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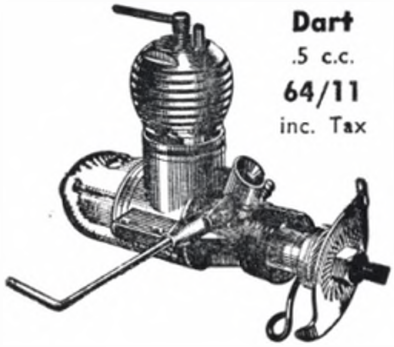

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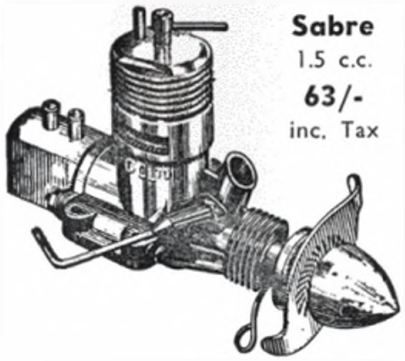

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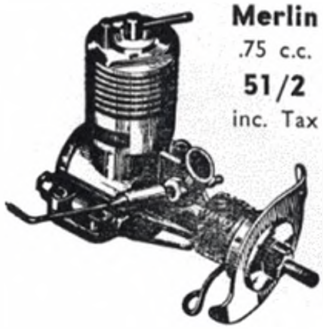

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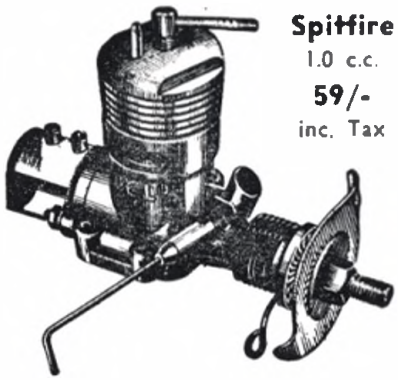

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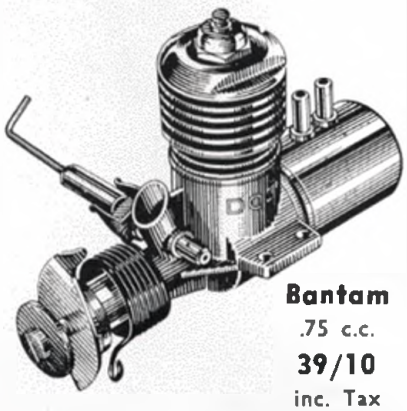

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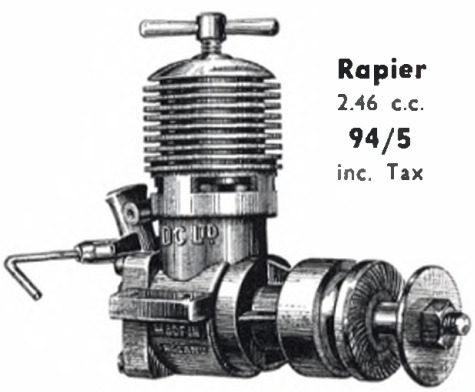

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other modelling angles . . .

September edition of **Radio Control Models and Electronics** features an easy to build, single channel receiver with templates and full instructions. Free pull out plan is for an amphibious electric powered paddle boat. Aircraft enthusiasts can see how a new commercial system works and how to modify a commercial servo to use with proportional control. Picture page shows some interesting models, Gadgets and Gimmickry, plus test reports, make up an interesting issue.

Model Cars for September has an exciting Anglo-American AC Cobra on the cover and also drawn in Prototype Parade, plus 1964 Ferrari F1 car and an M.G. "K" type. Modifying a Ferrari Berlinetta with working lights, visit to a South London School Track, a 1908 Austin Grand Prix racer and club organisation, Trend of the Trade, Readers Letters and Club Notes make this an issue with something for everybody.

September **Model Maker** features a 12m design backed up with full-size design notes and rating rules for the imminent America's Cup race. For power boat enthusiasts, an attractive 22 in. round bilge harbour launch, and for juniors a simple, but high performance sailing catamaran. Notes on silver soldered cast iron piston making and boiler fittings for the engineer. Power boating in the U.S.A. article, variable pitch propeller drawings for a Cinque ports period ship, realism in ships and many other features of interest.

AERO MODELLER

MAP HOBBY MAGAZINE

September 1964

VOLUME XXIX No. 344

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cover

Frankie and David Butler, near neighbours of Aeromodeller offices at Watford, displayed keen interest in John Barker's prototype of the A/1 glider design "Downbeat" which he introduces in his "Let's Go Flying" series this month. Easy to make and already successful in competitions, "Downbeat" promises to be even more popular than its predecessor from the John Barker stable, the internationally famous "Lulu" — one of the most popular glider plans ever introduced to Aeromodeller Plans Service.

next month . . .

A.P.S. introduce another radio control model, this time a hot single channel aerobatic model that flies like a multi design, by Basil Murley and aptly called **Bazzbomb.** The **World Championships** in Hungary will of course be fully reported with photographs of all outstanding models. **"Let's go Flying"** deals with the flying of gliders especially for the novice in John Barker's own, easy to understand, style. **Bomark,** a 16 in. span, easy to construct contest chuck glider is the month's full-size free plan, designed by M.A. Turner. This is a high performance model assured of a great following amongst chuck glider fans. Backed up by all the regular features, plus Trade Notes, Contest Designs and Squadron Markings, October Aeromodeller has plenty to interest everyone and is out on September 18th at the usual price of 2/- per copy.

Editorial and Advertisement offices

38 Clarendon Road, Watford, Herts

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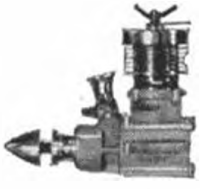

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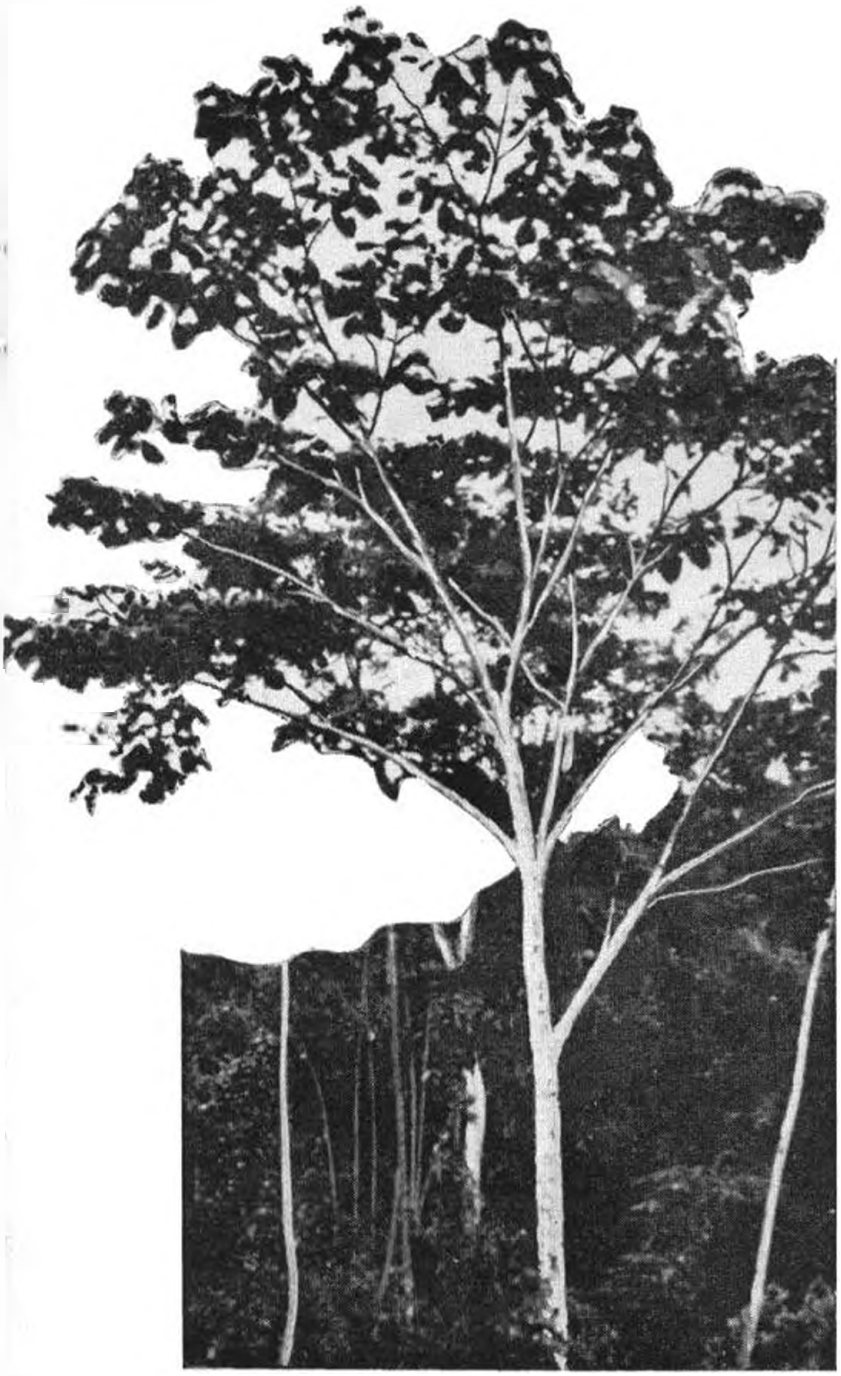

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3/8"	3
1/2"	3½
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1/8"	2
3/16"	2½
1/4"	3
3/8"	3
1/2"	3½
1/8" x 1/8"	2½
3/16"	3
1/4"	3
1/8" x 3/8"	3½
1/2"	4
3/16" x 3/16"	3
1/4"	3½
3/8"	4½
1/2"	4
1/4" x 1/4"	4
3/8"	4½
1/2"	5
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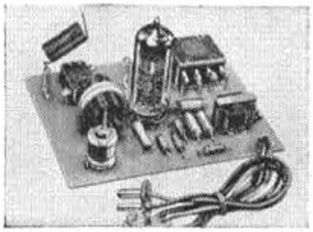

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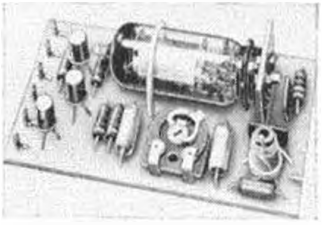

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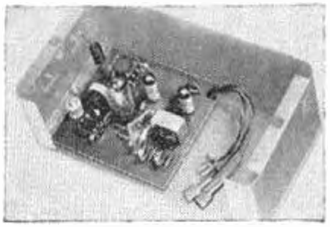

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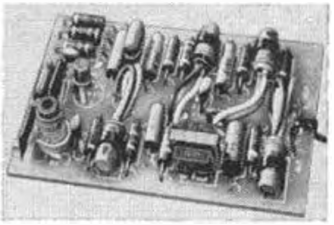

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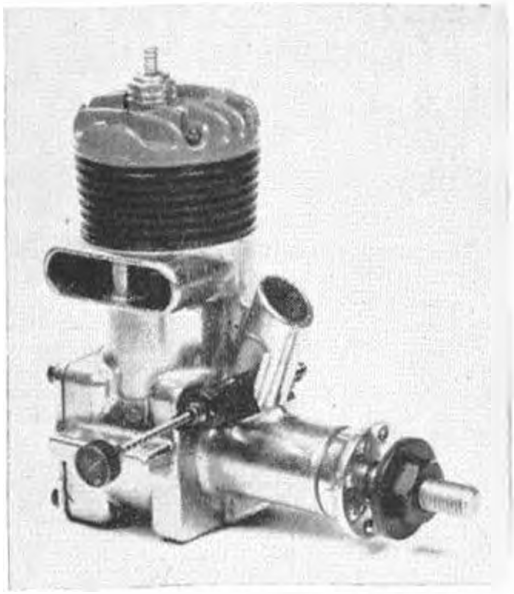

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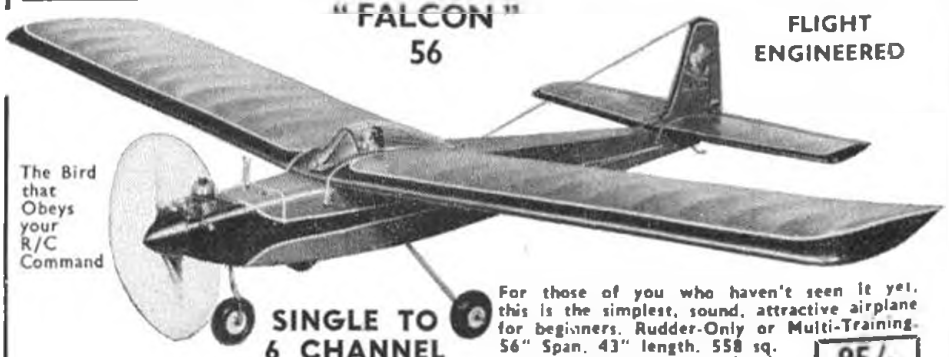

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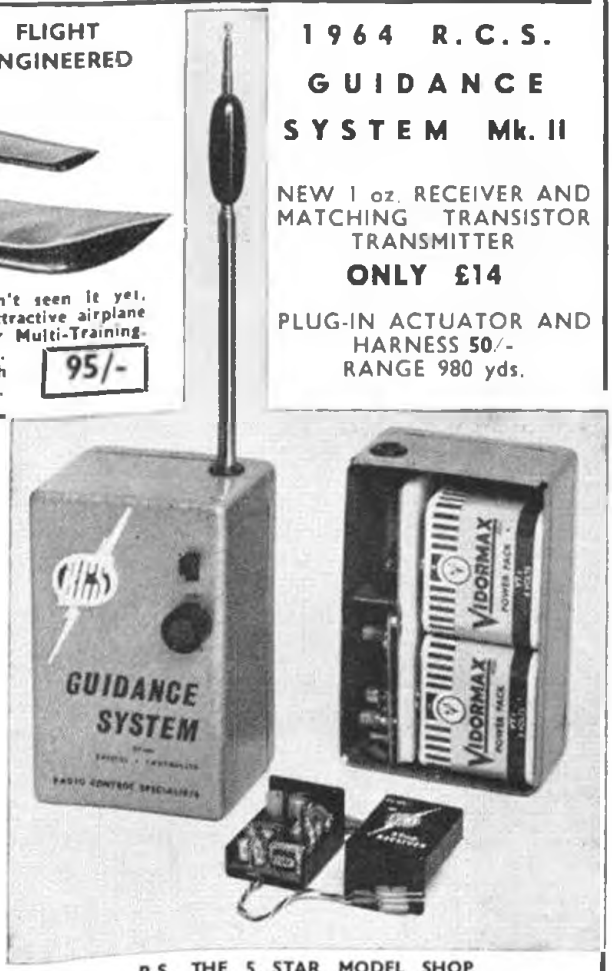

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Some idea of the communal effort made through the Aero Club at Rouen, France, is given by this aerial view taken during the recent international radio control contest at Madrillet aerodrome. The recently laid square in the foreground is for radio control and, of course, circles for control line. These are to one side of the main airfield where there is constant full - size activity.

Silencers — An Explanation

When we published the official statement issued by the Public Relations Officer of the Society of Model Aeronautical Engineers Ltd. in our edition for June 1964, it would appear that a number of people erroneously attributed the statement as being an editorial opinion.

This is far from correct and even more important, it now appears that the fourth paragraph of the official statement was incorrectly expressed.

Whereas it stated that . . . *"From January 1st, 1965, no engine shall be made or distributed in Great Britain by any member of the Model Trade Federation without an efficient fitted silencer"*, a more correct statement would have been to have removed the last three words in favour of *"available efficient silencer"*. Since there seems to be some doubt as to how this most important decision was reached, we are taking the liberty of quoting, as follows, the relative extracts from M.T.F. and S.M.A.E. Minutes in order that there be no further confusion in the future.

(1) Extract from M.T.F. Minutes of meeting held on October 9th, 1963:

"Mr. Firth, Technical Secretary of the S.M.A.E. should report back that it was generally agreed by the manufacturers that no engines would be marketed after January 1st, 1965, which did not have available efficient silencers. He should request the S.M.A.E. to set up a Sub-Committee jointly with the M.T.F. to consider the problem".

(2) Extracts from M.T.F. meeting held October 23rd, 1963, item 1064.

"Report on Silencers. After a full discussion of the report (as above), it was moved . . . and agreed unanimously that the meeting accept the report and fully endorsed its conclusions."

(3) Extract from Minutes of S.M.A.E. Council Meeting, April 11th, 1964, item 1011 (c) (i):

"As from January 1st, 1965, all models powered by an internal combusion engine must have the engine fitted with a silencer. This was carried for 11 votes for, three against, one abstention".

(4) Extract from S.M.A.E. Newsletter "Model Flying" No. 7, May 1964, item 5:

"Silencers (i) That from January 1st, 1965, all internal combustion engines in use in model aircraft must be fitted with a silencer; a silencer being defined as a device fitted or built on to an engine which noticeably reduces the noise of operation."

Thus it will be seen that there is no requirement for all engines to be sold *fitted* with a silencer as long as there are efficient silencers available for that engine. Study of page 441 in this issue and other features in previous editions of *Aeromodeller* will illustrate how the range of available silencers increases month by month so that in effect there should be no restriction whatsoever on engine sales, nor any concern for any model retailer about the products he will be selling next year.

It remains to the very good credit of many engine manufacturers that they are producing excellent silencing units and we congratulate the enterprise of some small engineering workshops who have found this opportunity for devising new accessories to use their production capacity.

Apt Comment

The *Surrey County Advertiser and Reporter* for Thursday, June 18th, carried the following editorial opinion, which we feel is so fairly expressed that it deserves quotation in our columns.

Maddening

"Noise is as much a nuisance as litter and the Surrey Downs Association are justifiably concerned about the nasty, persistent buzzings caused by model aircraft on Epsom Downs.

No one is advocating that model aircraft should

be banned—this is, after all, a useful and pleasant hobby for young people.

But those who pursue it must realise that not everyone hears the sound of these little engines as sweet music. For some it is more like the maddening hum of a wasp trapped in one's ear.

The Surrey Downs Association have been told that by-laws are proposed which would enforce the use of silencers on model aircraft—an admirable idea.

Some people, no doubt, will see this as an encroachment on personal liberty. They should ask themselves what they think their hideous dronings are."

We feel as did Stuart V. Tucker, who was kind enough to send the clipping, that the final paragraph is a most apt summary.

Mass Transportation

Peter Farrar's amazing personal collection of over 1,500 1/72nd scale models made its most remarkable trip to an exhibition yet, on June 28th. The vast collection was flown from Exeter to Melsbroek by a Dakota of the 15th Transport Wing, Belgian Air Force and was on show for eight days at the International Air Force meeting, being viewed by between 30 and 40,000 people, including the air staff of F.A.B. Next exhibition for the collection is scheduled at R.A.F. St. Mawgan for Battle of Britain Day, September 19th.

Hobbies Exhibition

The Peoples' Dispensary for Sick Animals is organising a Guild Handicrafts and Hobbies Exhibition, to be held on Tuesday, January 5th, 1965, at Central Hall, Westminster, London, S.W.1. One section of class 6 in the exhibition is set aside for aeromodellers and for those interested, rules and conditions of entry are now available on application from P.D.S.A. House, Clifford Street, London, W.1.

†

P. E. Norman

As previously noted when we closed for press last month, one of the great creative figures in the aeromodelling world, Percival Edward Norman of Banstead, Surrey, died aged 52 on July 5th, following a collapse on his favourite flying field at Epsom Downs on the previous evening.

"P.E." was born at Ashford in Kent and was an art teacher at Tunbridge Wells School of Art. He was a man with a very fine appreciation for the values of simple things in life and his thoughts on any subject were completely unfettered by convention. In this way his creative work brought us practical use of the pendulum control, the first ducted fans, highly loaded free flight scale models and unique methods of making his scale models crash proof. He was a regular figure at all the popular modelling rallies in the London Area and always gathered a circle of admirers for his circus of free flight scale models of all types. We asked one who knew him best to give us an account of P.E.'s activities and what follows is, we feel, a fine and sincere expression from his son Marcus.

"Aeromodelling to dad was not just a hobby but an obsession. In my eyes his whole life really revolved around the making and flying of model aircraft. Impressed by the Royal Flying Corp experiences of his elder brothers, Frederick, who flew with 12 Squadron, and Charles who was a gun synchronisation expert, he started modelling at the age of 14. Then began a long line of scale models that were to continually improve right up until the time of his death. He was probably the first person to use pendulum control, in a Sopwith Camel built in 1927.

"During the 1940/45 war he served in the R.A.F. and since at that time power models were prohibited, he produced two magnificent gliders 'Old Nog' and 'Nimbus', both of 9 ft. 6 in. span. 'Nimbus' flew from Dunstable to Fulham in a time of three hours 40 minutes, an unofficial record at that time.

"With release of the power model restrictions, father turned to making engines for himself, with rudimentary equipment. There are over 160 engines in his collection and many of them self made, while there are drawers full of components and spares, all of which he made himself. When he turned to radio control he converted one of his earlier very successful 'Ants' Pants' designs with its attractive elliptical wing and it flew very well indeed. From 1950 he experimented with ducted fans and 10 years later in 1960, built the first radio control version, only a year before he was to have his first stroke. He then continued to build innumerable radio controlled semi-scale ducted fan models based on the 'Javelin' and 'Scimitar' and the ultimate was to have been a 60 in. long, 40 in. wingspan scale model of the 'Scimitar' for a 6 c.c. engine. This now rests incomplete in his workshop.

"I do not think I shall ever see anyone again who had the same genius and craftmanship. He made his own violin and viola, both of which he played beautifully in music festivals. He carved exquisite ivorys which had been exhibited in the Academy. He worked in silver and gold, he painted in water colour and oils. One of his greatest loves was his sports car and driving with the wind in his face through the countryside. This was the father I remember and one day I hope to try to continue his modelling and might even finish his ultimate in ducted fan and the scale 'Scimitar'."

† S. C. "Cal" Smith

It seems an odd quirk of coincidence that the nearest equivalent, in our knowledge, to the late P. E. Norman among the American modellers, S. C. Calhoun Smith, should have died on the same day, July 5th. Cal was a great all rounder, a control line pioneer, author of many books, superb illustrator and responsible for so many innovations in our hobby. His work in the development of intricate plastic kit models, magazine covers, designs and articles, brought him many international friends and he will be sorely missed with his untimely death in his mid forties.

HAWKER HURRICANE

A detailed 40 in. span replica of the famous W.W.2. fighter, to suit .8-1.5 c.c. for F/F.

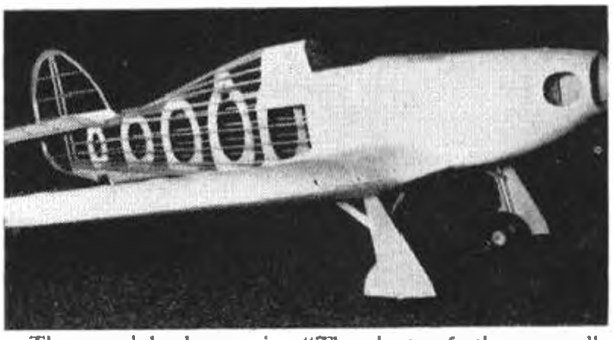
By Richard Meixell

EVEN AFTER 23 YEARS the Hawker Hurricane is well remembered as part of the team that saved England from invasion. The Hurricane and Spitfire fought to maintain air superiority over England in spite of 3 to 1 odds against them.

No better tribute can ever be paid to all the men and machines involved than Winston Churchill's words, *"Never in the field of human conflict was so much owed by so many to so few"*.

The Hawker Hurricane represents the mutation of the biplane into the modern low wing, high speed, multi-gun fighter. Its success must be judged in light of this radical break with tradition and the problems that could have been encountered in such a project. However, even the first test flights were completely successful and a stronger cockpit hood and an anti-spin ventral fin were among the few changes required.

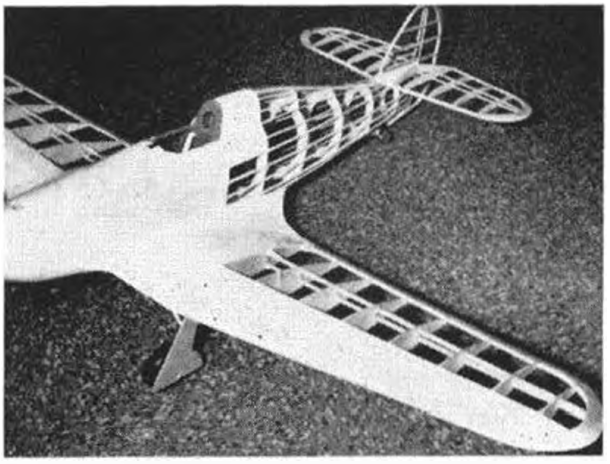
Shortly after initial test flights and before any official contract ; Hawkers tooled up for Hurricane production with their own money. This example of national responsibility by industry as well as Hawkers' foresight gave the country one of the two weapons that saved England.



The model shown is, "The last of the many", which is still flying and is representative of the 15,000 Hurricanes built. This was the last Hurricane and was a IIC with four 20 mm. canons.

