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MODEL AIRCRAFT

NOVEMBER 1968

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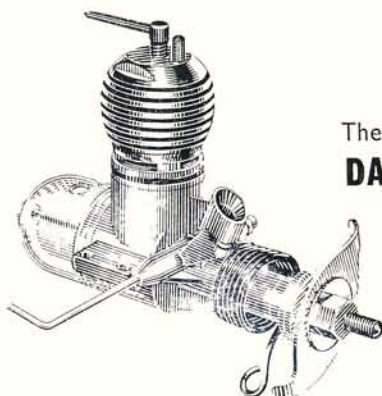
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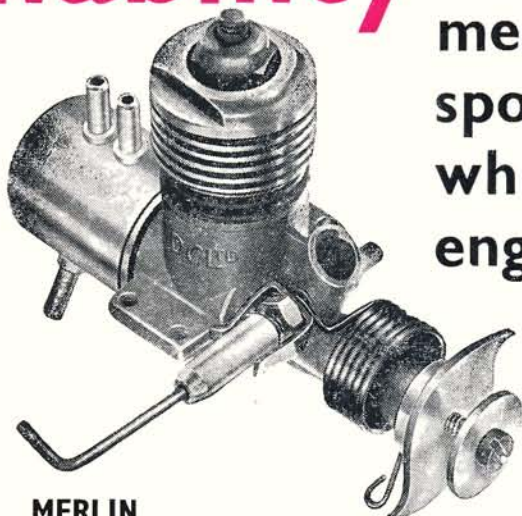
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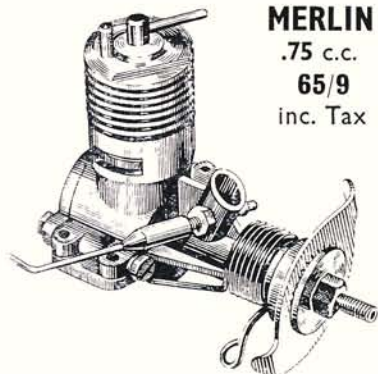
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MODEL AIRCRAFT

Editorial Director **D. J. LAIDLAW-DICKSON**
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November 1968

VOLUME XXXIII No. 394

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HOBBY MAGAZINE



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COMMENT

For as long as we can remember, there has always been an element in our midst hotly engaged in a campaign to assure the great outside world that Aeromodelling is *not* a game of 'toys for boys'! This battle for recognition has slowly achieved success. Rallies in 1968 have been better attended by a spectating public than ever before. Yet, just as the publicity gains support for our 'maturity' so does the number of rally competitors fall. More and more people arrive to see less and less aeromodelling! A casual visitor to any of our recent rallies would have had a fine view of cars, but very little to see of the models. As a reader points out in this issue, the publicity campaign now needs an extension of the club fete display concept. Demonstration teams and exhibition areas in specifically defined areas should be considered for the 1969 Rallies before our friends, the supporting and inquisitive public become totally disillusioned.

On the Cover

Seen at the 1968 British Nats, Jack Morton's magnificent 1/7th scale reproduction of the Miles M.20 fighter. Jack used Skyleader 4 proportional R/C system and Merco 61 power. Machine weighed 9 lbs. Made in just over 9 weeks during 1940 the real M.20 was a 12 gun fighter of wooden construction using many parts of the Master trainer.

Next Month

Christmas issue, and with it by tradition, a super plan from W.W.II. All variants of the **H.P. Halifax** will be detailed in magnificent drawings by K. A. Merrick. **Thermal Soaring** designs, more on the **U.S. Nats**, a **Wakefield** design, scale **Pinto** glider and a host of special features **Plus** two full size plans, one of which is the famous Swedish '**Ruter Ess**' combat design. go to make this a bumper edition, out on November 15th.

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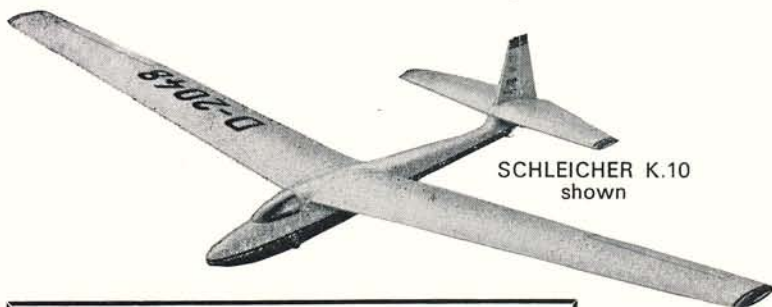
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shown

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10/6

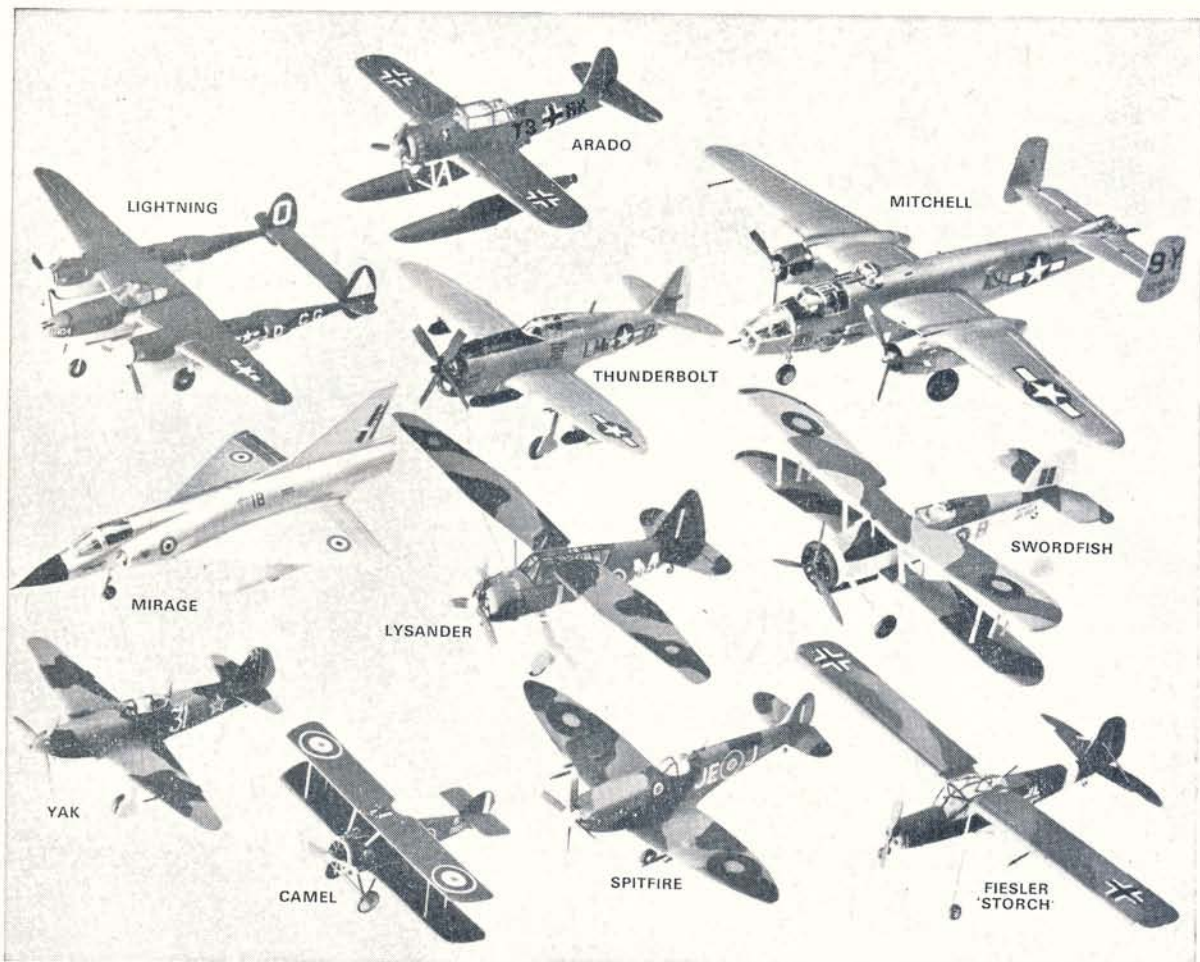
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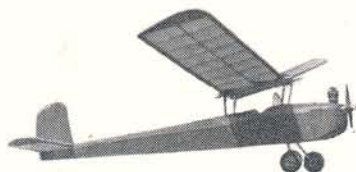
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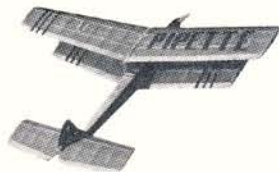
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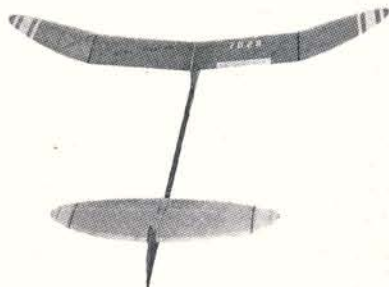
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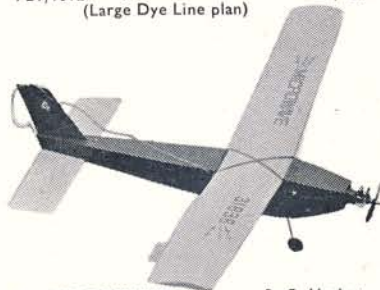
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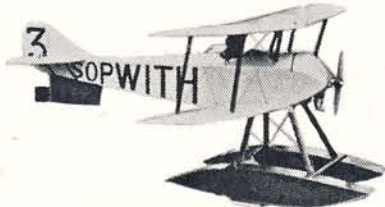
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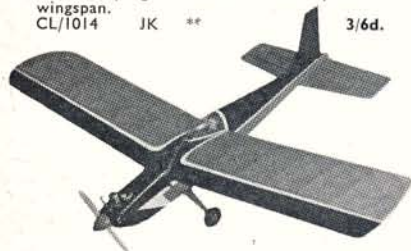
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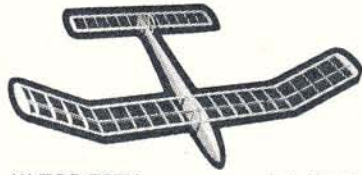
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RADIO MODELS

November *R.C.M. & E.* is a big 60 page issue with two big plan features. First of these is Pete Russell's 'Striker', a multi aerobatic design with real 'appearance'. This model features flaps. The other plan feature is 'Plane Simple', a 36 inch span high wing single channel design for motorised actuators.

Commencing this issue is 'Scale News', a regular feature on R/C scale modelling by Dennis Thumpston one of Britain's top scale modellers.

Other features include Kit Reviews on the British Pecon proportional system and the new Keil Kraft Fleetwing design, plus a full report on the World Championships Team Selection Trials.

2nd
FRIDAY
MONTHLY **2/6**



MODEL RAILWAY NEWS

The November issue of *Model Railway News* contains no fewer than twenty-six articles, covering the whole spectrum of railway modelling. David Lloyd explains how he built a rake of authentic Great Central Railway 'Barnum' coaches in 00 gauge. Maurice Kelly has built a comprehensive but simple control panel, and shows us how to do likewise with the aid of clear circuit diagrams. Melville Hodges concludes his articles on building a Great Western Dean 'Single' in 4 mm. scale, and Alex Bowie talks about station platforms.

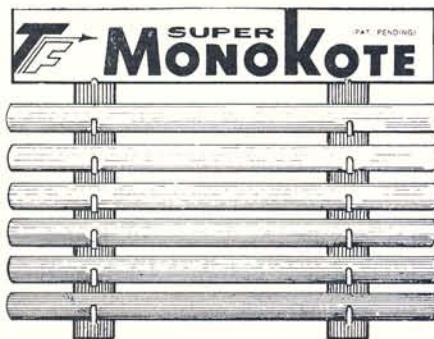
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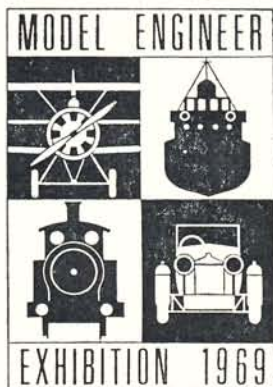


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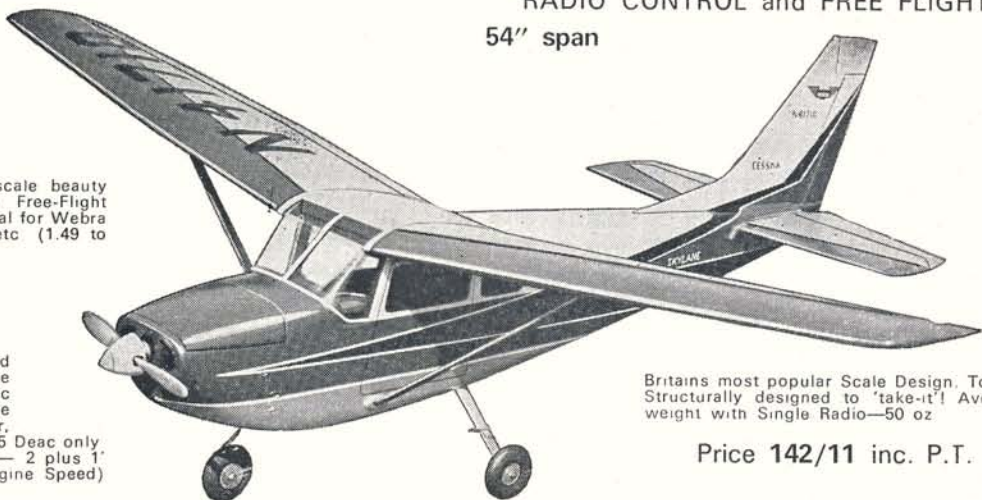
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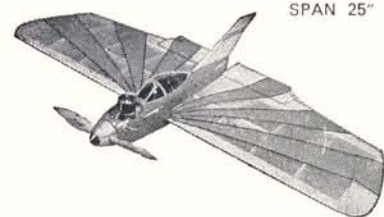


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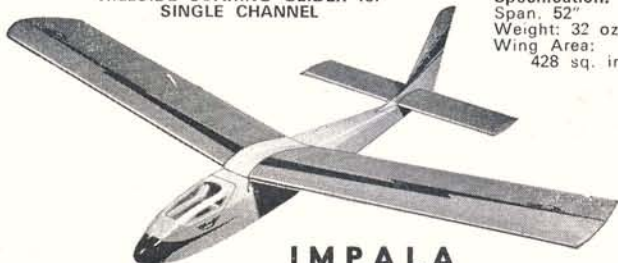
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Specification:
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Weight: 32 oz
Wing Area:
428 sq. ins

IMPALA

For Rudder-only Single Channel with Compound or Electric Actuators. Space for Pulse-Proportional, Galloping Ghost even Light-Multi (4 Reeds or 2 Proportional).

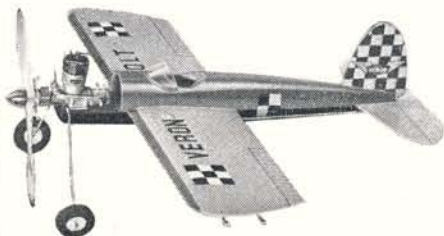
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Air Marshal Sir Kenneth Porter, KCB, CBE, MIEE, FRAeS, President of the RAFMAA presents a painting of an Avro Lancaster of 50 Sqn. by Laurence Bagley to Sqn. Ldr. W. A. 'Bill' Drinkell on behalf of the RAFMAA and the SMAE in recognition of all that Bill has done for aeromodelling. Now retired from his career in the Service, Bill is entering the teaching profession and we are sure that all readers will wish him every success.

Heard at the HANGAR DOORS

FATALITY in Vereeniging, Transvaal, South Africa on September 15th associates tragedy yet once more with aeromodelling. 12-year old Walter Thurm of Vanderbijlpark, Johannesburg was a spectator at a radio control meeting. He was struck on the head by a model and taken to hospital in a critical condition. Later, he was reported to be out of danger; but he died on the following day. This saddening news comes to us from a reader, like that concerning previous fatalities in South Africa, West Germany and the U.S.A. whence no official announcements have (to our knowledge) been made to warn the modelling fraternity of the risks their hobby involves.

AIRFIX'S recent plastic Kit release, the Dominic jet navigation trainer, was a special occasion. They decided to present the first box off the line to the R.A.F. station operating Dominies. So Group Captain Alan Davies, C.O. of R.A.F. Stradishall, Suffolk, was handed one by Mr. Michael Bowyer, aviation historian, who is an Airfix representative.

BRITISH CHAMPION in free flight for 1968 is David Wiseman with a total score of 110 minutes 54 seconds in the year's events. John O'Donnell who has been perennial Champ with only one previous break in continuity was up to the last con-

test, only 76 secs. behind 'Wiz'. Each flew at Chetwynd for the deciding event, and Wisemans maximum score decided the Championship.

FORMATION of a National organisation to be known as A.E.R.O. (Air Education and Recreational Organisation) in July gives hope that there will be an expansion in air education in Schools and this includes the use of Aeromodelling as an instructive media. The central committee composed of Education and Aviation experts, is currently studying ways and means of creating interest in this vital subject, hitherto virtually ignored by authority. Many schoolmasters have already undertaken their own programmes of aeronautical education. Among them, our own contributors George Cox, Eric Clutton and John Pool. There must be many who are not aware of A.E.R.O. and we invite all persons connected with education and having an interest in aeronautics to contact the editor so that they may be advised of progress. The Air League has provided administrative offices for A.E.R.O. and will issue a newsletter which will provide a common link among all interested parties.

RECENT CHANGE in postal arrangements have caused a number of subscribers to either send us additional money to ensure first class delivery of their subscription copies or enquire what method of despatch we are proposing to employ. All current subscriptions allow for 5d. per copy and therefore during the currency of their present subscriptions all readers with postal subscriptions will enjoy *first class* delivery. After we have had experience of the system for a few weeks we shall be able to gauge whether it is better to maintain subscription rates at their present level and deliver first class or to offer a slight reduction and send second class at the same time adjusting our despatch dates so that magazines arrive at the same time as before. A further announcement will follow in due course.

HOBBY SHOW '68 at Victoria School, Tolpits Lane, Watford will take place from 10.30 a.m. to 8 p.m. on Saturday, October 26th, and from 2 p.m.-6 p.m. on Sunday, October 27th. Control-line flying, as well as demonstrations of Live Steam, Slot Cars, Model Railways and many trade stands will make this a show well worth seeing.

DECEMBER edition is going to be one of our best-ever, with features to satisfy all interests. As it is a 'bumper' number, there will be a small extra charge, just for this edition, of 6d., making the cover price 3s. Subscribers' copies will be despatched without extra charge and we hasten to assure readers that the increase is *not* intended to become permanent!

The Air Historical Branch Spitfire has been repainted since its appearance in weird colours at the Royal review, and we are most pleased to illustrate its authentic 'new' '39 scheme bearing the colours of 72 Sqn. with unique Bluebird in arrowhead on the fin, as displayed at Horse Guards Parade, London during Battle of Britain week.





I HAD BEEN looking around for a full size aircraft that had the proportion of a single channel radio model and that was easy to build. Thumbing through some old

Tough Semi-Scale 36 in.
sports flying version of

COMPER SWIFT

Designed by G. F. ELSEGOOD

Aeromodellers, I came across in the February 1952 edition, a free flight model of the Comper Swift by D. B. Golding. The plan was for an accurate full scale model, using a scale of $1\frac{1}{2}$ to 1 in. As I wanted a really practical model for flying in roughest weather, I decided to build a semi-scale version for single channel R/C.

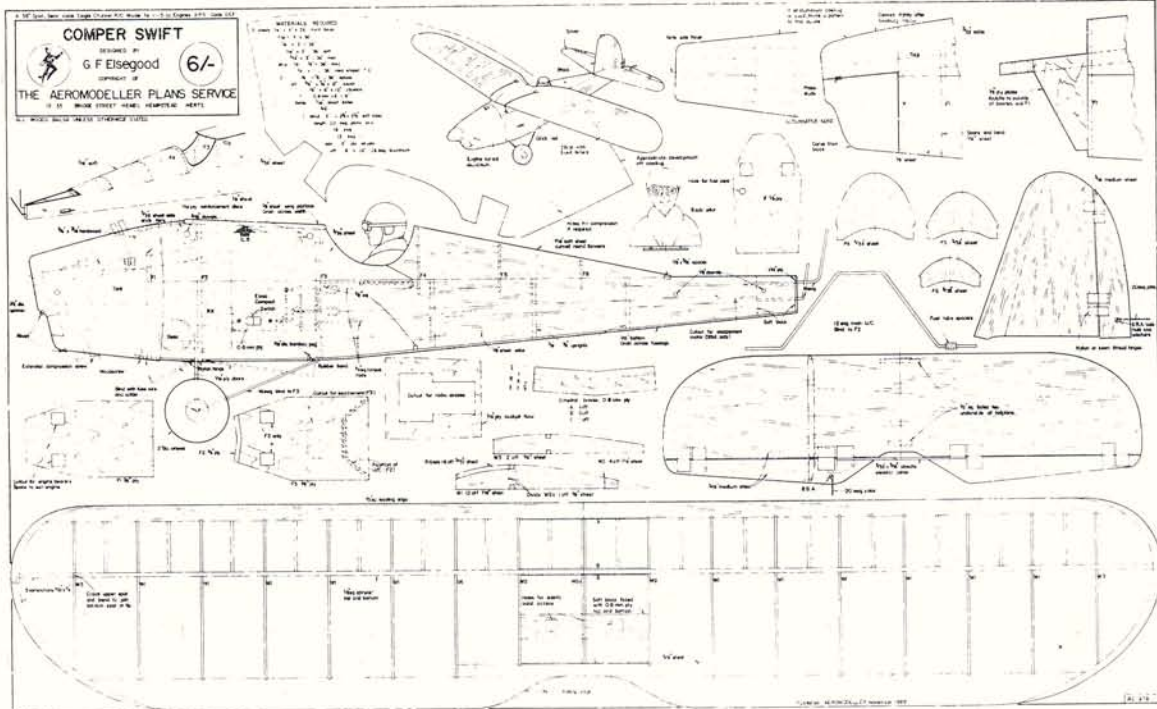
This was done by slimming the fuselage, slightly increasing the size of the tailplane, omitting the struts and giving the model a minimum of dihedral. (The model in the *Aeromodeller* had pendulum ailerons.)

The Comper Swift is an interesting pre-war racing aircraft. It was designed in 1930 by the late Nick Comper and was powered by a Pobjoy radial engine, and was easy to fly fast and aerobatic. Later versions were fitted with a more powerful inline Gipsy engine, and I believe the plane briefly held the London to Capetown air record. Several Swifts survived, and are still around.

The construction is straightforward and should be quite easy for a modeller who has built one or two single channel models.

First, cut out the ply formers and the 1/8 in. fuselage sides, add the remaining formers. Cover the decking

FULL SIZE COPIES OF THIS 1/6th REPRODUCTION ARE AVAILABLE THROUGH A.P.S. AS PLAN RC 978. PRICE 6/6d. INCLUDING POST.



behind the cockpit with a single piece of soft 1/16 in. soaked first. If this proves difficult, plank with soft 3/32 in. sheet. Do not cover the bottom of the fuselage (1/16 in. sheet grain across fuselage) until the actuator and radio equipment has been installed and tested.

Cut the wing ribs from 1/16 in. sheet and the riblets from 3/32 in. sheet. Shaped L.E. $\frac{1}{2}$ in. and $1 \times \frac{1}{2}$ in. T.E. stock save time. Make a thick cardboard former for the laminated wing tips. The original wings were built in one piece; then cut in halves, and dihedral braces and wing retaining rubber band boxes fitted.

Cut tail surfaces from soft 3/16 in. sheet and sand to a streamlined shape. Hinge the elevator and rudder with nylon and make sure that the hinges are very free. Key the tailplane to the fuselage with two pieces of 3/16 in. square.

Carve the pilot from soft block or polystyrene. Make the pilot detachable so that there is access to the actuator from above.

Cover the wings and fuselage with nylon, the tailplane and rudder with lightweight Modelspan. Dope the whole structure before covering. After covering, give the fuse-

lage 3 coats and the wings and tailplane 2 coats of clear dope. Fuel proof the whole model. The original aircraft Reg. G-ABWW had silver wings and tailplane. Fuselage decking including the cowling struts and undercarriage leading edge of fin and rudder black, remainder of fuselage and centre strip on fin brick red. Registration letters black on wings, and black outlined with white on fuselage.

Flying

Test glide and adjust centre of gravity (on or up to $\frac{1}{2}$ in. front of main spar) by adding weight until a fast straight glide is obtained. Make sure there is no trace of a stall, in fact, it is safer to have the model slightly nose heavy to begin with.

If you are using a compound actuator for the first time, get plenty of practice on the bench before attempting to fly the model.

Run the engine at almost full power, but limit the engine run for the first few flights and away you go.

The model, like the original, is *swift*, but it is also stable and 'grooves' well.

SIXTY-THREE OF EUROPE'S TOP SLOPE SOARING ACES HEAD FOR THE SPITZERBERG IN AUSTRIA

reported by
Trevor Faulkner

(seen delivering the
heave-ho at right)



REGULAR READERS will know of my contention that magnet-steered gliders, because of their simplicity, sturdiness and independence of thermals, are ideal models for free-flight competition. This year was the first in which the F.A.I.'s official recognition of the competition was evidenced, and so the family holiday was planned to include participation. I hoped to see how well-founded my convictions were.

The Austrian Aero-Club (*Modellflug Sektion*) acted as hosts, and showed great concern for the welfare of competitors' families and friends. The entry fee covered meals at the 'Bundessportschule', whilst accommodation ranged from camping sites to hotel rooms, depending upon individual requirements. Meals for non-competitors were bookable in advance, and were eaten in a large dining/common room near the flying site. This aspect of the competition was as simple as booking a holiday via an Agency.

There is little wonder that the *Coppa Europa* has become a truly family holiday event, and many German, Austrian and Swiss families were obviously expecting this type of service as a matter of course. The availability

of a private swimming pool and an efficient bar did not even merit a mention in the original circulars!

As it transpired, the Bundessportschule, about 1/3 mile from the slope, proved to be an ideal headquarters: on Thursday, 15th August, it was open for the reception of modellers and guests, and F.A.I. licences were exchanged for a numbered plastic carrier containing necessary competition impedimenta plus numerous souvenirs, decals, instructions and advertising literature. Hans Gremmer, founder of magnet-steering, had acted as our host in Germany for the four previous days. It became obvious with what sincere affection this unassuming man is regarded internationally, being warmly welcomed by everyone he met on his arrival at the Schule. It must have been most gratifying, too, for Hans to see his brain-child now an embodied F.A.I. class, and this year attracting two newcomers (G.B. and C.S.S.R.) to its main competitive event.

A second 'British' entry, Doug. Robinson (from Canada, now doing Ph.D. at Sheffield) had also managed to reach the Spitzberg along with his wife, in spite of a bout of 'flu in Belgium.



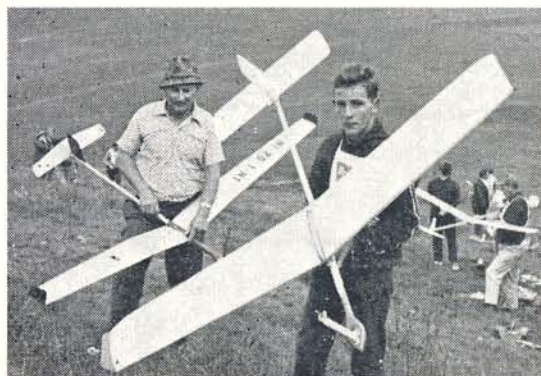
Doug had, I knew, been building the A.M. 'Hanger' and had sent off an entry in the hope that his European holiday could be arranged to include the competition. His model was complete, but virtually unflown, and so the 1½ days' practice sessions were to prove valuable. Thursday ended for my family, in a Pension separated by 200 yards of parkland from the Danube; after an evening's entertainment in the company of a large group of German modellers who had prevailed upon our ex-opera singer host to perform, we thought the Coppa Europa was likely to be quite outstanding!

