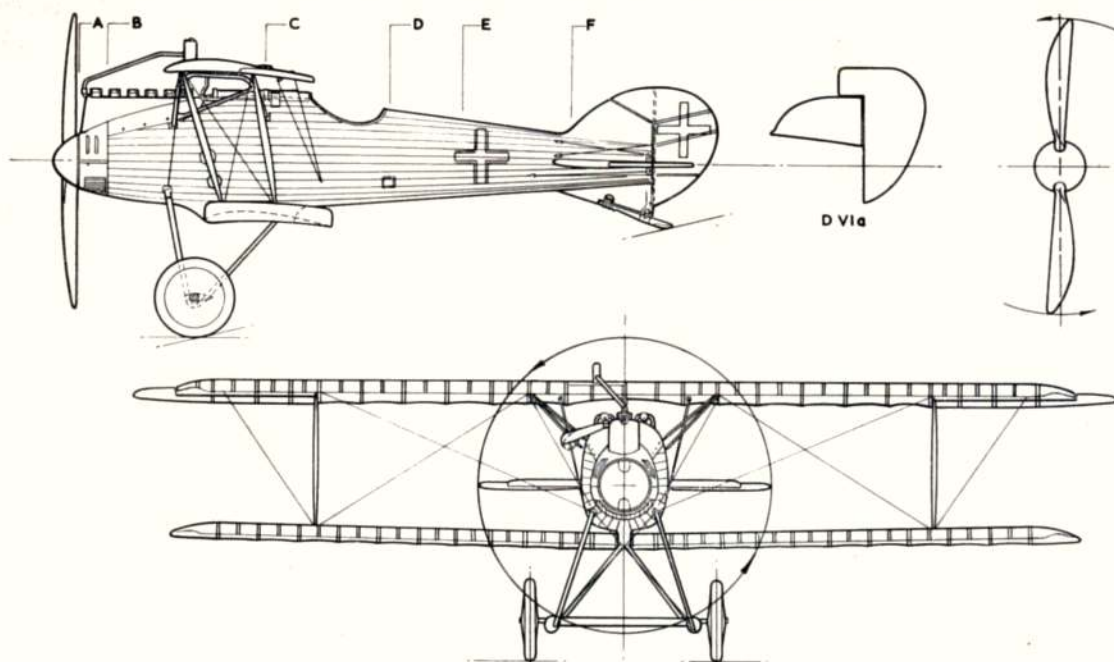
After the D.VI there followed a series of prototypes the D.VII in two versions, D.IX in three versions, D.XIII, D.XIV, D.XV in no less than four versions, D.XVI in two versions and D.XVII, the last two types being parasol monoplanes, none, however, saw any quantity production. The gaps in the lineage numbers were projects only.

*Specially posed outside the Charlottenburg Exhibition Hall factory, this view of the DV1b (the 2,000th aircraft built by L.F.G.) shows well its racy lines. There are small departures from standard in the lower and exhaust manifold curvature, this machine was fitted with unbalanced elevators*

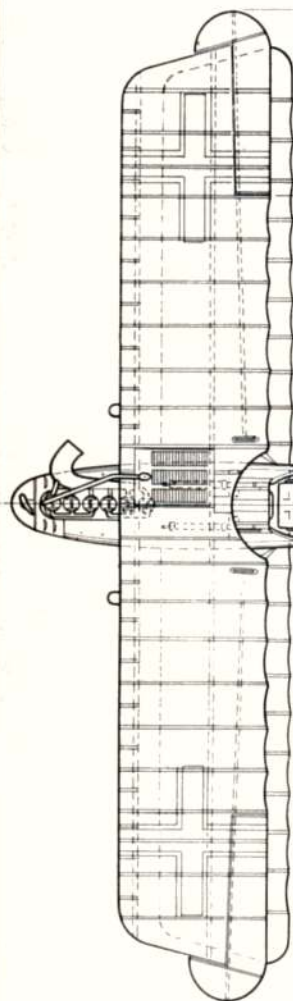
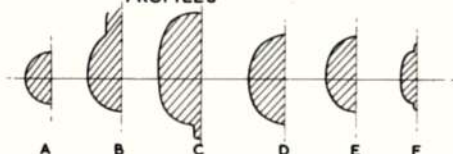


"J" TYPE 1/72nd SCALE REPRINTS AND "A" TYPE 1/48th SCALE DYE-LINE PRINTS OF THIS DRAWING ARE AVAILABLE PRICE 6d. and 1s. RESPECTIVELY FROM A.P.S. QUOTE PLAN No. 2719 WHEN ORDERING AND ADD 6d. POSTAGE.

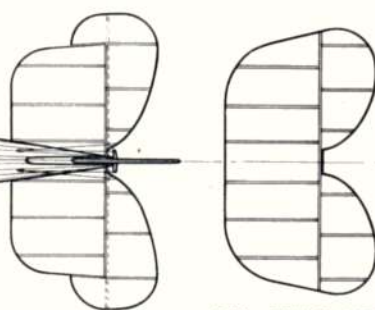




D VI a AILERON, ALSO ON SOME D VI b



D VI a TAILPLANE, ALSO ON SOME D VI b



### COLOUR DETAILS

"Ex works" D. VIb's had wings and tailplane covered with losenge printed fabric dyed in shades of dark green, light green, maroon, indigo and ochre on the top surfaces. On the undersurfaces similar shades, but of considerably lighter hue and tone were used, i.e., pink replaced maroon, cobalt for indigo, etc. Rib tapes were of a light blue shade, the rudder was covered with plain linen fabric.

The "clinker" strips of the fuselage were in their natural spruce finish, as was the ply covered fin; both were well covered with a transparent protective varnish, which resulted in a warm straw shade. The spruce interplane struts were the same colour. Undercarriage struts, centre-section struts and metal nose panels were painted medium grey. Wheel discs, of light gauge metal, were lozenge painted to match the fabric.

### DATA

Manufacturer: Luft Fahrzeug Gesellschaft, Charlottenburg  
Purpose: Single-seat scout biplane  
Power: Benz Bz IIIa developing maximum of 200 h.p.

Span:  
Upper—9,400 mm. (30 ft. 10½ in.)  
Lower—8,676 mm. (28 ft. 5½ in.)

Chord:  
Upper—1,400 mm. (4 ft. 7¼ in.)  
Lower—1,200 mm. (3 ft. 11¼ in.)

Length: 6,322 mm. (20 ft. 8½ in.)

Dihedral 3 deg. lower wing only

Speed: 200 km. per hr. (125 m.p.h.)

Climb:

1,000 m. in 2½ min.

3,000 m. in 9 min.

6,000 m. in 28 min.

6,400 m. in 36 min. (ceiling)

Weight empty: 640 kg.

Useful load: 180 kg.

Armament: Twin fixed machine guns synchronised to fire through air-screw disc.

N.B.—Above German performance figures are average. Airscrews of differing pitch (and shape) were fitted according to the performance required, i.e., high speed or fast rate of climb, etc., and fitting of same was at the discretion of the pilot. Performance figures for a D.VIb tested in the U.S.A. after the war were:

Climb to:

6,500 ft. in 6½ min., speed 114 m.p.h.

10,000 ft. in 11½ min., speed 108 m.p.h.

15,000 ft. in 24 min., speed 99 m.p.h.

17,400 ft. in 38½ min., speed 90 m.p.h.

(service ceiling)

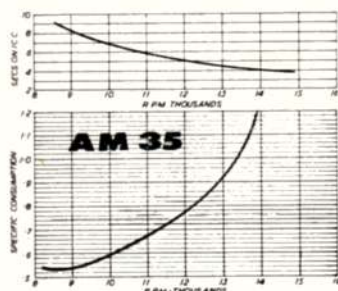
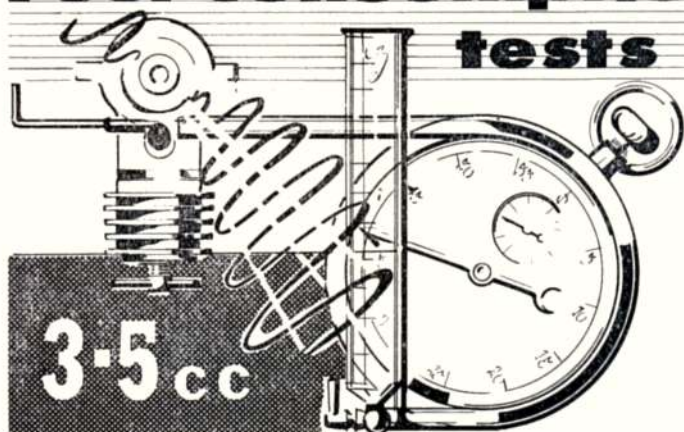
19,000 ft. (absolute ceiling)



# Fuel consumption tests

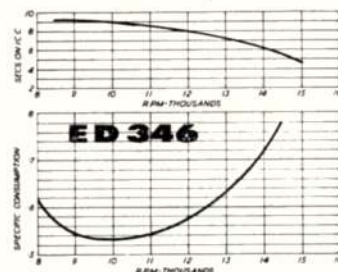
September, 1959

by R. H. Warring



## A.M. "35"

Although the power output of this engine is considered moderate, its size is attractive for Combat and radio control work and its power/weight ratio has made it very popular for open power/duration. Peak power is developed low down—around 11,000 r.p.m.—at which speed the running time on minimum lean mixture is of the order of six seconds per c.c. Minimum specific fuel consumption on test was realised at just under 1,000 r.p.m. below "peak", the curve rising sharply with increasing speed. Power falls off rapidly beyond about 13,000 r.p.m. and so there is no point in trying to operate this engine at very high speeds.

