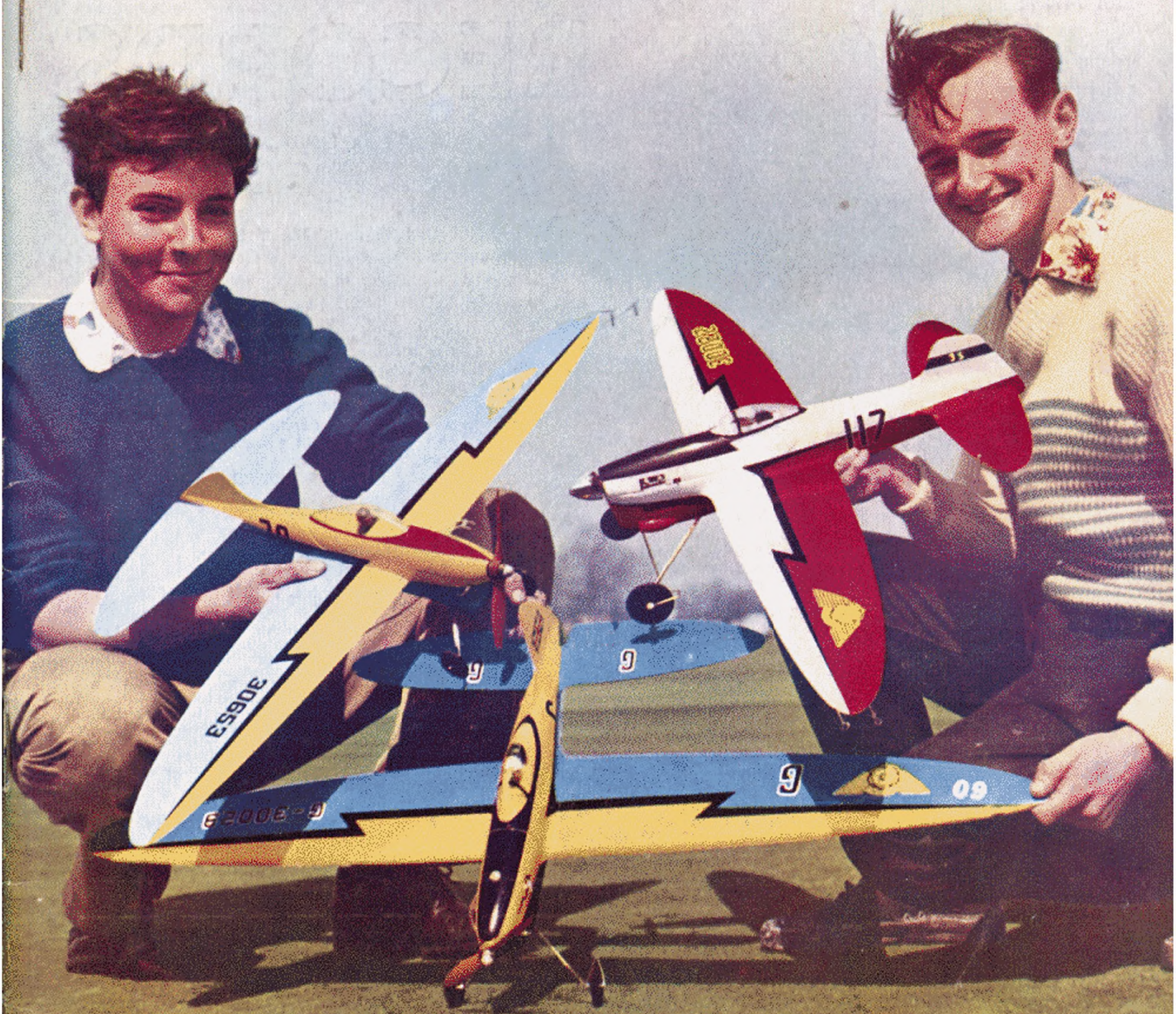
AERO MODELLER

JULY 1960



SPECIAL RACER FEATURE

WORLD R/C RECORD STORY

2/-

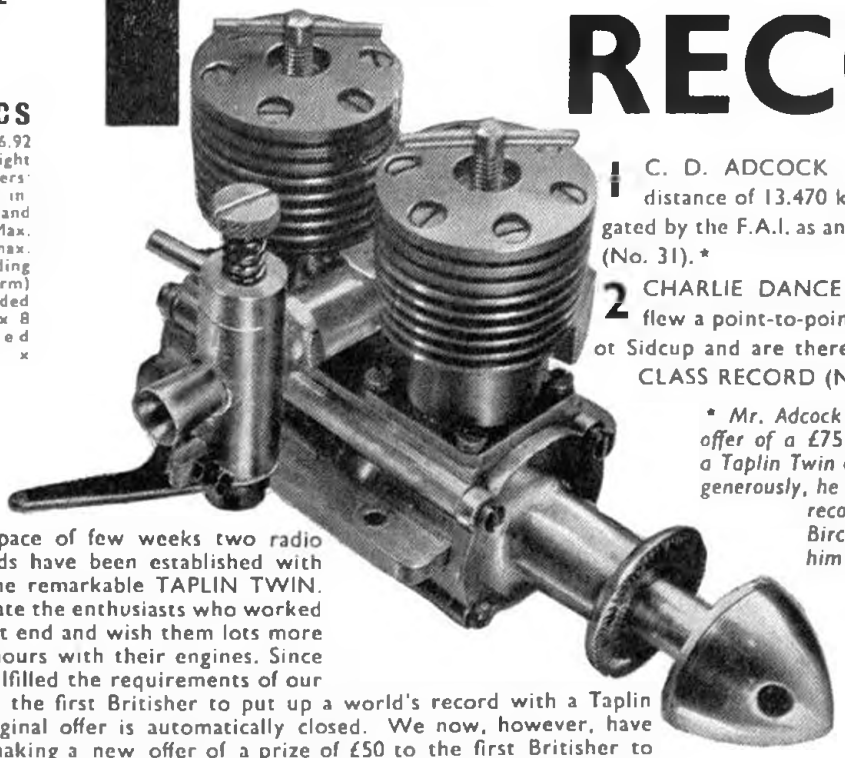
TAPLIN TWIN WORLD RECORDS

Birchington Engineering Co. Ltd. extend their congratulations to their good friends Electronic Developments Surrey Ltd., whose Radio Control equipment was used in the Dance/Skeels aircraft, to R.E.P. whose radio equipment was used by Mr. Adcock, and to Tru-Cut Propellers whose airscrews were driven on both occasions by their trusty Taplin Twin.

BRITISH PATENT
No. 747742

VITAL STATISTICS

Capacity: 7 c.c. (6.92 c.c. actual) Weight 15oz. Enginebearers: Fixing holes 1¼ in centres laterally and longitudinally. Max. height 3¼ in., max. width (excluding throttle toggle arm) 2¾ in. Recommended propeller 13 x 8 Recommended waterscrew: 2¼ x 2¼ (2 blader).



1 C. D. ADCOCK on 13/2/1960 flew a closed circuit distance of 13.470 km. and this record has been promulgated by the F.A.I. as an INTERNATIONAL CLASS RECORD (No. 31).*

2 CHARLIE DANCE and WALLY SKEELS on 8/5/1960 flew a point-to-point distance of 45½ miles from Lympne ot Sidcup and are therefore claiming an INTERNATIONAL CLASS RECORD (No. 21) subject to official ratification.

** Mr. Adcock by the strict terms of the B.E.C. Ltd. offer of a £75 prize for the first world record using a Taplin Twin could have claimed this prize, but, very generously, he has refused to accept it as he feels his record was really a "trial canter". Birchington Eng. have, however, persuaded him to accept a smaller 'ex gratia' award.*

Within the space of few weeks two radio control records have been established with the help of the remarkable TAPLIN TWIN. We congratulate the enthusiasts who worked so hard to that end and wish them lots more happy flying hours with their engines. Since Mr. Adcock fulfilled the requirements of our offer, *i.e.*, was the first Britisher to put up a world's record with a Taplin Twin, our original offer is automatically closed. We now, however, have pleasure in making a new offer of a prize of £50 to the first Britisher to break an existing world's record for R/C model aircraft for either duration, distance point-to-point, altitude, or speed (excluding closed-circuit distance). This new offer is open from the date of issue of this July AEROMODELLER (*i.e.*, June 15th). The present records stand at: point-to-point 37 miles (when the Dance/Skeels record is promulgated, 45½ miles); duration 5 hrs. 28 mins.; altitude 1,143 metres (4,086 ft.).

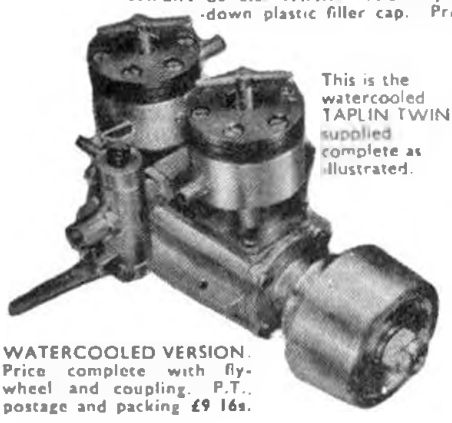
Three bearing Crankshaft

£8.10

Inc. P.T., POST & PKG.

What is so remarkable about this TAPLIN TWIN of ours? First of all, it is designed by a practical modeller especially for R/C work (which did not prevent it winning British Nats. Scale C/L event in 1959!) has a "real" barrel-type carburettor, is vibrationless, clean running, flexible, robust, with low frontal area and runs on a simple diesel fuel formula. People all over the world are flocking to buy. Is YOURS still on our shelves — you'd better send off for it right away because those shelves are being swept bare of engines all the time, but we can still cope with a few more for prompt delivery. Satisfaction or your money back is our boast, so that you are safe in buying wherever you may be.

TAPLIN ACCESSORIES: TAPLIN 2¼ x 2¼ Stainless steel waterscrew, specially developed for the T.T. Price, inc. P.T. 9/6
TAPLIN Silencer, nickel plated Burgess type Price inc P.T 4/9
TAPLIN 80 c.c. TANK Nickel plated, Terry fixing clips, screw-down plastic filler cap. Price including P.T. 4/9



This is the watercooled TAPLIN TWIN supplied complete as illustrated.

WATERCOOLED VERSION. Price complete with flywheel and coupling. P.T., postage and packing £9 16s.

Birchington Engineering Co. Ltd.,

BIRCHINGTON, KENT **Tel.: THANET 41265/6**

Please send me a TAPLIN TWIN (*Aero : Watercooled*). (Delete type NOT required.)
* TAPLIN Waterscrew, TAPLIN Silencer, TAPLIN Tank.

I enclose cheque/money order value.....

NAME .....

ADDRESS .....

.....

* For orders of under £1 pleaseinclude 1s. part cost of postage & packing

IT'S MAGIC

3 KWIK-FIX Kits

The COLT Super Trainer

Designed to be assembled in under an hour. Fully shaped fuselage, wings and pre-formed undercarriage. For .5 to 1.49 c.c. Diesel or Glow Motors. Price 27s. 6d.

The VELOX Super Soarer

44" Span Pod-and-Boom Soarer. Pre-shaped Fuselage. Spindled Boom Halves. Crystal clear canopy. Die-cut Aerofoils. Pre-shaped undercart with Sorbo Wheels. Bright Decor Transfers. For .5 to .9 c.c. Diesels. Price 39/6

The NIMROD Duration Model

28 in. Span Rubber Duration with tubular preformed fuselage. Simple to build yet robust. Capable of first-class competition performance. Die-cut ribs, hand carved prop. Price 18s. 3d.

* FLASH NEWS!

The demand for the "KWIK-FIX" COLT Trainer has created such interest that the

NATIONAL 'BEAT THE CLOCK' COMPETITION IS EXTENDED TO AUGUST

ANOTHER 24 FREE ENGINES

LAST MONTH'S WINNERS
B. C. Deakin, Corfe Mullen, Dorset.
E. Roberts, Penarth, Glamorgan.
M. Crane, Airlie Corner, Winchester.
K. Rashleigh, St. Ives, Cornwall.
B. Sheppard, Acocks Green, Birmingham 27.
M. R. Webster, Stanley Road, Wimbledon, S.W.19.

Out of the Box- Into the Air.... in minutes

ASK YOUR DEALER NOW FOR DETAILS OF OUR EXCITING FULL RANGE

VERON
THE MOST POPULAR KITS IN THE WORLD

MODEL AIRCRAFT (Bournemouth) LTD.
NORWOOD PLACE · BOURNEMOUTH · HANTS
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TOP NOTCH CAREER BEGINS AT 15

(and a real man's life too!)

THIS is the Mobat – formidable new anti-tank weapon. Tackling equipment like this you've got to have your wits about you. And at 15 this young man has just that. He's training at an Army Apprentices' School, getting first-rate instruction in one of 40 trades – the majority recognised by the TUC. Later he can try for a certificate in GCE, ONC, or City and Guilds.

And it's not all work either. There are wonderful opportunities for games, and he has plenty of spare time to enjoy himself in the best company in the world. He has good money to spend (board, lodging, and uniform are all free); and he gets 2 months' paid holiday a year, with free travel both ways. Not bad at 15! And with a background like this he can expect to earn £20 a week as a top technician in the New Regular Army.

Of course admission to these Army Apprentice Schools isn't easy. But if you are between 14–16, tough, go-ahead, intelligent, and of good character there's a good chance you'll make the grade. Send for more details on the form below.

POST THIS TODAY to the War Office (MP6) London SW1

Please send me details of the Army Apprentices' Schools (with no obligation on my part).

NAME ..... AGE .....

ADDRESS .....

TOWN ..... COUNTY ..... (AA8/MM)

Applications for next Entry Examinations must be in by September 20th, 1960

Prefabrication is an art...

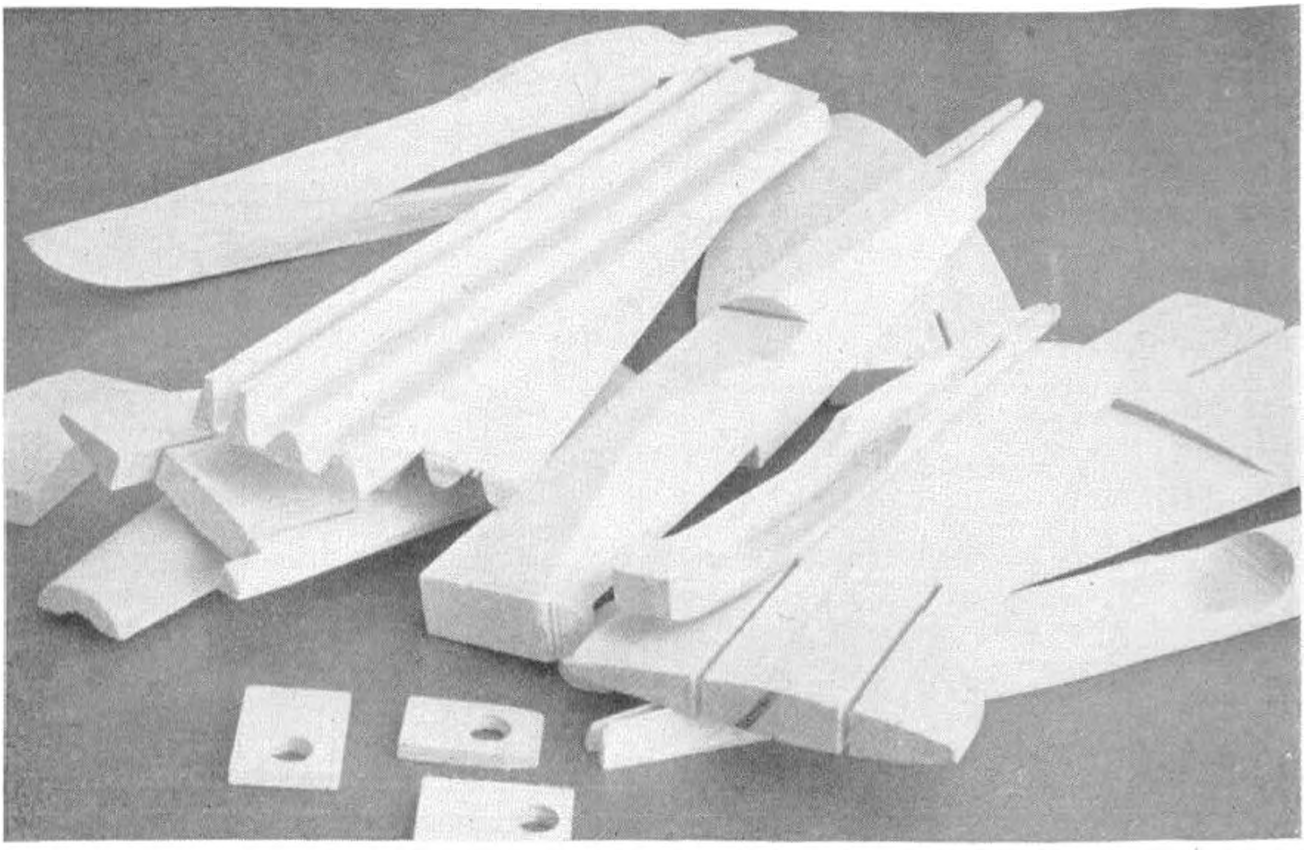

Photo showing typical examples of moulded balsa components produced for current kits, with special emphasis on the slotted leading and trailing edge sections on the Mercury Viper.

SPECIALLY SHAPED PARTS ARE A PRODUCTION HEADACHE

Many modern kit designs call for extensive prefabrication in solid balsa, often for shapes never before attempted on a mass-production basis. Having the right machines to do the job is only part of the answer. Someone has to work out how it can be done efficiently, economically, and in balsa specially selected to get the best results.

At Solarbo we take these jobs as a matter of course. Our experience in fabricating balsa and the skill of our craftsmen who actually do the work are second to none. If the job is possible at all, be sure that we can come up with a suitable answer—embodying the *best* materials and the *best* workmanship.

We are the largest importers and fabricators of Balsawood in this country, backed by a vast experience in its uses. We are always willing to advise on any problem on using Balsa to best advantage. Write: Solarbo Ltd., Commerce Way, Lancing, Sussex.

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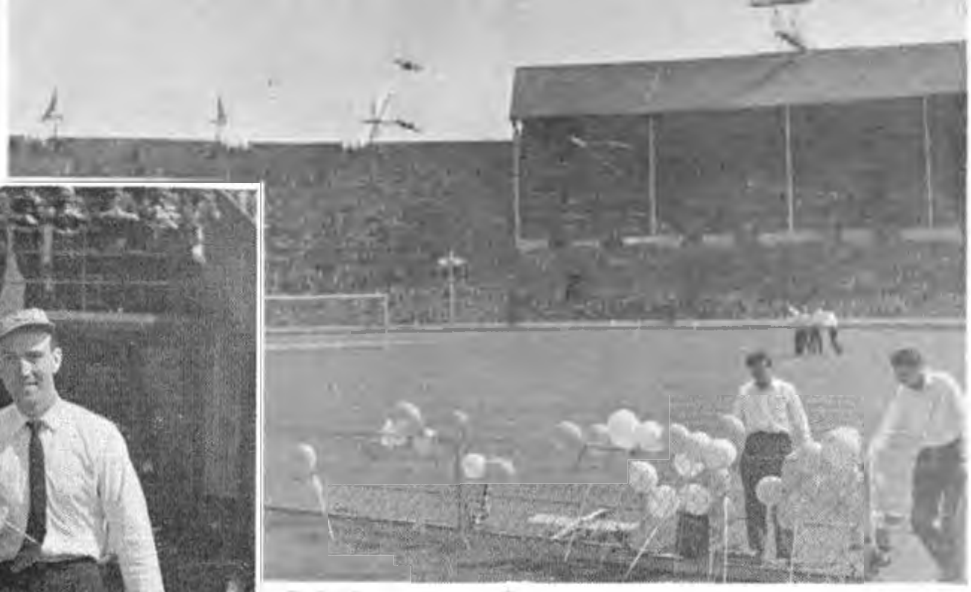
AERO MODELLER



AERO MODELLER

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VOLUME XXV

No. 294 JULY 1960

CONTENTS

ON THE COVER

Ray Edwards and Ken Long holding their "Tigress" and "Dalesman" racers with John Horton's "Tigress Special" in centre. Victorious in many races, the Wharfedale clubmen deserve their place on our first "model" colour photo cover.

SUBSCRIPTION RATES: (Inland) 28/6. (Overseas) 27/6 per annum prepaid including the special Christmas number.

Heard at the HANGAR DOORS

Team Selection Trials

IN ONE OF THE most exhaustive (and exhausting, from our position as judges) meetings ever held in Britain, aspirants for the radio control and control line teams to go to the World Championships were kept in continual action at Wigsley on May 21st/22nd. Team Racers flew four times; Speed as often as they could; Stunt six times; and Radio for five flights. The process was as illuminating to ourselves as judges as it was exacting for the competitors. Team racers had many a rude shock when rules were rigidly applied by Dave Posner in control, and few escaped a black mark on their flight comment card for misdemeanours that would mean disqualification on the Continent. As we write, only one name stands clear as a qualifier, that of Ken Long, who happens to be a contributor to this issue, and is on our "model" cover. Congratulations, Ken! Others who are assured of a team place are R. Brown (Lee Bees), F. Warburton (Bolton) and D. Day (Wolves) in Stunt; and S. Uwins, F. Van den Bergh and C. Olsen in Radio Control.

Lost at Sea!

We hear of an A.P.S. *Electra* which has been recovered from the Irish Sea five miles S.W. of Barrow by the local Pilot boat. The model was powered by an Enya 15 diesel and if the claimant would care to tell us the original colour of his wings and fuselage, we would be only too pleased to forward the address whence he can claim his property.

Rally Vandals

In spite of our warnings in previous years we are in receipt of several appeals concerning stolen models and engines at the Rallies thus far this year. In particular, the Woodford Rally appears to have more than its fair share of vandalism and it is evident that the thieves are modellers themselves through their careful selection of top quality motors, including one in a complete Team Racer.

The moral is, of course, to look after your property and keep it secure.

Well done!

The letter we reproduce over at top right on the page opposite, from the English Schools' Football Association, is self-explanatory and our heading photographs show just part of the impressive display made by leading control line modellers before the crowd approaching 80,000 in the vast Wembley Stadium. It is perhaps significant that we should have chosen Roy Brown's picture to show one of the individuals going out on to the Arena as Roy's performance was particularly outstanding in the International team trials and he will lead our aerobatic team at Budapest in September.

S.M.A.E. Gen

In future all flights for Merit Certificates will be made under the existing Competition Rules, thus clearing up some anomalies that existed in the past.

In view of the vital time factor inseparable from applications for visas when visiting Soviet Zone countries, it has been decided to abandon the second C/L Trials scheduled for July 2nd - 3rd, and the Team will therefore be selected from the results of the May meeting. (We hear bleats from some individuals who claim they were "not quite ready" for the first meeting, but would have "something hot" in time for the July affair! Well, all we can say is the G.B. Team cannot be decided on might-have-beens . . . not ready for the Trials could have meant not ready at the Finals. Simple as that ! !)

Pistols for Two, Please James!

Our attention is drawn to a new flying hazard, and it is one that needs stamping out with alacrity before things reach the point where flying grounds become battlefields between aeromodelling factions. Our correspondent complains that, whilst flying a large glider in a recent contest his model was continually "buzzed" by a radio-controlled machine, which is hardly the kind of thing to sooth competition nerves.

Whilst decrying this silly behaviour, we suggest that the quick solution rests with those modellers who are victimised in this fashion. Seems to us that a swift kick in the Tx (or the wielder's anatomy, whichever is the nearer!) would bring such activities to a speedy conclusion, for surely no one would side with the perpetrator of such dubious practices.

We can see the headlines now . . . "Enraged modellers stab radio flyer with his own aerial" or "The Mystery of Little Puddlecombe. Modeller battered to death with his own batteries."

First Flight ?

Since publication of George Cox's excellent feature on the Wright Flyer in our May issue we have been sent an interesting newspaper clipping from New Zealand concerning Mr. Richard Pearse of Temuka who is said to have flown an aeroplane in 1903 before the Wright Brothers made their historic flight on September 17th. Local inhabitants can recollect seeing Mr. Pearse's flights and Mr. G. B. Bolt, Chief Engineer of Tasman Airways is documenting evidence, having the engine of the aircraft and a second airframe which was discovered in a shed after forty years storage. Apparently the first plane was designed to enable the pilot to withstand a 100 m.p.h. crash, whilst the second aircraft had a tilting engine and hellicopter tail rotor.

Attention, Recovery Squad!

Volunteer motor cyclists are wanted for retrieving duty at the World Power Championships, Cranfield, on July 31st / August 1st. Actual times of duty are 6 p.m. to 9 p.m. on the Sunday and 6 a.m. onwards on the Monday. Those who wish to offer their services to the S.M.A.E. for this worthy cause are asked to contact Dick Edmonds, 24 Carrington Road, High Wycombe.

For Philatelists

In celebration of the 50th anniversary of the Aero Club of Portugal last year, special stamps were issued as illustrated at right, but we regret to say that the black and white half-tone reproduction does less than justice to the brilliant hues of the originals. The model has a Kingfisher blue background with red fuselage and orange wings, whilst the full-size sailplane is in dark and light blue against bright yellow.

The English Schools' Football Association

Secretary: S. E. Tye

126 Boston Manor Road, Brentford, Middlesex

3rd May, 1960.

K. [illegible] A. Brookes, Esq.,
Society of Model Aeronautical Engineers,
22 Grosvenor [illegible],
St. Albans,
[illegible]

Dear Sir,

I am writing on behalf of my Council to express sincere appreciation of the excellent Display arranged by your Society for the entertainment of the spectators at the Schools' International Match at Wembley on Saturday, [illegible] April.

The various demonstrations were most enthusiastically received and contributed very largely to the success of the Wembley event. Please pass on our grateful thanks to all who were connected with the organisation of such an entertaining display.

You will be interested to know that our Chief Guest, The Rt. Hon. Ernest Marples, M.P., Minister of Transport, witnessed the display with considerable interest, and was much [illegible].

Yours sincerely,

S. E. Tye

Secretary.

Short Handed

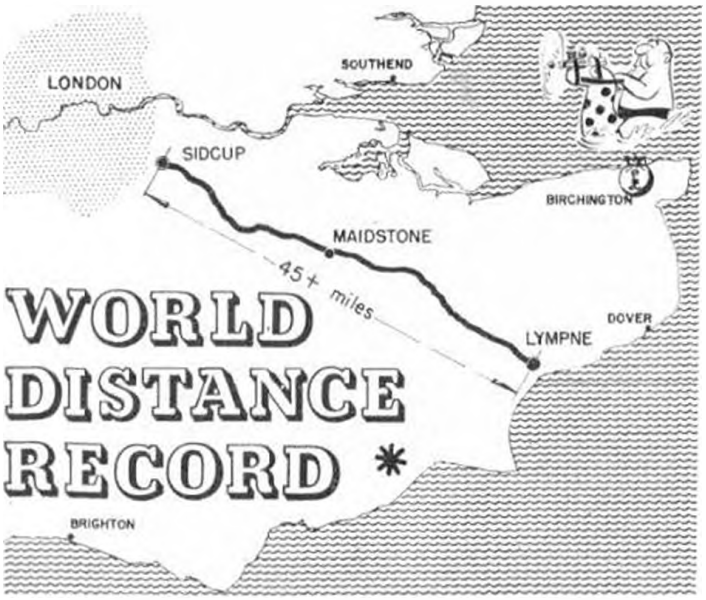
With both the S.M.A.E. Chairman, A. F. Houlberg, and newly-appointed General Secretary, S. D. Taylor, temporarily out of action (both men having recently undergone very serious operations); no vice-Chairman, following the contretemps at the last A.G.M.; Treasurer and Comp. Sec. located at Lincoln and York respectively; the P.R.O. busy readying himself for a business trip to America; and two duties (Tec. Sec. and F.A.I. Delegate) filled at the moment by one person; is it any wonder that the near-London based officers of the Society are finding things a little hectic at the moment?

Much important work is on hand at present with Selection Trials, Nationals, and the involved work attendant on sending British Teams abroad to Switzerland and Hungary, to which is added the highly detailed work in connection with the forthcoming World Power Championships taking place at Cranfield over the August Bank Holiday.

All of which means, please have a little patience with H.Q. during this trying period! Mrs. Bicknell is doing a big job chopping through the inevitable back-log and attempting to keep up to date with current details, but even she cannot do the impossible.

As the well-known advert. says: "Don't shoot the pianist, he's doing his best ! ! "

(Incidentally, the new RULE BOOK *is* now available. If you do not have a personal copy via your club, send in direct; price 2s. 9d. post free.)



BUILDING A MODEL aircraft to attack a World record was the aim of Charles Dance and Wally Skeels, two members of the North Kent Nomads Model Flying Club who can between them claim 45 years of aero-modelling experience. But although they were confident that the plane (which had taken them three months to build) would be a winner it was 6 months before the new long distance radio controlled record could be claimed.

When closed circuit trials began in November 1959 at Manston Aerodrome, no route had been decided upon. Since the designers planned to control the plane from the back seat of an open car, a road as straight as possible was required, running in a direction not likely to be affected by strong winds. Hazards would be lack of visibility caused by woods, high buildings etc., motoring bottle necks and traffic lights and a suitable stretch of road proved difficult to find in Southern England.

However, the route chosen was along the A 20 London-Dover road between a point on the Sidcup by-pass and Lympne Airport near Folkestone. Either direction could be travelled according to the available wind, which had to be for preference as near as possible from South East or North West. The distance as the crow flies was 45.75 miles which would give the necessary 10 per cent. increase over the U.S.A. held record of 37.2 miles.

Having fixed the route the most difficult task of all was to gather a team of approved observers who would be at the starting point at the selected end of the A 20 road at dawn on the morning of the attempt. Here they were lucky. Some of the observers had to travel upwards of 60 and 80 miles, but throughout the series of attempts

Story of a great cross-country flight, told by J. JACKSON

everyone turned up at dawn, even if it meant rising at 2.30 a.m. to reach the start in time!