Friday Practice. Conditions: hot dry South wind, gusting to 20 m.p.h. slope: chalk and limestone outcrop, much hawthorne and Juniper scrub.

Here it was possible to examine the opposition, and to see how great a variety of automatic steering systems exists. New 'light steering' mechanisms are now available, in which a 1 in. magnet serves to interrupt a beam in order to operate the rear-rudder via a servo.

I was assured by Oegerli (Switzerland) that the system (Kollikers) is very sound and simple, the rudder of his beautiful model impressive in its positive action. Other battery-supplemented systems were in evidence, perhaps 10 per cent of modellers having such a soarer in their stable for use in strong winds. One informant told me that a great attraction of the complex systems of steering was the increased expense when compared to the normal magnet-unit!

During the session, Mario Feruglio demonstrated his rear-fin models (see A.M. Annual 1967), which employ directly-linked magnets, geodetic surfaces, 'programming' times for flight pattern and D/T and are exquisitely made. His E.387 sectioned model needs no ballast for winds up to 20 m.p.h. - above that, he employs a bi-convex section.



Mario Feruglio of Italy placed 18th with three max's, 214 and 142. Model has appeared in *Aeromodeller Annual '67-'68*, note egg-box wing structure.

Standards of construction were high, most builders favouring either a one-piece or a long plug-in jointed fuselage. Torque and box wing mounting is common, but I saw one broken panel which could have been avoided had a rubber-band fixing softened the D/T shock. Doug's Solarfilm 'Hanger' and my all-sheet model seemed to cope well with conditions more akin to Sheffield's wind-speeds than most continental fliers appear to prefer. Unfortunately the Robinson model D/T'd in a vineyard, and after a long search, the rudder and magnet were declared missing: that evening Doug modified his model to accept one of my spare magnets, and a 'safir' bearing donated by Anton Driser.

Meanwhile, I had been invited to attend a meeting of competition officials and National Delegates at which Dr. Rudi Beck and Rudi Czerny of the C.I.A.M. were introduced. The Czech modellers, who, along with their G.B. counterparts, were competing for the first time, received a great reception. One of them, Pavel Lansky, knew Eaton Bray, and neighbouring Ivinghoe Beacon well. I was as delighted to see my article from A.M. December 1965 (simple magnet steering) published in their National hobby magazine as Pavel was to learn of my earliest flights from the Beacon.



Above, 'Pertinax' tube fuselages as used by Czechs Pavel Lansky and Jaroslav Novak. At right is other Britisher, Doug Robinson launching for his final max with a 'Hanger' as A.P.S. plan.

Saturday. 9.00 a.m. all models (max. 3 per entrant) were labelled and stamped. No processing is necessary as the International formula has only 2 limits - an area not more than 150 sq. D.M. and a max. weight of 5 kilos. (In practical terms, an open F.A.I. class!)

Later practice saw Doug's model flying really well, whilst my No. 1 was definitely off-form with a bent rudder tube causing interference.

The Opening ceremony, attended by a large number of officials from Local Government, F.A.I. and the Austrian Aero Club was colourful and impressive; eventually the Coppa Europa, 1968, was declared 'open'.

Soon the slope was dotted with figures, ready to begin the first round, but the wind, freshening considerably throughout lunch, was now gusting up to 35 m.p.h. Competition Director Alfred Haiden had to make the first of many difficult decisions, and, as no one had flown, delayed the start of the 1st round. Subsequent conditions saw no change, and at 5 p.m. the first day was abandoned. All competitors, it was announced, would receive a

Hartmut Wiencke (20th) and Heinz Dresler (24th) from West Germany each using wing tip fins on white models. Note the Gull wing used by Wiencke.

Herbert Schmidt, famed in the A/2 World for his all-balsa sheet wings, placed 11th after having a run of four max's foiled by 118 secs. Note the background.

modified programme by 7 p.m. detailing the procedure for Sunday, 18th August. (During this delay, the Schule staff organised an impromptu bar at control, all modellers were kept informed, and Pavel Lansky even organised a lecture on slope and thermal soaring, his international audience sitting enthralled on the sun-drenched slope!) After dinner, the information sheet was available, promptly at 7 p.m.

This was the programme for the 'Schule' guests:

04.30 - loudspeaker Reveille.

05.00 - breakfast (also available for those whose hotels and pensions could not provide a 5 a.m. meal).

06.00 - Round 1 (to last 75 minutes, not 90).

Subsequent rounds of this length would then bring the competition to a conclusion exactly on time as originally planned. A supplementary 'snack' was to be saved on the slope at 09.00 hours (even a supplementary meal ticket was included in the original issue!)

A convivial 'get-together' ended on a literally damp note: the wind had dropped and we drove to our Pension in heavy rain!



Sunday: A 5 a.m. drizzle and no wind eased to no rain and a 5 m.p.h. westerly breeze by 6 a.m. The launching point was marked out some 100 ft. up the slope of the 'Berg, and it was obvious that a 5 min. max. was going to be hard going. Our British models, built for sterner conditions, could only stay in lift by moving parallel to, rather than out from, the slope.

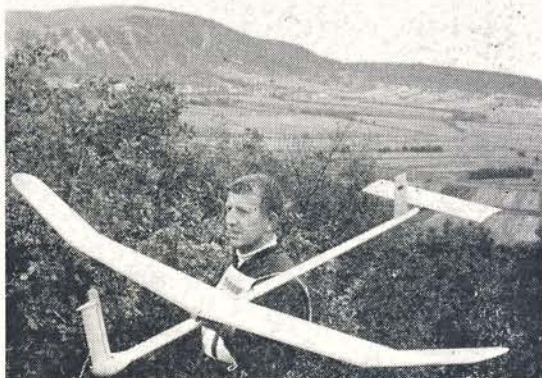
At the end of **round 1** only 8 maxes were recorded, and I felt fortunate in having almost cracked 4 mins. Weichselder launched with 5 secs. to spare for a good 254, the sweat pouring from his face as he just beat the Director's count-down to the round's end.

Round 2. More maxes, in, if anything, less wind. Puttner's (last year's winner) model humming along with its forward turbulator to an efficient 2nd max. At the close, only 2 fliers had a 'full house' and the situation looked very fluid.

Round 3. Doug and I decided to 'up the ante' and wager a beer on the first British max. A fresher breeze took the 'Hanger' well up, but a short D/T (297), kept the local Derby open, as my model drifted far left for an 0.0.S 229.

Round 4 was definitely bright and breezy: whilst others waited for a lull. Two tests showed my Jedelsky model

European Champion, Helmut Schuberth, the only competitor to return a perfect score of five consecutive five-minute max's.



perfectly tuned for a 10-12 m.p.h. blow. I decided to set a 12-minute fuse, quite willing to have a short walk if the model maxed so early in the round. After 5 mins. the diminishing silhouette was still receding, and to the traditional cries of 'Gine Wucht' I strolled down to a vineyard to await the D/T. 14 mins. (and about ½ lb. grapes) later, the model landed. The beer was going to find a good home.

The **final round** saw only 2 fliers with 1,200 secs. totals, and whilst Herbert Schmidt tested his servo-aided rear-fin model, Schuberth carefully ballasted and trimmed his simple but efficient design. Unfortunately for Schmidt, this model was off form, and the last flight with his usually reliable but simpler model, recorded a disappointing 118 secs. Schuberth's meticulous trimming and vigorous pre-competition practice (4 nights per week), paid off with a copy-book, into wind flight. D'Ting 300 yards before the slope.

So ended the Coppa Europa 1968: efficient, fair, highly organised and extremely friendly, the winner's 'full house' exemplifying the virtues of 5 minute maxes to find a victor. The final ceremony and prize-giving saw awards to all National Teams (G.B. 4th) and officials, in addition to the awards to individual and Individual Team winners, and left one hoping that, perhaps, 1969 would witness a large British contingent contesting the Championship in Switzerland.

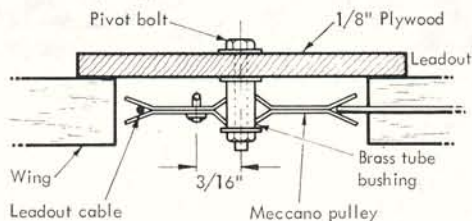
COPPA EUROPA RESULTS

1. H. Schuberth	D	300	300	300	300	300	1500
2. M. Weichselder	D	254	300	300	300	270	1424
3. S. Puttner	D	300	300	220	300	300	1420
4. M. Pfliegel	D	300	205	300	300	300	1405
5. C. Schobel	A	281	256	300	254	300	1391
6. W. Schuberth	D	300	300	285	223	271	1379
27. T. Faulkner	GB	233	179	229	300	217	1158
43. J. Robinson	GB	145	149	293	122	300	1009

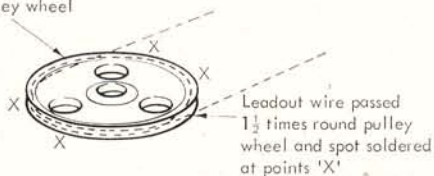


THE NEATEST removable tailskid for team racers we have seen for many years, was on the Dunkin/Wright (U.S.A.) team racer. See the sketch for details. The principle of operation is that the brass tube is buried in the model with a spring wire just breaking into the inside diameter, through a groove filed in one side of the tube. The 12 s.w.g. piano-wire tailskid is a push fit into the brass tube, and also has a groove filed across one side for the brass tube slot to line up with, and the spring to fall into. This locks the tailskid in place. To remove the skid, it is turned through 90 degrees to push the spring out of the slot, and then withdrawn.

Circular bellcranks are used by many contestants now for neater installations and smoother control action. South Africans Holz/Menges use a brass Meccano Pulley Wheel



Meccano No. 22A pulley wheel

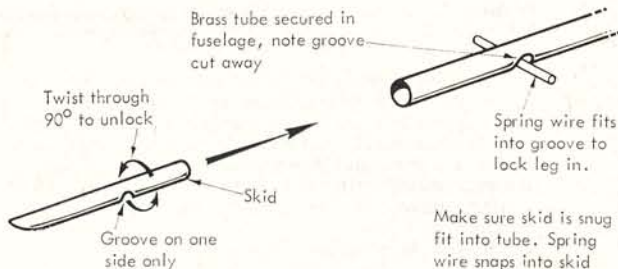


MECCANO CIRCULAR BELLCRANK

by N. Holz and B. Menges (South Africa)

No. 22A with the bushed centre. This is 1 in. diameter and they drill the pushrod fixing hole $\frac{3}{16}$ in. from the centre, so giving the gearing of a 2 in. x $\frac{3}{8}$ in. normal bellcrank. The flexible leadout wire is wrapped $1\frac{1}{2}$ times around the wheel and spot soldered to anchor it. Apart from making a neat installation (only a 1 in. diameter hole needed in wing centre) the leadout wires can be run through narrow tubes buried in the wings as the wheel does not create the backwards and forwards movement on the leadouts as does a conventional bellcrank.

The Russians Babichev/Krasnorutsky had two good ideas on their team racer. As well as having a cutout operated by the 'down' line for fast pitstops this model had a pan that enveloped the rear exhaust motor front housing to form part of the front cowl. Their wheel is a home-made moulding, that can't come off the hub due to a central flange. The alloy hub is machined first and then



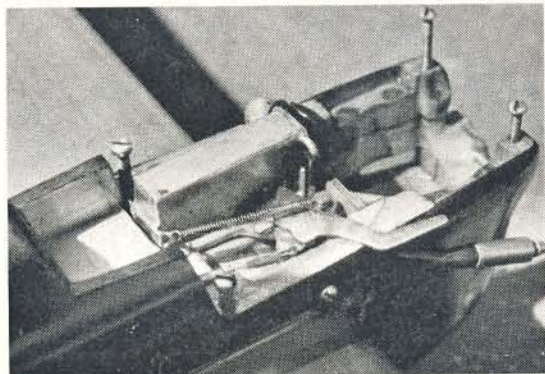
REMOVABLE TEAM RACE SKID
by Dunkin/Wright (U.S.A.).

Make sure skid is snug fit into tube. Spring wire snaps into skid groove to lock skid in tube. Turn skid 90° to release spring.

WORLD CHAMPION SOME OF THE TECHNICALITIES OBSERVED

inserted into a rubber injection moulding die—so the two-part cold setting rubber mix can be moulded all around the hub. Using a very hard rubber they have an excellent wheel with a permanently fixed tyre.

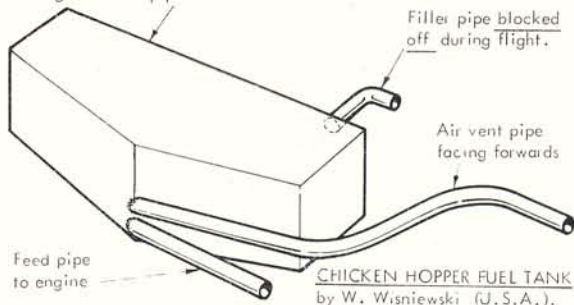
When a team race engine is set for maximum economy the fuel supply is often marginal for getting the model off the ground in the first place, and motors often cut for this reason just after release. Babichev/Krasnorutsky use a twin fuel supply to the venturi to overcome this problem. See sketch. Their tank is normal, in that it has the normal overflow priming pipe, air vent and fuel tube to the needle valve. They fill the tank through a spring loaded valve on the side of the tank and use an extra fuel line from the filler valve



At left, the unconventional team racer by Zoloterverch/Kobets. Note the extremely wide propeller blades, fully enveloping pan front and shut-off re-set button, just in front of wing leading edge. The deep bellied fuselage is faired to almost envelope the mono wheel. Above, the very neat spring loaded shut-off by Babichev/Krasnorutsky. This is tripped by a pull from the elevator horn. You can just see the semi-buried tube on the side of the fuselage. The front of the cowl is incorporated in the pan.

body, outside the valve, to the rear of the venturi. This means that when they fill the tank they also fill this length of tube, so for the first few seconds of the engine run, it is running on its normal fuel supply from the needle valve and the amount contained in this tube which is sucked into the rear of the venturi through a fixed size jet. Their starts were very good and the run was noticeably rich for the first half lap with blue smoke streaming from the model.

Note. T.W.A. .15 runs on suction feed not pressure. When engine draws fuel from tank, same amount of air is admitted through balance pipe.



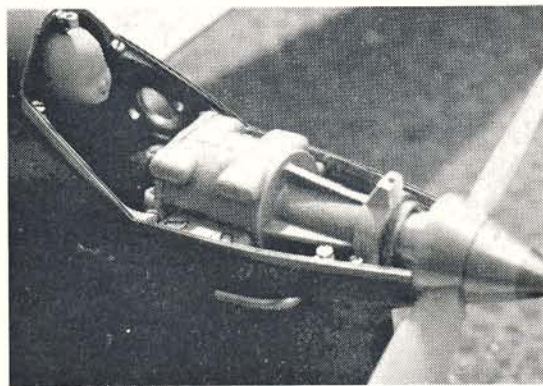
CHICKEN HOPPER FUEL TANK
by W. Wisniewski (J.S.A.).

testants, but these were not production motors. These were all part of a large batch of prototypes made by the Austrian factory. We were given to understand that the .15 will not be in production for a long while yet - if ever! This is because the .60 R/C must take preference for commercial reasons and the .15 involves too much hand work, the .60 being larger lends itself to normal automatic industrial processes much better, so eliminating hand work and lowering costs. While the factory have some .15 components in stock - they do not have all the parts required to make complete engines. Stockton/Jehlik's H.P. was basically stock except for the home-made Cox .049 drum valve induction system.

The experienced Russian race team of Zolotverch/Kobets had a most interesting model with a deep fuselage that completely cowled the undercarriage. The wheel is supported on both sides of the axle by a 'U' shaped bracket inside the model. This is bonded to a sheet of rubber $\frac{1}{2}$ in. thick which is in turn bonded to a $\frac{1}{4}$ in. plywood sheet floor in the fuselage. Bamboo guide dowels pass through the whole assembly to keep the under-

NSHIPS DETAILS RVED IN HELSINKI BY J. FRANKLIN

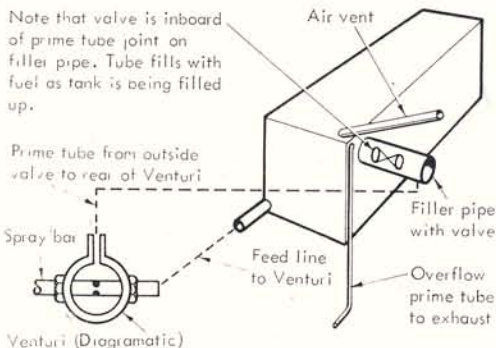
The trend in speed models from nearly every nation was towards a Pink Lady style model. Few seem to be trying their own designs and the low aspect ratio Stuppi types. The T.W.A. group were taking orders for their engine and several were given away at the meeting. Bill Wisniewski intimated that he could pull something new out of the bag for next time, and he will need to after having given so much information out and handing engines around. No one knows what the M.V.V.S. pipe engine will look like, but if the current political situation allows development to continue, it should be very much influenced by the T.W.A. that Wisniewski gave to Josef Sladky. The Hungarian Moki's that were a lot slower than expected,



Above, this very neat fiberglass fuselage and M.V.V.S. engine installation is by Klemm of Czechoslovakia. Note the brass edging strips to key canopy in position. The doll pilot is not really in the spirit of the rules. At right, the new T.W.A. 15 as used in Arnie Nelson's asymmetric 'Roadrunner' design. Note how the fuel tank is turned thro' 90 deg. The fuel tube outside the pan is the overflow that is pushed on to a blanking screw to seal tank for fast fills. The pan is a modified Harter as made in the U.S.A.

seem to have gone 'over the hill' and they will have to work pretty hard to get them into the 160 m.p.h. region.

In team racing there seems to be very little between any of the makes of engine, and in the right hands all of them would have turned in almost identical times. Note, we are not talking about standard engines as nearly every engine used at these meetings is modified in some way or another. The long-awaited H.P. .15D was flown by several con-



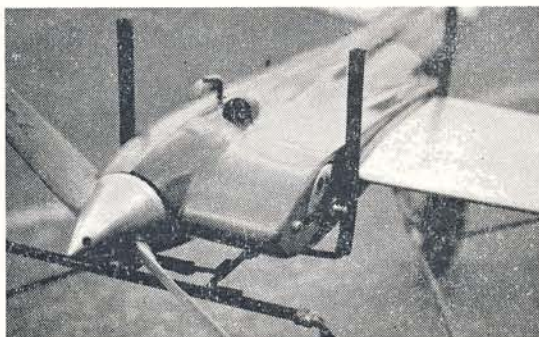
RICH ENGINE RUNNING SYSTEM
by Babichev/Krasnorutsky (U.S.S.R.)

carriage in line as the rubber absorbs the landing forces and surface roughness. The engine mounting plate is a solid bar of alloy machined to leave a solid front that completely envelops the Super Tigre engine front housing. Very small diameter propellers with very thick and wide blades have to be used to permit ground clearance due to the low fuselage lines. Note the shut-off reset button on the side of the fuselage.

Now that Stanzel Mono Line units are no longer made in the U.S.A. and H&R Torque Units are the only single line control mechanisms available, most competitors make their own. The American Pink Lady models with their alloy wings and very narrow glassfibre fuselages used home-made units built on the Stanzel principle. Because of space restrictions they used lengths of spring as the worm gear and anchored the torque wires to the outboard wingspar.



At right, a close up of the T.W.A. 15 nose on the 'Roadrunner'. The fibreglass moulded fuselage has no cooling ducts and the scoop is for the engine rear intake. Note the black rubber fuel tube over the dolly posts to prevent scoring the model. The propeller is a much modified, and pitch-corrected Top Flite Speed.



Arnie Nelson used modified Stanzel Stuntmaster units in his asymmetrical models.

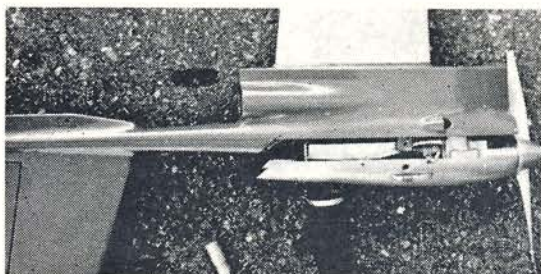
We must mention Arnie Nelson's two asymmetric models in more detail, even though they did not win the Championship for him. We asked Arnie why he had used side-winder engines on these asymmetric models, and the reasons are of interest to all control liners. With an upright engine that is flying on a tangent to a circle any wind tends to hit the side area of the cowling and force the model nose out of the circle, thereby increasing the drag and slowing the model down. By turning the engine sideways the effective horizontal sideways area is halved, hence halving the drag. The wing area is all on one side of the model (inside) and the tailplane is all on the outside, so it does not have a wing turbulating the air before it gets to the tailplane. These types of models have one unfortunate vice. When the engine cuts, the model dives for the ground. This is because the cowl contributes a lot of lift off the propeller wash during flight, and as the model is trimmed foremost to fly on power, it dives when the engine stops and the lift is reduced. This can be handled though, as shown by Arnie, but it takes experience. The T.W.A. powered asymmetric model was not flown in the Championship due to lack of practice beforehand; but the Super Tigre version went really well. Another unusual point is that the control unit is mounted directly onto a U-shaped steel bracket in the fuselage that is bolted directly to the pan. This means there is no 'G' pull on the spar or alloy sheet wing, and makes for a much stronger model.

Of the British speed men Gordon Farnsworth did not record any times because he had a leak in his fuel line and Bill Firbank crashed because his fuselage was too thin and bending under backpressure from the pipe. This gave the tailplane positive incidence and 'splatt'. Brian Jackson's T.W.A. has passed its peak and we understand the lads are going to get some new engines.

After returning home from the World Champs, Bob Gieseke won the United States National Championships. He was reported to be much more relaxed without the extreme turbulence of the Finnish site, even though the winds were pretty strong.

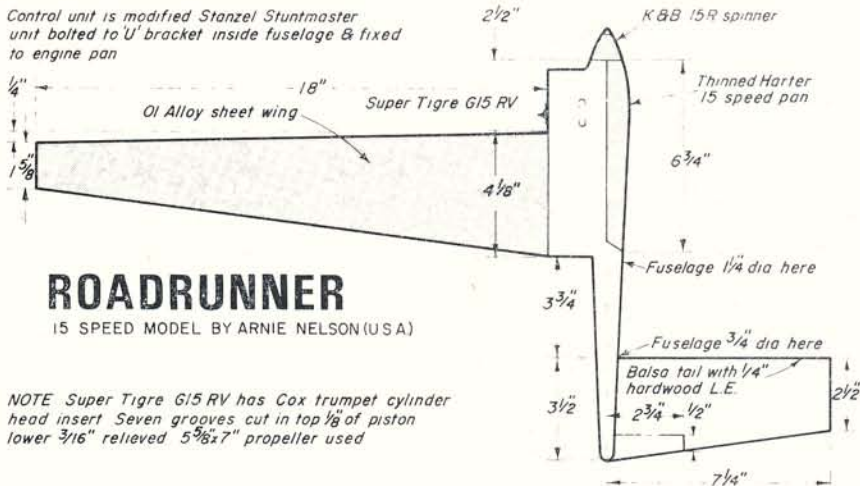
The Danish Hasling brothers who did so well in team race at last year's Criterium of Aces were pretty hot again this time and now use an H.P. 15D. As with most other contestants they use an overflow prime tube to assist starting, but with a difference. To prevent flooding by over priming they have fitted a remote needle valve on the back of the exhaust stack. This allows them to regulate the amount of fuel they pump into the exhaust port.

Over half the contestants at the Champs in team race used Bartels glass fibre propellers and from experience with them and what we saw at the Champs they are unbreakable with normal usage. What few modellers realise is that from the large range of sizes made now, there are two team race types. One is moulded to the M.V.V.S. shape while the other is a Tornado Plasticote shape. The latter were new to many and were snapped up from the stock Jurgen Bartels brought along to sell at the meeting in Helsinki.



Control unit is modified Stanzel Stuntmaster unit bolted to 'U' bracket inside fuselage & fixed to engine pan

Above, the 'Roadrunner' less pipe. The fibreglass fuselage cowling at the front end of the pipe keeps it hot. Note that this model differs from the Super Tigre model in shape of the tailplane and length of engine cowling.



ROADRUNNER
15 SPEED MODEL BY ARNIE NELSON (U.S.A)

NOTE Super Tigre G15 RV has Cox trumpet cylinder head insert Seven grooves cut in top 1/8 of piston lower 3/16 relieved 5/8x7" propeller used

golden**wings
club**


GOLDEN WINGS
AEROMODELLER
MODEL CLUB

BY
JOHN
BRIDGE

Dear John,

I started aeromodelling back in '66 when I bought the Keil Kraft 'Playboy'. This triggered off my interests in all kinds of model aircraft. Last November I was given the Aeromodeller Annual for my birthday. I think it is a super book which is packed with useful information.

I recently built 'Katapult P-8', a glider built from a plan in this book, it has turned out quite well. I have an A.M.10 which I was given last Easter. It will start, but I haven't built a model aeroplane to put it in yet. If I build one, it will be my first power model. I would be very grateful if you could tell me of an inexpensive kit for my A.M.10. It doesn't really matter if it is C/L or Free Flight sport, also could you tell me of an A.P.S. plan for my first power model. I always read the Golden Wings page each month when my Aeromodeller comes on the mat, although I'm afraid I am late in joining your club.

Caverswall. *Martin G. Thorpe*
Simple C/L trainer models for 1 c.c. are the Keil Kraft Champ or Veron Colt. Alternative plan design from the Aeromodeller Plans Service is Bouncer, Reference No. CL/808 at 5s. 6d. post free. All are good C/L trainers. For Free Flight sport suitable kits are the Veron Deacon, Keil Kraft Halo, Graupner Kadett, or if you want a simple plan, Mandy of 45 in. wingspan, PET/861 at 5s. post free is ideal for 1 c.c. and can be obtained through our offices.

Dear John,

Now that my Keil Kraft Super 60 is finished with the radio gear installed and working (R.C.S. Guidance System), the question of balance is becoming increasingly worrying. It says on the plan that the model should balance at a point indicated just under the wing, but with the wing on it is almost impossible to make something to support it, to allow it to pivot. When balanced without the wing it is at least 6 in. tail-low. What is the most compact form of ballast weight to correct this? (The Super 60 is my first radio model).

London, W.13. *Neil Wilson*
The correct way to balance a large model is to measure the distance of the designed balance point from the leading edge of the wing. Mark this on the wing close to each side of the fuselage and arrange to balance the model on one finger of each hand at this point. Lead shot is good for ballast to correct any tail heaviness and it must be placed as far forward (or aft) as possible to reduce the amount needed. Use Plastiscene to keep it together, or pour cement over it when you have the right amount in place. A simple device for the balance operation was described on page 433 of

August issue. Once made, it can save you a lot of time later on! Always fit the wing to obtain balance, the larger the model, the greater the difference it will make to remove it when balancing. In cases with large wingspan, it is also essential to maintain a spanwise balance—that is to say that the model will not drop a wing tip rapidly when poised on the fuselage centre line.