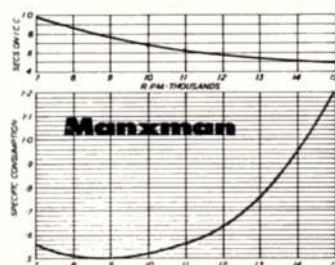


## E.D. 346

Although the power output of this engine is relatively low, it is a very easy engine to handle and establish settings for smooth, consistent running. As such it is still a good choice for trouble-free

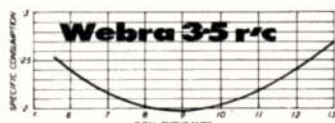
operation, where top performance is not the main aim.

Peak power is developed at a moderate r.p.m. figure and consumption figures up to and even beyond this speed, are extremely low. At a speed of 10,000 r.p.m., for example, which is probably typical for the sizes of propellers commonly employed, duration is of the order of nine seconds per c.c. of fuel. Equally interesting, the specific consumption figure shows a minimum value at 10,000 r.p.m., which means that at this speed the most economical use is being made of the fuel.



## D.C. Manxman

This is another engine which peaks at a relatively low r.p.m. figure. Minimum specific consumption, however, is achieved at 9,000 r.p.m., the actual consumption figure being roughly doubled between 7,000 and 13,000 operating r.p.m., although the consumption curve is not truly linear. A very slightly rich setting would appear preferable for consistent running in the air under load, but the needle valve control is flexible and minimum lean settings established quite consistently on bench tests.

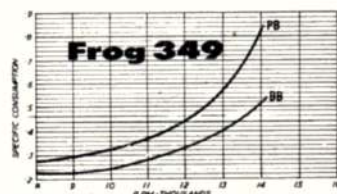


## Webra 3.5 R/C

The low fuel consumption figures for this 3.5 c.c. engine are excep-

tional, but were extracted with the engine fitted with its exhaust system and correspond to only a very modest power output—rather less than can be extracted from a standard 2.5 c.c. diesel, in fact. With the exhaust system, of course, the Webra 3.5 R/C is fully responsive to throttle control and is obviously intended as a very flexible power unit for use on radio control models of reasonably light overall weight.

Specific consumption shows a similar very low minimum value, realised at 9,000 r.p.m. which is about the optimum operating r.p.m. for this engine with the fitted exhaust system. All consumption figures refer to minimum lean needle valve settings with the barrel throttle in the fully open position (i.e., for normal "maximum power" running).



## Frog 349's

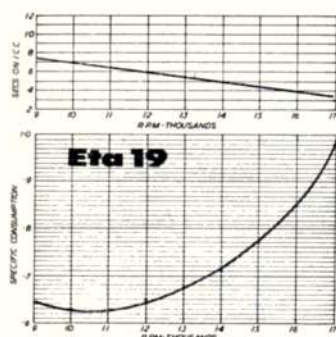
Employing drum-valve induction via the rear end of the crankcase, the Frog 349 is an extremely economic engine on fuel. However, the test figures may be a little misleading in that they were established for minimum lean settings which would almost certainly not hold true in the air. In other words, somewhat richer needle settings would have to be used in practice. This design, in fact, does prefer running slightly on the rich side to be absolutely consistent. Another factor is that ground running the engine gets very hot, which probably assists in the utilisation of a weaker mixture, but runs cooler in the air.

Specific consumption figures for both models are given—the plain bearing 349 (PB) and the ball bearing 349 (BB). The latter shows a lower specific consumption curve largely on account of its higher power output. Although the actual consumption figures (time on 1 c.c. of fuel) are by no means identical for the two engines at various load speeds. The BB version, in fact, is the more economic of the two all round.

## Eta "19"

Figures for this exceptionally powerful 3.2 c.c. glow motor, show a relatively modest demand, duration per c.c. even being comparable with





some of the diesels at the lower speeds. However, the Eta "19" develops peak power in the region of 17,000 r.p.m. and would presumably be operated at high speeds where the fuel consumption figures are not so flattering.

Specific consumption shows a minimum value comparable to some diesels at 10-11,000 r.p.m., but increases quite rapidly with increasing speed—and is almost doubled at 17,000 r.p.m.

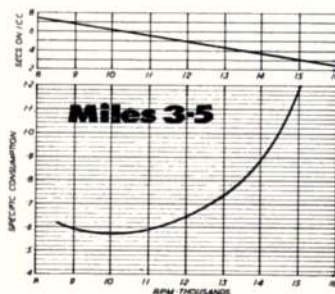
A particular virtue of this engine is ease of handling—instant starting and a very flexible needle valve control. Like most glow motors, the engine cut immediately when the needle is closed beyond "minimum lean" setting and would normally be operated at a slightly richer setting than the bench test figures give.

#### Miles 3.5 "Special"

Although so far produced in limited numbers only, the Miles 3.5 c.c. "Special" has been used with particular success for control line combat, and also for radio control.

It is a twin ballrace engine, peaking at about 12-13,000 r.p.m. with a maximum B.H.P. figure slightly in excess of .3.

Fuel consumption figures are quite moderate for an engine of this size and power, minimum specific consumption being achieved at 10,000 r.p.m. Needle valve control on this engine was particularly flexible and settings could be established with confidence.



A.M. 3-5

R.P.M.	B.H.P.	Duration on			c.c./ B.H.P./ per second
		1 c.c.	10 c.c.	15 c.c.	
8,000	.21	—	—	—	—
9,000	.23	8.2	1:22	2:03	.53
10,000	.25	6.8	1:08	1:42	.59
11,000	.26	5.8	:58	1:27	.66
12,000	.25	5.0	:50	1:15	.80
13,000	.22	4.5	:45	1:07	1.0
14,000	.15	4.0	:40	1:00	1.66
15,000	—	3.8	:38	:57	—

E.D. 3-46

R.P.M.	B.H.P.	1 c.c.	10 c.c.	15 c.c.	c.c./ B.H.P./ per second
8,000	.18	9.0	1:30	2:25	.615
9,000	.20	9.3	1:33	2:30	.54
10,000	.21	9.0	1:30	2:25	.53
11,000	.22	8.4	1:24	2:06	.54
12,000	.22	7.9	1:19	1:59	.58
13,000	.215	7.4	1:14	1:51	.63
14,000	.21	6.5	1:05	1:37	.73
15,000	—	4.8	:48	1:12	—

MANXMAN

R.P.M.	B.H.P.	Duration on			c.c./ B.H.P./ per second
		1 c.c.	10 c.c.	15 c.c.	
7,000	.18	10.0	1:40	2:30	.555
8,000	.225	8.7	1:27	2:10	.51
9,000	.25	7.8	1:18	1:57	.51
10,000	.26	6.9	1:09	1:44	.54
11,000	.27	6.3	1:03	1:34	.59
12,000	.28	5.8	:58	1:27	.615
13,000	.245	5.4	:54	1:21	.76
14,000	.20	5.1	:51	1:16	.98
15,000	.17	4.9	:49	1:13	1.2

WEBRA 3-5 BULLY

R.P.M.	B.H.P.	1 c.c.	10 c.c.	15 c.c.	c.c./ B.H.P./ per second
6,000	.14	30.1	5:01	7:30	.24
7,000	.16	29.0	4:50	7:15	.215
8,000	.18	27.6	4:36	6:54	.20
9,000	.195	26.4	4:24	6:36	.195
10,000	.195	25.0	4:10	6:15	.205
11,000	.19	23.9	3:59	6:00	.22
12,000	.185	22.5	3:45	5:37	.24
13,000	.175	21.2	3:32	5:18	.27
14,000	.165	—	—	—	—

FROG 349 PB

R.P.M.	B.H.P.	1 c.c.	10 c.c.	15 c.c.	c.c./ B.H.P./ per second
8,000	.24	15.0	2:30	3:45	.28
9,000	.26	13.2	2:12	3:18	.29
10,000	.27	11.6	1:56	2:54	.32
11,000	.28	10.0	1:40	2:30	.36
12,000	.28	8.3	1:23	2:05	.43
13,000	.265	6.6	1:06	1:39	.57
14,000	.24	5.0	:50	1:15	.83
15,000	.18	—	—	—	—

FROG 349 BB

R.P.M.	B.H.P.	1 c.c.	10 c.c.	15 c.c.	c.c./ B.H.P./ per second
8,000	.245	18.2	3:02	4:33	.225
9,000	.265	16.4	2:44	4:06	.23
10,000	.285	14.5	2:25	3:38	.24
11,000	.30	12.7	2:07	3:10	.31
12,000	.30	10.8	1:48	2:42	.32
13,000	.295	9.0	1:30	2:15	.37
14,000	.275	7.0	1:10	1:45	.52
15,000	.25	—	—	—	—

