

Aero Modeller

JULY 1971
15p
(USA & Canada 75c.)

Super plans for Rollason Beta
Two top class Contest Designs
Flying Scale Models feature

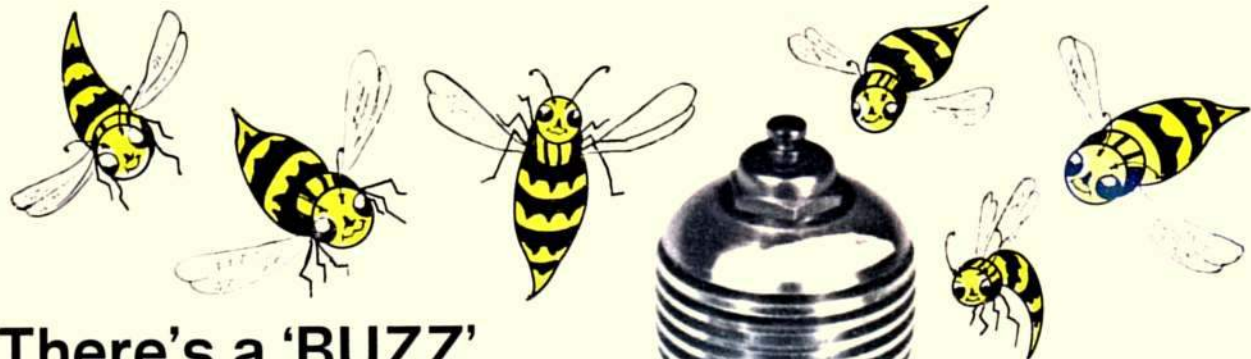
INCORPORATING
MODEL AIRCRAFT



HOBBY MAGAZINE



FULL SIZE PLANS
 $\frac{1}{36}$ th scale GLADIATOR



There's a 'BUZZ'
in the
air!!!



CHECK THE FEATURES!

- Front rotary intake ● Twin transfer ports
- Quickstart fitted ● Full accessory range
- Made to top engineering standards
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- Hi-power and Lo-price
- Replaceable glow plug

THE NEW

QUICKSTART

WASP-049 ONLY £2.99

see them at your model shop NOW!

accessories for the Wasp

Radial Tank/Mount
63p



General
Purpose
Tank
31p



Quick
Glow
Clip
36p

Special Wasp
Spanner 26p

Exhaust
Manifold (comes
with collector)
60p



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NEW FROM AIRFIX!

Get this 24th scale SUPER KIT!



The first of the new Airfix Super kits flies in—the Spitfire Mk 1A!

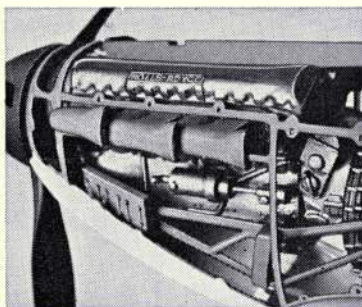
With 150 detailed parts, here is perfection in aircraft modelling!

This magnificent 24th scale model features a superbly detailed cockpit, Browning machine guns complete with ammunition boxes and a super detailed Rolls-Royce Merlin engine beneath removable panels. A propeller motorising unit is available.

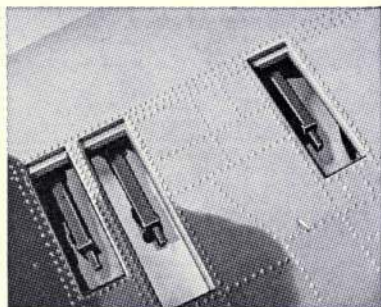
This new Airfix Super kit is undoubtedly one of the finest aircraft kits ever produced and a 'must' for all keen modellers.



Superbly detailed cockpit



Rolls-Royce Engine detail



The Browning guns



**Get every
detail right
with Airfix**



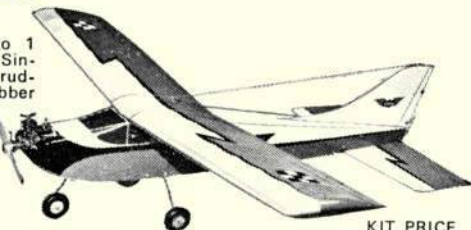
"VERON" for VALUE!

EXPERTS' CHOICE - FOR RADIO-SINGLE & MULTI & BEGINNERS' SPORT

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36" span

For motors up to 1 c.c. Lightweight Single Channel for rudder only with rubber driven escapements. Ideal for R.C.P. Relayless - either Super-Regen or Super-Het!

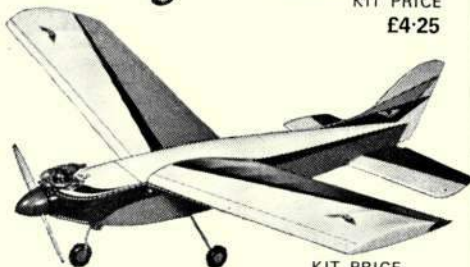


KIT PRICE
£4.25

MINI CONCORD

40" span

For 1 to 1.49 c.c. using Single Channel for Relay or Relayless with Rudder and Flip-up elevator or Pulse. Ideal for R.C.P. Relay, Super-Regen or Het!



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CHEROKEE C180

Designed for Intermediate (3 Channel 'Propo') giving Aileron, Elevator and Engine Speed and up to Full House (4 'Propo'). For '19' to '40' Motors. Just the machine for the WEBRA 40



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Neat and Spectacular foursome of Primary Rubber Duration models. All Die-cut formers and ribs, selected Stripwood, Ready Carved Propeller. Ideal for first ventures in free-flight!