Dear John Bridge,

I have been aeromodelling now for nearly two years and have just finished my first large model, a Keil Kraft Chief. After test gliding the model I tried towline launching. At first the model climbed well, but gradually turned to one side and dived into the ground. Just before it got to the ground the line snapped and the model pulled harder all the way down. I have repaired the Chief, but could you give me some advice before I try again.

Gerald McIntyre
It sounds as though you could have a warp in the wings of your Chief, so I suggest that you check this for a start. Also, make sure that your auto rudder is working. As regards flying, you should always be absolutely certain that you are towing the model directly into wind and that your assistant keeps the wings level whilst launching. Should the model start to veer off to one side while you are towing, you should run to the side the model banks to. If it does not straighten up, release the model at all costs, either by running towards it or even throwing the reel into the air. If you do not, a dive will develop, as you found. You were fortunate that the line broke and not the wings, as, when the speed builds up in the dive, more lift is generated and the extra pull on the line is more than the structure will stand.

Dear John Bridge,

I have just finished building Sweetheap from September Aeromodeller. The first two

TIPS OF THE MONTH

Do you ever have difficulty holding the tailplane and elevators together whilst attaching tape hinges? Ordinary clip type wooden clothes pegs are ideal here, their width being adequate to firmly hold the two surfaces. Do not forget to leave a 1/16 in. gap when gluing hinges or elevators will be stiff. These clothes pegs can also be used for holding laminates together whilst setting.

When cutting small parts (formers etc.) from sheet balsa, one often finds that the grain causes the pieces to split. To avoid this, back all parts with Sellotape (across the grain) before cutting. This can be carefully removed afterwards or with heavier models, left in place for extra strength.

Lighting the fuse on small Jetex models can be a hazardous affair when using matches. A borrowed cigarette is far better, but when the weather is good (bright sun etc. — when!), a magnifying glass is safest. Hold the glass between the model and the sun (practice on a piece of paper first) and obtain the smallest bright spot possible, focused on the fuse. In practice the glass will be about 4 in. away from the fuse.

If you ever have difficulty finding a reel for steel C/L wires, try to scrounge the wheel from a disused push chair. Strip off the tyre and carefully cover spoke ends by winding on insulation tape. Various ways of fitting handles can be used for winding and this method has been used for 60 ft. plus stunter lines.

flights were very good, but on the third, disaster struck. I gave my Cox engine an exhaust prime and suddenly the model caught fire. Please tell me what caused this to happen.

M. Goldsmith
Unlike full size aeroplanes, model aircraft do not often catch fire, but occasionally a glow motor will. The cause is almost always due to priming the engine with the battery connected, and when it does happen, the flames are almost invisible and damage will take place before it is realised what is happening. (The usual warning is a hiss and crackle louder than a normal glow-plug boiling sound.) Should this occur a good blow will extinguish the flames, failing this you should smother the fire with a rag. Moral! Always prime the motor before connecting the battery.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the "Golden Wings Club". With this application I enclose postal order (International Money Order) for 2/6d. to cover cost of the enamel club badge, two coloured transfers and membership card.

NAME IN FULL

ADDRESS

YEAR OF BIRTH SCHOOL

NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any)

SEND TO:- GOLDEN WINGS CLUB, AEROMODELLER, 13-35, BRIDGE STREET, HEMEL HEMPSTEAD, HERTS

11/68
2d. in the 1/- Rebate plan purchase coupon for Golden Wing Members G.W. No.

latest engine news

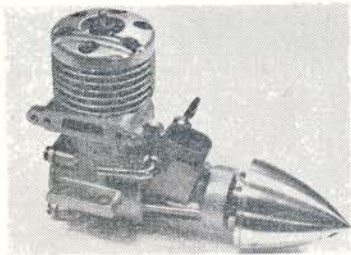
By
Peter Chinn

Latest Super-Tigre G.15

In the four years that have elapsed since the Super-Tigre G-15 was first put on the market, this Italian made engine has become widely recognised as the best over-the-counter 2.5 c.c. C/L speed and free-flight contest engine obtainable. The G.15 has, of course, been previously dealt with in these columns, including a full test report on one of the early production models but, recently, Mick Wilshere (the British end of World Engines Inc. who enjoy the sole U.S. and U.K. distribution rights for Super-Tigre) loaned us, for examination an example from a new production batch and we are therefore taking the opportunity of describing how this differs from the earlier version.

Apart from the integral spinner type prop driver assembly which was added to the G.15 quite some time back, the only obvious external difference is the much smaller exhaust duct and the flange now incorporated with it. This latter, with some external machining of the casting, front and back, provides for the fitting of a silencer or tuned exhaust system. It is not clear, however, whether it is intended that the existing engine should be used with the promised S.T. tuned pipe unit. (More about this in a moment.)

Some other less obvious changes have been made to the main casting since the original model was introduced. These include a strengthening of the cylinder casing, including an increase in the o.d. between the two top fins, and the omission of the gudgeon-pin access hole. (This hole was, in any case, superfluous, since it has always been just possible, with the G.15, to lift the complete conrod and piston assembly off the crankpin after removing the cylinder



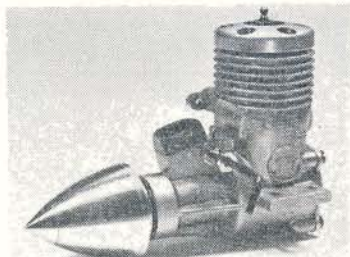
liner.) Internally, the transfer passage has been widened at the lower end.

Some changes have been made to the cylinder porting. The exhaust port area is smaller: depth is the same but the port width is reduced. Port timing is also slightly different, being now extended to almost 140 degrees of crank angle for both transfer and exhaust—in fact, on the example examined, the transfer period was actually a degree or two longer than the exhaust duration, presumably unintentionally.

As we mentioned a moment ago, it is not clear whether the engine in its present form is intended to be used with a tuned exhaust system. This will depend to some extent on the type of exhaust system which Jaures Garofali has in mind for the G.15. If a tuned double-cone expansion chamber type is envisaged (i.e. as per Wisniewski, Miebach—or a Lindsey-E.D. type) one would assume that the existing cylinder port timing would have to be modified to take full advantage of the supercharging effect of such a system.

This would call for extending the exhaust period and restoring a reasonable degree of exhaust lead. Merely raising the top edge of the exhaust port to extend the exhaust period to around 160 degrees of crank angle might be acceptable. Alternatively, it might be preferable to reduce the transfer period by, say, 10 degrees and increase the exhaust period by only, say, 15 degrees.

In either event, this could be accomplished on the latest G.15 quite easily with a new or modified cylinder liner and without altering any other part of the engine. One suspects that this was borne in mind when the dies were altered to produce the latest G.15 crankcase casting. On the old model, the top edge of the exhaust port was actually very slightly above the top inside edge of the exhaust duct. On the new model, despite a smaller depth at the outlet end, the inside upper edge of the duct is actually about 25 thou. above the top edge of the exhaust port. Thus the exhaust port can, if necessary, be deepened without being obstructed by the casting. The duct through the casting is actually convergent in depth toward the outlet.



Two front three-quarter views of the latest version of the highly successful Super-Tigre G.15, outstandingly good value at £8 4s. 2d. complete with spinner. This newest G.15 has revised porting and provision for adaption to exhaust system. Note small outlet. Exhaust duct tapers downward from port to outlet.

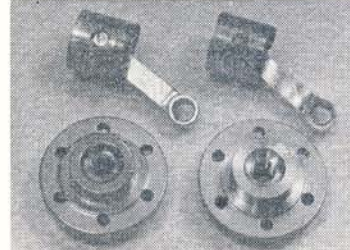
The piston and conrod assembly remain unaltered except for one or two minor changes. The gudgeon-pin, formerly retained by a single circlip at the front end (the rear end, with domed aluminium pad, being free to float and make contact with the cylinder wall) is now retained, instead, by circlips at both ends. The conrod is machined slightly differently and has an oil slit, rather than a hole, at the lower end. The cylinder head is different in that the combustion chamber now has machined surfaces with a slightly larger squish-band which rises towards the centre instead of being flat.

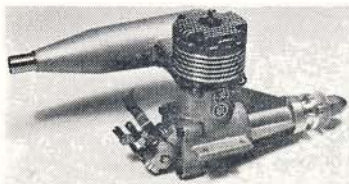
The crankshaft has the same journal diameters (5 mm. front and 10 mm. rear) and gas passage bore (7.5 mm.) with large rectangular valve port. Valve timing is a little different with later opening and closing—approximately 36 deg. ABDC to 60 deg. ATDC.

The rest of the engine is virtually the same as before, retaining such distinguishing features as its large rectangular tangential intake with surface jet and removable venturi and its distinctive cylinder head with cooling fins on the exhaust side only. Its weight of 5.85 oz. is about $\frac{1}{2}$ oz. more than the original but this includes the spinner assembly.

The G.15 is undoubtedly the most successful commercially produced 2.5 c.c. contest engine at the present time, having enjoyed, during the past three of four years, much the same status as the Oliver Tiger did a decade earlier. It will be interesting to see whether the latest improved version maintains this position.

Below left: G.15 spinner assembly replaces regular prop driver. All machined construction ensures great rigidity and true running qualities. Securing cone is of brass. Below: original type G.15 piston/conrod assembly and head (left) compared with latest type.





Hirtenberger H.P.61

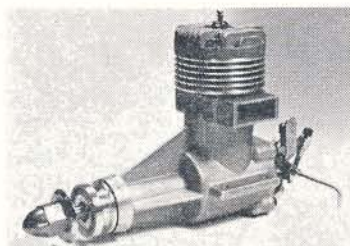
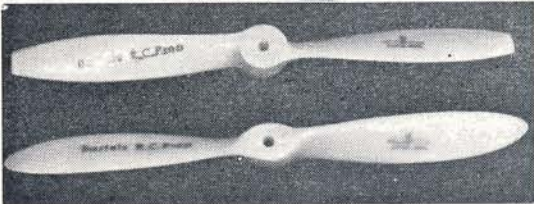
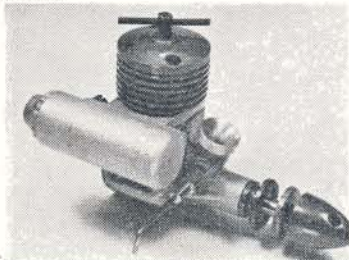
We first mentioned this engine in the January issue following tests we had made on a pre-production R/C version. In these tests, the H.P.61 emerged as the most powerful throttle-equipped 10 c.c. engine to date.

The production model of this Austrian-built motor is now available in the U.K. (Mercury Models Ltd., 308 Holloway Road, London, N 7 are the sole distributors) and we have recently had one of these on test also. Again, this was an R/C version (the demand for 10 c.c. R/C engines being many times that for C/L speed types) but we understand that the speed version is to be offered in due course. Prototype speed units have been under development in both Europe and the U.S.A.

In almost every respect, the H.P.61 breaks with traditional high performance commercial 10 c.c. engine design. It has, for example, a Schnuerle port cylinder and its bell-valve induction system is quite different from any rotary valve previously used. These two features undoubtedly contribute much to the engine's obviously high volumetric efficiency. The throttle type carburettor also marks a new approach to R/C carburettor design. The H.P.'s stroke-bore ratio (though not as low as that of the Dooling) also breaks with the almost universal 24x22 mm. or .940 x .875 in. combinations used by other 10 c.c. engines for the past 20 years, while its construction, and even its shape, are different.

Supplied with the H.P.61 R/C is an efficient silencer which reduces power output to a lesser extent than we have encountered to date on any other 10 c.c. R/C motor. In other words, the H.P.61 shows up even better against the opposition when all are silencer equipped.

A detailed description of the H.P.61 R/C, together with prop r.p.m. figures obtained on test, will be found in the November issue of *Radio Control Models & Electronics*.



Above and left: the production version of the H.P.61 as now available in the U.K. from Mercury stockists. On test, this delivered the highest output yet realised with a 10 c.c. R/C engine. View top left shows the unusual upwardly inclined carburettor intake and efficient silencer that is now supplied with the motor.

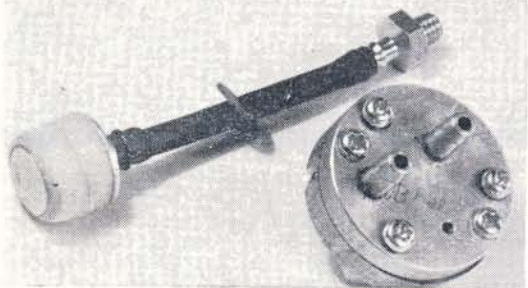
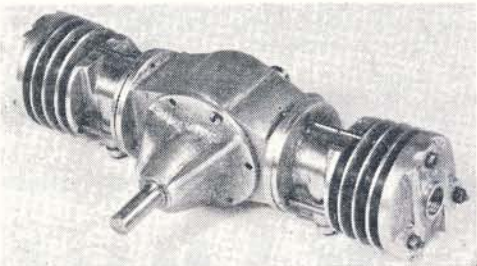
Rebirth of interest in twin cylinder engines (being made in U.S.A. and W. Germany) prompts us to print this photo of 2.5 c.c. twin made long ago by G. W. McDonald of Lowick Northumberland, in 1935 in fact! The 2-throw shaft is machined for solid steel. Conrods are Bronze and Aluminium alloy with split big ends. Intended for coil ignition, the twin is now owned by Jim McCann.

Mysterious adverts in the Japanese model press led us to obtain this device which Peter Chinn is testing. Some engines have been issued with it as a permanent fixture. Purpose is to obtain constant flow for R/C.

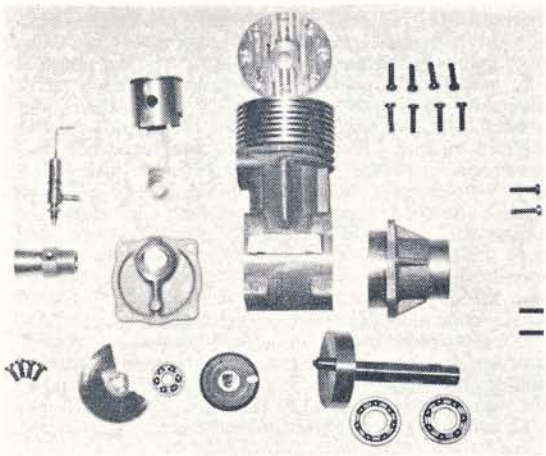
Left: large numbers of the Hungarian FOK low-priced diesels have been sold during recent years by RipMax, the U.K. importers. This is the F-15 model of 1.5 c.c., at present in short supply, but the 2.5 c.c. version, as featured in the June 1967 A.M. Engine Test, is still available. Below: New from Bartels: a lefthanded version (top) of the regular Bartels 11 x 7 1/2 in. fibreglass prop.



Above: parts of the H.P.61 bell-valve and piston assembly. Long intake slot in valve periphery means that it is fully open for well over half the total induction period. Piston is flat: crowned with two rings and the ported and cutaway skirt aids charge transfer.



The O.P.S. 60 continues to gain fame for power output especially in the marine field. Below are the internals of this rear exhaust unit which is designed for a tuned length pipe. O.P.S. stands for 'Officine' (works) of Messrs. Picco and Saouer, the proprietors.



HERE'S ANOTHER selection of useful ideas and creations, which can be made from materials previously rendered useless and in some cases scheduled for the dustbin.

From H. Ellwood of Rochdale, Lancs., we have in **1a** a simple glider winch, consisting of two aluminium plates (available at 1s. 10d.) of 9 in. diameter, an old file handle, two 5 in. diameter ply discs, an aluminium pelmet strip and a selection of nuts, bolts and washers as shown. Assembly is straightforward and the unit is completed with Sellotape or insulation tape to fill the join between the plates. Also Mr. Ellwood suggests in **1b** a very useful cure to the more hamfisted towline types who often break wings due to running too fast, or for operation of more delicate gliders in rough conditions. The hook is made from an 18 s.w.g. bridle shaped so that the 1/8th square 'weak link' is quickly replaceable. The size of this can, of course, be varied in accordance with the size of model used. Actually our drawing is shown inverted, the towline being best attached halfway along the square balsa and the wire circle substitutes the usual curtain ring.

Newcomers to the operation of internal combustion engines often manage to acquire quite a few sharp raps on the fingers from the propellers attached to their new 'toys'.

several years. The circuit shown in **4** is self-explanatory and the car bulb shown reduces the current to the correct amount.

An item often forgotten at the end of a single channel flying session is to unwind the surplus turns from the actuator motor. Not only forgotten, this job is often difficult due to complex arrangements of rubber drive fitting. A simple instrument for this job is made, using a rubber motor bobbin, a length of insulation tape, a piece of 18 s.w.g. wire and sundry cupwashers and a nut, says D. K. Tempest of Todmorden, Lancs. The bobbin is built up with insulation tape and the wire shaped and fitted as shown in **5**. Simply attach the escapement winder to the hook, pull from the escapement lock and the rubber will unwind itself.

An example of a useful gadget made from cast-away material is firstly the straight edge shown in **6**. Many engineering firms use heavy duty hacksaws which are disposed of when the teeth are worn. With the teeth ground off for safety the opposite side is usable as a really firm straight edge. From the same modeller A. A. Bell of Tatsfield, Kent comes the suggestion that rubber bands can be cut from car/motor cycle inner tubes (using our newly acquired straight edge! The older red or black rubber types are ideal, synthetic material being virtually useless.

GADGET REVIEW

Not only are .29-.35 size motors the only offenders here, and given the right conditions coupled with a slow follow through, a glowplug 049 can inflict quite a tap, especially if the weather is cold when the effect is really felt. Commercial finger stalls have been available but tended to be on the bulky side. To help sufferers N. McFarland of Rossendale, Lancs, has made a finger protector from the uppers of a shoe, shown in **2**. Material could also be obtained from an old handbag or similar.

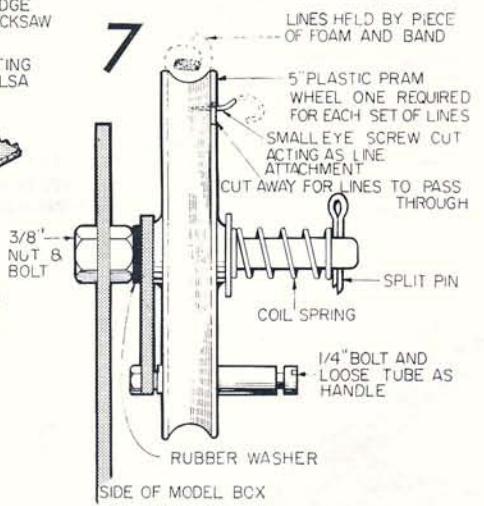
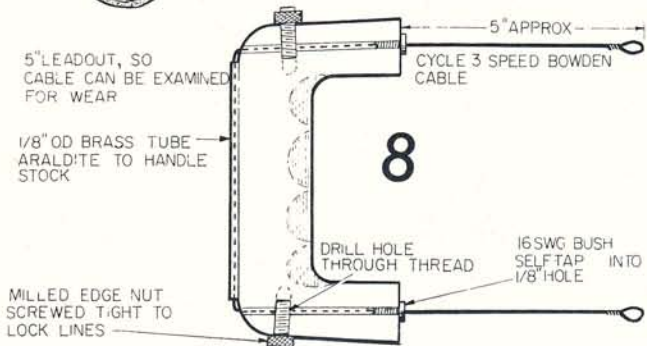
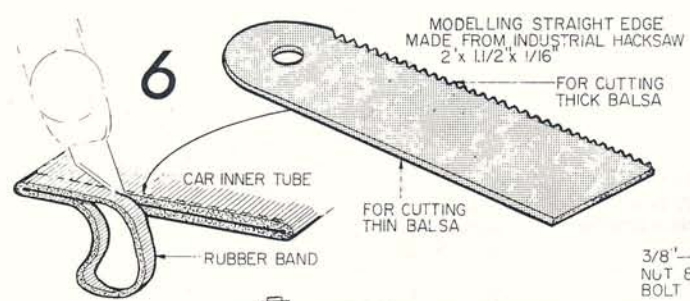
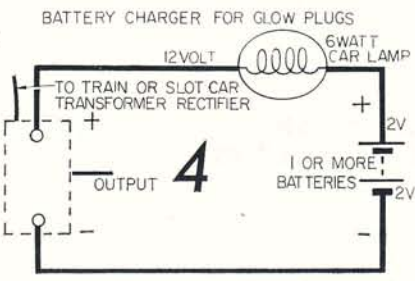
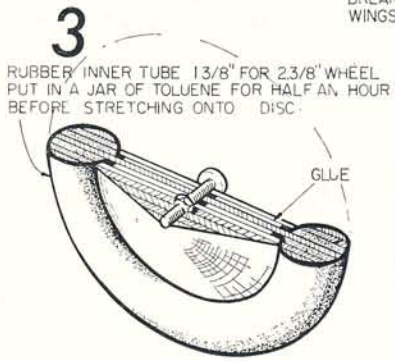
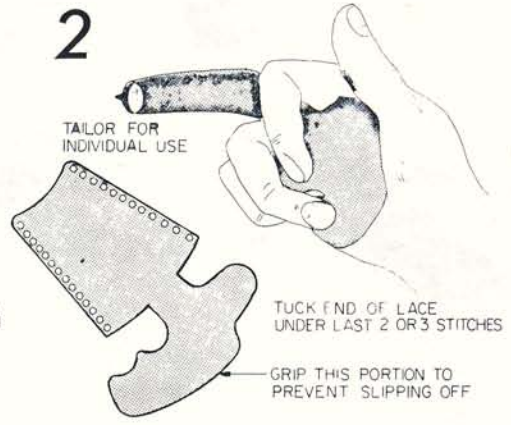
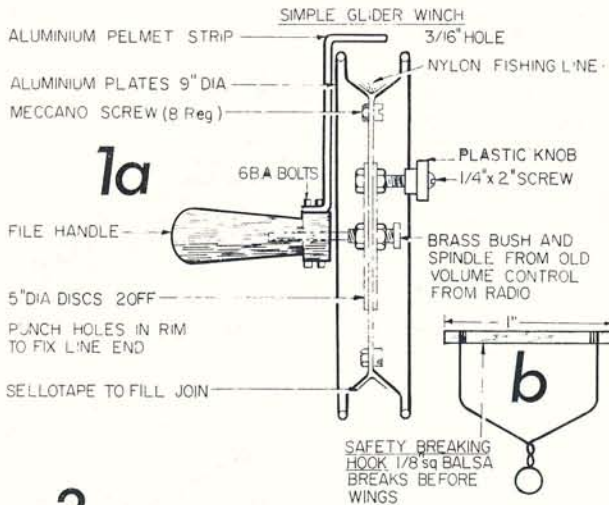
Scale type wheels/tyres are often a headache for W.W.I scale types, and J. S. Stringer of Didcot, Berkshire comes up with a very practical solution in **3**. Take a 1/16 in. ply disc of the required diameter minus twice the thickness of tyre material. Build up filling for tyres from Balsa rings and sand to accurate profiles. Now cut about a 4 in. length of bicycle inner tube and place in a jar of toluene for about half an hour. This will cause the rubber to swell. Allow a few moments for the surplus toluene to drain off and stretch the tubing over the wheel and leave for a further half hour. The rubber will now shrink to its original size, leaving the section fitted over tyre closely stretched around the outline. Cut away the surplus rubber and fit two further ply discs, chamfered to fit the tyre radius and hold securely in place using a brass bush. These discs also hold the rubber in place and the wheel is completed with further laminations of balsa for the cone and decoration as required.

For glow plugs nothing is quite as good as an accumulator but many people are put off using these because of lack of charging facilities. Frankly, most radio shops do not want to know, but I. P. Ruddock of Hertford uses a 12 volt electric train transformer and has done so for

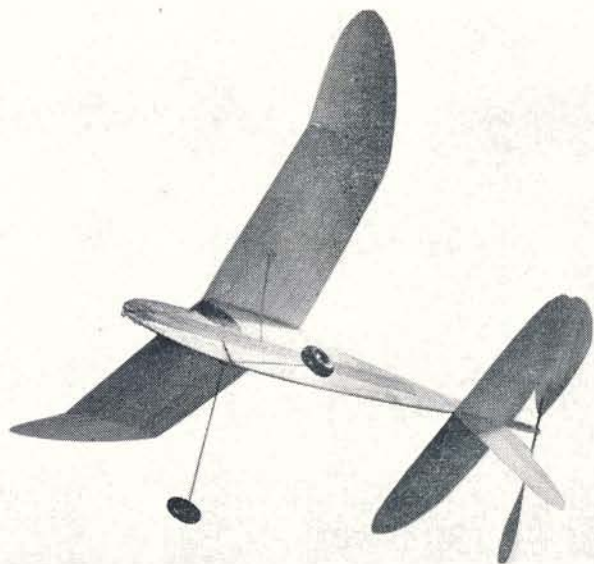
Many very useful ideas for C/L work come from Carrier C/L specialist Mick Reeves of London and another shown in **7** is a line spool which can be attached to the model box. Many beginners have trouble with steel lines at first so for them this should be a real boon. For this, one needs a disused pram wheel, preferably plastic, with the tyre removed. (Obtainable at 2s. 6d.-3s. 6d. new). A piece of foam plastic for holding the lines in position when wound is glued in position. Finally, retained with rubber band. Fit a small screw, hook type, for line attachment as shown. The handle consists of 1/4 in. bolt with a loose tube. This bolt passes through the wheel and a 1/8 in. ply strip on the rear, together with a rubber washer, provide the friction required to avoid tangles that overruns cause when unwinding. Finally, a 3/8 in. bolt is secured to a model box or suitable handle and guide, and a washer, spring and split pin complete the unit which is, of course, quickly removable.

Again, for C/L in **8** we have an idea for an adjustable control line handle. The stock can be from fibreglass or ply with 1/8 in. holes drilled for brass tubes and 16 s.w.g. bushes, and slightly oversize holes for 1/4 in. studs. Those studs should be drilled to allow leadouts to pass through. When assembled, the leadout wire is locked in position by tightening up the milled edge nuts on the studs.

That is all for this month, but we welcome any ideas which readers may have. To the creator a gadget may appear not worthwhile publishing because everybody probably knows about it. This is not the case. After all, the only cost is a stamp and a few lines of description, and a small fee is paid for all ideas published.



MODEL BOX WINDER FOR CONTROL LINES WITH INTERCHANGEABLE REELS



Ed Lidgard's

PUSHER

ALL Balsa LIGHTWEIGHT FOR
SPORTS FLYING. FULL SIZE PLANS
ON CENTRE PAGES

THIS MODEL is one phase in the development of pushers as a contest design. A 200 square inch version of this design was built and flown literally 'off the board'. Wing and elevator aspect ratio was greater and the rudder was slightly smaller to compensate for scale effect.

The profile was a worthwhile effort to prove out prop shaft angle, dihedral, proportions, etc. So if you wish a larger version using different construction technique, proceed with confidence. A carefully built folding prop will align perfectly with both blades, matching together like hands at prayer. Zero angles make the job simple and the distance between hinges need only be 5/8 in.

Pusher is easy to build. Choose lightweight wood for wing, tailplane, prop and rudder. The body requires medium 1/16 in. with 1/32 in. rubber channels of the same weight. Warp-free stock is absolutely necessary.

Sanding with very fine paper is only needed around all

edges. Tapering, except at the propeller trailing edge, can be omitted.