ETA 19

R.P.M.	B.H.P.	1 c.c.	10 c.c.	15 c.c.	c.c./ B.H.P./ per second
8,000	—	8.0	1:20	2:00	—
9,000	.21	7.4	1:14	1:51	.64
10,000	.23	6.9	1:09	1:44	.63
11,000	.25	6.4	1:04	1:36	.625
12,000	.26	5.9	:59	1:29	.65
13,000	.27	5.5	:55	1:22	.675
14,000	.28	5.0	:50	1:15	.71
15,000	.29	4.5	:45	1:08	.77
16,000	.30	3.9	:39	:59	.85
17,000	.30	3.4	:34	:51	.98

MILES 3-5

R.P.M.	B.H.P.	1 c.c.	10 c.c.	15 c.c.	c.c./ B.H.P./ per second
8,000	—	7.4	1:14	1:51	—
9,000	.25	6.8	1:08	1:40	.59
10,000	.28	6.2	1:02	1:33	.585
11,000	.30	5.6	:56	1:24	.595
12,000	.31	4.9	:49	1:14	.66
13,000	.31	4.4	:44	1:06	.74
14,000	.30	3.8	:38	:57	.88
15,000	.26	3.2	:32	:48	1.2
16,000	—	2.5	:25	:38	—

## Experts' Forum Model TIGRESS

Continued from  
page 409

For the experienced modeller Tigress construction being of solid balsa is fairly elementary, but there will be a number of modellers wanting to break into this side of the competition and for them a few explanations may be thought necessary. The model is built around a  $\frac{1}{4}$  in. ply former to which is bound the undercarriage and the engine bearers, the 3/16 in. crutch is glued between the rear end of the bearers with the motor bolted in front on top of the alloy plates which reinforce the bearers. Wings are held to this assembly with Araldite having already been sectioned and grooved to take the controls which are fitted prior to building up the fuselage. Fuselage sides are fitted, followed by the remainder of the fuselage and tail construction, noting that obechi is preferred to balsa for the tail surfaces.

In order to fit the Oliver Tiger engine satisfactorily one must flatten the fins at the sides, and a desirable asset is glass fibre assembly cowl. Streamlining in the form of plastic wood fillets on the wing and tail root fittings, sharp trailing edge sections, and well filled woodgrain and balsa surfaces are all

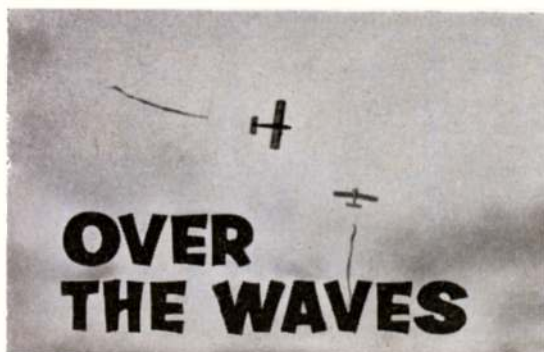
Tigress racers are numbered by Wharfedale after the manner of French prototype aircraft allowing for development to enter the teens

rewarded with high airspeed, whilst for practical operation the undercarriage spreader bar and tyre retaining guards are essential for flying in hot competition.

The seven Tigresses already made by Wharfedale modellers have collected 9 high placings in rallies to date, and one of them will be representing the country at Brussels this year.







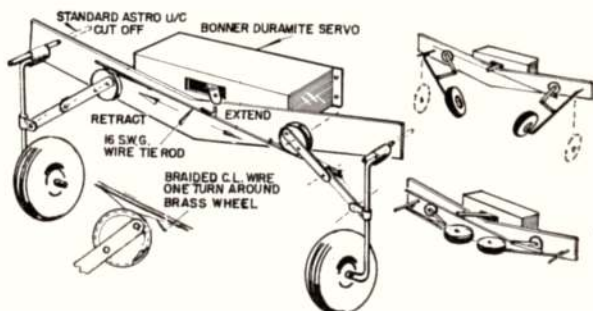
RADIO THRILLS GALORE were in store for members of the A.R.C.C. when they held their May meeting at Membury, Wiltshire. After taking their turn at judging, the Uproarious pair Stewart Uwins and Chris Olsen decided to try some streamer cutting, and in the heading photo we see the two *Uproars* just before the moment of impact. Streamers were of different colours to aid identification for the operators, but just the same the boys got a little too close to one another and Chris' leading edge completely removed Stewart's engine, putting an end to play; but both models landed safely. Model on right is just completing a bunt as the other sweeps in to attack.

### Uproar Mods.

We have recently been able to bring the *Uproar* plan up-to-date with latest modifications. These have been incorporated to increase the strength of certain parts of the airframe and also to improve the aerodynamic qualities of the design. Chris has been using the Eta Mk. VI most successfully, and lengthens the fuselage  $\frac{1}{2}$  in. with additional fibre-glass strengthening, there is a steerable tail wheel unit for ground manoeuvres, a clipped wing to 5 ft. 6 in for fast flying and better rolls, and the dihedral braces are extended. This results in a model that can put up a faultless display as all who were present at the Radio Team Eliminators, Cranfield, can certify.

Charles Riall put his *Rattler* through the fascinating

*Sport flying at Wigsley in Lincolnshire are Trevor Hughes of Mansfield at left and Roy Clark from Sharston, right. Trevor's "Acrobat", a Bill Winter design, is controlled by four button selector box, keying a compound actuator with face cams. Worked well, and includes two-speed for glow converted E.D. 346. Roy's adventurous 64-in. span, 8-lb. delta has a pushing Enya 29 with shaft valve rotated 90 deg. Wing is around 1,200 sq. in. and control is pulse on either elevons and/or rudder*



Galloping Ghost special manoeuvres for everyone's benefit, then Chris Olsen decided to show people how he could do just the same, only lower. From a roll after take-off and a low inverted fast run back over the transmitter, Chris cavorted the *Uproar* around the sky as though it were on control lines. Unfortunately he finished the performance by trying to pass the model through a bicycle frame when pulling out of a loop!

Advance news from the U.S. Nationals tells us that Bob Dunham retained his first place in multi with a terrific total of points while flying an *Astro Hog*. U.S. team for next year's World Championships will be formidable, consisting of Dunham (Los Angeles), Kazmirski (Chicago) and de Bolt (New York State).

Latest gimmick from those parts is the incorporation of a retracting undercarriage on the *Astro Hogs*. Sketch at top of page shows how Ray Downs uses the new Bonner Servo to operate direct, yet still retains undercarriage torsion bar springing. System has since been improved slightly, but there is the basic idea for those who want to experiment. Most of our news comes from the U.S.A. this month. In California contests begin at 8 a.m. and conclude in the early afternoon to avoid the winds. At the Sacramento contest two flight lines were kept full on both days of the meeting with over 200 flights recorded. First heat in pylon racing produced a spectacular air collision when Bob Heise, well known for his very fast models, collided with Chuck Boyer's scale P-51, which, although it lost an aileron and wing panel, landed without further damage. It was





at this meeting that the retractable U/C *Astros* appeared, and it was noted that the change in trim between undercarriage positions brought the nose up about 3 degrees when flying "clean". Bob Heise set up a new record in East Bay by flying 22 miles in 28 minutes in an out-and-back run over an 11 mile stretch of road. Model was chased by open car with the local sheriff escorting in a patrol car to avoid complications. Powered by a K. & B. 35 the pylon racer has dual proportional equipment and usually covers the one mile course around the pylons in 1.42.

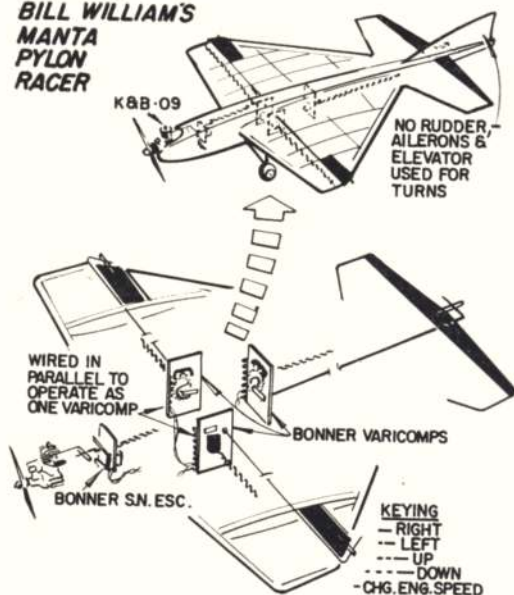
Undisputed king of the stunt manoeuvres is Grover Greimes. Grover had a spot of radio trouble, but managed to get his 72 in. Stearman biplane in the air, and all went well until the landing when the model did a beautiful split-S right into the open boot of his own car. All he had to do was to slam the lid and drive home. Sad, but true! Still in the same club, Dr. Leininger has been making photo reconnaissance flights with an aerial 16 mm. camera in his model. The films are said to be thrilling to the extent of making the audience air sick!