This model is a compromise between a detailed and a sport plane. All outlines are accurate except for dihedral and tail area. A few details have been omitted in the interests of lightness and simplicity. Emphasis has been placed on ease of construction and automatic alignment so that a relatively inexperienced builder should be able to successfully complete the Hurricane. The wing loading is only a little higher than that of a Wakefield model. Completed weight should be about 10 oz.

Wings are conventional structure. Knock off wings are not needed for this size and weight of model. The landing gear is more realistic and no more difficult to build than the music wire variety. The plywood gear fairing forms the anchor for the landing gear and gives a strong practical solution to a potential weak spot. The open wheel wells are very realistic. The fuselage is built on vertical half shells which assures



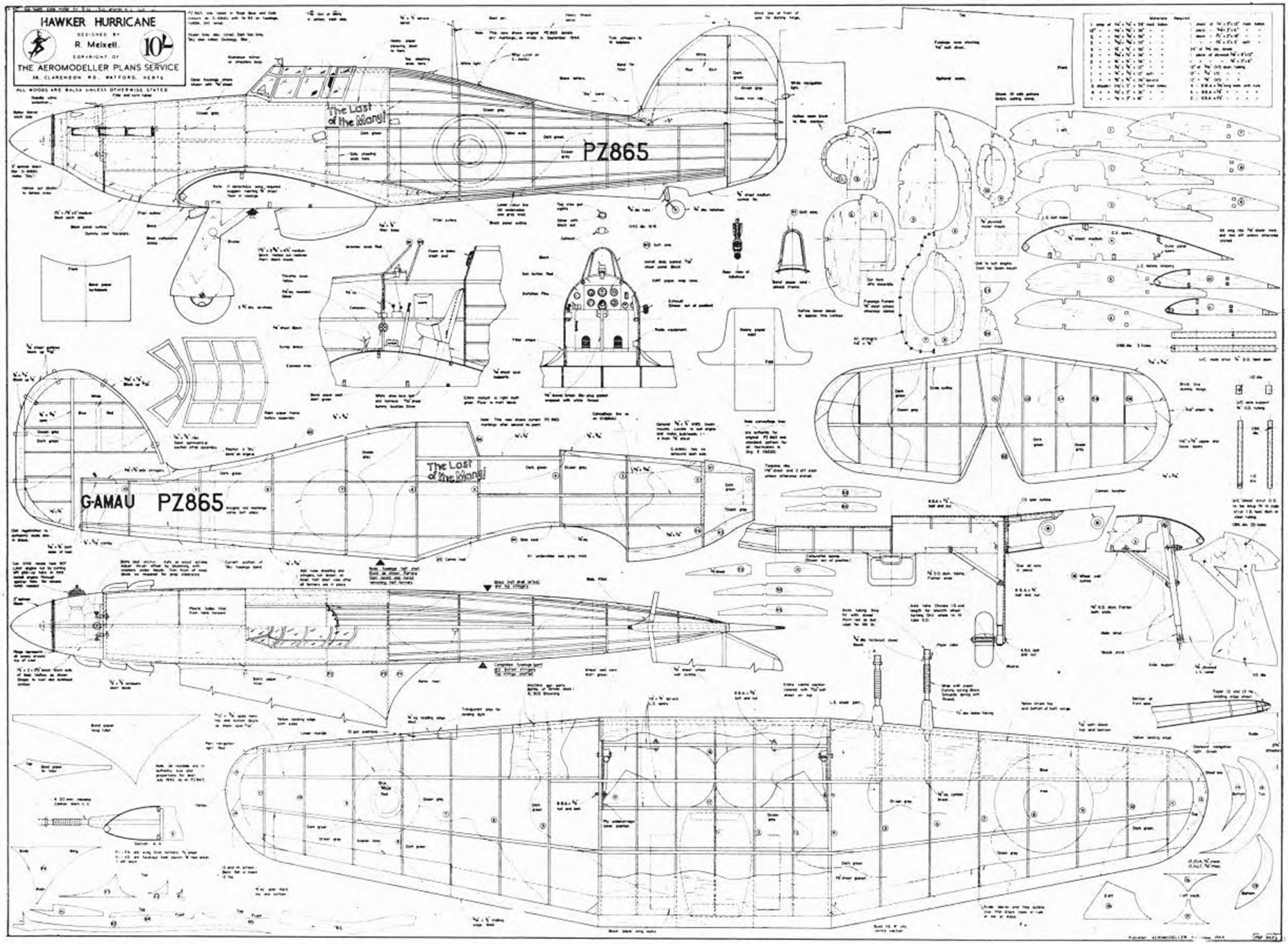
Heading picture shows the full-size "Last of the Many" Hawker Hurricane as now preserved without guns and radio mast. Note the six exhaust stacks on each side and civilian registration letters positioned under tailplane. Above and at left, completed structure illustrates the tough construction and sheeted sections. The cut out fuselage formers and detailed undercarriage legs can be clearly seen.

correct wing and tail alignment as well as lighter and faster construction. The engine is side mounted to give a clean profile and no engine hatches are required. Beam mounted engines may be used. The split wing and tail spars are lighter, just as strong, and have more warp resistance than solid spars.

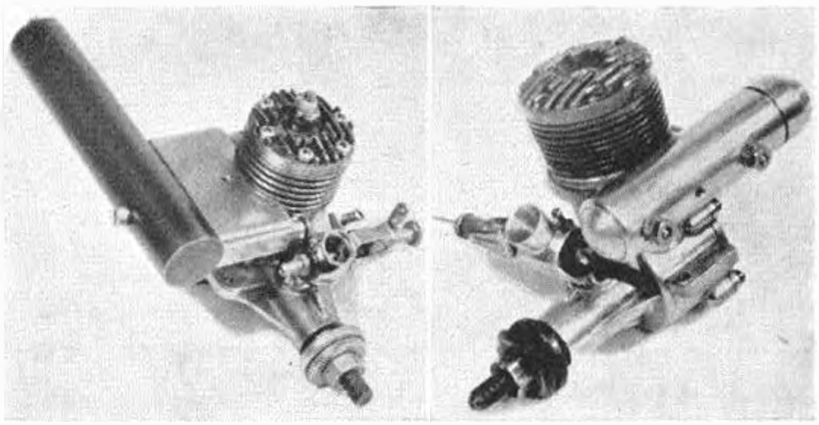
Construction of the model is quite straightforward but the sequences should be emphasised on some points.

On outer wing panels, block up forward lower spars $\frac{1}{2}$ in. to allow for L.E. sheeting. Slide rear spars through ribs before adding this sub-assembly to T.E. and lower front spar. No additional dihedral

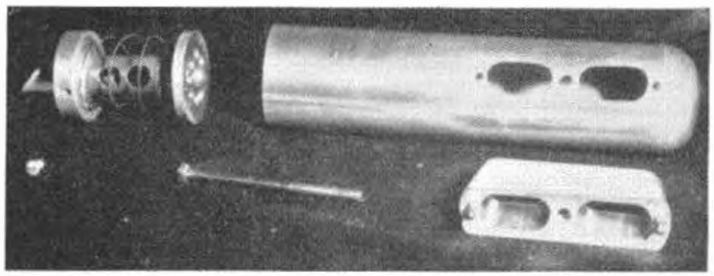
(Continued on page 440)



FULL SIZE COPIES OF THIS 1/6TH SCALE REPRODUCTION ARE AVAILABLE AS PLAN FSP 862, PRICE 10/- PLUS 6d. POST FROM AEROMODELLER PLANS SERVICE.



Above, the Moore split ring muffler for Cox Tee Dee 15 and collector ring for P.A.W., Rivers, A.M. Diesels. At right, D.A.C. "Spinaflo" standard, fitted to Veco 19 R/C and Burford unit on K & B 45. Below is the Geoffrey D. Pike silencer showing spring loaded Kadenacy effect baffle which fits inside the expansion chamber for Merco 49.

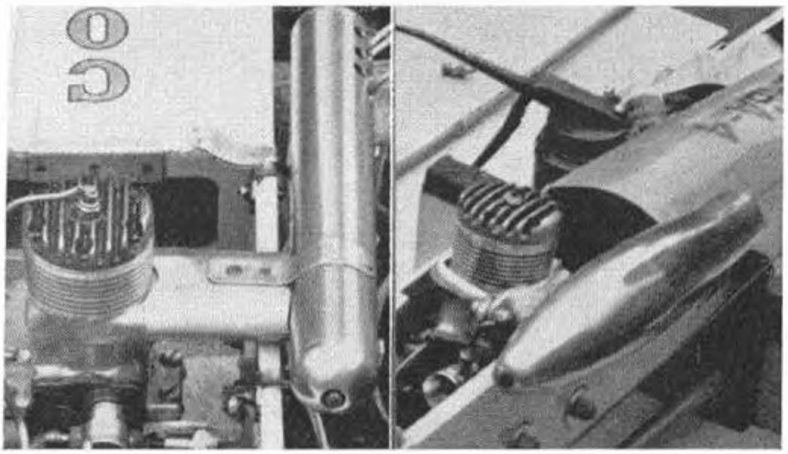


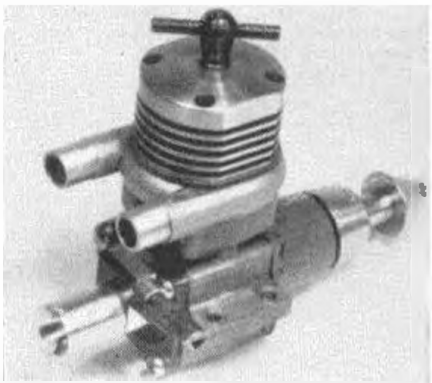
Silencers Galore!

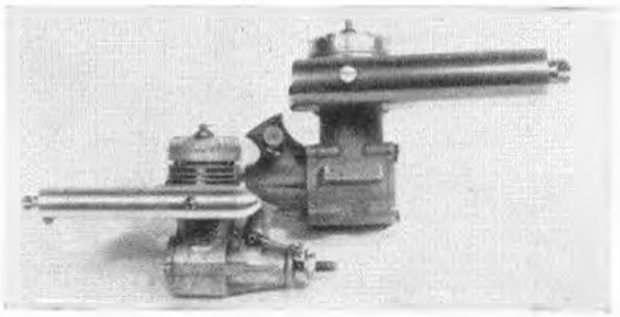
LATEST COMMERCIAL DEVELOPMENTS AND PRIVATE EXPERIMENTS FOR NOISE REDUCTION

THE REQUIREMENT for all S.M.A.E. members to use silencers on their internal combustion engines as of January 1st, 1965, is bringing forth some interesting experiments and ranges of units to fit both side stack engines and those with cylinder periphery ports. P. A. Moore of Leicester is making ring type mufflers of full circle collector ring type for engines such as the Frog 249, Rivers 3.5, Oliver, P.A.W. and Allen Mercury diesels and also a special split unit for the Cox Tee Dee 15. Examples we have seen are well made and power loss is minimal. Prices range about 6/6d. to 12/6d. and at the moment are only available in small scale production. The Oliver collector ring has now proved to be adaptable to other engines as for example the Eta 15, so that the problem of the 360 deg. ported diesel is now obviously overcome.

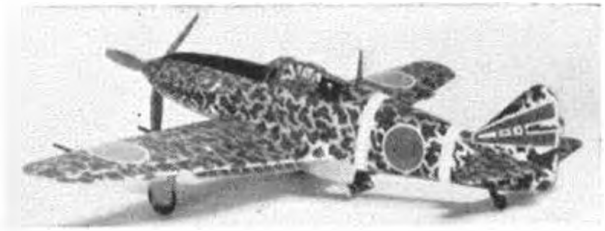
Always a keen experimenter, Geoffrey D. Pike of Nottingham has demonstrated a positively remarkable degree of silencing with very little power loss indeed on his Merco 49 by using a spring loaded dampening baffle within the silencer chamber. This is the first example we have seen of anyone taking advantage of the principle attributed to Michel Kadenacy in which the silencer is so designed to aid extraction of the exhaust gasses and improve efficiency. More details will be published on this silencer in our companion magazine **R.C.M. & E.** There are three sizes of D.A.C. "Spinaflo" and we have a number of the staff engines equipped with these units, which are extremely well made and attractive with their colour anodising. Typical power loss figures are K & B 35—1,000 r.p.m. using 11 x 6 in. prop, Veco 19—450 r.p.m. using either 9 x 6 in. or 10 x 6 in. props and Enya 15—900 r.p.m. with 8 x 4 in. prop. Like the Australian Burford silencer, the "Spinaflo" has a convenient priming hole for easy starting.







Boat Association Racers. McCoy and Eta 29 units above have been said to improve performance and are notable for holes in front ends. Left is Eta 15 fitted with Oliver collector ring and right, a D.A.C. mini "Spinaflo" on Fox 15 compared with Super size on K & B 35.



Remarkable 1/50th scale Japanese Tamiya World War II Fighter kits include the "Tony". Each has a "T.K.K. Baby" electric motor to drive airscrew with 1.5 v. battery carrier accessible through rear fuselage. U/c retracts, cockpit is equipped, hood slides, gun panel detaches, flaps and radiator grilles move.

PLASTICS REVIEW

By J. Goulding, A. Gee and Aeromodeller Staff

THIS MONTH our production line brings a refreshing variety of unusual subjects in plastic, including one of the East German V.E.B. (Tupolev TU 114) kits—no less than 22½ in. in span and most impressive, and one of the line new Japanese fighter series from **Tamiya Mokei** with a standard of intricacy that has to be admired as a counter measure so to speak. **Frog's Super VC-10** at 19/11d with flashing lights and pedestal mounting offers a challenge but is more of a decorative model than accurate.

There are six Japanese W.W.II fighters in the 1/50th scale Tamiya range, each supplied with a small TKK Baby electric motor to drive the propeller off 1.5 volts and with varieties of colour scheme and transfer decoration to satisfy the most ardent critic. Undercarriages, including tail wheels, retract extraordinarily neatly, and in the case of the **Tony**, gun panels remove to reveal the armament—detailed down to a belt of ammunition! Design of assembly is beyond criticism and permits battery replacement through removal of the rear part of fuselage. Two regrets—firstly one has to rely on Japanese pen-friends to be able to obtain the kits, secondly, the current standard of plastics has tended to excuse ham-fistedness which the Tamiya range will not permit—for they are true modellers' subjects.

Producing an accurate and detailed model of a large aeroplane to 1/144th scale is always a difficult and exacting occupation. In most cases accuracy and detail are sacrificed because of the small size, and only basic shapes can be represented. To attempt too much, such as reproducing retractable undercarriages and separate control surfaces, for instance, leads to out-of-scale components and generally heavy moulding. **Airfix's VC-10** kit at 6/- sensibly dispenses with such gimmicks and concentrates on basics. The result is an extremely pleasing and accurate model. The wing geometry and the very complicated variation of wing incidence along the span has been beautifully reproduced. Wing thickness and camber changes are also well represented. This sensible attention to detailed basic design gives the model that convincing look—something that is often lacking in plastic models.

The only suggestion of a gimmick is in the incorporation of a moving tailplane, but, in fact, this enhances the model, as the tailplane can be set in any required position—according to how the model is displayed. The pivot is in the correct position, as is the bullet fairing joint.

On the debit side the only major error is the introduction of a non-existent freight door on the left-hand side of the forward fuselage, but this may be deleted from the moulds. At the wing/fuselage joint the sweep angle of the wing leading edge should be carried into the fuselage and not, as on the model, changed, to a rectangular centre section. In all fairness this may have been necessary in moulding. Assembly of the doors and hatches does not provide the flush fit we usually expect of Airfix.

Four thrust-reverser outlets are engraved on the model instead of two in the outer position, as on B.O.A.C. service aeroplanes. Only G-ARTA, the first VC-10, was equipped with four reverser units, although military versions may well have a similar number. B.O.A.C., in an apparently whimsical mood, decided to change their livery without forewarning anybody, only revealing their secret in public at the inaugural flight of the VC-10 West African service. The result has been disastrous for a number of interested parties, two of our major plastic kit manufacturers included. Like the **Frog Super VC-10** model, **Airfix's VC-10** is, therefore, in the old livery. The transfers generally could be improved in accuracy—both in respect of development shape and in detailed outline. In the latter case, for example, the cheat line should taper less abruptly towards the end of the fuselage and the continuation line from the fin marking to the fuselage should also be thinner. The letters on the upper and lower surfaces of the wings should be blue, not white as in the kit. It quickly becomes apparent that there are at least four methods of tackling the fuselage transfer problems with the Frog and Airfix versions of the VC-10. Airfix's method of painting the white roofing on each separate fuselage side and applying transfers to this when dry seems to be the most unlucky plan, since by this system a good fuselage centre joint is almost impossible to achieve. Frog, on the other hand, according to their instruction sheet, recommend that the transfers be applied 'before' painting the white roofing. This does make for a good fuselage joint but the builder risks ruining the transfers by smudging paint over them when painting up to the edge in white. One obvious solution and the third method of setting about the job is to sacrifice the effect of glazed windows altogether and to omit these from the building sequence. This way, the halves could be cemented together, the joint cleaned and filled, and the whole section painted white. When dry, the transfers could be applied. But a fourth method would be the one we recommend. This entails painting a thin, pin stripe of white paint along the line of windows in the separate fuselage halves, so as to just overlap the line of transfers when applied. After punching out windows in the transfers with the tool provided, the panes could be cemented into position from inside each fuselage half and the halves joined. The joint could then be cleaned and filled with a suitable filler as before and the white roofing paint applied. Although one would, in fact, be painting close up to the transfers, the risk of smudging over them with white would be slight due to the fine pin strip of white showing above them. The white from the roof could then be blended in with this stripe to form a continuous area of colour.

Following hard on the heels of the excellent VC-10 kit, **Airfix** have now produced the **BAC One-eleven** at 3/6d. The same 1/144th scale, this model makes an interesting comparison with its big stable companion, and is again to a high standard of

North American Mitchell Mark II by Frog at left and B.A.C. One-eleven by Airfix below, are latest releases, each to excellent standard and inexpensive.

accuracy. The wing incidence and camber changes and fuselage contours have been faithfully reproduced—resulting in a delightful and convincing little model. As on the VC-10 not too much has been attempted in so small a scale.

There are a few points of criticism—none very serious. The ailerons indicated in the kit are of a form discarded before the One-eleven made its first flight. To correct this on the model the outboard end of the aileron must be inset and the redundant line filled.

The leading edge of the wing is of the earlier type, the latest being of slightly greater chord and more cambered along the major part of the span. This new shape was introduced at a later stage in the aeroplane's test programme, when it was obviously too late to be incorporated in the Airfix model, although it would probably be comparatively easy to modify the moulds to the new type. However, the wing in the kit is not incorrect, as this type is still being flown.

The engine thrust-reversers have been omitted, and it is a pity that the jet pipe outlets are so thick.

Keen modellers will probably prefer to paint the cheat line directly on to the model, using only the part of the transfer containing the Airline name. This should be done before assembling the windows, and with each fuselage half flat on a board or table. The silver painted parts—natural metal on the real aeroplane — are somewhat incorrectly indicated on the colour scheme chart, and it is advisable to follow the panel lines scored on the model.

A Viscount to the same scale would now be most acceptable, to complete the Quartet of Vickers turbine-engined Transports.

When compared with similar but smaller kits of East German origin the **TU 114** kit comes out well on top, both for ease of assembly and finished effect. It is true to say that, although generally less detailed and gimmicky than its British counterparts in large kits, the TU114 does not fall too short of our own recognised standards of quality in a plastic kit.

Care has to be taken with the ready prepared silver coloured surfaces as this can scratch off easily to show bare plastic. Credit must go too, for the ingenious twin colour moulding of the fuselage halves—top is white to window line then silver below this. Transfers are good although the backing is not quite as "transparent" as the ones we are used to, and care must be taken not to crack them when they are being applied—but general colour value is both good and accurate.

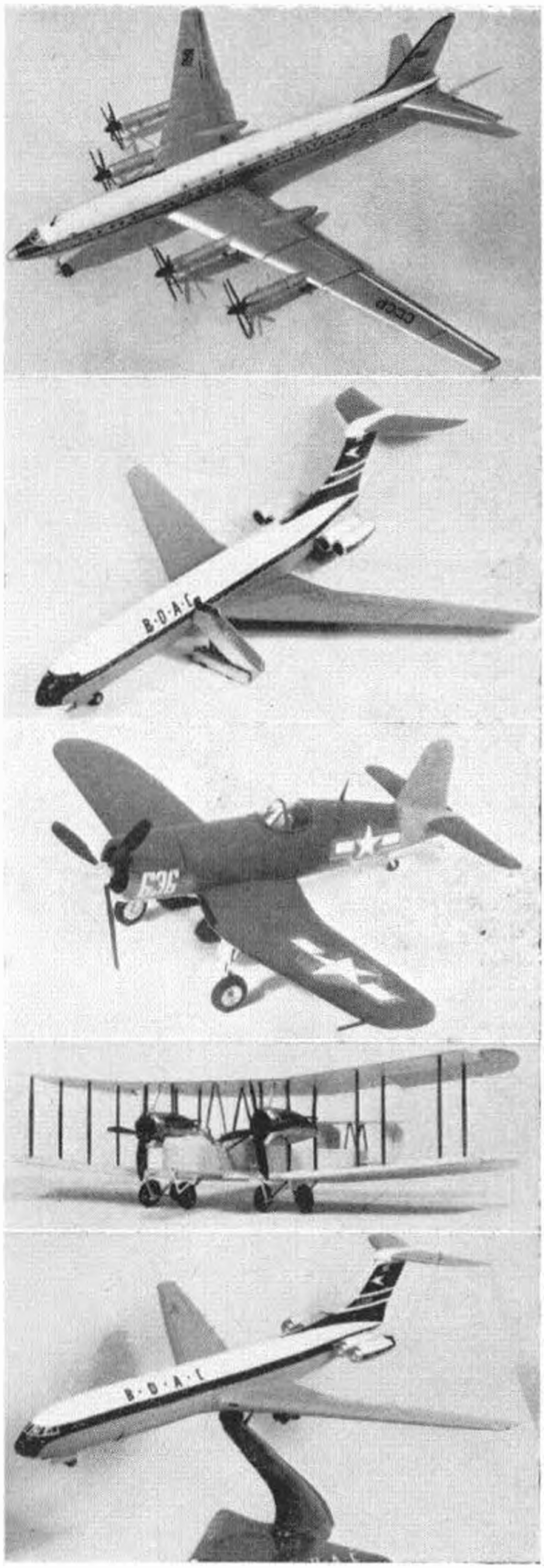
We like the idea of supplying a radio aerial of plastic thread to stretch from radio mast to fin, a tip that would not be wasted if taken up by British manufacturers.

Finished effect of the model is extremely impressive and painting is reduced to a minimum, with only wheels, tyres, props and enormous fuselage interior requiring paint.

The plastic itself is more brittle than the plastic used in G.B. and the U.S.A. and care had to be taken when removing components from "trees". Each fuselage transfer line is fixed as a separate unit. This overcomes having to punch holes in the transfers for windows but makes application a longer and trickier job. A large piece of Plasticine equivalent was included in the kit to hold the tricycle model down on all three legs—maybe a small service but one which makes the TU 114 kit all the more attractive and impressive.

There is nothing particularly unusual to note about the **B-25 Mitchell Mk. II** price 6/- from **Frog** except that it fills a gap in the range of 1/72nd scale bombers. The wings are for some reason made to be removable with strengthened tongues and difficulty was found trying to fix the wings to the fuselage. The tongues, which were far too tight, had to be filed extensively before they would fit satisfactorily. Again, this is another tricycle undercart model that will not balance on all three wheels and, as in other cases, Frog make no mention in their instruction sheet of adding weight to the nose to hold the finished model down on its nose gear. Only when it is too late to do anything does it become clear that nose weight is essential. All three undercart legs can be made to retract although no provision is made for closing u/c doors.

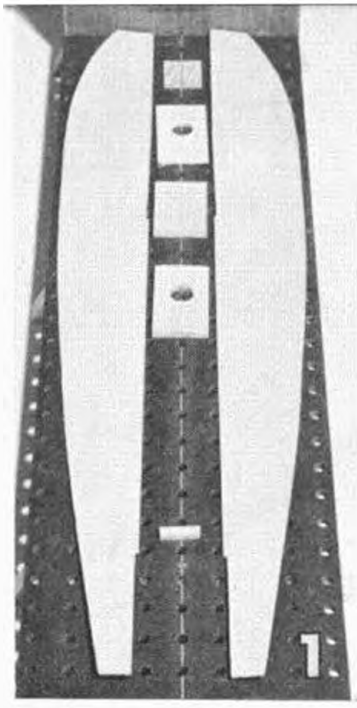
Scale accuracy aside, **Airfix's Corsair** goes together well and paints up nicely. From a builders' point of view there is nothing to choose between it and the Revell counterpart although the quality of the mouldings from Revell do have a slight edge over Airfix. Now that one can visit the R.N. Museum at Yeovilton and examine the ex-Cranfield Corsair to admire its flush riveted drag-free surfaces, the embellishments on this Airfix kit cry out for removal in the interests of accuracy. Nevertheless we like the kit as one to "get to work on" and good value at 2/-.



At top, the huge East German V.E.B. kit for the TU 114 impressive in size and appearance, comes pre-decorated. Next is Airfix VC-10 standard version shown with mounting stairs, a most accurate model but as mentioned in text, taxing ingenuity for hiding fuselage join with white paint. Below it is the Airfix Corsair, near spoilt by rivets which can be easily rubbed off. Bottom pair are Frog's two Atlantic aircraft of past and future, the Vickers Vimy with over-generous dihedral and rather long fuselage, but otherwise fascinating in detail and the gimmicky Super VC-10 with long fuselage and unusual flashing lights.