Camber is built into both wing and tail. You may be sceptical of sheet wings without ribs, but it works, is lighter, cleaner and more efficient. Carefully pin both centre panels down over a 1/8 in. square 1 in. from the root leading edge. Carefully sand the tip so that it exactly matches the cambered centre section when the tip is blocked up 1-1/8 in. Use white starch glue such as we would buy at the hardware shop in a plastic bottle. This type of glue doesn't 'pull' and, therefore, does not contribute to warps. Put the wing away and go on to something else for several hours. Then prepare to glue the centre wing joint. Leave one panel pinned down and sand both matching edges until a perfect match is achieved. One dihedral joint will be blocked up 1 1/2 in. to get the correct angle. Take care not to pin down too hard and make the wing twist.

The fuselage hardly needs any comment, it's so easy. Glue two 5/16 in. wide 1/32 in. strips into a 90 deg. angle and glue the angle on one side of the slot in the fuselage. Add the 1/32 in. plywood (or heavy paper) to the nose to prevent splitting. Bend the landing gear and glue it in place. Any plastic wheel approximately 3/4 in. diameter will be fine.

Draw a centre line on the tail and, with it as a guide, glue the tail on the bottom of the fuselage. Hold until dry. Be sure it's square to the fuselage. Don't put too much glue on at first. Add another coat when dry.

The rudder is glued to the tail and the assembly set aside to dry. Sand the edge to get a perfect match and be sure it doesn't fall over while the glue is setting.

A bent wood propeller is easier, more efficient and lighter than most carved propellers. The forme shown is larger than needed, so you can use it for models up to 24 in. wing span. Use soft pine or spruce preferably, or hard balsa. Cut two 1/32 in. sheet wood blades. Boil them five minutes and bind both on to the forme with cloth or gauze strips. Steam for five minutes and set aside in a hot place for a day or two (good idea to do this step first off).

When dry, cut notches to exactly fit a 1/16 in. dowel. Cut two 'pitch patterns' from scrap balsa and glue them down 4 1/2 in. apart and exactly parallel to each other. Let dry.

Bend a loop that is a snug fit around the 1/16 in. dowel. Bend a 1/8 in. straight bend off of the loop to be parallel to the dowel. This makes it easier to glue.

Glue the blades on to the dowel at approximately the right angle. Set the blades over the pitch patterns and adjust the glue joint so that the slots are smooth and adjacent to the dowel. Now hold the propshaft upright. Check with a square to be certain you're aligned. Watch it carefully!

When positively dry, sand the dowel so that each end becomes flush with the wood. Re-glue the shaft and dowel.

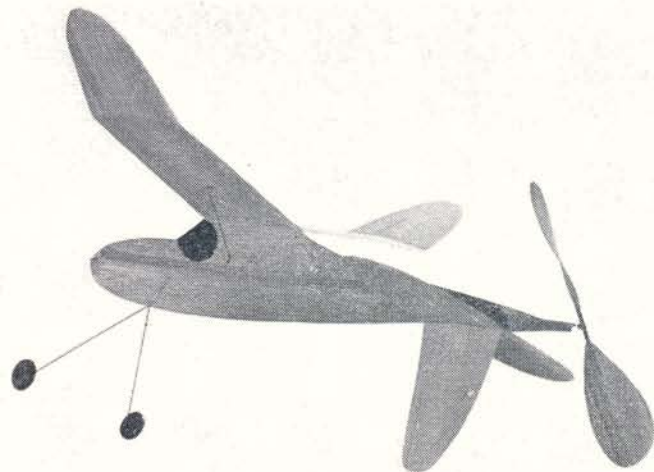
Slip 1/16 in. aluminium tubes and washers over the shaft, bend the winding loop and glue the aluminium tubes to the fuselage.

For indoor flying, a folding prop isn't needed. Larger models will need a folder.

Mount the wing by gluing in place. Be sure the wing and fuselage match and the wing has the proper incidence (2 deg.). Glue the two wing braces in place and hold till it's all dry and then re-glue!

Right hand propellers (shown) will fly to the right. Rudder is the only adjustment needed unless the bank is too steep, and that is corrected by warping the inboard wing down (wash in).

Make note of the excellent stall recovery under power if the model happens to enter into this manoeuvre. Happy pushing!



TOPICAL TWISTS

by "Pylonius", illustrated by "Sherry"



Snap- on Wings

Usually the biggest menace scale model has to face is the built-in collapsibility that is characteristic of its breed. Much of the scale modeller's flying field time is taken up in fixing together all the intricate bits and pieces. The day is well advanced by the time he has strutted up the top wing to the bottom wing, re-discovered which way round the multi tube undercart fits in, and worked out why the tailplane comes adrift when the inaccessible engine is finally started. When, ultimately, all is ready and the late afternoon audience shift duly assembled, and with every breath held except that of the force five wind, he launches his creation gently into the deck. Immediately, it resolves itself, its multitudinous components, and the long, involved procedure begins all over again.

But now we read of an even greater menace to the scale model than the scale model itself; this is the snap-happy chappie with the thrusting lens. Gone are those happy, 'watch-the-birdie' days when the photographer posed model and flyer against an empty landscape; the modern all-action cameraman wants on-the-spot drama not less than two feet from his tele-zooming lens. Now, since most scale models require at least six feet of flying space, the enclosing presence of a dozen or so of these hocus-focus cameramen somewhat impedes the sport.

Perhaps the scale flyer wouldn't mind the nuisance were he to get a nicely framed shot of his glamorous model, but the action type photographer is not very much concerned with the end result; it's the style and size of lens that counts. He's rather like the tourist who couldn't enjoy the Taj Mahal by moonlight unless he has experienced it at 1/25th at f 5.6. If it were just a photograph he was after he could get a superbly produced postcard at a nearby kiosk.

Very difficult, though, to subdue the action camera menace. The only thing the scale modeller can do is to give up public life.

Calmly Does It

Latest R/C sports seems to be 'Pylon Blazing'. Sad to say, though, little success has so far been achieved in spite of some gallant and spirited efforts at removing these excrescencies from our fair countryside. Trouble is, the authorities tend to get shirty when one of the marching monsters gets locked in mortal combat with a large multi job, and all sorts of dire warnings are issued. Flyers are even cautioned of the risk of a power cut to 186,000 Sunday dinners. Not that this is likely to have much effect as very few keen radio flyers know what Sunday dinner is anyway.

When you think of all the hazards to encounter and the restrictions and regulations to which to comply, not to mention the every ready complaint, it's amazing that we manage to fly at all. Our only saving grace, as far as I can see, is our weather. Come a few bright, flyable days and we get all the anti-type aunties acting diabolical towards us; then, splosh, whoosh, our glorious climate asserts itself, and time the great healer has a few wet and windy weeks to bring anti-model blood pressure down to something like normal. In fact, given a summer such as

"That's the Tenth Club record he's broken"

we are now experiencing, the amount of model flying becomes so minimal that when we suddenly break out in the open the opposition is taken by surprise. Not only that, but we ourselves tend to forget what happened on the last disastrous outing, and are optimistic enough to believe that the new masterpiece that has painfully emerged during the long, beleaguered days will not suffer the fate of its white hope predecessor.

Which brings me to another point. In Central Europe they often get the wind up but precious little wind. What we consider unusually draught-free indoor conditions is normal outdoor flying weather in the environs of gay Vienna and other landlocked areas. This means that the delicately constructed, variable pitch Wakefield is not likely to come a cropper in the distant crops or gather dust on the bedroom shelf. It's model flying all the way - which is all very well, but what do they do for excuses?

Top of the Flops

Mostly, the only records the modeller is concerned with are the groovy kind which console him through the long, monastic hours at the workbench, and it comes as a surprise to learn that attempts are still being made upon that Victorian catalogue of outmoded model machine records which lists about ten variant types of rubber-powered tractor monoplanes and an equal number of pusher ditto. But how many of you wizards of the electronic age dream of your F.1b-type rubber-driven model powering its way into world fame over the straight speed course? Yet, believe it or not, the vintage record-breakers are still doing this sort of thing in this atomic year of grace.

Amazing, too, that there are so many inconsequential helicopter records on the agenda, considering that the only helicoptering we ever see is the side show item at the big pop rallies. There, amid a scrum of spectators is to be espied the 'Helicopter Man' with his collection of unlikely-looking craft. Suddenly, there is a whirring and a buzzing, reminiscent of a washing machine fault, and something resembling a crippled bluebottle makes a brief, shuddering appearance over the heads of the crowd. Then a flurry of disintegrating blades and another typical helicopter flight is over. But in the world of world records all is different; they even measure the helicopter's altitude, using something more sophisticated than a tape measure - and, by all that's impossible, they even gauge the speed.

Even so, the record attempt as such has given way to the marathon stint. Alongside the pole squatter and the all-night dancers is to be found the keep-it-up radio performer. Long past the peak flying hour, and well into the dusk, he sits like a shepherd on the hillside, watching his flicks by night. What a bore it all seems, and how different from that exciting first record of thirty feet in a straight line!

1/32" sheet

PUSHER

13.3/8" SPAN LIGHT WEIGHT
BY ED LIDGARD

22 s.w.g. shaft

Aluminium tube

1/32" sheet

Bending form

4"

3/4"

1"

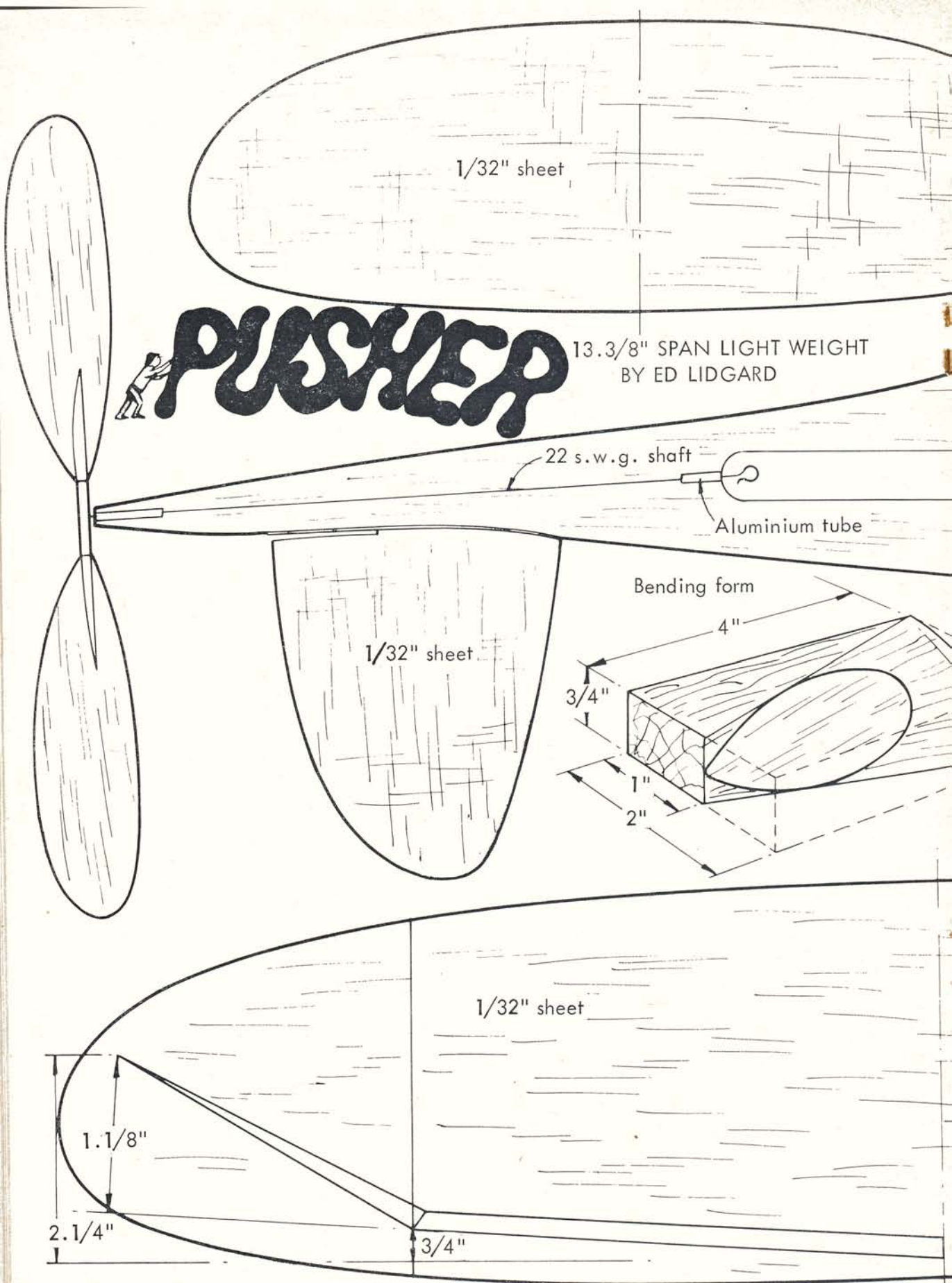
2"

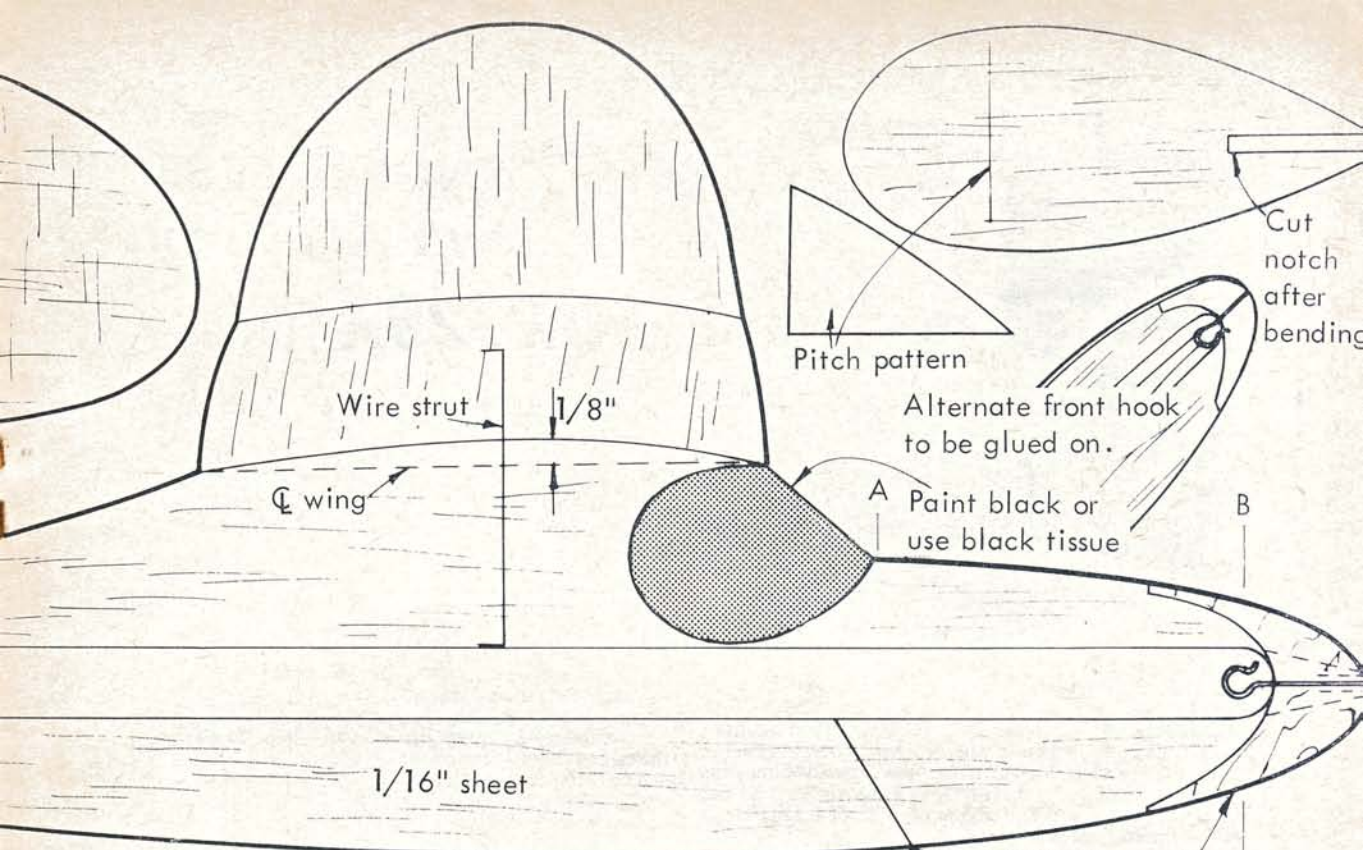
1/32" sheet

1.1/8"

2.1/4"

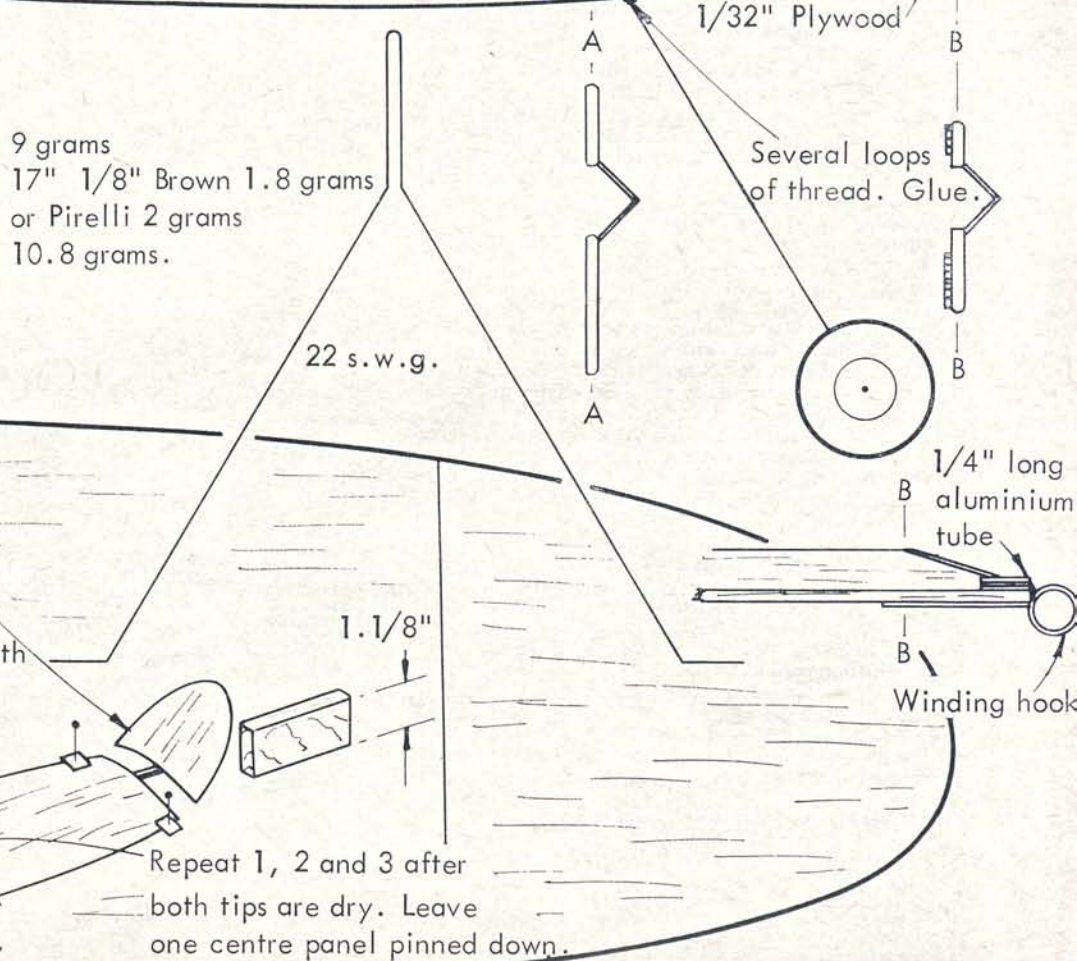
3/4"



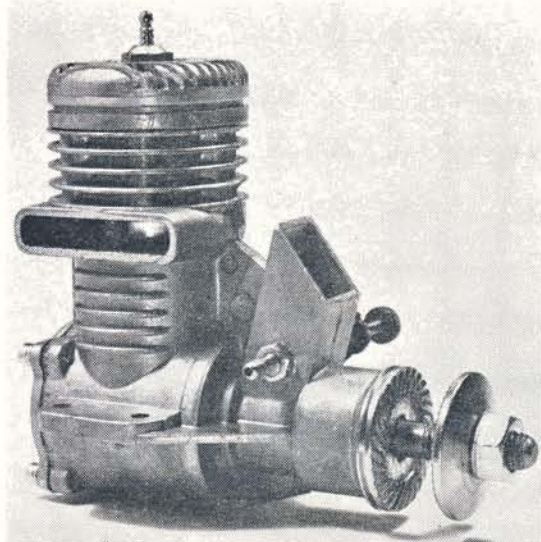


1/16" undercamber

Weights	
Model	- 9 grams
Motor	- 17" 1/8" Brown 1.8 grams or Pirelli 2 grams
Total	- 10.8 grams.



1. Sand to fit well
2. Curve with breadth of fingers.
3. Glue tip on



ENGINE TEST

by Peter Chinn

FOX 29X (1968)



THIS ENGINE, introduced earlier this year (and not to be confused with the older model Fox 29X's produced between 1958 and 1962) is the latest offering from the Fox Manufacturing Company of Fort Smith, Arkansas, U.S.A. Coming at a time when engine prices, in general, have been moving upward, the new Fox 29X remains quite reasonably priced (\$14.95, or approximately £6 5s., in the U.S.) for a 5 c.c. engine capable of a fairly high level of performance.

The ancestry of the present 29X can be traced back to the Fox 35X engine which appeared in 1963 and which, itself, set a new standard of performance for low-priced engines. The 35X was later developed into the 36X and it is on the main casting of this engine that the 29X is based. Overall dimensions of the 29X, together with bearer and bolt hole spacings, are identical with the 36X.

Other parts of the 29X have been taken from the Fox 29X-BB twin ball-bearing rear-induction C/L speed type motor. This is typical of Fox design and manufacturing practice which is to ring the changes on certain proven Fox components and combinations to evolve models for different sections of the market. The new 29X is not aimed precisely at any specific contest application. Rather, it is a multi-purpose engine which the purchaser can use for general free-flight or control-line work, including contest F/F, C/L stunt or even (with simple modifications) a bit of 5 c.c. speed work at a club or inter-club level. It really has no exact counterpart in any 5 c.c. engine at present produced in the U.K.

Like other related Fox models, the 29X uses a one-piece casting to include the crankcase, cylinder casing and main bearing housing. It contains a single needle-bearing to support the rear end of the crankshaft journal while, at the front end, the shaft runs direct in the crankcase material. The crankshaft is of case-hardened steel, with a solid crankpin and fairly generous counterbalancing. The large diameter shaft journal ($\frac{1}{2}$ in.) has a correspondingly large gas passage ($\frac{3}{8}$ in.) fed from a rectangular valve port which uncovers a similarly shaped aperture in the bearing to give a quick-opening, quick-closing and very long induction period of some 204 degrees of crank angle. The big $\frac{3}{8}$ in. square rectangular carburettor intake is equipped with a detachable venturi restrictor having an i.d. of 9/32 in.

The piston and cylinder liner are exactly the same as those used on the very much more expensive Fox 29X-BB.

Tough, yet light construction is a feature of all Fox Products, as seen in component view at right.

The cast-iron piston, of typical Fox design, is light (0.34 oz.), with a flat crown and thin straight baffle. The solid gudgeon-pin, quite small in diameter ($\frac{5}{32}$ in.) is retained by wire circlips which engage grooves in the piston bosses. The connecting-rod is of machined aluminium alloy with plain eyes.

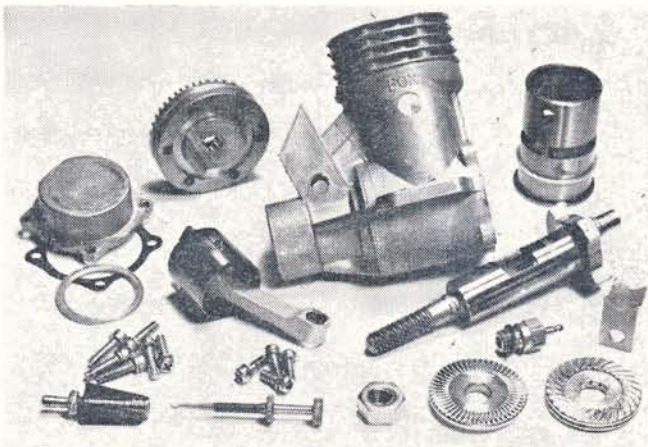
The cylinder liner has an extremely wide exhaust port which occupies 200 degrees of the cylinder circumference and remains open for 140 degrees of crank angle. Like other related Fox engines, the 29X is a Desaxe (offset cylinder) type engine and cylinder port timing is therefore slightly asymmetrical, the ports opening and closing approximately 2 degrees earlier than would otherwise be the case. The transfer period is approximately 130 degrees.

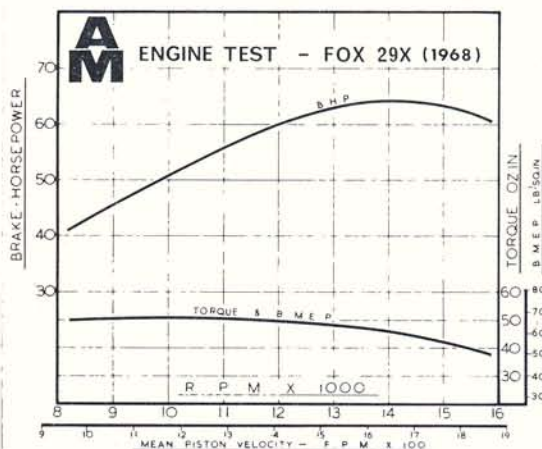
The cylinder head is also the same as that of the 29X-BB. It has a wedge-shaped combustion chamber and closely spaced machined fins. It is held down with six Phillips screws and has a recessed 10 thou. soft aluminium gasket. There is also a shim of similar material under the cylinder liner flange.

As supplied, the 29X is intended for operation on normal suction feed, the venturi restrictor being small enough to provide ample fuel lift from an ordinary tank. There is, however, a central cast-in spigot in the back-plate, which could be drilled and tapped to take a crankcase bleed-off fitting to pressurise a sealed fuel tank and thereby enable an unrestricted intake to be used to release extra power for speed or contest free-flight work.

Performance

Handling qualities were very good right from the start. The engine responded readily to orthodox starting preliminaries; namely, fairly generous exhaust priming, when cold, and a one- or two-turn suck-in, when warm. The 29X was reasonably docile and could be hand-started on





props down to 8 in. dia. without showing any signs of undue viciousness. Response to the needle-valve control was fairly slow, so that it was necessary to pause after making an adjustment to determine its effect before making any further readjustment towards the optimum setting, but the engine was not critical as regards the precise setting. As on most Fox engines, the needle-valve control is short, rather close to the prop and tends to be a bit stiff to operate, so that care is needed to avoid bringing one's knuckles or finger tips into contact with the prop.

As received, our test sample, which had been briefly check-run at the factory before despatch, was fairly free and needed little running-in. We gave it a total of one hour of accumulated running time before test began.

The manufacturer's recommended fuel for the 29X is Fox 'Missile Mist' and our performance graph shows the torque and power curves plotted from tests made on the engine using this fuel. A similar performance should be obtainable with home-brew mixtures containing around 20 per cent nitromethane. The maximum torque, which exceeds 50 oz. in. at between 9,000 and 11,000 r.p.m., is very good, as is the maximum power output indicated, at exceeds 50 oz. in. at between 9,000 and 14,000 r.p.m., of 0.64 b.h.p.