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Radio Control Products are pleased to announce a new range of Single and Multi Channel equipment. By using new techniques with a low component count we are able to manufacture Units with increased reliability at a much lower cost.

No sacrifice has been made in quality. Transmitter and Receiver performance is more than adequate for all normal applications. The dimensions and weights of the equipment compare very favourably with other currently available products.

All units are carefully tested before sale and fully guaranteed.

ECONOMY PRICE - SUPERLATIVE PERFORMANCE

SUPER-REGEN (ABOVE)

RECEIVER - RELAYLESS
3.5 x 2.8 x 2.0 cm.
on case. Weight 20 grms.

RECEIVER - RELAY
5.5 x 3.8 x 2.3 cm.
Weight 40 grms.

Supply Voltage 9 volts (P.P.3).
TRANSMITTER 10 x 13 x 5.5 cm.
Audio-tone Frequency 600Hz.

PRICES
Transmitter Rx. Relayless Rx. Relay
£7.35 £4.60 £5.90

SUPER-HET (RIGHT)

RECEIVER - RELAYLESS
5.5 x 3.8 x 2.3 cm.
Weight 40 grms.

RECEIVER - RELAY
5.5 x 3.8 x 2.3 cm.
Weight 40 grms.

Supply Voltage 9 Volts (P.P.3).
TRANSMITTER As for Super-Regen above.

Tx's have colour-coding frequency tags on case.

PRICES
Transmitter Rx. Relayless Rx. Relay
£9.15 £11.85 £13.10
Harness: (for each) 90p. Battery Box 38p.



THE FINEST ENGINES FOR YOUR MODELS
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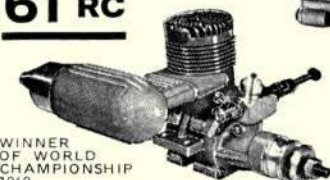
40 RC

TWO BIG BROTHERS
LEADERS IN RADIO CONTROL

The '61 R.C.' has earned a world wide reputation as one of the finest and most powerful 'big' engines. The '40 R.C.' is in every way comparable.



61 RC



WINNER OF WORLD CHAMPIONSHIP 1969

61 RC
STANDARD ... £34.84
MARINE ... £39.29
Silencer £2.87

40 RC
STANDARD ... £22.98
Silencer (with Bleed) £3.46

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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

July 1971

Volume XXXVI No. 426

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HOBBY MAGAZINE



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COMMENT

Waterproofs on Sunday, sun glasses for Monday, could be the weather summary for yet another wonderful British National Model Flying Championships. Drenched modellers shrugged off the damp of R.A.F. Hullavington to prove that nothing could ever deter them from their enthusiasm for the hobby. In spite of the wet Sunday there was no diminishment of entries, and when conditions changed completely for the second day, thousands of modellers burst out with the buttercups and smothered the airfield with models of all kinds. It was also a truly International meeting with contestants and visitors from Germany, the Netherlands, Canada, South Africa, New Zealand and the U.S.A., some of them returning home with top honours and leaving many lessons on latest techniques. That orphan of organisation, Free Flight, provided its fantastic climax with a 16-glider flyoff. Won with over 15 minutes. And in Control Line, those who crowded the circle perimeter will never forget an incredible combat final. Truly a memorable meeting filled with contrasts, all of which will be fully reported in our next issue.

on the cover

Doug McHard's remarkable 1/36th scale Glos-ter Gladiator which is the central feature of this issue and caused so many 'oohs' and 'aahs' as it flitted over the grass in the calm of the Hullavington Nationals.

next month

Extensive report on the Nats. Plans for Ken McDonough's beautiful rubber-powered scale Douglas 038 biplane. Latest Engine News. Full-size plans for Dick Twomey's simple A/1 Glider, the Tri Star plus regular features, on sale 16th July.

Announcing the National Model Making Championship

If you have a few used ball pens and a creative mind . . . prove it!

Even when they are the world's finest ballpens, as Bic undoubtedly are, they have to run out of ink sometime! For years a further use has been sought for those empty barrels, destined after gallant service to end their days in sideboard or office desk, side by side with less worthy writing instruments.

And here is the answer!

Because Bic Crystals write first time every time there are far more sold in the U.K. than any other model. In fact, each year a Bic Crystal is sold for every man, woman and child in the Country with a few million more for good luck.

Where do they go to?

It is human nature to squeeze the last drop of ink from a ballpen or to believe that it may write again after a short rest. This is why you will probably find more than

you expect in your own home. In offices and factories you should find them by the hundred.