JIG CONSTRUCTION

BY D. STOUFFER



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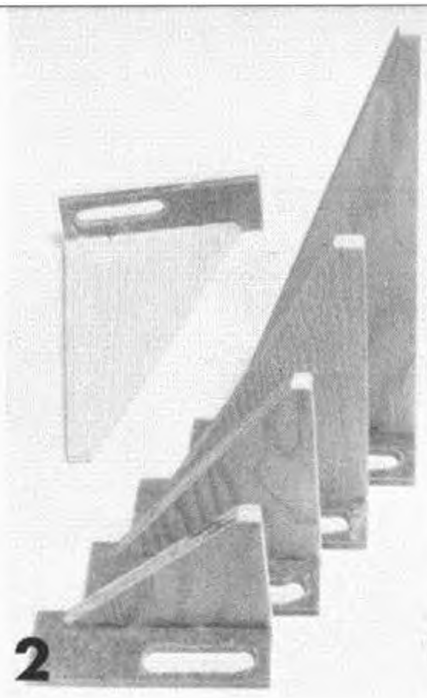

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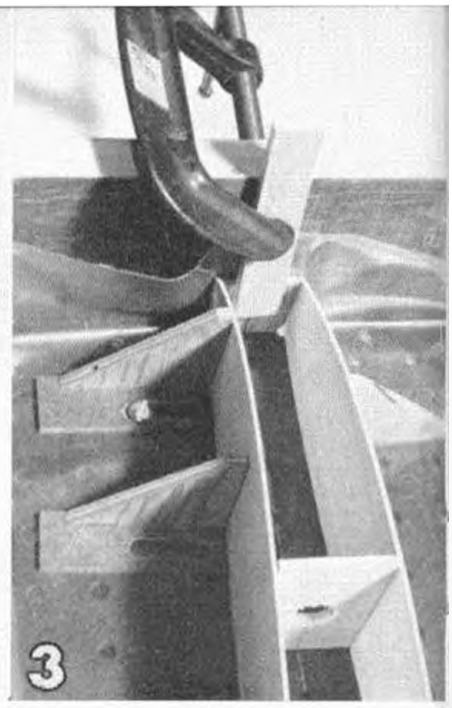

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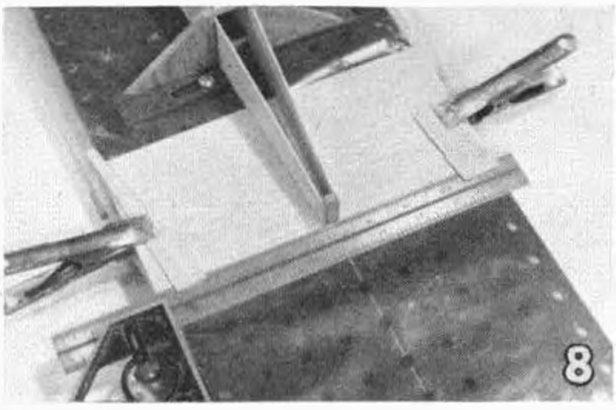

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THIS JIG CONSTRUCTION is easy to use and can be made with a minimum of tools and engineering skill. Main advantage is that all the parts come out exactly 'square' in the construction. The base board as shown in (1) is ¾ in. pegboard. This is made as flat as possible by screwing wooden battens on the underside. A thick wooden head board is also fixed on, at a true 90 deg. to the base. A centre line is marked and around this all the symmetrical fuselage building is completed. Shown laid out are the fuselage sides and formers for a "Simplex" (May 1964, "Aeromodeller") which is the feature model for this exercise. The wooden jigs in (2) are made in 2 in., 3 in., 4 in., and 6 in. heights, and great care must be taken to make sure the base is at 90 deg. to the vertical plane. Dick's own were made with the aid of a sanding disc to within +/- 1/100 in. The vertical plane is made from good quality ¼ in. three ply plywood and the bases, that are nailed and glued on, from ¼ in. hardboard. The block base size is 1 in. x 3 in. x ¼ in. with ¼ in. x 1½ in. slots for the ¼ in. bolts that hold them to the base. The beginning of a "Simplex" fuselage in (3) illustrates the use of a 'G' clamp to hold the nose former to the head board. The other former is placed so that the three jigs can be moved into position for holding the sheet fuselage sides in place. The setting of the fuselage about the centre line of the base board can be seen in (4). A 3 in. jig has been set to hold each former in place, and the formers marked with a centre line to lay them out correctly. The end block is held symmetrical by a spring clip (5). While the fuselage is still in the jig the bottom sheeting is pinned and cemented into place. (6) Shows a ¼ in. x ½ in. spruce keel skid fixed on. The front is held down by a block clamped over it and the rear by a spring

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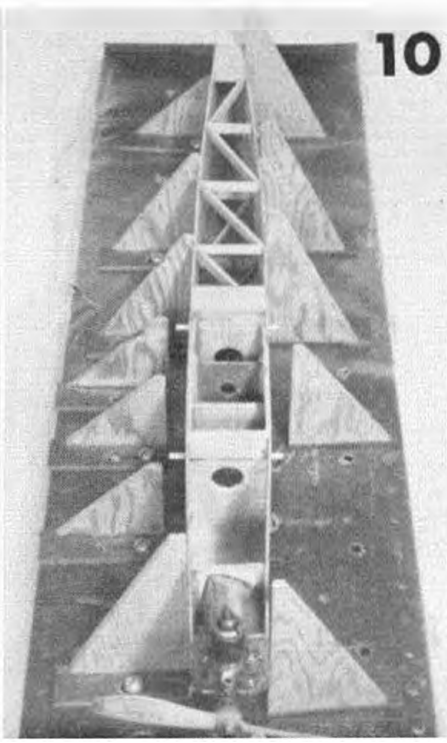

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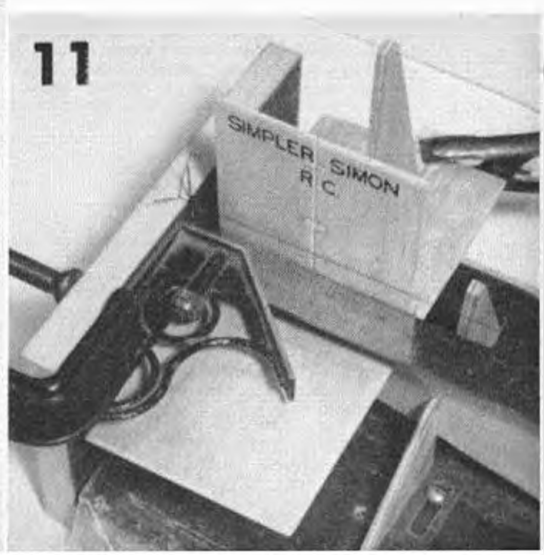

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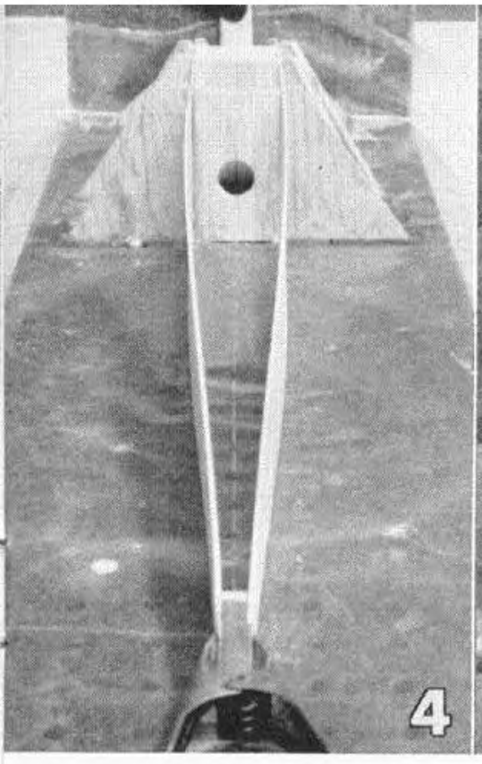
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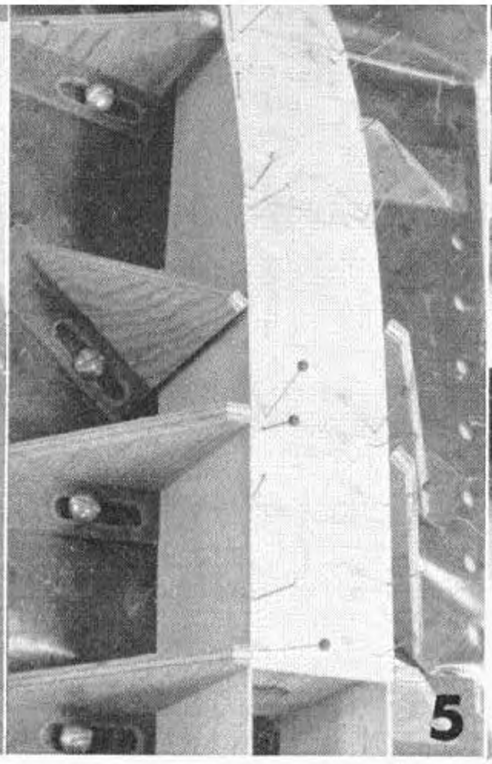
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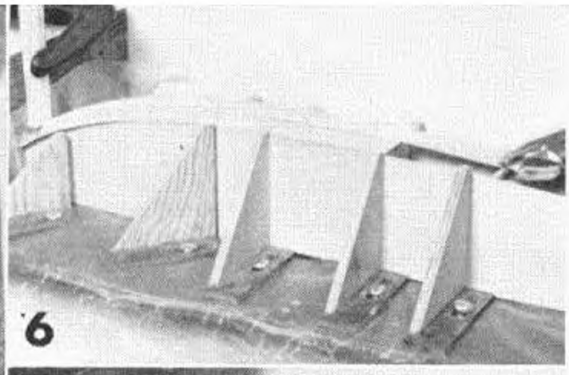
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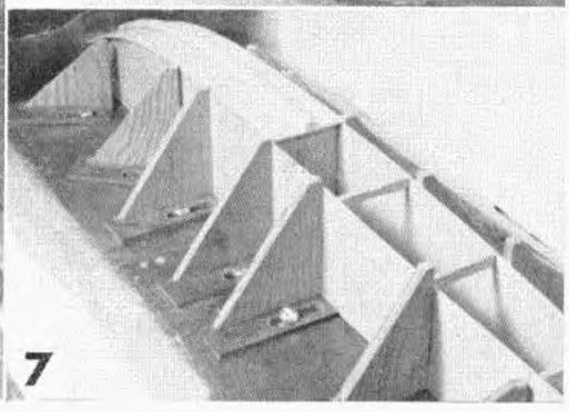
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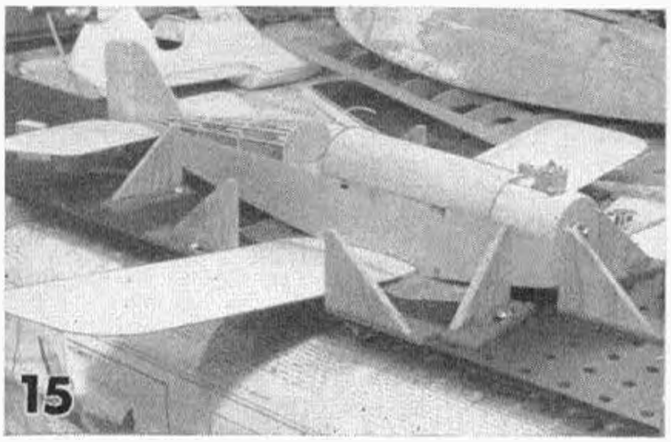
clip. General view of fuselage in (7) gives a clear picture of the jig layout. After the fuselage and engine former joints have set the front jigs are moved back to let the sheeting form a natural curve prior to applying the bottom planking. The tailplane is fixed into position as in (8) and is held true with a carpenter's square. Note scrap packing under clips to protect tailplane surface. In (9) the fuselage has been carefully removed from the jig, for some hand work to be done. The diagonal bracing could now be added, but it is best to put it back in the jig as in (10) and then add the braces after such things as tank, engine, and dowels. Note the protective layer of grease proof paper over the base board, with bolt holes puched in it. (11) shows the fin and rudder being trued up against the head board with the carpenter's square clamped on to it, and a jig up the back of the fin. A thread line is run the length of the centre line to the engine to check the trueness. Another view of rudder mounting in (12) shows the jig being held by a clip and wooden baton. True the jigs on the board as in (13) by using a carpenter's framing square to align all their leading edges and make sure they are at right angles to the head board. After cementing the rough wing shape in the jig remove and sand to airfoil section. Then cut in half and bevel the dihedral joint. Insert both wing halves into jig. Clamp one wing firmly to the jig board with the tip flush with the head board and cement the join line. As in (14) a true straight, warp-free wing will now result. In (15) an S.E.S. R.C. model is seen having the lower wing fixed to the fuselage. With such a wide range of uses we will expect to hear of many other types of model built with Dick's jig, sport F/F model's with "boxy" fuselages being the obvious choice for rapid construction.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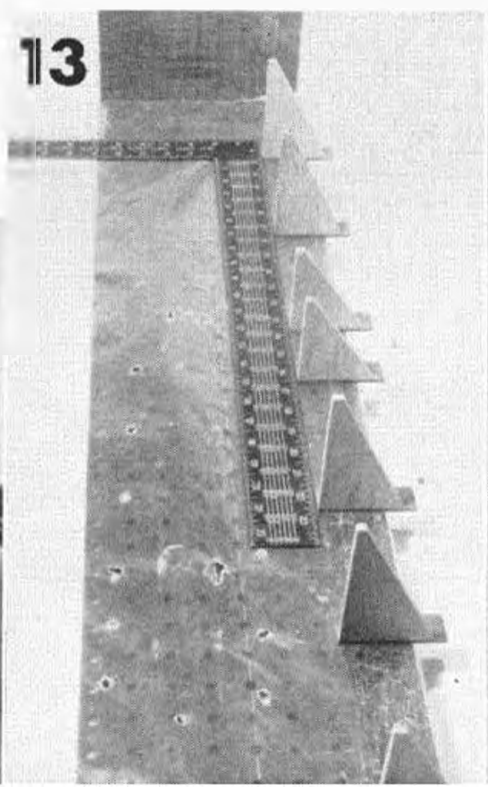
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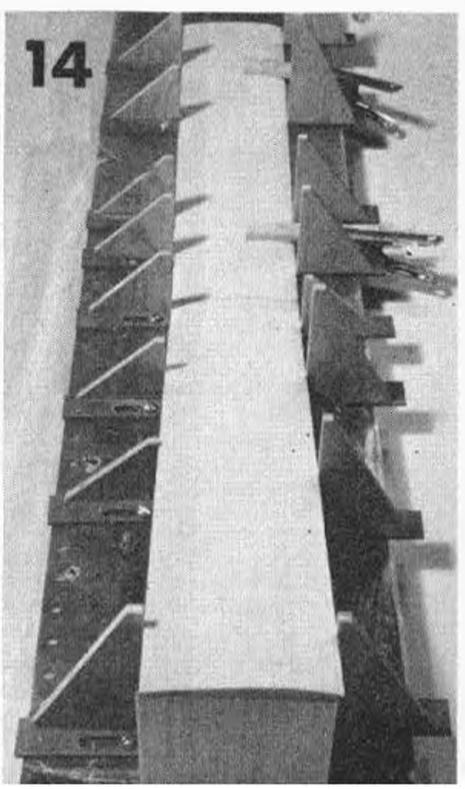
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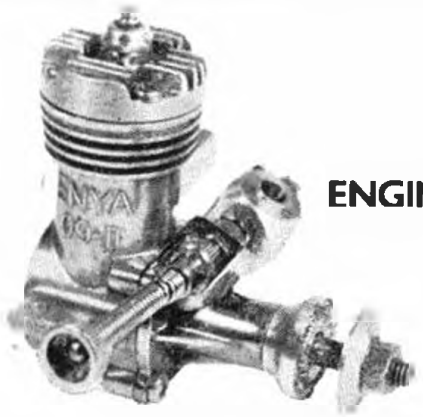


ENGINE ANALYSIS No. 126 by R. H. Warring

ENYA ·09-II

RADIO CONTROL

THE ENYA 09 is an extremely compact, rugged glow motor with a reputation for easy starting and good handling characteristics. The R/C version is a straightforward adaption involving the fitting of a throttle unit directly into the stub air intake of the standard model, where it is located by two screws, one either side, in the holes normally occupied by the spraybar. The throttle is not coupled to an exhaust flap, nor is any provision made for accommodating such a flap. A matching D.A.C. "Spinaflo" silencer unit was, however, fitted to the test engine comprising an exhaust stub adapter/manifold and a silencer unit, attaching to the Enya by means of a strap encircling the cylinder immediately below the fins. This proved to be a neat and effective unit, dropping the revs. by a matter of a few hundred r.p.m. only whilst reducing the noise level to a very low order. If anything, the silencer somewhat smoothed the throttle response although, due to lack of noise, it did make fine adjustment of the needle for peak r.p.m. a little more difficult.

The throttle is of the usual barrel type, with a brass barrel rotating in a dural body. The barrel is trapped in position by a screw on the left hand side of the body and rotates independent of the fuel feed which enters from the opposite side. This comprises an intake tube with a 'tee' for attaching the fuel pipe, which thus lies conveniently at right angles to the needle assembly. The needle meters the passage opening at the bottom of the tee and is extended by a massive flexible arm. Although lying quite close to the propeller disc, the needle is quite easy to manipulate and positively locked by the double ratchet spring.

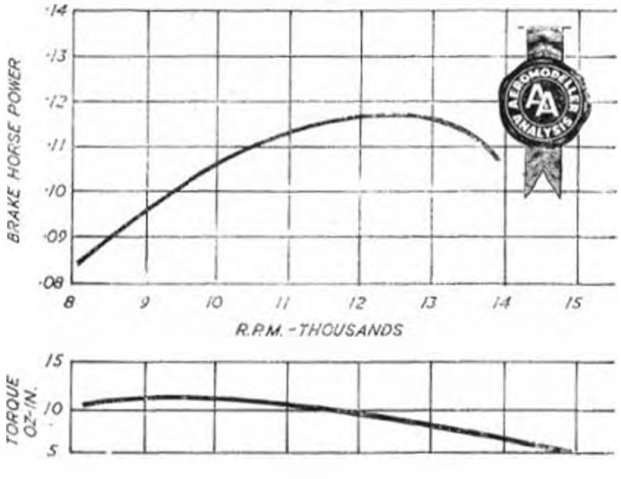
Barrel movement is controlled by a soft wire arm secured in the extending boss of the barrel by a single grub screw. Full 360 deg. rotation is possible and a fairly positive linkage system would be essential to establish correct throttle movement in a model installation. The throttle is mainly effective as a 'two-speed' device — fast or slow — and the engine will run with the barrel opening fully closed apparently shutting off the air supply completely, except for that drawn round the rather loose fitting barrel. Whilst this produces very low speed running (i.e., 2,500 r.p.m. from about 10,000 r.p.m.) an excessively rich mixture is built up in the engine and there is considerable delay in 'sorting out' the mixture again when the throttle is opened. For reasonably rapid response, with excessive richening, the barrel movement has to be stopped with an air passage still remaining. This corresponds to a 'safe' adjustment of about 3,500 r.p.m for slow running. Adjusting for slower speed seems to produce richening and delays the pick-up.

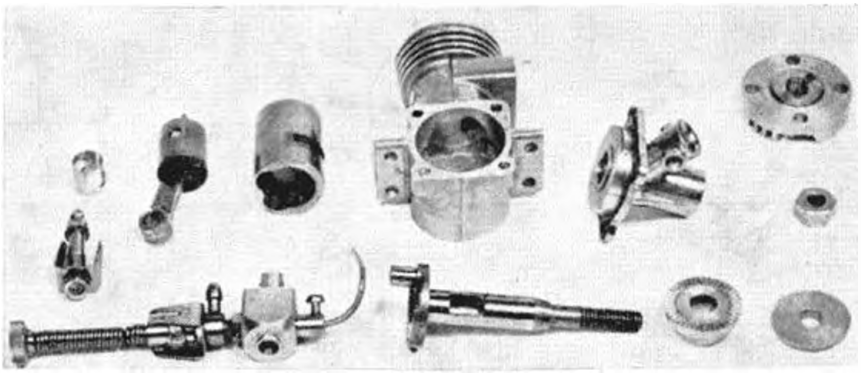
Apart from general neatness of the design, the Enya impressed by the quality of its workmanship and really sturdy construction whilst retaining compact external dimensions. The soft steel cylinder liner, for example, has a wall thickness of over $\frac{3}{32}$ in. A single rectangular exhaust port is cut in the walls whilst diametrically opposite two arc-shaped transfer passages are cut on the inside of the walls, terminating square and almost completely overlapping the exhaust opening.

The piston, by comparison, is a very lightweight assembly machined from cast iron with very thin walls and a narrow rectangular deflector on the flat top. The connecting rod is a light alloy forging and the fully floating gudgeon pin is of silver steel. .137 in. diameter. Piston-cylinder fit is extremely good, virtually to 'diesel' standards in fact with a pronounced taper relief at the bottom and some initial tightness at the top of the bore. This feature, with the thick-walled liner, should produce a long-life cylinder which is very useful for R/C work where engines are called upon to run continuously for fairly long periods. As a consequence we would expect the Enya to outlast many of its 09 R/C counterparts and maintain rather than gradually lose performance.

General construction follows typical glow motor pattern, with a robust light alloy die cast crankcase unit incorporating cylinder jacket and fins. The liner is an easy sliding fit in the casting and seats on a narrow ridge at the bottom produced by boring out the casting to the liner o/d. The front bearing unit is detachable and secured with four screws. This is another light alloy die casting with a moulded in bronze bush for the main bearing which has been reamed and apparently honed to finished size. Bearing length is only $\frac{15}{16}$ in. but this appears adequate, with a relatively loose shaft fit.

The crankshaft itself is of hardened steel, .294 in. diameter stepping down to a .192 in. diameter threaded length via a taper section on which the prop. driver locates. Intake port is rectangular, approximately $\frac{5}{16}$ in. x $\frac{3}{16}$ in. opening into a $\frac{1}{16}$ in. diameter hole in the shaft. The crank web is circular but machined away on the rear face to produce a crescent shaped counterweight. The shaft is finished by grinding over the journal length and





Propeller — R.P.M. Figures

Top Flite	6 x 4	14,300
	7 x 4	11,700
	7 x 6	10,200
	8 x 4	10,500
	8 x 6	8,500
D-C nylon	8 x 4	10,200
K-K nylon	7 x 6	10,200
	7 x 4	11,600

All figures are with throttle fitted.
Fuel used: Mercury 45.

Specification

Displacement: 1.60 c.c. (.0978 cu. in.).
Bore: .500 in.
Stroke: .198 in.
Weight: 5 oz.
Max. power: .118 B.H.P. at 12,750 r.p.m.
Max. torque: 11.5 oz.-in. at 9,500 r.p.m.
Power rating: .074 B.H.P. per c.c.
Power/weight ratio: .023 B.H.P. per oz.

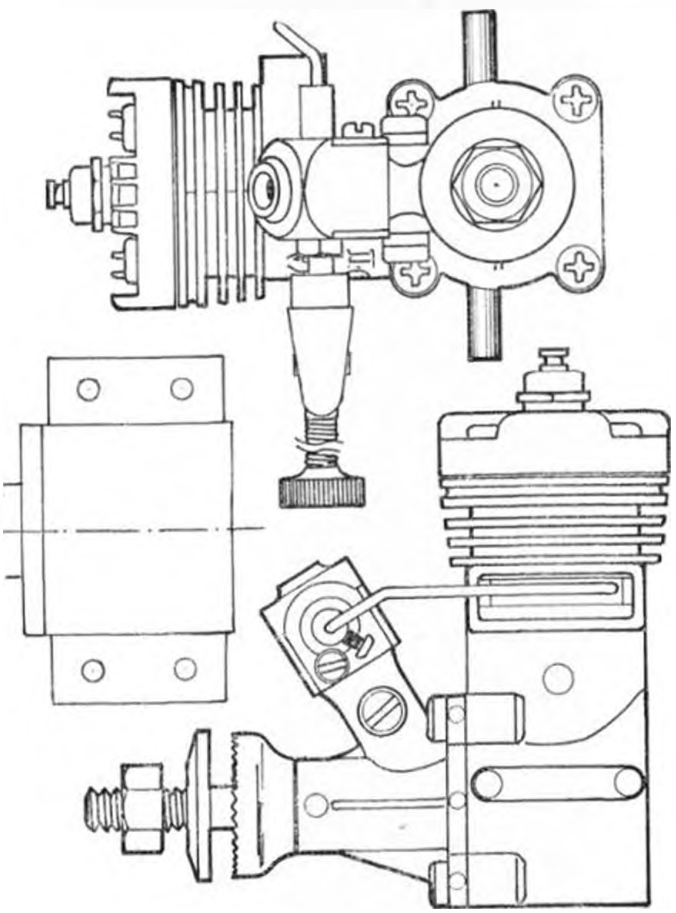
Material specification

Crankcase unit: light alloy pressure die casting.
Cylinder liner: leaded steel (unhardened).
Piston: cast iron.
Con. rod: light alloy forging.
Crankshaft: hardered steel.
Main bearing: plain, bronze bush.
Front bearing unit: light alloy pressure die casting.
Cylinder head: light alloy pressure die casting.
Throttle unit: brass barrel in light alloy body.
Needle valve assembly: nickel plated brass.
Prop. driver: light alloy.
Propeller shaft thread: .192 in. diameter.

crankpin, but with some evidence of chatter marks. The fit is loose enough, however, for these to have negligible effects.