The above figures were obtained with the engine in standard trim. Somewhat higher power (probably with the b.h.p. peak at between 15,000 and 16,000 r.p.m.) can be expected by removing the restrictor and resorting to a pressurised fuel feed. Higher torque (and b.h.p.) should be realised with still more powerful fuels containing 40 to 50 per cent nitromethane.

The 29X nevertheless runs extremely well and with a quite good power output on more 'cooking' varieties of fuel. We made some brief checks on a typical C/L stunt type fuel containing 5 per cent nitromethane. These indicated that maximum b.h.p. would be in the region of 0.50 b.h.p. - rather better, in fact (despite the 29X's smaller capacity) than we obtained, last year, on our test of the well-established and much favoured Fox 35 Stunt engine.

Typical prop revolutions obtained with the 29X running on 'Missile Mist', included 8,500 r.p.m. on an 11x6 Top-

Flite wood, 10,100 r.p.m. on an 11x5 Top-Flite wood, 10,400 on a 10x6 Top-Flite nylon, 10,900 on a 10x6 Tornado nylon, 12,400 on a 10x4 Tornado nylon, 13,800 on a 9x5 Top-Flite wood and 14,500 on a 9x4 Top-Flite nylon.

All performance figures were taken with the 29X in standard 'open exhaust' trim. The makers do not offer a silencer for the 29X. A possible solution here would be to use the Tatone 'Peace Pipe' Model 102 which will fit the 29X without modification to the engine.

SPECIFICATION

Type: Single cylinder, aircooled, glowplug ignition Desaxe two-stroke with crankshaft type rotary-valve and single needle-bearing.

Bore: 0.738 in. **Stroke:** 0.700 in.

Swept Volume: 0.2994 cu. in. = 4.907 c.c.

Stroke/Bore Ratio: 0.948:1

Weight: 8.1 oz.

General Structural Data

Pressure diecast aluminium alloy *cylinder/crankshaft/main bearing unit* with drop-in unhardened steel *cylinder liner*. Detachable pressure diecast aluminium alloy *crankcase backplate* secured with four screws. Case-hardened steel counterbalanced *crankshaft* having $\frac{1}{2}$ in. dia. journal, $\frac{7}{32}$ in. dia. crankpin and $\frac{3}{8}$ in. bore gas passage and supported in one caged needle-bearing at rear end. Lapped Meehanite *piston* with baffle and hardened $\frac{5}{32}$ in. dia. solid *gudgeon-pin* retained by wire circlips in piston bosses. Machined aluminium alloy unbushed *connecting-rod*. Pressure diecast aluminium alloy *cylinder-head* with recessed .010 in. soft aluminium gasket and secured with six screws. Machined steel *prop driver*. Brass spraybar type *needle-valve assembly* retaining aluminium choke insert and reversible for left or right hand control. Beam mounting lugs.

TEST CONDITIONS

Running time prior to test: 1 hour.

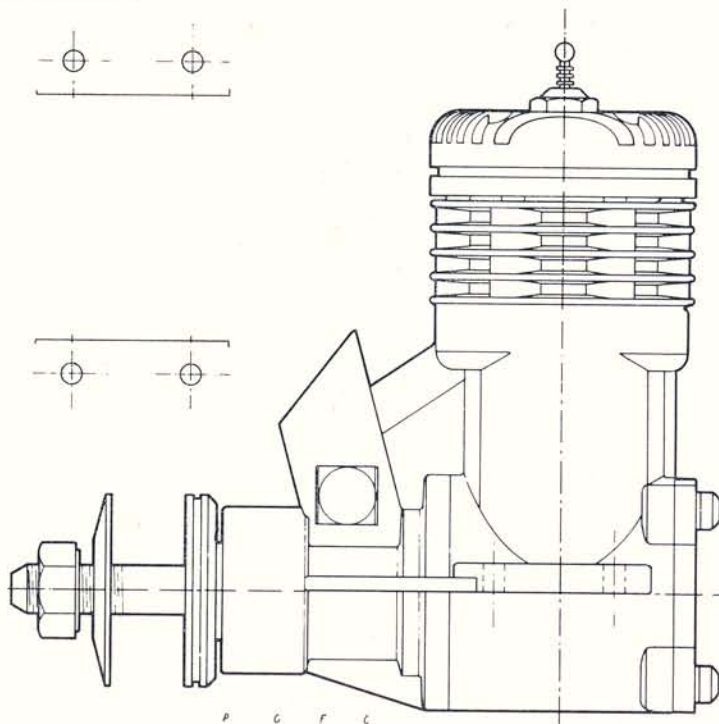
Fuel used: Fox 'Missile Mist' (approx. 20 per cent nitromethane rating).

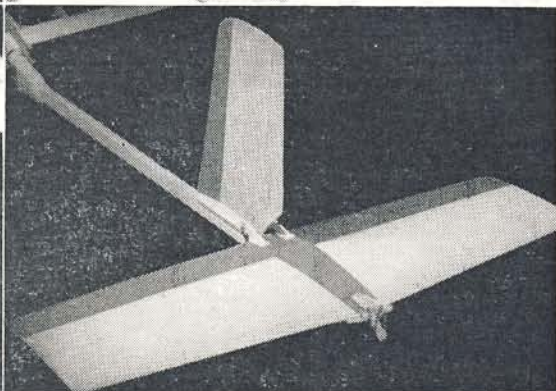
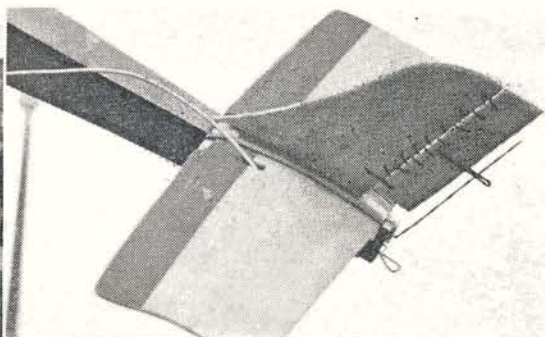
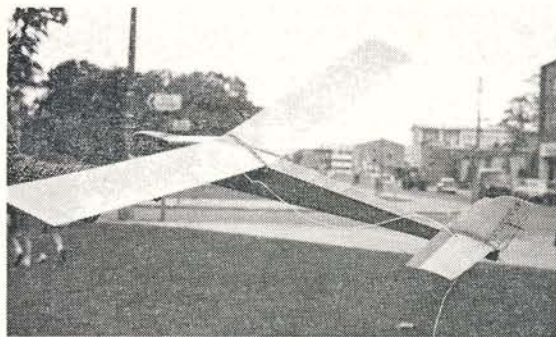
Glowplug used: Fox long-reach, platinum-rhodium filament, as fitted.

Air temperature: 54 deg. F.

Barometer: 30.00 in Hg.

Silencer type: Nil.





RADIO CONVERSION OF GRAUPNER UHU

BY HARRY PURSER

THOSE WHO READ our initial report on this glider in Trade Notes of May *Aeromodeller* will remember the comment about this model being strong enough to withstand over-enthusiastic towing speeds. Monospar it may be, but when that spar is in pine a strong wing results, proven in this case by a builder who has had more than a fair share of folded wings in the past. It was this, plus the acquisition of a McGregor Minimac that led to the thought of an R/C version of Der Kleine UHU.

A simple box fuselage was sketched out to obtain a reasonable shape, this then being transferred to 3/32 in. sheet balsa, using the original dimensions to form the sides. Ordinary built up and cross grained bulkheads were used, with cross braces and tissue covering to the rear. The sides were joined at the nose using scrap trailing edge strip, hence the pointed, narrow nose. The radio compartment has a double thickness floor with towhook fitted. A new fin was cut from $\frac{1}{8}$ in. sheet balsa (who said there is a resemblance of a full-size 'Dart'?) and attached to the original tailplane. If you *must* look closely at the picture of the tail, woodworm is *not* present, but many of us probably know how difficult it is to shoot away stubborn forked twigs with an air rifle! (That is without one or two of the two hundred pellets expended going elsewhere.) The simple Elmic Conquest escapement was fitted with torque rod, etc., the rudder yoke being a simple hairgrip cemented in position. Britfix 66 cement, incidentally, is adequate here, providing that a liberal application is made to the rudder before and after fitting the yoke. Operating on two 1½ volt pencil

batteries the early type Minimac with Conquest is a good weight saver over 4.5 to 6 volt types. This kind of construction and rule of thumb modifications to a design is done with little theory and minor damage usually suggests where weaknesses lie, our UHU being no exception.

First test glides on a slope of ten feet or so indicated a slightly faster glide than the profile version, a desirable point for slope soaring, with no ballast needed for correction. Preliminary trials of the rudder operation at this time made one wonder if the yoke was set too high; it was responsive to say the least with the rudder movement provided. However, ten foot slopes are no real indication, so we set off to a somewhat higher slope of some 200 feet, where a slight breeze directly on to the hill was convenient. A check on controls, a southpaw launch and the little UHU-R/C was away with a gentle climb to level out fifty feet in front. A turn to the right and left for a couple of two hundred yard long beats, and a landing some fifty yards behind the launch point were amply satisfying for a first flight. Flights gradually increased to a best of about nine minutes, before a forgotten sequence took her straight in from a tight turn, to prove that a stronger nose using doublers would avoid splitting.

The responsive rudder can be fun, and two quick presses, at the right moment will kill the most violent stalls. Towed flights are a little disappointing, the extra weight bringing the model down fairly quickly, a requirement also being indicated for a larger fin to counteract weaving on tow. After a few further outings on similar lines to the first, the Minimac was fitted into another

Graupner model, the 'Dandy', and the R.S. 'Navigator' installed in Der Kleine UHU. The ready-made battery holder with four pencils, fitted into the original nose like a glove, and the word foolproof is really true as regards fitting this equipment. It is as easy as plugging a kettle in to the mains and about the only criticisms are that the wires are rather long, making a small model look as though it is full of wire coils, and on our example a badly skipping actuator (quite hopeless with a motorised actuator). Four batteries in the nose instead of two add to the flying speed for slightly stronger winds. But the emphasis is that UHU is a light wind model, in fact, a very cheap flyable soarer.

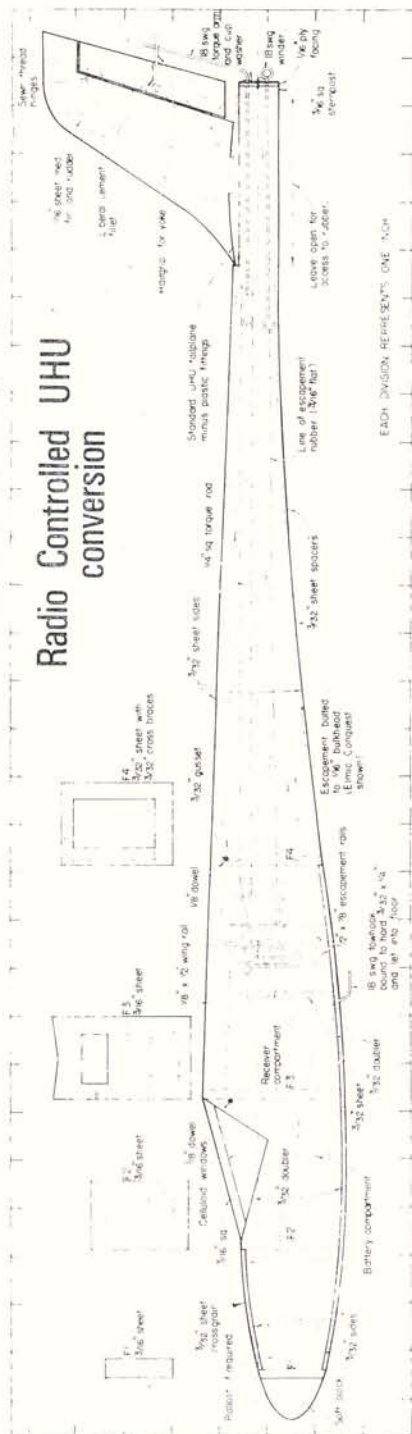
Construction

Cut two sides from medium 3/32 in. sheet balsa and attach doublers uprights and sternpost. The actual shape is not critical provided incidence angles, etc., are adhered to. Join the sides squarely on bulkheads F3 and F4 followed when dry at rear and front bulkhead F1. Attach nose block and cross members (original uses 3/32 in. sheet cut into $\frac{1}{2}$ in. - $\frac{3}{4}$ in. wide strips), sheet bottom to bulkhead F4 (double thickness to receiver compartment) and sheet top from nose block to bulkhead F2; cabin frames of 3/16 in. square add to the strength. Cover the fuselage with lightweight colour tissue doped on, with celluloid to cabin. On the original the top sheet of the cabin is held in position with Sellotape, allowing access to batteries, etc. Now take the standard tailplane and cut a 1/16 in. x $\frac{1}{2}$ in. slot to correspond with tab on fin, which is from medium 1/16 in. sheet as is the rudder. Again, shape of fin and rudder is largely a matter of choice combined with the angles and areas given. (Sweeping back the rudder line helps to keep the nose up in turns.) Attach the yoke to rudder using 22 s.w.g. wire and an 8 B.A. bolt or the hairgrip already mentioned. Only snag here, a hairgrip is not quickly adjustable, and if you set it where shown rudder response is good! Decorate and colour trim to choice, and another thought, a power pod for an .020 should be possible. If using this, that rudder throw must be reduced!

Radio Installation

A standard Conquest actuator was mounted on a 1/16 in. ply bulkhead, this unit being a sliding fit in $\frac{3}{8}$ in. x $\frac{1}{2}$ in. rails cemented to fuselage sides where shown. Make up a torque rod from $\frac{1}{8}$ in. square balsa and bind a tinplate clip at the front end (clip supplied with Conquest) and 18 s.w.g. piano wire arm at rear. Apply a liberal coat of cement before and after binding. Bend an 18 s.w.g. winding hook as shown. The rear fuselage should be faced with 1/16 in. ply which is adequate for bearing this rod and hook. When the torque rod is fitted, a washer can be soldered to it on each side of the sternpost to retain the torque rod in position. The receiver is fitted behind the bulkhead F3 using foam rubber for packing. It was found that the thin variety often condemned is satisfactory, provided that it is tightly rolled and packed to front and sides. (Our receivers still work after one or two (minor?) catastrophes!) Either the two or four battery containers, commercially available will fit into the cabin, again it is advisable to use foam packing, particularly in front. Wiring is dictated by the equipment used. Avoid the usual pitfalls of dry joints, etc. When taking the aerial through the fuselage sides remember to tie a knot on the inside or rescue from a tree (it can happen with R/C!) or bush could damage the receiver. Escapement rubber is from 3/16 in. flat strip, in a loop about 1 in. longer than the distance between hooks. Despite what one hears, three hundred turns is about the maximum, possible or really desirable, with this type of layout.

Our heading photographs opposite show the R/C version of this trim little soarer (upper). Aerial shown is rather thick and looks a little untidy (is actually a replacement due to loss of original). Note the sewn thread hinges and hairgrip for yoke. Lower views are of the nose and rear fuselage of the profile (kit) version. In both cases construction has been kept as simple and functional as possible. The kit is 44s. and an extra 10s. should cover the cost of materials for R/C fuselage. Plus dope of course.



Radio Controlled UHU conversion

This quarter scale drawing can easily be reproduced full size by joining up the one inch divisions and preparing a full size grid of 1 in. squares to match. It is then simple to transfer the information to give full size outlines.

Readers' Letters

VIEWS EXPRESSED IN THESE COLUMNS ARE NOT NECESSARILY THOSE OF THE EDITOR. CORRESPONDENCE INTENDED FOR PUBLICATION SHOULD ALWAYS BE ACCOMPANIED BY THE FULL NAME AND ADDRESS OF THE WRITER AND AN S.A.E. FOR REPLIES.



Mr. H. J. Boyd's Pfalz, posed realistically is a fine illustration of the 'solid' modeller's art. We too wonder how many of the old breed still carve their own scale 'solids'.

No 'solid' scale?

Dear Sir,

I have been a regular reader of *Aero-modeller* for a good number of years now, but as an ardent non-flying scale modeller my side of the business only gets a small percentage of space in your excellent magazine.

Is it that there are so very few scale modellers these days? Are there any youngsters who make models from scratch these days like we did pre-war? – or are they all plastic fiends?

Excellent though these models are, they require very little skill to assemble. To be a 'real aeromodeller' you should be able to build, or shape, the parts yourself. It would be very interesting to me, to know how many of us 'old boys' are left, and how many younger types make their own. To find out, I would like to issue a friendly challenge to any of your readers (or staff for that matter) who can send you a photograph to look like the real thing, as good as this one (or is it real?) of one of their models. I hope you don't think I'm big-headed, because I have seen many models far better than mine and I am the first to admit it, as I appreciate good modelling very, very much indeed.

My challenge is all just for the fun of it.

Edinburgh 3.

H. J. Boyd

Service

Dear Sir,

I think that perhaps your readers might be interested in the excellent service I have just experienced.

On Wednesday, 14th August, at approximately 3 p.m. I posted to Gig Eiffelaender a PAW 2.49 and Oliver Tiger for reboring. This morning (Friday, 16th) at 8.30 a.m. they were back and installed in the models by 9.30 a.m.

In this age where to look at anything requires at least a week's notice, I think Gig Eiffelaender should be praised (not forgetting the Post Office).

Chelmsford, Essex. David H. Stapleton

Fair sex speaks out

Dear Sir,

I was very interested to read Pylonius' Comments on Lady Retrievers in the August *Aeromodeller*.

I think he is a wee bit out about all female flyers. We don't all sit on our 'tails' while our menfolk do the running.

If he would take a trip to Ashdown Forest on any Area day, he will see a very mud-stained, windswept, scratched 'by thorns' female returning from down wind time after time. If he hasn't flown at Ashdown he just hasn't lived, it's one hell of a hole, give me

Everything off the clock bar the maker's name

Dear Sir,

At last the solution to a point that has caused concern for some little time now; namely why it is that so few builders of scale model aircraft see fit to install a pilot in the cockpits of their models. After all, would you want to be the pilot of the rather lovely R/C Moth in the October issue of *Aeromodeller* when a quick glance at the instrument panel shows you to be chugging along in a South Westerly direction at 95 knots or so with a few hundred feet in hand, but with – horror of horrors – no oil pressure, and even worse, no engine revolutions? Not me – I'd be over the side in a flash, and that no doubt is where the pilot of this particular Moth has gone.

Seriously though, if you are going to take the trouble to make available to prospective builders of this model a set of suitable instrument faces, surely it would be worth the little extra trouble involved to make their readings consistent – for example it should not be too difficult to ring up the local flying club, and ask what oil pressure and engine revolutions would be about right for an air-speed of 95 or so knots. Perhaps better still, set all instruments to zero, as – let's face it – they will only be seen by the interested bystander when the aircraft is on the ground with the motor stopped. Any other state of affairs would not be conducive to idle goofing – either the thing is too high up, or the pilot (full size) and ground crew will be too busy preparing to take off to put up with enthusiastic rubber-neck peering into the cockpit to examine dummy instrument readings.

You could perhaps really go to town, and make available sets of instruments suitable for fixed areas of the Country. These would have all instruments zeroed with the exception of the compass, which would then carry the correct reading when the model is placed on the ground pointing into the prevailing wind for that particular area. Extending this, you could also perhaps supply calibrated sets of instruments, so that with the aid of a number of prebuilt instrument panels fitted with slides, the builder can then simulate any flying condition that his imagination will run to, right down to the 'upside down nothing on the clock, and still climbing' theme . . . Perhaps we might

see at next year's Nats a Beagle Pup flying due North at Mach 2 and with 50,000 ft shown, the motor ticking over at 15,000 revs with 5lb./in oil pressure!

Lt Cdr. A. D. Briggs, R.N.

Manadon, Plymouth.

Actually the Moth was stationary at Compton Abbas with dead engine being restrained by all and sundry in the teeth of a howling gale at the time we produced those ancient instrument dials. Alternatively, one might accept our apparent laxity as typical of unserviceability: but that is unkind. Note how clever we were to zero both engine instruments! The Gipsy Moth drawing has more than its share of troubles. Since preparation we discovered by observation that there are three distinct wing panel designs for the D.H 60 and ours was not typical of a Gipsy version. Consequently plan sales have been delayed while a completely new set of drawings were prepared! Sorry customers – but in the interests of accuracy, etc. etc. Ed.

Public displays

Dear Sir,

Yes, I must add my congratulations to the organisers of the Shuttleworth Scale Rally. Now if only the powers-that-be in the aeromodelling world will see the deep implications of this success! Far be it from me to decry the 'traditional' rallies, the duration events: free flight power, open glider – but blowing across them is the wind of change and the wind of change has brought with it the scale model. For the participants in a conventional rally there is a skill and satisfaction. For the spectator, there is – let's be honest – no spectacle at all. And it is spectators that the aeromodelling movement so badly needs!

So let's lift up from the duration doldrums. Let the R/C aerobatic teams form. The equipment exists. The designs exist. Today, aeromodellers can demonstrate before the public such flying more, for they will realise (as has been proved at Old Warden) that model aircraft are now really worth watching.

Cleckheaton, Yorks.

E Humphrey

Date for 1969 AEROMODELLER Scale Rally at Old Warden is to be June 22nd – Ed

Chobham anyway, it's a rest camp compared to the Forest, but we pay to fly there - we must be mad.

I am no loner at this retrieving lark. A few other ladies do fetch their own models, so give us a bit of credit lad.

We are not all Mary Rands, so I don't know how you failed to see us
Bognor Regis. *'Lady Modeller'*

Tactical Topic

Dear Sirs,

As treasurer of the Peterborough M.F.C. it is very rare that I have to lift a pen in anger but I can no longer restrain myself.

The Airtech rally was one of the best 'fly for fun' rallies in the calendar together with 'Northern Heights' which has befallen a similar fate and all due to a small minority of competitors. Could it be that this is the same bunch who cycle across the flight lines and controls of other events at other rallies whilst chasing their models even after being politely asked not to several times at each rally they fly at. Is it also possible that they are the same people who brow-beat time-keepers, harass flight controllers and have no respect for fellow competitors. I have also seen these same self-confessed experts at S.M.A.E. Meetings throwing abuse of every kind at the committee.

Now surely is the time to act before these self-centred types ruin every rally for those of us who enjoy going to and partaking in them. It is high time these people were black-listed by the S.M.A.E. and F.A.I. in all rallies even go as far as refusing to insure them or even fining them. I realise that some of these people are experts in their field and that the S.M.A.E. and the hobby in general can do with all the support possible, but this kind we can do without. I for one and the rest of my club would like to be rid of these people so that we can compete in friendly competition without the presence of these unfriendly types who will try the lowest tricks in the book just as long as they win.

Alan Wright

Peterborough

Fee Fie Foe Fum!

Dear Sir,

With reference to the September issue of the *Aeromodeller*, I would like to bring to your notice a mistake in the captioning on page 494, concerning P. Hunt's beautiful F.E.8.

The F.E.2b was a two-seater, in-line engine fighter of the same pusher set-up whereas the F.E.8 shown was the single-seater scout answer by the Royal Aircraft Factory to the 'Fokker Scourge'.

I have read of the 'ring-a-roses' tactic of the F.E.2b squadrons, protecting each other's vulnerable tails when attacked by enemy fighters, this duty undertaken by the gunner from the cockpit in front of the pilot.

Crediton, Devon. G. R. Overfield-Collins

Clang! Couldn't read our own notes on this one, sorry pundits - Ed.

Nothing original?

Dear Sir,

Every so often, there appears in the *Aeromodeller* an article on variable pitch propellers, the recent one being by Reiner Hofsass in the August edition.

With all due respect to Herr Hofsass, the photos did give the impression of a rather awkward and untidy-looking device, although it is obvious that it works well.

It would seem that the V.P. propeller is a fairly modern innovation, yet whilst browsing through some old *Flight* magazines, I came across a letter sent by a modeller, putting forward his ideas on the subject together with an accompanying sketch. It was an extremely neat device and considering that the *Flight* magazine was dated December 31st, 1910, the whole subject was far ahead of its time as V.P. propellers did not come into being as a worthwhile proposition on full-size aircraft until the 1930's.

Two further points of interest are worth mentioning.

There were a considerable number of letters in *Flight* of 1910 on pendulum stability, and in 1911 there appeared a letter putting forward in theory a rather crude form of propulsion (crude by modern-day standards). This letter was headed JET PROPULSION!

Ashtead, Surrey

S. V. Tucker

Catapult risks

Dear Sir,

'A word of Warning'. Yesterday, while out with our local club group flying R/C, one of our group had his two young sons with him, each equipped with a stick and rubber band-launched plastic glider.

My friend and I decided to try a 'high start' type of launch. A 12 ft. length of Pirelli was produced, doubled, hooked to the kid's glider, stretched to maximum and released. The expected 'up and away' did not occur, instead the model flew straight and low and struck me square and true *in my right eye*. Result - three severe cuts to the eyelids, seven stitches and a 'Keeker' which will take weeks to disappear. It will be several days before I can see properly and the doctor says I was extremely lucky not to have lost my eye.

The moral: don't try fancy advanced techniques with even simple toys without considering the possible dangers. I don't know how to calculate the velocity of a 3 oz. catapult model of this type on 12 ft. of rubber, but I can assure readers that I was knocked completely off my feet and spun round in mid-air before landing on my face. I weigh 12½ stone, so please lads, take care - *think* before flying, any models.

Dumfries, Scotland.

J. S. Martin

Polystyrene wings

Dear Sir,

Your articles earlier this year inspired me to make my own experiments with cutting polystyrene for foam wings. For the benefit of other readers who may also be working along these lines I offer my results to date

All of my work has been concentrated on small wings for Single Channel Radio aircraft. The smallest is an 18 in. tapered lifting tailplane, the largest a 52 in. glider wing. This is a tapered wing with pronounced undercamber. The foam cores for this wing weighed just over ½ oz! When finished it weighed 6½ ozs. In spite of an aspect ratio of 10, this slender wing is very strong and has been tested on a 'Matador', it survived everything including a crash which smashed the nose (not mine!)

The hot wire cutter is very similar to those described in the March/April articles. I suspend mine by ½ in. flat rubber from the garage roof so that, at rest, it is 3-4 in. above the bench top. I have drilled two corks and these are threaded on the wire. The cutter is manipulated by holding the corks rather than the bow. This gives much better control and the rubber suspension takes all of the weight of the bow. The other innovation consists of guides on the wing section templates to control the hot wire as it enters and leaves the foam block. This is a very simple arrangement, as shown in the following diagram.

If you are forced to use the Styrofoam as supplied by builders merchants (this is all I can get) you will find hard lumps and irregularities after you have cut out the wing. These can be cleaned up and levelled with a Zip razor plane (Woolworths 3s. 6d.). It must have a new blade for this job and is used at about 45 deg. to the direction of cut.

I have tried several covering materials for my wings and bearing in mind their size and the weight to be carried I have settled for 1/32 in. sheet balsa. This is one-quarter of the weight of mahogany veneer and quite easy to use.

After one messy experiment with a latex glue I have used only 'white' glue, Evostik 'W' is quite cheap in the big bottles.

I retain the outside piece of the styrofoam block and use them as moulds with which to apply pressure to the wing while the 1/32 in. balsa skin is being applied. To prevent the moulds sticking, I cover any joints in the skin with Sellotape. This also holds the joints neatly together.