How much fuel does one need for a duration record? Dale Root consumed 32 oz. when he set a record of 1 hour 24½ minutes with an old *Comet Clipper* and that is a lot of payload to get off the ground! The same amount of fuel is likely to be required for a distance attempt, which subject seems to be very popular in the U.S.A. We hear of another fast car chase from the Kansas City Radio Control Association. Tom Williams, of Oklahoma City used a *Champion* with 7 ft. wing, on escapements with motor speed and down trim available. At first attempt it went 12 miles on those long straight roads when a fuel system blockage brought the model down. Next day they managed 22 miles and at times the chasing station wagon had to go at more than 60 m.p.h. to keep up. An assistant counted off the number of signals to keep a check on the escapement turns.

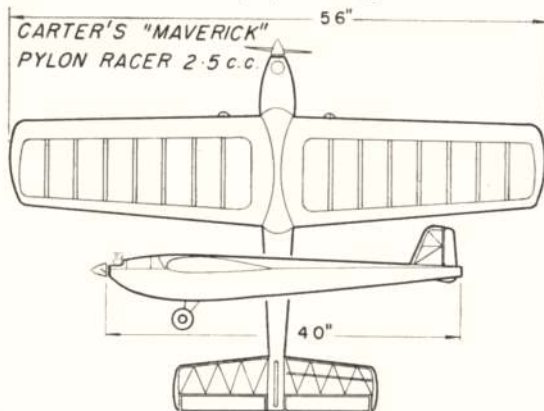
We have made several references to pylon racing and so make no excuse for devoting our last column to racing illustrations. Bill Williams, of Los Angeles, decided to get right away from convention when he made the *Manta* at top right. Each aileron is moved by a separate Bonner Varicomp. However, by wiring the two Varicomps in parallel, and making them face each other, they operate simultaneously and move one aileron up and the other down to produce a turn in the desired direction. These are used on normal Varicomp signalling of one hold for right, blip and hold for left. A third Varicomp operates the elevator in conventional cascaded method with two blips and hold for up, and three blips and hold for down elevator, whilst a quick blip gives engine speed change. First model is a K. & B. 1.6-c.c. glow motor, a larger version for the 19 size is planned. Cascaded Varicomps with quick blip for motor are also used in Carter's *Maverick* design at bottom right, which has more conventional lines and is said to complete the stunt schedules on low speed engine alone.

For those who want to try their hand at pylon racing the usual course is five laps around a straight line run between two pylons, 176 yards apart with a start and finish line at the centre between the pylons. This gives five laps to the mile, and for those who haven't tried it, elevator control is essential for any sort of reasonable performance and motor speed control advisable to bring the model down within any prescribed flight limit time, usually five minutes.

### BILL WILLIAMS' MANTA PYLON RACER



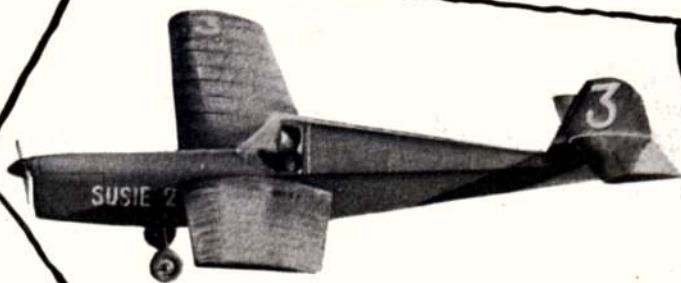
"Speed Merchant" is Dean Zongker's name for Veco 19 racer, 62-in. span, 64-in. long





# Susie

for .75 - 1 c.c.  
by D. Baker



Construction should begin with the most difficult of the components, the 3/32nd ply wing tongue which is cut out by fretsaw, bent to the dihedral angle as indicated on F5 and bound with gauze at the joint for additional strength. The parts cut away for the tongue box ends and sides are faced with  $\frac{1}{16}$  in. ply and fitted into the two root ribs. Proceed with the wing by pinning down the lower mainspar, shaped leading and trailing edges, then adding the ribs before fitting the upper mainspar. Areas

For the fuselage, one should start with the undercarriage which is bound to F3 and then the front formers are made into an assembly with the engine bearers at a suitable spacing to suit your power unit. Note the amount of sidethrust which is advised and then fit the fuselage sides at the correct angle with the thrustline neutral to be upper fuselage edge. Bring the sides together at the tail, add the remaining formers and the wing tongue, the tail pylon and platform and complete the top and bottom fairing. The nose cowl is made up from soft block but be sure to make a drain hole. Tailplane and fin are quite conventional and the whole model should be sanded down with sheet areas given a coat of sealer prior to covering. Add the canopy or cockpit screen after doping, apply your own decoration scheme, fit the wheels and you are ready for business.

The original used heavyweight tissue with three coats of dope and came out at only 16-oz. for the 280 sq. in. of wing which gives it a reasonable loading and sparkling performance.

Why not get out of the rut and try this mid-wing Sportster for your next model?

[illegible]



**Flashback to overcoat weather! Boxing Day turnout of Belfast M.F.C. at Newtownards Aerodrome. Brrr!**

NORMALLY I always include items from every club report submitted, but the enormous accumulation of notes in my tray, covering club activity over the last eight weeks, must be condensed to the more important items only to come within the space on these pages. So if your report does not appear, obviously, it did not contain enough "news" to warrant inclusion.

## Midland

**SUTTON COLDFIELD R.C.M.A.C.** entertained Brierley Hill, West Bromwich, Small Heath and Stafford flyers for an AEROMODELLER film show—80 in all—back in May and R/C activity continues to improve in quality. **OUTLAWS** (Cannock) M.A.C. knocked out of combat in the quarter-finals at the Nats by the Rivers 3-5 contingent, had Roy Lockley's much-repaired *Smoothie* finally justify its nine months' erratic existence at the Area C/L champs by beating the only other stunt entry by a clear 120 points, making Lok second to Gold Trophy winner Brian Horrocks in the Stunt championship. **WEST BROMWICH M.A.C.** recently aided members of **BRIERLEY HILL M.A.C.** to give a display at a local fete attended by 6,000 people. **LEICESTER M.A.C.** Controline Rally will be held at Stapleford Park. 1s. 6d. per entry. Prizes: £15—divided between Combat and Stunt. Competitions start at 10 a.m. Combat, 12 noon Stunt. After a lot of negotiation the club has permission to use Braunstone Aerodrome with regulations to be observed by club members.

## North Western

John O'Donnell topped the area results on windy July 12th with 5:43 in the *Model Engineer* and 11:20 in the *Flight*, participation was at a low ebb, 25 per cent. of the entry actually flew. **WHITEFIELD'S J. O'D.** is currently in possession of an E.D. Bee (2nd type) serial number apparently XE 6127 found after harvesting last year outside Wigsley airfield. The farm worker who found it said the remains of the model bore no legible traces of address labels. The owner can have it back upon quoting the type of motor-run-limiting device employed. **WALLASEY M.A.C.** journeyed north for the Scottish PAA Festival, July 25th/26th. John Hannay won PAA Jetex and John Done came third in PAA Jetex and second in PAA America class. The club is running a series of camps for juniors with a free seat on the coach trips to contests as the prize each time. **CHORLTON M.F.C.** report the unfortunate death in a road accident of David Dennison. "Denny" was one of their best up-and-coming young members, regularly attending events at Stretton. He will be badly missed by the club in future. **MACCLESFIELD M.A.S.** flying field (i.e., peat bog) favours control line flying as against F/F and the relatively soft ground is kind to models. Hence the popularity of combat! Up-and-coming name to watch in the combat circles is Stanley Oldfield. **HESWALL M.A.C.** has more than doubled its membership since the beginning of the year with a pleasing increase in junior interest, and have found a helpful farmer who has provided the club with an ideal flying field. They are giving three displays to charity organisations thus far, this year.

## Western

**WESTERN CONTROLINERS** went to the Northern Heights gala, Roger Dudley coming second in the helicopter event. In the combat, entrants were disgusted by the amount of foul play at this competition. They think it would be a better idea to lower the prize money as it seems that the attitude of money entrants is that they will get this prize by hook or by crook, by fair or foul means. **BRISTOL BLOODHOUNDS'** combat team



placed third (Longley) and fifth (Bishop) in combat at the Nationals where the sad story is of Barry Hopkins who completely wrote off two beautiful Fox 35 Nobblers in the Gold Trophy. In **BRISTOL R.C.M.A.C.** John Mardon has an Orbit-equipped Multi-channel model and his loops, spins and prolonged inverted flying has been a treat to watch. Don Cole has his OMU-equipped model safely airborne and Doug Sheppard's 5-reed own design low wing model has passed through the perilous trimming stage. They enjoyed an AEROMODELLER film show of U.S. Nats flying which gave a good impression of flying across the "pond". Bloodhounds and S. Bristol journeyed to Northern Heights, but no signal successes were gained. Lance Bell was rather put out to find that although he got as far as the combat semi-final, one of the competitors he beat *en route* managed to find his way into the final. The club deplores the partisan action which allowed this to happen in an event with supposedly restricted entry.