The head is another very neat alloy die casting with integral fins and a centrally located glow plug, fitted as supplied with two washers which brings the bottom of the plug flush with the bottom of the head.

Any standard (¼ in. reach) plug fitted as a replacement would also appear to need two washers to prevent the bottom of the plug fouling the deflector on the piston at top dead centre. Another interesting point is that a brass bushing is cast integral with the head and drilled and tapped for the glow plug thread, rather than the plug screwing into a tapped hole in the head casting and so risk of stripped threads is removed.

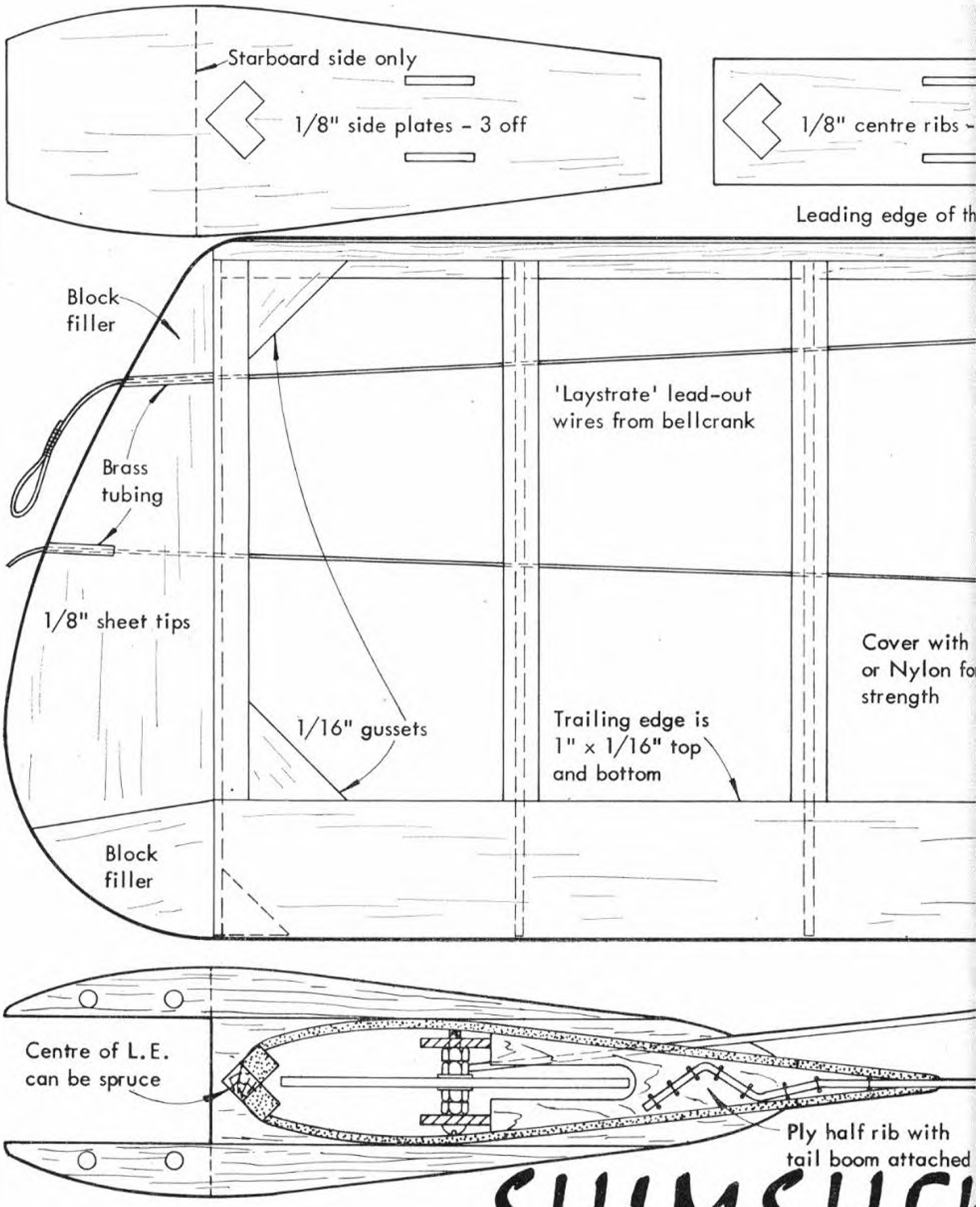


The prop. driver is of conventional type, machined from light alloy and secured merely by tightening up on the shaft taper. The facing washer is of sensible proportions, as is the prop. retaining nut itself. A gasket is used as a seal between the front bearing assembly and the crankcase but there is no gasket under the head which attaches via four Phillips head screws.

Altogether we consider the Enya 09 a most likeable little R/C engine for models requiring moderate power, with speed control via a simple throttle unit. Whilst a good 1 c.c. diesel could beat it for power output, the Enya will score by having a reliable throttle and should last as long as most diesels. The only thing missing for an R/C power plant is positive adjustment of the throttle 'high' and 'low' positions, which would have to be provided on the actuator linkage with provision to adjust the low speed setting to suit particular requirements.

An 8 x 4 prop would seem a logical size to use for R/C work and the engine is most easy and tractable to handle on this diameter size. Starting characteristics are, as we mentioned earlier, excellent and hand-starting on a 6 in. diameter prop. is equally easy, but peak power is developed just below 13,000 r.p.m. and so there is no advantage in aiming at a high operating r.p.m. Without throttle, the .09 revs. on a 7 x 4 are 14,000.

The Enya runs quite well on straight fuel up to about 12-13,000 r.p.m., but is a little smoother at the top end with 7.5 to 10 per cent nitro. The throttle is also a little inconsistent when the engine is absolutely new and improves with running time. About an hour's running-in should suffice, unless the piston feels a bit stiff to start with. If the fits on the sample engine are typical then only the piston-cylinder fit needs running-in, during which period performance will improve slightly. Altogether an engine to heartily recommend to the sports flier for long life and reliability.



SHIMSHEK

½A COMBAT MODEL

SHIMSHEK

½A COMBAT MODEL

By I. TURNER

THIS MODEL IS A DEVELOPMENT of a one-off ½A combat model originally constructed for a club competition. Performance was sufficiently impressive to warrant continuation of the theme for its own sake. Utilising several ideas gleaned from a more intensive programme of A class combat models, the design got progressively smaller, faster, lighter and more simple, while still disappointing sadistic spectators by not breaking in a "prang".

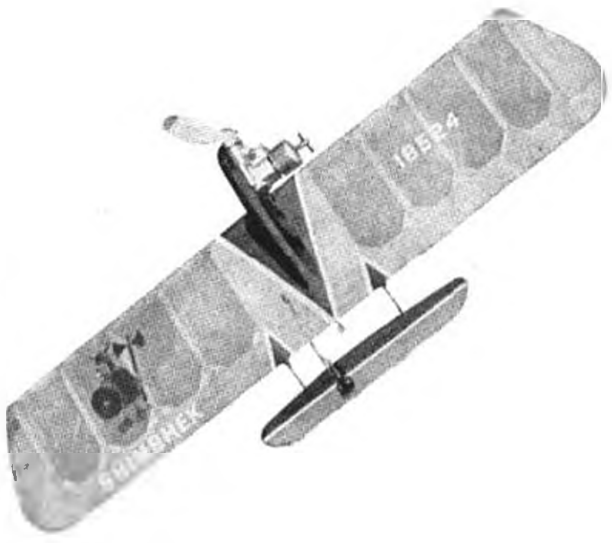
Construction is commenced by cutting out 10 wing ribs from medium quarter grain sheet and two half ribs of one millimetre ply. Cut out fuselage parts and leading edge and trailing edge parts.

The unique L-shaped leading edge is then glued together using any flexible adhesive, i.e., P.V.A., Evostick, *not* balsa cement. Glue spruce leading edge piece to one of the balsa leading edge pieces and pin to a flat board with the parts one on top of the other. When these are dry, glue on the other balsa leading edge piece and pin down again with the new piece on top. This method of leading edge construction always yields a straight leading edge, however warped the separate parts may be to start with.

The fuselage spacer laminations are then glued together care being taken to see that the slots for the leading edge and the bellcrank supports line up. Glue on bearers and clamp securely checking that bearers are square as seen from the front. When this is dry drill holes for engine mounting, put bolts through and solder a pin across the heads. A spot of Araldite in these holes helps make a stronger bearer assembly. Make sure that the engine sits right back against the leading edge. Add fuselage sides, again checking line up of slots. The leading edge makes a good jig to get these true, but remove it to clamp firmly. When everything is set, carve, plane and sand the fuselage to a streamlined shape. Use the motor as a guide to give the front a smooth shape up to the prop driver. Sand the finished article to a good finish using fine garnet paper.

Make two plywood bellcrank supports and glue through fuselage. Using the plan as a guide, mark out the position of the leading edge through the fuselage and glue the leading edge in place. Check that the assembly is square through the fuselage. While this is drying, bend the 18 s.w.g. booms to shape shown and sew and glue to ply half ribs. (Note the slot in inboard half rib to clear rear leadout.)

Pin one trailing edge piece over the plan and glue wing ribs on top (not ply half ribs.) Check that ribs are all flush with the back of trailing edge. When dry, notch trailing edge to accept booms and glue half ribs in place. The booms will have to be bent up slightly to clear the plan and can be straightened later. Add top trailing edge piece. Leave whole assembly to dry completely as the structure is rather flimsy at this stage.



Heading picture above shows Shimshek's businesslike lines and tough construction. Note the trailing edge gussets, good finish and S.M.A.E. number on wing. P.A.W. 1.49 is shown installed, and on plan with 7 x 6 propeller.

Make the tank and Araldite through bellcrank supports protruding on outboard side. Add bellcrank, checking that it is free on bolt.

Remove wing assembly from the plan and bring up to fuselage assembly. Mark the positions of the ribs at the leading edge and gluing both ribs and leading edge pin firmly together. Allow to dry with whole assembly vertical. When dry, add cap strips, gussets, then tips and tip blocks. Connect up bellcrank assembly using heavy laystrate and sew in leadout tubes. Leave pushrod overlength at this stage. Cover the centre section, add tip weight with a small bandage patch to secure. Make the tail, sand to smooth section, hinge and add ply horn reinforcement. The tail is fixed last after covering.

The leading edge can now be carved to shape and sanded to a smooth section over the cap strips, sand the whole model to a smooth finish all over.

The fuselage should now be covered with nylon or bandage soaked in balsa cement. Use the nylon to give a gusset where the wing joins the fuselage. Fibreglass can be used, but it is not essential. Rub down fuselage with wet and dry paper to give a high gloss finish.

Cover with jap silk or light nylon. Tissue of any sort is NOT suitable. Give three or four coats of thinned dope over the whole model and a couple of thicker coats over outboard panels subjected to exhaust from the motor.

Fix tail using bandage soaked with cement. Put plenty of glue near booms to prevent splitting after a lot of prangs. Cover the tail with silk or nylon and give several coats of sanding sealer rubbing down between coats. Bolt on elevator horn and bend pushrod to give correct neutral. Solder on retaining clip. Movement should be about 40 deg each way. Decorate sparingly and fuel proof.

Fly on 40 ft. lines. One word of combat advice, train yourself to fly *large* smooth manoeuvres, this way the model will maintain a very high flying speed enabling you to follow someone round, take a cut and get away!

Graupner

The world's finest range of **DE LUXE QUALITY** model kits — absolutely complete, including **MAGNIFICENTLY DETAILED** full size plans.

SEE THEM AT YOUR LOCAL MODEL SHOP!

Graupner R/C KITS

Superb models SPECIALLY DESIGNED and FLIGHT PROVEN—and each kit is absolutely complete down to wheels, cements, hardware, etc.

CONSUL 99/6

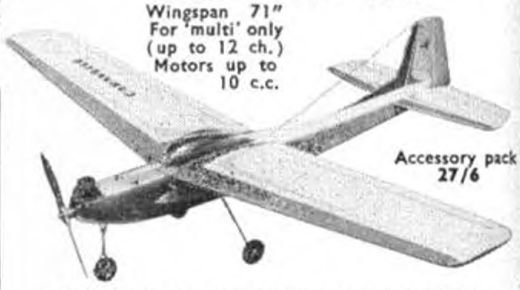
41" span rudder-only, for motors up to 2.5 c.c.
Super kit contains finished moulded wings, fuselage, tail in toughened foam plastic, all hardware, wire parts, wheels, etc

FLORIDE 155/-

accessory pack **27/6** Span 55"
Super 'multi' trainer for 2-10 channel. Engines 2.5 c.c. to 29 glow.

CARAVELLE Price 199/6

Wingspan 71"
For 'multi' only (up to 12 ch.)
Motors up to 10 c.c.



Accessory pack **27/6**

Fully aerobatic contest-proven design for 'full house' multi. Wonderful de luxe kit.

Graupner F/F SCALE

Absolutely authentic in scale detail and scaled from full size works plans these models are equally suitable for free flight or R/C.

PIAGGIO P149D 114/6

Span 44"
Engines up to 2.5c.c.
Fully prefab. kit includes wheels, canopy, shaped wire parts, etc. A concours winner.

PIPER TRI-PACER 89/6

Span 44"
Engines up to 2.5c.c.
A wonderfully authentic model with sprung nosewheel, all scale details, etc. A de luxe production. Extras **17/11**

CESSNA 180 72/6

Span 44". Engines up to 1 c.c. Superb scale model, easy to build and a wonderful flyer. Plenty of room for R/C.

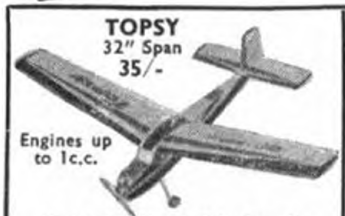
BOLKOW JUNIOR 69/6

Span 33" Engines 1-1.5c.c.
Authentic in detail and a delight to fly—sports or R/C. Nothing has been spared in this kit!

Graupner F/F KITS

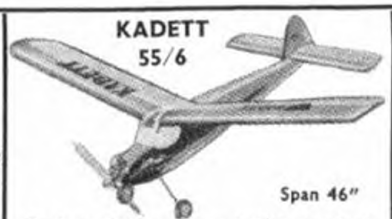
Tough, sturdy construction, easy assembly and good looks are features of these modern models. Each one also suitable for R/C.

TOPSY 32" Span 35/-



Engines up to 1c.c.
'Quick-build' model for beginners, sport or R/C. Fully prefabricated kit throughout.

KADETT 55/6



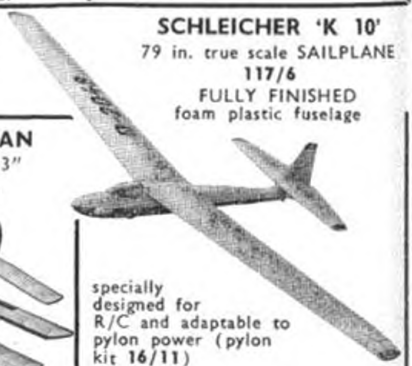
Span 46"
Engines 1-2c.c. Rugged 'all weather' sports or R/C model a pleasure to build and fly. Extremely stable.

KAPITAN Span 43" 59/6

Engines up to 2c.c.

SCHLEICHER 'K 10'

79 in. true scale SAILPLANE
117/6
FULLY FINISHED foam plastic fuselage



specially designed for R/C and adaptable to pylon power (pylon kit **16/11**)

Graupner GLIDERS

A range of MODERN DESIGN gliders and sailplanes covering Scale, Sport and Contest. Amigo and Filou are also adaptable to optional auxiliary power, and with WEIHE 50 are ideal for R/C.

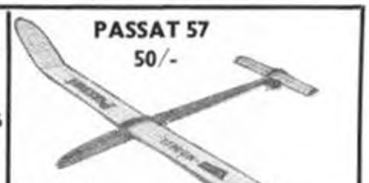
WEIHE 50 79/6
71" span

True to scale and as efficient as the full size craft. Kit includes finished foam plastic fuselage. Ideal for R/C.

AMIGO Kit 58/3

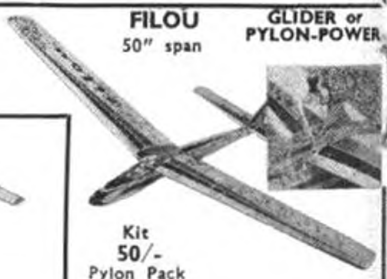
Pylon Pack **12/6**
Span 69½"
High performance towline or slope soaring model, optional power egg installation and R/C.

PASSAT 57 50/-



Span 74"
A 'quick-built' model with a top performance for contest work.

FILOU 50" span GLIDER or PYLON-POWER



Kit **50/-**
Pylon Pack **14/6**
Sleek, high performance glider with convertible power-pylon format. For sport or R/C.

DONALD DUCK 37/6

Span 43"
An easily built model specially designed for the advanced beginner.

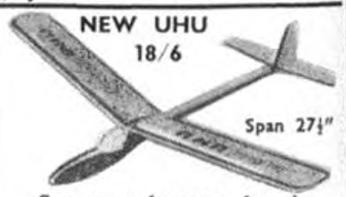
HOBBY 34/6

Span 53"
Popular high - performance glider for sport or contest work, towline or slope soaring.

BEGINNER 28/9

Span 38"
Easy to assemble, very good performance. A perfect trainer.

NEW UHU 18/6



Span 27½"
Contest performance for the novice! Specially designed for easy construction and flyability.

GRAUPNER — THE WORLD'S FINEST MODEL KITS AND ACCESSORIES

Graupner C/L SCALE

Absolutely the world's best for realism, accuracy and authentic 'full size' performance. Each kit is wonderfully complete with all 'hardware', etc.

MEW GULL 69/6

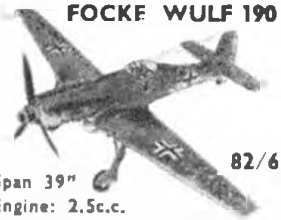
27½" span
Engines: 2.5c.c.
Kit is absolutely complete with many spindled and moulded parts, hardware, wheels, etc.

Graupner SUPER KITS

at your model shop

Each kit is full of the finest selected materials and the quality of the cutting is second to none. The completeness of each kit and prefabrication provided is outstanding.

FOCKE WULF 190



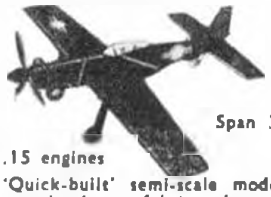
82/6

Span 39"
Engine: 2.5c.c.
Kit includes moulded cowl, intakes, etc., and 4-sheet plan.

DORNIER Do 27 69/6

31½" span Engine: 1.5c.c.
Kit includes moulded cowl and wing tips, many die cut parts, shaped wire parts, etc., etc.

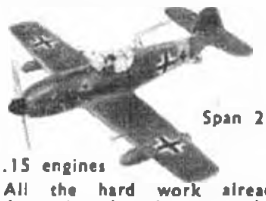
MUSTANG 55/6



Span 30"

.15 engines
'Quick-built' semi-scale model completely prefabricated, and extremely easy to build and fly.

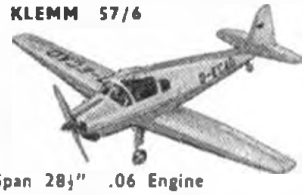
ME 109H 57/6



Span 25½"

.15 engines
All the hard work already done in this kit—an ideal 'first' scale model.

KLEMM 57/6



Span 28½" .06 Engine
Wonderfully detailed scale model in 'Quick-built' kit form for easy and accurate assembly.

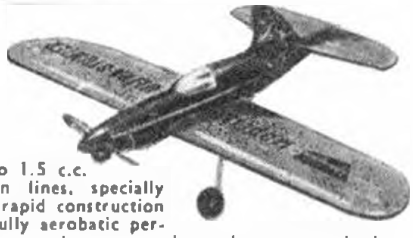
Graupner SUPER KITS

at your model shop

The clarity and detail of the plans, and the completeness of the instructions are a revelation with Graupner models! Please ask your local dealer to show you the kit of your choice—we know you will like it!

Graupner C/L STUNT

ULTRA-STUNTER 50/-



Span 35½"
Engines up to 1.5 c.c.
Sleek modern lines, specially designed for rapid construction and with a fully aerobatic performance up to the most advanced stunt standards.

Graupner ACCESSORIES

SPINNERS

1¼" 2-bl.	2/6
1½" 2-bl.	3/–
1¾" 2-bl.	3/6
1¾" 3-bl.	4/3
1½" 3-bl.	4/9
1½" uncut	6/–

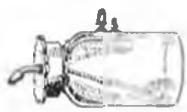
WHEELS

Record

1⅛"	5/– pr.
1½"	5/– pr.
2"	5/6 pr.
2½"	7/6 pr.
2¾"	11/9 pr.
3½"	18/6 pr.

Graupner TANKS

10cc. T/R	6/9
28cc. T/R	7/11
22cc. stunt	7/6
30cc. stunt	7/6
45cc. diamond	9/6
17cc. Tubular	6/–
25cc. Tubular	6/–
20cc. Consul	8/6



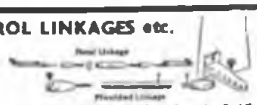
R/C CLUNK TANKS

100cc.	10/9
200cc.	11/6
300cc.	13/–
Fuel Filter	2/9

NYLON AIRSCREWS

'2-blade'. 10 x 4, 6/-; 10 x 6, 6/8; 11 x 4, 7/6; 12 x 6, 8/6.
'3-blade'. 8 x 6 (plastic), 5/-; 8 x 6 (nylon), 7/6; 9½ x 5 (nylon), 8/6.
Ideal for scale models.

CONTROL LINKAGES etc.



Rudder/elevator horn (nylon)	2/3
Moulded linkage (set)	3/6
Metal linkage (set)	4/6
20" extn. rod (5 or 7mm.)	2/4

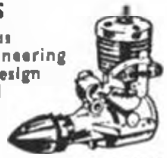
SERVOS

There is a complete range of Graupner motorised servos to match Grundig and other R/C receivers and for all actuator applications.

UNIMATIC single-chan.	59/6
DUOMATIC 6v. 2-chan.	105/–
BELLAMATIC II 2-3v. 2-ch.	115/–
KINEMATIC 1-ch. comp.	59/6
SERVOAUTOMATIC 2-channel progressive	65/–

ENGINES

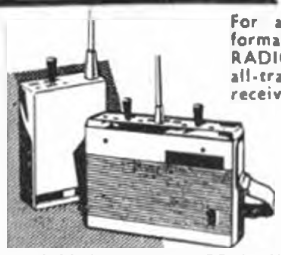
World famous Graupner engineering quality and design is exemplified in this fine range of engines.



HOBBY 1cc.	82/6
HURRICAN 1.5c.c.	99/6
ZYKLON 2.5c.c.	122/6
ORKON 2.5c.c.	195/6
BISON 3.5c.c.	135/–
Engine mount brackets (for Consul, etc.)	3/–

GRUNDIG

FULLY TRANSISTORISED RADIO CONTROL SETS

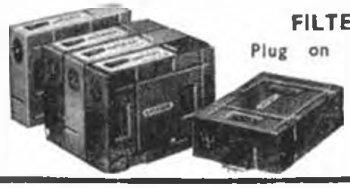


For absolute reliability and outstanding performance, insist on world-famous GRUNDIG RADIO CONTROLS — modern, foolproof, all-transistor circuitry with plug-together receiver and servo units.

SUPERHET RECEIVER £25.10s.
All the advantages of superhet operation, plus Grundig's plug-together system of building up to 2, 4, 6 or 8-channels.

SUPER REGEN RECEIVER £8.19.6d.
Compact, lightweight tone filter receiver, weighing only 1 oz. Pretuned and sealed for complete reliability.

- MINIATURISED UNITS WITH PLUG-TOGETHER CONNECTIONS (no wiring up or soldering required.)
- PERFECT STABILITY, NO TUNING OR ADJUSTMENT REQUIRED.
- BUILD UP FROM 2 to 8 CHANNELS IN SIMPLE 2-CHANNEL STRIPS.
- 100 per cent RELIABILITY — and a SIX MONTHS GUARANTEE!



FILTER UNITS

Plug on to receiver to build up 2, 4, 6 or 8-channel unit.
Each (2-chan.) £8.19.6d.

ALL UNITS FULLY PRETUNED

CRYSTAL CONTROLLED TRANSMITTERS

Designed for economic 12 volt battery operation (DEAC or DRYFIT), pretuned to match any Grundig receiver and with outstanding range. In attractive moulded plastic case, telescopic chrome aerial, etc.

2-ch Tx	£19.15.0
4-ch Tx	£34.10.0
8-ch Tx	£42.10.0
Converter	£10.15.0

(converts 4- to 8-channel Trans.)