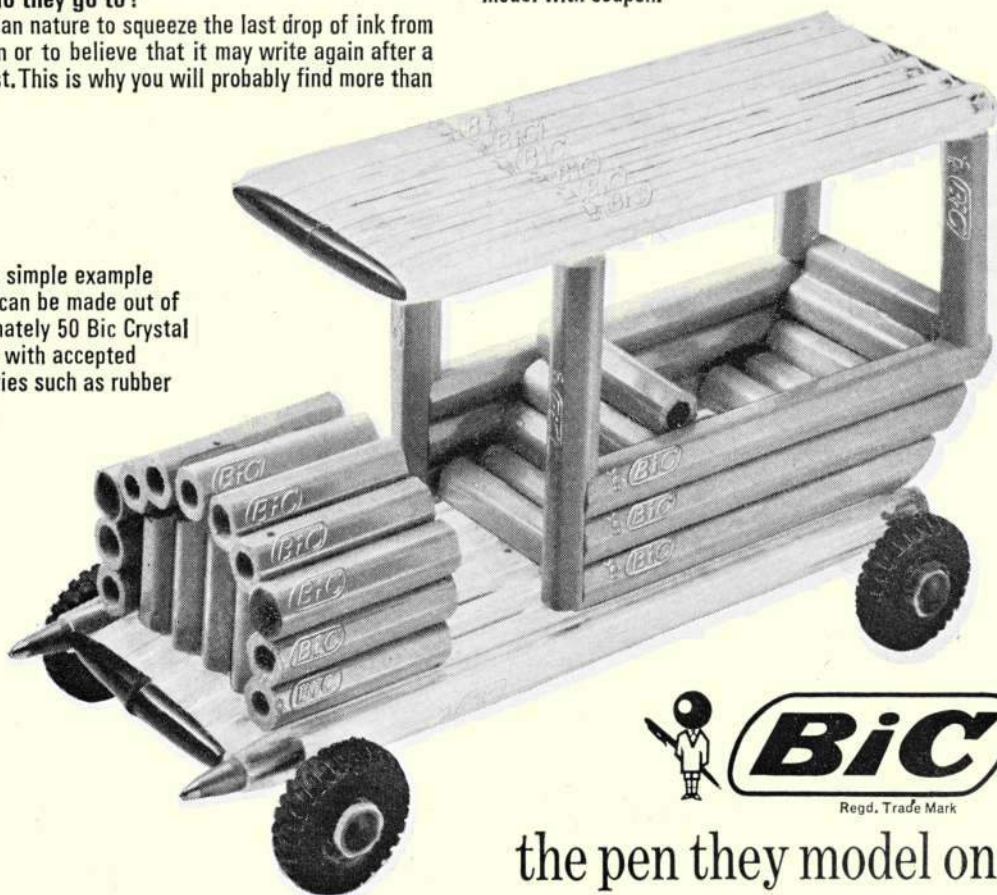
All you have to do . . .

. . . is to start collecting used Bic Crystal medium and fine ballpens now so that you may complete a suitable model and enter the competition.

There will be cash prizes for the best models every three months, both senior and junior and finally the best modeller overall at the end of the year will be awarded a further cash prize of £250 and the handsome Bic championship trophy.

Take your time, read the rules overleaf, then send your model with coupon.

This is a simple example of what can be made out of approximately 50 Bic Crystal ballpens with accepted accessories such as rubber wheels!



the pen they model on



Model Making Competition

Start collecting your pens now but—
one word of warning—
make sure they are genuine Bic Crystal Medium
or Fine Point ballpens carrying the Bic Registered
Trade Mark because only these are eligible

RULES

- The participants of the Bic Model Making Competition will be judged on their originality and technical model-making expertise.
- The competition will be divided into two parts:
Junior: Participants, either sex, under the age of 16 at time of entry. Within this group no heat or flame technique for moulding may be used, but any other form of adhesion may be utilized.
Senior: Participants, either sex, over 16. Within this group, any form of adhesion is accepted. Heat to bend or shape the pens may be used.
- Entries for the competition must be accompanied by the official entry form below.
- Any number of BIC Ballpen barrels may be used. All models must be constructed utilising any part of BIC Crystal Fine (Yellow) and Medium (Transparent) ballpens.
- BIC Crystal barrels may be cut to shape or size, but each barrel must clearly show the Registered trade name BIC (as printed on the barrel). Where models are moulded by heat, there must be at least 10 parts where the BIC Registered trade mark is clearly shown.
- Accessories other than BIC parts may be used only to make the model functional or to infer final design, i.e., wheels, transfers, cotton, string, paper, etc.

PRIZES

7 Prizes will be awarded to competitors who, in the opinion of the panel of judges, produce the most creative, unusual or skilful entry for each quarterly competition.

8 Quarterly prizes will be awarded as follows:

- Senior section—first prize £25,
second prize £15,
third prize £10.**
10 consolation prizes of £5 each.
**Junior section—first prize £15,
second prize £10,
third prize £5.**
10 consolation prizes of £2 each.

9 Models winning any of the three prizes in either Junior or Senior levels of any of the quarterly competitions will automatically be entered in the BIC National Championship Competition and the individual competitor whose model is selected by the judges to be of greatest merit will receive an additional cash prize of £250 together with the 1971 BIC Model-Making Trophy.

10 Entrants should send their models to:

**The BIC Model-Making Competition,
c/o Montague House, 23 Woodside Road,
Amersham, Bucks.**

Should a model be considered delicate for conventional postage, then a photograph (colour or black and white) may be despatched beforehand. This will be used for preliminary judgement. Entry forms should be clearly attached to each model or photograph entered.

11 No responsibility can be taken for the damage in transportation of any model received. Judges will, however, take into account such unfortunate circumstances and the model will still be eligible for participation within the contest.

12 Should participants require a model returned, then return postage must be included by way of enclosing the appropriate stamp.

RESULTS

13 The 1971 competition will be held during 3-monthly periods and results will be announced during August 1971, November 1971, February 1972.

14 Participants should ensure that their models are despatched to arrive by 1st June (for August judging), 1st September (for November judging) and 1st December (for February judging).

15 Any model received after this date will not be eligible for the relevant Quarter but will qualify for the next Quarter's competition.

16 Any prize winning model will become the property of Biro-Bic Ltd. and may be used in any way they think fit.

17 Employees, relatives or direct associates of Biro-Bic Ltd., Model and Allied Publications Ltd. as well as their advertising agents will not be eligible for this competition.

18 The decision of the Judges is final and no correspondence can be entered into in relation to prizes awarded or decisions made.