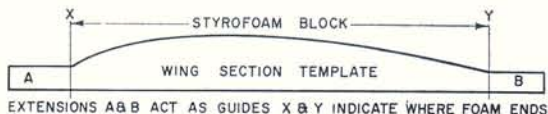
Leading edge and T.E. spars are of course glued on to the core, and planed to shape before this skin is put on. Since the U/C and T.E. are projecting out of each side of the moulds some method must be found to hold the 1/32 in. sheet in place while the glue dries. I have used Sellotape - quite good, paper clips - lots needed, and will try paper staples next time.

The logical finish for this modern wing is of course one of the iron-on plastic films. I use Solarfilm, I had no difficulty in getting it to stick to the hollow underchambered glider wing.

I hope that this is of interest, and I will be pleased if it sparks off any further correspondence.

M. Pitcher

Leek Wotton, Warwick.



1968 U.S.A. NATIONALS

AS SEEN BY
BILL HANNAN
AT OLATHE, KANSAS

Left: the winning free flight scale model, Loening OL-8 being launched by owner Tommy Meyer, of Corpus Christi, Texas. Model was built from Aeromodeller plans, and has won Nats previously. Webra 15 diesel power, 1 in. equals 1 ft. scale. Steady as a rock in the wind. Weight: 3 pounds. Inset shows Tommy on earlier occasion with Grover Loening, famous U.S. Aircraft designer of original! Below left: Frank Heeb, Xenia, Ohio, thrusts his Wakefield skyward in early morning. His son won open and Wakefield Jr. Classes. Below right: Charles Borneman, Indiana with his 'Old Timer' cabin entry. Model is a pre-war design from 'Flying Aces' magazine. Old Timers were a popular Nats feature.



the ground handling is more reminiscent of a stagecoach operation.

More than anything else, the U.S. Nats is a state of mind. For one solid, glorious week, a person can divorce himself completely from T.V., depressing newspapers, and 'normal' citizens. In their place are droves of enthusiastic aeromodellers from many parts of the country and even foreign locations. An unofficial estimate placed the number of contestants at more than 1,200.

WIND, WIND, AND MORE WIND. That was the story of the 1968 U.S. Nationals from a meteorologist's point of view. Coupled with the tissue-sagging humidity, model aeroplane flying became a real challenge indeed.

We had the pleasure of travelling to the Nats via Boeing 707 jetliner, complete with stereo music system and delicious in-flight meals. Such luxury almost makes one feel guilty! Aboard our aircraft were aeromodellers Ken Sykora, Granger and Larry Williams and yours truly, all members of the North American Flightmasters club. Our entire trip from Los Angeles to Kansas City, required a scant two hours and 45 minutes at an estimated ground speed of 575 m.p.h. Unfortunately, retrieving the Williams Brothers' R/C models, which had been transported in the cargo compartment of the aircraft, took an agonizing two hours! A depressing commentary on the bottlenecks of air travel. The aircraft may be efficient, but

As in the past, the U.S. Navy served as the gracious and generous host for the meeting. Contestants were housed in Navy barracks at no charge whatsoever, and were invited to eat wholesome and tasty meals in the mess halls for a very modest fee. Thus, the main cost of attending the event (other than for models) was transportation. Truly a low-cost holiday, and an unusually rewarding experience. If one felt the need for additional recreation, the Navy base theatre offered recent Hollywood films for the miniscule admission price of 2s. per person. Also available for contestants' use were the Navy swimming pool, bowling alley, and enlisted men's club.

Perhaps the only common complaint in this modellers' paradise (other than the usual mix-ups in contest rules interpretation) was the shortcomings of the human body, which was hard-pressed to maintain the pace. Feet, in





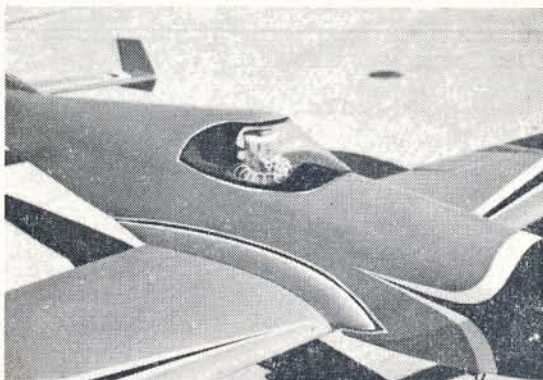
How's this for a swept wing? Roger Mason, who comes from Kansas calls his design the 'Swope' and uses it for two classes. A Super Tigre .15 is fitted for class 'A' and a Super Tigre .23 for class 'B'.

particular, have a way of voicing strong protests, after a couple of days pounding up and down hot runways! Then too, many of us were inclined to reduce our sleeping time to a dangerous minimum, since it seemed such a waste of precious time. Enthusiasm appeared to serve as a fairly satisfactory substitute, however, and it was not at all unusual to see 'hangar flying' sessions going on all night long. Not to mention the frantic building and repair activities that accounted for the presence of a few modelers in the working area, virtually around-the-clock.

Of course, there are always some hardy souls who, either by design or extreme procrastination, find themselves constructing complete models on-the-spot. Thus one formed the habit of dropping by the work benches in order to check on the progress of these last-minute entries. These visits also afforded the opportunity to observe various construction techniques and methods first hand. It is satisfying to note that very little secrecy exists among model builders. With a few notable exceptions, everyone was more than willing to explain their 'pet' approaches to our universal problem.

In addition to the aeromodelling activities, every U.S. Nats features static and flying displays of full-size aircraft. This year was no exception, and a good variety of items were on hand, including antiques, homebuilts, space capsules, rockets, etc. The airshows featured aerobatic displays, precision flying, and parachute jumping. The

Close-up of cockpit on C. G. Hoover's triple tailed new look radio design shows a pilot made up of electronic components! Has Veco .61, and naturally, F. & M. gear as 'Frank' is the maker, from Albuquerque, New Mexico.



Judy Keith guards hubbie Keith's 16 lb. control line scale winning Avro Lancaster Mk.I. Feature opening bomb bay doors, flaps, moving turrets and lights. Retracting gear now fixed. Powered by four Super Tigre .23 engines.

grand finale was provided by the Navy's famed 'Blue Angels' demonstration team.

Trying to give an objective, comprehensive account of the Nats is a bit like trying to film a 3-ring circus with a box camera. One is surrounded by so many exciting events, some proceeding simultaneously, and often in widely separated locations, that it becomes almost impossible to see 'em all. Thus, we offer a rather random sampling of observations, which may offer at least a taste of action.

R/C SCALE: A fantastic array of models were on hand for this extremely popular category. It became immediately apparent that the approach to this class is heading in two different directions. First is the more traditional type of entry, which assumes the model to be a reproduction of a 'factory fresh' aircraft, and therefore is ultra-neat and clean. Perhaps the outstanding example of this thinking was Claude McCullough's Yak 18. The finish on this model has to be seen to be believed, and is perhaps too flawless. In the other direction, some builders are now aiming at the simulation of 'battle worn' or weathered look, best exemplified by Dave Platt's Douglas Dauntless. This type of presentation has been practised for several years by the I.P.M.S. fraternity, on their plastic models, but seems only recently to have gained favour among the flying scale set. Doubtless we shall see more examples in the future.

All the way from Japan, the Champ of those parts, Tsao Matsui and partner from Tokyo with O.S. .60 powered 'Corsair' original. Radio gear is Micro Avionics. Pierre Marrot from France topped the qualifying flights for final placings.



C/L SCALE: The total number of entries were down somewhat, although we were informed that the pre-entry list had been much larger. Presumably, some of the models were not finished in time, or were damaged in testing. At any rate, the quality of those that were on hand was of a high order. The variety of entries was exceptionally broad, ranging from a World War I SPAD through to Cessna 320B. Perhaps the highlight of this year's Nats for yours truly, was the fun of serving as a member of the ground crew for the winning Avro Lancaster, constructed by 'Doc' Keith. The regular 'trained' crew was not available, so several of us volunteered to assist, in this remarkably complex starting operation. Though most of us were primarily free-flight oriented, we somehow managed to get the four Super Tigre 23s all started, tuned, and topped off within the allotted starting time. As the great bird became airborne, Ken Sykora, who had been in charge of seeing that all fuel tanks were full, said 'I feel like a father!' The model is really a magnificent sight, and features operating flaps, rotatable turrets, working lights, and throttle control. The landing gear is retractable, but was locked down because of difficulties encountered last year.

Parting comment from a C/L flyer to an avid free flyer: 'I never have to chase my models more than 60 feet!'

F/F SCALE: Our little California contingent of free flight scalars were soundly defeated by the high winds. It became quickly obvious that we had been spoiled by years of flying in the calm. (We generally cancel our contests, in case of high winds.) But alas, it now becomes evident that we must learn to face into the teeth of the gale, as you residents of Great Britain evidently have been doing since the dawn of time. Appropriately enough, the winning model, a Loening OL-8 was built from A.P.S. plans. The second placing model was also English, a DH-1A, by Ted Dock of Warsaw, Indiana.

Actually, some of the rubber-powered models fared better in the wind than the power jobs, and, in fact, Jed Kusik, of Long Beach, California, managed to qualify his all-sheet balsa INDOOR Cessna Bird Dog in the outdoor F/F scale event, while this author fell short of the mark by one second with a tiny (12 in. span) Peanut Scale model, which was hastily pressed into service for the occasion!

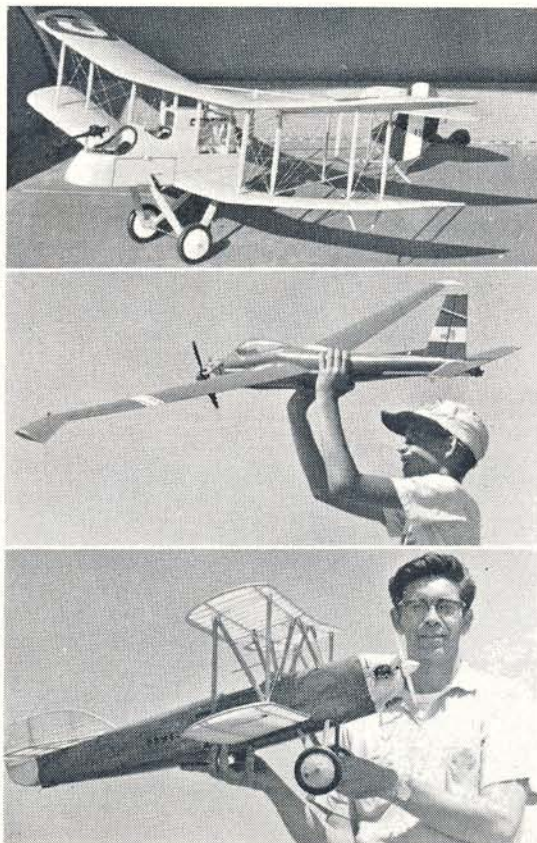
INDOOR FLYING SCALE: Thanks to the efforts of Jim Root, Dave Linstrum, Don Pratt, and other dedicated people, an indoor flying scale event was held in conjunction with the Nats, as an unofficial event. Since the flying site, an Air Force gymnasium was not located until a short time before the contest, publicity was not very widespread. Nevertheless, a good variety of models were on the scene, to compete in what amounted to a large Sauna bath! The humidity level was so extreme that many of the models became tail-heavy and required the addition of nose ballast to offset the moisture-soaked empennages! Needless to say, rubber-motors were failing with regularity.

Dedication saved the day, however, and many good flights were made. Probably the most remarkable performance was provided by a tiny Wright biplane, which skidded off the floor (no wheels, remember?) and remained aloft for more than 45 seconds. Ken Johnson, from Pittsburgh, Pennsylvania assured us that indoor thermals were keeping his 5 gram Piper Vagabond suspended high in the rafters.

OLD TIMER EVENTS: Another unofficial but always popular class of models are the 'Old Timers'. Genial John Pond (Mr. Old Timer) again served as Contest Director for this low-pressure fun-oriented affair. Participation seems to grow every year, and a good time was had by all. Everything from vintage twin-pushers right on up to highly overpowered (glo-engined) versions of pre-war designs were seen, and a spirit of good fellowship prevailed.

THE LONG FLIGHT: This is a movie by modellers and about modellers which was presented in conjunction with the National Free Flight Society Symposium. It was mentioned in John O'Donnell's 'Free Flight Comment' for June 1968. Produced and directed by Herbert Franck, this gem is a MUST SEE for modellers. It will stir long-forgotten emotions in even the most cynical builder's heart, and is especially recommended to free-flight groups, who may rent it at a nominal fee. Additional details may be obtained from the National Free Flight Society, care of Ann Gieskieng, 730 Moore No. 2, Denver, Colorado, U.S.A. 80215. Technically inclined free-flyers, who may care to obtain copies of the Symposium report may do so by sending \$4.50 to the Supply and Service Section of the Academy of Model Aeronautics, 1239 Vermont Ave., N.W., Washington, D.C. U.S.A. 2000.

To summarise, I'd merely like to quote one person who said: 'Only mentally deranged people go out and fly toy aeroplanes all day long!' Then he picked up his scale model and headed for the flight line.



Top right: Ted Dock's 40½ inch De Havilland D.H.-1A was 2nd in free flight scale, powered by Cox .049 it is one-twelfth scale. Centre is Lee Brown holding dad's novel free flight scale Bede B.D.-2 round-the-world project with an .09 'Pogo' X.F.-9 engine. Builder Russ Brown is seen with his third placing 1925 Powell Racer (Fox 15) at bottom. This one is to 2½ in. equals 1 ft. scale!
MORE PICS NEXT MONTH IN A FEATURE BY DON PRATT



FREE FLIGHT COMMENT

By John O'Donnell

At left, G. French prepares piped Night Train at Team Trials

left for the rest of his holiday. As it turned out this was academic as nearest scores were 7:50 by Crookham's Chilton and 7:04 by Harris of Evesham. Nonetheless, I was anxiously watching Short of Northampton who started with a max from his Trevor Payne-designed model, but had subsequent trouble.

The rubber event was surprisingly badly supported. Russell Peers made all three flights to record 7.47. He smashed his open model on launch for the third flight - then max'd with a Wakefield. This was rather unnecessary as the only other score recorded was Kath Allen's single max. I also saw another Brighton model (Bill Gravett's?) disappear on what I presumed was a contest flight. Neither returned, that day at least.

* * *

Entries in the S.M.A.E. Area-centralised contests held on 25th August were so low that comment appeared on the results issued by Ian Lucas. This was to the effect that 'Bad weather restricted entries and times from all areas'. I rather doubt if it provides the full explanation, however.

There has been a noticeable decline in interest in this type of contest over the past season or two, and a growing tendency to fly in other events held at the same venue. Nevertheless, there were no seconders for the N.W. Area's proposals to the S.M.A.E. Council Meeting of 24th August that this type of contest be reduced or even dropped. Practical support the following day was another story, with a grand total of 53 scores being recorded over three events.

The Northern Area's venue at Elvington was also the scene of a drag-race meeting. This made a most interesting comparison of relative amounts of interest/participation/organisation/facilities/etc - and there is little doubt in my mind that aeromodelling's biggest deficiency is in prestige and hence public acceptance. It is certainly not a matter of expense if indications at Elvington were anything by which to go!

Luckily, the wind direction was such that flying was possible without interfering with the racing. On the other hand, it was blowing straight on to Elvington's notorious 'jungle' and the woods beyond. This combination seemed to discourage most people from serious participation even though glider maxs only reached the edge of the 'drome'. The only enthusiasm came from Dave Wiseman and I, who flew A/2 in earnest with more than one eye on the season's National Championship. We wasted little time and with the aid of pilot models, bicycle retrieving, and a surprising amount of lift had finished by early afternoon. I went through one marked (but small) thermal on tow and released just too late and hence recorded one bad flight in my 18:00 total. 'Wiz' managed a minute more to finish with 19:01. No-one else seemed very keen on making a serious

INTEREST AND participation in recent contests seem to have been affected, in some cases quite considerably, by the imminence of the f/f Trials. In the breezy conditions prevailing over the past few weekends there has been a definite (even admitted) attitude from many people of saving their models for the Trials. No doubt this also helps to explain the poor attendance at some events. Furthermore, many people fly both open and F.A.I., even though different models are really required for rubber and power, and presumably have been devoting their time to their Trials entries.

The Southern Area Rally, held at Beaulieu on 18th August, certainly seemed to suffer from these considerations. Although windy (15-20 m.p.h.), there was brilliant sun all day and plenty of lift. Retrieving was easy enough, as there is a considerable area of heathland outside the disused airfield proper. Nevertheless, attendance, participation and scores all seemed rather low. In particular, local attendance was lacking, and the whole administration fell on to two Southampton club members.

Glider seemed the most popular event, although appearances were somewhat deceptive in that there were two separate contests, open and A/1, with doubling up *not* being allowed. Martin Dilly won the open glider quite convincingly, although at the expense of losing his 'rough weather' A/2 due to D/T timer failure and last seen heading for the Isle of Wight. Wain of S. Bristol came second, whilst Pete Trenchard reappeared on the contest scene to take third place with two maxs surrounding a very bad second flight.

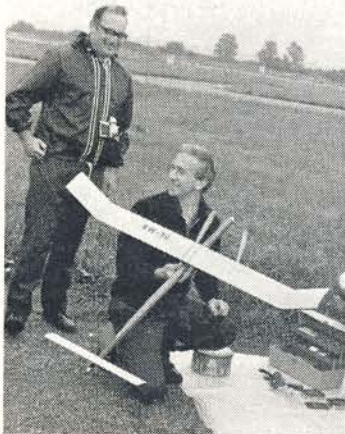
A/1 produced the only perfect score of the meeting with Jim Baguley recording three twos for first place. Butch Hadland was runner-up with a very simple looking design whose most unusual feature was its fuse D/T. Third was Mike Reeves with two ups and one down with his short-nosed, under-fin design.

My winning power score caused some dissension as the time-keepers failed to average their times for my final flight. By the time I discovered that the lower had been recorded the other timer had

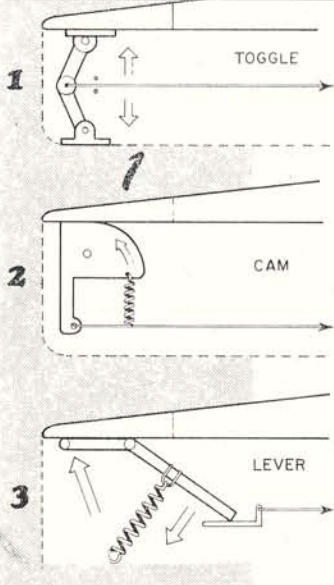
Expatriates return! John Cartwright on holiday from Lockheeds, and John Spooner, back from Germany to take part in the team trials.

E. J. Woodhouse (not related to Mike of same name) had to add a Spanner to bring his A/2 up to weight at Trials!

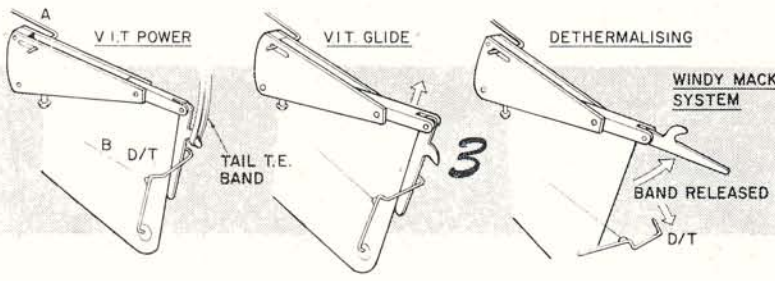
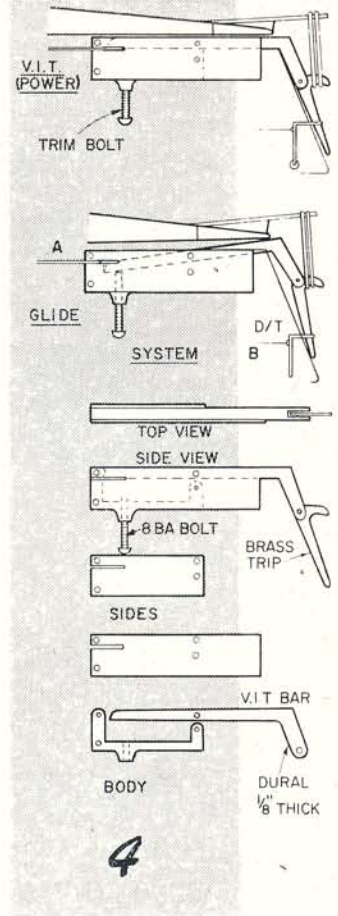
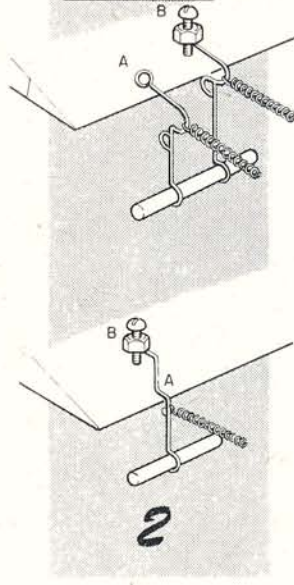
Returning to the hobby, John Tonge of Cambridge produced elegant Wakefields with elliptical surfaces at Barkston Heath Trials.



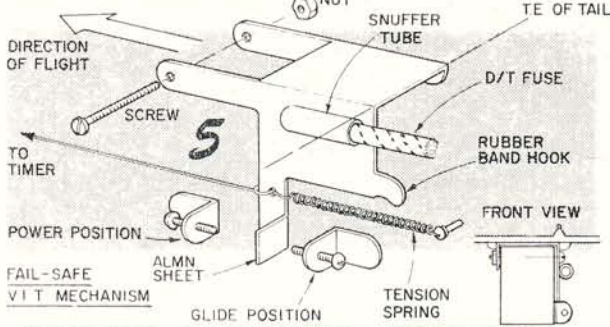
METHODS OF RAISING TAIL TRAILING EDGE



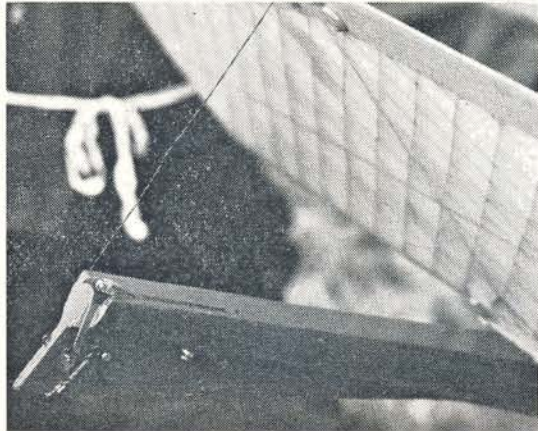
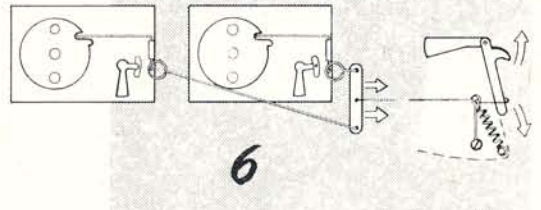
TWO-STAGE V.I.T.



SUITABLE FOR REAR FIN LAYOUTS



DOUBLE D/T TIMER SYSTEM



From Kunji Ojio (Japan) courtesy Mike Green, these sketches of various V.I.T. methods will help solve the apparent mystery for many of our readers. First figure is purely diagrammatic, 2 is M. Green's system, 3 as on 'Windy Mac' designs. 4. Variation largely used in Japan. 5. Ojio's method for 1/2A models. 6. Useful 'belt and braces' method.

effort in A/2 and there were only single entries in the other classes. Russell Peers totalled just over 7 minutes in 1/2A Power, whilst John Pool made a token entry in the Farrow flying with 2 minute D/Ts. Although York had a full team present the other three did not fly.

The result sheet brought some surprises. The **Farrow Shield** result brought back many memories with the reappearance of Northampton as winner of the Team Rubber event. Coming close on the heels of their winning the Keil, it hardly seems coincidence but much more like determined effort by a group of club members. I understand that they had windy, but by no means impossible, conditions. Brighton, who managed second place, had exhausting retrieving at Ashdown Forest. Nevertheless, Jack Allen recorded the best individual score in the Farrow with the only treble – and flew off. Not so fortunate were Fred Boxall and John West who could only manage very nominal scores for their third flights after an initial pair of maxs. Croydon had trouble at Chobham as their first four

flights produced four lost models – mainly due to their being picked up immediately after touchdown. Ken Smith had a model run over by a car, leaving Dave Hipperson as the only one to complete his flights.

Tony Young travelled to Beaulieu to win the S.M.A.E. Cup for A/2s with a very fine 20:31, in what he said was strong wind. Dave Wiseman and I were next. $\frac{1}{2}$ A Power only attracted seven entrants from which Russell Peers emerged as victor by virtue of a one second lead over H. Hutchings of East Grinstead.

* * *

The Bank Holiday Sunday saw the N.W.'s big meeting at **Woodford**, and hardly the best of weather. Although not as bad as the pessimistic forecast, it was quite breezy and with a most unfortunate wind direction. Drift was across quite a narrow stretch of airfield and directly on to a large complex of hangars and buildings. Even with unlimited choice of launching spot, little improvement could have been made – and would have merely given more length of airfield at the expense of 'worse recovery country' outside. As it was there was a surprising amount of open space outside the 'drome', and flying was not quite as suicidal as it looked at first.

Closest of the f/f results came from the hard fought rubber event. Russell Peers was first to finish – but was certainly lucky in that his model was found for him by members of the public after each flight. First, it was handed in at the airfield gate, then it survived being returned via moped, and finally, reappeared a couple of days after the rally. However, it had failed to 'max out', and this left Ted Prince and myself well placed with an initial two maxs apiece, although at the expense of a model somewhere downwind.

A shower in mid afternoon was followed by a dry and bright, even sunny, half hour before the early close of the events at 4.30 (to allow time for the flyoffs had they been required). This was accompanied by a slight reduction in wind strength. I failed to find lift with my reserve model, an old Wakefield with extra rubber, and recorded a mere 2:16. I thought Ted would have a flyover but he launched into severe sink, so bad he thought the model had D/T'd prematurely, for a disappointing 1.53 and third place. When he got home it was to find his first model already waiting for him – returned at mid-day by the finder! I had to wait till the Wednesday to hear about my 'Maxine' – by then very wet.



Rainswept Cranfield (2.6 in.) did not dampen the Bletchley Beauty Queen prizegivers or the events, especially combat as below (who's that character in the oilskin from Holloway Road?)



Glider was certainly affected by the Trials being the next week-end. Not that this should detract from Ken Brown's win with a 'Caprice', sensibly modified with a KSB D/T timer and featuring a high-visibility colour scheme. His second flight came down on D/T practically at my feet (whilst I was searching downwind) and just in the last of the open spaces before the Bramhall housing estate proper. Runner-up was Martin Dilly with a poor first flight, and two good ones thereafter, flying an A/2. Third was John Sumner with one thermal flight out of three.

Power was won by Russell Peers (who had a very busy day) flying a TD.049 model and for once, with no recovery problems. Second, and certainly rivaling Russell for keenness, was Trevor Payne. He lost his .40 powered model through a D/T failure after a marginal over-run – and then managed two maxs with his TD15 (plus pipe) reserve. He returned about $\frac{1}{2}$ hour too late for a third flight. Brian Hooley was third – also on two flights. There were plenty of others with trouble. Brian Picken put his first model on to the hangar roof where it eluded the authorised recovery personnel for most of the day. Then he over-ran with his F.A.I. reserve. Ron Firth did the over-run first, and the recovery troubles afterwards.