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N. ZEALAND: BURTON BRAILSFORD 261 Willis Street, Wellington, C.2.
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GRAUPNER — THE WORLD'S FINEST MODEL KITS AND ACCESSORIES

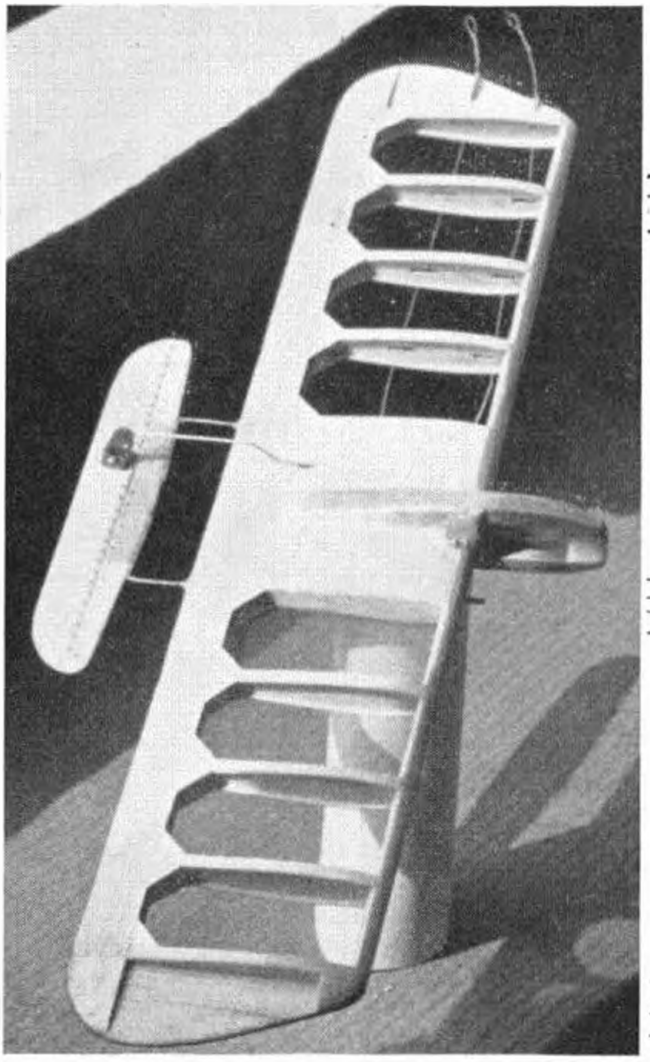
Shimshek

1/2A COMBAT

by I.Turner

18 s.w.g. tail boom

JOIN PLAN WITH PAGE 453 ON THIS RIB



Uncovered structure of Shimshek shows solid construction and wing tip blocks fitted for extra strength. Trailing edge gussets are used on top and bottom, butted against the cap strips.

Cut out—in 5 ribs

1 m.m. ply boom rib

2 ribs only

1/16" rib 10 off

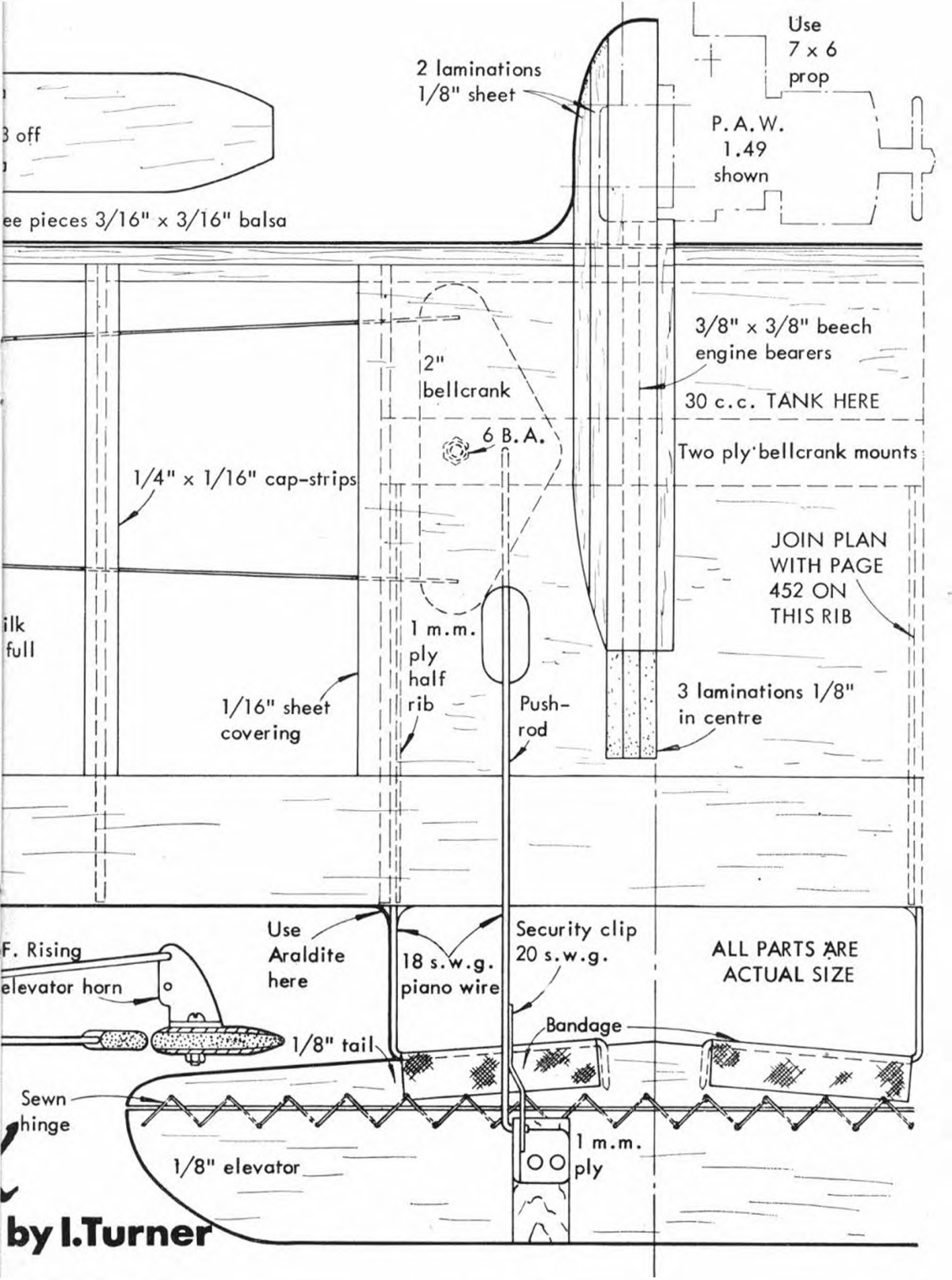
2 off

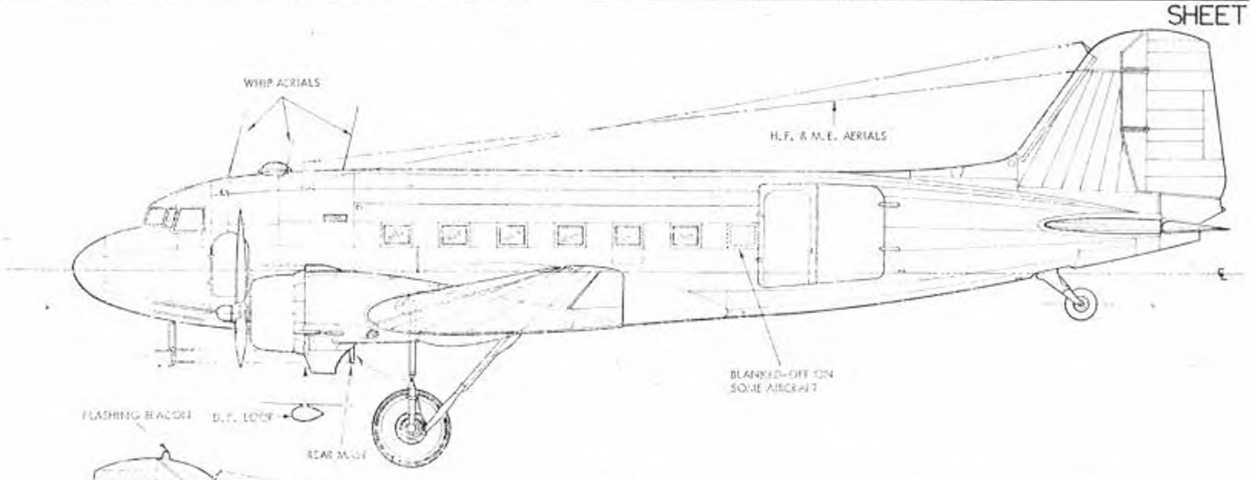
1/16" gussets

Add tip weight here

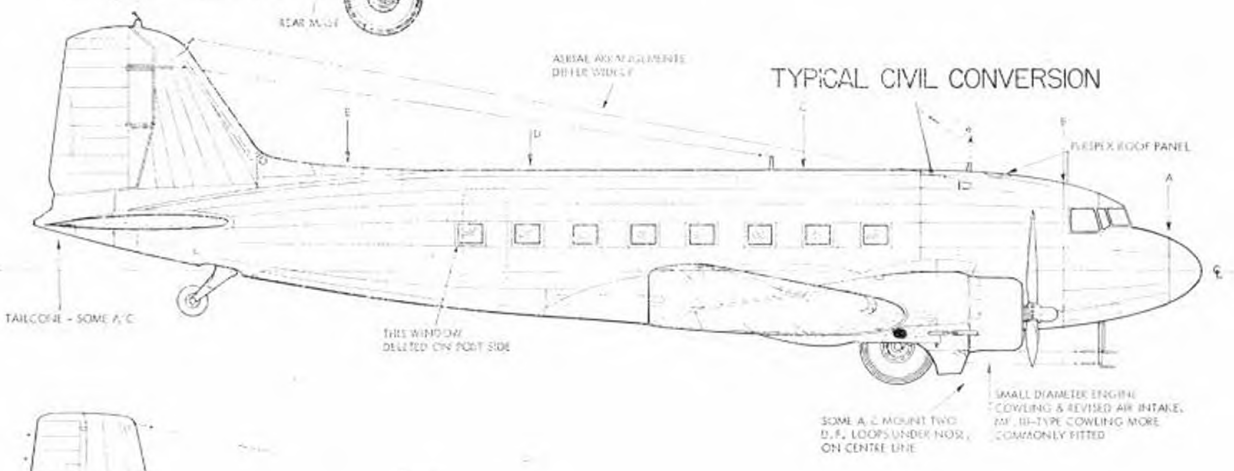
Block

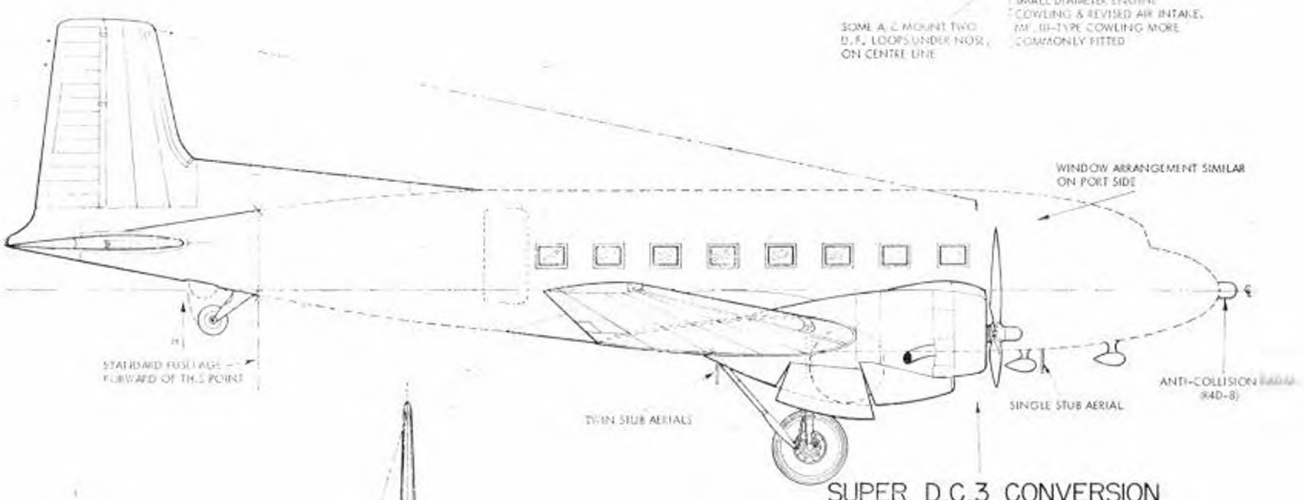
1/8" sheet tip


3 off
ee pieces 3/16" x 3/16" balsa
2 laminations 1/8" sheet
Use 7 x 6 prop
P.A.W. 1.49 shown
3/8" x 3/8" beech engine bearers
2" bellcrank
30 c.c. TANK HERE
6 B.A.
Two ply bellcrank mounts
1/4" x 1/16" cap-strips
JOIN PLAN WITH PAGE 452 ON THIS RIB
ilk full
1 m.m. ply half rib
1/16" sheet covering
Push-rod
3 laminations 1/8" in centre
F. Rising elevator horn
Use Araldite here
18 s.w.g. piano wire
Security clip 20 s.w.g.
ALL PARTS ARE ACTUAL SIZE
Bandage
1/8" tail
Sewn hinge
1 m.m. ply
1/8" elevator
by I.Turner

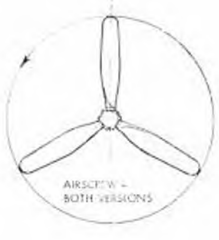


TYPICAL CIVIL CONVERSION





SUPER D.C.3 CONVERSION
(U.S. NAVY R4D-8)



DAKOTA MK III

DRAWN BY G.R.DUVAL

DOUGLAS DAKOTA MK III. AND SUPER D.C.3. (R4D-8)

FT

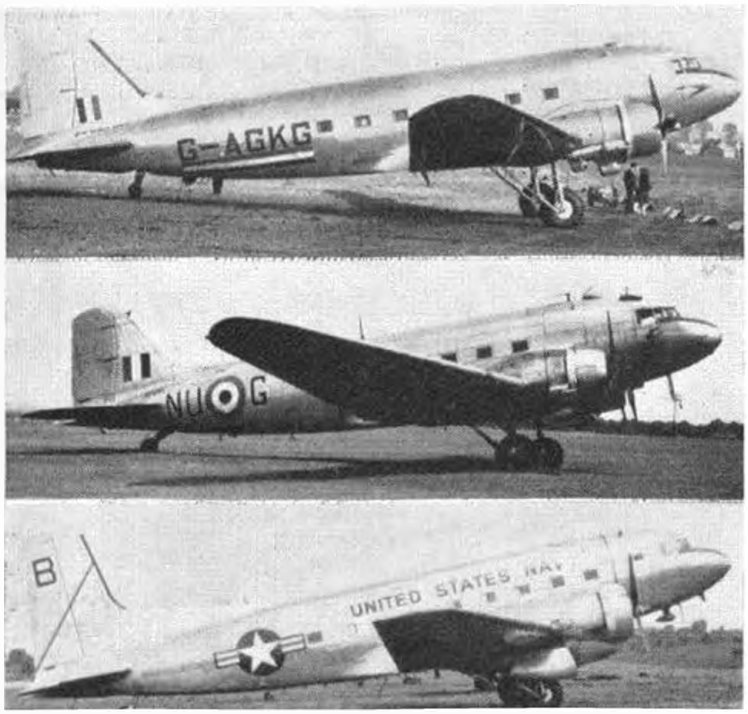
AIRCRAFT DESCRIBED No. 135
By G. R. Duval

DOUGLAS D. C. 3.

MOST FAMOUS of all transport aircraft, the Douglas Commercial Number 3 was developed from the earlier D.C.1 and D.C.2 machines, which, with the Boeing 247, were the first of the modern all-metal airliners. Designed as an all-sleeper version of the D.C.2 and originally known as the Douglas Sleeper Transport, the D.C.3 made its first flight on December 18th, 1935, entering airline service in May, 1936, where it soon became employed as a normal 21-seat airliner.

The D.C.3 quickly became America's foremost airline machine during the immediate pre-war period and many were exported overseas, a total number of 803 civil D.C.3s being built. With the outbreak of war, the machine was developed as a military transport, entering service with the U.S.A.A.F. as the C.53 *Skytrooper* in October, 1941 and modified with large cargo doors and strengthened for heavy freight transport went into military service as the C.47 *Skytrain* in January 42. In the same year, the first of 1,895 C.47s supplied to the R.A.F. appeared, being given the name of *Dakota Mk. I*, the C.53 in R.A.F. service becoming the *Dakota Mk. II*. All these machines were powered by Pratt and Whitney Twin Wasp engines, but one C.47 variant was fitted with Wright Cyclones and designated C.39, and in the U.S. Navy the C.47s were known as R4D-1s.

The war record of the military D.C.3 variants with the Allied Air Forces during World War II would fill a very large book, suffice it to say that they served on every battle-front with distinction, carrying parachutists and towing gliders, supplying the troops at Arnhem, the Chindits in Burma, and the Allied Armies in general, with food, ammunition, water, petrol, mail, and all the impedimenta of war, often under enemy fire. No less than 10,125 military D.C.3s were built, plus 450 constructed in the enemy camp by Japan under pre-war licence, and 2,000 built in Russia as the Li-2. Comparatively minor modifications produced the C.47A/*Dakota Mk. III* and the C.47B/*Dakota Mk. IV*, and these two versions provided the majority of war surplus machines purchased by most of the world's airlines after the war ended, including British European Airways and many independent operators in this country, and these Dakotas joined operations over British routes with the 59 machines of the B.O.A.C. fleet. A highlight for the Dakota came with the Berlin Airlift in 1948/49, when the R.A.F. employed nine Squadrons of them in that massive operation, which proved, however, to be their last use in any strength by the Service. Two ex-R.A.F. *Dakota IVs* were obtained by the Ministry of Supply in 1950 for conversion to Dart propeller-turbine engines by Rolls-Royce, and so powered gave valuable data and experience for the Viscount programme. At about this time, the first major modification to a D.C.3 took place. New wings, with greater sweep-back, a new tail unit, modified landing gear, and more powerful Wright engines were fitted to produce virtually a new aircraft, the Super D.C.3. Used for a short period by Capital Airlines, it was soon supplanted by more modern machines, but the U.S. Navy ordered several hundreds of them, and gave the Super version the designation of R4D-8.



Technical Data

Manufacturers: The Douglas Aircraft Company, Inc., California.

Construction: All-metal riveted Alclad stressed skin with fabric covered control surfaces. Fuel carried in four tanks, two in each side of mainplane centre section. Undercarriage forward retracting, fixed tailwheel. Main entry door optional position, port or starboard. Super D.C.3 as above, entry door port side, retractable tailwheel.

Dimensions: (D.C.3 variants) Span—95 ft.; Length—64 ft. 6 in.; Wing area—987 sq. ft.
(Super D.C.3) Span—90 ft.; Length—67 ft. 8.5 in. Wing area—969 sq. ft.

Table of equivalent designations

(1) D.C.3/C.53 Skytrooper/Dakota Mk. II—Passengers only.
(2) C.47 Skytrain/Dakota Mk. I—Passengers and freight.
(3) D.C.3A/C.47A (C.68) Dakota Mk. III—Passengers and freight.
(4) D.C.3B/C.47B/Dakota Mk. IV—Passengers and freight.
(5) C.39 (C.47)—Wright engines—Passengers and freight.
(6) Super D.C.3/U.S. Navy R4D-8—Passengers only.
(7) Hi-Per D.C.3—Pan American improvement modifications.
N.B. All C.47s bore U.S. Navy R4D designations.

Power plant: (1, 3, 4)—Two 1,050 h.p. Pratt and Whitney Twin Wasp SIC3-G.
(2)—Two 1,200 h.p. Pratt and Whitney Twin Wasp R.1830-92.
(5)—Two 1,100 h.p. Wright Cyclone GR-1820.
(6)—Two 1,475 h.p. Wright R-1820-C9HE or two 1,535 h.p. Wright R-1820-80.
(7)—Two 1,450 h.p. Pratt and Whitney R-2000-D5.

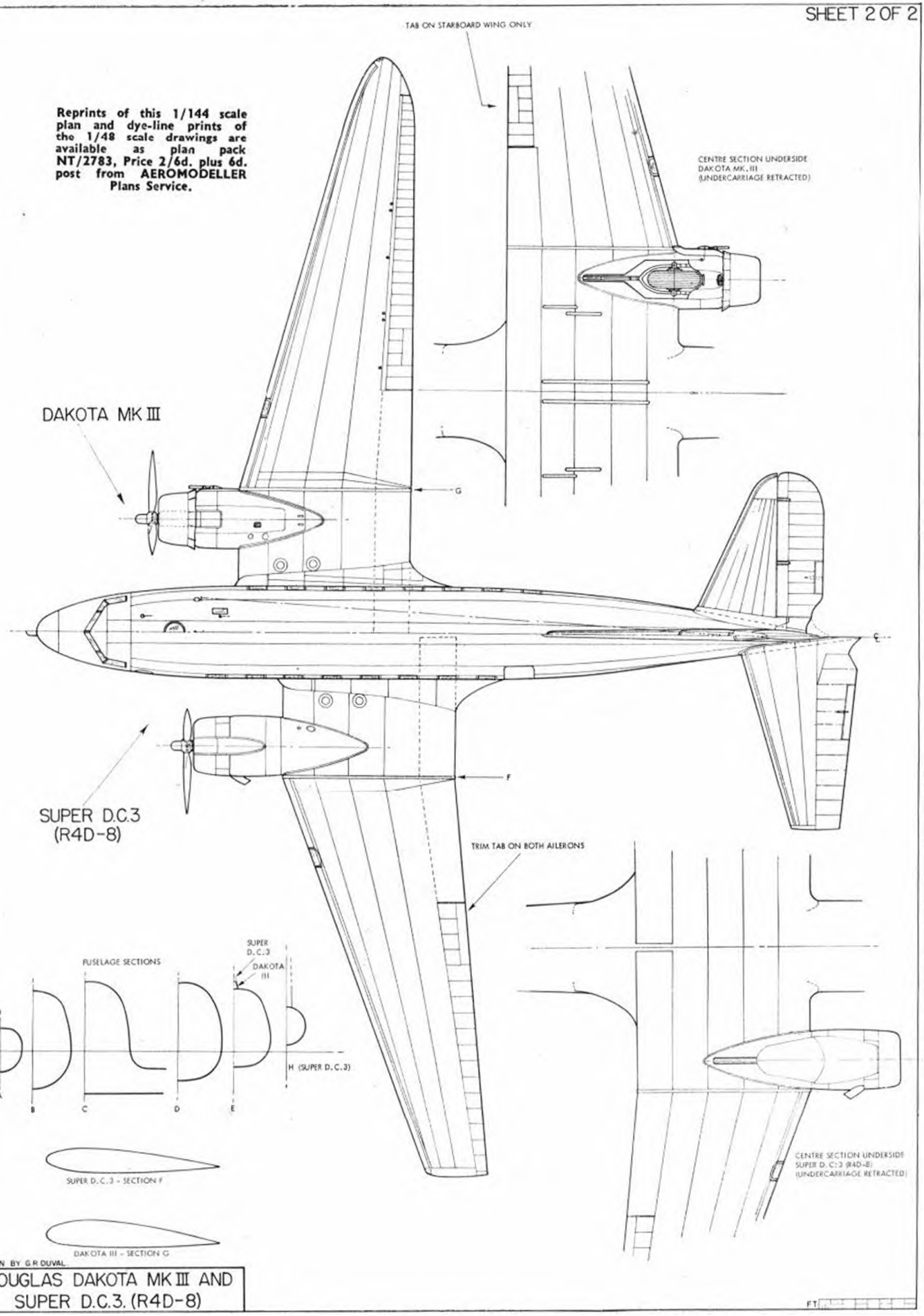
Weights: (1) 25,200 lbs. Max.—31,000 lbs.; (2) 25,200 lbs. Max. 31,000 lbs.; (3) 28,000 lbs.; (4) 28,000 lbs. (6) 31,000 lbs.; (7) 26,900 lbs.

Passengers/crew: Civil D.C.3 variants—21-24 passengers and four crew; Military variants—28 troops and three crew; Super D.C.3-R4D-8—30-38 passengers and three crew.

Performance: Max. speed (1,2,3,4) 230 m.p.h.; (6) 270 m.p.h.; (7) 264 m.p.h.
Range (1, 2) 2,125 miles; (3, 4) 1,600 miles; (6) 2,200 miles.

Heading shows "Anabel Lee" U.S.A.A.F. Dakota 348719 code letter T (carried on fin). With olive drab upper surfaces and light grey undersides. Markings show CW Sqdn. with one glider tug mission, and three parachute drops to its credit. At left three different sets of markings. Top, mixture on B.O.A. Dakota showing red, white and blue strips under civil registration numbers. Centre, R.A.F. Dakota KP 251 with post war roundels. Bottom, U.S. Navy Super D.C.3 R4D-8, 7127. Note undercarriage fairings, and revised tail unit.

Reprints of this 1/144 scale plan and dye-line prints of the 1/48 scale drawings are available as plan pack NT/2783, Price 2/6d. plus 6d. post from AERODMODELLER Plans Service.

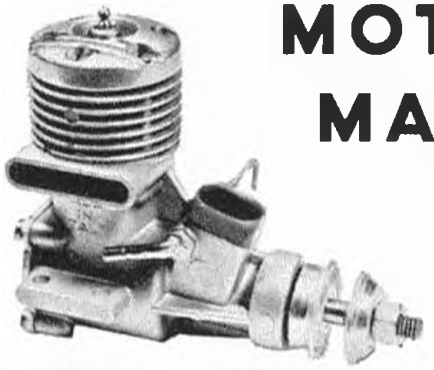


DRAWN BY G.R.DUVAL.