I understand and abide by the Rules

Name _____

(BLOCK LETTERS PLEASE)

Address _____

Age _____

WHERE DID YOU COLLECT YOUR BIC PENS? _____

A3



EXHIBITION

Central Hall, Westminster W.1 August 26th - September 4th

ANNOUNCING . . .

MODEL RAILWAYS, the new, bigger, better Model Railway News, makes its bow to the public with the issue dated September and appearing in August. This issue will be in the new popular A4 size, that is 11½ in. deep by 8½ in. wide. This will give us more opportunity for bigger and clearer half-tone illustrations and bigger drawings of layout and more drawings of locomotives and rolling-stock.

We shall continue our policy of an all colour cover and add to it in the shape of some spot colour, that is to say a second colour, on some of the inside pages and where we get a really lovely picture we will try and manage an inside picture or page of colour pictures to really do justice to beautiful layouts or beautiful models.

We are happy to announce that Roy Dock has rejoined the team and will be editing MODEL RAILWAYS, he is renewing his acquaintance with all levels of the model railway world and will, we are confident, recruit a great team of expert contributors.

OUR EXHIBITION . . .

The new MODEL RAILWAYS comes at the traditional beginning of the model railway season and we had an opportunity of taking Central Hall, Westminster, over the Bank Holiday period, so, for the first time, we are sponsoring an exhibition devoted to the smaller gauge of Model Railways.

NEW STYLE . . .

We are making one or two changes in the traditional presentation. The trade stand will be placed in the usual manner round the edge of the hall, but instead of having high walls screening off the central layouts these will be presented in what we can only call an open-plan form. We hope this will do more than justice to the trade displays and also enable some comparison to be made between one layout and another.

PROPRIETARY LAYOUTS . . .

We are endeavouring to present in addition to home-built layouts some idea of what can be achieved using nothing but proprietary equipment. This is the sort of layout that can be seen at Nuremberg, Paris, Milan or other of the great European Toy Fairs each year but which strangely enough never are available for the public to see unless they are in the trade.

GRAND LAYOUT COMPETITION . . .

We are offering prizes of:

First Prize	£50
Second Prize	£30
Third Prize	£20

for the best club or individual layout. The layouts displayed will be limited to 200 sq. ft. which gives a maximum size of about 16 x 12 ft. Gauges eligible will be O gauge, OO gauge, or N gauge and their fine scale equivalents.

How to enter is simple - a club or an individual has only to drop us a line and send a photograph of the layout; if possible a rough sketch/plan and a note of dimensions and special features. We will visit layouts which seem likely to be of interest and make our choice from them.

OTHER COMPETITIONS . . .

There will also be additional competitions for O gauge, OO and N gauges.

First Prize	£10
Second Prize	£7
Third Prize	£5

There will also be prizes for line-side features, low relief buildings and station buildings, wholly original or based on kit material with naturally the emphasis towards original work in cases of equal merit. There are no entry fees for any of the competitions. Entry forms are available on demand.

SOUVENIR HANDBOOK & GUIDE . . .

The first of the new MODEL RAILWAYS comes out on August 18th and will contain a special Exhibition Souvenir Handbook and Guide Supplement.

Model & Allied Publications Ltd.

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ENGINES
put you in ...



THE SUPERB HP 61 F

Developed to provide the ultimate in performance from '60' size engines with one of the highest power ratings in its class. Material selection has been made on the most up-to-date metallurgical basis to ensure long working life at peak performance. Careful balancing of reciprocating parts ensures extremely low vibration levels.

Bore .964"
Stroke .826"
Displ .604 cu. in.
Weight 15 oz.
1.42 b.h.p. output
at 14,800 r.p.m.



£21.00

HP61 R, complete with throttle **£21.50**
Basically an identical specification but with rear rotary instead of front rotary induction.

SILENCERS for either model **£2.45**

SPEED THROTTLE (HP61 F or R) **£4.45**
Comprehensive range of spares held in stock.

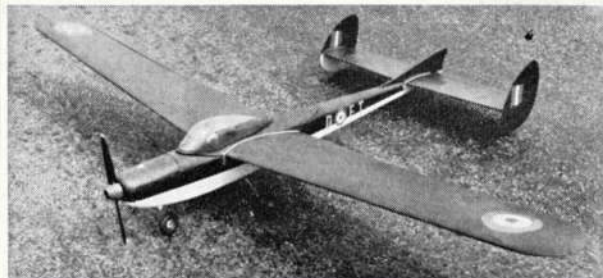
COMING SHORTLY the HP 40 in both front rotary and rear rotary versions . . . ideal for R/C, free flight or control line!



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Radio Models



Sport R/C is the theme of July *R.C.M.&E.*, which carries plans for Dennis Thumpston's attractive sports multi model, the *Twin-Fin*. Spanning 65 in., this shoulder wing, trike undercarriage machine offers excellent aerobatic performance on 2.5-3.55 c.c. engines and is an unusual mixture of aerobatic machine and soarer, with attractive semi-scale appearance.

Beginning this issue is a feature by Geoff Dallimer on the secrets of R/C Thermal Soaring, while glider enthusiasts will also enjoy a first-hand report on a glider world record attempt in Hawaii.

In *Throttle Benders Union*, pylon race enthusiasts will find more racing news, with a report on the first race meeting of the season. Regular features include *Sport & Single* by David Boddington, view on the R/C news in *Straight & Level* by Peter Russell, plus *Scale News* by Dennis Thumpston. *Test Report* this month analyses the new G-45 digital proportional system from Japan.