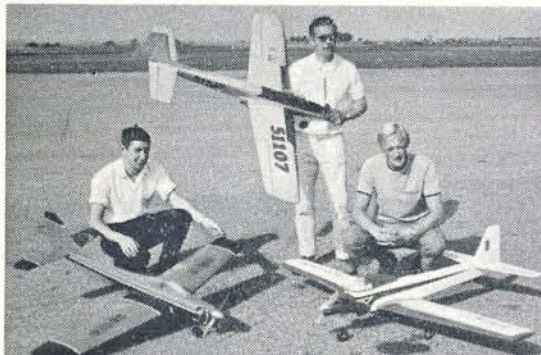
Mike Duce won chuck Glider by dint of an O.O.S. thermal flight after the rain – and even had the model returned. Exponent Roy Roberts, and Evesham's Harris, were not very far behind. Gala championships at Woodford are awarded on aggregate in all the f/f events, and the senior and junior trophies were awarded to Russell Peers (rubber and power) and John Sumner (glider), respectively.

Lost at Woodford, taken off some small boys by Russell Peers, and currently in my possession, is a rubber model belonging to Pete Lowe. The address label appears to have been removed violently – and the information thereon cannot be supplied by either his old club (Sharston) or by the S.M.A.E. Would he like to contact me?

* * *

The American centralised Trials held at Bong over the first week-end in September produced the following Teams:

Power	Wakefield	A/2
Bob Siffleet	George Xenakis	Phil Klintworth
Sandy Norton	George Reich	Jim Taylor
Henry Spence	Herb Kothe	George Xenakis



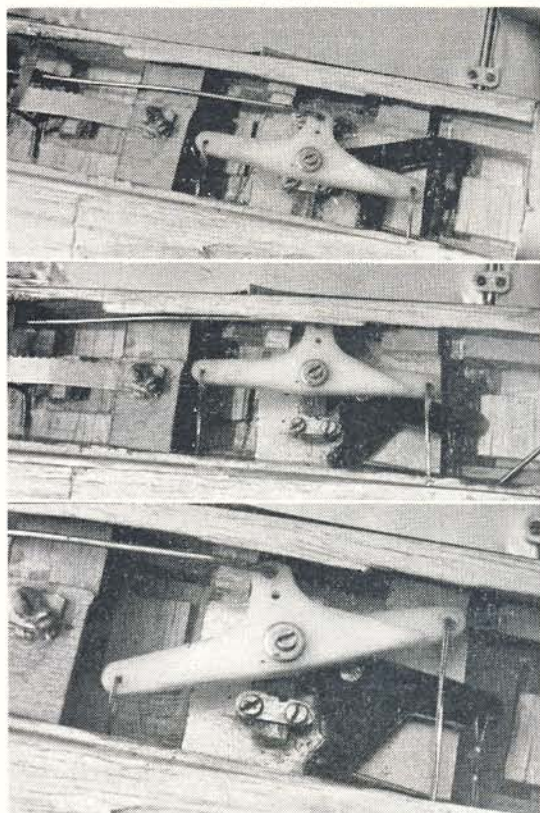
Tentative British R/C Team is M. Birch (standing), S. Forster (left) and D. Hammant (right). Below, N.W. Area's Miss Aeromodelling and Derek Brunt's Tony fighter at Woodford.





3 Line Carrier Control Systems

by MICK REEVES



THE RECENT INTRODUCTION of Navy Carrier control line flying has put a new emphasis on balanced control mechanisms. An auxiliary third line system as is often used in control line scale always has a tendency to remove line tension from the elevator control, and in carrier flying where precise throttle control is required this could be disastrous. In general use at the present time is the American Roberts three line unit and variations of this, combined with the excellent Roberts type handle. The safety requirements for carrier flying require a 20G pull test throughout handle lines and model, and the commercially available bellcrank appears to be marginal in this respect, particularly where heavier models are concerned. There is also the question of expense and the ideas for making control systems in the following paragraphs should be very useful. No difficulty should be experienced in the building of any of these units which, have been designed by Mick Reeves, who, incidentally, won the events so far flown, using similar systems. Types and sizes of the materials required are given in the diagrams.

In Fig. 1 an extremely simple unit is shown consisting of two bellcranks, B for throttle and auxiliary operation, and D in conventional form for elevator control. Note that bellcrank B is so shaped that the dimension from the leadout wire to the pivot is double that from the main pivot to pivot C. Bellcrank D is mounted on member C just as any bellcrank is mounted to a normal ply mounting plate, allowing free but not sloppy movement. C is then attached to A and B in a similar manner and these are in turn mounted to the usual plywood plate. The operation is straightforward, when the third line operates B, member C complete with the elevator bellcrank is moved in an opposite direction, thus maintaining a compensating

Author's Seamew on landing approach above shows flap used in slow flight. Movement of the bellcranks is obvious in close-ups—compare with Fig. 4 to note sliding action and throttle positions.

FIG 1

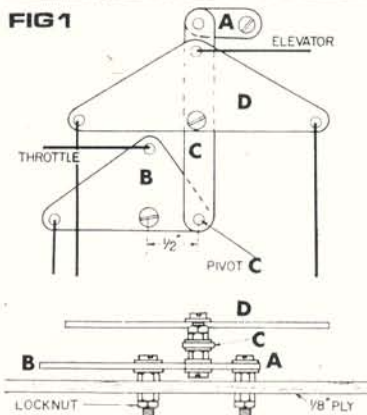


FIG 2

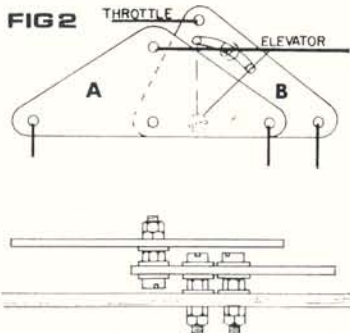
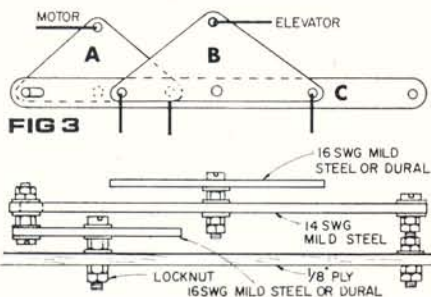
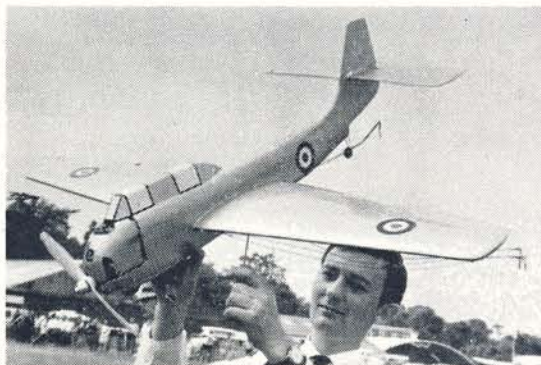


FIG 3



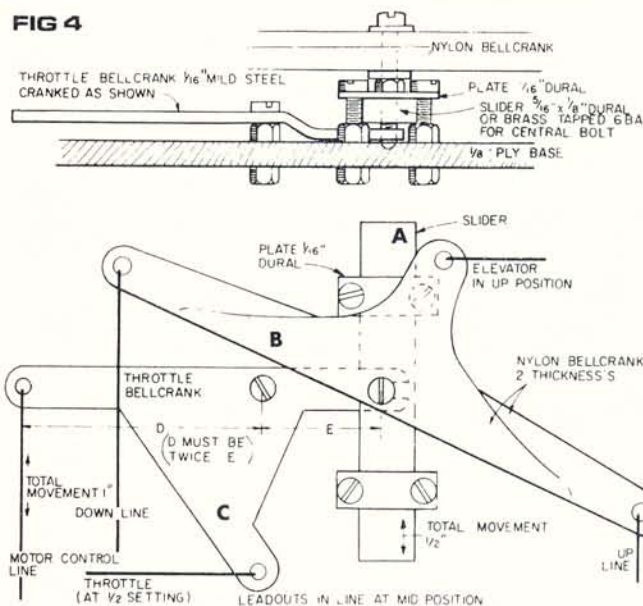
force on the lines at all times. Elevator movement is unaffected. The simplest possible unit, shown in Fig. 2 dispenses with members A and C completely but does affect the elevators slightly, dictating fairly slow movement of the throttle. The elevator bellcrank A is simply mounted on B, and in turn B complete is attached to the mounting plate. To avoid distortion and stiff operation a guide slot is shown cut in B. A normal 6 B.A. bolt in the mounting plate, with the bolt head holding B down should avoid any such problems. Accurate work is essential here to ensure a good sliding fit. Another simple mechanism again using flat components is shown in Fig. 3. Two normally shaped bellcranks A and B (note size differential) are used in conjunction with a compensating bar C. Bellcrank (throttle) A is bolted to the plywood mount as usual as is the compensating bar (with bellcrank B previously fitted) at opposite end. Bellcrank A and bar C

Continued on page 607



Mick Reeves has won all three Carrier Deck contests so far arranged, and his Seamew has proved to be a most practical selection of prototype as the deep nose permits an almost completely enclosed Merco 61.

FIG 4



HOLE DRILLED FOR STUD
DURAL IS SQUEEZED IN VICE AT THIS POINT THEN
CLEANED UP WITH FILE TO FIT FLATS ON STUD

FIG 5

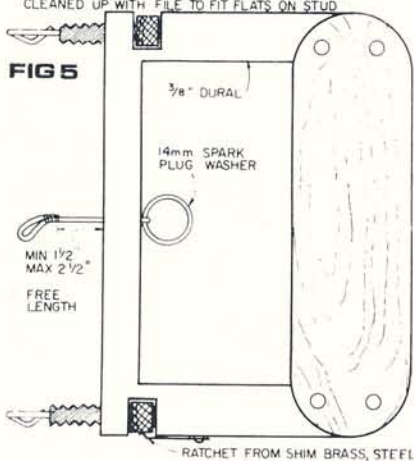
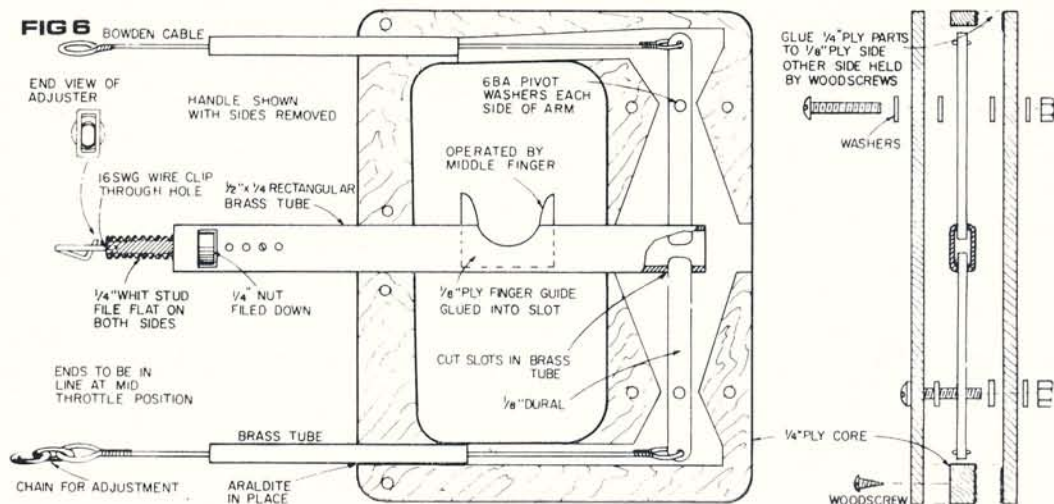


FIG 6



Strictly Simple

DAVID BODDINGTON ADVISES ON THE UNIVERSAL PROBLEM OF FINISHING

GIVEN TWO similar models equally well-built and equal in flying ability, the only thing that will distinguish one from the other is the type and standard of decoration. It is amazing how much difference a well-thought-out colour scheme can make to a model. It can make a plain model attractive, or an attractive model beautiful. For instance, let us consider the *Veron Robot* and R.C.M.&E. *Sleeker*. Both of these models are basically square, 'boxy' designs and if left completely undecorated, are not the most appealing of models. However, paint on the cockpit area, use a two- or three-tone colour scheme with trim lines and these models really come to life. No longer are they just chunks of balsa wood with covering on, but they become genuine model aeroplanes resembling their full size counterparts.

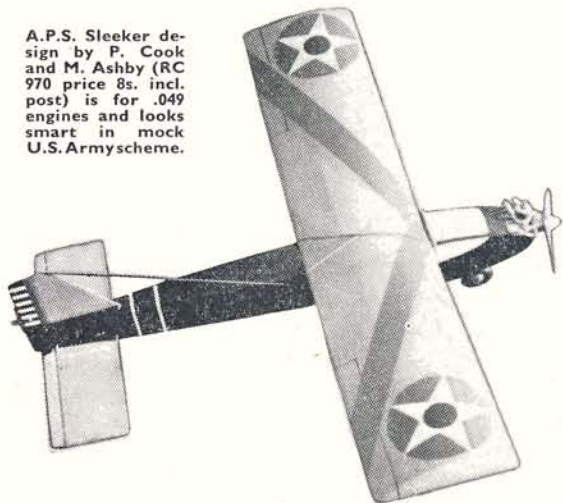
Decorating a model is, for those that build from kits or plans, one of the few ways of expressing individuality with any particular design. It frequently grieves me that so many modellers decorate their model in exactly the same way as the prototype illustrated in magazine photographs or on the kit box lid.

Designers do not have a monopoly of the best ideas for finishing models, and with so many types of decorative finishes available today, practically any scheme can be put into practice. Making a decent job of finishing a model need not be too time-consuming, indeed, as far as I am concerned, it often has to be done quickly to allow the model to be flown as soon as possible. Here then are a few suggestions on the use of various finishes that can be applied to radio-controlled model aircraft.

Coloured Tissue

I do not advocate the use of tissue paper on anything but the smallest of radio models or those with all sheeted surfaces. Tissue-covered models, with open framework construction, are not sufficiently puncture-resistant for the average flying field work and the tissue does not add greatly to the strength of the model, as is the case with silk or nylon. For the small sheeted model (e.g. *K.K. Gyron*), coloured tissue is an excellent covering material having the advantage of requiring no further colour painting. Choose contrasting colours of tissue, such as red and yellow for the different areas of the fuselage and

A.P.S. Sleeker design by P. Cook and M. Ashby (RC 970 price 8s. incl. post) is for .049 engines and looks smart in mock U.S. Army scheme.



wings. The tissue is best doped on to the balsa and smoothed out with a wad of scrap tissue. The pieces of tissue should be cut and placed as accurately as possible to the areas to be covered, but narrow trim strips of black tissue can be doped over the abutment of the contrasting coloured tissues to mask the joint.

Nylon Covering

The beauty of nylon covering, practically speaking, is in its tremendous strength but this is achieved at a certain increase of weight. For this reason it is important to keep any further weight penalty down to a minimum, and this means limiting the amount of extra paint applied to the nylon as far as possible. Nylon can be bought in a number of colours, but not always available just when you want it, or not quite the colour you had visualised for the model. An easy way over this problem is to dye your own nylon, or better still, to get your mother/girl friend/wife (delete as applicable) to do it for you. White nylon can be purchased from most furnishes, etc., and another good source is the market stalls. It is available in widths up to 48 in. Choose a lightweight (known in the trade as 2 oz. material) with a close weave, as coarse weaves require too much dope to fill all the pores. If you buy remnants (they only cost about 2s. 6d. a yard) from the market be careful to be sure that the material is, in fact nylon, and not Terylene. The latter has a slightly 'greasier' feel and crinkled appearance, it is not really suitable for our purposes.

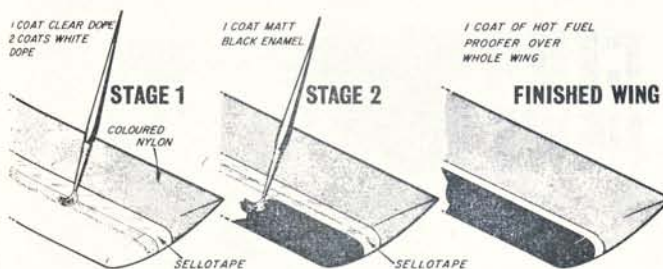
Dyeing nylon is not a difficult business provided that you follow the instructions carefully and use a large enough receptacle for dyeing the material. For small pieces of nylon – say up to two yards – a large five- or six-pint enamel saucepan is adequate. Three yards and above are best dyed in a boiler or washing machine, but do remember to thoroughly wash out the machine after you have finished – I am still wearing various shades of underclothes through lack of efficiency in post-dye cleaning! An alternative to dyeing the nylon is to add an aniline dye to the clear dope to achieve a translucent coloured finish. I have not tried this method as I feel that it is important to have spraying equipment to obtain good results, if you have this equipment, however, it should be well worth experimenting with this form of decoration. The advantage of being able to 'fade' one colour into another increases the potential of decoration considerably. This is exploited most successfully by American free flight power modellers.

Coloured nylon on its own is seldom sufficient decoration for a model, but it should only be necessary to add paint to a small proportion of the total area.

Dopes and Paints

Coloured dope, for a long time the standard finish, is not the easiest of finishes to apply with a brush. It is, of course, an ideal material for spray application, but when applied with a brush, it has a tendency to soften the previous coat on application of subsequent coats, making it difficult to achieve a good, even, opaque finish.

Quick drying enamel paints have increased in popularity in recent years – and deservedly so. The range of colours is excellent, all colours are intermixable, and the enamels are available in small ½ oz. and 2 oz. tins or spray cans. Gloss enamels are fuel-proof (diesel and un-nitrated glo fuel) but if some clear doped areas are to be



Author's method of colour decoration (above) is the means by which one can obtain attractive schemes such as C/Tech. Jim Pickford's Merco 35 powered 'Miura' C/L Stunter at right. White base with black line and orange spray. At left, two views of A.P.S. Sleeker show another approach.

left on the model it is suggested that the whole of the model is fuel-proofed. By using a fuel-proofer on top of enamel it is possible to use matt enamels rather than the gloss type. Matt enamels have the distinct advantage of containing a higher percentage of colour pigment and therefore a greater covering power. I find the matt enamels much easier to apply than any other form of paint. Normal hot fuel proofers can be applied over the matt finish to achieve a glossy finish but should you require a semi-matt (W.W.1 and W.W.2 Scale) finish, the new Humbrol Matt Proofer or an eggshell clear polyurethane varnish will provide a fuel-resistant surface.

Thorough stirring of tins of paints is essential to ensure all the pigment is mixed and the top should be stirred occasionally during the progress of the painting. Two thin coats of paint on a model is preferable to one thick one, or this reduces the chance of paint 'runs' and gives a smoother more consistent finish. Although enamels can be applied to dopes with perfect safety, a nitrate dope should never be applied over enamels. For this reason also, dopes should be allowed to dry thoroughly, before enamel is used over it.

A favourite method of decoration of mine is sketched above.

3 LINE CARRIER CONTROL SYSTEMS (continued from page 605)

are now bolted together again allowing for free movement Operation in this case of the throttle bellcrank in turn actuates the compensating bar to move the elevator bellcrank in the opposite direction. Our last unit, Fig. 4, requires a little more work; but in turn should be very smooth in operation. The $\frac{7}{16}$ in. x $\frac{1}{8}$ in. duralumin, or brass slider A is tapped centrally to take a 6 B.A. bolt. Four 6B.A. holes are drilled in the top plates and correspondingly in the plywood mounting plate. Using 6B.A. nuts and bolts the top plates are assembled to the mount finally adjusted to give free movement for the slider between the top of the nuts and the bottom of the plates. Fit the bellcrank B (double thickness nylon shown) to the slider using a 6B.A. bolt, washer, and very important, the nut locking this bolt to the slider. Bellcrank C is formed to the shape given paying special attention to the fork in the end. Make sure that those prongs are long enough not to disengage on full movement! Like the previous units the operation is straightforward, slider A being a more sophisticated counterpart of member C in Fig. 1.

In terms of expense the three line handle is the most costly item. The following designs should do much to alleviate this. Both are by Mick Reeves, the second being the same or very similar to the one he used at Old Warden in July. The practicability of this unit will be borne out by anyone watching the Seamew in action at that meeting, but for ultimate simplicity Fig. 5 is practical workable answer. The actual handle could either be of ply or hard-



Polyurethane paints are finding favour with an increasing number of modellers, notably scale enthusiasts, mainly because of its fuel-proof qualities and the fact that it can be purchased in gloss, eggshell or flat finishes. Over-generous application of this paint can result in a serious weight penalty, but if brushed on carefully (or sprayed), an excellent finish can be achieved. Incidentally, for W.W.1 scale models an authentic olive drab colour can be obtained by mixing bright red and green polyurethane paints or dark green and orange enamels.

Contact Plastic Film Sheeting

You know, the type that is bought by the yard off the roll, and used for covering shelves, tables, workshops, etc.! This can be used for cockpit areas, covering sheet surfaces or for decorative purposes; it is thicker than Monokote or Solarfilm and, therefore, leaves a slight ridge where it joins the airframe (it does not, of course, shrink on the application of heat). The transparency of this sheeting is most useful for marking purposes on intricate painted areas. Being clear, it can be positioned more accurately or cut through in exactly the right position. Do not forget too, that the wood grain designs can have their uses for simulated and veneers used on some early full size aircraft.

That covers the majority of the better known finishing materials, there are many other household finishes that can be experimented with, so here's to brighter and more beautiful models.

wood, bolted to a frame of $\frac{3}{8}$ in. duralumin. Slots for the adjusting nuts are cut with a file and hacksaw and $\frac{1}{4}$ in. diameter holes drilled into the ends, extending from $\frac{1}{2}$ in. - $\frac{3}{4}$ in. beyond the slot to allow for a reasonable range of movement. Flats can be filed on two $\frac{1}{4}$ in. Whitworth studs and the main frame squeezed at the ends in a vice to avoid the studs rotating when they should not. The adjusting nuts are added through the slots with a simple ratchet, if desired. To complete the unit a curtain ring (sparking plug washer shown) is required to operate the third line. Finally, Fig. 6 shows the unit which is used by the designer. From $\frac{1}{4}$ in. ply and $\frac{1}{8}$ in. ply the core and sides are fretted, whilst the throttle control arm is of brass tubing squeezed to a $\frac{1}{4}$ in. x $\frac{1}{2}$ in. rectangular shape. Slots are cut in this to engage the pivoted duralumin arms (take care that these are long enough not to disengage on full movement) holding the elevator wires, and an adjuster (see Fig. 5) is fitted to the other end. The middle is shaped for finger operation. Araldite the brass tube line guides in position, and the finger guide to the throttle arm and assemble the unit. Note that only one side is glued to the core, the other being held in place by woodscrews allowing access for maintenance. All that remains is to paint these handles, there is no reason why they should not last for a long time, and if you have any doubts as to how to use the money saved, there are plenty of expensive racing .40 or .60 motors on the market to give those extra m.p.h.

IN SPITE of the electronic tendencies which at times seem to dominate the flying scene, there is still a wide variety of model types to be seen on our open spaces. Giving my latest 'Vintage' job an airing the other Sunday (a 1938 Frank Zaic American Tractor with marked ploughing characteristics), I noticed amongst other model life on the common an A/2 Glider, a large Power Duration job, two s/c radio models, a 1952 Cabin job and an assortment of kit models, not to mention a brace of chuck gliders. All of which adds colour and richness to the hobby.

So to business. Is your club in need of a spot of intense publicity? If so, then you can do no better than squeeze in a few crafty minutes on the goggle box between the cereals and the serials. Awareness of the desirability of thus bringing model flying into the home other than through the window has come to the **Southampton M.A.C.**, whose Secretary, Pete Waxham, did a five-minute interview on the not-so-gentle art of model flying in a recent 'Day by Day' programme. Rumour has it that Pete has now got a touch of the David Jacobs - quite the telly personality. Not so with-it in this telly electronic age is manual type line control. Combat still commands a following, but recently Southampton had to cancel Rat and Mouse events through lack of support. Radio, on the other hand, is flying high. Sometimes too high, it seems, for the lads are dreaming up ways of bringing the signal deaf model back to earth. Bert Blackburn leads the way with his mid-air collision system; effective but expensive. Free flight, too, is going strongly, with J. Hook taking a prestigious first in 1/4A at a recent Chobham outing.

The name Blackheath stirs memories of days when the **Blackheath M.F.C.** was the elite club. But though the former glory has not quite been recaptured, the club, for a long time in the doldrums, is getting back on its flying legs. In the old days, of course, the club used to fly on the famous Heath, but, alas, modern demands call for that long trek to distant Chobham, although, when the club gets a burst of C/L interest, a South London park provides the necessary gyratory area. Indoor-wise, the club meets on alternative Fridays at St. George's Church Hall. Not just passive chat either; the dust on the roof beams gets a goodly stirring from vaulting chuck gliders, with a best time to date of 15 seconds. R.T.P., Rubber and Jetex, with open windows and weighted down pole base for the latter, adds to the evening's fun. New members welcome. Contact P. Gambardeller, 78 Firhill Road, London, S.E.6.

Whilst in a club-boosting mood, perhaps I should mention that P. C. Bower of 24 Birkbeck Avenue, Greenford, Middlesex, is keen to form a club in the district. Your enquiries invited.

Still more of the ups and downs of club life. This time from the re-formed **Dumfries and D.M.A.C.** History tells us that the club went out of circulation in 1952, almost back in vintage times. This suggests that the new club faces life in a much changed model world, particularly since the main club interest is Radio. Back in 1952 Radio was still a distant relation of C/L and for every button there were twenty handles. Now, in the modern Dumfries club, only the occasional C/L flyer is to be seen amongst the twenty or so members which make up the current membership list. A list which, it is hoped, will get a deserving boost from a number of public demos in the offing. Flying is confined to a nearby farm, on a friendly rather than an accredited flying field basis, and a recent down on the farm get-together with the **Carlisle Club** made for a successful summer evening romp, with, perhaps, a bit too much romping on the part of one member who lost his A.P.S. 'Lumpers' in a field of barley. Nagging thought: will 'Lumpers' have its lumps smoothed out by the combine harvester? But if you think this is hard luck, spare a wince or two for the poor old Chairman. He is very much so after breaking his leg whilst in search of his R.C.S. Digisix equipped Super 60. Suppose after that lot he went out and got plastered!

Still up in Scotland, we have news of another newcomer to our midst, or should I say mist? The name **Motherwell**. No full title given, which perhaps explains why the club is little known outside its own immediate environs. Odd meeting place is the basement of North Motherwell Parish Church. But though they share the crypt with the cat, the club has no ecclesiastic connections. Request: a simple set of club rules. Best advice we can offer is to become affiliated to the S.A.A., from whence all the necessary advice and guidance can be obtained. Nevertheless, running a club is largely a matter of common sense plus a little flair. Model flyers interested in joining the flock should contact James P. McGregor, 13 Mason Street, Motherwell, Lanarkshire.

Speaking of congregations, we are told by K. Greenaway, the P.R.O. of **Market Harborough M.A.C.** (Leicestershire) that no less than 40 members turn up at an average Sunday flying session on either of their two flying fields: the new one at Clipston, four miles out of town, and the Shangton field. This sort of ample, active membership give good scope for displays and demonstrations. In all, three displays have been set up during the summer, attracting

CLUB NEWS



Jeremy Bennett from Ash Vale, Surrey won a free gliding Course at Lasham when he placed third with a A.P.S. 'Delinquent' at the R. Ae. S. contest, Weybridge (see p. 610).

large crowds. Static detail such as working S/Channel R/C set-up tend to invoke a great deal of public response, and have even stimulated people to visit the club field. Again, the large membership, 68 in all, makes that club comp well worth the organisational effort, with entries per comp in the region of 12. Major club project, though, is a series of beginners' classes covering five construction stages from chuck glider to power sports. The first two stages went down well with the well-filled classes, and it is hoped that the other stages will get equal support.