DOUGLAS DAKOTA MK III AND SUPER D.C.3. (R4D-8)

FT

MOTOR MART

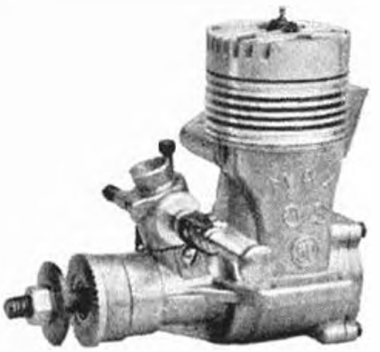


Super Tigre .15

CLOSE ON THE HEELS of the M.V.V.S. 2.5 RL comes news of a new Super Tigre 15 to seek honours in the international speed circle. To be known as the Super Tigre G.15, it is an entirely new motor, similar in design to the Jubilee G.20 but with many new components. The crankcase casting is the most notable change, now incorporating a large rectangular intake, offset to the right hand side of the shaft. For general purpose running a grey nylon venturi restrictor is supplied, being held in place by the surface type needle valve. One nice point that has been included, is the right angled connection for the fuel line on the needle valve. Immediately apparent is the unusual cylinder head, held by six screws. It is a solid head, machined to give two fins on the exhaust port side. This would appear to be an attempt to cool the firing side of the head without cooling the plug, upon which so much depends in F.A.I. speed models. The internal contour forms a wide squish band head with a fairly deep hemispherical combustion chamber. The high pressure tapping take-off point below the main bearing has been dispensed with, and a nipple set below centre in the backplate, substituted. As in the Jubilee G.20, the shaft is supported in two ballraces, the same type of large angled transfer passages are used, and a lapped, flat head piston. With a bore of 15 mm. and stroke of 14 mm. and only weighing 5.3 oz., the performance is claimed to be better than 0.45 b.h.p. on straight fuel, between 21,000 and 22,000 r.p.m., with the maximum torque at the very high r.p.m. figure of 16,000 to 18,000 r.p.m. Summarising a very well finished engine, especially the crankcase casting. With its light weight and being especially designed for maximum power on straight fuel, this engine should be much sought after by free flight and control line fliers alike.

New O.S. R/C Engine

The O.S. 50, recently announced from Japan is intended exclusively for radio control contest work and also as a replacement for the .49 R/C. Outward appearance is much the same as its predecessor, except for the unusual exhaust throttle. The crankcase is a new casting that incorporates one ballbearing and one roller bearing race to support the shaft instead of the plain bearing, as used on the .49 R/C. The piston is a light alloy casting with two rings, and is also slightly larger than previously used, to accommodate the extra capacity. Cylinder head has a re-positioned plug and new internal contours. Carburettor is more compact and simplified, but of the conventional barrel type as before. Much thought has obviously been involved to produce the new exhaust throttle, which has a streamlined expansion chamber bolting to the cylinder stack and incorporating shallow fins for cooling. The restriction is provided by a vertical butterfly valve at the outlet. As often happens with a new crankcase design, the bearer spacing and bolts have changed from those used in the previous engine, thus making new bearers or a new bearer plate essential if you are intending to substitute it for an O.S. .49 R/C. Slightly heavier at 12 oz., this extra weight should be more than offset by a large increase in power and more reliable running.



Heading picture shows latest Super Tigre G.15 emphasising new style head and large venturi. At right, the all new O.S. 50 for R/C with unusual exhaust expansion chamber/restrictor. Has one ball race and one roller race supporting the shaft.

New from U.S.A.

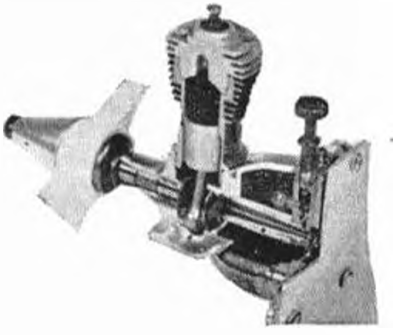
Two announcements from the K & B factory are the Series 64 .15R and .29R speed motors. The .15R now has a solid cylinder head and many other improvements, the prototype placing 1st, 2nd and 3rd at the 1963 U.S. Nationals. The .29R also has a solid cylinder head and holds the Proto Speed record of 134.98 m.p.h.

Another new engine from the U.S.A. is the DEW .56 radio control engine. Our sample from Geoff Franklin is rather roughly made and would appear to be a one off version. Featuring coupled venturi restrictor and exhaust throttle and plain bearing, the DEW looks a most rugged engine. More details later.

From Veco comes a new .35 Combat motor finished in the same style as their .45 R/C with a brightened cylinder head and matt grey crankcase casting, it is plain bearing and of very rugged construction.

Cut-Away Pee Wee

A Cox Pee Wee was recently presented to the editor as a souvenir of Bert Striegler's ability to machine to accurate limits. Cut away strictly for fun, this makes an interesting show piece, clearly showing the amount of detailed points involved in an engine, that are not apparent from an outside view. Note in particular the glow head recess for the platinum coil and the very fine parts involved in the needle valve assembly.



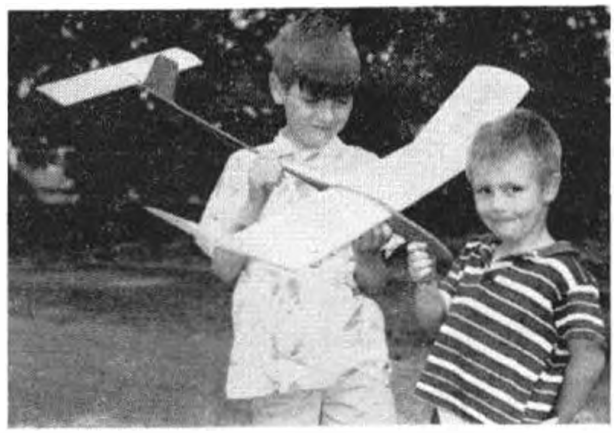
At right the cut-away Pee Wee by Bert Striegler, as described in the text above, makes an ideal display piece for any modeller's den.

Let's go FLYING

—with John Barker

Part 5

Gliders



Cover kids Frankie and David Butler admire the clean and functional lines of John Barker's latest A.P.S. design "Downbeat", recommended to "Let's go flying" readers.

GLIDERS HAVE an obvious attraction for beginners because they are cheap, simple to build and relatively easy to trim for a good performance. What is not so obvious is why they continue to attract so many serious modellers. The first reason would appear to be the international model specifications together with the contest rules.

The main international class is for the A/2 type of model. The principal requirements are:

Total projected surface area, 496-527 sq. in. (32-34 sq. dm.).

Minimum total weight, 14.46 oz. (410 grammes).

Also coming into more frequent use are models to the A/1 specification with the requirements:

Total projected surface area, 279 sq. in. Max. (18 sq. dm.).

Minimum total weight for maximum area. Usually 5.08 oz. (144 grammes), but the F.A.I. loading is used in some countries and this means a minimum of 7.61 oz.

The main contest rules are the use of a 164 ft. (50 metres) towline with the total time from either three or five flights to count, the maximum time credited to any flight being limited to three minutes. In the A/1 class, two minute limits are sometimes applied. Ties are settled by a fly-off (should more than one model make a perfect score or three or five—two or three minute flights).

The model specifications are simple to meet and give a model which is equally at home in 'open' contests. The same cannot be said of the other international classes which usually demand a special type of model. Also the specification has not been changed for many years which allows the models to be fully developed.

The contest rules demand an efficient model with a low sinking speed to give a high duration from the limited launch height permitted. At the present day models have a still air duration somewhat below three minutes so they must have towline stability of high order so that they may be held on the line when the air is 'bad' (sinking) and released when the air is 'good' (rising). The model must also have excellent stability in flight to ensure that undue height is not lost after a disturbance. These requirements form a worthwhile challenge even to the expert.

The second reason for the popularity of gliders is that a glider contest is a real sporting event where the skill of the flyer is the most important thing. Indeed if all entrants were supplied with similar models the results would very probably be much the same. The flyer must get his model into correct contest trim; he must study the weather conditions; he must use a high degree of skill on the tow and, added to this, there is usually the spice of a bit of 'gamesmanship'.

As stated at the start of this article a glider is a good beginners model but a towline glider is not a good 'sports' model. It must be flown in competition to be appreciated. If a sports flyer wants to fly gliders a slope soaring model, particularly if radio controlled, would probably give most satisfaction.

Design Features of Gliders

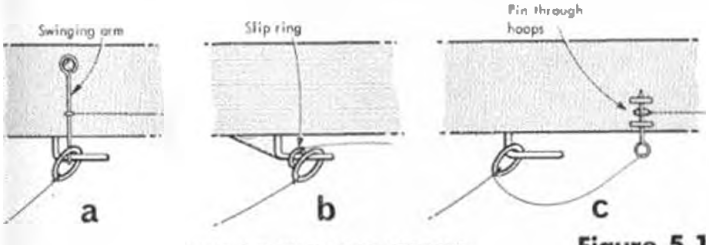
Of recent years there have not been great changes aerodynamically but steady progress has been made structurally. This is not surprising in that the aerodynamic requirements are fairly simple and the necessities have been known for some time. Unfortunately these requirements usually conflict with inherently strong structural design and compromises must be made. This is very noticeable in the most important part of a glider—the wing.

The drag of a wing can be conveniently considered as comprising two parts, the profile drag and the induced drag. The profile drag depends on the shape of the wing section; the induced drag arises as a by-product of the generation of lift. In other words if a wing is flying at such an angle that it gives no lift it will experience only profile drag. However, as soon as the wing angle is changed to give lift it will generate both profile and induced drag. The induced drag increases with increasing angle of attack but is inversely proportional to the aspect ratio. For instance doubling the aspect ratio will halve the induced drag. We have already seen in part 4 that to give a low sinking speed a glider must fly at a high angle of attack thus inevitably giving high induced drag. To reduce this induced drag we use a high aspect ratio but unfortunately a high aspect ratio with consequently small wing chord makes the choice of aerofoil section more critical. Most designers find that a thin wing section gives the best results on this type of model. So here we have the structural problem; a large span wing giving high bending loads, particularly on tow, and only a small, thin wing section in which to place the spars. The methods used to solve this problem

in the top class models are well worthy of study.

Under international rules more surface area can be used in the wing, where it does most good, if less is used in the tailplane. Less area can be used in the tailplane if it has less work to do or if the moment arm is long. Apart from the aerodynamic forces which must be overcome by the tail (as mentioned in *Part* 4) there is also the important matter of weight distribution which affects the tailplane's effectiveness. If a model has most of its weight concentrated near the centre of gravity it is said to have a low moment of inertia but, if its weight is not concentrated (e.g., a heavy tailplane or heavy wing tips), it is said to have a high moment of inertia. Although a model with a high moment of inertia is less sensitive to disturbances it requires much greater corrective forces when it *has* been disturbed than does a model with a low moment of inertia. As the disturbing forces acting on models are so large it is not worthwhile trying to resist them with inertia forces so model designers work to the other extreme and use low moments of inertia to ensure rapid recovery *after* a disturbance. Attempts to achieve low moments of inertia can be seen in the short noses and slender tail booms of the present day gliders. Here again compromise is necessary. Increasing the moment arm to improve stability can to some extent defeat itself, unless the tail end is kept very light, because of an increase in the moment of inertia.

A glider must circle in flight to keep in sight, to keep in lift, and to some extent to improve stability.



VARIOUS FITTINGS AT THE HOOK END

Figure 5.1

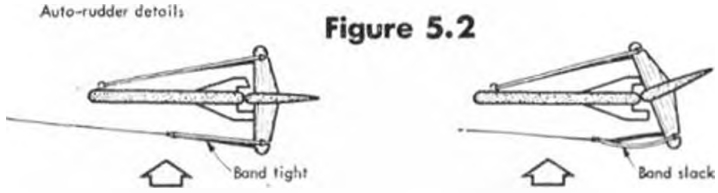


Figure 5.2

FITTINGS AT THE RUDDER END

On the other hand it must not circle whilst being towed so a device called an auto rudder is fitted to hold the rudder straight during the time the towline is attached. There are many varieties of auto rudder and three of the basic types are shown in *Fig.* 5.1. At **(a)** is the automatic type which is held to its setting by the towline ring. This is a neat method and requires no care to be taken by the helper. A disadvantage is that if the towline tension varies the rudder setting may alter. It is also a little more difficult to fit correctly particularly if the tow hook is adjustable for position. At **(b)** is the pre-set type still worked by the tow ring. This is the easiest to fit but has the same disadvantage that the rudder setting can vary if the line tension changes. The helper must exercise a little more care. At **(c)** is the pre-set type which is held by a separate pin attached to the towline. This is the most tolerant type and does not require close setting of the band tensions at the rudder end. It has the big advantage that the rudder cannot move until the towline is actually detached, and also, a disadvantage that the release pin can be accidentally pulled out by a careless helper at the moment of release.

Fig. 5.2 illustrates the usual arrangement at the rudder end of the auto rudder system. Almost all auto rudders follow the same principle of having one rubber band over-ride the other for the tow. Most variations are confined to ways of fitting the rudder stops.

Summarising, good glider flying demands; conventional aerodynamic design, good structure, reliable fittings and lots of practice by the flyer.

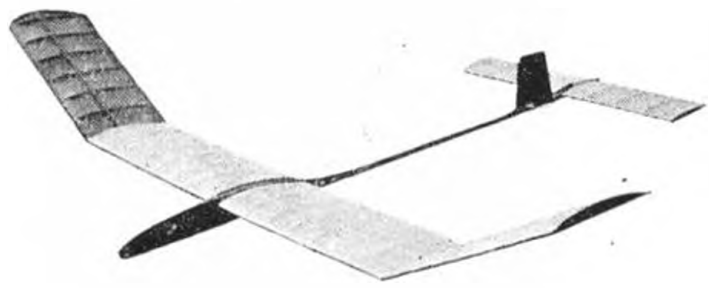
'DOWNBEAT'

A 44" Span A/1 Glider

By John Barker

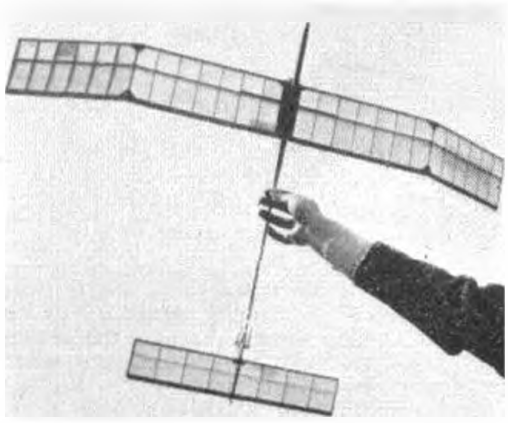
Naturally, the ideal way of introducing oneself to model flying is through an elementary kit type; but limitations of performance soon create a wish for bigger stuff. However, one does not have to think in terms of an enormous model for the A/1 glider class offers a handy size coupled with excellent performance. In fact, *Downbeat* has already placed 2nd in two well supported events and its simple construction makes it an ideal follow-on model for anyone to start after their first basic efforts.

The only unusual feature is the thin tail boom and here we must positively emphasise that provided you use ¼ in. square spruce as specified, this boom will not break. Its inherent resilience and springiness will be of great value in any heavy landing. The reduced cross section increases performance by minimising drag.



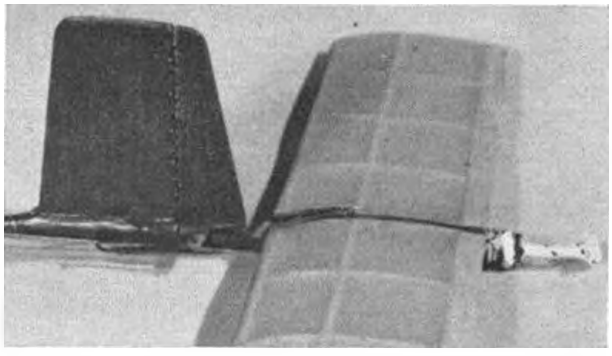
Concise building instructions are included on the plan itself, but since the assembly follows a standard system, it might be as well to run through the system of assembly now.

(*Continued on page* 460)



the centre panel and build the starboard tip over the drawing. There will still be a gap with the missing rib at the dihedral joint. When this part of the assembly is dry, remove from the board, turn the wing around and prop the completed structure up so that the port tip can be built over the chain dotted lines on the plan. Now that this is complete, add the dihedral joint ribs, gussets and tips. Go over the structure with a sandpaper block and if the leading edge was not of the pre-shaped type, sandpaper the ⅛ in. square to section.

At left "Downbeat" shows simple structure and auto rudder fittings, note wing gussets. Below, close up of tailplane indicates the D/T layout and bands to hold tailplane. Rudder is sewn to fin, to give free movement. Note end of D/T fuse is clear of model to prevent fuselage getting burned.



For one with limited experience, it would be better to start with a small component such as the **tailplane**, which is made by pinning down the leading and trailing edges directly over the plan after covering the plan with a waxed paper to prevent the excess cement which spills from the joints, from sticking to the plan.

When the edges are in position, add the ribs and then the spar, completing with the outer tip ribs which do not carry spar slots. Be sure to keep the tail flat and free from warps.

We can now move to the **wing** and in this case first make up the mainspar from hard ⅛ in. x ½ in. balsa over the front view as indicated on the plan. Note the generous tip dihedral for good lateral stability.

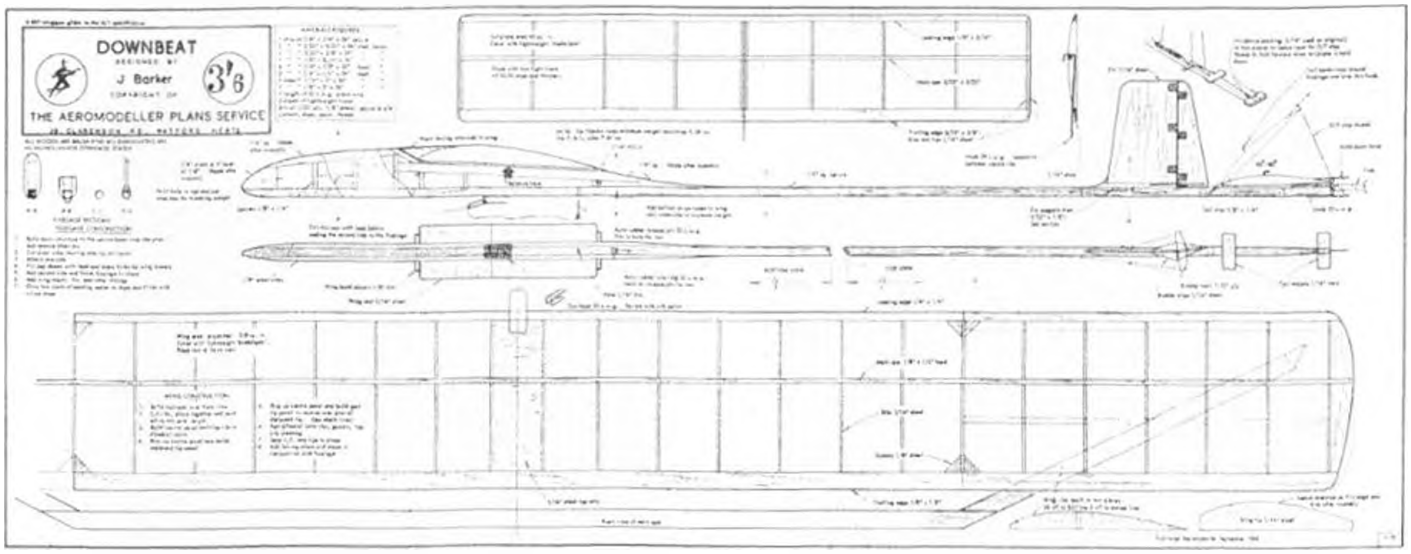
Having cut all the ribs and pinned them together in order to sand them to the same length and identical curvature, we can start by building the centre panel. Each rib is in two pieces so we begin by positioning the spar, leading and trailing edges in place over the plan with pins and then adding all ribs except the two which are at the ends of the panel where there is a dihedral joint. Note that the two centre ribs are shallower to accept 1/16 in. sheet covering on the top only.

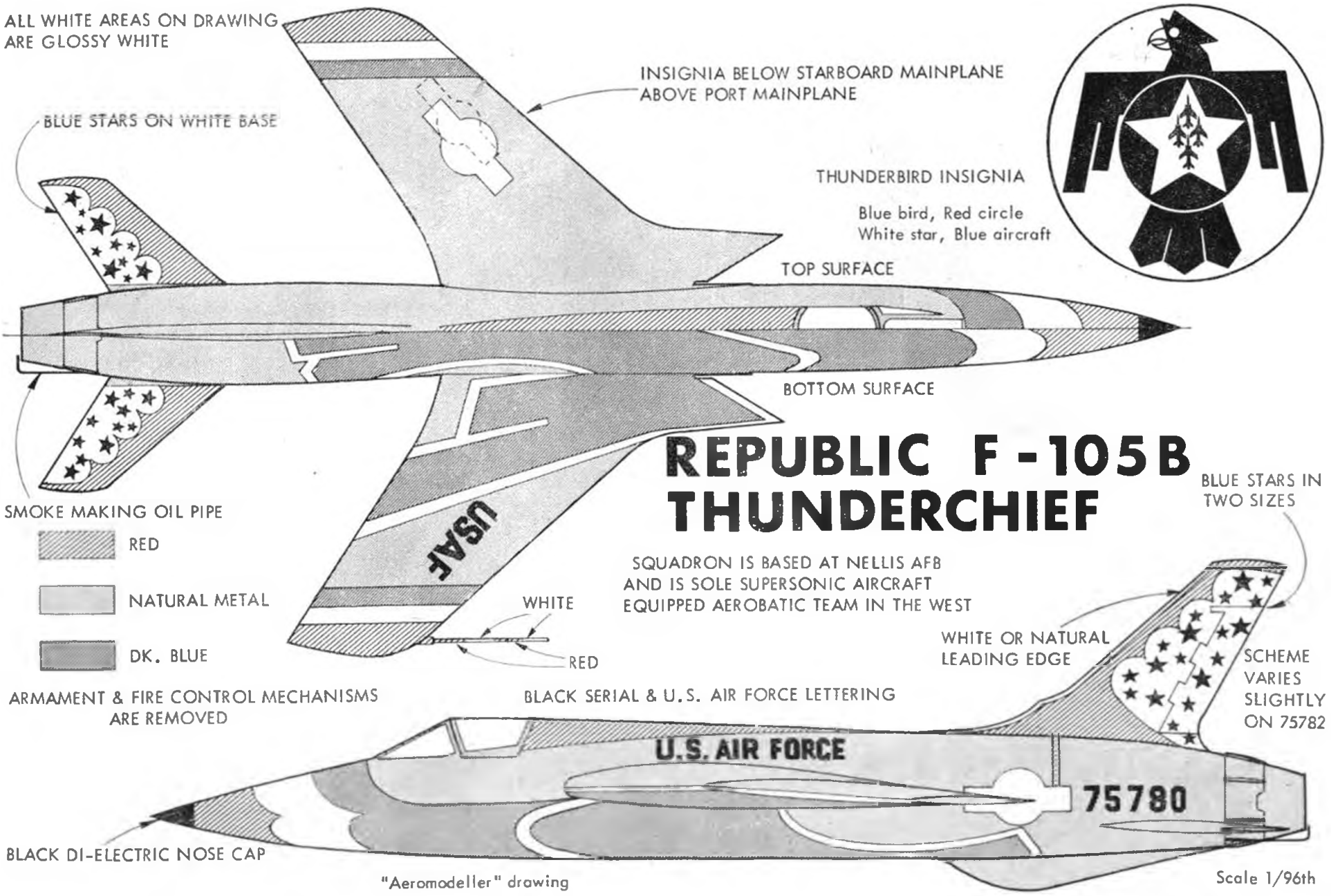
When this assembly is dry, we have to prop up

The **fuselage** is made over the spruce boom with a simple framework made up of ¼ in. square and ⅛ in. x ¼ in. spacers. The extreme nose is made of either a piece of ¾ in. sheet or two layers of ⅛ in. Cut two sheet sides which will run from the nose back to the point C-C and attach one side. Fill the second bay from the nose with lead and make holes for the wing dowels. Then add the second side and shape the fuselage which includes rounding off the corners of the spruce boom before adding the wing mount, fin and other fittings.

It now remains for you to cover the model and complete the dethermaliser and auto rudder fittings ready for that first day's flight, which we shall be describing next month.

FULL SIZE COPIES OF THE 1/16TH SCALE REPRODUCTION ARE AVAILABLE THROUGH A.P.S. AS PLAN G.867, PRICE 3/6d. INC. POST.