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ON SALE
JUNE 11th**

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HALO	F/F	£1.95
PICADOR	C/L	£1.95
CESSNA 140	F/F	£2.70
PIPER SUPER CRUISER	F/F	£2.70
LUSCOMBE SILVAIRE	F/F	£2.70
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NEW JR MONITOR	C/L	£2.40
MARQUIS	C/L	£3.50

STARTING IN R/C THIS YEAR?

We can supply all your needs.

R/C from £12-£160. Kits from £3-20, plus engines, Links, etc.

In fact, the lot, down to the last nut and bolt; even if it is 14 BA.

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KITS by KEILKRAFT, MERCURY, GRAUPNER, etc.

HUMBROL ENAMEL, DOPES
Full range stocked.

BONDAGLASS, BONDA PASTE, BONDA PRIMER.

CRUNCH ON THE FIELD?

Fix it for good with
DEVCON 5 MIN EPOXY 44p

Wheels 3/4"-4"

Surface Hinges, many types

ACCESSORIES

MICROMOLD, KAVAN, KEILKRAFT, E.D., MAINSTREAM, RIPMAX, TITAN, GRAUPNER

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SKYLEADER CLUBMAN

2 Tx and Rx	£39.60
3 Tx and Rx	£48.65
FB3 SERVO	£11.95
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MR 360 Codamatic Tx-Rx S/H RELAY	£22.95
MR 350 Codamatic Tx-Rx S/H R/LESS	21.60
MR 340 Codamatic Tx-Rx S/R RELAY	£18.50
MR 330 Codamatic Tx-Rx S/R R/LESS	£16.95
MR 260 Powermac Tx-Rx S/H RELAY	£17.95
MR 250 Powermac Tx-Rx S/H R/LESS	£16.00
MR 240 Powermac Tx-Rx S/R RELAY	£13.50
MR 230 Powermac Tx-Rx S/R R/LESS	£11.95

FUTABA

Digimax 4 + 4 Servos **£109.50**



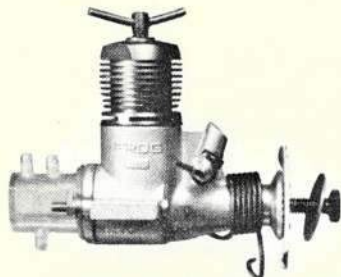
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HALES FROG DIESELS



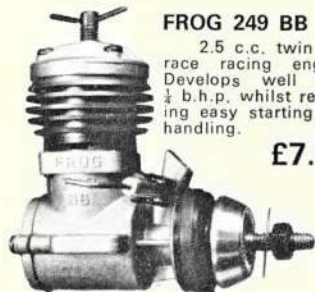
FROG 80 Mk. III £4.05

Ideal trouble-free engine for free flight models up to 44" span or control line up to 30" span.



FROG 100 Mk. III £4.30

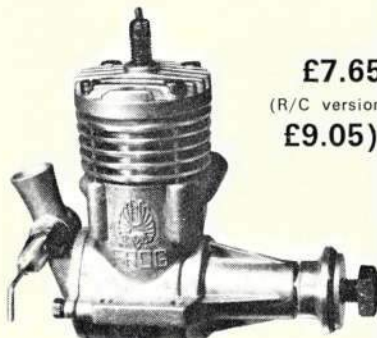
A high speed rotary valve engine (16,000 r.p.m. plus) specially developed for easy starting.



FROG 249 BB

2.5 c.c. twin ball race racing engine. Develops well over 1/2 b.h.p. whilst retaining easy starting and handling.

£7.47



FROG 349

The ideal Power Plant for Combat or the larger sizes of free flight and control line models. Also Radio Control version.

£7.65
(R/C version
£9.05)

at your nearest model shop!

FOR SPORT OR CONTEST FLYING, FREE FLIGHT CONTROL-LINE OR RADIO CONTROL

Choose FROG for easy starting and power to please

Power Fuel for YOU

21p per 1/2 pint

RED GLOW PLUS for glowplug engines
POWA-MIX ready to use diesel fuel

Watch next month's announcement for a new FROG 'Venom' popular size Glow Plug Engine

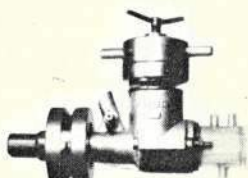


FROG 150 Mk. III

The logical choice for a 1.5 c.c. contest engine or for extra performance from a control line or sports model.

£4.95

FROG MARINE ENGINES



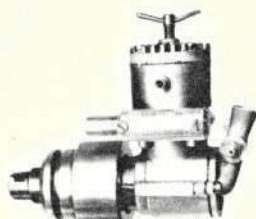
150 MARINE £5.97

Fitted with water cooled head, flywheel and coupling.



249 MARINE £8.90

Water cooled head, balanced flywheel and special coupling.



349 MARINE £10.30

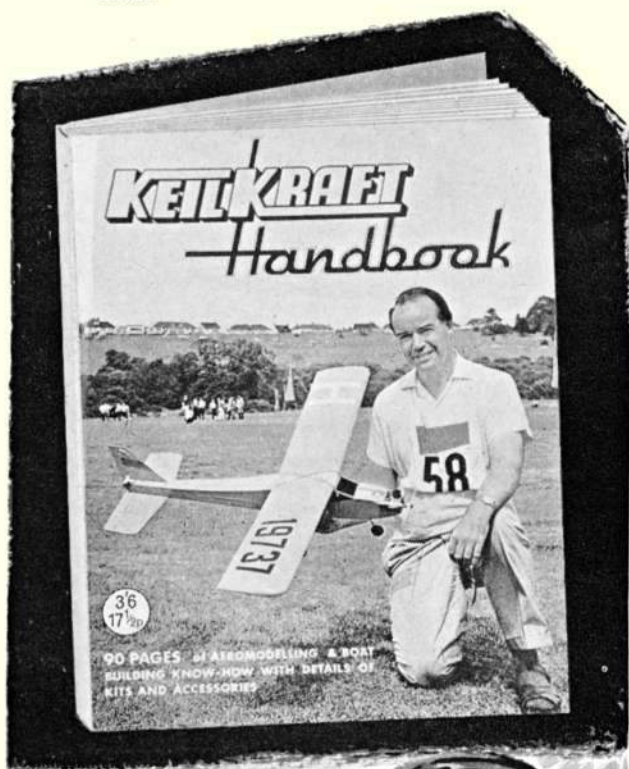
Water cooled head, flywheel and coupling. Radio Control version **£11.72**