## Northern

**HALIFAX M.A.C.** is now in correspondence with the Glenelg Model Aero Club of Casterton, Victoria, Australia, which should provide some enlightening thoughts on combat technique. **WHARFEDALE D.A.'s** Don Howarth and Richard Place flying combat at Woodford were troubled with a noticeable build-up of static electricity probably due to the electrical storm which came rather close at times. Don says his auto-reel control handle became "live" when he did any manoeuvres and that he could hear the 60-ft. lines crackling during the flight. Club Exhibition held at the Shipley Institute of Further Education was generously supported and obviously appreciated by the public. On July 4th club members went to Wharfedale Children's Hospital to give a display lasting 4½ hours, the programme included combat, stunt and balloon bursting to howls of delight from the young spectators. Members gave away model kits to the children which were accepted with glee and proudly taken indoors. The club has recently held a series of whist drives in aid of the junior travel and support fund which proved a great success. Now — how many other clubs can boast similar good deeds? In 1958 the **SHEFFIELD SOCIETY OF AERO-MODELLERS** presented to the Northern Area a trophy known as the *E. C. Muxlow Memorial Trophy*. On October 11th a competition for this trophy will be held at R.A.F. Rufforth, near York. Rules are as follows: (1) The competition is open to all S.M.A.E. members. (2) The models will conform to the current "Wakefield" specification. (3) Five flights with 3-min. maximums. (4) The trophy will be competed for annually.

## London

**BLACKHEATH** Gala will be held at Chobham Common on October 3rd (Saturday!). Flying commences 11 a.m. for *Bill White Cup* together with the usual glider and power comps. For further details contact: P. Crossley, 11 Broadfield Road, Catford, S.E.6. **BRITTON D.F.C.** are settling down to the development of mono-line speed.

They offer full facilities, including a tarmac flying ground, on Saturday afternoons and also meet on Tuesdays and Thursdays, 7.30 p.m., at Rosendale Road School, Herne Hill, S.E.24. **CRYSTAL PALACE M.A.C.** had an eventful journey to the Nats, as did many others, hiring unknown quantities in the form of old vans. They met at 7 Upper Beulah Hill, Upper Norwood, S.E.19, each Monday at 8 p.m. **HORNCHURCH M.A.C.** hired two Dormobile-type vans, then 20 brave lads set out for Scampton and the "Nats". They had bad luck in Class "B" with H. Spiller retiring with engine trouble and Ray Gibbs with his 120 m.p.h. job being disqualified for high flying in his 2nd heat. Ray also took first place in Class I Speed with 115 m.p.h. and he was disqualified in Class II. The club also ran the "A" T/R which on the whole ran very smoothly, with only one slight exception.

**ENFIELD AND D.M.A.C.** controline boys Don Walker and Ray Tuthill flew their Class "B" model into second place at the Nats. This after a siezed moment before the heat, a blown plug during it, and a prop change in the final. At Dartford, junior Roger Jones battled his way into second place in the combat, assisted by almost the entire club. The Pete Hartwell/Frank Stevens Class "A" team reached the semi-final, but pranged. At Godalming the club repeated last year's success by taking first in Class "A" and second in Class "B".

Jim Baguley of HAYES is lamenting five lost models including three Olivers. Ian Russell was seventh in the Gold Trophy using an experimental Rivers '19 diesel. **SIDCUP M.S.** held a flying display on June 6th including two mid-air collisions and several spectacular crashes for crowd entertainment. The club suffers from 20 per cent. activity in their membership and seeks advice on how to spark off more interest. **ST. ALBANS M.A.C.** managed to beat **SURBITON** in the first round of the L.D.I.C.C., winning by a very narrow margin and the day was not without its mishaps; in fact George Fuller had one of the most unlucky days he can ever remember, writing off two power models; this was followed by a clockwork timer blowing up and an engine going phut and refusing to run any more. **WEST LONDON M.A.C.** has recently been re-formed (!) and has already aroused interest in the neighbourhood with a display of controline aerobatics at a local school sports day. Juniors are kept busy on club nights (Monday at Beaufort House School, Lillie Road). **FELTHAM AND D.M.A.C.** intends to cater for modellers in Hanworth, Bedford, Staines, etc. Meetings are held at the "Railway Tavern", Bedford Lane, Feltham. Flying meetings are held at Richmond Park, Hounslow Heath, Chobham Common and Hanworth Air Park. **RICHMOND AND DIST. GREMLINS M.A.C.** are a new club. Any unattached senior modellers in the area would be welcome to join them at the Richmond A.T.C. H.Q. in Old Deer Park. Friday evenings at 7.30 p.m. **WIMBLEDON CLUB** has also been re-formed (!) and is now meeting weekly, 7.30 p.m. Friday nights at the Young Crusaders Club hut, Grand Drive, Morden, Surrey. Since the reformation, the combat team had a field day chewing up the oppo-



sition at Godalming to get first, second and third places in combat, also a second in Class "A" T/R and fourth in stunt. M. Brown of FARNBOROUGH M.A.C. came fourth in power at Surlingham Gala with 9:00 plus 6:44 flying a Frog 3-49 c.c. BB Siskin III (not scale!). He also won the club comp a few days later with 8:15. DARTFORD M.F.C. had a first rate day for their rally. Results are as follows:

- |  |                     |
|--|---------------------|
| Combat (53 entries) 1/4 A T/R (10 entries) |                     |
| 1. Rivers (Hayes)                          | 1. Chesman (Sidcup) |
| 2. Jones (Enfield)                         | 2. Drew/Bell        |
|  | (Ecurie Endeavour)  |
| A T/R (24 entries) B T/R (13 entries)      |                     |
| 1. Balch (Hayes)                           | 1. McNess           |
| 2. Tyler (Feltham)                         | 2. Taylor           |
|  | (W. Eagles)         |
| 3. Cooper (Mill Hill)                      | 3. Whitbread        |
| 4. Kilner (Feltham Eagles)                 |                     |

## East Anglia

CLACTON AND D.M.A.C. Johnny Johnson's own design *Fusilier* went O.T.S. (out-to-sea) and O.O.S. on a 9 sec. engine run (with PAW 2-49). It was found three weeks later, washed up at Shoeburyness and has since been flown again. Good job the engine was oily and the model covered with silk. Their radio control boys all fly single channel, using pulse, which has been found the most reliable. LAINDON M.A.C. had eight entries in combat at Dartford C/L Rally, mostly Oliver powered wings. Three members reached the third round, one beating P. Tribe in the second round. They want to apologise to the people who made a useless journey to their cancelled rally and would like to challenge other clubs to a combat joust. CAMBRIDGE M.A.C. will run a slope-soaring rally at *Ivinghoe Beacon* (Bucks) on October 4th commencing at 10.30 a.m. and closing at 5 p.m. There will be two classes R/C and F/F (any type of F/F glider, but no umbrellas with bricks attached please!). Entry fee for R/C will be 1s., covering two flights and 6d. for each subsequent flight; the best single flight wins. Entry for F/F will be 1s. 6d., covering four flights, the best two of which will count. It seems that some people are never satisfied, even with Ivinghoe, and C. King and R. Godden are taking models and Wright R/C equipment to Wenlock Edge for a slope-soaring holiday at the end of August. Good luck to them!

## North Eastern

CITY OF NEWCASTLE AEROMODELLERS have been going for 12 months, have followed the original intention to cater for the younger modellers, but admit that they have been rather a trial at times. Standard of building and flying has risen steadily and several boys are showing definite promise. Accent is still on stunt and combat. One unfortunate consequence of the insistence on the policy of continuing to recruit youngsters is that they have lost some senior members who perhaps felt that "playing with kids" is "infra dig"! They are, therefore, still looking for seniors who are experienced modellers and prepared to pass on their knowledge to their younger colleagues. All that is required is infinite patience and a strong right arm. The club has a magnificent red, white, black and gold 3-inch diameter transfer—ideal for tissue patching. Meetings are still held on Tuesdays in the Craft Room at the Cowgate Secondary Modern School, Cypress Avenue, Newcastle.

## East Midlands

The newly-formed GRANTHAM AND D.M.A.S. held its first competition on May 24th at Spitalgate and as a large number of the members are juniors just starting this hobby, it was decided to hold a "Chuck Glider" contest. Conditions were rather windy but A. H. Percival managed to obtain 76 secs.

## South Eastern

Have been lucky enough to obtain the use of R.A.F. Tangmere for the South Coast Gala on October 4th. This meeting is for aeromodellers and not a public spectacle—a full

programme of F/F events is being arranged. Details will be circulated in due course. Any enquiries to 28 Milton Road, Dunton Green, Sevenoaks, Kent (S.A.E. please). LEATHERHEAD AND D.M.F.C. are exchanging news with the Glenelg M.A.C. of Australia. Interest in F/F is growing and new members will be made welcome at meetings held at Oddfellows Hall, Bridge Street, Leatherhead, on the second and fourth Friday each month. TUNBRIDGE WELLS M.A.C. gained a big lead in the first round of the R.A.F.A. inter-club shield. Results: Tunbridge Wells 100 pts.; Sevenoaks 20 pts.; East Grinstead 15 pts. Notable was F. Puttock, whose first five flights were maximums. ASHFORD M.A.C. rally attracted competitors for combat from Kenton, Northwood, Hayes, Dagenham, Wanstead and High Wycombe. The standard of flying was high and that of argument even higher! Certain modellers persist in unscrupulous tactics which spoil the name of combat. There were some wonderful duels by the better-known combat boys and experience played a major part in this event.