The first attack on the record was from Sidcup with ice-covered roads for take-off. But, with a South West wind blowing strongly the plane hadn't a chance. At times it was almost flying tail first down the A 20 in its efforts to keep on course, and 12 miles out the flight came to a muddy end in a ploughed field.

Lympne Airport was the starting point for the second attempt, with a 14 knot South East wind blowing on the arranged morning. It was very cold as the plane took off, although the air temperature was rising rapidly as the flight reached Bearsted, near Maidstone. For a few miles the engine had been losing revs until it descended low enough to crash into a tree on a chicken farm. They had covered 23½ miles. Repairs were needed to the tailplane, so a further attempt that day was abandoned.

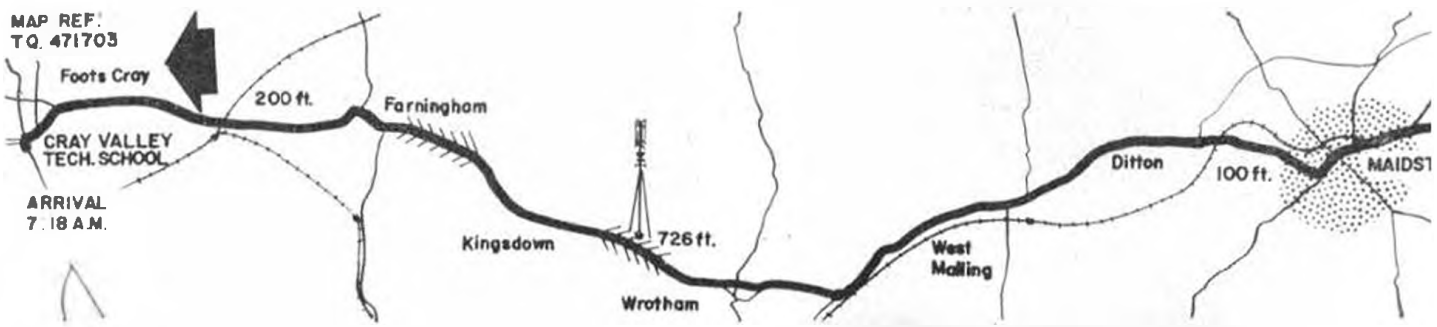
A few weeks later another effort produced a crop of seven broken propellors during take-offs, and another which disintegrated in flight. Thirteen miles were achieved, but it was a very disconsolate party which headed for home in two minds whether to abandon all thoughts of chasing the record.

It is difficult to realise how much effort, both physical and mental, goes into all the preparations and flying on these occasions. But the midnight oil burning had to stop when Wally Skeels' wife presented him with a son. Thus the spate of attempts was broken. Then Wally was laid out with food poisoning (was it his own cooking?) and Charles went down with jaundice.

But, sickness apart, the change seemed to do them good for when they turned up at Lympne at 5 a.m. on May 8th there was a relaxed air of quiet confidence. Everything seemed right. Not a breath of wind. Warm air with plenty of lift, and the F.A.I. had ruled that the plane could be *hand-launched*. This was a great relief, as formerly there had been difficulty getting the plane airborne as the surface conditions at Lympne were not ideal. Rough patches of tarmac and concrete had deflected the plane on take-off in spite of ample engine power.

* *Subject to F.A.I. promulgation*

Happy landing — even if a bit bent. Wally Skeels (foreground) and Charles Dance pictured at the finish, much relieved after so many strenuous weeks of effort; route below indicates some of the hazards involved



Record breaking team, the observers, left to right: Alan Smith, D. Grou, Geoff Chapman, helper Nigel Dance, A. G. Burne and Ivor Bittle, with Charles Dance (left) and Wally Skeels and the 8 ft. 6 in. span Smog Hog. Below: How it was done, back seat pilots in the Morgan in a trial run

. . . . and the

CLOSED CIRCUIT RECORD

by C. D. ADCOCK

WHEN COL. TAPLIN made his prize offer in the Christmas AEROMODELLER, thoughts immediately turned to how an existing "*Uproar*" converted to fly with 24 ozs. of fuel, pressurized tank and float system, Unitone receiver and batteries, modified Fred Rising rubber driven compound and four position clockwork engine escapements, plus of course the Taplin Twin complete with prop,—a mere 65 ozs!

(Continued overleaf)

Step by step the plane was assembled, topped up with fuel and the 7 c.c. Taplin twin purred into life. Even the engine sounded confident!

A few moments later, after a last radio check, Wally Skeels trotted down the tarmac to launch the 8 ft. 6 ins. span model into the clear morning sky. The red, white and blue silk-covered plane (weighing 10½ lb. with its 30 ozs. of fuel) was on its way.

Mr. A. G. "Tug" Burne of the Kent Gliding Club revved up his Morgan open sports car and with Dance and Skeels with radio control unit on the back seat, they were off. It was 5:56 a.m. For the 51 miles (actual road distance) the Morgan and three other following cars sped along behind the plane at speeds varying from 35 to 55 miles per hour. The old town of Maidstone with its narrow streets and tall buildings and many cross-roads was the big obstacle. But each of the following cars assisted by getting to observation points to advise the control car the position of the plane. The only other hazard was sight-seeing motorists, who bunched around the control car, with their fascinated eyes on the sky.

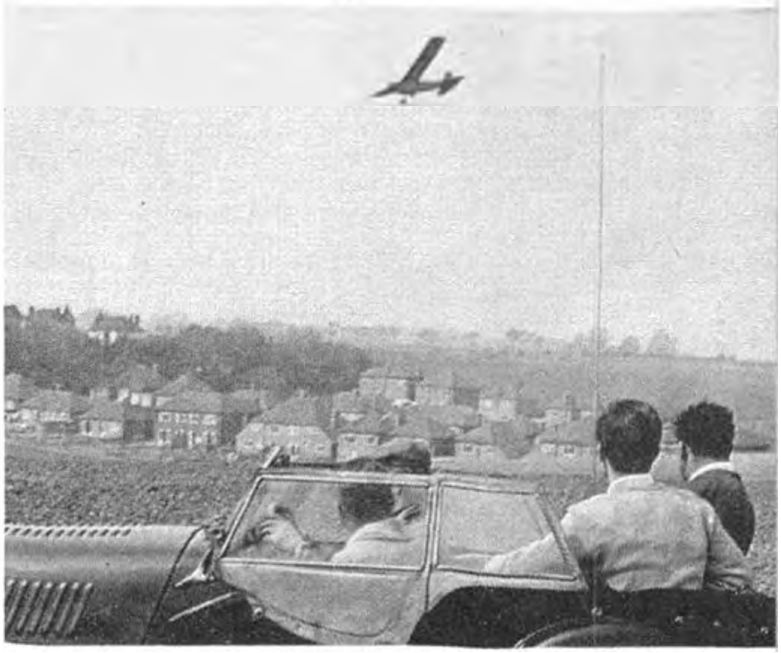
It was a smooth, uneventful flight with the aircraft looking and behaving like a real World beater, taking the rise and fall of the land in its stride, as the "pilots" kept it trimmed with elevator. But fate looked like being unkind just at the last minute.

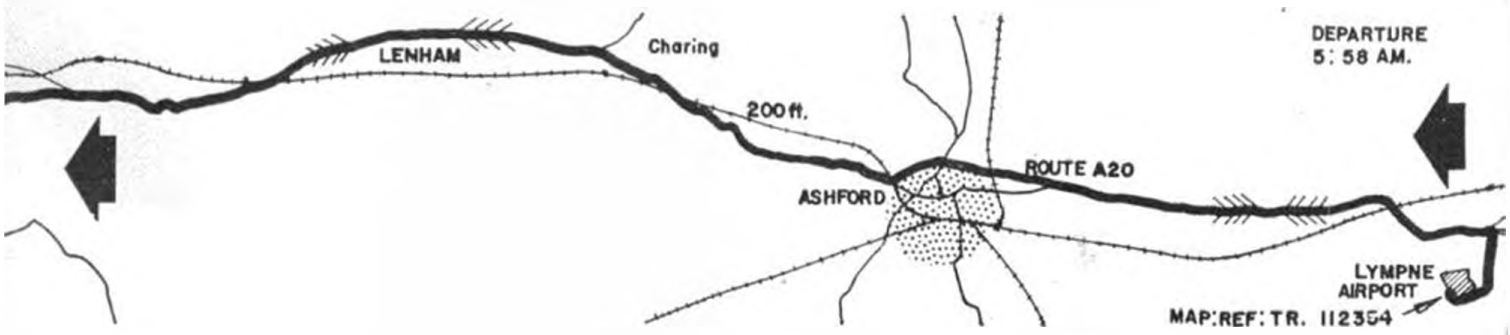
As the cars drew up on the Sidcup by-pass where the landing spot had been chosen, Charles Dance leaped from the back of the Morgan. He pressed the control to bank the plane round to land, but nothing happened. An early morning mist hung over London. The aircraft was disappearing into the dim distance at 45 m.p.h.!

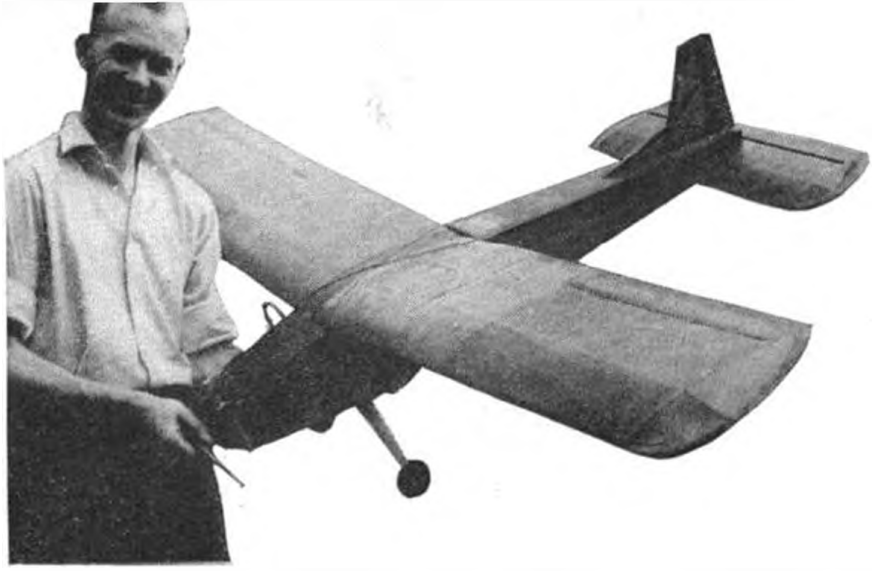
Then Charles looked at his Tx. He had knocked the battery switch to "off" as he had jumped out of the car. With seven other pairs of eyes to help him get the plane back out of the mist, he brought it in to crash land in the rough field. No serious damage had been done, just another prop to find. Then there was a great sigh of relief for the rules state that the plane had to land within one kilometer of the nominated landing site. Otherwise, however far the model had continued, the attempt would have been void.

The trip had lasted 1 hour 22 minutes and fuel consumption had worked out at 350 miles to the gallon! It says a lot for the Taplin Twin diesel for it had already done 20 hours of flat-out running on the 11 x 6 Trucut prop before this fifth and successful attempt, yet it had not missed a beat on its 82 minute run. Fuel from the one and a half pint tank was pressurised from a crankcase bleed valve on the engine and then fed to a motor-cycle type carburettor float chamber before reaching the twin.

Electronic Developments 6-channel Black Knight and Black Arrow R/C was used, with ED servos. For elevator control the servo was arranged to trim "down" setting and give a responsive "up". One surprising factor which may not be readily appreciated is the fact that the motorists had to cover 51 miles in *less* than the total launch-to-landing time, making the road speed such that considerable driving skill (and co-operation with the record breakers' helpers) was needed to complete the flight without incident. Such good team effort deserves the success it achieved.







C. D. Adcock with his *Uproar* now fitted with trim elevator for subsequent attempts, the major difficulty being that of leaving the ground

This was achieved and test flying commenced in the middle of January using a 10 oz. tank proving that one could expect a fuel consumption of 12 ozs. per hour at full throttle, and that the compound escapements would work satisfactorily with at least 1,100 usable operations.

It should be made clear at this point that the aim was to break the "Distance in a straight line" record, then standing at 37.2 miles, and only by chance it was noticed that a further class for "Closed Circuit" had been included in the latest F.A.I. rule book. (Article 6.10.2.).

Thus it was decided firstly to prove the model, system and pilot on this Closed Circuit, and to attempt the cross country record later, when it would be essential to have favourable wind and weather conditions.

A four speed engine control would act in lieu of elevator trim, i.e., the model would climb at full speed, maintain height at 3/4 revs, and gradually reduce height at 1/2 throttle.

The next step was to attempt control from the car—a three seater Fibreglass Ford Special, which provides excellent visibility and acceleration, although it was staggering to find that on first tests downwind, the speedo hovered between 50/60 m.p.h.! This particular flight lasted 25 mins., around the aerodrome perimeter track and out into the local country lanes.

Encouraged by this performance, plans were made for the following week-end to attempt the Closed Circuit.

During this week of waiting the "Snows came", and prospects diminished, but fortunately by the second weekend in February, the runways were just usable although conditions were far from ideal—with a temperature almost at freezing point, and a steady 15/20 knot NNE wind to contend with.

The 500 metres course was then laid out, checked by steel tape, and marking and sighting posts set up, observers at each being supplied with semaphore flags and lap cards, a further observer being positioned alongside the transmitter, complete with stop watch. By this time there was only one hour of daylight left, the fuel being carefully measured to last accordingly. After one unsuccessful take off, the model became airborne at 4.28 p.m. and then the fireworks really started. On full revs into wind no penetration was possible, but by reducing to 1/2 and 1/4 throttle and tacking crosswind, once height had been gained, slow forward progress could be made at little more than walking speed, the pilot at times walking underneath in order to keep warm. This upwind leg was taking as much as 3½ minutes at an average of only 6 m.p.h. and meant almost continued use of the controls, but against this the downwind leg was regularly completed in approximately 20 seconds, (average speed of 55/60 m.p.h.). This meant that the downwind pylon was continually overshot which meant having to regain this distance at the lower speed.

Once confidence had been gained it was possible to keep the model nearer the ground into wind, which considerably helped penetration. Hot coffee/rum was dispensed by a long-suffering wife, which was most gratefully inbibed by all and sundry, and helped the circulation of the keying fingers.

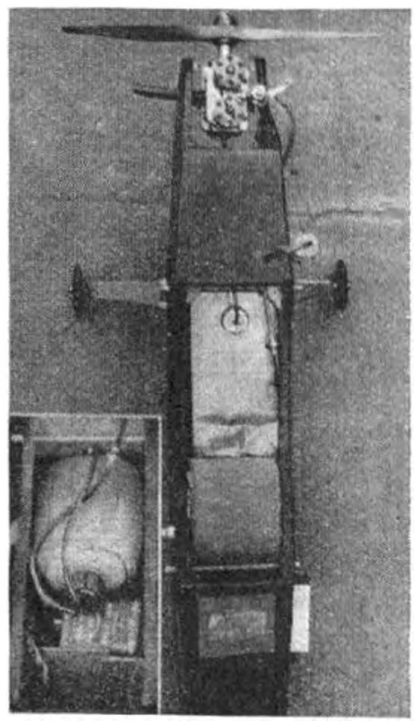
Finally at 5.17 p.m., in near darkness, the fuel ran out, the model being landed in the snow within 30 yards of the transmitter. On checking there were over 400 movements left on the actuator rubber; battery voltages showed negligible fall; and equipment worked perfectly.

With this encouraging start, and after having checked with the local Met. office, plans were made for the following morning to have a crack at the Point to Point Distance record, starting from Bawtry Airfield, Yorks, and aiming for Syston in Leicestershire (at 7.30 a.m. Sunday morning!) a distance of approximately 50 miles.

Unfortunately this attempt came to nought, as even though we had the model airborne over Bawtry—this time complete with sufficient fuel to last two hours—the wind direction changed completely from N to WNW and the party was obliged to return after 30 minutes flying, it becoming rapidly obvious that the *Uproar* was more likely to reach the East Coast than Leicester.

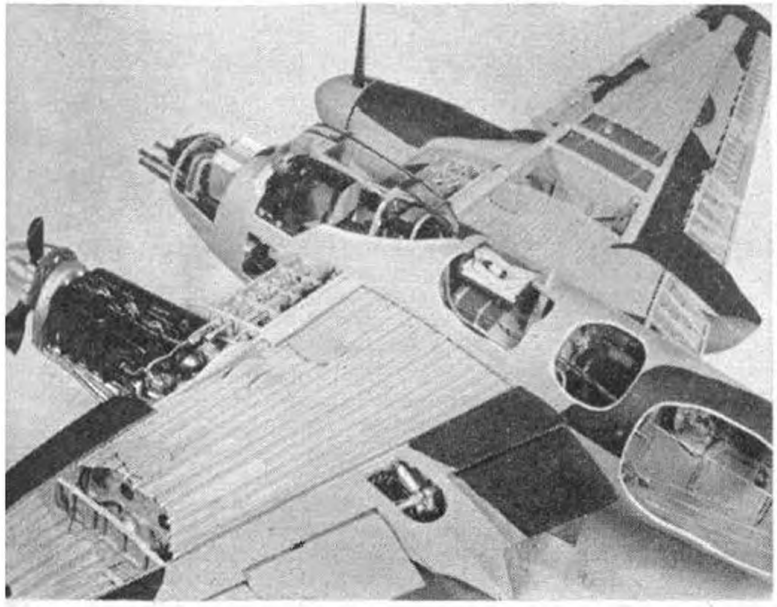
After a complete rebuild—due to contact with one of the member's cars—Tritone with Trim Elevator control was installed. Numerous further attempts were made at both the Closed and Open records, each time without success—due to (*a*) pilot error, (*b*) the usual R/C ailments and (*c*) pilot error again! The Notts team fully appreciate the difficulties which C. Dance has had to contend and offer him heartiest congratulations.

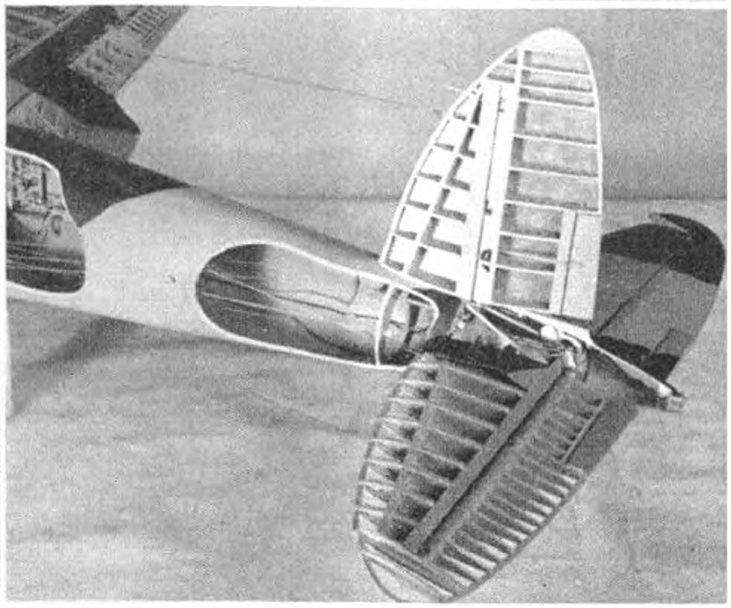
Grateful thanks are due to many people whose combined co-operation made this possible, viz. Bob Black (R.C.A.F.), Ken Moore, and John Bradley (Foresters), Ken Smith (N.S.C.), particularly as they had to give up a great deal of their own flying time — and of course to the manufacturers whose equipment has been thoroughly proved.



Details of the receiver and tank installation, note large polythene bottle in inset photograph, held below protective plate

Superb Mosquito FB VI





RARELY DO WE HAVE the opportunity of admiring such magnificent workmanship as can be seen in these five photographs of Mr. C. V. McCann's Mosquito, now on exhibition in the Imperial War Museum model collection.

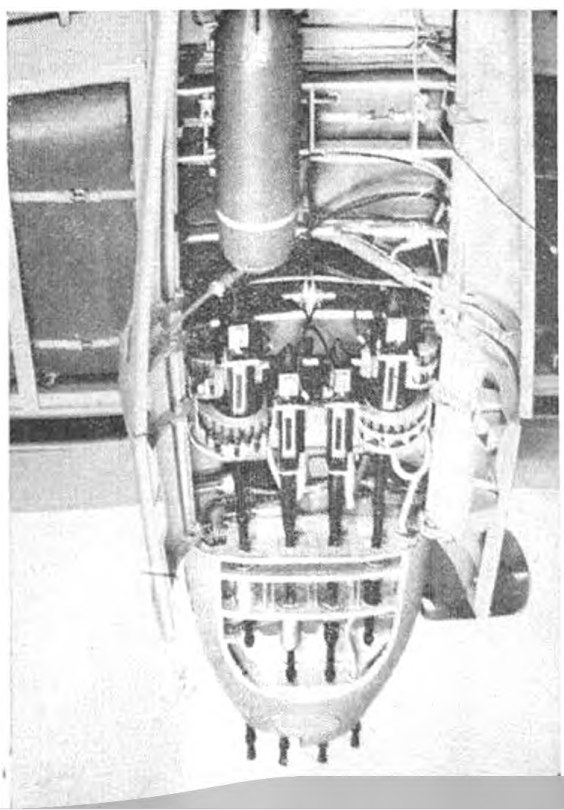
The "Mossie" is all the more remarkable since Mr. McCann has not even seen an example of the full size aircraft! All the interior detail which is so expertly reproduced in scale structure and authentically coloured, has been gleaned from data supplied by de Havillands, and close study of photographs, the majority of which were obtained from the Imperial War Museum Photographic Department. It is hardly surprising that during the course of making this model Mr. McCann actually became a member of the I.W.M. Photographic Library staff.

Visitors to the Museum will have already seen his similarly constructed Lancaster to the same 1/12th scale and his perfectly detailed Malta defence Gladiator "Faith" plus his famous foursome, Hurricane, Spitfire, Me 109 and FW 190, which have prominent display among the Museum's many fine exhibits in the model room.

The Mosquito is a fitting companion for the Lancaster and we recommend all scale modellers worthy of their calling to go and see this Model when the Museum is open on weekdays from 10 a.m. and on Sundays from 2 p.m. closing at 6 p.m. Although a "one-off" the model has called for no less than 29 separate acetate mouldings to form the various compound curves and shapes where thin shells are required for realism. Particularly interesting is the true scale representation of the monocoque fuselage shell with .014 in. card on either side of a balsa core.

Considering that no machine tools were used and everything was made by Mr. McCann with the traditional razor blade, pins and pliers of the kitchen table model maker, this is truly a remarkable model. Nor should we overlook the valuable assistance—and patience—of Mrs. McCann who helped with many small items.

LATEST ADDITION TO THE IMPERIAL WAR MUSEUM



CYRANO

What's wrong with a long nose? This pert little cabin design for small diesels and the new ·049 glow engines will give hours of fun

by Keith Laumer

WHILE ON DUTY with the American Embassy at Rangoon, Keith Laumer found his model flying drastically interfered with by the lack of adequate fields of the type he was used to at home. There was a small field at the Turf Club with a concrete parking area adjacent, so he set out to design a model suitable for small-field operation; a model which would execute realistic take-offs and landings (to take full advantage of the car parking area) while limiting its range to the few acres available.

Cyrano took shape as a small, sturdy box-fuselage ship with realistic lines and simple construction. Since a floating glide was not desired, a solid landing gear, sheet balsa tail assembly and colourful paint job were included; the added weight gives *Cyrano* a smooth, fast glide down after a moderately steep climb under power. The first test flights showed the need for a small amount of ballast at the tail, after which the ship performed faithfully and stayed within the assigned boundaries, providing many hours of flying fun.

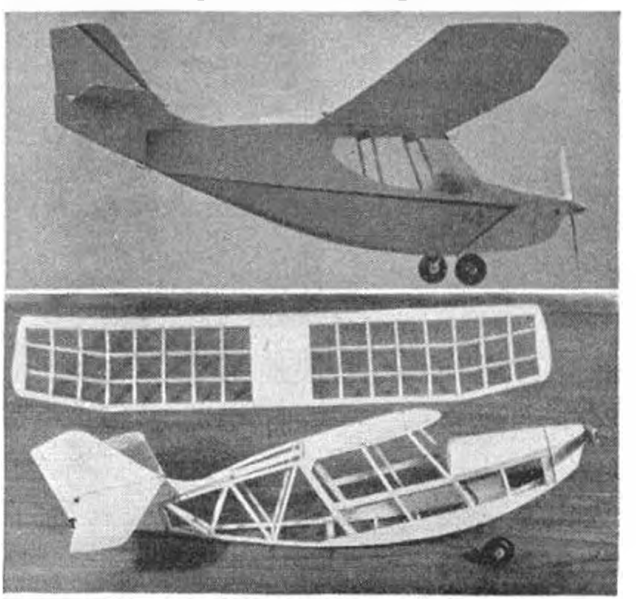
Complex construction has been avoided and you'll have no trouble putting *Cyrano* together in a few evening's work. Start by cutting out the two ½ in. plywood bulkheads F1 and F5, the seven sheet-balsa fuselage parts. Lay out the two sides (note that cabin is built separately) and while the cement is drying, bend the ⅛ in. piano wire L.G. and lace it to bulkhead F5 with No. 30 linen thread. Attach the tailskid to F7 and prepare the firewall F1 for engine mounts. Join the sides on bulkhead F5 and add remaining structure. Score the cabin roof on the centre line, insert the front wing hold-down wire, then place the posts in the notches provided, with F6 and F7 fitted between them against the roof. Add the cabin assembly, tail platform, support and platform, and cowling and sand the fuselage structure preparatory to covering.

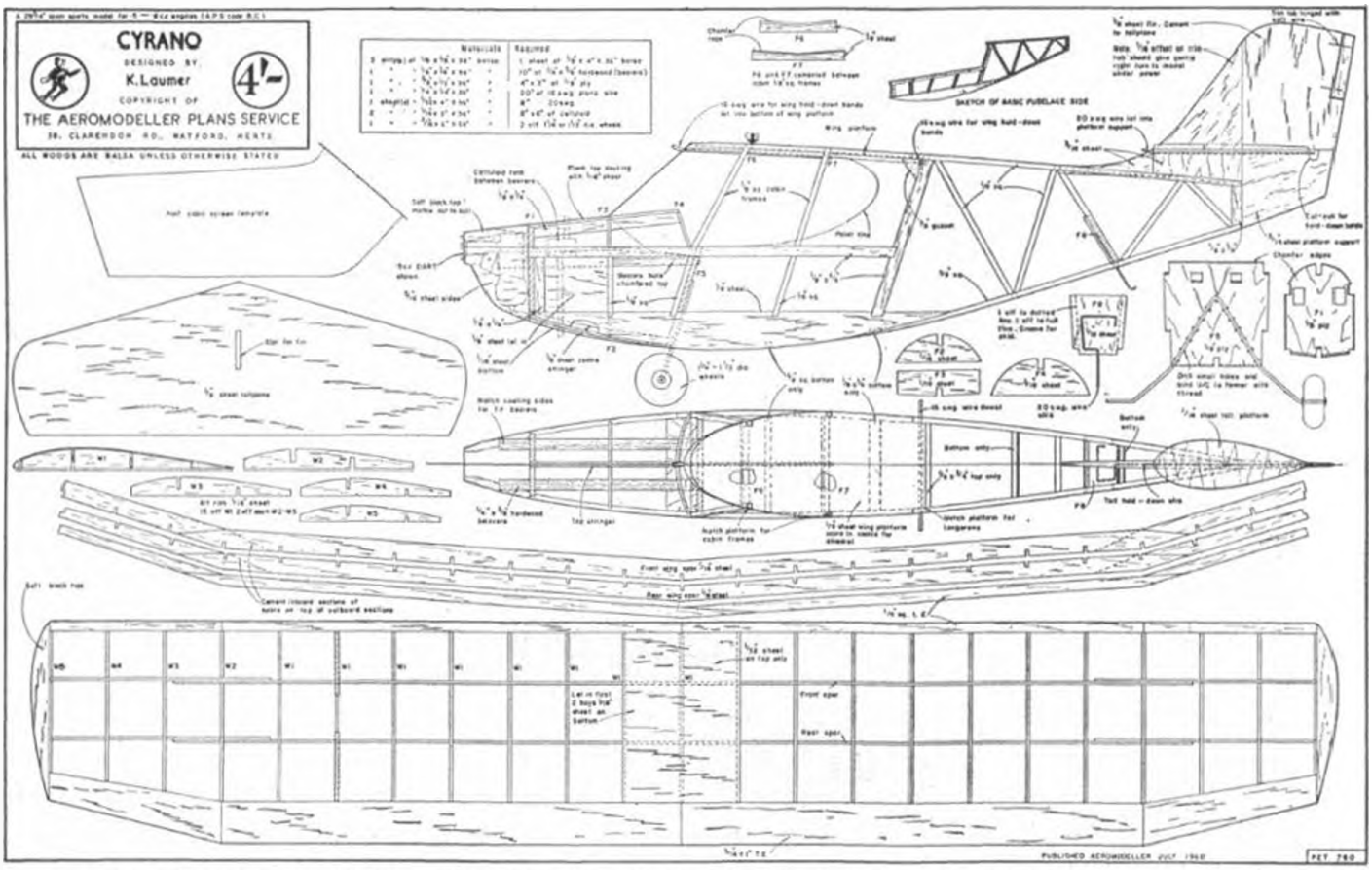
Start the wing by cutting 15 ribs W1, two each of W2, W3, W4 and W5. Build the two full-depth spars and the leading edge over the plan to establish proper dihedral angles. Cut the trailing edge from hard 1/16 in. balsa and bevel to cross-section shown on Rib W1. Pin the leading edge, rear spar, and trailing edge of one inboard panel to plan and add ribs. Tip wing up and add outboard panel ribs. Repeat for the other wing. The front spar is installed after ribs are in place. Tips are shaped from soft balsa and cemented to ribs W5. Shape the leading edge to the proper cross-section with a sharp knife, then add cap strips, centre 1/16 in. sheet and 1/16 in. sheet and sand the entire structure thoroughly. The strength of the wing will be greatly increased if all joints are thoroughly daubed with a 50/50 cement/dope mixture.