Editorial of the **Buckaneers Model Club** deals with *Aero-modeller's* Editor, Ron Moulton's unique method of launching 2 cwt. Admiralty control tables from the top of his car. Tables a fly off, a near write-off. The lads are looking forward to more such fun and games at Yeovilton next year. Question: Who was the 'C' stream flyer who launched his F/F model into the crowd at Bletchley Grammar School display? Black marks, too, to all and sundry from Ian Peacock, in storming, tail-up mood. He has a few weighty criticisms to offset the paeons of praise which have been heaped on the Nationals. He is also generally disillusioned with the way the earnest zealot is exploited by the apathetic and the cynical. Sympathies, friend, but nil carborundum is the watchword.

More news of the Old Warden Scale Jamboree. This time from 'Relay', the Newsletter of the **Fylde R.C.M.S.** Twelve members went along by coach to ecstasie over this feast of Scale perfection. The lads took a lot of film, and the club film show should be something to look forward to. Club comps for 1968 were held at Rossall School field by kind permission of the Head, for whom three cheers, chaps. Events were for Multi, Scale and Single. Six entries in Multi, which was run on a two-judge, two-flight basis. Good, exciting flying resulted in a win for Gordon Clarke. Only three entries in Scale, though quite fair for a club event. Winner was Stan Newton, flying a 'Widgeon'. Single was an all superhet affair, and the three entries took the air *en bloc* to make for a sharp short contest. J. Lane took first with his Sparky. Cause for regret: the loss of Warton field. This now leaves the club with only Bispham Field, but suppose they should be thankful for that.

We are advised by the **South Manchester Model Group** that they are holding an Exhibition at St. John's Church Hall, Ashley Road, Altrincham, Cheshire, from October 25/27th, commencing 2 p.m., on the Friday. Wide selection of all types of model craft on view.

The **Whitefield M.A.C.** Newsletter proudly announced that the club was to 'run' the gate at the Woodford Rally. They also say they were going to 'mann' it, which sounds something of a vintage approach. Modern style, however, there are quite a few contest notches on the old club stick, with P. Heywood and K. Malbon getting one and two in Combat and second and third in Stunt at the Irish Nats, and the evergreen J. O'Donnell getting a first in Area Open Glider. Indeed, the club filled first four places in this event to take the Team Glider honours. A Newsheet Supplement is a stencil lash-up of P. Haywood's winning Combat job for circulation in Ireland. And the best of Irish luck.

Subject for discussion in the **Wolves M.A.C.'s** Newsletter concerns the malaise, which it is alleged, is undermining the model movement. Generally, the case is against the apathy of those who wish to derive benefit from an organised movement but cynically

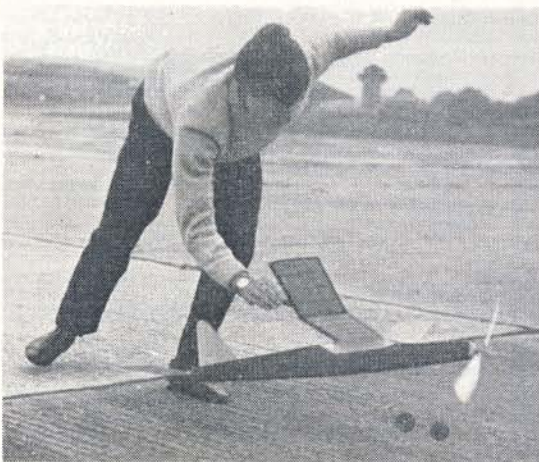
SOCIETY OF MODEL
NAUTICAL ENGINEERS

The S.M.A.E. is to have a Stand at the 'Model Engineer' exhibition next January and will be staffed by demonstrators and officials. Jim Wright and Martin Dilly are seen 'at work' in the '68 'M.E.' Exhibition.

refuse to make any contribution themselves. It is understandable that the handful of willing horses who shoulder the burden of office should protest at being put upon by people who take their wholly voluntary work for granted. What is more galling is that these officials are subjected to much unfair and ill-founded criticism. I recently analysed one of these attacks and found it to be entirely without rational substance; the vehemence was directed at nothing but fair, reasoned policy. Every activity must have its discipline, and the fact that the disciplines exist at all seems to give all the scope needed to the non-participating anarchists in our midst. Certainly you need to be tough-minded to take on any official post; for every kudo you'll get six brickbats, and for every helper you'll get six fast receding back views, but there are limits to what you can stand from perverse human nature. Much good sense in this long editorial. I disagree, however, on the point of model flying as a public spectacle. This might be an incidental factor, but primarily the model flyer pursues his hobby for his own amusement and pleasure. If we are to accept that we fly for the benefit of the public then we lesser types would do well to retire and leave the field open to those who have the greater public appeal: the multi radio boys.

Putting your foot into it is one thing, as no doubt I have done above, but to fly a model into a City Councillor's greenhouse is just asking for it. And the **Glasgow Hornets M.A.C.** got it too! All flying at Bellahouston has been suspended as a result of the escapade. Happily, though, all is expected to be sweetness and light within a month, when, it is hoped, more prudently-directed models will be flying warily over the field. A Scale comp, held at East Kilbride on August 4th, was won by Bill Brown of Edinburgh. He flew a 'Piper Comanche', an exact model of one owned by the well-known spirit firm, even to the bottle of Drambuie on the fin. Sure it wasn't a Topsy Moth?

Tale of a lost field from the **Leicester M.A.C.** Newsletter. Field in question was at Kilby Bridge. The club was happily esconced on



Contest Calendar

- October 20th **Torbay Rally.** Open R/G/P Coupe d'Hiver, All-in-F.A.I. and Chuck Glider, Woodbury Common, Nr. Exmouth
- October 20th **Edinburgh Rally 1/2A, F.A.I. T/R and R/R,** Glenburn Road, East Kilbride.
- October 20th **East Anglian Area C/L Rally.** A combat, B R/R and Mouse Race. Pre-entry 3/- per event to R. Baker, 35 Mawson Road, Cambridge. S.M.A.E. members with cards only. At R.A.F. Honnington, Nr. Thetford.
- October 20th **Northern Area F.A.I. Wakefield, A/2, Power, Team Race and scale.** (Possible R/C). Pre-entry 2/6 to H. Tubbs, 70 Cars Manor Road, Leeds 17. Late entries 3/6. At R.A.F. Topcliffe
- October 27th **St. Albans Winter Gala.** All in F.A.I. Coupe d'Hiver A/1 Glider. Chobham Common.
- October 27th **London Area Rally third round, F.A.I. T/R, 1/2A T/R and Combat,** Hayes C/L circuit, Charville Lane, Hayes.
- October 27th **Northern Area Vintage.** Vintage plus Coupe d'Hiver, A/1 and Open Power. Pre-entries 2/6 to H. Tubbs, 70 Cars Manor Road, Leeds 17. Late entry 3/6. At R.A.F. Elvington
- November 10th **Richmond Gala.** Open R/G/P, F.A.I. (separate). Additional event if sufficient support. Chobham Common.

the patch, all noses clean and all corn(s) untrodden, when, without warning, they got the order of the boot. Reason later given was that an unknown model flyer had ploughed ruthlessly through the alien corn in order to retrieve his model. Moral: it only takes one incident.

Odd list of club records in the **Woking & D.M.A.C.** Newsletter: C/L Duration, 47 mins. C/L Laps, 484. Consecutive 8's, 85, and inverted laps, 80. Good recruiting stint for the club was the staging of a display at the Charters School Fete. This followed a request by Mr. Shirley, the science master, who wished to demonstrate to parents and teachers just what aeromodelling is all about. He had, in fact, started a modelling club at the school; a project which is as educational as it is diverting. The display, which included R/C as well as C/L, did much to stimulate interest in the school venture.

New club with a suggestively C/L appellation is the **Rotax M.A.C.**, though this would seem to be pure situational coincidence. Nevertheless, the reports harp very much on the wing and wire theme, implying that C/L is the main activity. In furtherance of this cause, special training models are under construction to give tyro members proper training in the gyratory art. Quite a few expert types to give the necessary tuition, too. A demonstration of their skill was given at a recent Sports Day, where Peacemakers, Dominators, etc. were flown to good, spectacular account. Club location is right on the doorstep: Hemel Hempstead.

An older established group, but still with strong C/L inclinations, is the **Hayes Club.** We are told that the F/F section is strongly contest-minded, doing well in that sphere, but is not particularly clubbable, leading its own sort of life, as it were. The C/L section, which has been in the doldrums, is rapidly recovering something of its old vigour, thanks to a lively influx of up and coming juniors. The club will be meeting fortnightly from October, at Townfield School, Hayes, Middlesex. New members welcome.

From 'Seadog', the Newsletter of the **South East Area,** we learned, with some regret, that the South Coast Gala had, in spite of all strenuous efforts to find a suitable airfield, finally and ultimately developed upon Chobham Common on October 13th. Gloom, too, in the report of the R/C Soaring Meeting at Golden Cross; too much wind and not enough lift. The meeting was not without interest though, particularly in the towing methods employed. Most promising system, known as bungee, is the revival of an old idea in which the glider is semi-catapulted by means of a part rubber strip, part nylon towline. The method is no more violent in operation than a straightforward tow. Trouble with the latter is to get that initial impetus with a large model.

A note in the 'Message', the newsletter of the **North Western Area,** gives the startling news, or perhaps rumour, that the 1967 U.S. Nationals lost 8,000 dollars. But in what a good cause, though! Note of regret, too. Flying at Burtonwood is out; the A.T.C. Glider training programme proved too overwhelming. As a taxpayer I object to the absolute priority the gliding sport has over model flying interests.

We, however, are not the only ones to be pushed around. Cross currents of world gossip in 'Prop Shaft', the Newsletter of the **Mashonaland Model Club** (Rhodesia), gives a story from California of a take-over by golfers of the Sepulveda Basin, a sort of model flyers airport which is visited by no less than 9,000 model flyers every month. Case of money talking, no doubt.

Winner of the Royal Aeronautical Society contest at Weybridge was Mike Fantham of Richmond with his own design model having a Wakefield motor and folding blade prop.



Fourth place in the R.Ae.S. contest was taken by Raymond Millward of Weybridge, flying a Canard design looking rather like the A.P.S. Pegasus, designed back in '46.

Last item—one with a touch of poignancy. Karel Novotny, Manesova 3, Cheb, C.S.S.R. (Czechoslovakia), wishes to contact a pen pal. Particularly he would like to do some magazine swapping; the *Aeromodeller* for the excellent *Letecky Modelar*, for instance.

And that's about my quota for this month. Sorry if I haven't squeezed you in.

THE CLUBMAN

CLWYD 1968

ORIGINALLY SCHEDULED for July 1st, the weighty intervention of our summer at its worst and wettest, caused a postponement until 18th August. Even then the day started in showery style, but the clouds soon dispersed to give a bright, sunny day. Wind, in the region of 15-20 m.p.h. proved a little tricky for all but the multi flyers who find this sort of wind strength stimulating rather than inhibiting.

On the free flight side there was a noticeable absence of the improvised 'bitsa' model; this year's trend was towards the all-sheet purpose-built model and sophisticated magnet steering. Result was some excellent free flight soaring.

Radio was rather poorly supported on the day, in spite of a large pre-entry. The standard of flying, nevertheless, was extremely high, as, too, was the quality of the models, particularly the fibre glass bodied models. J. Mardon, the multi winner, put up a very polished show of aerobatics, but P. Lewis was unlucky to spin all the way down.

In Single Channel youth showed the way, with Chris Dumville, only 14 years old, getting first place with his o/d 36 in. cabin model. Second place man, P. Lang, also caused surprise with his unusual flying wing.

Trophies, plaques and medals were presented to the winners by Mr. H. F. Wilde, the founder of the Chester M.F.C.

Open Glider

SENIOR

- 1st—R. Sutton, Leek. 6 mins. 5 secs.
2nd—D. Stewart, Heswall. 1 min. 50 secs.
3rd—P. Fynn, St. Albans. 1 min. 41 secs.
1st—A. Rimington, Chester. 1 min. 30 secs.
2nd—J. Broom, Widnes. 1 min. 20 secs.
3rd—R. Habgood, Chester. 1 min. 10 secs

JUNIOR

Radio

SINGLE

- 1st—C. Dumville, Gatley
2nd—P. M. Lang, Eastbourne
3rd—P. R. Thody, Littleborough

GOSLING

TROPHY R. Sutton

MULTI

- 1st—J. Mardon Bristol
2nd—E. Thorpe, Potteries
3rd—C. F. Snow Potteries

Wharfedale 1,000 Lap F.A.I. Race at Elvington, Yorks

25th August 1968

Lack of publicity is blamed for the predominantly Wharfedale entry; there were only two from outside. Two rounds of 200 laps served to eliminate three of the seven entries to produce a four

machine final. This proved to be more explosive than dramatic as a multiple crash knocked three of the finalists out of the race, leaving the unscathed model to romp home unopposed. Winner was the Heaton/Ross team of Leigh.

The club hopes to run a repeat event later in the year.

R.Ae.S. JUNIOR CONTEST

TO COINCIDE with the fiftieth anniversary of the founding of the Weybridge branch of the Royal Aeronautical Society, a contest was organised in conjunction with the B.A.C. Weybridge Model Club, the aim being to encourage air-mindedness among people between 15 and 19 years of age. The contest, held on 3rd August on the old Brooklands airfield, where B.A.C. are now building 111s and parts of the third and fourth Concorde prototypes, had four prizes of one week's gliding course at Lasham.

Entrants were required to build a rubber model of up to 36 in. span, either of their own design or from a kit or plans; the models were judged for construction and finish and then had to demonstrate that they could take-off, fly, and land.

In spite of local poster advertising and an item some months ago in *Aeromodeller*, only 25 entries were received and, in fact, of these only 11 actually produced models for the contest. With very few exceptions the standard of the models was low, and only about six of the entrants appeared to have put more than a very half-hearted effort into the contest. Perhaps people in this age group are not interested in gliding courses, but several competitors seemed not even to have read the most elementary of beginners' article or to have talked to a local aeromodeller to find out a little about the principles involved. Propeller shafts were unbrushed, flying surfaces were loose on fuselages and coloured synthetic rubber bands were used as motors.

Not surprisingly, only four of the models managed to make the 15 second qualifying flight, the clear winner being S.M.A.E. member Mike Fantham from the Richmond club, who entered a model specially designed for the contest, using a Wakefield motor and a D/T, which was just as well in view of the lift encountered off the Weybridge runway during the winning 2:20 flight.

In spite (or perhaps, because) of several father and son teams, two of the next three places were taken by models that only qualified marginally, although the wind speed was only five to ten knots. Even dispensing with the rise-off-ground requirement didn't help some models, which must have been as disappointing to the contestants as it was to the organisers and judges. A great shame that a contest having those sought-after ingredients, sponsorship and worthwhile prizes, should have had such a poor response from the public.

Results

1. Mike Fantham, Richmond. 2. Peter Scott, New Milton. 3. Jeremy Bennett, Ash Vale. 4. Raymond Millward, Weybridge.

WOODFORD RALLY

1st September, 1968

Open Rubber: 1. J. O'Donnell (Whitefield) 8:16, 2. R. Peers (Congleton) 8:00, 3. E. Prince (Congleton) 7:53. **Open Power:** 1. R. Peers (Congleton) 7:51, 2. T. Payne (Northampton) 6:00, 3. B. Hooley (Whitefield) 4:21. **Open Glider:** 1. K. Brown (Liverpool) 7:41, 2. M. Dilly (Croydon) 6:44, 3. J. Sumner (Sheffield) 4:41. **Chuck Glider:** 1. M. Duce (Liverpool) 3:32, 2. R. Roberts (Whitefield) 2:58, 3. P. R. Harris (Evesham) 2:46. **Free Flight Scale:** 1. T. Manley (Blackburn) Bristol Fighter 539 pts., 2. E. Coates (Lee Bees) Bucker Jungmann 445 pts. 3. H. Yates (Wharfedale) Gloster Gamecock 437 pts. **Control line Scale:** 1. M. Reeves (Wanstead) Turbulent 769 pts., 2. B. D. Perry (Wolves) Kingfisher 671 pts., 3. M. J. Mitson (Bolton) Mustang 301 pts. **Radio Control Scale:** 1. D. Brunt (LARCAS), 2. C. Wilson (LARCAS), 3. C. D. Wright. **Combat:** 1. F. Dowling (Liverpool) 2. V. Hunt (Heanor), 3. S. French (Scunthorpe), 3. J. Garightly (Blackburn). **C/L Stunt:** 1. J. Mannall (Lincoln) 954.5+1001., 2. T. Jolly (R.O.I.) 919.5+968, 3. D. H. Day 906.5+874.

SOUTHERN AREA RALLY

Beaulieu, 18th August, 1968

Rubber: 1. R. Peers (Congleton) 7:47, 2. Mrs. K. Allen (Brighton) 3:00. **Glider:** 1. M. Dilly (Croydon) 8:28, 2. Wains (S. Bristol) 7:49, 3. P. Trenchard (FACCT) 6:39. **A/1 Glider:** 1. J. Baguley (Hayes) 6:00, 2. C. Hadland (RAFMAA) 5:25, 3. M. Reeves (Whitefield) 4:54. **Power:** 1. J. O'Donnell (Whitefield) 8:49, 2. Chilton (Crookham) 7:50, 3. Harris (Evesham) 7:04.

FIRST FREE FLIGHT TEAM TRIALS

R.A.F. Barkston Heath, 7/8th September 1968

A/2: 1. A. Young (Croydon) 21:00, J. Mabey (Croydon) 21:00, C. Batty (Bath) 21:00, M. Woodhouse (Norwich) 21:00, A. R. Wells.

(Norwich) 21:00, D. Glue (Brighton) 21:00, M. Reeves (Whitefield) 21:00, D. S. Bailey (Swindon) 21:00, 9. J. O'Donnell (Whitefield) 20:53, 10. P. Perry (Birmingham) 20:41, 11. J. Baguley (Hayes) 20:36, 12. D. Yates (Wigan) 20:17. **F.A.I. Power:** 1. R. Monks (Birmingham) 21:00, D. Wiseman (York) 21:00, M. Green (C.M.), 21:00, 4. D. Welch (Brighton) 20:28, 5. R. Baggott (Birmingham) 19:55, 6. G. Fuller (St. Albans) 19:40, 7. R. Johnson (St. Albans) 19:19, 8. B. Martin (Tynemouth) 19:13, 9. R. Collins (Anglia) 19:09, 10. B. Picken (Wallasey) 18:25, 11. A. Espley (Birmingham) 18:09, 12. K. Collins (Anglia) 18:06. **Wakefield:** 1. L. Barr (Hayes) 20:20 2. D. Wiseman (York) 19:51, 3. D. Greaves (Birmingham) 19:31, 4. D. Hipperson (Croydon) 19:22, 5. R. Godden (Cambridge) 19:17, 6. R. Monks (Birmingham) 19:14, 7. J. Blount (Croydon) 19:10, 8. J. O'Donnell (Whitefield) 19:09, 9. A. Wells (Norwich) 18:50, 10. D. Pymm (Walsall) 18:43, 11. M. J. Woodhouse (Norwich) 18:33, 12. R. North (Croydon) 18:25.

SOUTH MIDLAND AREA RALLY

Cranfield, 15th September 1968

F.A.I. Team Race: 1. Turner/Hughes (Wharfedale) 4:49, 2. Heaton/Ross (Leigh) 4:52, 3. Allen/Bedford (Wanstead) 5:55. **A Power:** 1. J. Berryman (Bristol & W.) 3:27, 2. D. Harris (Evesham) 2:03, 3. R. Peers (Congleton) 1:44. **Coupe d'Hiver:** 1. J. O'Donnell (Whitefield) 4:13, 2. J. Lorimer (Woking) 3:49, 3. J. Allen (Brighton) 3:11. **Open Power:** 1. D. Miller (Cambridge) 5:18, 2. J. O'Donnell (Whitefield) 5:13, 3. P. Stewart (Crookham) 4:23. **Open Rubber:** 1. R. Peers (Congleton) 4:40, 2. K. Robinson 0:29. **Open Glider:** 1. M. Dilly (Croydon) 3:44, 2. P. Oliver (Whitefield) 2:11, 3. G. Cornell (Croydon) 1:58. **Helicopter:** 1. N. Wilkins (Bristol & W.) 138, 2. R. Dudley (Yeovil) 84, 3. F. Boreham (C.M.) 6. **C/L Stunt:** 1. M. Reeves (Wanstead), 2. M. Mayne (Lees Bees), 3. D. Day (Wolves). **Rat Race:** 1. A. Longhurst (Feltham), 2. Fairbank (Deltas), 3. D. Selwood (Feltham). **Carrier:** 1. M. Reeves (Wanstead). **R/C Single Channel:** 1. A. Bird (Coventry Radio Soc.), 2. D. Lawrie (Chingford M.F.C.), 3. C. Alridge (Chingford M.F.C.). **Multi Channel:** 1. T. Cooper (Sutton Coldfield) 1532, 2. D. Spreng (Sussex) 1423, 3. K. Jones (Sutton Coldfield) 1256. **Combat:** 1. Lane (Wanstead) 2. Ramskill (Southampton), 3. French (Scunthorpe), 3. King (Stanstead). **Chuck Glider:** 1. A. Slater (Leatherhead) 2:03, 2. R. Roberts 1:57, 3. K. Robinson 1:29. **Tailless:** 1. K. Attiwell (York) 2:47, 2. A. Slater (Leatherhead) 2:25, 3. Fynn (St. Albans) 0:45.



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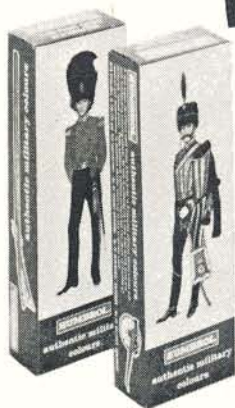
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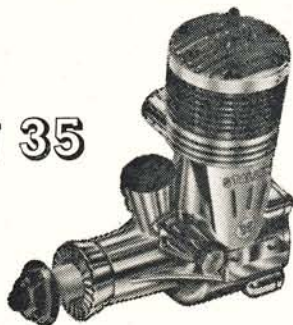
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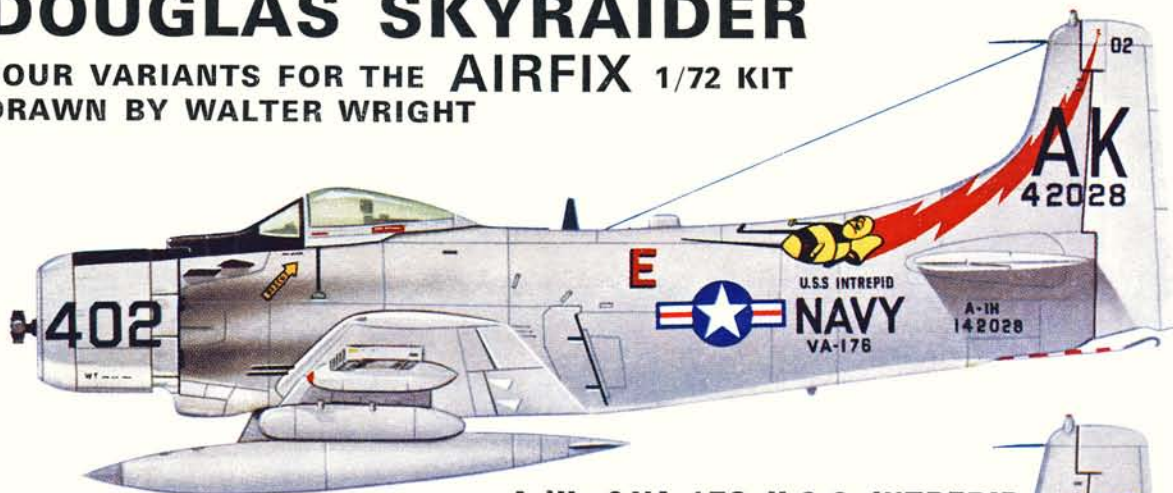
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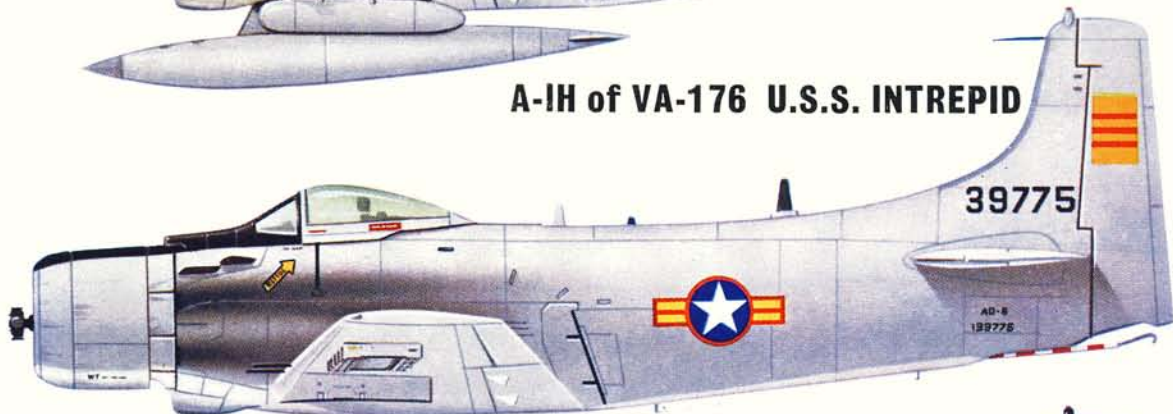
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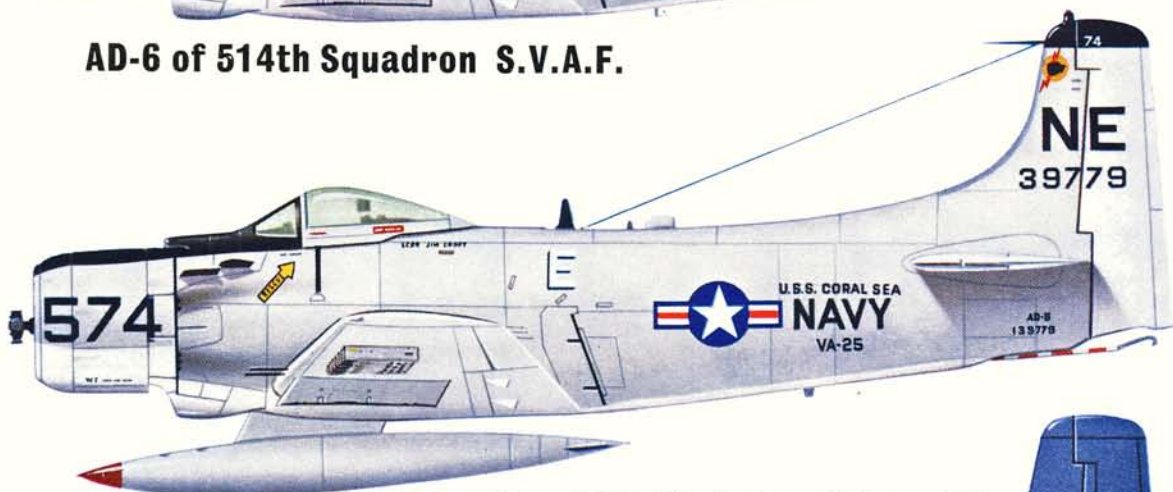
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