1st Peter Tribe (Northwood)  
2nd Graham Rivers (Hayes)  
3rd Brian Greenaway (Hayes)  
Following AEROMODELLER comments on F/F twins, Howard Jones of EAST GRINSTEAD M.F.C. has built a 5-ft. span scale Bristol Freighter for two Merlins. Those who witnessed its first flights were surprised to see it flying round in most realistic manner. However, despite high pendulum-operated rudder and ailerons, its single engine performance proved to be non-existent and the result was a most spectacular crash. One of the outstanding flights of recent weeks was by Secretary Les Fuzzard's *Satan* which made a flight of 25 min. O.O.S., landing 6½ miles from its starting point at Goodwood Motor Circuit. M. Smith has at last flown his C/L Rotodyne, which was mentioned in April AEROMODELLER. The outcome was the least expected; it came down on its tail.

## South Midland

BISHOPS STORTFORD AND D.M.A.C. ran a combat event between themselves, Dunmow M.F.C., Harlow M.A.C. and the Debdenairs. The glorious weather made it a grand day for all except Pete Miller of Dunmow who had to be taken to hospital to have his thumb stitched up after an argument with his engine. Comp result was a win for P. Oliver of Debdenairs with J. Rush of Bishops Stortford second. On Whit Sunday their American friend Dick Smith, who, incidentally, was 1958 Montana State Champion, lost two models in a mid-air collision. One of the spectators, finding that both wrecked models belonged to the same person, conducted a quick whip round and presented Dick with 7s. Not bad, eh! STEVENAGE M.F.C. member G. Dallimore was the only S. Midland representative to fly in the Area champs at Wigsley, and every member of the club who entered for the International Events (five glider, one rubber) qualified through the Area for the trials. For a first attempt this is all of brilliant! NORTHAMPTON M.A.C. are the only club to comment thus far on that Golden Wings A/I picture captioned as an A/2 in the Nats programme—shame! The club has been warned not to fly power models of any type on the race course—lone hands note.

## Southern

MAIDENHEAD AND D.S.A. have obtained a new club room at the Youth Centre, Cookham Road, and have five receivers now under construction. Whilst flying on their local field (Widbrook Common) Mr. Fairley flew over in his Dragonfly Helicopter and hovered above whilst A. Marshall put his O.D. 6-ft. radio job through its paces. Mr. Fairley then landed, but was forced to take off again after a short time because of the many sightseers, who caused a traffic jam. The aeromodelling clubs of Chichester, Worthing, Lancing, Horsham and E. Grinstead have formed an association in Sussex the name of which is the *United*

*Southern Aeromodelling Clubs' Association* (in short, USAC). Association's aims are to further aeromodelling interests, to run and help to run competitions, comradeship between clubs, exchange ideas and to help each other. Inter-club competitions are being arranged to take place in the autumn. WOKING AND D.M.A.C. (membership 72) meets at 7 p.m. at the Park Road School, Woking on alternate Fridays. A one-model contest will soon be held, chosen design is the *Dab*. Recent activities of the WORTHING M.A.C. have included a general swing to stunt flying, J. Fox's Pee-Wee controller persistently flies O.O.S. in the long grass. Ron Bayliss' A.P.S. *Viscount* has caused quite a stir amongst the local population, its picture appearing in the local press several times. The control line section of the SOUTHAMPTON M.A.C. had their Nats hopes centred round Maurice Bosiers' super scale *Mustang*. The 36-in. model was powered by a K & B 29 and superbly finished in full detail. Unfortunately, it had not been previously flown and on a test flight before the comp was "bent" too badly to be repaired in time. However, the club hopes to make a debut in the "B" class team race event next year and to this end have purchased two ETA 29 Mk. 6's. REIGATE AND D.M.F.C. member Frank Knowle's 7-ft. span radio soarer was recently heaved off the top of Colley Hill in ideal conditions, the reasonably heavy model showing its possibilities by turning in a couple of 9-minute flights. The problem now is how to get it down as 3-4 lbs. of model hits the side of the hill pretty hard downwind and only 20 yards or so are clear for landing on top of the hill. The club meets regularly every Friday after 7.30 p.m. at the Reigate Congregational Hall.

## Services

KHORMAKSAR M.A.C., as can be seen by the photograph elsewhere in this issue, are still busy constructing the club room. A challenge has been sent to R.A.F. Eastleigh for a contest and the club wants to contact all R.A.F.M.A.A. clubs in M.E.A.F. for an Area Champs, as held in F.E.A.F. Clubs should contact 4185002 J/T Gallagher (Sec. K.M.A.C.) Block 5, Bottom East, R.A.F. Khormaksar, B.F.P.O. 69.

## Scotland

KIRKCALDY M.A.C. control line rally was held this year in blazing sunshine. Chris Grubb of Kirkcaldy won the magnificent Model Aircraft Traders' Assn. Trophy, which is being presented in Scotland for the very first time since its inception. Chris flew a Veco 19 powered model to win with the very fine score of 587 points. Second was G. Halley, also of Kirkcaldy. In T/R PRESTWICK had their usual field day with R. Cunningham and J. Muir first and second in Class "A" and T. Mitchell first in Class "B". R. Forrest of GLASGOW BARNSTORMERS was second in "B" and broke their monopoly. Combat provided great fun and excitement as well as the largest entry. Ian Dunn of PERTH emerged victorious over R. Chisholm of ALLOA after a real hammer and tongs final. Most spectacular occurrence of the day was the mid-air disintegration of Ian Ward of DUNFERMLINE'S Fox 35 *Nobler* due to a burst split ring.

## South Wales

Aeromodellers living at Barry, Swansea, Newport, Bridgend, Neath or Llanelly or elsewhere, at all interested in aeromodelling and keen to join a club are invited to write to either the Area Chairman, Mr. P. T. Waters, 18 Bridge Street, Kenfig Hill, near Bridgend, or Area Secretary Mr. V. H. Davies, 8 Byrn Gaer, Dafen, Llanelly, Carmarthen, and they will do their utmost to help form a club. It is only by such action that they can develop the aeromodelling movement in South Wales. CARDIFF DRAGONS complain that absentees from the club room have been seen consorting with members of the opposite sex! D. Griffiths lost his Y-Bar ten minutes O.O.S.,



**S.M.A.E. RESULTS****THE MODEL ENGINEER CUP**

<b>Team Glider</b>		
1. St. Albans	...	25-43
2. Northern Heights	...	21-34
3. Birmingham	...	21-21
4. Essex	...	20-22
5. Baildon	...	19-57
6. Coventry	...	19-46

**FLIGHT CUP**

<b>U/R Rubber</b>		
1. O'Donnell, J.	Whitefield	11-20
2. Crossley, P.	Blackheath	10-52
3. Tubbs, H.	Baildon	9-55
4. Chambers, T. B.	Teesside	9-33
5. Roberts, G. L.	Lincoln	8-49
6. Thorp, E.	Derby	7-57

<b>F.A.I. POWER CHAMPIONSHIPS</b>		
1. Posner, D.	Surbiton	29-58
2. Jays, V.	Surbiton	29-53
3. Manville, P.	Bournemouth	28-45
4. Young, A.	Surbiton	28-26
5. Cox, B.	St. Albans	28-22
6. Spurr, A. W.	Teesside	25-52

last seen heading for the top of Wenvoe T V mast — and that was his fifth model off the same plan — he's a devil for punishment. Pete Waters of **PORT TALBOT M.A.C.** had a triple max in the Thurston after an 11-hour trip to the Nats only to miss the fly-off through looking for his A/2 after that third max. It was picked up ten miles away, and the story behind its disappearance is that a kindly farmer saw it d/t, collected it and took it home. Derek Williams nearly lost his *Inch Worm* when it d/t'd into a nearby pig sty. Some other bods managed to stop the pig from adding to its diet, balsa, etc. The first **Richard Thomas and Baldwins Model Engineering Club** flying competition was held at Llangynidr Moors on June 21st. and attended by many clubs in the area, which included Cardiff Dragons, Cardiff M.A.C., Abertillery M.A.C., Port Talbot and Merthyr. Contests were for glider and combat with A. English of Abertillery first in combat and P. T. Waters of Port Talbot first in glider with a time of 5:27. Several R/C flights were made in the way of exhibition by our own club member, Mr. Owen Griffiths and Graham Lewis of Merthyr. Many of the spectators were seeing models in flight for the first time and the interest created has reflected in the many enquiries received.

**Ireland**

Eleven members of **LARNE M.F.C.** attended a 1/4A combat competition held by Belfast M.F.C. at Belfast. B. Lynas was successful in reaching the final but was beaten by B. Shields, a member of the Belfast club. Incidentally, the Belfast lads have more than "had" the flying field problem, but hopes are high for a new C/L venue.