Rudder and elevator are cut from medium balsa sanded to a streamline cross-section and joined. Apply a coat of clear dope to both fuselage and tail assembly and sand lightly. Cut the rudder tab free and mount using soft wire.

Cover wing and fuselage with lightweight tissue, continuing covering over balsa surfaces. Shrink tissue by wetting, then clear dope and sand lightly. Install the rear wing mounting dowel and paint the interior of the cabin the desired colour preparatory to installing windshield. Make a paper windshield pattern first to achieve exact fit, then transfer to celluloid. Cement the windshield along one side of the fuselage; when cement is dry attach the other side.

Cyrano's high tail, deep cabin and distinctive nose are well illustrated in these views showing construction and original colour scheme





FULL SIZE COPIES OF THIS 1/5th SCALE REPRODUCTION ARE AVAILABLE AS PLAN PET 760 PRICE 4/- PLUS 6d. POST FROM AEROMODELLER PLANS SERVICE

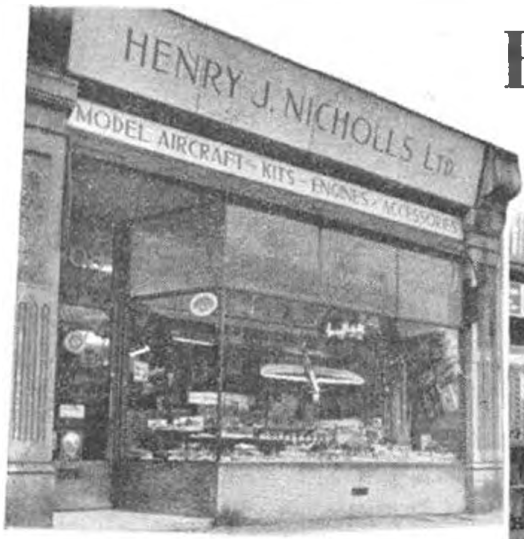
Mask off the window area, spray or brush the wing, fuselage and tail assembly with two coats of colour dope. If smooth colour and complete coverage are not achieved with two coats, add a third; *Cyrano* can handle the weight very nicely. Cut the cowling free, dope the raw edges and install the engine, after which it will be necessary to whittle a bit off the cowl here and there to fit it to the engine. Use an aluminum spinner to carry out the fuselage lines or carve one from balsa and cement it over the prop. Add the colour trim and any odd decals you may have lying around and solder wheel retaining washers in place.

Try your first test glides cautiously, since the long nose moment makes the model sensitive to slight variations in engine weight. If tail ballast is necessary, bore through the tail platform into the ¼ in. balsa platform support and drop BB shot in as necessary. When you have a long, flat glide (after a hearty toss; *Cyrano* is no featherweight), try a low power flight to check power turn. A gentle right turn under power should be achieved with a ¼ in. offset of the rudder tab.

Be careful not to turn *Cyrano* loose with more than twenty seconds worth of fuel—or it may get high enough to snag a thermal and disappear OOS. Keith hates to admit it, but that's what happened to the original *Cyrano*. Say, has anybody seen a little model about so big . . . ?

"He sa eth he's trying to invent a Hobbye—whatever that meaneth"

Renovations at "308"



We visit the famous North London model shop

WHEN HENRY J. NICHOLLS opened his model shop in Holloway Road in 1946 it presented a very different picture to the one we saw when we visited him last month. The shop was then partly bomb damaged and the temporary shop front, counters and fittings were largely made from salvaged timber and essex board, and even those materials were then "on licence".

In the intervening years improvements have been steadily made until recently the shop had a complete "face-lift" with all new counters, designed especially for the model trade, and a new window which allows the store gazer and passer-by to see right through into the shop.

The resulting improvement is most noticeable to those who, like the Editor, have known "308" since its inception. A bright and tidy appearance is in no small measure due to the efforts of Henry's son Richard who is now in charge of the retail side leaving father to concentrate more and more on the manufacturing and wholesale side of the business.

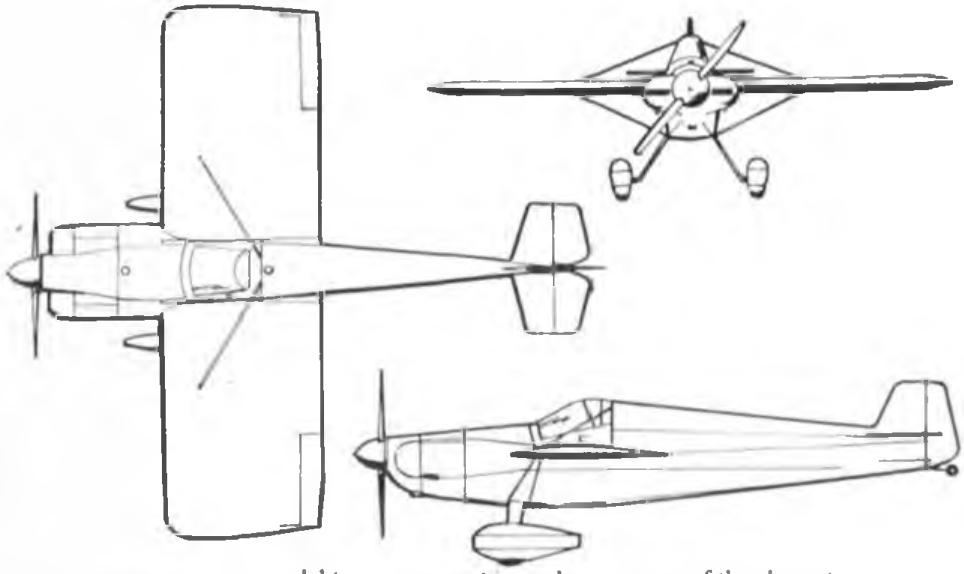
While looking round we were impressed by several outstanding features. The amazing array of engines in the glass-topped counters. We counted over eighty different new motors, and there must have been about two hundred motors in stock altogether including the second-hand ones. On the stacked shelves were several of the very latest American kits including all the latest deBolt and Sterling series and also the Bonner Duramite and all nine of the deBolt servos for radio control. We also had a look through Henry's visitors' book. Some of the worlds' best known modelling names appear there and prove conclusively that Henry's boast that "All visiting modellers come to 308 whenever they get a chance" is not an idle one. What a pity this book wasn't started right at the beginning of the shop's existence! Among recent signatures were those of Al Doig, U.S. R/C expert, and modellers from India, Finland, France and Australia.

Certainly the cheerful atmosphere of 308 has taken on a "new look" with installation of the specially designed sales counters.

We detect a distinctly "continental" air about the new layout—doubtless influenced by Henry's visits to Belgium, Germany, Austria and Switzerland where the standards of shopfitting are perhaps higher than normally found in British model shops. Possibly this feature may stimulate others to have new ideas to change the situation, especially where sales counters are concerned.

With Henry Nicholls and son Richard to look after him, this youthful customer can be assured of first class service, no matter how small his purchase. New, specially designed glass topped cabinets hold sales stock for quick dispensing and staggered arrangement as evident in the general view at top gives ample room for assistants to move from end to end

TEAM RACER Appearance



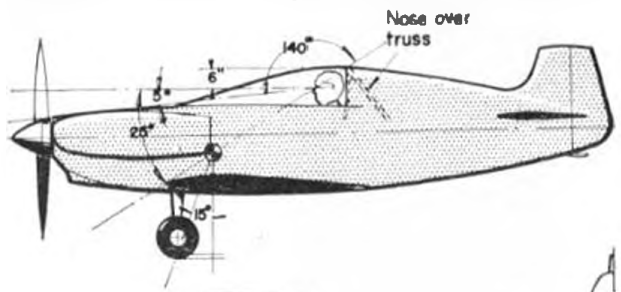
THE MODEL shall be scale or semi-scale . . . that is what the rule book requires in its interpretation of the basic regulations for a team racer, yet how many of the entries at any contest could be truthfully regarded as meeting so simple a specification? We look forward to the day when an organiser worth his weight in moral courage will apply the rule rigidly and stem the degeneration of design-thought before we descend to the depths of Rat Racing, that appropriately-named time burner which we trust will remain west of the Atlantic.

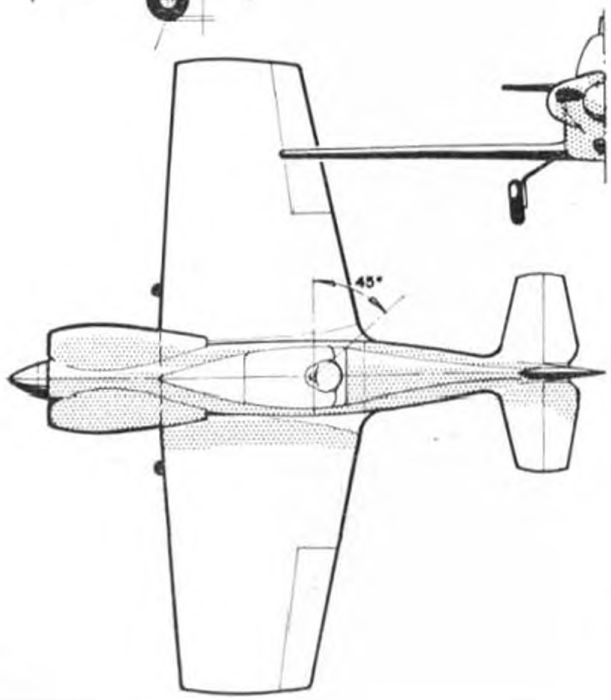
What *is* semi-scale? The original conception of team racing envisaged models on *Goodyear* racer lines, and the full-size specs for that type of aircraft are sketched below. Note the general proportions, and the specific details for centre of gravity and undercarriage relationship plus pilot visibility. Above, right, is a 1/72nd scale drawing of Garland Pack's *Johnny Reb*, typical of the 230 m.p.h. racers built to meet the regulations. One thing is obvious in comparison with our models. One cannot use so small a tail surface, nor accommodate an engine within scale profiles.

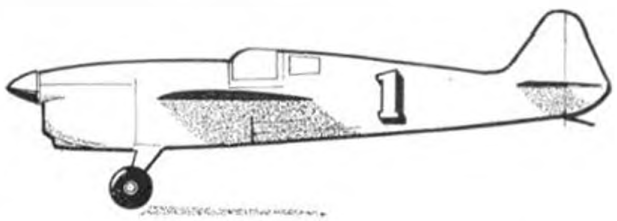
But why not *try* at least to get some degree of realism in the fuselage side view? At right are four famous racers which we have deliberately altered to suit the needs of a model team racer, yet in each case some of the character which distinguished the full-size aircraft is still evident. We know that it is desirable to have large tail area on short moments, and undercarriages raked well forward for stability on the ground; but why not meet the regulations in the side view?

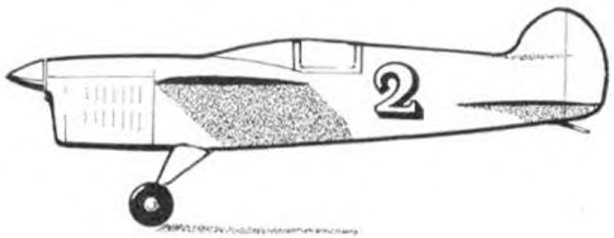
Speaking of undercarriages — is the monowheel within the scope of the rules? It certainly is, for there were several such equipped Goodyear racers: but whether its drag-reducing advantages are worth the risks in operation is another matter.

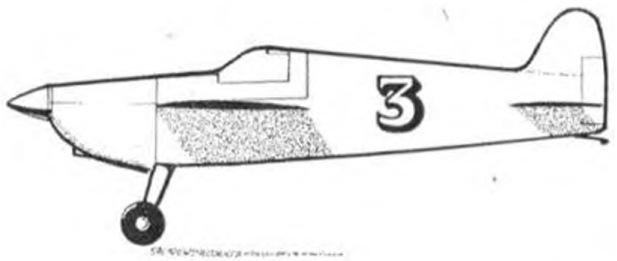
Because our drawing of Bernard's Startiger has obviously had so much influence in 1960 racer design, we hope these sketches will stimulate a revival in original thought and improve the breed of racer in the coming season. On the pages which follow are details of yet another source of inspiration . . .

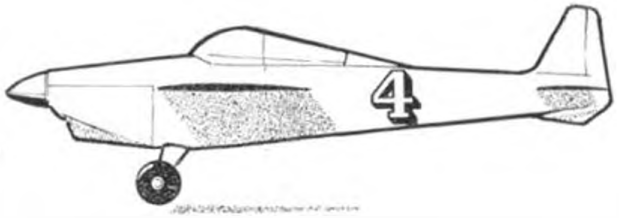


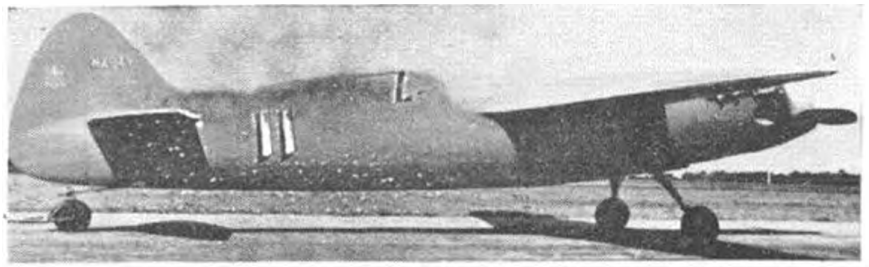










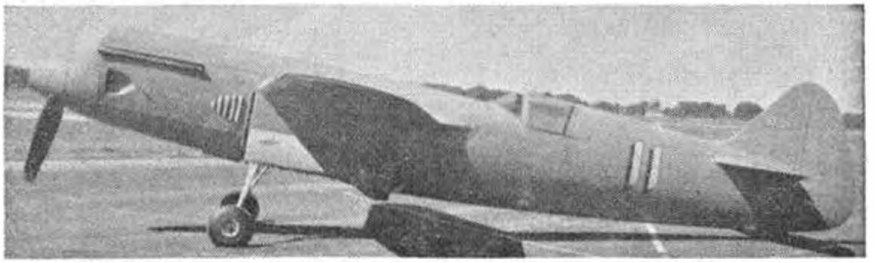


Two photographs show NX 94Y: at left with plates over the undercarriage well, and below, in the original configuration with doors open. The smooth lines, and close cowling of the Conqueror engine are most evident, particularly when compared with the bottom photograph showing the engine installation. Hollow spinner was a radiator duct for cooling

AIRCRAFT DESCRIBED
Number 102

Pearson-Williams "Mr. SMOOTHIE"

described & drawn by
J. H ROBINSON



BUILT DURING 1938 in a garage at Venice, California, by the Pearson-Williams Airplane Co., the PW-1, aptly named Mr. Smoothie, was designed by C. R. (Bud) Pearson and Rodney Nimmo, former associates of racing aeroplane designer Keith Rider. Mrs. Edith Boydston Clark, who had sponsored the Rider R-3 Racer, and was herself a pilot, financed the venture. Lee Williams, ex-mechanic to racing pilot Marion McKeen, was to fly the machine.

Mr. Smoothie was powered by a Prestone-cooled, supercharged Curtiss Conqueror engine of 825 h.p. An annular radiator mounted directly behind the propeller received its air through the twelve-inch diameter opening in the hollow spinner and exhausted it through a large indented louvre on either side of the cowling. The curious indentation ahead of the oil cooler intake below the cowling was intended to break up the laminar boundary layer and ensure turbulent flow with no loss of pressure over the oil cooler.

The fuselage was a welded steel tubing structure, plywood covered aft of the cockpit above the wing, and aft of the undercarriage doors below it. Removable dural panels covered the forward fuselage and engine cowling.

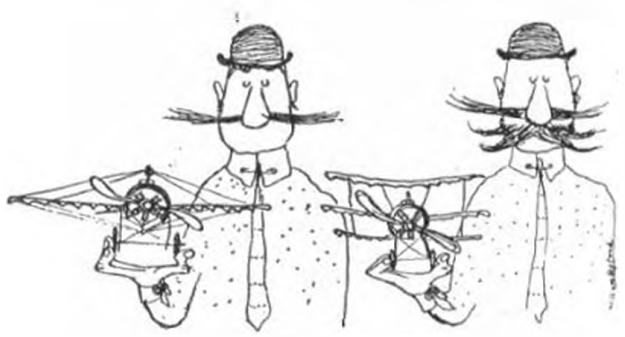
The fin was built integral with the fuselage, and the entire tail assembly was plywood covered as also the gracefully-tapered wing of 95 sq. ft. area which was a wooden monospar structure. Split, drag-type landing flaps were fitted, and the leading edges of both flaps and ailerons were carefully shrouded to reduce drag.

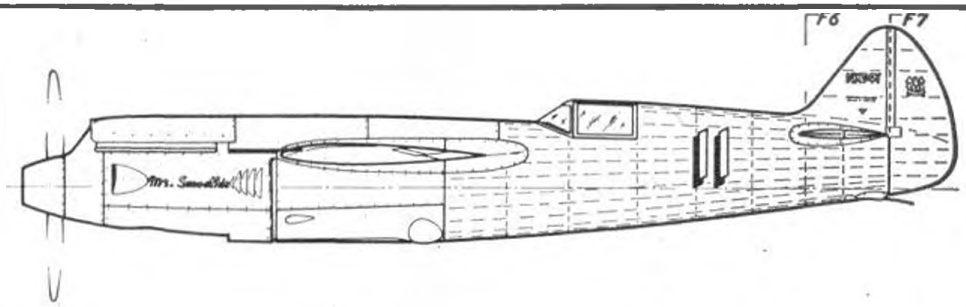
Completed just before the 1938 National Air Races, Mr. Smoothie was taken to Cleveland, where a hard landing after a test flight damaged portion of the retracting mechanism. Time did not allow for repairs to be made, so the undercarriage was fixed in the extended position, the undercarriage doors removed, and the openings covered with fixed aluminium plates. As the aircraft was being towed past the stands to the starting line for the Thompson Trophy race, the right-hand landing wheel detached and the axle was so badly damaged that Mr. Smoothie had to be withdrawn from the race. A forgotten cotter pin was the cause of the trouble.

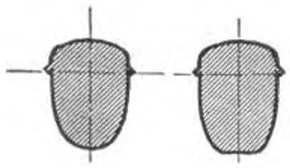
Mrs. Clark now withdrew her sponsorship, and the name Mr. Smoothie on the engine cowl, the emblem on the rudder, and the legend "Pearson Williams Airplane Co., Venice, California" on the fin were painted over. The aluminium plates were removed and the original undercarriage doors installed in the closed position, and the undercarriage legs wire-braced to each other and to the fuselage.

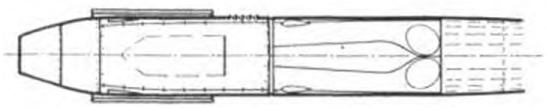
Lack of funds prevented participation in the 1939 National Air Races, and Mr. Smoothie languished in California until the early 1940's, when a mer racing pilot Harry Crosby, then a Northrop test pilot, bought it and tried to fake it into a Messerschmitt Me-109 for a war film. Crosby was killed flying the Northrop XP-79, and Mr. Smoothie lay rotting in a hangar until acquired several years ago by John Caler, who later sold the remains as scrap.

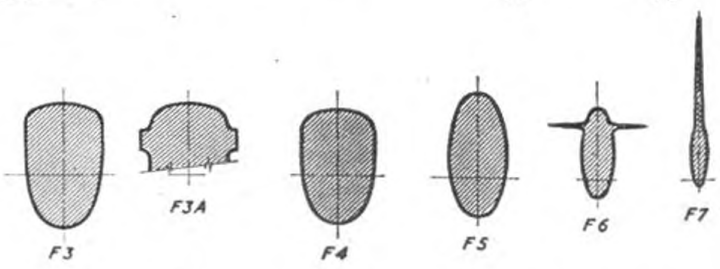
Finished bright red, with racing and licence numbers in gold, outlined in black, Mr. Smoothie's classic lines were not only pleasant to the eye but aerodynamically excellent. One of the most efficient aircraft ever brought to Cleveland, Mr. Smoothie had a theoretical maximum speed of 385 m.p.h. Much careful and intelligent thought were devoted to its design, and Mr. Smoothie was really a remarkably advanced aircraft for a 1938 "backyard special", worthy of a far better fortune than came its way.

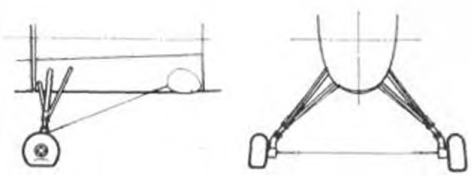


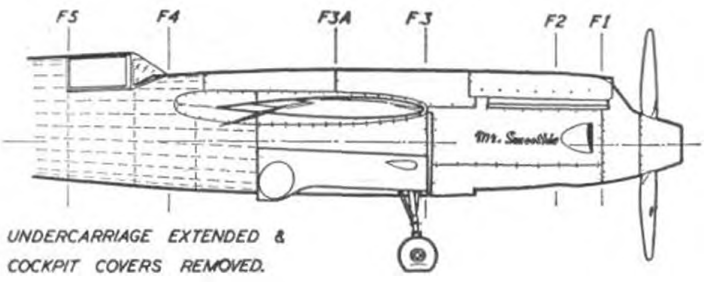






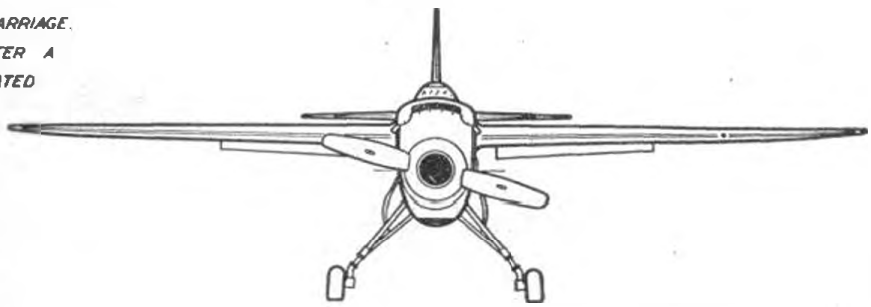




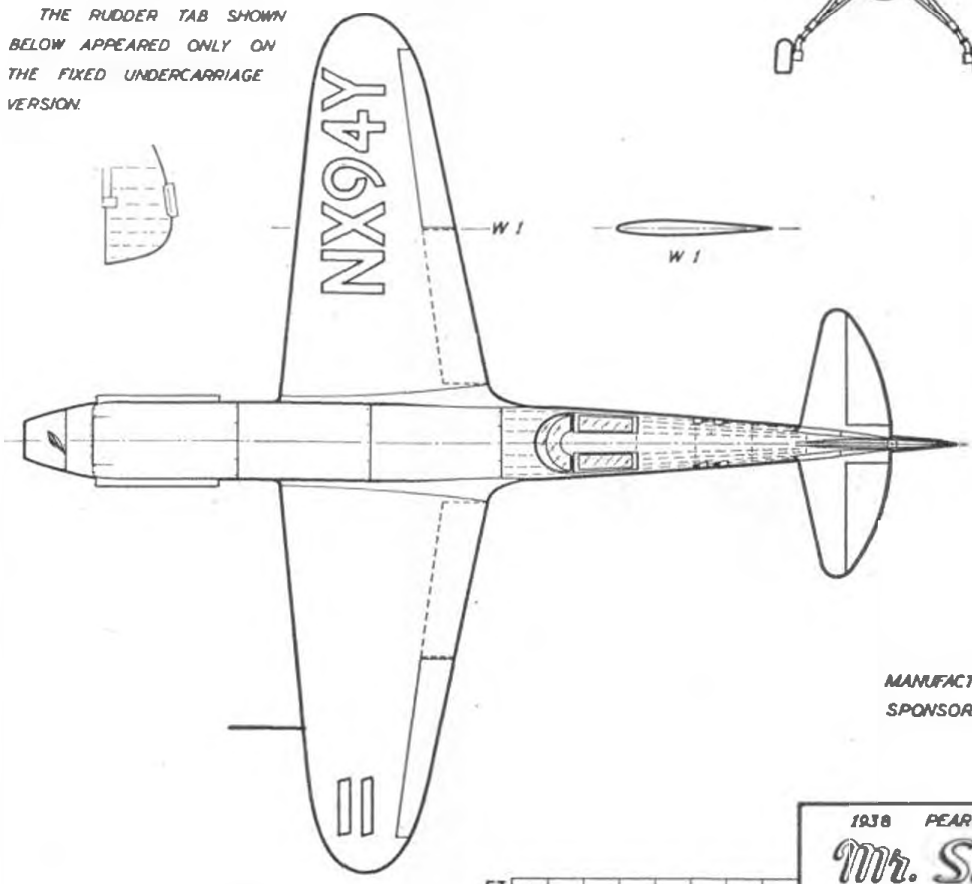


UNDERCARRIAGE EXTENDED & COCKPIT COVERS REMOVED.

FIXED WIRE BRACED VERSION OF UNDERCARRIAGE. MR SMOOTHIE APPEARED IN THIS FORM AFTER A DAMAGED RETRACTING MECHANISM NECESSITATED THE FIXING OF THE UNDERCARRIAGE. & LOSS OF A WHEEL FORCED WITHDRAWAL FROM COMPETITION IN THE 1938 NATIONAL AIR RACES



THE RUDDER TAB SHOWN BELOW APPEARED ONLY ON THE FIXED UNDERCARRIAGE VERSION.



DATA

SPAN:	24 FT
LENGTH:	26 FT
WEIGHT:	3080 LB

ENGINE: 825 HP CURTISS CONQUERER OF 1569 CU IN. DISPLACEMENT

WING: WOODEN STRUCTURE. PLYWOOD COVERED.

FUSELAGE: STEEL TUBING STRUCTURE, PLYWOOD COVERED.

DESIGNED BY: C. R. PEARSON & RODNEY NIMMO.

BUILT BY: PEARSON-WILLIAMS AIRPLANE Co. VENICE, CALIF.

PILOT: LEE WILLIAMS

COLOUR SCHEME: RED OVERALL, ALL LETTERING GOLD WITH BLACK OUTLINE

MANUFACTURE OF MR. SMOOTHIE WAS SPONSORED BY MRS. EDITH BOYDSTON CLARK.

FT

1938 PEARSON – WILLIAMS

Mr. Smoothie

DRAWN:

SCALE: $\frac{1}{8}$ = 1'-0"

Engine Analysis No. 73 : RIVERS 3.5 SILVER ARROW

by R. H. Warring

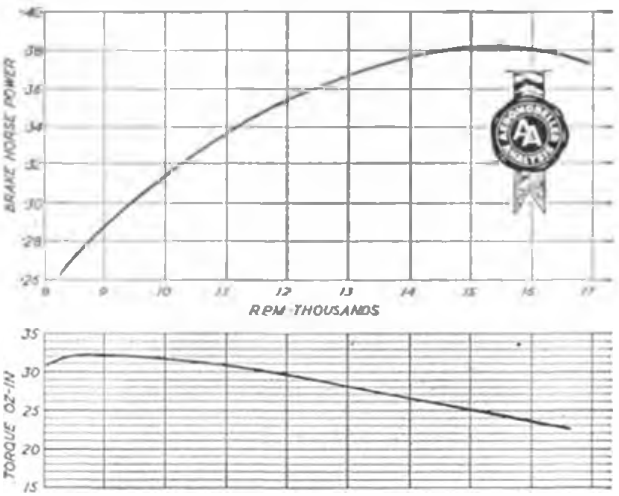
THE SECOND PRODUCTION engine to appear from A. E. Rivers Ltd., follows very much the design pattern established by their 2.5 c.c. "Silver Streak", yet is essentially an entirely new engine throughout and certainly not a "bored out" version of the 2.5. They have aimed at—and achieved—top performance of any 3.5 c.c. size diesel—and at the same time produced an outstanding engine in several other respects.

Many large diesels tend to get a bit "brutish" to handle, often run rough and do not develop anything like the specific power output of, say, a good 2.5 or even a 1.5. The "Silver Arrow" is the complete exception. Its specific power is almost identical with the "Streak", it is most remarkably easy to handle and starts without the least trouble and, whilst not without some marked vibration at the upper end of the r.p.m. range, is definitely a high speed engine—more like a glow motor in this respect, in fact. Peak power was measured as just a shade over .38 B.H.P. at 15,500 r.p.m., whilst maximum torque is developed around 9,000 r.p.m.

Running characteristics are somewhat unusual. The "Arrow" is completely non-sensitive to compression setting as regards running, and to the needle valve. It will start and run with either (or both) of these settings way off tune, but these have to be adjusted quite closely for maximum performance. Having established these settings you can virtually leave them alone for restarting on a choke and prime, hot or cold.

The effect of running on reduced compression is not the usual diesel "miss" but quite smooth four-stroking and it needs a little patience to find the best combination of needle and compression for any given propeller load. Running is then most consistent and speeds can be pushed up to beyond 16,000 r.p.m. on propeller loads without any signs of distress. The "Streak" is undoubtedly happiest running above 12,000 r.p.m., but the power curve is quite shallow showing that an excellent output is available over a wide range of speeds. At the lower end it is beating 3.5's which peak at moderate speeds—and then carrying on to open up the margin of performance still further.

At the lower speeds, running does deteriorate. Below about 7,500 there is a tendency to develop resonant vibration with a marked fall off in torque. Also fuel is blown back out of the intake. This lack of smoothness applies to two-stroke running, however. Four-stroking at speeds down to 5,000 r.p.m., running is still smooth. Whilst one does not normally run a diesel four-stroking, this is significant because the throttle control unit supplied as an "extra" does appear to work on the principle of converting two-stroke running into four-stroke running, rather than the more usual method of varying the mixture and/or blanking off the exhaust.