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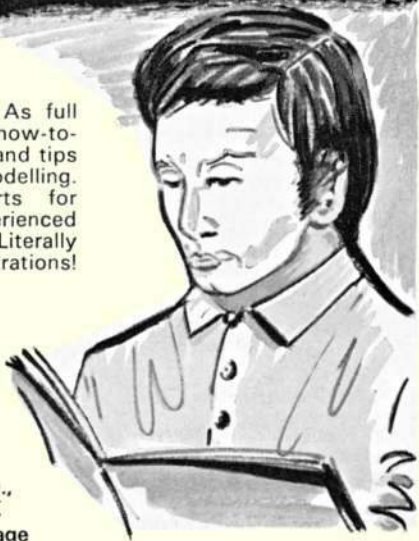
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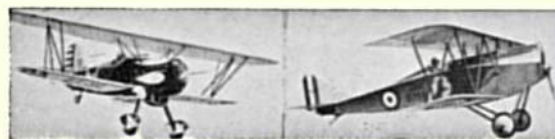
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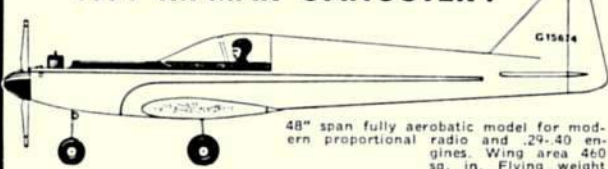
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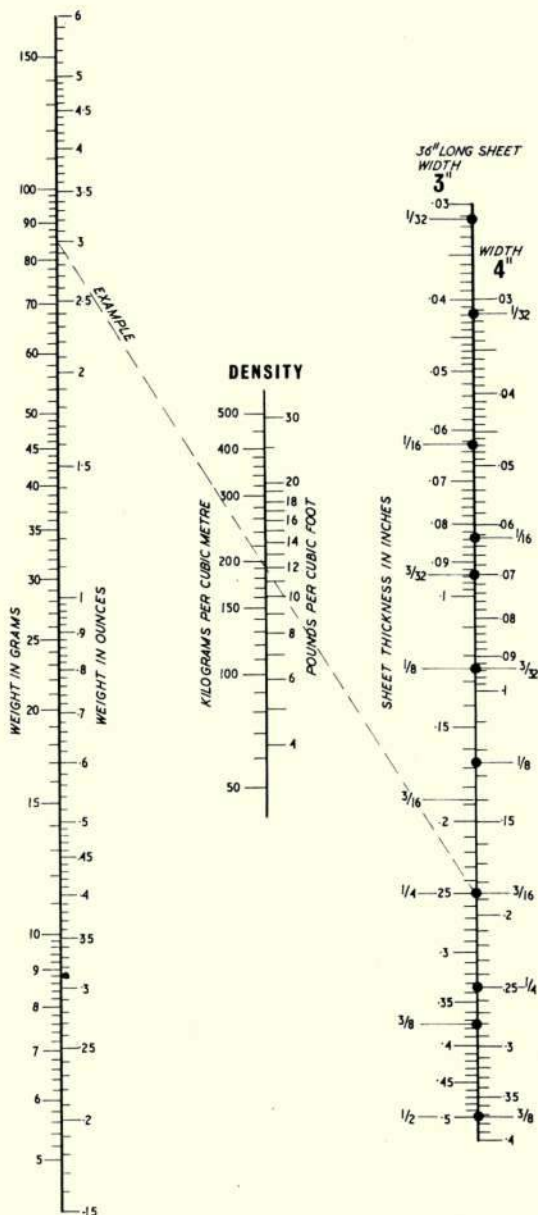
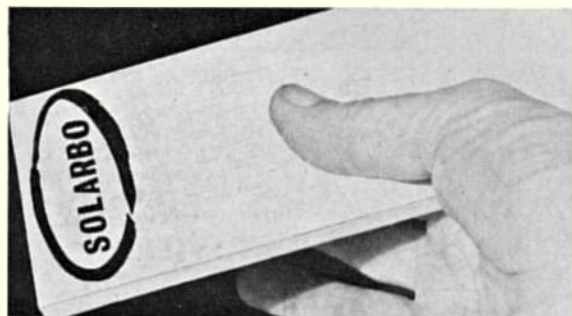
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Novel attraction for the matchbox label collectors will be a special souvenir given by the Swedish Match Industry to all participants at the World Championships June 30th-July 7th at Gothenburg. Other participant souvenirs will include a Swedish ball bearing in a unique mounting.