**Pen Pals**

Are wanted by twelve-year-old Hugh O'Neill, of 10 Milton Road, Acton, London, W.3, with general interests and with a view to exchange of information and accessories. Master C. R. de Bruyn, of 3 Kleinfontein Road, Anzac, Brakpan, Transvaal, South Africa, requires a pen pal of about fifteen years of age, preferably American with interests in 1/4A free flight, control-line stunt, 1/4A speed and model rocketry.

Required by Jaroslav Schuh of Riegrova 39, Ceske Budejovice, Czechoslovakia, an English pen pal.

M. Lihl, of 760 Ravenhill Place, Ridgefield, New Jersey, U.S.A., requires pen pal on the Continent, particularly Germany with the express purpose of swapping engines.

In Australia, John Byrne, of 9 MacDonald Street, Ballard, Victoria, requires an experienced modeller in C/L and A/1, A/2 Gliders in England.

*Out in Aden Protectorate, the boys don't believe in hanging around — they are making their own club room, as seen in this picture*

Clyde E. White, of 307 Rose Street, Gaffney, S.C., U.S.A., requires an English pen pal interested in R/C or Scale, especially biplanes.

R. W. Briggs, 12 Dumboola Road, Warracknabeal, Victoria, Australia, is 16, has stunt and combat interests and wants to get in touch with other modellers.

THE CLUBMAN.

**New Clubs****FELTHAM AND D.M.A.C.**

H. E. Martin, 72 Hanover Avenue, Feltham, Middlesex.

**GREMLINS M.A.C.**

M. Turner, 76 Lambert Avenue, Richmond, Surrey.

**WIMBLEDON AND D.M.A.C.**

R. Moorby, 165 Lynmouth Avenue, Morden, Surrey.

**Secretarial Changes****ANGLIA M.F.C.**

P. Davis, 19 Greenways, Chelmsford, Essex.

**CHELTHAM M.A.C.**

T. J. Allen, 10 Lynworth Place, Cheltenham.

**CHRISTCHURCH AND NEW FOREST M.A.C.**

J. D. Hayward, 4 Wynford Road, Moordown, Bournemouth.

**ENGLISH ELECTRIC M.A.S.**

B. S. Tomimatsu, 25 Stuart Road, Barton le Clay, Beds.

**THE MIDLANDERS**

R. Wadsworth, 160 Cranmore Boulevard, Shirley, Solihull, Nr. Birmingham.

**MILL HILL AND D.M.A.C.**

C. G. Crawley, 4 Sunny Hill, Hendon, N.W.4.

**MODEL AERONAUTICS COUNCIL OF IRELAND**

T. Harpourt, Mounttown Park, Dun Loaghair, Co. Dublin.

**NEWPORT PAGNELL M.F.C.**

C. Read, 15 Union Street, Newport Pagnell, Bucks.

**NOTTINGHAM M.A.C.**

P. A. Toynce, Longdale Farm, Longdale Lane, Linby, Notts.

**OLDHAM AND D.M.A.C.**

S. A. Stanfield, 67 Keswick Avenue, Fitton Hill, Oldham, Lancs.

**PAISLEY M.F.C.**

W. Hillcoat, 4 Locksley Way, Paisley, Scotland.

**SHEFFIELD SOCIETY OF A.M.**

J. E. Rose, 3 Conalam Avenue, Bradway, Sheffield.

**SOUTHAMPTON M.A.C.**

R. Collette-Moxon, 72 Glenfield Crescent, Bitterne, Southampton.

**SOUTHERN CROSS A.C.**

G. K. Gates, 45 Boundary Road, Hove 3, Sussex.

**TYNEMOUTH M.A.C.**

R. C. Pollard, 31 Donkin Terrace, North Shields, Northumberland.

**WEST LONDON M.A.C.**

S. J. Day, 33 Duke Road, Chiswick, W.4.

**YORK M.A.S.**

P. Hollis, 15 Sitwell Grove, Cranbrook Avenue, York.

**WEST MIDDLESEX M.F.C.**

M. J. Olney, 135 Millett Road, Greenford, Middlesex.

**WEST YORKSHIRE M.A.S.**

F. Rowley, 697 Huddersfield Road, Ravensthorpe, Dewsbury.

**LARNE M.F.C.**

John A. McGalliard, 35 Station Road, Larne, Co. Antrim, N. Ireland.

**For Your Diary****September 13th**

Croydon Gala, F/F Rubber, Glider, Power, Chuck and Slope Glider, Chobham Common.

**September 13th**

Leicester M.A.C., C/L Rally, Stunt and Combat only, Stapleford Park, Melton Mowbray, 10 a.m. start Combat; 12 noon start Stunt.

**October 3rd**

Blackheath Gala, Bill White Cup Rubber, Glider, Power, Chobham Common, 11 a.m.

**October 4th**

Cambridge Slope Soaring Rally, Ivinghoe Beacon, R/C and F/F.

**October 4th**

South Coast Gala, R.A.F. Tangmere, near Chichester. Full programme of F/F events being arranged. Enquiries should be sent to 28 Milton Road, Dutton Green, Sevenoaks, Kent (S.A.E. please).

**October 11th**

E. C. Muxlow Memorial Trophy (Wakefield specification), R.A.F. Rufforth, near York.

**S.M.A.E. Contests****September 6th**

Northern Gala. Linton-on-Ouse or Rufforth. Hamley Trophy, Caton Trophy, Glider, AEROMODELLER Trophy, Pan American Trophy, T/R, U/R Power, U/R Glider, Radio Control, PAA-Load American Class, "1/4A", "A" and "B".

**September 20th**

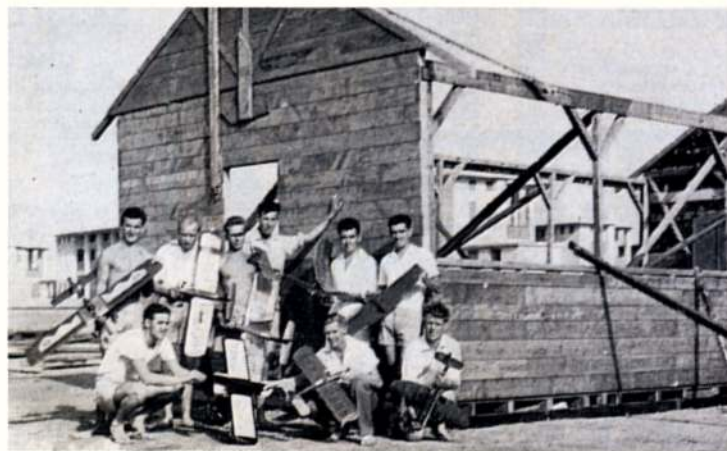
Keil Trophy, Farrow Shield, Frog Junior Cup. Team Power; Team Rubber; U/R Rubber/Glider (Area).

**September 17th**

Team Racing "1/4A", "A" and "B" (Area). (May alternatively be run on September 10th.)

**October 11th**

Frog Senior Cup, C.M.A. Cup, U/R Power, U/R Glider. (Decentralised.)