The throttle is a simple plunger sliding in a barrel drilled with a number of perforated holes. The barrel screws into the centre of the crankcase cover (this hole being sealed with a brass screw on the engine, as supplied). Pulling the plunger outwards opens and air enters into the crankcase via the holes in the barrel, with an immediate response from the engine. Full open, the r.p.m. figure is reduced to approximately 50 per cent. Pick-up is instantaneous if the plunger is pushed in, i.e. the mixture appears unaltered so that there is no "hesitation" whilst the engine clears or adjusts itself to different speed running. A surprisingly simple unit, the speed control should appeal particularly to radio control enthusiasts. Its only limitation is that it extends backwards from the engine and needs a clearance space of some 1¾ in. behind the crankcase and in line with the centre to be accommodated.

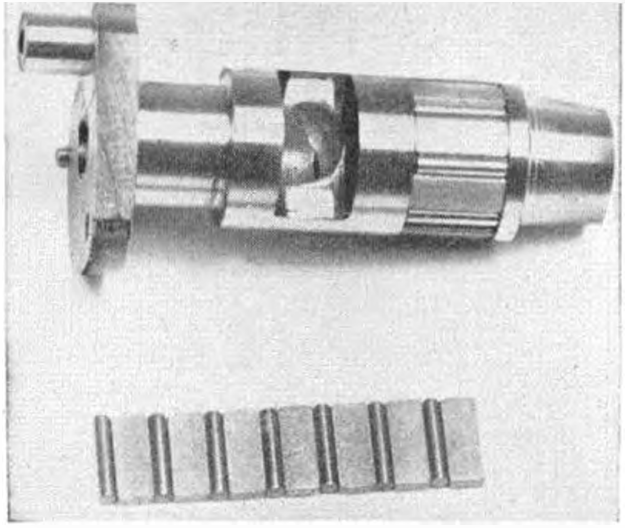
Timing follows very much the same as with the "Silver Streak" although the (shaft) induction port closes somewhat later to ensure that a full crankcase charge is achieved each revolution. This late closing is responsible for the blowback at 8,000 r.p.m. or lower, but the "Arrow" would, of course, not normally be called upon to run at such speeds. There is no blowback at higher speeds and the efficiency of the timing is reflected in the high running speeds which can be achieved—and this has been arrived at by careful and prolonged development work. Transfer is via three passages milled on the outside of the cylinder under the flange opening into large ($\frac{5}{16}$ in. diameter) ports which are angled sharply to overlap the exhaust.

The cylinder has a particularly generous wall thickness and the same o/d top and bottom. The crankcase casting is counter-bored to a depth of approximately $\frac{1}{16}$ in. to accommodate the cylinder flange bringing the bottom of the exhaust ports level with the top of the casting. The cylinder is attached by three screws passing through the jacket into the crankcase casting. These screws, 6BA size on the original production models, have now been increased to 5 BA size. The jacket itself is machined from dural with characteristic "Rivers" finning.

The piston is of Meehanite, ground and honed, with a conical top. Gudgeon pin is .182 in. diameter press fitted. Connecting rod is machined from light alloy, the big end bearing being drilled with an oil hole on the upper side for "splash" lubrication. The contra piston is again

Specification

Displacement: 3.46 c.c. (.211 cu in.).
Bore: .647 in.
Stroke: .642 in.
Weight: 7¼ ounces.
Max. power: .382 B.H.P. at 15,500 r.p.m.
Max. torque: 32 ounce-inches at 9,000 r.p.m.
Power rating: .11 B.H.P. per c.c.
Power/weight ratio: .054 B.H.P. per ounce.
Material specification
Crankcase: light alloy gravity die casting
Cylinder: hardened steel, stress relieved
Cylinder jacket: dural, turned
Piston: Meehanite, ground and honed
Contra-piston: Meehanite, ground and honed
Crankshaft: 85-ton steel, hardened on journals, tempered on crank pin and threaded length
Bearing sleeve: hardened steel
Bearings: rollers (sleeve and rollers forming an integral twin roller race assembly)
Connecting rod: DTD 363 dural
Spray bar assembly: brass, 4 B.A.
Prop. driver (hub): machined from dural
Manufacturers: A. E. Rivers, Ltd., 15 Maswell Park Road, Hounslow, Middlesex. Price (Including Purchase Tax). £6 5s. 8d.



The unique Rivers shaft design with its large intake port and double roller bearings. In this view of the Arrow shaft, the rollers and spacers have been removed from the rear seat and are displayed below

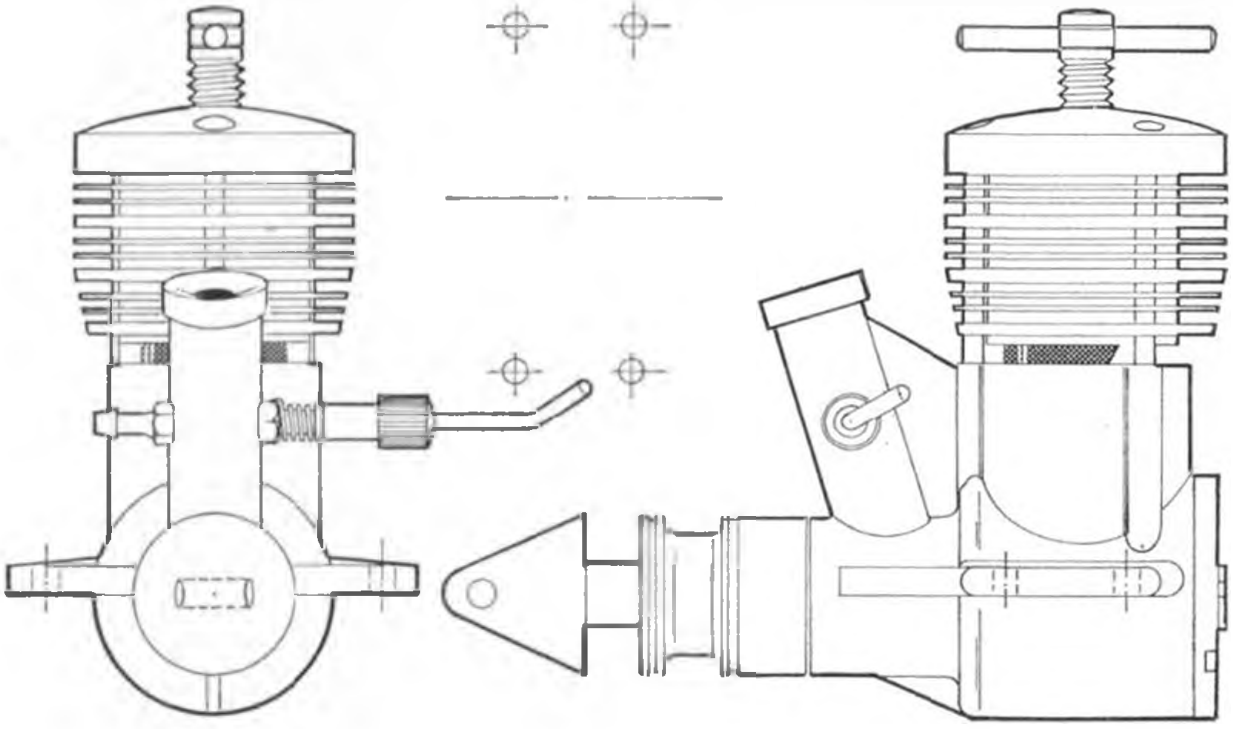
of Meehanite, ground and honed to size. The large diameter compression screw is hollow.

The crankshaft on the test engine is essentially the same as that employed on the 2.5 c.c. "Silver Streak", but with an increased throw. The same unique roller bearing is also employed, running in a hardened bearing sleeve inserted in the crankcase casting. Excellent running characteristics and high speed performance are again complete proof of the efficiency of this bearing, which offers a particular advantage over twin ball races in that the front and rear bearings, as assembled, must be perfectly in line. With ball races, slight errors in assembly are always possible, with consequent increase in bearing friction. Thus although rollers have inherently more friction than balls, we would say that the roller races as used in the Rivers design have a similar performance to a first grade ball race, probably better at high speed.

The crankshaft assembly has recently been extensively modified and all current production motors incorporate this change. The alteration consists of increasing the journal diameter of the shaft from .350 in. to .406 in. and dispensing with a threaded shaft end in favour of a screw-in bolt, O BA size. The propeller driver locates on a taper ground on the shaft. The result is a substantial increase in shaft strength (and an 85 thou' wall thickness of shaft over the journal length) to obviate breakage experienced with some of the early production engines. Breakages, where they have occurred, have been largely confined to a particular batch of the original (smaller diameter) shafts which were rather too hard. The same roller-race bearing assembly is, of course, retained, but now employing eight rollers and eight spacers in each set. The same larger diameter shaft (with a reduced throw) is employed on the Mark II version of the 2.5 c.c. "Silver Streak".

Other material specifications, and manufacturing technique and tolerances, follow "Silver Streak" production (see AEROMODELLER, April 1959 review). The 3.5 c.c. "Silver Arrow" is made to the same very high standard throughout, with a considerable amount of individual attention given to each engine. As with the "Streak" a tuned version of the "Arrow" is also available for those modellers wanting that "little extra' in performance that counts on the contest field, although the standard model appears to be out on its own as regards 3.5 c.c. diesel performance and could probably give several larger motors a good run for their money.

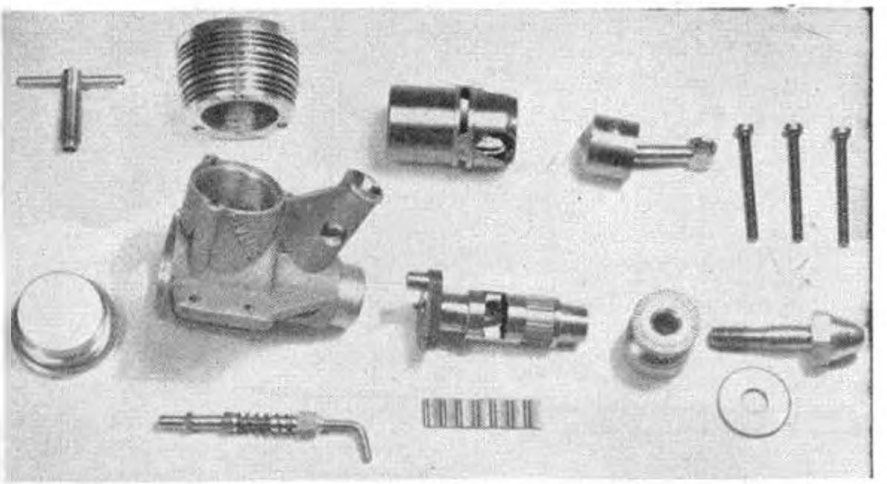
As supplied new, the "Silver Arrow" is not set up very tight, but it does need a considerable amount of careful running-in time to free up properly and develop



PROPELLER—R.P.M. FIGURES

dia. x pitch		*r.p.m.*
10 x 6	Frog nylon:	10,200
9 x 6	Frog Nylon	11,900
8 x 8	Frog Nylon	9,200
8 x 6	Frog Nylon	12,800
8 x 5	Frog Nylon	13,600
12 x 4	Trucut	7,500
11 x 4	Trucut	9,400
10 x 8	Trucut	7,600
10 x 4	Trucut	10,000
9 x 4	Trucut	12,900
8 x 6	Trucut	12,100
8 x 4	Trucut	15,200
10 x 6	Stant	9,000
9 x 6	Stant	11,000
9 x 5	Stant	11,000
9 x 4	Stant	12,400
8 x 4	Stant	15,100

Test Fuel: Mercury No. 8
AEROMODELLER Plans Service Power Coding J.



Silver Arrow components, including the cylinder with large transfer ports.

maximum performance. A total of five hours running-in is a satisfactory—and even necessary—requirement, although actual time will vary with individual engines, and also on the manner in which the engine is run in.

The bearing can "take it" so an initial running in period at quite a low speed is recommended—say on a 12 x 4 propeller to hold the revs down to the 3-7,000 figure. Propeller sizes can then be progressivelyincreased—e.g. an 11 x 4 and 10 x 6 followed by a 9 x 6 Frog nylon—before attempting to really open the engine up on a finer pitch propeller. It is well worth running this engine in properly and not attempting to short-cut the process (in fact, there is no short cut which will give the same effect as proper running in).

Summarising, we can only repeat that the "Silver Arrow" is a first class engine in every respect—excellent performance, very easy to handle, and extremely well made. Until challenged by a new engine it should be about the top engine for combat—and it packs the power needed for radio control models. The throttle is a most useful extra for radio and a tank pressurization system is available for control line. With this, a nipple replaces the brass plug in the crankcase, coupling directly to the tank vent. To provide a sealed tank which can also be filled easily, A. E. Rivers also produce a vent valve which can be accommodated on any standard metal tank, allowing a nozzle to be inserted for filling but sealing as soon as this is removed.

IMPORTANT PATENTS

A speed enthusiast's approach to model engine supercharging

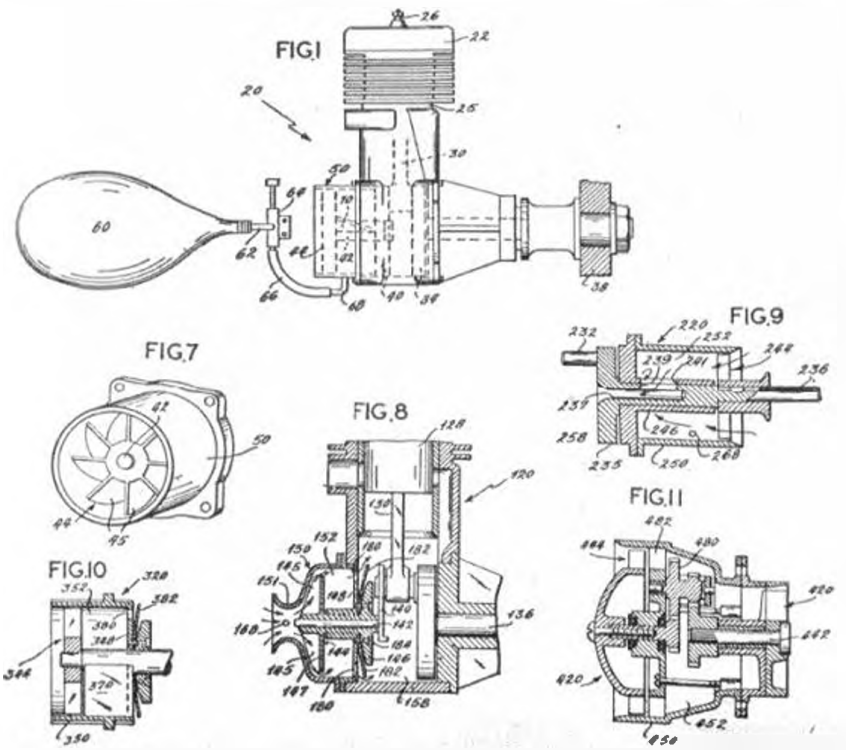
2917032 W. A. MITCHENER U.S.A. APPLN. DATE 25.3.57.

The primary objective of this invention is to provide a pre-mixing chamber in which air and fuel may be adequately mixed before transference into the engine crankcase. A degree of supercharging is present, particularly in the embodiment shown in *Figure* 8 and the apparatus can be adapted to use with any assembly using a crankcase inlet valve. Either rotary or vane valves are suitable.

Essentially the invention comprises a mixing chamber interposed between the fuel inlet orifice and the crankcase and containing a mixing vane or impeller driven from the crankshaft at crankshaft speed or, as shown in *Fig*. 11 through a suitable gear train. The impeller is housed within a closely fitting annular chamber secured to the rear of the crankcase and may be of the axial flow type as in *Fig*. 7 or centrifugal as in *Fig*. 1 etc.

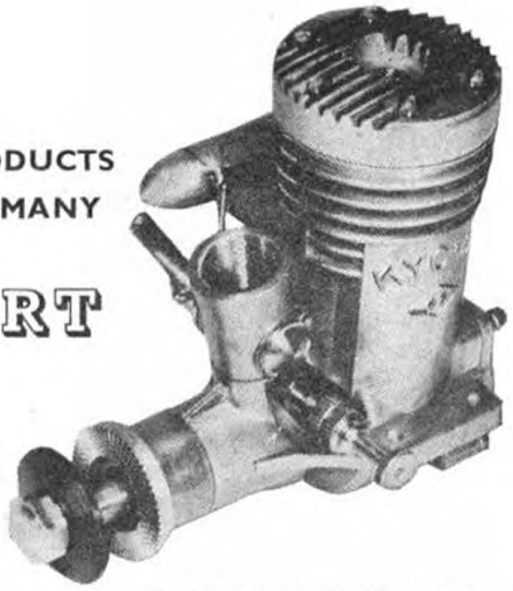
In each case the fuel is delivered under pressure, conveniently from a balloon type tank, to a metering valve and from the valve to the premixing chamber wherein it is effectively mixed with the air stream by the rapidly rotating impellor. A further modification shown in *Fig*. 9 employs a forwardly open chamber disposed around the crankshaft bearing housing together with an impeller driven by the propeller driving collar.

This embodiment is suited to use with a conventional crankshaft rotary valve arrangement. However, the inventor indicates a preference for the rear mounted mixing chamber associated with the vane type valves of *Fig's* 8 and 10 and alleges an advantage in the leaf valve construction in that it reduces the pressure difference between the pre-mixing chamber and the crankcase, and enables the pre-mixing chamber to have a relatively smaller volume because the pressure developed in the chamber is always able to relieve itself into the crankcase.

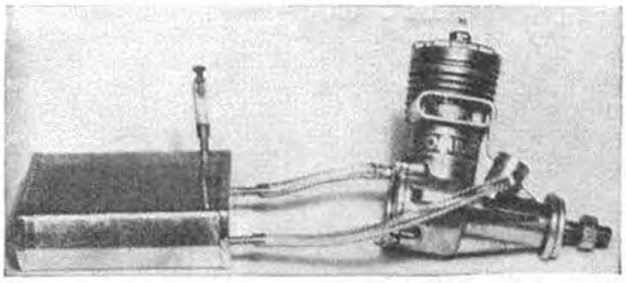


NEWS OF LATEST PRODUCTS
FROM U.S.A., JAPAN, GERMANY

MOTOR MART



Fascinating trio, the FMO 3.5c.c. twin, Veco 35 Combat and Kyowa 45 provide an international variety



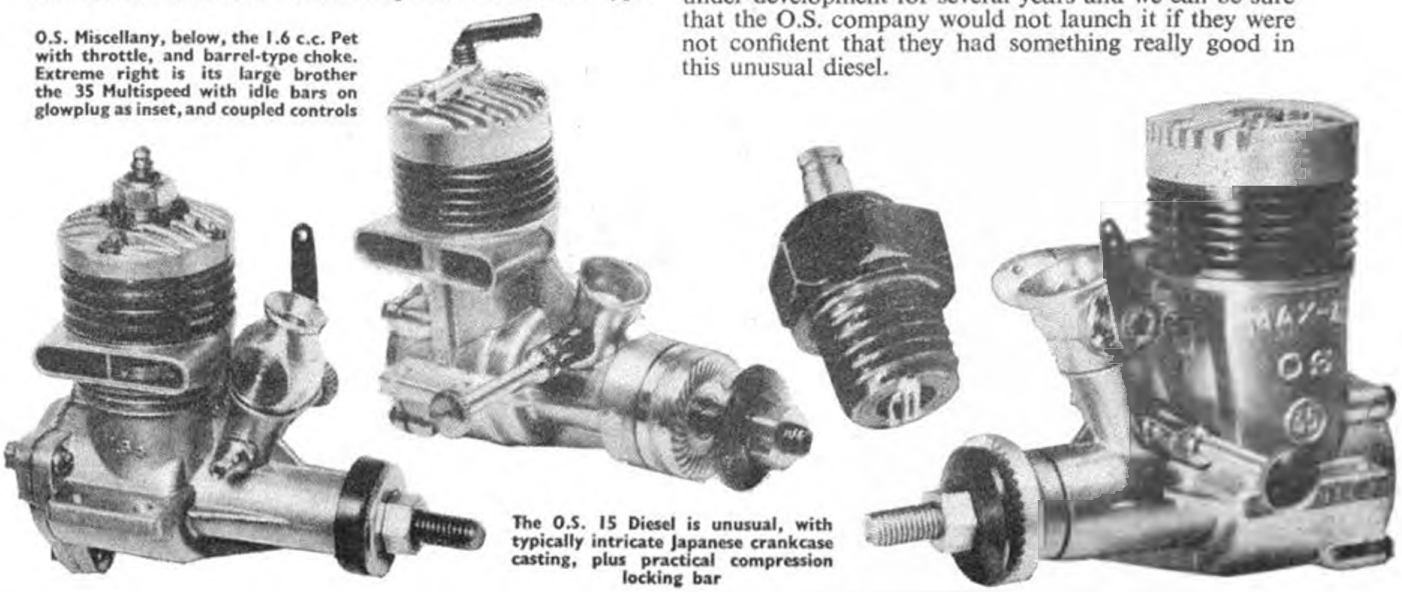
THE **F.M.O. "Little Boxer"** 3·5 c.c. drum induction twin cylinder diesel is a fascinating import by Performance Kits of Coventry. Its shaft is supported on twin ball-races and a radio version with throttle control will be supplied at extra cost. Basic price for this 6½-oz. engine is £13 1s.

A. Stewart in Dublin loaned us his **Veco Combat 35** for examination — the first we have seen and this gave us the opportunity to note the differences between it and the standard 35. The ½-in. shaft now has a ⅜-in. internal bore with corresponding enlargement of the intake port. A pressure pick-up point is supplied as one of the rear cover bolts and this connects to the specially produced Veco tank as shown in the photograph above. The unit is fuelled by removal of the screw blank in the filler vent and the model must be held with its nose high, otherwise the crankcase will be liberally primed before the "full" warning becomes evident at the needle valve connection, which is detached for venting. As with other Veco engines, the main shaft is set up with ·002 in. clearance and in the case of this Combat special, the shaft is hardened. Mr. Stewart also sent us an example of another new type Veco tank, non-pressurised but the instructions suggest that one of the vents is blanked off after filling.

From Japan a new engine of large capacity is the **Kyowa 45,** specially equipped with coupled throttle and exhaust control and using the now widely accepted air bleed trim for slow speed settings. The Kyowa has cleanly produced pressure die castings, the crankcase including cooling fins and being quite involved. We are currently testing this engine for later mention of its speed range.

The **O.S. Max-III Multispeed** is now appearing in numbers in the British Isles, and much admired for its external finish. It is not generally known that a new type slow-running plug is being supplied for these engines, Ed Johnson sending us the example pictured below. The O.S. range of motors with throttle control has recently been expanded to include the latest type of 1·6 c.c. "Pet" for which a barrel type throttle can be obtained. Smaller glow plug engines are more tricky to adjust for slow speed running than their larger counterparts, and we found the "Pet" rather limited in its throttle adjustment, although still a most useful acquisition for sport flying. Back in the competition sphere, another O.S. engine now entering the country is the 15 diesel, an example of which we borrowed from Henry Nicholls. This 2·48 c.c. over-square engine is unique in having a baffled piston with keyed contra piston to match. This in itself is a mechanical achievement to be admired; but it remains to be seen whether the Japanese company's efforts to perfect a motor in this type, have really been worth while. The 15 D has been under development for several years and we can be sure that the O.S. company would not launch it if they were not confident that they had something really good in this unusual diesel.

O.S. Miscellany, below, the 1.6 c.c. Pet with throttle, and barrel-type choke. Extreme right is its large brother the 35 Multispeed with idle bars on glowplug as inset, and coupled controls



The O.S. 15 Diesel is unusual, with typically intricate Japanese crankcase casting, plus practical compression locking bar

WORLD NEWS

THE ANNUAL International Control Line contests held on the model aerodrome at Basle in **Switzerland** take place over the week-end of August 27th/28th and entries are invited by W. Birlauf, St. Jakobstrasse 126, Muttenz/ Basle, Switzerland. Events include aerobatics, 2·5 and 5 c.c. team racing, all speed classes and combat.

The Swiss team for the forthcoming World Championships at Cranfield has been announced as Schenker, Eng and Grappi, managed by Maurice Dufey. There will also be an official Swiss team taking part in the European Cup in the Saar and, of course, the Swiss will be fully represented in the radio championships for which they are hosts next month. Another country due to be host for a World Championship, in control line classes, is **Hungary** during September and they, too, have already selected their representatives to come to Cranfield. In a ten-flight contest at the Alag Aerodrome, Meczner made a perfect total of 1,800 seconds followed by Simon at 1,733, and the current power champion Frigyes at 1,732 seconds. Frigyes is also leading the Hungarian A/2 contests, total entry in their event on April 4th being 110 aeromodellers and evidence of enthusiasm is indicated by the fact that only members of Budapest clubs were able to take part. We wonder if any other capital city could raise so many model glider enthusiasts in a contest.

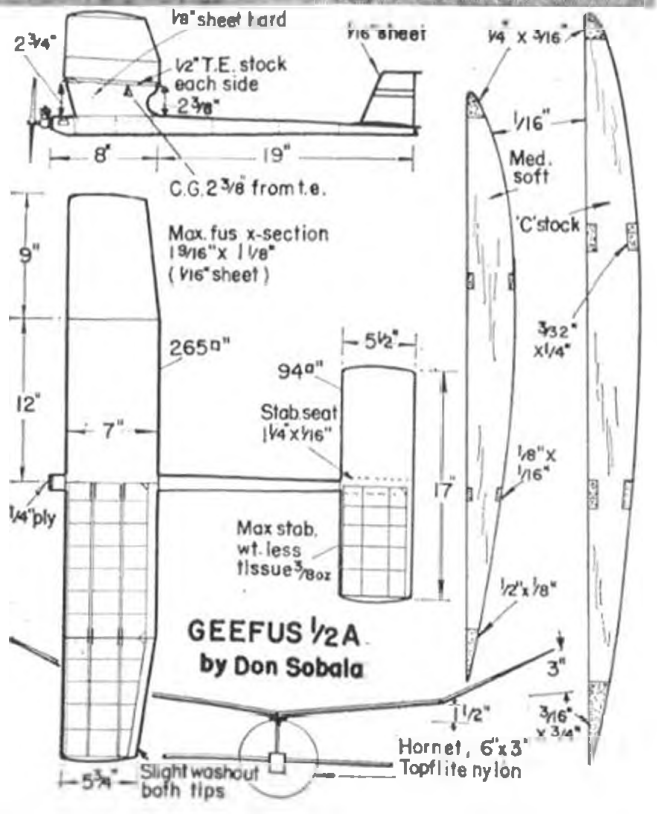
Indoor events have also attracted heavy support and the best times at two meetings held in April being 10 : 37 by Antal in the under 35cms. span class and 16 : 35 in the open class by Egri. The height of the hall used for these flights was approximately 100 feet.

How do you test run your engine? A member of the Wellington, **New Zealand**, M.A.C. nailed a couple of bearers on to an apple box, then found four 2-inch wheels and fixed them on axles. Ever seen a self-propelled apple box? Sounds like a close approach to airscrew go-karting.

"Why not have a scaled down version of Combat for beginners?" is the request in the Balsa Beavers M.F.C. bulletin from Toronto, **Canada.** The appeal goes on to suggest that instead of using the accepted 29 and 35 size engines, juniors could start off with 15's. Hmm ! — we wonder if the Canucks realise how fast one has to go to be up with the leaders in British 2·5 c.c. combat. One model was timed at 95 m.p.h. at a recent rally.

Another Toronto club with a good newsletter is the Sputterflys M.A.C. with a keen interest in Rat racing as well as free flight. An item which caught our eye was a modification feature dealing with the O.S. Max 15 in which just about every component is altered by hand file-work and polished, ending with the claim that the test engine is able to turn a 6 x 9 Tornado at 17,000 r.p.m. Bet a few engine manufacturers would like to see that motor! Or is it that they do not have an accurately calibrated tachometer?

An entirely new approach to F.A.I. free flight power is featured in the June/July issue of *Flying Models* from the **U.S.A.** with a contribution by American Free Flight Champion Bob Hunter. He has elected to use three engines of .049 cu. in. capacity instead of a 15 and the theory is that with additional disc area of three props and combined thrust of three smaller engines one has a much more useful power source.



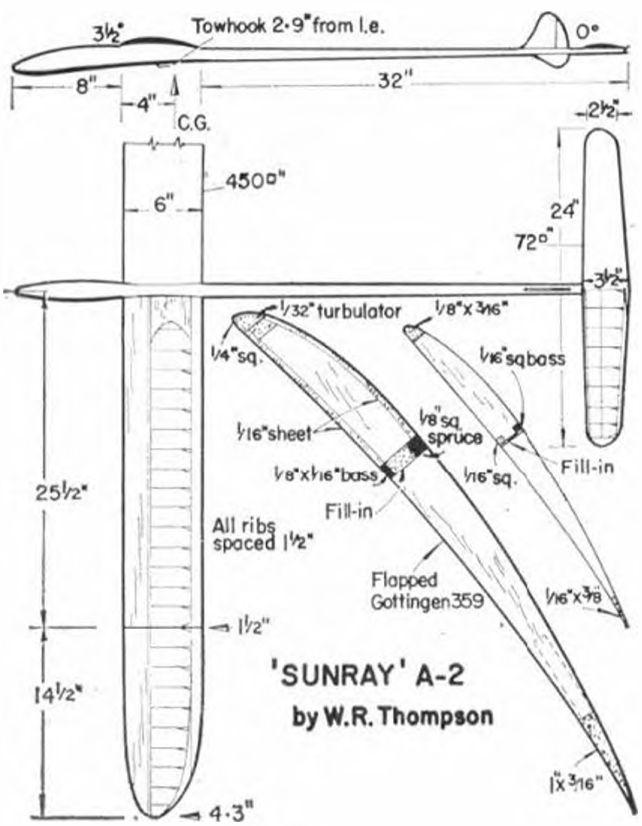
Large models are popular in California. Our heading photograph shows a 1,500 sq. in. version of the Ramrod by Jack Linn using a Dooling 61. To encourage competition-minded modellers who want to enter the many .8 c.c. events coming this year in the London area, here is a neat Canadian design from the Montreal M.F.C. Bulletin. The model will make 4 : 30 off 20 sec. engine-run when loaded to the full A.M.A. weight of 8¼ oz. Tail is tilted for glide circle trim and a 5½ x 4 or 6 x 3 prop used. Airfoil sections are half size

Engines are close-mounted in Y formation, two at wing leading edge height the other on the fibre-glass fishing rod fuselage centreline. Chosen power units were Holland Hornets and fuel shut-off is cleverly arranged by suddenly relieving the pressure in three separate tanks. The Hornet ordinarily works on a very low needle valve setting when providing pressure to its tank, and requires an open needle setting for simple suction feed so that if pressure fuelling is used, an air bleed into the tank will give quick shut-off. Although Bob says that he does not consider his triple engine model the ultimate by any means, she can top anything her own size and weight, with plenty to spare.