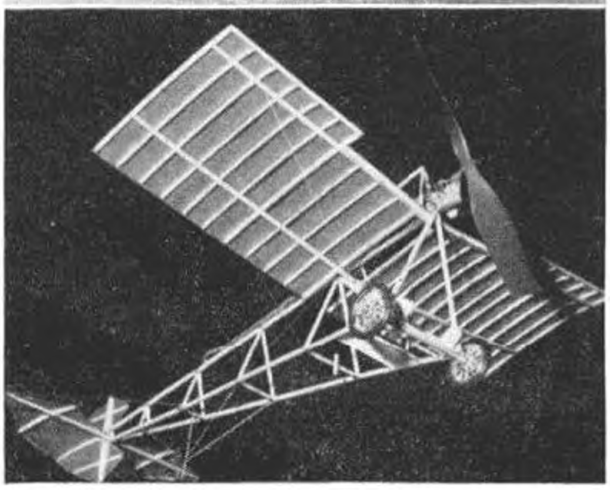

ALL WHITE AREAS ON DRAWING ARE GLOSSY WHITE
INSIGNIA BELOW STARBOARD MAINPLANE ABOVE PORT MAINPLANE
BLUE STARS ON WHITE BASE
THUNDERBIRD INSIGNIA
Blue bird, Red circle
White star, Blue aircraft
TOP SURFACE
BOTTOM SURFACE
REPUBLIC F-105B THUNDERCHIEF
BLUE STARS IN TWO SIZES
SMOKE MAKING OIL PIPE
RED
NATURAL METAL
DK. BLUE
USAF
WHITE
RED
SQUADRON IS BASED AT NELLIS AFB AND IS SOLE SUPERSONIC AIRCRAFT EQUIPPED AEROBATIC TEAM IN THE WEST
WHITE OR NATURAL LEADING EDGE
SCHEME VARIES SLIGHTLY ON 75782
ARMAMENT & FIRE CONTROL MECHANISMS ARE REMOVED
BLACK SERIAL & U.S. AIR FORCE LETTERING
U.S. AIR FORCE
75780
BLACK DI-ELECTRIC NOSE CAP
"Aeromodeller" drawing
Scale 1/96th

WORLD NEWS

BELGIUM.—As of March 1st, 1965, modellers in the A.B.A. (Association of Belgian Aeromodellers) will be required to limit the noise of their motors to 85 decibels. This sensible level conforms admirably with the findings of Dr. M. F. Hawkins as published last month, and allows the sports flyer to operate the relatively inoffensive small capacity engines without alteration. The majority of silencers and mufflers currently available will reduce the noise of even the largest engines to 85 decibels or less. A "Sonometre" is available in Belgium through Messrs. Philips as their instrument No. KL 5599.

FINLAND.—Skills with Hungarian monoline handles and re-tuning Super Tigre engines have produced good speeds with K. Jaaskelainen making the best qualifying flight in the eliminators at 211 Km/h, indicating hope for the "private entrants" in the World Championships. Juhani Kari remains well in the lead in the stunt category, having changed his allegiance from the "Thunderbird" to Grondal's "Nobler" type. The Sundell twins have turned in top performances at 4:42, 4:37 and 4:33 to lead in team racing, but having passed all the checks, it was discovered in the post contest examination that their lines were undersize. Inevitably this brings disqualification but we are pleased that it did not affect the Sundell brothers' appearance at the world champs as they are always much respected competitors. This year they are using a retractable undercarriage in one model, which placed fifth at Budapest.

SWEDEN.—Official report states that in 1950, 10,000 active model flyers and 380 clubs were registered at K.A.S.A. Headquarters. The figure today is 1,500 registered model flyers in 80 clubs. Regrettably, this decline in numbers seems to be typical of a large number of nations, but happily the keener enthusiasts remain with the hobby.



AUSTRALIA.—An idea for when it is too windy to fly is the "Hearns Hot Rod". Apparently these are now kitted by Hearns Hobbies and are balsa and ply cars of the American Hot Rod type, with open bonnets and no glass in the windshield. Large enough to accept 35 size engines driving an airscrew—all under the roof and inside the cab, the hot rods have wire bumper guards across the front and by each rear wheel. They are allowed to run free, in an oval barrier loop with two deflector lines across the centre of the loop to send the racer back to the circuit if it tries to take a short cut. By all accounts the result is a thrilling spectacle with tumbles galore and speeds up to 35 m.p.h.

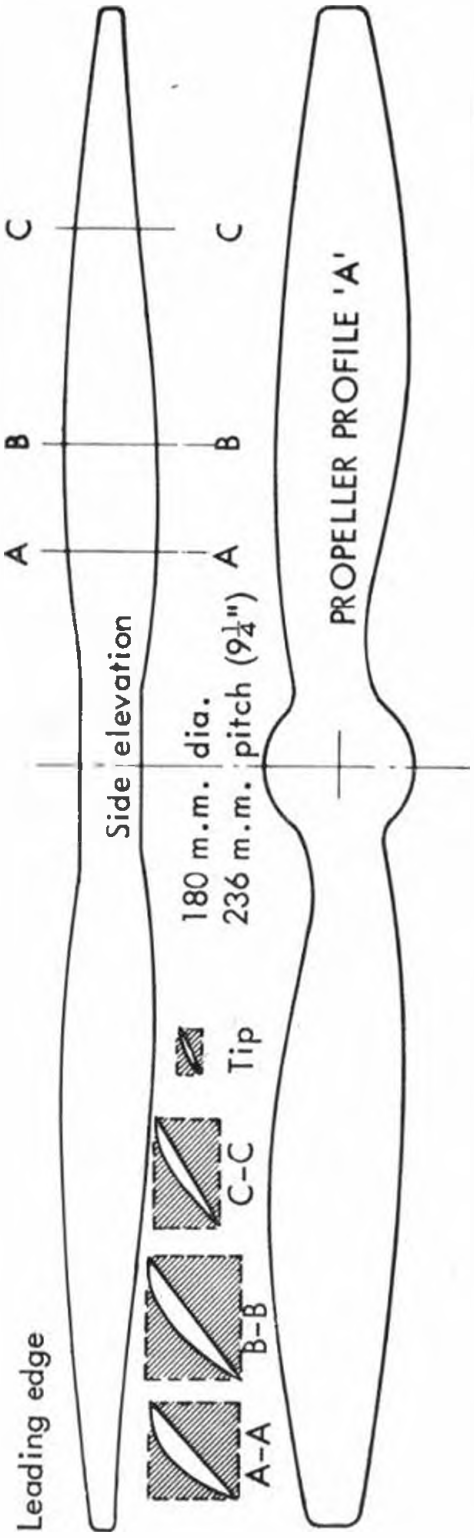
AUSTRIA.—The 4th International Inter-City control line competition was held in Vienna from May 28th to 31st, with competitors from Prague, Bratislava, Zagreb, Munich, Regensburg, Stuttgart, Ludwigsburg, Salzburg, Graz and Vienna. Results turned out to be victorious for the Czechoslovakian visitors. In speed, the Czechoslovakian models were much admired, especially one made entirely in metal by Z. Pech who won at 201.12 Km/h, leading Malik of Munich at 200 m/h with Freundt of Salzburg 3rd with 195.6 Km/h. Surprisingly enough three teams managed times of less than five minutes in team race. The winners were Klemm and Trnka of Prague with their fibre glass "Scorpion". Their time was 4:47 in the final. In 2nd place Fischer and Meusburger of Salzburg used long range tactics with one stop for 5:14 and 3rd were another Austrian pair, the Kominek brothers of Vienna at 5:30. Combat produced some humour when Ilg of Stuttgart defeated Dubell. Ilg's conventional model shot Dubell's flying wing down but the lines tangled and soon both models were looping in close formation—quite unintentionally. Turk of Vienna just beat Gabris of Bratislava, followed by Austrian Mothwurf of Graz, the only competitor to use a tricycle undercarriage. Highlight of the meeting was a 500 lap F.A.I. team race marathon, won by Arndt/Teichert of Regensburg with a time of 25:59. In all, eight teams finished the distance of 50 Kilometres in under 30 minutes.

ITALY.—We understand that following internal difficulties, the officials of the Aero Club of Italy have resigned their positions as a gesture of dissatisfaction concerning a report of the Aero Club and its various activities.

Heading shows Helmut Turk of Austria, winner in control line stunt at the Inter-Cities contest held in Vienna at the end of May. Model is the Sirotkin "Spacehound" design, with undisclosed engine. Centre photo is of J. Kari, the young Finnish aspirant for international stunt honours with his latest model which he has used to lead the eliminators for the team to represent Finland at the World Championships where he was 2nd to Sirotkin yet again with this Grondal influenced Veco 35 powered model. Bottom photograph shows Walter E. Mooney's "Demoiselle" indoor rubber driven flying scale entry for the increasingly popular indoor flying scale competitions, organised by the Flightmasters Scale Club in California. Excellent performance in the Airship hangar is reported for these interesting models, which are usually covered with condenser paper and as can be seen, an enlarged propeller diameter is permitted.

CZECHOSLOVAKIAN

Team Race Propellers

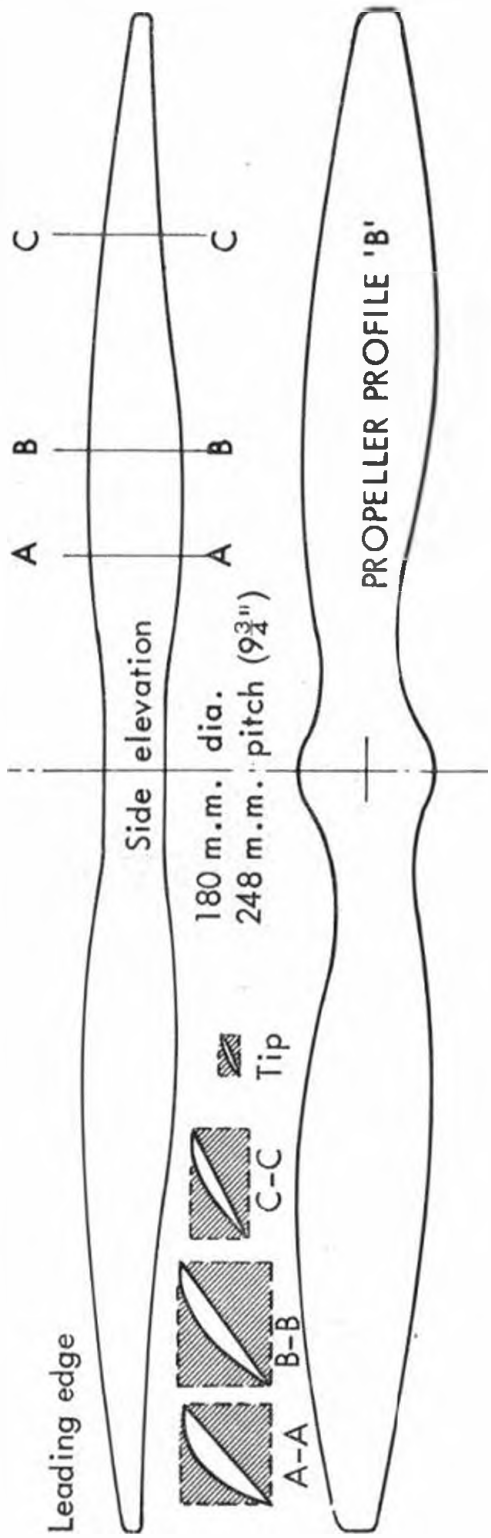


As used by Drazek to place 2nd at Budapest (fastest heat, 4:23.7)

A SIGNIFICANT common denominator between the leading U.S.S.R. and Czechoslovakian team racers at the 1963 Criterium of Aces held at Genk in Belgium, was the fact that all of them used more or less identical propellers which had been produced to the design of the Czechoslovakian specialists.

They were carved in a Czechoslovakian equivalent of "hy-dulignum", which is a multi veneer laminate, producing a compressed wood effect of very high density, yet with good flexibility when carved and strength generally regarded as superior to even moulded nylon. It is this facility of being carved so thin at the tips and sharp at the edges which produces an efficiency advantage. We were fortunate to be able to obtain two of the actual examples used. Tested by an independent aeromodeller of international fame in a very standard Oliver Tiger powered racer, propeller "A" produced 12,300 r.p.m. with static ground running and an immediate 52 laps range at 92 m.p.h. Propeller with profile "B" has a higher pitch and ground revs drop by exactly 1,000 to 11,300 r.p.m. for a sacrifice of only one mile per hour, dropping to 91 m.p.h. for an improvement of three laps from 52 to 55. In comparison, flights were made with the nearest commercial equivalent propeller, the Tornado Plasticote thin hub 7 x 8 in., which produced 12,400 r.p.m. static ground running for an airspeed of 90 m.p.h. over 48 laps.

Establishing the exact pitch of these Czechoslovakian propellers provided our staff with a brain teasing exercise and the figures are, in fact, a mean or average pitch quotation, since by examination they are non-helical as carved. This may well be intentional in view of the excellent performance. We have no need to emphasise the potential and present the actual size drawings herewith for the guidance of those who like to carve their own propellers.



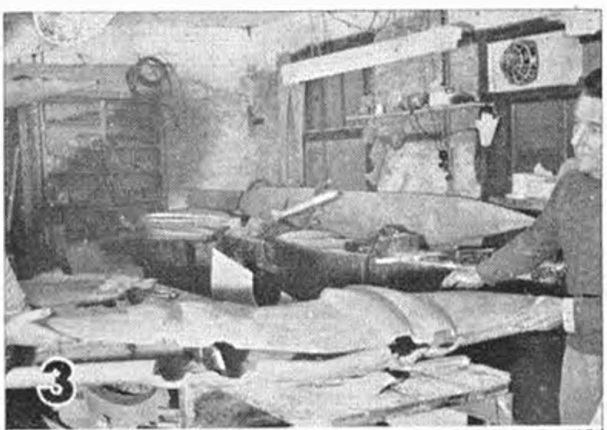
GLASS FIBRE COMET

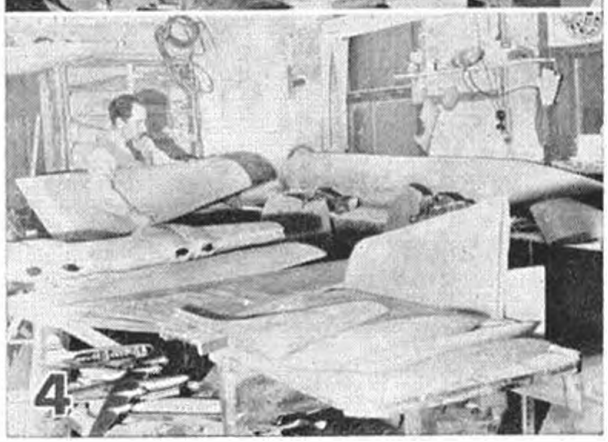
Interesting model technique described by W. Green

By W. Green

BUILT SOME TIME AGO by Minavia Models this 144 in. span glass fibre construction Comet IV, seen in the heading, has travelled the world almost as extensively as the real aircraft. Made for B.O.A.C. it has graced exhibition stands in many parts of the world and was on show at the Brussels Exhibition. With an overall length of 11 ft. it took two men over six months to complete the finished model, each working full time. Professional model making techniques have changed considerably since this model was made: but the system for making large models in glass fibre with limited facilities will be of interest to all modellers.

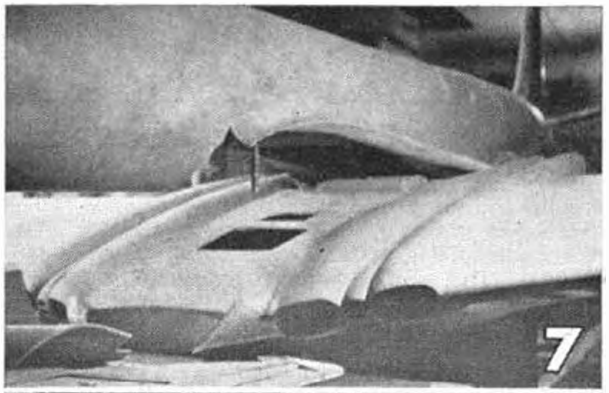
Constructed with the idea of having removable sections to ease the transportation of such a large model (1) shows a female glass fibre mould being made to a thickness of about $\frac{1}{16}$ in. over a solid male mould made from wood and plaster. Photo (2) illustrates the completed female glass fibre mould with a finished wing centre section being removed. Note wooden stiffeners on the inside to hold the true shape. (3) illustrates the completed top and bottom halves of the centre wing section. Wooden reinforcing blocks are used on the leading edge. A general view in (4) is of all roughly finished parts laid out on the benches. From front to rear, two halves of a

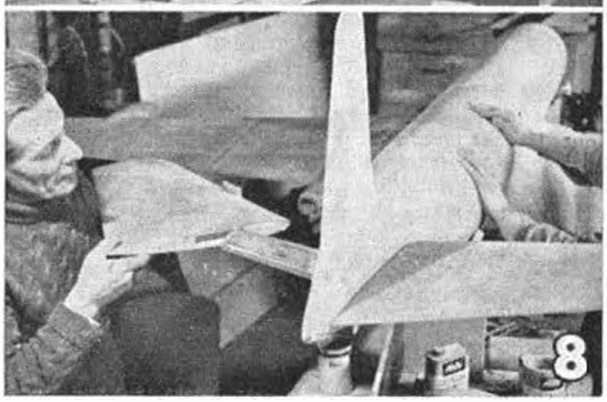


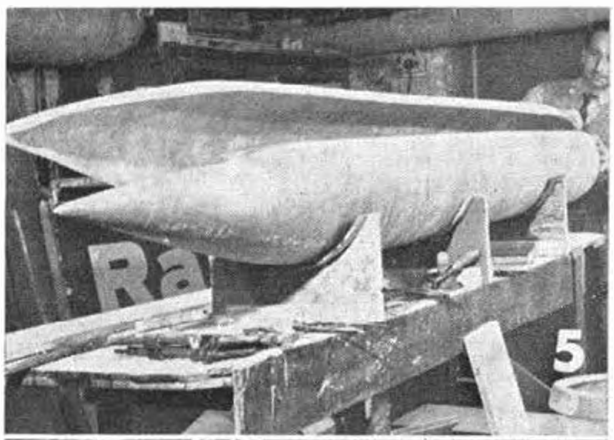


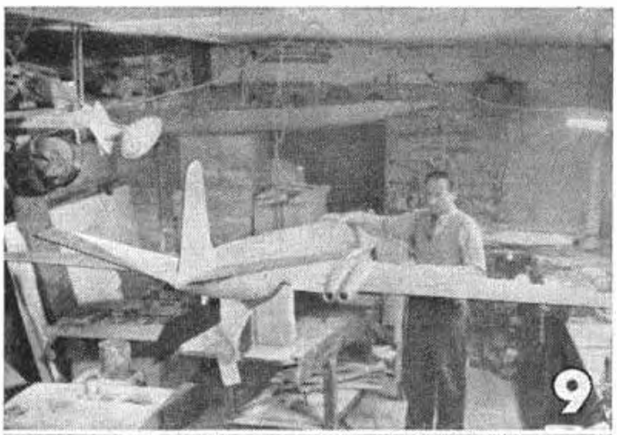
fuel tank, a completed fuel tank, fin, outer wing sections, and wing centre section. A mould for one wing outer panel is being carried, and on the right is the tailplane and fuselage. Note extractor fan to keep unpleasant glass fibre fumes at a minimum. The two fuselage halves being joined together in (5) show the use of a cradle to support one half. In (6) the fin and wing root fairings are permanently fixed to the fuselage, and the tailplane tenons put in. Fuselage is being fitted and generally cleaned up to remove all pin holes and scratches. The finished wing has been rubbed down and the tanks attached. The large hole in the wing centre section facilitates fastening of the wing to fuselage joint. The smaller hole houses the wing tip lighting. Assembly of wing to fuselage in (7) shows the long fixing bolt passing through the large hole in the wing centre section from a wooden base block inside the fuselage. The bolt for this nut is sunk into the wing to conceal it in the centre of the O in B.O.A.C. on the underside of the aircraft. The tailplane halves are fitted over the wooden tenons in (8) as the last stage of the test assembly shown in (9). The model is now in raw glass fibre after its final rubbing down. Heaters hanging from the ceiling help to speed the curing of the resin, in up to a half hours drying time. The completed model is shown in (10). Size can be clearly judged by the two builders. Completed in the earlier white and silver markings of B.O.A.C., all the flaps and other details were hand painted except for the windows.

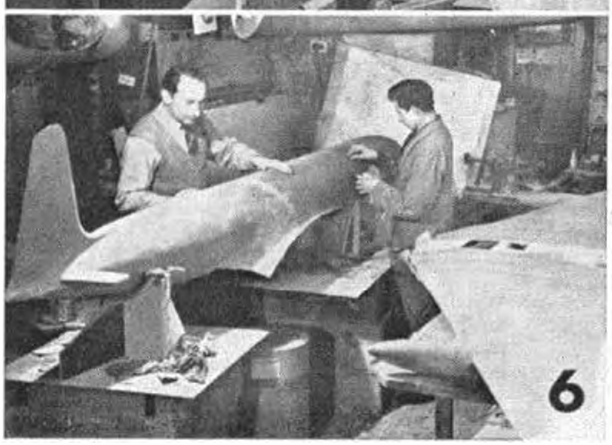
Altogether, a king sized model and one well worthy of study. What a pity it should not be fitted with four model pulse jets!

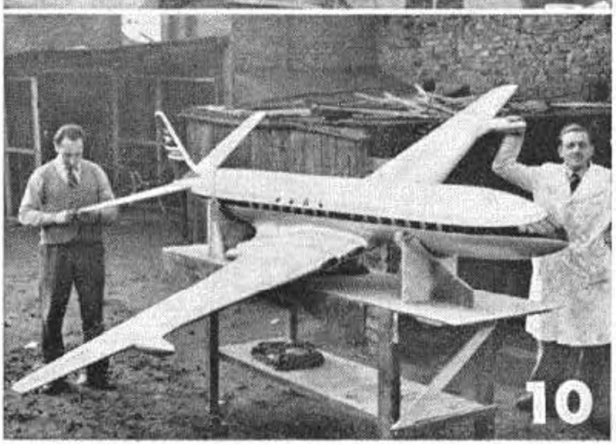












CLUB AND CONTEST NEWS

Day to Remember at Clwyd

Sunday, July 12th, was the Silver Jubilee of the Clwyd Slope Soaring Meeting and the 11th organised by the Chester Model Flying Club. For timekeepers it was a perfect day with a crystal clear view of parts of six counties of North Wales and North West England under a brilliant blue sky. The wind, although a little too strong for the free gliders was from the ideal direction and of the right strength for the R/C fliers. J. O'Donnell was one of the first to arrive and fly, but was unable to put up his usual winning time. The usual friendly battle between the members of the Ashton Club developed, Joe Chadwick winning the A/2 event with 2:39 on his first flight, a time that many found hard to beat. The Open event was well contested, with times creeping up second by second. Once again the sheeted wing model of D. England from Leicester produced the most impressive performance. In the Junior Class, one time leader with his first flight, G. Darlington of Chester took up the lead again with his second flight and increased it further in his next two flights. Once again these classes increased in entry but not in standard of model, a few more of the old converted power models appearing.

This year the Chester Club decided to divide the R/C event into multi control and single surface control. The rules for the Single Surface class were similar to previous years, namely a nominated time contest but due to the increased entry, the time was reduced to two nominated flights of three minutes. The standard of flying was very good and only 17 seconds aggregate error separated first and fourth placed men. The most spectacular landing was made in the second round by T. Van Onselen of Larcas with a controlled spiral from several hundred feet to touch down with 0.4 seconds. The ultimate winner was M. Fellows of Kidderminster flying a model with a hand pulsed rudder. The Multi Event was also flown in two rounds, the first being judged on the number of stunt manoeuvres executed in three minutes. The second round was judged on distance covered in three minutes flying between two markers set up in the valley below. Because of lack of lift competitors found stunting difficult. However, a cleanly executed loop by C. Hughes of Chester which brought a well deserved round of applause from the large crowd, spurred on the later competitors. In round 2 the competitors were permitted to fly the course in either direction. Several techniques were tried to maintain height and retain maximum speed. Best performance was achieved by R. Donohue of Larcas who also had the highest score in the 1st round and was thus declared the winner. It is believed that this is the first time a "stunt schedule" has been included in a glider contest and was quite enthusiastically received by the competitors who returned home with thoughts of symmetrical sections and ailerons.

The meeting concluded with the presentation of the Gosling Trophy and the traditional medals to the class winners by Mr. H. F. Wilde, the founder of the Chester Model Flying Club. 'Results':— 'Open' 1 A. Moss (Whitefield) 3:54, 2 G. Degg (Alsager) 2:59, 3 K. McClave (E. Lancs) 2:44. 'A/2'. 1 J. Chadwick (Ashton) 2:39, 2 J. O'Donnell (Whitefield) 2:8, 3 C. Jackson (Ashton) 1:59. 'Junior'. 1 G. Darlington (Chester) 1:16, 2 J. Miller (Leyland) 1:7, 3 G. Hughes (Chester) 0:50. 'R/C Single'. 1 M. Fellows (Kidderminster) 4:1 error, 2 L. Gwynn (Larcas) 5:15 error, 3 J. Beer (Enfield) 10:65 error. 'R/C Multi'. 1 R. Donohue (Larcas) 84 pts., 2 J. Mountain (Kidderminster) 45 pts., 3 M. Rainford (Liverpool) 40 pts. 'Gosling Trophy'. A. Moss.

MODEL FOUND

In the Ivinghoe Beacon, Dunstable, area, a lightweight, diamond fuselage rubber model was found on July 5th. Owner should contact L. R. Georg, Cumberland House, Elm Grove, Berkhamstead.