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FROG C/L HORNET 21" ...	24/6
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A.M.25 ...	66/5
A.M.35 ...	69/6
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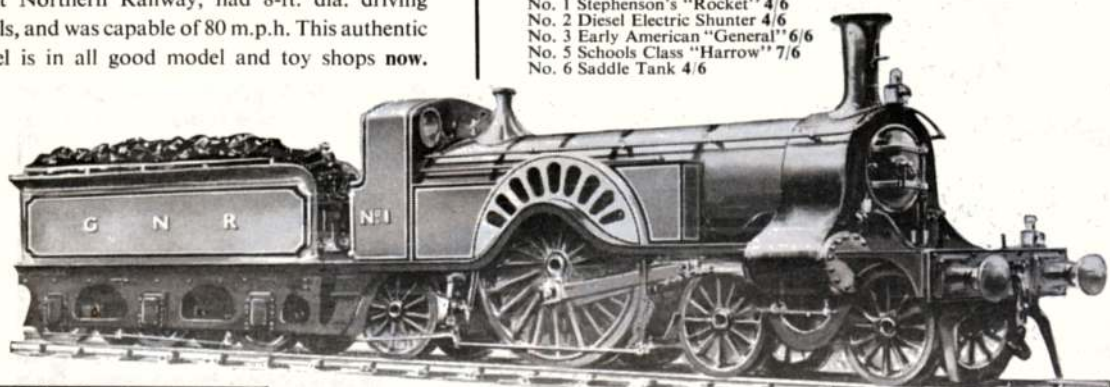
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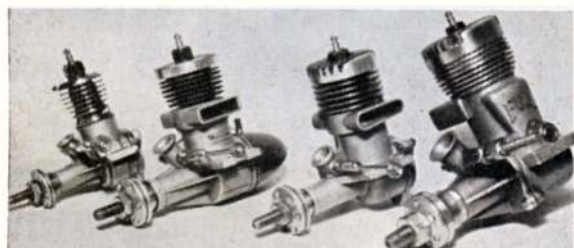
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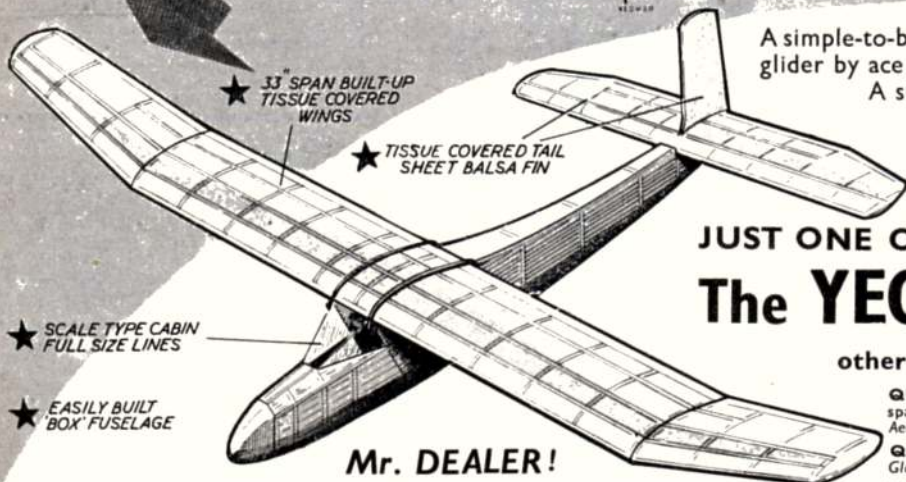
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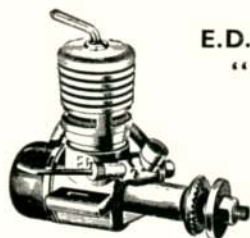
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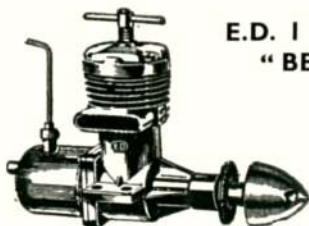
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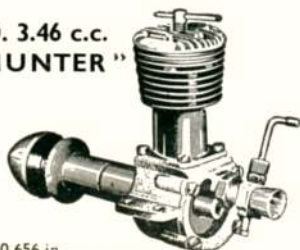
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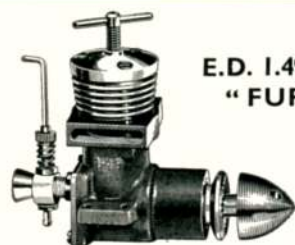
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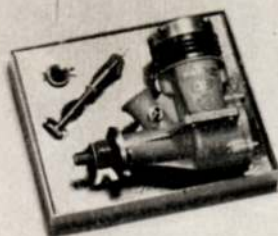
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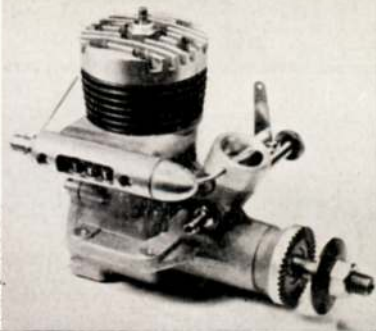
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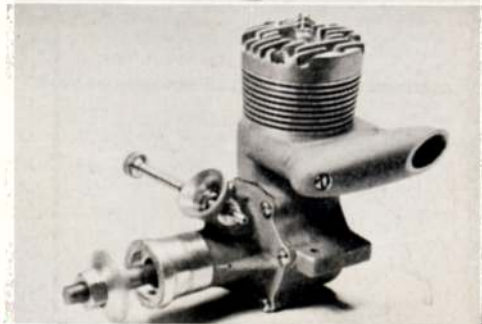
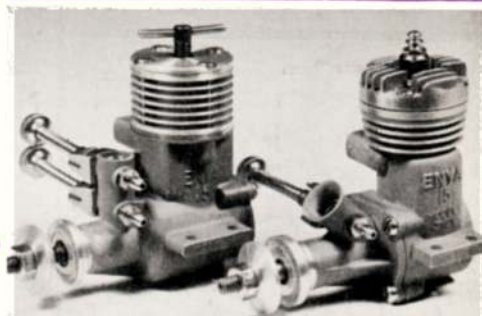
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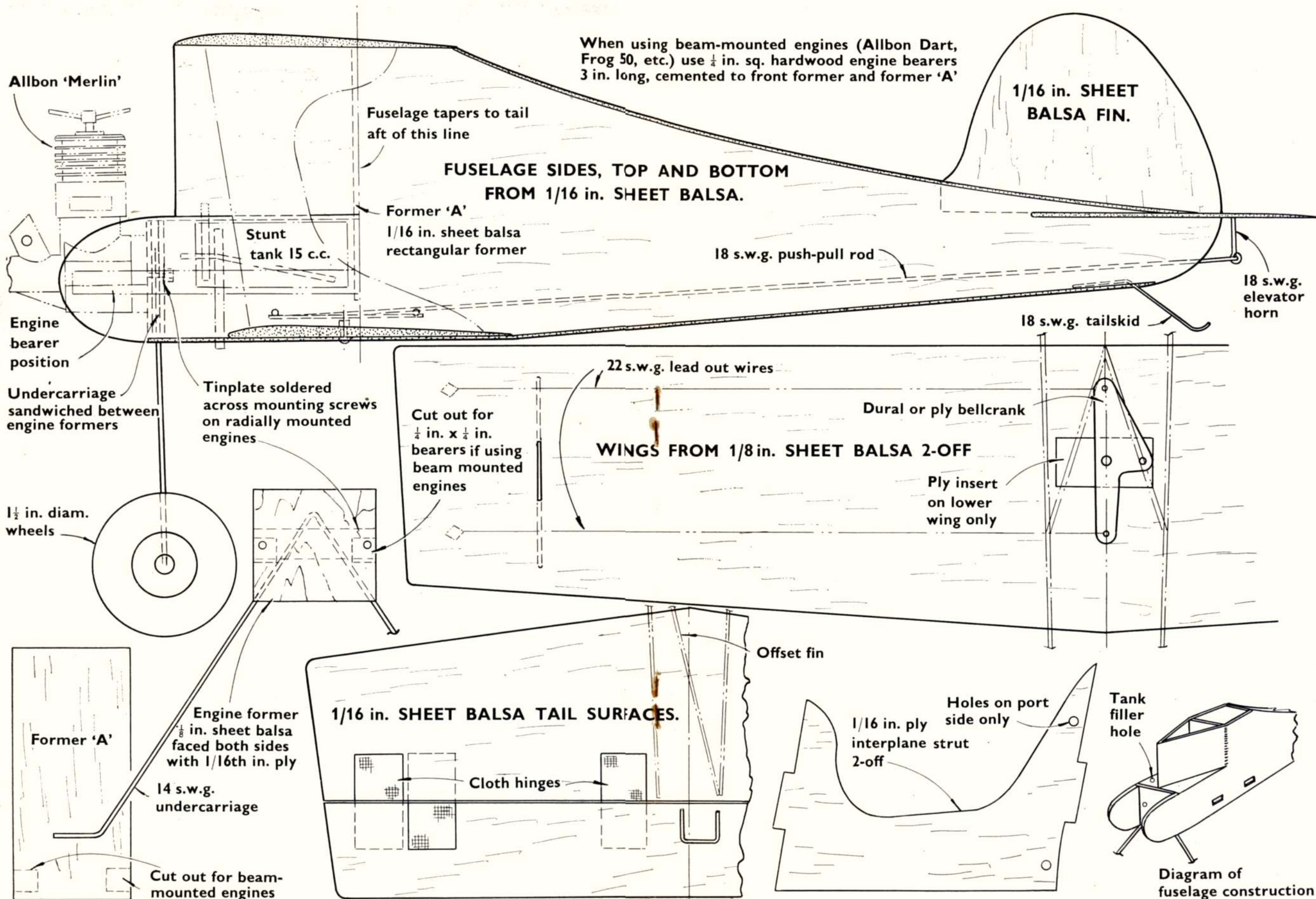
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Former 'A'  
1/16 in. sheet balsa rectangular former

18 s.w.g. push-pull rod

18 s.w.g. elevator horn

18 s.w.g. tailskid

Allbon 'Merlin'

Stunt tank 15 c.c.

Engine bearer position

Undercarriage sandwiched between engine formers

Tinplate soldered across mounting screws on radially mounted engines

1 1/2 in. diam. wheels

Cut out for  $\frac{1}{4}$  in. x  $\frac{1}{4}$  in. bearers if using beam mounted engines

WINGS FROM 1/8 in. SHEET Balsa 2-OFF

Dural or ply bellcrank

Ply insert on lower wing only

22 s.w.g. lead out wires

Offset fin

1/16 in. SHEET Balsa TAIL SURFACES.

Cloth hinges

Engine former 1/16 in. sheet balsa faced both sides with 1/16th in. ply

14 s.w.g. undercarriage

Former 'A'

Cut out for beam-mounted engines

Holes on port side only

1/16 in. ply interplane strut 2-off

Tank filler hole

Diagram of fuselage construction