December doesn't sound like the month to go around paddling in water after flying boats and seaplanes, but down-under in **Australia** the Metropolitan F.F.C. had a flying day in their summer at Narrabeen Lakes, no less than ten water-buggies making an appearance. Most interesting was an A.P.S. Sea King, the Canadian Laurie Ellis delta, powered by a Taifun Hurricane 1·5 c.c., finished in red, yellow and black which had two nasty habits: one of chasing modellers in all directions when circling on take-off, and the other of burying its nose into water and then popping out like a cork ! Another popular A.P.S. design seen on floats was a PAAge-buoy, owner Ken Napier claiming to be first to operate with payload off water.

Perfect Scale . . . see !

Top right: Another large U.S.A. free-flighter is this 108-inch span high thrust line design for McCoy 60 by Stan Reeves of San Francisco. Montreal M.F.C. member, Tam Thompson, seen in the snow over frozen Lake Louis, with his latest A/2 "Sunray". We are indebted to the M.M.F.C. Bulletin for details at right, showing use of Gottingen 359 airfoil. Model is said to ride over a stall like a car over the top of a hill. Stability is excellent and turbulator advised for minimum variation in windy or still air trim. Note also the relationship of the towhook and centre of gravity, on which Thompson is an authority. Model needs no offset for towing but large tab angle for glide turn. This insensitivity makes it a good thermal holder

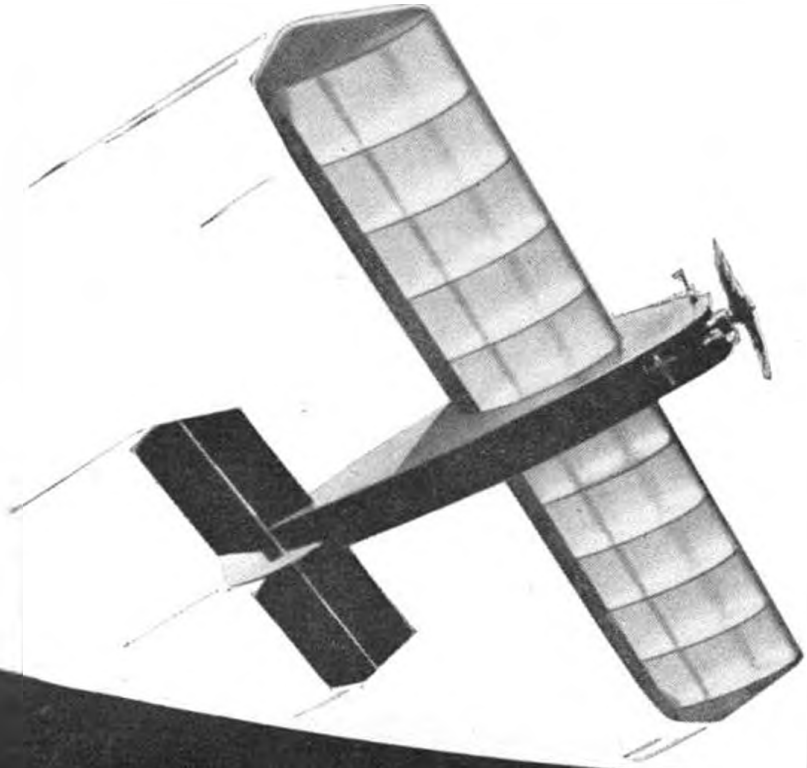


YEOMAN

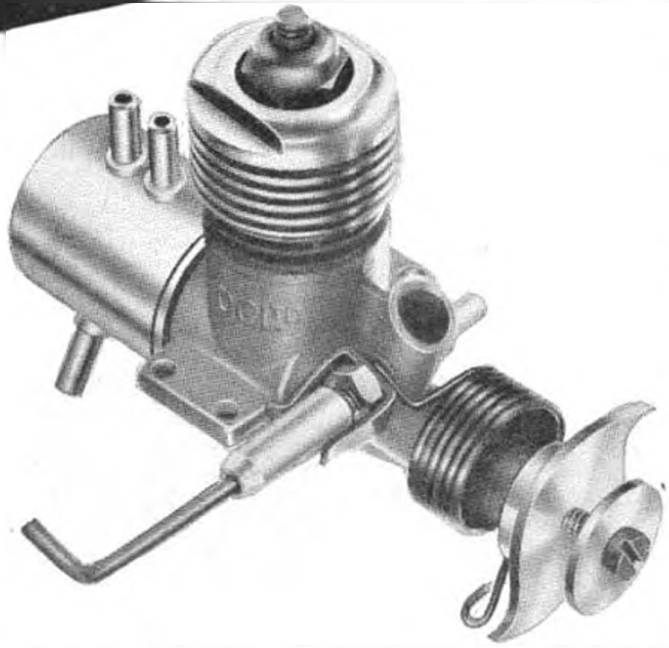
Bantam Cock Stunt Plane

by A. A. Hales Ltd.

8/11



the perfect low cost co

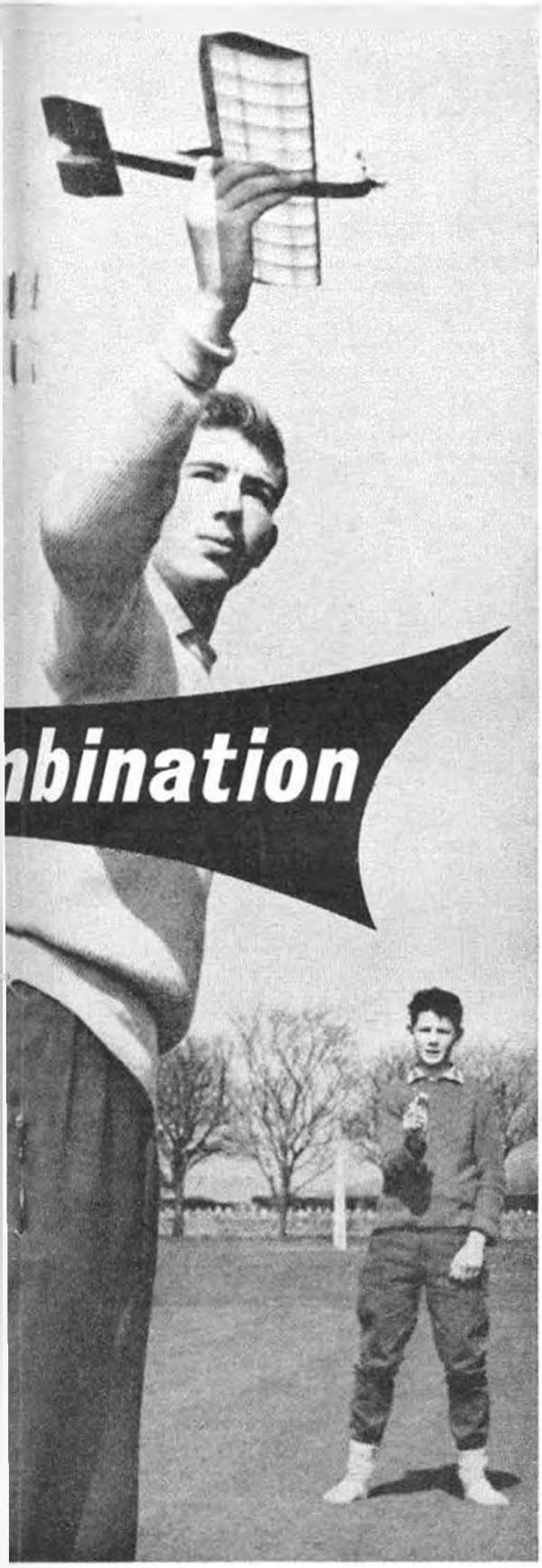


QUICKSTART Bantam Glowplug Engine

by Davies-Charlton Ltd.

34/10

DAVIES-CHARLTON LTD., HILLS MEADOW, DOUGLAS, ISLE OF MAN



For little more than £2 you can now get excitingly airborne.
The Yeoman *Bantam Cock* has been specially designed to give superb aerobatic performance with the amazingly low cost *Quickstart* Bantam Glowmotor.
It will thrill you with its loops and wingovers . . . really give you the flying time of your life.

Easy to build. The *Bantam Cock* stunt plane is fully pre-fabricated.
All balsa parts are die-cut.

Easy to start. The *Quickstart* Bantam is fitted with the unique Davies-Charlton easy starting device. No sore fingers . . . just a turn of the prop and you're away.

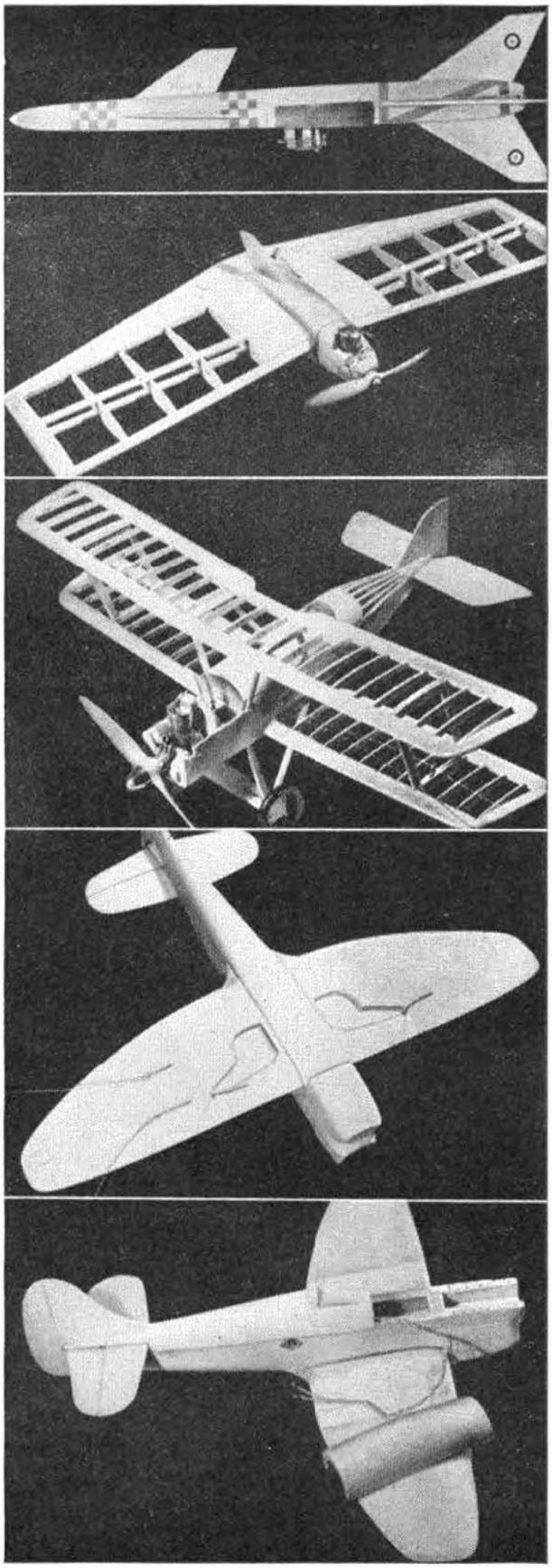
Easy to get. See the plane and the engine in your local model shop. Ask also about *Quickstart* nylon propellers and other engine accessories . . . the best for your money.

Be first in the air with QUICKSTART GLOW FUEL

methanol based, lubricated with the purest castor oil, fortified with nitro paraffins to ensure *instant* starting and improved performance. In cans with 3-inch spouts ready to use—
½ pint 3s. — 1 pint 5s.
Supplied to the model trade solely by A. A. Hales Ltd. Potters Bar, Middlesex

YEOMAN

A. A. HALES LTD., POTTERS BAR, MIDDLESEX



BALSAKITICISMS

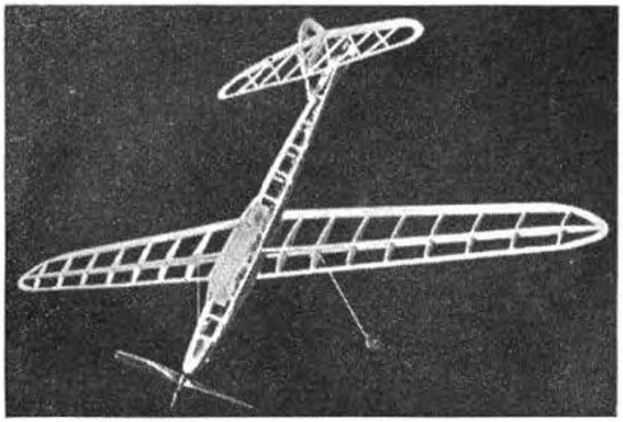
SO MANY READERS have expressed their appreciation of our recent feature on plastics that we thought a similar approach could be made to the rather more complex subject of flying model kits.

Why do we have kits? The obvious reason is that of convenience. If the modeller can obtain all the needs of a model design in one box, with instruction to build and a degree of pre-fabrication in the components, there is no sense in trying to make that particular model in any other manner. Models are specifically designed for kit purposes. They have to be "commercial" in every way, unlike the typical Wakefield design with its calling for special wood grades and wide variety of component dimensions. The kit model has to be designed to fit the smallest box, to appeal to the majority, to boost the brand name and to match the performance of the opposition. It is by no means an easy task and there are no more than a dozen capable kit designers in the country. Some manufacturers rely on freelance designers, others have their own staff, yet in the making of the 11 kits pictured here, we uncovered faults that should never have passed from the prototype stage. Is the sense of pride in standards becoming lost for the sake of rushing a kit onto the market? And is this in turn due to the fact that manufacturers now *follow* rather than create demand, and find themselves chasing the market? Perhaps the real truth is between the two, plus the fact that we have so few capable designers,—why else are we lacking a strong R/C trainer? (And when it does appear we trust it will be original).

For a kit to have good sales appeal it must employ prefabrication, and in the majority of cases this means the die-cutting of wooden parts so that they will push out of the sheet with ease, and the cut edge will be clean and fit with its neighbour part without need for further trimming. Block parts are part profiled, undercarriages bent to shape and new construction methods (e.g. *Veron's* tube section tailboom, *Mercury's* profiled wings and edges) introduced to speed both production and construction. The manufacturer does in fact try his best to satisfy, and usually succeeds in his purpose.

However, production of a ready-to-assemble pre-fabricated model is an exacting process which demands

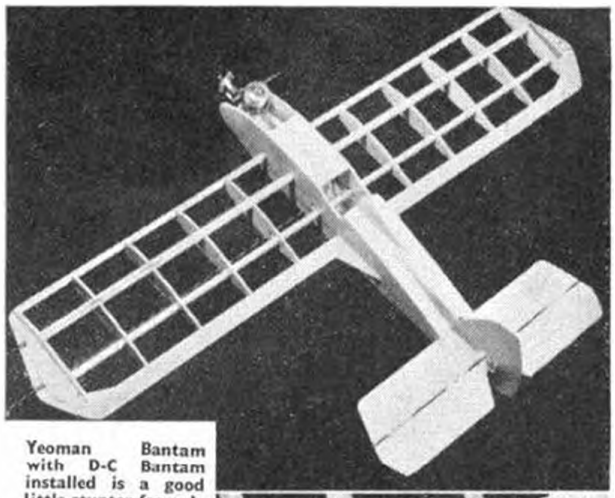
Left: top to bottom, Jetex Viper comes with motor, built in 90 minutes, flies like a rocket for 150 yards, costs 6s. 11d. Frog Gladiator with Oliver Tiger fitted, made by Terry Day is burly and tough for 28s. 9d. Frog. S.E.5a has an "80", very fine kit at 32s. 6d. Two views of Frog Tempest converted with TV aerial socket for Eta 29 glowplug connection —yes it's a team racer and meets the specs. admirably for 48s. 2d. Below, Performance Galaxy made by Dave Morton is a "one-piece" rubber job, high aspect ratio surfaces need care, costs 7s. 8d.

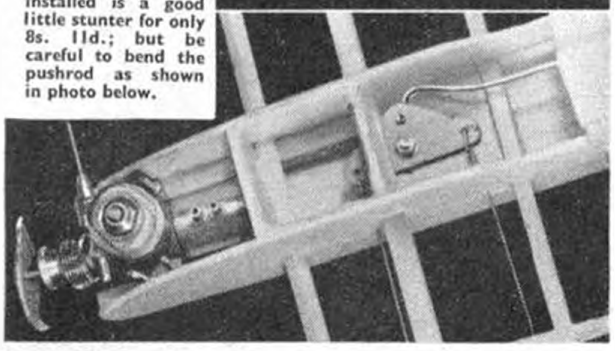


the very highest standards of accuracy, and it is in this department that we find some kits lacking. Because no manufacturer has ever given us cause to think that he resented criticism, we are publishing the following comments in the belief that by bringing them to public notice, the general standard will improve.

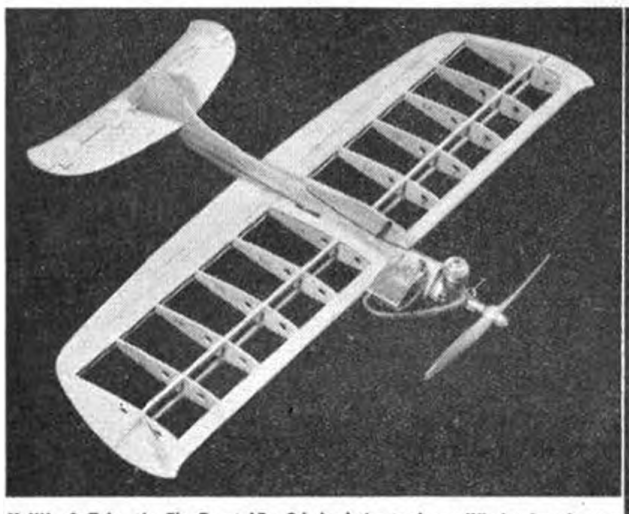
Most common fault arises in die-cutting of ribs. It is not uncommon to get a rib with two centrelines, one in front of and the other behind the spar notches so that to obtain the proper airfoil it is necessary to cut the rib in two, and line-up the top and bottom profiles,—e.g. *KK Gazelle*. Then again, the trailing edges of die-cut ribs do not match the trailing edge section as they should, —e.g. *Mercury Viper*. These are die jigging faults which can only be overcome by rigid inspection. The balsa is usually stamped in old Platen printing machines, and the force behind the impression is considerable. If a section of cutting metal "bottoms" it may bend, so turning a straight line into a curve: but on this question of ribs, the faults mentioned can be cured at the initial setting up stage.

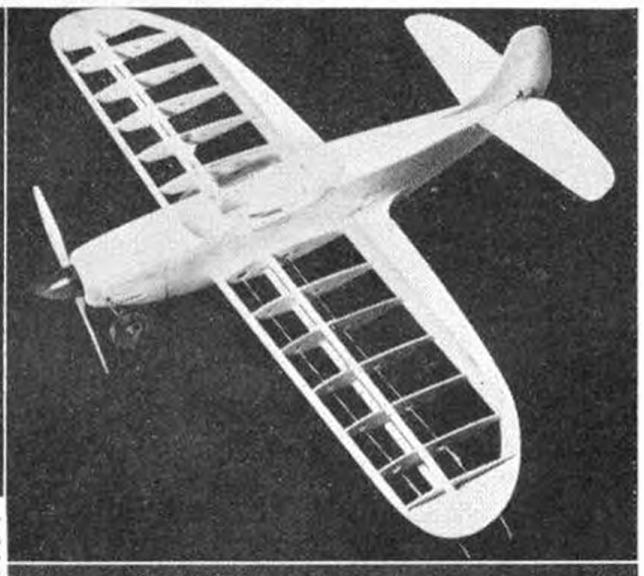
Where shaped blocks are offered, why not give them exact size? Our only quibble with the otherwise admired work in *Veron's Velox* was that a shaving had to be taken off the fuselage blocks to get precise size. If a tank is not provided, why not at least make the design suit a standard commercial tank so that the unfortunate modeller not



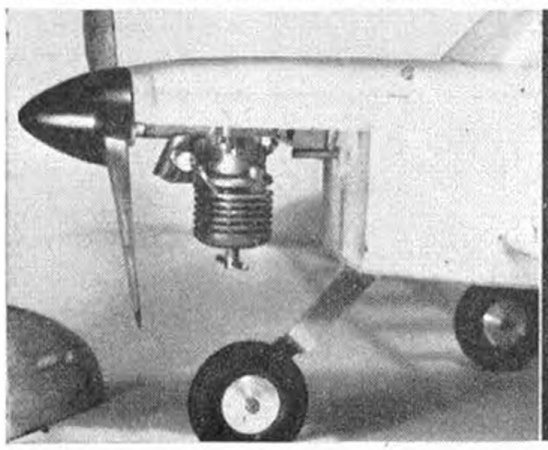


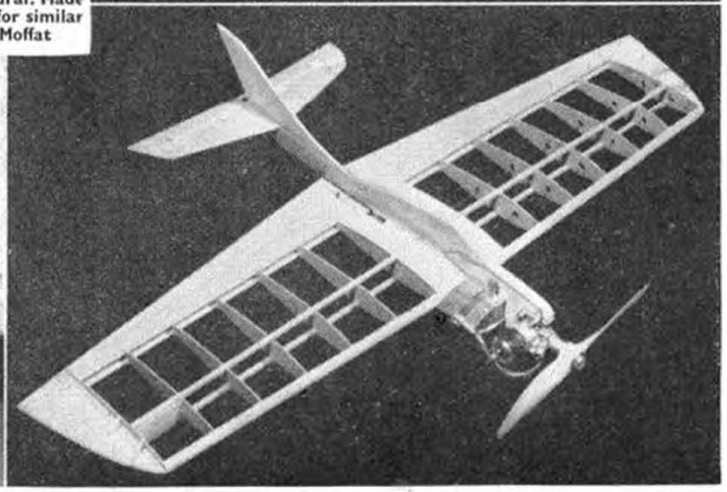
Yeoman Bantam with D-C Bantam installed is a good little stunter for only 8s. 11d.; but be careful to bend the pushrod as shown in photo below.

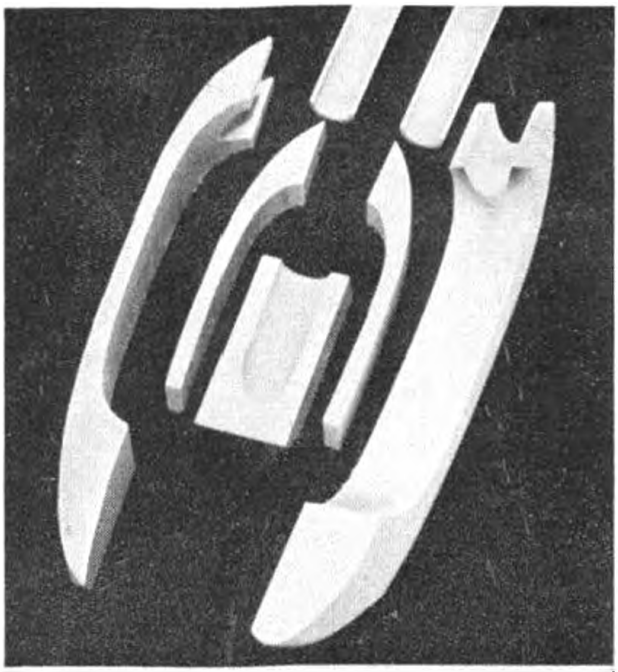


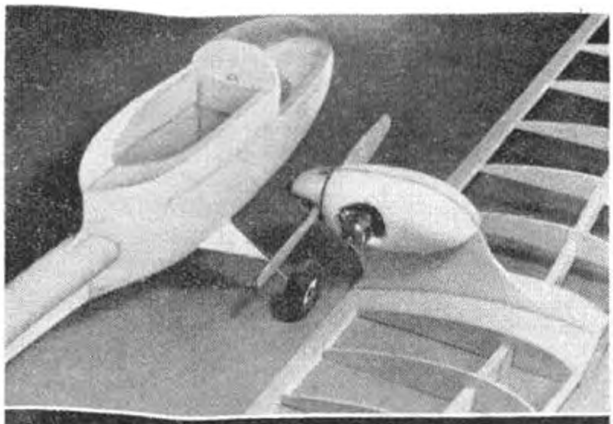


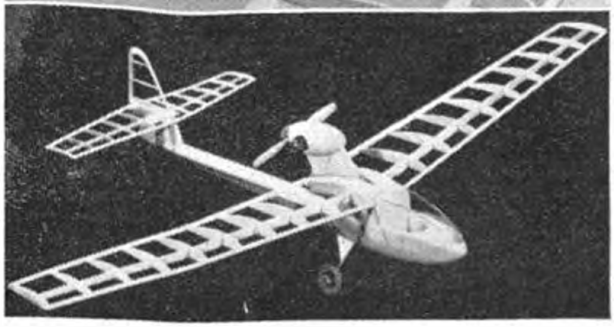
KeilKraft Trio, the Firefly at 15s. 9d. had the tank modified to get better suction from glow .049 after pic was taken. Made by Chris Webb. Marquis has an A.M.10 as seen in close-up, the trike u/c is of bent dural. Made by John Trinder, it flies well and costs 32s. 6d. The Gazelle is for similar size engines and is a fine stunter at 19s. 10d., made by Roger Moffat

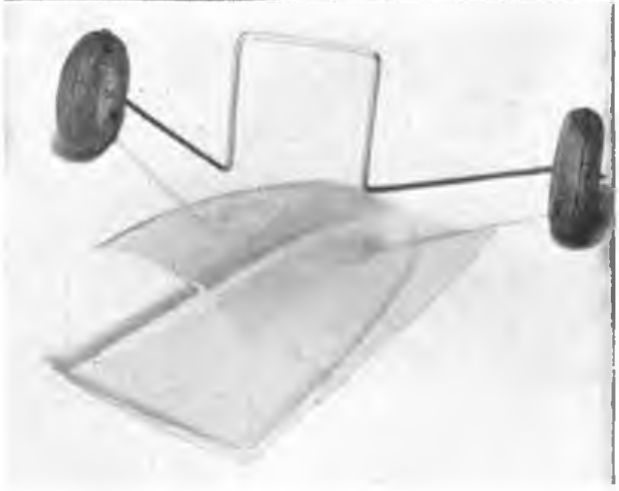










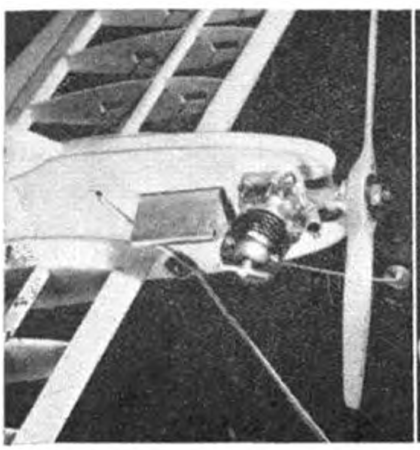


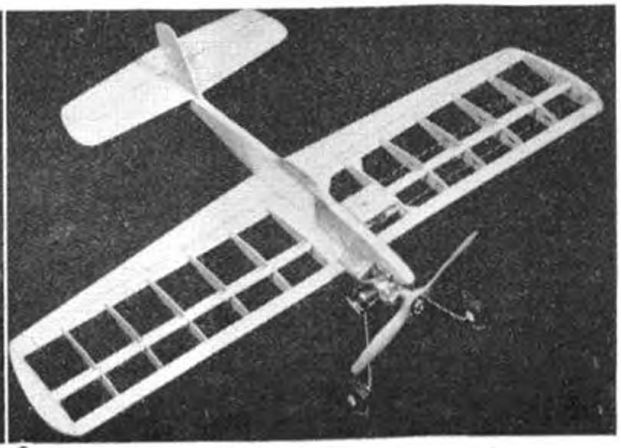
Above: Preformed parts for the Veron Velox. Side blocks are slightly oversize but that is only criticism in a fine kit for 39s. 6d., setting a new high standard in canopy mouldings and design novelty. Top right pics show assembly detail. Nose will carry r/c gear, especially REPtone. Below are views of Mercury Viper, excellent value at 17s. 6d. less tank and wheels, a most robust and practical design

gifted with the ability to solder tinplate edge to edge can purchase something to wave his time and frustration. This is our complaint with all *Frog* kits, notably the otherwise excellent S.E.5a which finally accepted a modified 15 c.c. team race tank.

Selection of balsa quality is always a manufacturer headache for it absorbs time, and time is money. The one kit we made which needed a replacement (for the trailing edge) was the *Frog Gladiator:* but we know that in such a case the manufacturer would immediately replace any inferior part which escaped notice.