Heard at the HANGAR DOORS

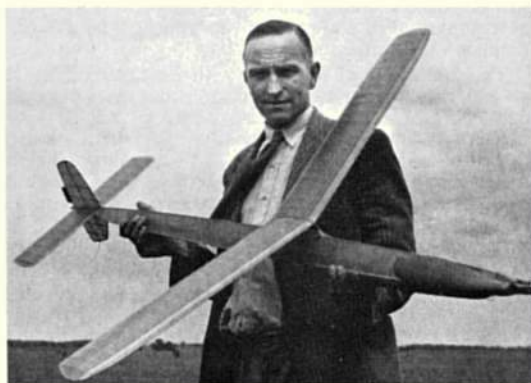
WORLD CHAMPIONSHIPS for free-flight at 'Save' Near Gothenburg, Sweden, promise to be the biggest ever. The entry is Thirty-two Nations broken down into 58 for glider, 44 for Power and 52 in Wakefield. Light planes will be used for spotting flyaways and a large recovery crew will be used, with radio communication to ensure minimum risk of lost models during the contests on 2-4th July. The budget for the contest is over £17,000. Plans for the Radio Control Championships at Doylestown, Pennsylvania, U.S.A., in September, now include a supporting trade show as well as International events for F.A.I., Pylon and Thermal Soaring. British contingent for Pylon were to be selected at the Nats. The A.M.A. Charter flight for teams and official supporters is now filled, and coupled with extraordinarily generous sponsorship from the A.M.A. makes the trip cheaper than that to Sweden! Budget for the R/C Champs is over £40,000. **F.A.I. SPORTING CODE**, English Language edition is finalised for printing and will be available from July 1st through officially recognised member Modelling Organisations. It includes all regulations for contests, administration, records and Judge's guides, but does not include the provisional rules for events still subject to amendment such as Combat, R/C Thermal Soaring, or Slope Soar-

ing. The cost will be established by each National organisation as a means of recovering their F.A.I. membership fee.

NEW GUILD OF AVIATION ARTISTS will hold its first exhibition at the Royal Aeronautical Society, 4 Hamilton Place, London W.1., from 1st to 7th July, with admission by purchase of souvenir catalogue 15p. Among the members who will have their work on display are several well-known scale modellers. With its theme as *Flight through the Ages*, the exhibition will be well worth a special trip to view, 11 a.m. to 5 p.m. daily, with extensions to 8 p.m. on 5th and 7th July.

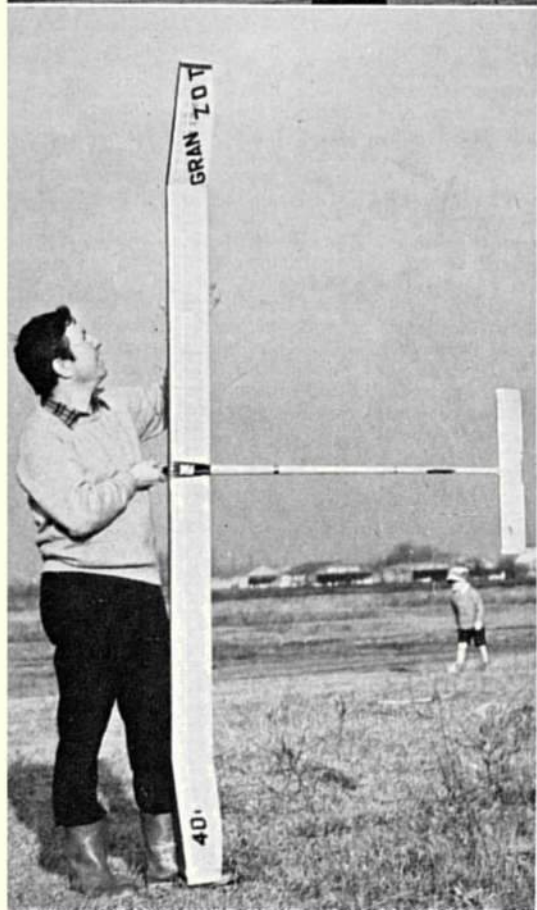
CONTROL LINE SPEED enthusiasts will greatly regret the news that Miklos Sebestyen of Hungary died of a heart attack early in May. Only 34 years old, Miklos had represented Hungary many times and was one of the much respected 'Moki' team, responsible for considerable development in the design of racing motors using standard fuel and tuned exhaust systems. Our condolences are extended to the Aero Club of Hungary as well as his family on their sudden loss.

LANCASTERS - those four-engined fully radio controlled examples which inspire all novices who leave the scale flying meetings with stars in their eyes, but which so often remain far out of reach even for experts, have been flying for the TV 'Pathfinders' series. Weighing 28lbs., with a span of eleven feet and four HP 61 front rotary engines, these models hit the headlines on May 18th. Operating at ranges of up to half a mile and 500 ft. altitude, the Lancasters met interference troubles at West Malling in a big way. Two frequencies were found by monitor to be totally inoperable, others marginal at distance. Thus when a press viewing resulted in a prang the headline of the Daily Express read *One of aircraft is missing*. Controlled by RCS gear, with servos duplicated for each of five functions, the Lancasters were flown for best film effect *at night* in sessions from dusk to dawn! Followed by searchlight (and occasionally 'lost' for a few hectic moments!) the Lancasters will be co-starred with full-size Mosquitoes and a Heinkel He III (Spanish built version).



+ E. W. (Ted) Evans

Ted Evans lived - and died for aeromodelling. His name is a legend among modellers of the classic Wakefield class. He represented Britain with his superb designs on several occasions, notably gaining second place with his renowned 'Vansteed' and its fascinating feathering airscrew at Jami-jarvi in 1950. His 'Jaguar', and the ultimate Wakefield of 1953 left their mark as design leaders, forsaken only when Ted disagreed with International rule changes. In 1937 he established Super Model Aircraft Supplies at Northampton and for 34 years he has been provider and counsellor of good advice for a broad area of the South Midlands. When Wakefield rules were changed, Ted took up full-size flying, and then as son Nicholas grew into aeromodelling, Ted applied his design thoughts to radio control. On May 16th he suffered a heart attack whilst watching Nicholas do well at the Flying Druids contest and though apparently recovering, suffered a relapse on May 30th. His 65 years established a tradition of constructional excellence that preserve his memory and we are sure that all aeromodellers join us in extending sympathy to his sons John and Nicholas.