1964 DEVON RALLY

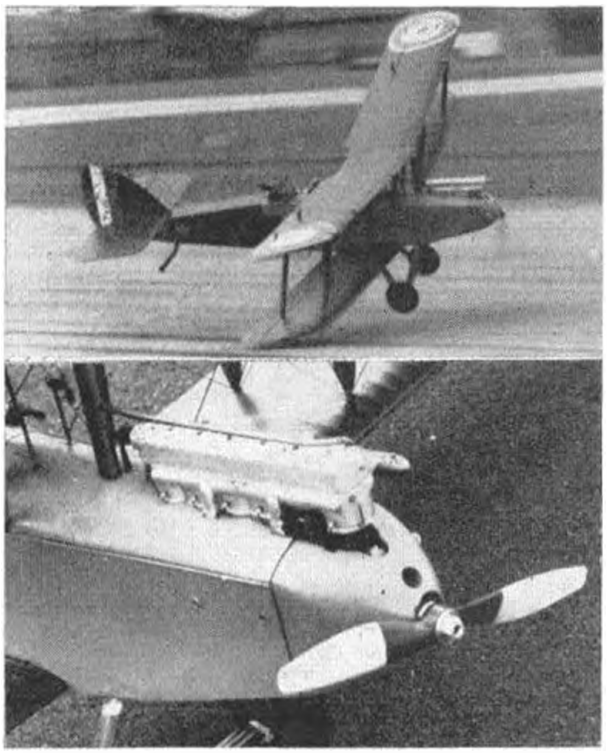
Held on July 5th at Woodbury Common, near Exmouth, the 1964 Devon Rally was graced with sunny conditions and moderate winds that increased during the day. Contestants who flew early had an advantage, but even so the ½A power models did not fare very well. At one time F/F activity was almost at a halt with everyone searching for lost models, including Mike Gaster of Surbiton who was downwind looking for his "Gastove" (model type). Three maxes gave J. O'Donnell first in power and he also took third in rubber. After taking second place in F.A.I. rubber, without completing all his flights he once again became Rally Champion. Tony Young of St. Albans made three maxes in glider to repeat last year's win, with a well finished model. In C/L combat the final was a three man affair, in which Pete Tribe of Northwood triumphed over clubmate Stoo Holland and J. Needham. Exmouth and D.M.A.C. the organising club, would like to thank all who offered and assisted with timekeeping. 'Results' :— 'Power'. 1 J. O'Donnell (Whitefield) 9:00, 2 M. Gaster (Surbiton) 8:35, 3 M. Dilly (Croydon) 7:50. 'Rubber'. 1 B. Day (Walsall) 9:00, 2 J. Nosworthy (Plymouth) 8:08, 3 J. O'Donnell (Whitefield) 7:24. 'Glider'. 1 A. Young (St. Albans) 9:00, 2 C. Morris (St. Albans) 8:36, 3 Turner (Southampton) 6:13. '½A Power'. 1 J. Leitch (S. Bristol) 7:56, 2 R. Cummins (Bristol & West) 7:53. 3 D. Hipperson (Croydon) 7:26. 'F.A.I. Rubber'. 1 B. Bow (Bristol & West) 8:27, 2 J. O'Donnell (Whitefield) 7:24, 3. A. Payne (Stevenage) 1:04. 'Combat'. 1 P. Tribe, 2 S. Holland (both of Northwood). 'Rally Champion'. J. O'Donnell.

caldy). 'Rubber'. 1 W. N. Cliff (Glasgow M.A.C.) 5:07. 2 J. Arnott (Kirkcaldy) 4:15. 3 T. McLaughlin (Glasgow M.A.C.) 0:36. 'Glider'. 1 T. Reid (Kirkcaldy) 6:25, 2 T. Preston (Edinburgh) 6:07, 3 F. Ballardie (Glasgow M.A.C.) 5:04. 'Power'. 1 D. Petrie (Montrose) 7:13, 2 T. McLaughlin (Glasgow M.A.C.) 4:56, 3 J. Arnott (Kirkcaldy) 0:46.

SCOTTISH RALLIES

Held at Beveridge Park, Kirkcaldy, Scotland, on July 12th, the Kirkcaldy C/L Rally had poor entry numbers. In class B T/R there was only one entry. The ½A T/R race was the only one flown off and this was won by a proxy!, flown Starshooter with an Oliver Tiger Cub by A. McIntyre of Glasgow Hornets. F.A.I. T/R only had one Scottish entry left after the four Novocastrian teams having damaged two models, and many more props left, perhaps disgruntled at having to race over grass. Combat attracted 16 entries, who made a fair quantity of wreckage. The final brought together a Rivers 3.5 *Chaos* and a *Peacemaker*. The *Peacemaker* flown by I. Coutts of Larkhill Orbiters had all its streamer removed in one go by F. McMillan's *Chaos*. Best supported event was Rat Racing with 21 entries. The final was a five up race to see who could do the most laps in 20 minutes with quite a selection of models used, including three combat models, a class B T/R and a Merco .49 Delta using a one pint fuel tank. The Merco .49 Delta was the slowest, but had the most laps, while the class B team racer was fastest and could have won, but for plug and accumulator troubles. This left the way open for a Rivers 3.5 'Peacemaaker' flown by I. Carson of Glasgow Hornets who did 313 laps in the 20 minute time limit. Results: 'Combat'. 1 F. McMillan (Stirling), 2 I. Coutts (Larkhall Orbiters). 'Rat Race'. 1 I. Carson (Glasgow Hornets) 313 laps, 2 D. Gordon (Glasgow Hornets) 295 laps, 3 I. Dunn (Perth) 290 laps. '½A T/R'. 1 A. McIntyre (Glasgow Hornets) 9:33. 2 I. Watson (Glenrothes) 135 laps 'F.A.I. T/R'. 1 D. Gordon (Glasgow Hornets).

The S.A.A. Gala (Scottish Aeromodellers Association) was held at Abbotsinch on July 5th, and once again the entry was low (too many competitions perhaps?). After moving their site to make way for the full-size gliders the F/F boys got off to a slow start, field entries still being made at 4:30. Combat organisers ran combat in a relaxed style (lying on their backs). Bruce Flockharts Dongus was one of the few models that could fly fast and stunt at the same time. F.A.I. T/R was won as usual by Jim Reid of Dumbarton with his blue Oliver powered model. In 4th place McPhail of T.R.E.O. used 20 per cent Nitromethane in his diesel fuel. Results: 'F.A.I. T/R.' 1 J. Reid (Dumbarton) 9:40. 2 A. Boyd (Forfar) 12:06, 3 J. Pinkerton (Hornets) Rtd. '½A T/R'. 1 A. McIntyre (Hornets) 12:49. 2 G. McKenzie (Hamilton) 72 laps, 3 G. Nairn (Prestwick) 1 lap. 'B. T/R'. D. Gordon (Hornets) 8:25. 2. D. Fotheringham (Larkhall) 34 laps. 'Combat'. 1 B. Flockhart (Dunfermline). 2 A. Bayne (Kirk-



Above, at the Bristol R/C M.A.C. Rally, Hullavington, Wilts, Dennis Thumpston carried off scale honours with this beautifully detailed D.H.9, authentic cockpit interior even down to brass rimmed instruments. He used Orbit 10 Superhet equipment and Bonner Servos on six channel radio. Scale engine detail shown in bottom picture. Front piece of dummy engine is removed for flight to permit adequate cooling of Veco .45 engine.

RALLY CANCELLED

The Wanstead R/C Pylon Race meeting to have been held on September 6th has now been cancelled, due to loss of Wanstead Flats for organised model flying. The remaining team race rally at Hayes will not be affected.

Contest Calendar

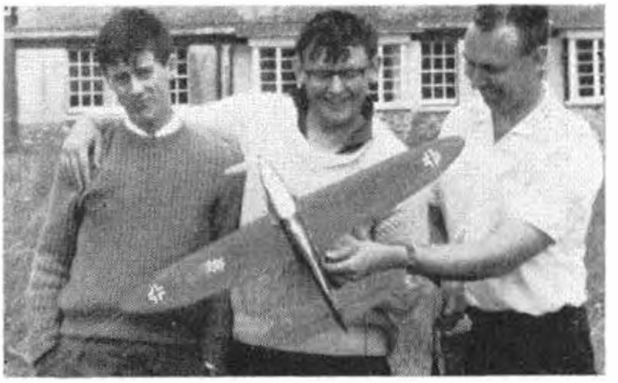
August 23rd	*Scottish Open Rally.* Abbotsinch. Open R/G/P F.A.I. "B", ½A Team Race. Pre-entry 2/6d. to K. Johnston, 113 Kinarvie Road, Glasgow S.W.3.
August 23rd	*Woking D.M.A.C. F/F Gala.* Chobham Common 10 a.m. R/G/P. ½A Power. Coupe d'Hiver, and Chuck Glider. Field entry.
August 30th	*South Coast Gala,* Chobham Common R/G/P, ½A P. Tailless Glider, all in F.A.I. 10 a.m.-5 p.m.
Sept. 13th	*Rush Trophy Gala. R.A.F. Ouston,* Nr. Heddon-on-the-Wall. Open R/G/P. 'A' and 'B' T/R Multi Radio, Combat. Entry 2/6d.
Sept. 13th	*Northern Heights Gala,* R.A.F. Halton, Bucks. R/G/P. ½A & R/C Spot Landing, Combat, Helicopter, Queen Elizabeth Cup for A/2 Gliders.
Sept. 13th	*Irish F/F Nationals.* The Curragh. Open, R/G/P and F.A.I. R/G/P.
Sept. 20th	*Second 1964 Hayes Speed Rally,* Charville Lane, Hayes. All speed classes + .049 class. Entry on field 2/6d. Trophies for most outstanding flight. Enquiries to :—K. Lindsey, 53 Guildford Ave., Surbiton, Surrey.
Sept. 26th 27th	*R.A.F.M.A.A. Championships,* R.A.F. Debden. All classes.
Sept. 27th	*Crawley Rally.* Great Buckswood Farm on A264, turning off A.23. Open R/G/P, ½A Power Chuck Glider. Combat Pre-entry 2/6d. and S.A.E. to Neil Tidey, 64 Reigate Rd., Brighton 5, Sussex.
Sept. 27th	*South Midland Area Rally.* College of Aeronautics, Cranfield. R/G/P. Chuck Glider, F.A.I. and ½A T/R, Combat, Single and Multi R/C. Enquiries to:— D. McQue, 6 Laburnham Grove, Bletchley, Bucks.

(*Continued on page* 468)

Oct. 4th	*Luton M.A.S.* Slope Soaring, Ivinghoe Beacon, Beds. Starts 10.30. F/F chuck glider, Multi and single channel R/C. New rules from: D. Bateman, 11 Ridgeway Drive, Dunstable, Beds. Pre-entry only.
Oct. 4th	*3rd Wanstead & Northwood Rally.* Hayes C/L Circuit, Charville Lane, Hayes. F.A.I., T/R, F.A.I. Combat and ½A T/R. Pre-entry by 27.9.64. 2/6d. to J. Franklin, 82 Grove Hill, South Woodford, London, E.18.
Oct. 4th	*South Coast R/C Rally.* Golden Cross, nr. Lewes, Sussex. Details from Area Secretary, 52 Dover Road, Polegate, Sussex.
Oct. 25th	*Handsworth Combat Rally.* Hill Top Farm. Class A & B. Pre-entry in class A 2/- to G. Bryant, 61 The Broadway, Handsworth, Birmingham 2, by October 1st.
Nov. 1st	*Wharfedale* 1000 *B T/R* (International Postal Event).

S.M.A.E. Contest Programme

August 22nd 23rd	*Indoor meeting.* Cardington.
Sept. 6th	*Northern Gala.* R.A.F. Church Fenton, Nr. Leeds. Open Glider, Caton Trophy—Open Rubber, P.A.A. Load, Hamley Trophy—Multi R/C, Budapest Trophy—½A T/R, Wharfedale Trophy F.A.I. T/R, ETA Trophy—B T/R. Control Line Stunt. Combat.
Sept. 19th & 20th	*First F/F Trials* / *First R/C Trials* — R.A.F. Hemswell *not* Barkston Heath as previously advised.
Oct. 4th	*Area Championships.* Centralised venue.
Oct. 10th & 11th	*Second F/F Trials* / *Second R/C Trials* — R.A.F. Hemswell *not* Barkston Heath as previously advised.
Oct. 18th	*Kell Trophy.* Team Power *Farrow Shield.* Team Rubber. Area venues. *Open Glider.*
Oct. 18th	*Centralised C/L events.*



Above, second place B T/R team at Irish Nationals. L-R. Peter Bedell (pilot), Paul Brennan, and Eugene Redmont.

IRISH C/L NATS.

Graced with good weather the Irish Control Line Nationals held on June 4-5th at Baldonnell were a great success. Combat had all the usual rough and tumble, and P.A.W. diesels were the rule rather than the exception. Derek Wilson of Belfast who had a bye into the second round reached the semi final to be beaten by G. Hand of Leinster. In the final G. Hand was once again Irish Combat Champion after a rather dull final against clubmate L. Malloy who crashed twice, neither taking any cuts and J. Hand having a bad engine run. F.A.I. Stunt had five entries of whom only two flew. P. Brennan's flights both ran over time, and with the rule book in his left hand he almost hit the ground during the squares, but his score of 613 was still good enough to win over Gerry Dawson who made 568, both used Merco .35's. A simple schedule stunt event was run for the youngsters, with a maximum engine capacity of 1.5 c.c. Lots of crashes took place and it is interesting to note that the first three all used diesels. ½A T/R was hindered by the gusty wind conditions. In the final Con Carroll could not get his engine started and was 15 laps behind when he eventually got airborne. P. Brennan was fastest and Con Carrol had trouble at another pit stop, so S. Cussen from Cork moved up to second place. In the F.A.I. team racing the standard of flying was very good, except for a few happenings such as D. Wilson's elevator becoming detached, and a Belfast racer looping on take-off. The final flown in windy weather on the Sunday was rather disappointing. Gerry Hand was the unluckiest man of the day; in spite of his being the fastest flyer he failed to start smoothly, broke a prop in the first lap, the prop was changed and he was airborne again, but broke yet another prop at a pit-stop. Results: 'M.A.C.I. Stunt'. 1 I. Bolton (N. Dublin) 147, 2 I. Joyce (Leinster) 146, 3 G. Dixon (Belfast) 143. 'F.A.I. Stunt'. 1 P. Brennan (N. Dublin) 613, 2 G. Dixon (Belfast) 568. 'Combat'. 1 G. Hand (Leinster). 2 T. Molloy (Leinster). 3 D. Wilson (Belfast). '½A T/R 180 laps'. 1 P. Brennan (N. Dublin) 12:13.5. 2 S. Cussen (Cork) 12:42.5, 3 C. Carrol (Leinster) 14:45. 'F.A.I. T/R 20 Km.'. 1 G. Dixon (Belfast) 13:18.2, 2 D. Wilson (Belfast) 14:55, 3 G. Hand (Leinster) rtd. 'B T/R 140 laps'. 1 D. Spillard (Cork) 12:39, 2 P. Brennan (N. Dublin) 12:55, 3 G. Hand (Leinster) rtd.

R.A.F.M.A.A. CHAMPIONSHIPS

Civilian modellers are welcome to compete in the Thurston Trophy for Wakefields in the R.A.F.M.A.A. Championships to be held on Sunday, September 27th, at R.A.F. Debden. Round times for flights are 9 a.m.-11 a.m., 11 a.m.-1 p.m., and 1.30 p.m.-3 p.m. The Rat Racing will be to F.A.S.I.E. club rules with a minimum size limit of 3.5 c.c. for diesel engines.

Not Toys for Boys

Huntingdon M.A.C. had a very good report in their local paper recently. The general public in that area should now know the subtle difference between F/F and C/L. One section of the 18 column inch feature clearly points out that their models are not "Toys for Boys".

Novices Treat

Free wood, tables, and instruction are supplied by Bradford D.M.A.C. to beginner members. This scheme operates on club nights, and a chuck glider of handsome appearance and simple construction, has been prototyped. Also a tough all sheet balsa Mills .75 free flighter is to be built for beginners to fly.

Esher Intermediate R/C Rally

One of the few meetings for the Intermediate R/C flier was held on June 28th, at Odiham, and organised by Esher D.M.A.C. With 12 entries only six managed to fly the pattern, however, a quickly organised spot landing contest attracted 15 entries and brightened things up. The first and second places had fly-offs to decide the winner after A. Holmes had made two flights of 495, and 584 pts., and P. Cabrol made two flights of 475 and 599 pts, so with fly-off scores of 730 and 367 respectively A. Holmes was the winner. His model was a Veron Robot powered by a Fox 15 with a Unitone Rx and R.C.S. "G.G." Tx to give rudder and elevator control. Second place P. Cabrol from Esher D.M.A.C. he also used a Veron Robot, with an O.S. .19 R/C and R.C.S. Competition 10 radio gear, to give rudder, engine and motor control, plus trim. Third place G. Saw with 364 and 520 points, flew a Merco .35 R/C powered Super 60 using O.D. Galloping Ghost radio to give rudder, elevator and motor control. During the lunch interval Chris Dowsett and Peter Cabrol gave a demonstration of simultaneous flying with coloured smoke trails to increase spectator appeal. The spot landing contest was won by Geoff Hazelwood flying a Gremlin Lancer on rudder only to beat the multi boys. Top multi in spot landing was flown by G. Saw with a penalty score of 26 pts., two more than the winner. Prizes were presented by visiting Air Vice Marshal Chackshield, C.B., O.B.E., who sportingly "volunteered" on the field. First prize presented to Alan Holmes was a handsome silver cup donated by a Hayes model shop.

STOP PRESS

PLACE/HOWARTH WIN WORLD T/R CHAMPS.

In the finest F.A.I. T/R final we have ever witnessed, the Place/Howarth (Wharfedale) team won individual World Championships at Budapest, Sunday, August 2nd, in 4:51, with Czechs Trnka/Drazek second in 4:58 and Italians Fontana/Amodio third with 5:06. Full description with pictures of the memorable meeting appears next month.

CLASSIFIED ADVERTISEMENTS

PRESS DATE for issue October, 1964, August 24th, 1964

ADVERTISEMENT RATES :

Private Minimum 18 words 6/- and 4d. per extra word.
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Box Numbers to count as six words when costing.

Box replies to be sent care of Advertisement Department, Model Aeronautical Press Ltd., 38 Clarendon Road, Watford. Copy received after first post on the 24th will be held over until the next issue, unless cancelled in writing before 14th of following month.

FOR SALE

Cox Special 2 open power model, two timers, £6. Cox .049 and ½A, one timer, £3. Both trimmed. ETA 15 ½ TR pan, £3. A. Service, 92 Wilmot Road, Dartford, Kent. Dartford 26511.

"Mini Robot" complete RCS Guidance System, Tx, Rx, Elmic-Commander, ZA:92 ME-Snipe, oddments, all as new, £20 or offers. 58 Queensway, West Wickham, Kent.

Frog Mosquito control-line model complete with two D.C. Sabres, perfect condition, 90/-. Cox Babe Bee with Midget control-line plane, 17/6d. Required 2.5 R/C engine. Cole, 79 Pashley Rd., Eastbourne, Sussex.

Extensive amount of planes, engines and equipment for disposal, due to lack of time. Cheap to clear—S.A.E. details. Hewson, Witham Rd., Woodhall Spa, Lincs.

AM 15, 35/- ; A.S. .55 with F.F. model, 45/- ; both excellent condition. 5 Blandford Ave., Kettering, Northants.

Fox 29 and 35 stunt, 50/- each. O.S. Jet with two line speed job, £5. ETA 29 6c ditto, £6. Jetex Scorpion, 7/6d. KK Airwheels, 2½, new, 10/-. B speed pan 1½ spinner drilled, ETA 10/-. R. Tilbury, 69 Waterson Road, Chadwell St. Mary, Grays, Essex.

R.C.S. single channel Tx, Rx and harness ; three Rising escapements ; Babe Bee 049, Cox 010 and Wenmac 049 ; Tatone Timer, private design miniature aircraft, £20. Sheldon, 118 Catherington Lane, Horndean, Hants.

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Mini-Reptone transmitter and receiver, £8 ; AM 35, new, never run, 50/- ; C. Watson, Pinfold Lane, Penkridge, Stafford.

Merlin, 30/- ; Jetex Jetmaster, Paaloader, Augmenter, Tube, 50c ; 20/- the lot. R. Linton, 8 Hodge St., Blackley, Manchester.

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Rossi 60, 10 c.c., £17 ; G.20 Super Tigre Rossi, modified, £8 ; G.21, 5 c.c. modified, £10 ; Speed Pan for G.20 with spinner, £1 ; G.21 pan, £1 5s. ; G.20, etc., team race pan, 13/- ; four grades glow plugs, 4/- each ; Vulcan Jet,£12 ; 6 x 8, 6 x 9, 6 x 10 speed props, 3/- ; 7 x 8, 7 x 9, 7 x 10, 3/2d. ; Rossi, Via Pace 13, Brescia, Italy.

TATONE TIMERS—Standard or ½A Fuel Shut-Offs and D-Ts. Price now 33/- each post free from Dave Posner, 61b Canfield Gardens, London, N.W.6.

Model maker, kits or any A.P.S. plans. D. Pound, 36 St. James' Close, St. James' Drive, S.W.17. BAL. 0912.

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PORTSMOUTH & SOUTHSEAS Hobby Shop is "Robin Thwaites", 28 Arundel Street, Portsmouth. Early closing Wednesday, open all Saturday.

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MODEL NEWS (Australia) — published Bi-monthly, 12/- per year, sterling posted direct, covers all Australasian Aeromodelling in pictures, features and plans. 11 West King St., Southport, Queensland, Australia.

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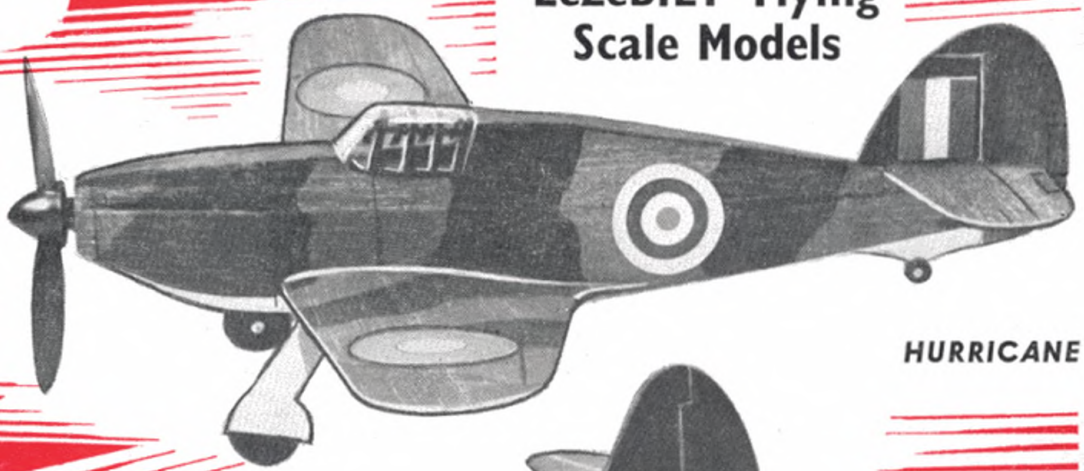

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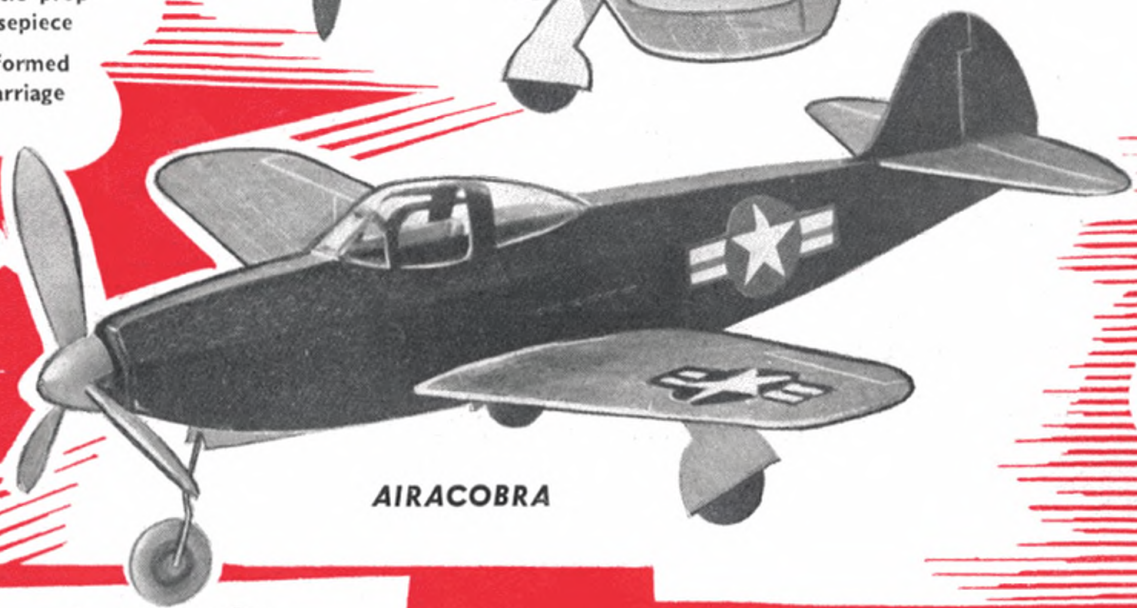

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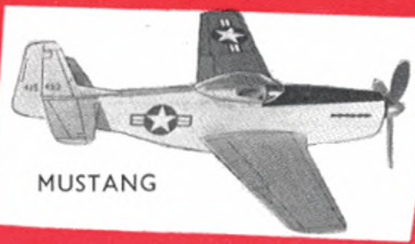

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