Plans are not easy to prepare, as we well know, but is their an excuse for dihedral instruction that simply will not work out, or missing formers as on *Performance Kits Galaxy*? Or for the indication that the bellcrank is on the centreline, when to match the ribs and detail sketch it must be raised as in *Mercury's Viper*? Or for a bellcrank arranged to foul the pushrod that "up" elevator just is not there as in the *Yeoman Bantam*? Already the manufacturers know of these fair comments, and have taken appropriate action. Each is easily overcome by the builder with some degree of common-sense, finding a way around the "snag" as they would call it: but, unfortunately none seem to notify the error to the manufacturer. The obvious moral is:—





'If a wrong you do perceive, don't o'come it and then leave the manufacturer unaware of the error that is there. You'll do a favour to other bods by letting the Maker correct—with mods!"

READERS WRITE...

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

Squadron History

DEAR SIR,

I was intrigued to see a picture of the Polish PZL fighter on the Cover of your June 1960 issue, and was also very interested in the article on the aircraft and the drawings, especially as I served with No. 111 Squadron

I note that the authors of the article refer to 112 Squadron as the "Fighting Cocks". I think this is an error as I remember 112 as the "Salamanders".

Perhaps I should explain my association with these two Squadrons. In 1940, after the fall of France, a number of Polish airmen came to Britain as you are, of course aware. It so happened that the Polish Squadron in size was larger than a flight of an R.A.F. squadron but smaller than a full squadron. It was then decided to form R.A.F. squadrons out of two Polish squadrons each, these first R.A.F. squadrons being Nos. 302 and 303. The latter squadron was formed at Northolt in July 1940, and No. 111 (Kosciusko) Squadron became "A" flight 303, and No. 112 (Salamander) became "B" flight.

No. 303 Squadron was commanded by Squadron Leader R. G. Kellett, I commanded "A" flight, and Flt. Lieut. A. S. Forbes commanded "B" flight.

An interesting feature was the Kosciusko Squadron's history book which they had maintained since the outbreak of war, and they asked me if I would illustrate the page from which their R.A.F. history would commence. The design I chose was the Polish checkerboard insignia, and in the centre a cloudburst with a Hurricane climbing with the figures 303 on the nose, whilst in the upper square I drew the Kosciusko crest and in the upper corners of the square "A" and "111". In the lower white square I drew the Salamander insignia and in the bottom corners "B" and "112". His Late Majesty King George VI saw fit to autograph the next page in the book, and Mr. Winston Churchill, as he then was, signed the following page. This book, I believe is still in existence in London, where it forms part of the collection in a museum of the Polish forces who fought with the British during the last war.

After the Battle of Britain, in which 303 was credited with the highest score of any individual squadron, the Kosciusko crest, which was carried by all "A" flight aircraft in this Battle, was accepted as the insignia for 303, which in its entirety became known as the Kosciusko Squadron, and the Salamanders lost their identity. The crest itself was redesigned, the stars being moved closer together to leave a space between the handles of the two crossed scythes and here were placed the figures 303, denoting its British affiliation.

In conclusion, you may be interested to know that the Kosciusko Squadron was originally an American volunteer squadron formed in the Polish Russian War in 1920 and named after the great Polish patriot Tadeuz Kosciusko, who served as Washington's Adjutant during the American War of Independence, hence the 13 stars and stripes in the crest, representing the 13 American colonies. Later he became military dictator of Poland, and the crossed scythes and peasant hat on the crest are in commemoration of his great victory over the Russian forces at Rawclawice, where with 2,000 peasants, armed only with scythes he attacked the Russian guns, captured them, turned them on his enemy and routed an army of 40,000.

Trusting you will find this of interest.

Group Captain J. A. KENT,
D.F.C., A.F.C. A.F.R.Aes., M.I.Aes.

Hartley Wintney, Hants.

Comment . . .

DEAR SIR,

Whilst not wishing to appear unduly critical, I feel it is my duty to point out the fallacy of the argument behind the article on *Ram Induction* by A. F. Marshall (May Issue).

It is an old-established fact that the gas flow through any pulsating system, for instance an air compressor as quoted, can be increased or decreased by a small but significant amount by adjusting the length of the inlet manifold. I am in complete agreement with Mr. Marshall's comments on this effect.

But, having got an increased volume of mixture into the crankcase of an engine, how on earth does Mr. Marshall expect this to produce any increase of power output? If we examine the operating cycle of one of our small two-stroke engines, we see that the processes of mixture transfer and exhausting are controlled by the piston covering and uncovering ports in the cylinder wall. This means that irrespective of the method of induction used, e.g. side port, rotary valve etc., the events referred to occur symmetrically about Bottom Dead Centre in this order:— piston descending, exhaust port opens, transfer port opens, B.D.C., transfer port closes, exhaust port closes, piston ascending.

Please forgive the elementary detail but it is necessary to examine these facts in order to understand the fallacy.

Because the exhaust port stays open for some time after the transfer port closes, any extra mixture pumped up from the crankcase will just escape to atmosphere before the exhaust port closes, thus we have at port closure practically identical conditions at all air supply conditions in excess of the naturally aspirated case. Hence there will be no significant increase of power, and all this at the expense of an increased fuel consumption, the extra mixture merely being "damped" through the exhaust in an unburnt condition.

I say "no significant increase of power" because it is possible that in certain cases there might be a very small increase observed under strict conditions. This would be due to the slightly purer mixture charge remaining in the cylinder at port closure, resulting from the "sweeping" action of the mixture that blows through to the exhaust. I must, however, comment that in general this effect would be small for the order of blowing pressures that can be produced by ramming the induction; in fact, due to the extra pipe friction and turbulence losses incurred, there could well be a reduction in power output! Here again I must deprecate Mr. Marshall's idea of observing his "improvements" by timing some whirly-bird on the end of a string. There are far too many independent variables present in this form of testing to give any significant or repeatable results. There is only one way to carry out engine development work and that is by using a properly equipped test bed. You yourselves must surely appreciate this fact from your experience of production engine test work.

May I now explain the correct way to achieve an increase of power from a naturally aspirated two-stroke, be it Diesel or Petrol. This to render the transfer and exhaust timing unsymmetrical with respect to B.D.C., thus allowing the exhaust port to close whilst the transfer port is open. The cylinder then fills to the blowing pressure and the compression stroke begins with an increased mixture charge. This we do in full-scale practice by one of three methods:—

(*a*) Use of a tuned exhaust system in which the reflected wave effectively "closes" the exhaust port whilst the transfer port is still open, known as the "Kadenacy" system.

(*b*) Use of a single large valve, either poppet or sleeve type, in the cylinder head, thus making a "Uniflow" engine system

(*c*) Use of opposed pistons suitably phased to control the port timing and again making a "Uniflow" system, e.g. the Deltic, Junkers and Commer engines.

Smethwick, Staffs.

J. L. SCOTT-SCOTT.

. . . and answer

DEAR SIR,

In answer to Mr. Scott-Scott's comments, I am in full agreement with his statement that engine development should be carried out under controlled conditions and on a fully equipped test bed.

Is the "whirly-bird" method of testing so poor? After all in competitions it is the model-engine combination in flight which wins or loses. Since the method of Ram Induction is so simple and inexpensive why not try it? If it improves the performance all well and good if not then scrap it.

Using a tuned induction system to increase the effective pressure difference across the induction port, two effects could be realised; increased air mass flow per stroke at the same r.p.m. as in the naturally aspirated case or keeping the mass flow per stroke constant obtain a higher r.p.m.

In the latter case assuming the same frictional losses and power per stroke then an increase in the overall power output must result. For the former case improved scavenging will result as Mr. Scott-Scott allows, possibly at the cost of slightly increased fuel consumption.

The three methods of increasing the power rating of full size two stroke engines all mainly rely upon improved scavenging.

Two of the methods are impracticable for the average aeromodeller on the question of expense and weight. These are the opposed piston and single poppet valve.

The main advantage of the poppet valve is that it gives rates of port area opening far in excess of those possible with piston covered ports. This is not so in the case of model engines operating at far higher speeds. The only advantage left is that the port timing could be made assymmetric. The thought of a poppet valve operating at speeds in excess of 14,000 r.p.m. is not a happy one.

The system of tuning the exhaust attributed to Kadency is a possibility for models. The results of this system in full size practice are undeniable even though Kadency's original theoretical considerations are open to suspicion. Here again the significant result is the rapid and improved scavenging due to the exhaust pulses.

As a last point I should like to refer you to your own publication *Model Aero Engine Encyclopedia* written presumably by practical and knowledgeable aeromodellers. On Page 8 you refer to a slight improvement in induction when raking the pipe forward.

This uses the dynamic head of the air to increase the static pressure at the inlet. Such a result is obtainable in a controlled form by ram induction.

In conclusion I suggest the only way to determine the usefulness of the method is to try it. It is only fair to use a number of engines as each will have its own characteristics and will react in a different manner to Ram Induction.

A. MARSHALL,

Stafford.

Ken Long's

DALESMAN

CLASS B TEAM RACER — AS ON THE COVER!

IN ORDER TO GIVE the reader some idea of how the development of this model has been approached, a short history of its career will provide a guide for young enthusiasts who may be wishing to examine the possibility of class B team racing with a view to serious competition flying.

For a number of years members of the Wharfedale Club have been interested in Class B team racing, but it was not until 1958 that a measurable degree of success was achieved.

With the advent of the ETA 29 Mk. V came the first "Dalesman", this combination together with the newly developed two-cell tank system, produced a Class B model which up to that time had no equal in the North.

Final times of 8 mins. for 10 miles were easily attained even with the necessity of five pit stops.

In February, 1959, development of the engine had produced an increase in the possible lappage that could be expected and the time for the 10-mile race was reduced to 7 : 40.

At this point the record of the "Dalesman" models was introduced, fitted with a *standard* ETA 29 Mk. VI, this model proved to be faster than the original, giving a speed of 105 m.p.h. on its maiden flight.

As the crew became more familiar with the new model and the motor began to come on to peak power the speed increased to 108 m.p.h. This performance was sufficient to enable the model to win at the Woodford rally of that year.

By the time of the '59 Nationals, both the machinery and crew were on peak form. At this meeting the performance had risen to 113 m.p.h. for 30 laps, a creditable show which took the model to third place in the "Davis Trophy Class B".

After this meeting the engine was rebuilt by the manufacturers after which the model secured a performance which we have yet to surpass namely 115 m.p.h. for 35 laps.

The model conforms to the engine manufacturer's recommended method of engine mounting and thus produces a racer of very rigid structure. When choosing the wood for this model, be sure to select medium hard balsa for the wing and main fuselage sides ($\frac{1}{8}$ in. and $\frac{3}{16}$ in. respectively).

If the model is constructed correctly, fatigue failures will not occur, tests have shown that the design limit speed is around 130 m.p.h. and all components are sufficiently strong to take the model up to this speed without structural failure should at any time engine development produce the necessary power.

After close inspection of the plan it will be realised that this is no beginner model in regard to building, although it flies like a trainer and with very little alteration, it would be possible for junior enthusiasts to build and fly a model based on this design.

While many of the features shown are conventional practice in Class B design, there are a few ideas which considerably improve the racing characteristics of this model.

For example, the angular cut for the removable engine/tank cowling, which distributes landing stresses with a less drastic change in section than could be achieved with a vertical cut. Also, note the special positioning and construction of the U/C which has saved many a race by completely eliminating the possibility of prop. breakage on rough landings and in line tangles.

The use of simple tin plate electrical terminals provide for the use of any type of accumulator connections to be used and dispenses with the need to standardise on a particular plug and socket (which are usually heavy and cumbersome to say nothing of being difficult to install correctly).

The operating efficiency of the model is enhanced by the removable cowl top. This provides access to all the main working parts except the control system, this is constructed entirely of steel and thus requires no maintenance other than periodic lubrication.

The rear fuselage is so designed as to provide a large

Attractive decoration on the red, black and white prototype (see cover) adds much to the appearance of this prototype. Photograph at foot of opposite page illustrates the basic construction system with the engine seated upon a Dural plate over the top of a hardwood crutch. Details of the Chicken Hopper type tank are included on the full-size plan

"second moment of area", this ensures that there is sufficient strength to eliminate failure during landing.

The wing is of simple sheet construction and is designed to maximum allowable aspect ratio (8 : 1 under S.M.A.E. rules) and of elliptical planform together with a high speed symmetrical section. This combination gives the highest lifting efficiency together with the lowest induced drag value. By use of the elliptical planform, it is possible to clean-up the wing tip which usually creates a great deal of wing drag.

Drag at the wing and tail roots and the inside of the engine cowl and exhaust duct is reduced by the use of leather and plastic wood fillets to streamline the airflow over these sections.

The model should be given a high gloss finish, with the final coat being of H.M.G. fuel proofer. This should be allowed to mature for at least 110 hours to make sure that the surface cannot be penetrated by hot racing fuels.

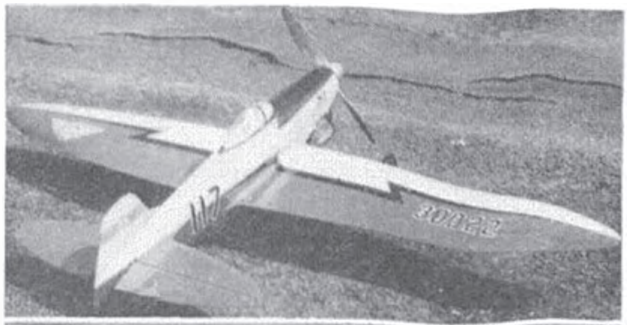
The performance of the "Dalesman" will depend to a large extent on the engine/prop. combination which is used. The Tornado 8 x 8 is recommended but this is not essential. If a Tornado is not used than a reworked "Stant" 8 x 9 will usually give very good results.

Fuel recommended for the engine will vary with changes in climatic conditions and availability of a particular constituent.

Basically the aim should be to produce something similar to the following:

30 per cent. Nitro Methane
5 per cent. Nitro Benzene
20 per cent. Castor Oil
45 per cent. Methanol

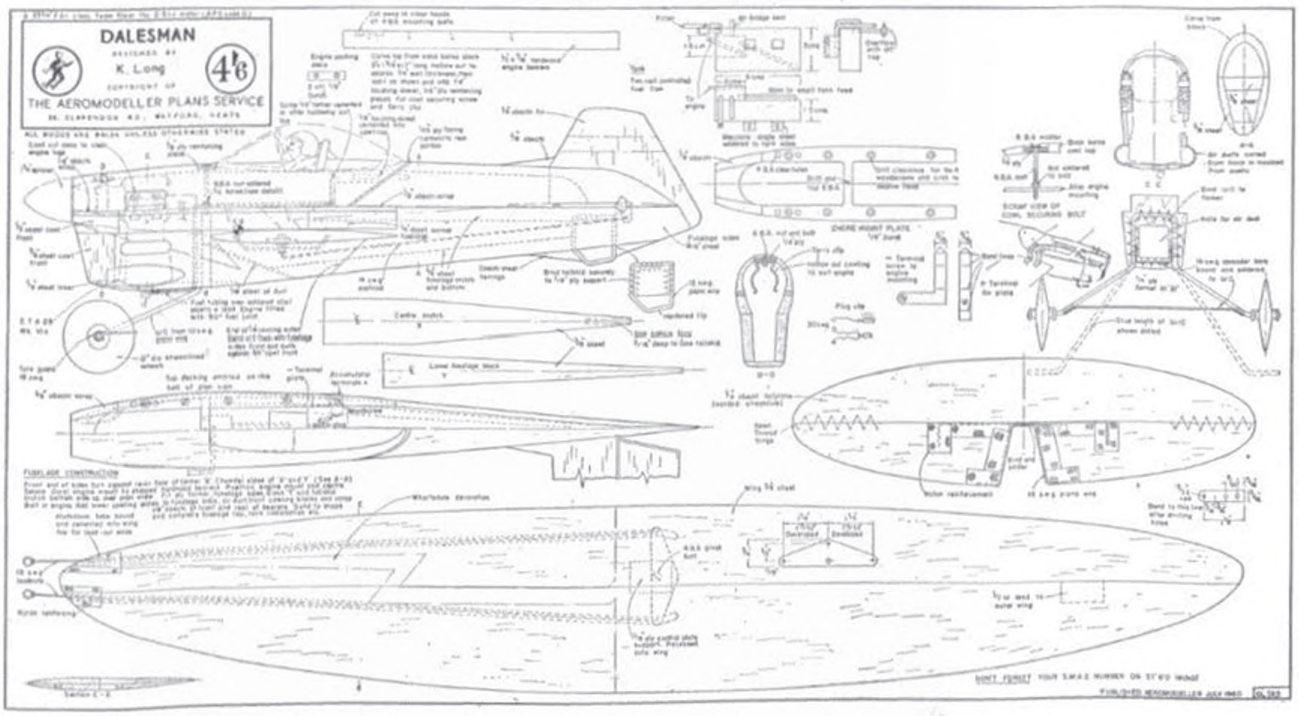
The methane content should be varied to suit compression ratio and the other conditions as mentioned above. The final decision must be taken by the operator.



To maintain the performance of the "Dalesman" the power unit *must* be kept in good mechanical condition, if the model will not attain 100 m.p.h. within the first hour of flying time, then the engine should have professional treatment and the best place to get this is through the engine manufacturers.

Remember that the model is only part of a team and at the best of times only 50 per cent. of the credit can go to the model. Therefore, be sure that pilot and mechanic know their job, once a team is formed, stick together through thick and thin, then you will succeed.

FULL SIZE COPIES OF THIS 1/6 SCALE REPRODUCTION ARE AVAILABLE AS PLAN CL763 PRICE 4/6 PLUS 6d. POST FROM AEROMODELLER PLANS SERVICE.



SEEN AT WOODFORD

(1) E. Cartwright (N. Lincs) self-launches. (2) Oh Mein Papa! 6-oz. of rubber and a big stretch by Surbiton's R. Leppard. (3) Ed Johnson with his and J. Singleton's low-wing multis, 1st and 2nd, with Boxer twins. (4) 1st and 2nd in Combat, hard-to-beat J. Benoy and P. Perry with their wings. (5) 15-year-old Paul Rogers (H. Wycombe) can do well with Octone Uproar. (6) Scale winner C. Abell (Doncaster) and his "single"-engined Caproni, resplendent in camouflage. (7) Becoming common for open power is the Eta 29, this one in Bob Angel's "gastove" type. (8) R. H. Jones' A.P.S. Typhoon on its way for a long take-off run, placed 3rd. (9) Ambitious twice size A.P.S. Spitfire for Aerotone 6-channel by R. Rigby of Bury. (10) Liverpool power champs, Joes Savini and Barnes, 3rd and 1st with G.30 and Enya 15D engines. (11) Sopwith 1½ Strutter f/f by E. Coates placed 2nd, very nice flyer. (12) Littleover combat party, M. Keeling, Jill Fox, B. Kirkman, E. Spencer with their asymmetric models. (13) Can't keep an oldie down! Wallie Neild and ancient Electra, 9-year-old R/C gear and Arden .19 showed the way in single channe

Round the Rallies

Cardington

After an enforced break of six years, Indoor Flying was resumed at the Balloon Sheds at R.A.F. Cardington on May 7th-8th with very satisfying results. Some sixty-plus enthusiasts had their names down for this practice meeting, and despite a few absentees (probably due to the excellent weather outdoors that enticed them to cross-country chasing) the large hall was a scene of activity throughout the two days made available to them.

Astonishing durations were soon the order of the day, the warm atmosphere was welcome, and soon had its effect on times as the following list indicates:

Class A Microfilm:	*Class B Microfilm:*	*Class C Microfilm:*
R. T. Parham 10 : 20	R. Draper 16 : 06	P. Read 24 : 30
M. Robson 10 : 21	J. O'Donnell 16 : 14	R. Draper 25 : 54
R. T. Parham 10 : 41	R. Draper 20 : 06	P. Read 26 : 57
R. T. Parham 12 : 16	R. T. Parham 20 : 07	R. Draper 27 : 25
	A. W. Spurr 20 : 34	

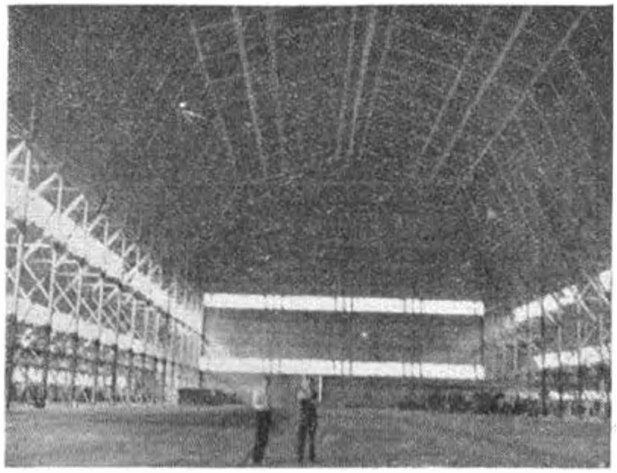
Surprise was the outstanding form of Ron Draper (1953 Power Champ) who claimed he was only a beginner at this lark! His top time of 27 : 25 was made almost at closing time, his model being fortunate in circling high yet clear of the side girders — a fate that dogged Ray Monks and others throughout the meeting.

"Paper" times were also way ahead of previous durations, with Reg Parham scoring a top 12 : 50 in Class B, and Monks steadily increasing his times from a worthwhile 13 : 53 to an outstanding 20 : 35.

Meantime, way down the shed the strong-arm boys were hurling chuck gliders into the air, prominent being Terry Ellison and Hugh O'Donnell of Whitefield. Much sanding and polishing went into their efforts, and success finally went to Hugh, who topped the minute mark for the first time in England with a score of 60·2 seconds.

"Stockport Advertiser" Rally

As the major meeting prior to the Nats, "Woodford" is also a preview of modellers themselves. Perhaps it was the staleness of winter inactivity on the part of the less hardy among us that emphasised a general lowering of standards, as the results below show. It was, as ever, a happy meeting with one vast conglomeration of model flying activity and a continual cacophony of noisy engines. Impressions of so much condensed activity, crammed into the brighter hours of an overcast and breezy day are of Sgt. Emmery's modified Eureka (Oliver) beaten by one second in the two-flight power event; scant justice for the man to whom all Nats campers owe their thanks. Of the long distance travellers from Larkhill who did well with new low-wings (Ruppert twin diesels) in Multi. Of John Hannay, just out of hospital, and looking fit, eclipsing rubber. Of slow team



racing in a tightly-packed arena with insufficient safety margins and of gallant scale free flighters whose valiant attempts were frustrated by the crowds if not the wind.

Continued overleaf

Who dreamed he dwelled in marble halls? The vast volume of Cardington's hangar is seen above while a neat piece of jury rigged and braced prop, and Terry Ellison baby-powdering gliders are below.

"STOCKPORT ADVERTISER" RALLY RESULTS

SENIOR POWER—107 Entries

1. J. Barnes (Liverpool)	5:40
2. Sgt. Emery (R.A.F. Scampton)	5:39
3. S. Savini (Liverpool)	5:25
4. J. Bradley (Wigan)	5:04
5. J. Cole (Surbiton)	4:54

SENIOR GLIDER—137 Entries

1. G. Beal (Mexborough	5:38
2. J. E. Rose (Sheffield)	5:35
3. J. D. E. Bailey (Whitfield)	5:28
4. B. Picken (Wigan)	5:20
5. J. Brain (Small Heath)	5:18
6. J. T. Ellison (Whitefield)	4:58

SENIOR RUBBER—59 Entries

1. J. Hannay (Wallasey)	6:00 + 3:00
2. H. Tubbs (Baildon)	6:00 + 2:14
3. B. Faulkner (Cheadle)	6:00
4. B. Picken (Wigan)	5:46
5. M. Duce (Liverpool)	5:45
6. E. Thorpe (Derby)	5:33

JUNIOR POWER—21 Entries

1. D. Stone (Chorlton)	4:03
2. J. Birks (Chorlton)	2:02
3. D. Bowland (Baildon)	1:53
4. C. Genn (Baildon)	0:44

JUNIOR GLIDER—27 Entries

1. P. Oldfield (Chorlton)	4:27
2. N. Carter (Cheadle)	4:23
3. D. Speakman (Chester)	3:14
4. J. Birks (Chorlton)	2:00

JUNIOR RUBBER—6 Entries

1. B. W. Smith (English Electric)	3:25
2. J. Wright (Peterborough)	1;06

SENIOR RALLY CHAMPION

J. O'Donnell (Whitefield) 14:16

JUNIOR RALLY CHAMPION

P. Oldfield (Chorlton) 4:27

LADIES CHALLENGE TROPHY

Mrs. W. M. Smith (English Electric) 2:41

E. J. RIDING TROPHY

1. C. Abell (Doncaster) (Caproni)	94 pts.
2. E. A. Coates (Blackburn Aircraft) (Sopwith 1½ Strutter)	66 pts.
3. R. H. Jones (Chorlton) (Typhoon)	63 pts.

TEAM RACE CLASS A

1. Davy-Long (Warfedale)	6:01.5
2. Baxter-Horton (Warfedale)	6:11

COMBAT

1. J. Benoy (Enfield)	230 pts.
2. P. Perry (Northwood)	82 pts.

RADIO CONTROL—MULTI

1. J. Singleton (Larkhill)	186 pts.
2. E. Johnson (Larkhill)	182 pts.
3. P. E. Rodgers (High Wycombe)	172 pts.

RADIO CONTROL—RUDDER

1. W. Neild (Cheadle)	77 pts.
2. A. Collinson (Baildon)	45 pts.

High Wycombe

We happen to know that High Wycombe is a small club when it comes to numbers in membership; but what a great club it is when it comes to organisational effort! One could not help thinking that at Booker, the H.W. lads were in actual fact running a close substitute for a full scale Nats. Entries came from the ends of the country and in many ways the contests were a prediction for the team trials. New engines were having their first outing in the shape of the Eta 15 and Rivers team race 2·5 and though they did not do more than expose the need at Booker for more handling experience, each was to feature in the top six at the end of the month trials. Two of our stunt team members led their event handsomely, and in combat the new names of Marsh (Dagenham) and Heely (Weston) came through a fantastically large entry to beat the favourites. It was in this department that the organisation excelled and we wonder how much of success can be attributed to the patient lady-member in charge. No argument here over scoring!

SEEN AT BOOKER: (1) John Lambert of R.A.F. Waterbeach and Watford with sleek Eta 15 racer which later made a 4:46 time at the team trials. (2) D. Tubby Day, now flying for Wolves was 2nd at Booker and later 3rd in team trials; like Roy Brown in pic (3), he uses a Merco 35. Brown was first in both Wycombe and trials meetings with Coy Lady. (4) Outsize model box on the Austin drew many laughs

High Wycombe Results

"A" Team Race
1. M. Bassett (Ecurie (Endeavour) 5:17
2. P. Hartwell (Enfield) 5:22
3. Davey-Long (Wharfedale) 5:53
4. W. Haley (Thornaby Pathfinders) 6:2

"B" Team Race
1. T. Pasco (Thornaby Pathfinders) 8:36
2. R. Drewell (West Essex) 9:43

Stunt
1. R. Brown (Lees Bees) 1,130 pts.
2. D. Day (Birmingham) 978 pts.
3. D. Christophor (Weston-Super-Mare) 960 pts.

Combat
1. A. Marsh (Dagenham)
2. P. Heely (Weston-Super-Mare)
Equal 3rd. R. Meekins and R. Benoy.

(5) George Allen and Pete Hartwell were 2nd in F.A.I. racing with fast model. (6) Combat winner A. Marsh has a lightweight wing, hardwood reinforced and asymmetric. (7) Dave Dew of Godalming and Sidcup's Mike Bassett the F.A.I. winners at Booker; Dew made a 4:42 flight in the trials. (8) Class B winners from Thornaby are Bill Healey, T. Pasco, John Watson (Eta VIc)

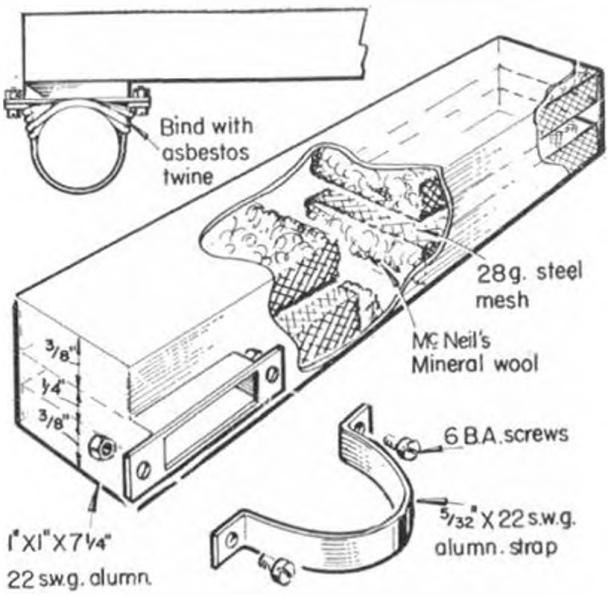
SILENCERS

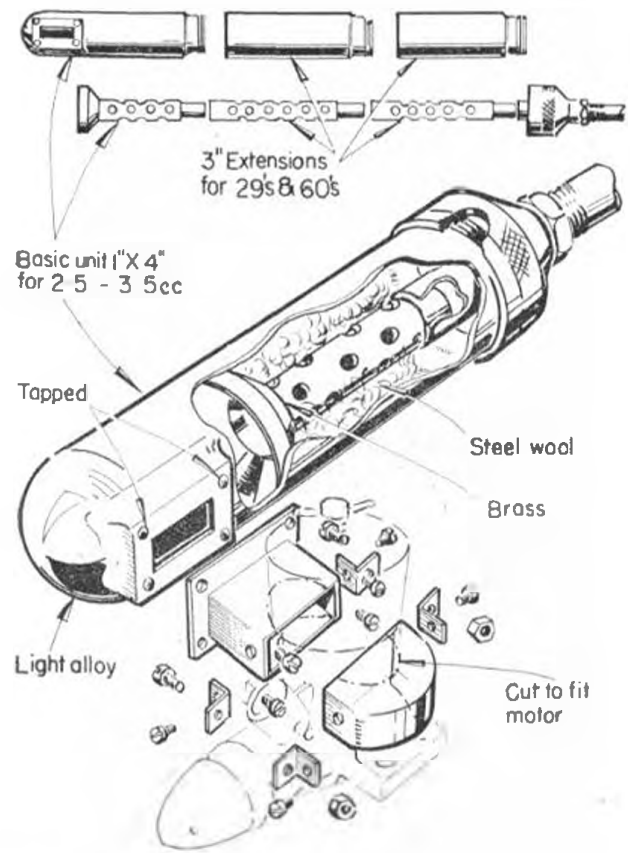
Details of the three design contest winners

IF THE NUMBER of entries for the Silencer Contest announced in our May editorial is to be accepted as a guide, we can say that British aeromodellers have a very healthy respect for the noise problem. As sponsors of the competition, MERCO have been especially gratified by the response even though none of the ideas submitted have any commercial possibilities. They do feel, however, that they have established a keener interest in the subject and will themselves be introducing a suitable silencing unit later in the year. The variety of Silencers ranged from four layers of cloth wrapped round the exhaust ports to the more practical ideas illustrated on these pages.

A high proportion of the entries came from Ireland, including the winning design by B. H. MacGrath of Belfast M.F.C., who has received a MERCO 35 Multi-speed for his effort, sketched below

Mr. MacGrath was virtually alone in providing an expansion chamber within the Silencer before the gases reached the sound dampening area. He was also one of the few who gave a fairly practical method of adapting a Silencer to a variety of engines. A number of people seemed to overlook the fact that although pressure die castings are cheap to produce, the initial moulds for a Silencer cost as much as £400 and such a capital investment is only really worthwhile to a manufacturer producing a large range of engines. The unit must therefore be fabricated for the great majority of British products and again on this point Mr. MacGrath's idea scores. It is based on the straight flow principle with least effect on performance and the sketch is self explanatory showing its method of fitting and operation.





J. W. Rilett's entry was accompanied by his own prototype example as shown in the heading photograph just to prove that the unit can be made and in fact MERCO had the pleasure of testing it. The exhaust collector is formed from annealed copper tubing, cut and brazed to fit the exhaust stack of a K. & B. 19. The Silencer could be faulted in that this did not offer sufficient gas expansion and was responsible for a loss of approximately 8 per cent. R.P.M., but it was of interest that even without the Silencer tube attached, the collector itself offered most effective silencing. Inside the turned dural Silencer is a straight flow tube with hole perforations as in the manner on many motor cycle units. Incidentally few entries appreciated how hot a Silencer can get with attached to a glow engine—the Rilett unit could not be touched by the hand whilst the engine was running. For his entry Mr. Rilett has received, as second place, a MERCO 29.

The third award was given in the form of an AEROMODELLER subscription, to Anthony Windybank of Narborough for a very simple square section straight flow unit which, although it only allows for sound absorption on two sides of the exhaust track, would be quite effective and easily made. Stub fittings on the Silencer box could be attached with Araldite and the mineral wool can be removed to clean out sludge, being held in place in the steel mesh trays, as seen above.

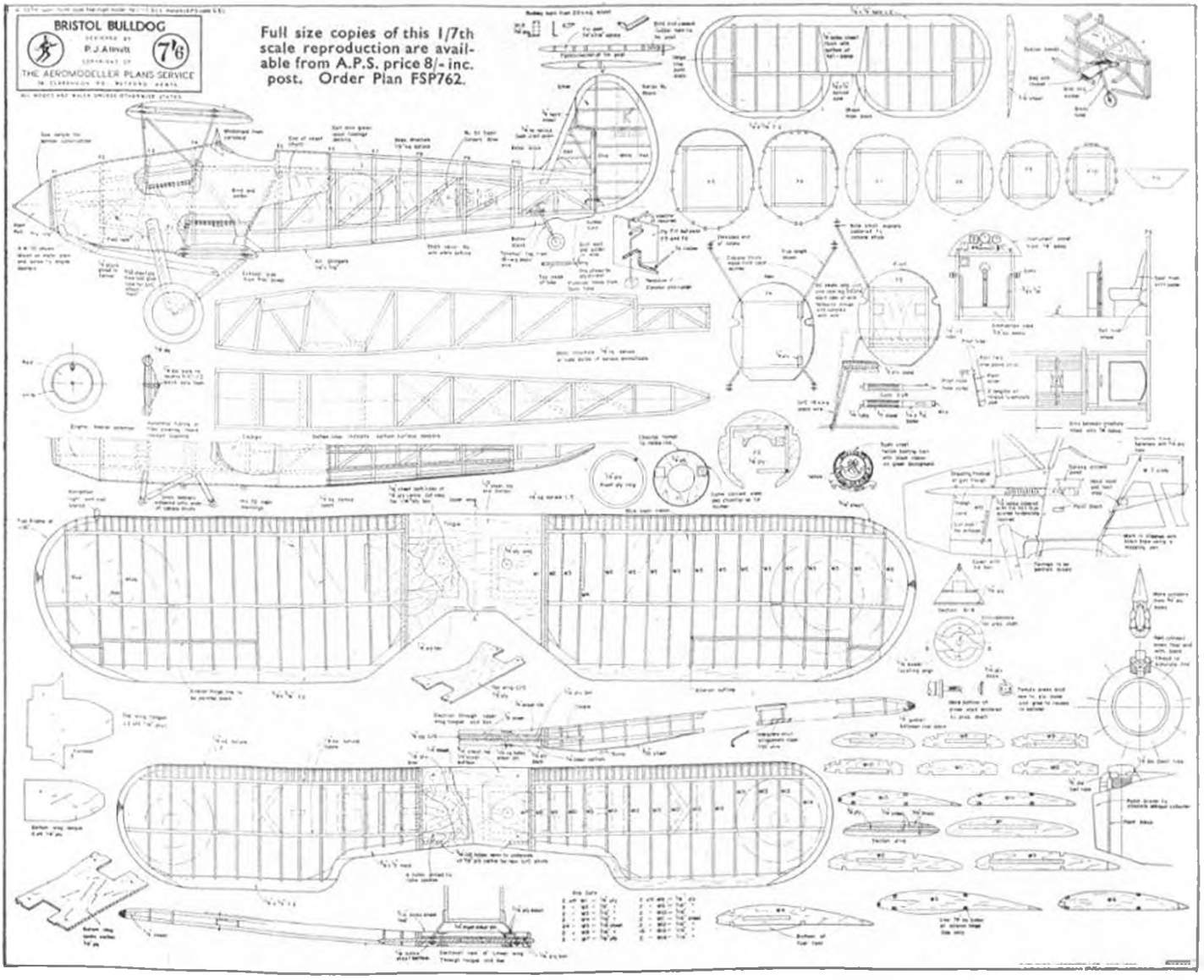
We congratulate the winners and thank all the other entries for their suggestions.

A ONE-TWELFTH SCALE MODEL FOR 1 — 1·5c.c. FREE FLIGHT

BRISTOL BULLDOG

by P. J. Allnutt

WE ALWAYS LIKE to make personal acquaintance with our contributors particularly those who submit designs which are accepted for Plans Service but rarely do we expect anyone to call us from far off Toronto in Canada. Such was the case, however, when Peter Allnutt paid us a surprise visit! Being an airline employee Peter was able to make a trip back to the old country for his holiday and was able to spare some time to see how we were getting along with his drawing—and what a drawing! His 1/12th scale Bulldog has achieved some fame in Eastern Canada with its realism in flight and accuracy in detail. Peter sent us some colour photographs which unfortunately we cannot reproduce in anything but black and white and which serve to emphasise the intricate paintwork and engine detail applied to the prototype which is a prize winner in its own right.



Moreover, experience in the aircraft industry has taught Peter an appreciation of what is required by the scale enthusiast in the way of a model drawing and in consequence he has been able to really pile on the information in plan which is seen opposite.

In designing this 1/12th model, Peter Allnutt has followed closely the full-size structure of the Bulldog, particularly in the fuselage. The 1/8th sq. basic structure is of spruce for the same reason that the full-size was of steel tubing namely—strength. Building this requires the laying down of two sides on the plan. The rear ends of the longerons, at last spacer position are cracked inwards or made into scarff joints. Forward spacers can be added to join fuselage sides, and then rear ends brought together reinforcing the joints with 1/8th gussets. Diagonal spacers are fitted, noting opposite direction of lower pieces. The 1/8th ply reinforcements to which wire struts are bound, are drilled on the wire outline with fine holes and cemented in place. Four-piece formers Fl. to F10 fit onto the basic fuselage structure. Note. F1—F3. are from 1/8th ply.

Behind F3. a ½ in. block is glued. This is faced with 3/32nd ply to which the 1/16 in. 1/D undercarriage brass tube is sewn and glued. U/C can now be bent to shape from 16 s.w.g. piano wire. Cabane and lower centre section struts are made from cycle spokes with threaded ends outermost, and bound to the ply pieces on the forward fuselage. Engine bearers cement into front three formers; engine is bolted in place and tank fitted to F3. If cockpit details (see also "Famous Biplanes"—April 1959 issue) are required they should now be fitted; then 1/8 in. x 1/16 in. stringers, between F5. and F10. are added noting Y-shaped bottom stringer forward of F7. 1 m.m. ply covers the whole forward fuselage (F1-F6). Note that starboard covering ends higher up fuselage side than port. Tailwheel leg from 18 s.w.g. wire is bound soldered onto and at right angles to a small length of brass tube, which in turn slides onto the 18 s.w.g. support. This support is bound onto the rear ends of lower longerons (Sketch on plan will help here). A loop on top of the tailwheel leg takes a rubber band. Band is stretched between two spacers, which will have to be temporarily removed to fit band.

Miscellaneous details such as spinner, windshield, and exhaust pipe can now be made. Streamline fairings for struts and U/C are constructed from dural tube compressed to oval section. Pendulum controls can be fitted if required, and details are given on the plan.

The ½ in. x ½ in. fin post is cut to length and ribs, from 1/16 in. x ½ in. strip sanded symmetrical, are slotted to take 1/16th spruce diagonal braces, and then cemented at right angles to post. 1/8th hard sheet L.E. is fitted to ribs together with 1/8th gusset. Fin is later fitted into balsa block over tailplane. Rudder is built in similar fashion.

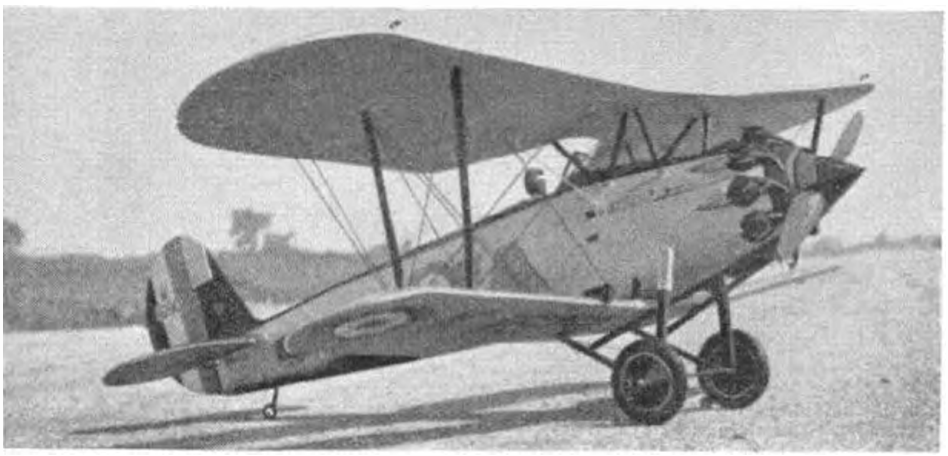
For upper mainplane construction, pin down ½ x 3/16 T.E. for one panel, after notching for ribs, and then lightly pin down ½ sq. spruce lower spars. Slide ply ribs W2-W4 onto wing tongue and cement unit onto lower spar. Note angled W2 for dihedral. Remaining ribs W5 are added, and then upper spars. Leading edge riblets W5a cement onto front spars and the ½ in. sq. spruce leading edge follows. W6 and 1/32 x ½ laminated tip are fitted. Note details such as gussets strut hooks, and dummy sump. The same process is repeated for opposite wing, and then lower wing.

The wing centre section is of the same design for both upper and lower wings, and firstly the ½th ply centre section piece is cut out. 1/16th ply outlines fit round both tongue box cut-outs. This leaves a raised edge and 1/16th sheet is cemented above and below centre section piece flush with ply outlines. Now four holes are drilled as indicated on plan, and C/S is bolted to fuselage struts. The whole centre section piece is covered with ½ in. sheet above and below and this is sanded down to wing section. In the case of the upper wing, two ply ribs W1 are cemented to centre section ends; lower wing C/S has W7 in corresponding positions. Wing tongues are inserted into boxes and wings pressed firmly against C/S. A 1/16th diam. hole is drilled *right* through C/S. A small ply disc, also drilled, is let into C/S above and below the previously drilled hole. To assemble wings, a short length of 1/16th strip is inserted into hole and acts as a shear pin, breaking and allowing wing to detach itself undamaged should the model land heavily etc. This also gives maximum scale appearance (e.g. no rubber bands etc.).

Tailplane is a simple structure to build, noting laminated tips and double ribs in places. Make up wheels from ply and balsa laminations and fit brass axle bushes. Interplane struts are from dural tube, method of making being detailed on plan, and are non-structural, for scale appearance only. Guns can be made from dowel and tubing. For maximum scale appearance a scale "Jupiter" engine must be added and this is similarly detailed on the plan in exploded view form.

The original model was covered with silk and six coats of clear dope were applied but heavyweight tissue or even the new "Viscotex" will do. Model should be silver doped *lightly* (three coats) overall if it is to be decorated in conjunction with the detailed 32 sqdn. R.A.F. markings given on the plan.

The original model is powered by an A.M.10, using an 8 x 6 prop, and with this combination has a very creditable performance, to the extent of winning third prize in the Ontario Championships. Using the spruce and ply detailed *your* model will most certainly outlive all your other scale types, and if a pilot is fitted, the model can be guaranteed strong enough not to do "Bader" on him!



Monochrome photographs do less than justice to Peter Allnutt's magnificent prototype with its bright red fin and wheel centres, blue Squadron markings and bright silver over-all finish. A contest winner, this model is not only robust but also truly authentic — just the job to select for that scale contest!

GADGET REVIEW

THIS MONTH'S Gadget Review has, as usual, something for everybody, but the ideas we have selected are, for a change, all quite simple but still useful and ingenious.

From the Far East we have an idea that is guaranteed to ruin your boots and shoes but will most definitely improve your models! It is simply the use of lace eyelets from a pair of old shoes let into cowlings, planked wings and fuselages to give a neat appearance to holes for needle-valve spray bars, vent tubes, small intakes, or lead-out guides. Idea is from P. N. Khanna, of Calcutta, and is seen in **A**. He suggests that a variety of colours be used to further improve appearance. Most leather supply stores and boot repair shops are able to supply.

With the large number of plastic kits available and the relatively short time in which they can be built, regular plastic modellers are finding that available areas of clear, flat surface in bedrooms, clubrooms, etc., are rapidly disappearing as model collections are constantly increased, making the display of further models a problem. David Robinson of Salford, Lancs, has found the answer in **B**, simply by taking a small piece of piano or copper wire and bending it to the shape illustrated to suit the particular model, and hanging it over a picture pin. Paper clip wire has been found to be suitable for small 1/72nd models, and piano wire will even support Airfix Lanc's and Sunderlands. Note that *two-piece* tailplanes are probably not strong enough to act as supports. Models supported by their wings will obviously have to be angled at 90 degrees or less to the wall to prevent slipping out.

Nail files have always been used as makeshift screwdrivers — why not convert one into a pukka multi-purpose tool? R. J. Playle of Acton, London, has done this as in **C**, by grinding the various edges of the file, which must be of hardened steel for durability. Sharpening the blade is done on an oilstone. The rounded end makes a very good tin lid opener, and the file can, of course, on very rare occasions even be used for filing one's nails!

W. Peter Holland has submitted the following four ideas, commencing with **D**, a wing saver for towline gliders. Excess pull on the line operates the pivoted hook, push pull rod, and bellcrank under the tailplane leading edge, increasing tail incidence and bringing the model's nose down, which reduces wing angle of attack, and consequently wing strain. Peter says that the device only works when *normal* tow strain is exceeded, and the spring should be so tensioned for this.

Pieces of curtain wire spring in place of the normal leadout tubes at the wing tips of your future C/L models will offer great improvement as they provide a good keying surface for cement, holding in place far longer, as shown in **E**.

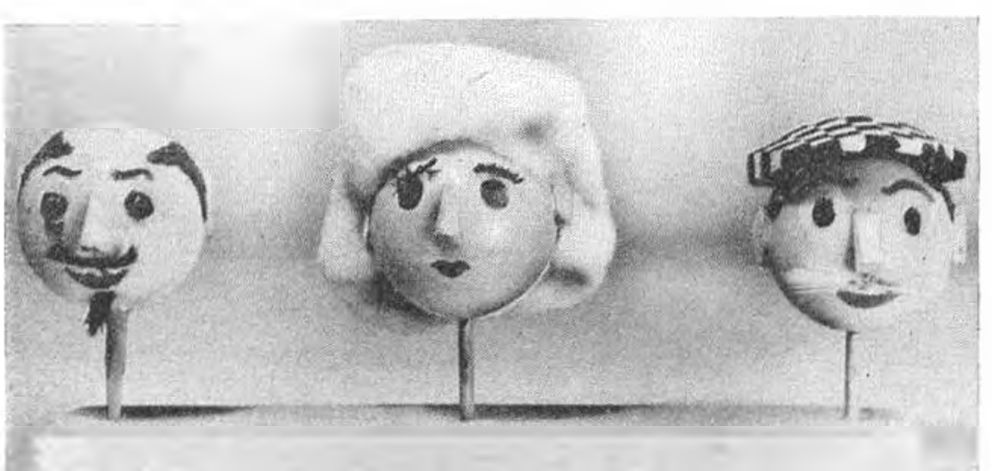
A very cheap wheel can be made from a pair of three-penny Woolworth's door stops. These are about 1½-in. in diameter, and of rubbery plastic; **F** illustrates how the stops should be cut down. They can also be left full size for use as cowlings on small power models. The fourth and final Holland idea, in **G**, makes possible fine adjustment of dihedral when wings are drying on the building board, by unscrewing the cap of a small bottle placed under a wing tip or suitable rib — one of those simple gimmicks that are so useful and cost nothing!

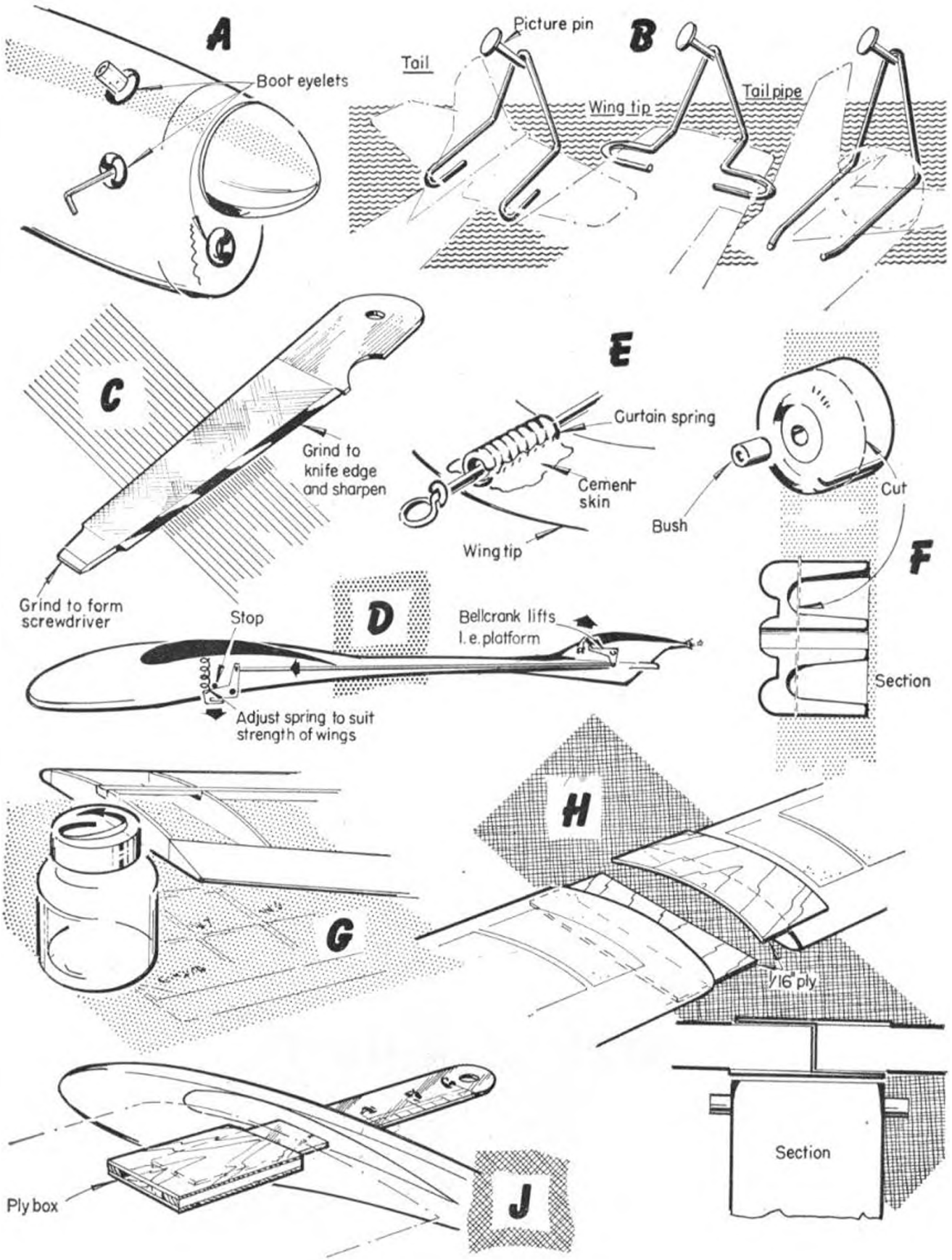
A crashproof wing joint, from J. Carter of Hemel Hempstead, just requires the simple addition of two pieces of 1/16th ply as seen in **H**, one on the wing upper surface, and the other on opposite wing undersurface. The pieces of ply are just under full wing chord in length, and the same width as the fuselage. The idea also strengthens the wing roots and prevents damage by rubber bands, which must be criss-crossed over the upper surface from the fuselage dowels.

Continuing on the subject of joining wings, **J** shows how a six-inch spring steel ruler, price sixpence, from Woolworths, can solve the problem of obtaining dural wing tongue material in small amounts. The boxes are made from 1/16th and 1 mm. ply, and let into wing ribs. Wings simply slide on as usual, but do not knock off. The increase in weight over that of dural will have little effect on gliders of A/2 size. D. C. Gibbons of Nottingham submitted this "gadget".

The three happy souls depicted in the photograph are newly-recruited members of the "Gadget Review Flying Corps" (?), created to protect the interests of gadget-bound and struck modellers. From left to right they are: *Pierre Pontefract*, French type pilot, *Miss Lucy Lastic* (she's come *down* in the world lately), the Flying Corps' pet, and, finally, *W/C Flush, B.F.C.*, late of the R.A.F. (late by about 20 years — he deserted September, 1939!). The three characters were sent to us by D. A. Rattle of Brockworth, Glos, and are made basically from table tennis balls. Flock spray or cotton wool forms the hair, and paint or tooth-brush bristles make excellent moustaches, beards, etc. Ears and nose are from balsa as is the Wing Commander's cap. Mounted in the pilot and crew positions of your models the heads will make a humorous change from the usual begoggled grim-faced McCuddens, Bishops, and Richthofens.

Antony Day of Birmingham recommends the addition of Corn Starch (Corn Flour, Maize Starch) to glossy dopes to obtain a perfect matt finish on scale models. This can be done when particular matt dopes are unavailable. The amount to be added must be found by experiment, and starch should be dried in an oven or over an electric fire beforehand otherwise the dope may become lumpy or may blush. Plasticising the dope with a couple of drops of castor oil is advisable. Enamels *can* be similarly treated, but we would recommend the use of Humbrol Matting Agent in this case.




A
Boot eyelets
B
Picture pin
Tail
Wing tip
Tail pipe
C
Grind to knife edge and sharpen
Grind to form screwdriver
D
Stop
Bellcrank lifts I.e. platform
Adjust spring to suit strength of wings
E
Curtain spring
Cement skin
Wing tip
Bush
Cut
F
Section
G
H
1/16" ply
Section
J
Ply box

TRADE NOTES

Plastic trio, the 7 × 3 prop imported from France by Performance Kits, Airfix's fine Henry VIII in full regalia and KeilKraft's control line handle with neat thumb grip

AS ALL MODELLERS of plastics know, one of the greatest problems of obtaining the very best result, concerns the final finishing and painting. The very nature of the plastic has hitherto prohibited the use of quick-drying cellulose colours and modellers have been obliged to use slower-drying enamels.

Recently we have been able to test a series of colours by **British Cellulose Lacquers Limited** known as their 777 dope line. These have been specially formulated to be used on Polystyrene and with a drying time between 10 and 15 minutes, the results have been remarkably good. Needless to say, special thinners are also manufactured by this company and it remains to be seen whether or not any of the manufacturers associated with the plastic model market will be wise enough to take up distribution. Increase in cost is negligible and with no skinning disadvantage and the ability to be softened out with thinners, 777 dope meets all of its maker's claims.

The latest plastic from **Airfix** is the *Me*-262*A*, the first twin jet fighter which was in service as long ago as 1944. This particular model has been the subject of considerable research by the Airfix company, involving changes of shape in plastic parts, all in the interest of accuracy and the result can be seen in our photograph, as a strikingly realistic subject if appropriately mottled in camouflage.

Also plastic is **Keilkraft's** new control line handle selling at 3s. 6d., a really "handy" handle which is light in weight and has obviously been designed by somebody with experience of flying on lines. The metal connector is firmly embedded within the plastic and cannot possibly break away. Another new plastic line is the introduction of **H. S. Rislan** propellers from France in 7 x 3 and 8 x 6 sizes at 2s. 11d. and 8½ x 5, 9 x 6 and 10 x 6 at 3s. 6d. by **Performance Kits** of Coventry. We have been able to test the 7 x 3, a practical prop. in every respect with plenty of strength at the root and good blade cross section. This particular size is ideal for a 1 to 1½ c.c. competition model.

New in the fuel ranges is **Electronic Developments'** *Super Zip*, which has been specially mixed for high performance engines, meaning those with ball bearing supported crankshafts and in our bench tests it has shown a superiority over standard mixtures. It is not intended for running-in and is to be regarded as a competition fuel for those who want smooth performance at high r.p.m.

Those Customs and Excise authorities have been "at it" again and we now learn that the **Humbrol** *Economy Paint Kit* is now subject to purchase tax, so if your model shop is asking you for 6d. extra—it is quite in order: the price has been increased to 3s. 6d. including the tax.

Those aeromodellers who like to be well informed on full size flying are advised to send to **Beaumont Aviation Literature** for their latest catalogue, an impressive listing of current and past aviation titles with many of the early classics still available at reasonable charges. Leading reference works from Germany and Japan are included and outside this service, Mr. Beaumont retains a fantastic stock of back numbers of the leading British and foreign Aviation magazines including, of course, AEROMODELLERS, back for a great number of years.

Airfix's Me.262 will be a favourite; ours is camouflaged with mottle finish. At right, the new Aerosol container for Pli dope with Instant spray is bright, colours will be coming soon. E.D.'s Super Zip may not have a pretentious label — but the power is there!

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Also plastic is **Keilkraft's** new control line handle selling at 3s. 6d., a really "handy" handle which is light in weight and has obviously been designed by somebody with experience of flying on lines. The metal connector is firmly embedded within the plastic and cannot possibly break away. Another new plastic line is the introduction of **H. S. Rislan** propellers from France in 7 x 3 and 8 x 6 sizes at 2s. 11d. and 8½ x 5, 9 x 6 and 10 x 6 at 3s. 6d. by **Performance Kits** of Coventry. We have been able to test the 7 x 3, a practical prop. in every respect with plenty of strength at the root and good blade cross section. This particular size is ideal for a 1 to 1½ c.c. competition model.

New in the fuel ranges is **Electronic Developments'** *Super Zip*, which has been specially mixed for high performance engines, meaning those with ball bearing supported crankshafts and in our bench tests it has shown a superiority over standard mixtures. It is not intended for running-in and is to be regarded as a competition fuel for those who want smooth performance at high r.p.m.

Those Customs and Excise authorities have been "at it" again and we now learn that the **Humbrol** *Economy Paint Kit* is now subject to purchase tax, so if your model shop is asking you for 6d. extra—it is quite in order: the price has been increased to 3s. 6d. including the tax.

Those aeromodellers who like to be well informed on full size flying are advised to send to **Beaumont Aviation Literature** for their latest catalogue, an impressive listing of current and past aviation titles with many of the early classics still available at reasonable charges. Leading reference works from Germany and Japan are included and outside this service, Mr. Beaumont retains a fantastic stock of back numbers of the leading British and foreign Aviation magazines including, of course, AEROMODELLERS, back for a great number of years.

Airfix's Me.262 will be a favourite; ours is camouflaged with mottle finish. At right, the new Aerosol container for Pli dope with Instant spray is bright, colours will be coming soon. E.D.'s Super Zip may not have a pretentious label — but the power is there!

CLUB NEWS

Northwood clubsters show that they make more than combat models, at a recent "open" night

NOW THAT the S.M.A.E. has been obliged to cancel the second control line trials, there will be even greater interest in this years R.A.F. M.A.A. Championships scheduled for the same date at Debden on July 2nd 3rd. New in their extensive programme which covers practically every class of model is the first organised *Scramble* at any large meeting, open to all classes of free flight except radio. The event will last one hour and only flights of between 30 seconds and two minutes will count. All models to be released from the given point and only one helper allowed at the launch. Another new class is "Tyro" team racing for up to .9 c.c. with a 10 c.c. tank and 38 ft. 2½ in. lines; (models flying for 110 laps), which we hope will be well supported for it will give a chance of success to the relatively inexperienced modellers in the Service.

All modellers in the R.A.F. have now been issued with a new series of S.M.A.E. insurance numbers and these have been cleverly identified so that by the first two figures of the number one can identify the Command in which the modeller serves.

Obviously the R.A.F. M.A.A. committee men have been busy making these new moves and we are sure that they will result in an increased interest.

London

To cater for newcomers to the hobby, **NORTHERN HEIGHTS M.F.C.** is to run a series of talks on model design. Ken Tansley discoursed on timers and dethermalisers. Going back to the petrol engine of pre-war days through to the popular clockwork timer now in vogue.

SIDCUP A.S. Team Race enthusiasts, together with Dave Dew of Godalming and John Templeman of Surbiton have amalgamated to form a group to be called "Ecurie Endeavour". This group started the 1960 season in good form and won the F.A.I. event at the High Wycombe Rally. The club intend to hold their first Rally at R.A.F. Kenley (Nr. Croydon) on August 14th with trophies for ½A, F.A.I. B and Stunt. In addition a Combat Comp. will be held at this Rally.

WOKING AND D.M.A.C. has just completed it's first year of existence. Main interest is in C.L. Club's first contest success was gained at the March S.E. Area Rally when P. Newell took first place in combat. A club C.L. trainer has been built by P. Newell and although as yet unflown, it has been thrown on the floor and used as a doormat with no ill effects. No prizes for guessing that it is not made of balsa wood! At the end of June a Trades Exhibition is to be held in Woking Park and the club has been invited to give C.L. Displays on June 24th and July 1st. In connection with these, K. Wigman is building an 1/18th scale Fairey Rotodyne for two Rivers 3.5s.

At **COSMO A.M.C.**, social and Prize-giving on April 29th, "Roland Rees", a local model shop, provided a stand showing the latest kits and accessories which together with club's own collection of models made a good static display. Club Champion was R. James; Junior Champion, E. Jackett; Junior Free Flight Champion—D. Morely and Combat Champion—I. Ella.

Official S.M.A.E. sanction has been given for the **SURBITON M.F.C.**'s Gala this year which will be held at Chobham Common on Sunday, October 2nd, 10.30 a.m. In company with other London Area clubs, an additional power contest will be held for ½A free flight models with an actual maximum capacity of .85 c.c. or nearly American .049 cu. in. All events will be of three flights with a 15-second motor run for both power contests.

On May 1st, a contingent from the **ST. ALBANS M.A.C.** went to Chobham for the F.A.I. comps. George Fuller really went to town on the F.A.I. rules; he arrived at Chobham at 5.30 a.m. and by 9 a.m. had 5 max's in power on the board! He then continued flying during the day and clocked a further 5 max's in the fly-off. He and Vic Jays (who had also put up a similar time) then decided to call it a day and tied for first place. Thus it seems that F.A.I. power is soon going to depend on the following:—a very early start, endurance of the competitor, rapid and efficient retrieving and finally the eyesight of the time-keeper as dusk approaches, altogether still not a very satisfactory state of affairs. Don Edwards also put up over 14 mins in power. In Wakefield George Fuller topped the London Area with a time of about 14 mins. This brought his total time for the days' flying to 44 mins; he certainly slept soundly that night! These times contrast rather with F.A.I. Power on April 10th when *one* flight of 2:37 gained 4th place for B. Cox!

HAYES M.A.C.'s best C.L. news is an unofficial 131 m.p.h. (only one stop watch) by the Taylor-McGladdery partnership, with a Rossi-tuned G20V. The club attended the High Wycombe Rally in force but unfortunately brought no prizes home. While the Hayes Council are still giving consideration to a possible permanent C.L. site, the members have received a bitter blow, by the neighbouring council—Heston and Isleworth, who have withdrawn their permission to fly models on Cranford Park, for no apparent reason. The club have used this space for 20 plus years without any incident.

Now that the competition season is getting into full swing **ENFIELD AND D.M.A.C.** are doing well. Jim Benoy, one of the Club's really keen combat fliers, came first at Woodford and drew first at Congleton aided by **KENTON'S** Ray Meekins in the combat events, a very creditable performance. At High Wycombe the Club turned out in strength, entering Stunt, Combat, Class "B" and F.A.I. races. Jim Benoy placed third in Combat, after two hectic prop. changes, a bent needle and much cursing. Pete Hartwell flew into 2nd place in the F.A.I. race, aided by George Allen and Frank Stevens who although worked into the small hours were unable to finish their models in time. In Class "B" the Walker Tuthill team model was unplaced because of a broken con rod, which occured in the heat so near the end of the race that the pit man could have walked to the finish, where three more motors were waiting in the pocket of Ray Tuthill. Enfield Rally includes F.A.I. "B", Combat, Stunt and Speed; details from R. Tuthill, 79 Birkbeck Road, Enfield.

CRYSTAL PALACE M.A.C. went *en masse* to the High Wycombe control line rally and had a day of mixed success. Messrs. J. Wylie, J. Veale and C. Medler all managed to fight their way through two rounds of combat, but were all eliminated in the next round. Oliver-powered Peacemakers were used exclusively. J. Veale also entered stunt but a sick motor prevented him placing higher than 10th. Meetings are on Monday nights at 7.30 p.m. at All Saints School, Upper Norwood, S.E.19.

Now that the March winds and April showers have died away club members of **ST. CLEMENT DANES M.F.C.** happily lock the cupboard doors on R.T.P. models. Many of the junior members have taken to C/L stunt flying wing o.d. profile stunters powered by engines of .5 c.c.—1.5 c.c. (especially .049's). It was rather a shock for them to see an old 1948 *Frog Vandiver*, powered by a Frog 100 of the same age, start first flick and get airborne in 10 secs!

DAGENHAM M.A.C. at High Wycombe got through the first heat but were gradually reduced until only Allen Marsh was left in the semi-finals. Allen won the finals *and* a Rivers 3·49.

South Eastern

On May 1st **BRIGHTON D.M.A.C.** members attended at Tangmere to take advantage of the aerodrome facilities offered by the Area. In the Halfax John West flying his Oliver-powered design easily topped the Area results with 14 : 23, only an experiment with fuel on one flight preventing a higher score. In the Weston the Boxall brothers were well to the fore, Fred topping the Area and Reg coming third.

ASHFORD M.A.C. will be holding their C.L. rally on July 17th for combat and stunt. It has been decided to leave F.A.I. T/R until next year but however a large entry is expected in the two classes which are being run, especially as a brand new Oliver Tiger will be raffled.

SOUTHERN CROSS A.C. is usually associated with very large gliders but at the meeting held at the Devils Dyke (local version of the Clwyd Hills) on May 15th the largest models were a mere ·21 in. The "Smiths Gala", a 7-flight chuck-glider contest was organised and the local spectators were staggered by the performance of these tiny models slope-soaring on the 400 foot ridge. Longest flight was 2:31 by Peter Pates and over 10 per cent. of the recorded flights were more than a minute. Top aggregate was by Bill Rabjohns with 373.7 secs., closely followed by L. A. R. Collins with 351.0 and P. Bates with 341.7.

Club secretary Grahame Gates recently took a full-size glider to 8,000 feet accompanied by Derek Piggot, a former British Wakefield Team member—a case of two modellers in the same thermal.

CRAWLEY AND D.M.A.C. recently formed, has 37 enthusiastic members. Club meets at the Hazelwick School, Three Bridges, every Thursday at 7 p.m. and those interested in joining a progressive Club are cordially welcomed. Regular building instruction sessions are held every Thursday. At present 18 members are busily engaged in constructing *Keilkraft "Invader"* gliders.

Midland

PILGRIMS M.F.C. have completed their first year as a club, and make a point that they have settled all earlier troubles. C/L combat seems to be the most popular in the club.

At the Congleton C/L Rally on Easter Monday, Roy Lockley placed 2nd in team race and 4th in stunt and is now the fascinated owner of a D.C. "Quickstart" Bantam as prize for best all-rounder. Eric Burke placed 3rd in stunt to make one of **OUTLAWS** (CANNOCK) **M.A.C.**'s best days this year. A week later at Woodford, Alan Cooper reached the semi finals in team race and Burke's 12 month old stunt job met an untimely end on collision with a fellow(?) competitors shoulder. Another week later at High Wycombe, the strain of 6 comps in 7 weeks began to tell and the team racers just flopped! Both stunt bods were using new motors, out for the first time, both were set too rich on the one and only flight allowed, and both finished up w-a-y down the list.

After the long spate of comps. they have been attending this season, **WOLVES M.A.C.** have been feverishly preparing for the Nationals. Two entries in the Gold Trophy incidentally are Brian Horrocks and Dave Day, the latter having joined the club recently. They were hoping to bring away some hardware from Scampton and on present showing the new ETA 15's may (with the Olivers) help to do this.

For Your Diary

June 25th - 26th
P.A.A. Festival (rules as in this issue), Abbotsinch, Paisley.
June 26th*
Northern Heights Gala, all classes F/F including ½A plus Combat. R.A.F. Halton.
Munster C/L Champs, Cork City, Eire.
July 3rd*
Clwyd Slope Soaring. N. Wales.
July 2nd - 3rd
R.A.F.M.A.A. Championships (all classes). R.A.F. Debden.
July 10th
Scottish Nationals, Abbotsinch, Paisley (free flight).
Enfield Rally (team race, A, B, stunt, speed, combat).
July 17th
Butlin's C/L Rally, Masney, Co. Louth, Eire.
Ashford C/L Rally*, Victoria Park, Ashford, *Kent.*, combat and stunt.
August 7th
St. Albans Gala,* Chobham Common, open glider, open power, open rubber, F.A.I. power ½A open power, radio (single channel).
August 14th
1960 Devon Rally*
Woodbury Common, nr. Exmouth.
Scottish Gala, Abbotsinch.
Ramsgate C/L Rally, Jackey Baker's Sports Ground, F.A.I. and B class T/R, combat, stunt.
Sidcup Gala,* Kenley Aerodrome, T/R stunt.
August 21st
Southern Counties R/C Rally, Army Air Corps Station, Middle Wallop, Wiltshire, County Championship Prizes, Rudder only, intermediate, multi.
August 28th
South Midland Area Gala* (all classes). Cranfield.
September 4th
Irish F/F Nationals, on the Curragh.
September 11th
Croydon Gala,* Chobham Common, open glider.
September 18th
Caledonia Shield, Lanark.
September 25th
South Coast Gala,* R.A.F. Tangmere, all classes F/F R/C and C/L.
October 9th
London Area C/L Champs*—R.A.F. Kenley (open to all but Champions decided from London Area only).
October 23rd
Croydon Gala,* Chobham Common, open power (including separate 049 class).
November 20th
Croydon Gala,* Chobham Common, open rubber.

* *Signifies S.M.A.E. Sanction*

North Western

The past few months has seen an interest developing in the **EAST LANCASHIRE M.A.C.** of R/C Slope Soaring. A number of slopes have been found for different wind directions in an area famous in Lancashire for a different type of flying, namely that of Witch Flying by the *"Pendle Witches"* on Pendle Hill. E. Ford topped the N.W Area in the Astral and the Halfax at Chetwynd though with only one 35 sec. flight. His time in the Halfax was 14.09 secs. with a new style parasol F.A.I. design.

At the Woodford Rally, John Hannay was the lone **WALLASEY M.A.C.** success, winning rubber in a fly-off. John won a barometer, he now has *two* barometers and is the local weather station for modellers. The club would appear to have a couple of apes! At the last Stetton meeting, David Millachips A/2 was treed. In a matter of minutes it was down after an impressive example of tree climbing by Norman Hall. Also Eric Davies was up two trees after a runaway radio model at Hooton.

CHORLTON M.F.C. were strongly represented at the Woodford Rally, and the club juniors really excelled themselves. Phil Oldfield placed 1st in junior glider and was also awarded the trophy as junior rally champion, fitting reward for a keen and enthusiastic modeller. Also among the prize-winners were Davis Stone with 1st place in junior power and John Birks with 2nd place in the same event. The seniors were not entirely overshadowed, Kevin McGee kept their end up with 3rd place in Class "A" team Race. The club normally operates at Chorlton Meadows, Edge Lane.

The annual **CONGLETON M.A.C.** control line rally held in the local park on Easter Monday proved to be the biggest and best yet held by the club. The weather turned out to be perfect, attracting no less than twenty clubs, representing North, North Western, Midland and London Areas. Gig Eifflaender of Macclesfield was the eventual stunt winner with his P.A.W. 149 powered O.D. job. Class A Team Race proved to be fast and furious and was eventually fought out between Wharfedale, Derby, Wrexham and Outlaws clubs, in a very fast final. Combat as usual attracted the largest entry.

Results

Stunt 11 entries.

1st	J. G. Eifflaender (Macclesfield)	585 pts.
2nd	T. Jolley (Whitefield)	560 pts.
	D. J. Day (Birmingham)	550 pts.
	E. Burke (Outlaws)	550 pts.
4th	A. Lockley (Outlaws)	515 pts.

Class A Team Race. 26 entries.
1st R. Crofts (Derby).
2nd R. Lockley (Outlaws).
Combat. 40 entries
R. Meekins (Kenton).
J. Benoy (Enfield).
Rally Champion—R. Lockley, (Outlaws).

A contingent of members from **LIVERPOOL AND D.M.A.S.** attended the Woodford Rally. Joe Barnes won F/F power event and came near to winning the Rally champion title, but for one bad flight with his rubber job. Joe Savini came third in power. On May 1st the club attended the Area centralised events at Staplehurst. Joe Barnes came second in Rubber, Joe Savini second in power. We may be hearing more about these "Joes"! The club is now fortunate in having Woodvale Aerodrome.

Northern

ROTHERHAM AND D.M.F.C. in conjunction with the local Model Boat Engineering and Railway clubs are to hold an exhibition at Rotherham's Town Hall Assembly Rooms on October 6th, 7th and 8th. Estimated attendance is of 7,000—10,000. The Flying Club will be adequately represented with over 100 models. With interest in all types of flying increasing, **OLDHAM AND D.M.A.C.** hope to enter quite a few competitions this season. Their F/F Champ. has had an unlucky flush in recent weeks having lost two full size and two miniature Dixielanders.

TEES SIDE M.F.C. indoor enthusiasts were pleased once again to make an overnight pilgrimage to Cardington and probably travelled further than any other competitors. A. W. Spurr retained the Class B microfilm record with 20 min. 34 sec., just beating Reg. Parhams best flight by about 30 secs. Reg got his own back in tissue and Class A microfilm, however. Spurr is quite a versatile chap who also flies F.A.I. power and glider very well. He won the Astral Trophy again this year, for the second time, in foul weather with a 3 flight total. The same model placed high in the Halfax when Ron Swinden of Tees Side did 14.46.

The Hobbies Exhibition in April in which the **WHARFEDALE CLUB** took part, was a great success. After the Congleton and Woodford meetings, a gallant party of mad keen T/R types ventured the early hours of May 1st in order to attend the High Wycombe rally some 196 miles down the road. Four members succeeded in battling their way through the massive class A entry where the Davy Long team flew their way into 3rd place. They were especially pleased to see how well the new ETA 15's are going. Signs of things to come?

Founded early this year with about 12 members, **MEXBORO AND D.M.A.C.** embarked upon an extensive "new member drive" but in spite of good press covering and shop window adverts the response was disappointing. Since the N.A. Winter Rally in January the Club has had two "First", one "Third" and two "Fourth" in Northern events best being a win by Club Sec. G. Beal at the Stockport Advertiser Rally at Woodford, which has encouraged members. Meetings are held every Wednesday night above M. V. Cotts, Main Street, Mexboro. Anyone interested is very welcome.

Western

Fourteen **WESTON CONTROLINERS** members attended the High Wycombe C/L Rally at R.A.F. Booker. The Club has steadily been building up a good reputation over the past year, and went to this rally with the intent of justifying it. This it most certainly did. Dave Christopher came third in the stunt event which is excellent, as he is only only a junior member. He flew an attractive o d camouflaged and semi-scale model powered by a Torp 23. This is a really hot motor and the model moves fast, but Dave likes it that way! The Club has great hopes for Dave, who has only been modelling for a few years. Man, you should see his square eights!!! (Boy — I did!!!). In the combat section, the Club's main interest, Pete Heeley placed second. Other members also did well, and were full of praise for the efficient organisation of the Comp.

Fourteen **GLEVUM M.A.C.** members attended the Western Rally on April 10th in the faint hope that early morning high winds might drop. In fact the wind rose to near gale force by afternoon and Derek Harper made the only flight in the A/2 qualifiers, a creditable 1 min. 40 sec.

On returning from a very long down-wind trip, with the A 2 intact Derek was just in time to see his model box lifted bodily by the wind, the contents, a rubber and power job rapidly disappeared down-wind to be either lost or smashed; perhaps it is, after all, safer to fly than leave the models in their boxes!! At the Area Rally on May 1st at Colerne, Stan Perry's Pelican placed 1st and Jr. A. Gaunt 2nd, his first major placing —as yet.

East Anglia

A number of ANGLIA M.F.C. lads went to R.A.F. Debden for the Halfax Trophy and Weston Cup on May 1st. Sid Jackson returning a time of 13:10 in power. Bob Carter also winning the combat event organised by the Area C.L. sub-committee. The following Sunday was the date for the Second club competition. Winners were power—S. Jackson, Glider—D. Roche, Combat—L. Fisher. Club's meeting place is now A.T.C. Huts, Waterhouse Lane, Chelmsford. Any bod interested in joining can pay them a visit every other Tuesday at 7.30—next meeting June 21st.

East Midland

LINCOLN AEROMODELLERS are off to a fine start in their first season with G. L. Roberts winning the White cup and placing 2nd in the Gutteridge trophy (*A.P.S. Pandora*) and D. Morley placing second in the Gumage Cup. Len Foster has been practicing for the coming season with his *A.P.S. Astro Hog* Orbit 8 Bonner Servos and Torp 45 R/C) this being his first model!!! It is certainly a magnificent effort. Stewart Foster, Len's son has built a ¼, ⅜ and ½ size Astro Hog, latter being the current one. They are all single channel rudder only. Club meetings are held every Thursday night at the Y.M.C.A. Guildhall Street, Lincoln at 7.30 p.m. New Members, senior or junior, are welcome.

Services

R.A.F. KHORMAKSAR M.A.C. are pleased to be able to report a complete swing to free flight and held their first F/F comp. on April 10th. Flying field, unfortunately is a genuine desert and retrieving in sun temperatures of 120 deg. is rather hard work, in fact all competitors suffered with sunburn the following week. Results were as follows, White won power ratio with AM 10 powered *Keilkraft Halo*. Woodward won open glider with a much modified Inchworm which is called Footworm and Winters won chuck glider. Times were not very high due to a strong wind and the models vanishing in a heat haze downwind. This was one occasion when D Is were used universally, all but Winter who lost his U/R glider entry in a whopper. There were one or two examples of the OS max 15 D flying, and it seemed to have a good potential.

Scotland

The challenge issued by the ANGUS AND DISTRICT AEROMODELLING LEAGUE to the West of Scotland Area S.M.A.E. has been accepted. The contest will be held simultaneously with the Scottish Gala on August 14th. The purpose of the challenge is to establish some sort of contact between aeromodellers on the East and West coats. A three man team will compete in each of the classes: U/R Glider, Rubber and Power. The League free-flight competitions have started well this year with reasonable weather. Winners to date are:—

April 24th 1st Strathmore Glider:—
P. Wright (BAT) 8 min. 11 sec.
C. G. Campbell (Montrose) 7 min. 2 sec.
May 8th 2nd Strathmore Glider:—
D. Petrie (Montrose) 6 min. 12 sec.
Evening Express Power:—
D. Petrie (Montrose) 8 min. 57 sec.

Points to date are Montrose M.A.C. 3,623; Bucksburn A.T. 3,268. BUCKSBURN A.T. have moved into new premises, along with the rest of the Haton Community Centre, Aberdeen (The old community centre fell down). The new clubroom has plenty of space, with benches, central heating and even piped music from loudspeakers (*no*—not bag-piped music!).

DUNDEE M.A.C. at present has no club-room, and as a result is rather disorganised. There are one or two scale F/F models floating about and a couple of R/C jobs with the "Galloping Ghost" and motor speed control. The C/L side is building up, but where are the free-flighters?

MONTROSE M.A.C. are in the middle of a publicity stunt competition for builders of K.K. 4/6 in. scale kits to attract juniors. Had posters donated and they were so good that no less than five juniors turned up wanting to skip the kit building and learn the real free-flight stuff. After four weeks flat on his back plucky Flt. Lieut. E. Smith has recovered from his ejector escape from a "Swift" over Germany and was last heard of on a course in Yorkshire.

Wales

Open Power, Rubber and Glider was held at Tre-Lai Park on Sunday May 1st by CARDIFF M.A.C. A pleasing feature of the day was the success in glider of two juniors Bob Naismith beating Ian Harvey with 5.44 to 5.36. D. Dyer being 3rd with 4.54. Power and rubber was almost a two man competition with D. G. Dyer taking 1st with a 1 second advantage in rubber over S. G. Morgan and F. Besant 3rd. Times:—5.55, 5.54 and 2.16. Morgan reversed the placings in Power. Dyer had also topped the rubber and power events on April 17th.

Ireland

The team to represent Ireland at Cranfield will consist of "regulars" John Thompson and Tony Morelli, with a newcomer to international circles, young John Sullivan from Cork; having been piped to fourth place Johnny Carroll will attempt to manage them. The recent guest by M.A.C.I. for flying fields has found a permanent C/L site within five miles of Dublin city centre, and the complete legalizing of free-flightery on the Curragh plain in Co. Kildare; this is 30 miles from Dublin otherwise almost ideal.

BELFAST M.F.C.'s ½A Combat Comp. was won by Michael Linnet, the youngest entrant with a Frog 150R powered *Razor Bat*, beating Hugh Shepperd's E.D. Super Fury model. On the same day, the LARNE M.F.C.'s 3.5 c.c. Combat was won by Barry McGrath of Belfast beating Hugh Shepperd again. Barry used a tuned Oliver Tiger competing against several Silver Arrows, which are becoming popular. Already people are claiming 90 m.p.h. with ½A T Racers, but this is taken with a pinch of salt. Despite the interest of T/R motors, Free Flight is gathering more followers. On Easter Saturday and Tueday huge turnouts were observed at Hightown, augmented by the Larne fliers. A Scramble event (30 mins.) on Tuesday had perfect conditions absolutely flat calm. Mr. Doyle amassed 22 30 in the time (¾ of time in the air) with a "*Twerp*" Chuck Glider.

DUN LAOGHAIRE M.F.C. club had 8 members in the Contest run by Drimnagh M.F.C. at Raheny, Dublin on Sunday May 8th. Liom McMohop's Frog 2:49 (mod.) powered model came second in the Class A team Race. The first heat was the fastest and most closely contested, in which Drimnagh's Tony Morelli the eventual winner, beat Dun Laoghaire's Tom Harpur by a very slim margin. THE CLUBMAN.

New Clubs

GILLINGHAM (PIRATES) M.F.C.
L. Bennett, 17 Eva Road,
Gillingham, Kent.

MEXBORO & D.M.A.C.
G. Beal, "Donray", Fitzwilliam Street,
Swinton, Mexboro, Yorks.

PEGASUS M.A.C.
Mrs. B. Baites, 22 Upland Road,
East Dulwich, London, S.E.22.

STANTON HILL M.F.C. (PILGRIMS)
J. G. Martin, 6 Mason Street,
Sutton-in-Ashfield, Nottingham.

S.M.A.E. Results

May 1st, 1960

WESTON CUP (Wakefield)

1. J. O'Donnell (Whitefield)	14:40
2. E. A. Barnacle (Leamington)	14:21
L. Roberts (Lincoln)	14:21
4. N. Elliott (Southampton)	14:14
5. G. Fuller (St. Albans)	14:00
6. E. Jackson (Baildon)	13:43

60 *entries*

HALFAX TROPHY (F.A.I. Power)

1. V. Jays (Surbiton	15:00+15:00
G. Fuller (St. Albans)	15:00+15:00
3. C. Thorne (Letchworth)	14:58
4. Swinden R. (Teeside)	14:53
5. H. Mack (C.M.)	14:52
J. C. Deacon (York)	14:52

100 *entries*

LATEST PLUGGE SCORES

1. Essex	557.041 pts.
2. St. Albans	556.469 pts.
3. Baildon	538.101 pts.
4. Croydon	524.121 pts.
5. Birmingham	461.162 pts.
6. Surbiton	411.463 pts.

S.M.A.E. Events

June 18th/19th
F.A.I. Power Trials (10 flights) — *Centralised Wigsley*

July 16th/17th
Practice Trials F.A.I. Rubber — *Centralised Wigsley*
Practice Trials F.A.I. Glider — *Centralised Wigsley*
(Five flights each contest)

Secretarial Changes

AVRO M.A.S.
T. Jolley, 22 Ventnor Avenue,
Sunnybank, Bury, Lancashire.

BUCKSBURN A.T.
C. M. Christie, 11 Abbotshall Crescent,
Cults, Aberdeen.

CHINGFORD M.A.C.
J. Rigden, 27 Woodland Road,
Chingford, E.4.

CRESWELL M.F.C.
S. Poole, 8 Wood Avenue,
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Pen Pals are required by the following:—Derek Bishton, 21 Woodford Green Road, Hall Green, Birmingham 28; interested in rubber, F/F and jet models, age 11. Would prefer a pal in France or Germany. Alan Duncan, 31 Elliot Street, Rynfield, Benoni, Transvaal, S. Africa. Interested in plastic models, age 11. Would like similar aged pal in England or U.S.A. D. Hifferson, age 16, 10, Queens Avenue, Andover, Hants. Interests—C/L stunt, combat, and scale. Would prefer similar aged pal in Australia, U.S.A. B. Rowell, 7 Ellington Road, Feltham, Middlesex. Interested in F/F and gliders, age 13. Would like pal in U.S.A. same age. A pal is also required by Chaim Shniorson, 17 years-old, of Dof Hos 7 Street, Tel-Aviv, Israel. C. J. Wiltsham, 210 Liverpool Road, Cross Heath, Newcastle, Staffs., requires a pal in U.S.A. or Australia, with the idea of swapping plans, model mags. Aged 13, he is interested in C/L and F/F.

CLASSIFIED ADVERTISEMENTS

PRESS DATE for issue August, 1960, June 20, 1960!
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Fox 19, brand new in box with makers' instructions, £5 o.n.o. Oliver 3 The Close, West Byfleet, Surrey. Byfleet 2308.

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100 m.p.h. Stuka with Frog 500, £3; A.M. 25, 30/-; two "Bees", 25/- each; Elfin 2·49, 25/-; new Frog 500, £2; Bantam, £1. B. J. Reay, 271 Plains Avenue, Maidstone, Kent.

R.E.P. Tritone Tx and Rx, £12 10s.; OMNIAC Actuator, 45/-. Arber, 144 Bedford Road, Bootle 20, Lancs.

Fox 19, £4; BB Amco, 50/-; Racer (ports removed), £2; Bee Mk. I, 25/-; Baby £1. AEROMODELLERS, April 1955 - Dec., 1959, four missing: offers. Many accessories cheap. S.A.E. list. Wilson, 8 Thomas Road, Stainforth, Doncaster, Yorks.

E.D. Racer, not fully run in, 35/-; Burlington Hobby Chest, 15/-; A.F.P. 1, 2 and 3, 25/- each; Aircraft Camouflage and Markings, as new, 35/-; AEROMODELLER Annuals 1954-5-6-7, 5/- each; Flying Scale Models, 5/-; eight files containing photos, drawings, etc., of 2,500 aircraft, include approx. 700 1/72nd scale plans. Offers. Davies, Woodlands, Waltham, Canterbury.

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Continued on page 391

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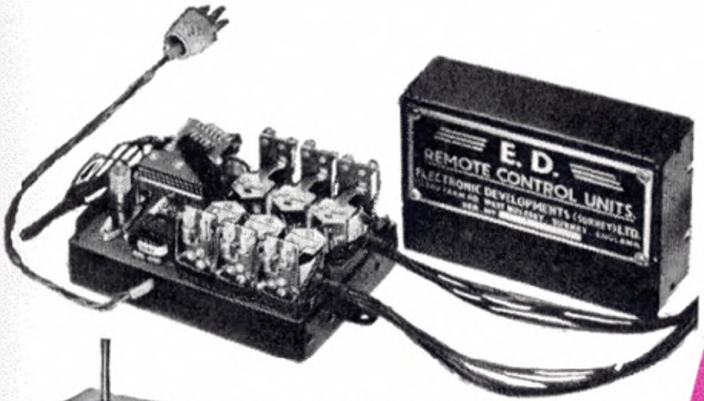

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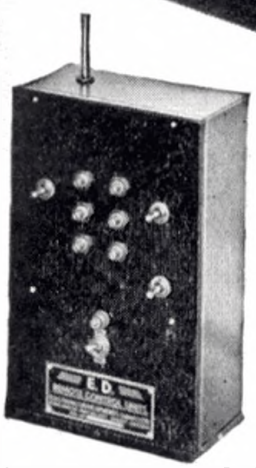

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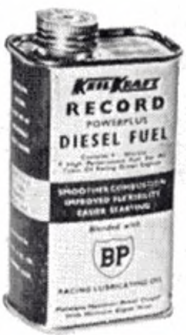

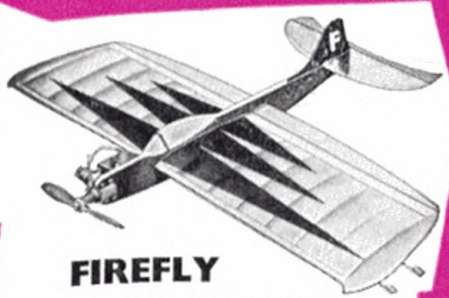

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