Carlo Varetto's A/2 glider ...

GRAN ZOT

designed for still air conditions

WHEN COMPETITION FLYING, conditions can naturally vary enormously from contest to contest, or even during a particular event, so a top-class, all-weather glider is an obvious requirement. Unfortunately, such a machine does not, and cannot, exist as it would merely be a compromise. However, the picture is not as grim as it first appears, as competitors are allowed a total of three gliders per contest, so different conditions can be met with the appropriate model. With this 'specialisation' in mind, *Gran Zot* was designed – its purpose being to fly in calm or 'dead' air when there is an absence of thermal activity, such as occurs early in the morning or late in the evening. Under such conditions, this model has the potential for achieving the 'magical' 180 second 'maximum' flight. Conversely of course, it cannot be expected to behave so well in blustery weather.

The designer has considerable experience of top-line flying, having placed eleventh at the '69 Free Flight World Championships, and he has again qualified to represent Italy at the forthcoming Champs. In 1968 he won the Italian Championships title, finding *Gran Zot* to be ideal for this event which was held over two days, the first two flights occurring in the Saturday afternoon with the remaining three on the Sunday morning. This of course meant that for the second and third flights, *Gran Zot* was really in its element!

At Wiener Neustadt, Carlo intended to use this model in the fly-off but unfortunately never had the opportunity, as a line tangle during the fourth round spoilt his otherwise perfect score – his only consolation being in Carlo's words 'a real champion (Elton Drew) won, and not an outsider'.

The model is 'typically Italian' with its multi-spar, multi-braced wing producing an extremely rigid, warp resistant structure, particularly necessary in his high-humidity native country. It should be understood that this is not a beginners model, although it is not really as complex as it looks when approached in a logical manner – just rather more work!

The fuselage used by Carlo, with its tapered, detachable rear boom and aluminium nose cone does of course necessitate access to workshop facilities, but if this is beyond your means, an alternative 'British' fuselage is drawn based upon a glass fibre rod – not surprisingly as it was provided by Tony Cordes of 'Ronytube' fame! Tony points out that these 48" long rods which he has had specially produced can only be supplied to the U.K., as export parcels are restricted to 42" long unless very high freight charges are paid. A 42" rod could be used if the rear fuselage were shortened by 1" and the nose built-up forward of the tow-hook.

Start the construction by making one of the inner wing panels. Cut out 5 W2 ribs from $\frac{1}{8}$ " ply, 27 W3 ribs and one W4. Trim the leading and trailing edges to length as

well as the spars – adding the 1/32" balsa sheet infill to the top spar (see section). Pin the leading edge to the plan and pack-up the lower spar and trailing edge to conform to the correct airfoil section – use one of the ribs to check this. Now glue all the ribs in position – angling the root rib to suit the dihedral angle. Next add the top main spar (balsa side uppermost) and the remaining three spars. The 1/16" medium sheet gussets should then be inserted flush with the top surface of the ribs only. Diagonal ribs are simply cut from 1/16" medium sheet blanks and are sanded to shape when the wing has been completed. Glue the leading edge sheeting in place with a P.V.A. type of adhesive – do not use balsa cement as this would distort the sheeting. The wing should still be pinned to the building board at this stage. Insert the 8 swg. (i.d) brass tube into ribs W2 and securely epoxy in position before letting in the 1/16" sheeting flush with the upper surface of the ribs around the centre section. With a large sanding block, sand the diagonal ribs to section, taking care not to damage the existing ribs. Remove the structure from the board and add the 1/16" sheet webbing between the ribs.

Repeat this process for the opposite panel. The tips too are built in a similar fashion, noting the built-in wash-out at the extremities, and that the mainspars both top and bottom are balsa. Finally sand all the structure smooth before gluing the wing tips in position at the correct dihedral angle.

Tailplane construction is identical to that of the wing, only simplified – but do make this unit very light.

The original fuselage design is for more experienced modellers only, the construction of which is detailed on the plan, and should be self-explanatory. The alternative is typical of modern British design trends and is much easier to make, not requiring machining facilities.

Begin by installing the tow-hook assembly. To do this, carefully measure on to the rod blank the position of the two slots, and cut out – using a file to 'tidy up' the edges. Reinforce the edges of the lower 1/8" wide slot with thin ply or metal epoxied in place, then file the brass bar to

shape. Drill and tap this 4 BA and add the 14 swg. tow-hook – soldering it in position. Insert in position via the 1/2" slot, and hold in place with a 4BA screw and washer. Cut the 1/2" balsa fuselage to shape, then add the 1/16" ply sides, allowing space for the D/T timer. Wrap sandpaper around the nose of the rod and sand the base of the pylon to conform to its contour before epoxying in position. Epoxy the 8 swg. wing joiner (bent to correct shape) to the fuselage and add 1/16" dural or 1/8" ply ribs to the pylon. Insert the 16 swg. locating dowel.

Laminate the fin outline from 3 strips of 1/32" x 1/8" balsa, soaking them thoroughly in water and bending around a cardboard former. Add the soft block gussets and 1/4" sheet base, then glue the 1/16" soft balsa rib blanks in position – sanding these to a symmetrical section when the glue has thoroughly set. Epoxy to the fuselage followed by the tailplane mount.

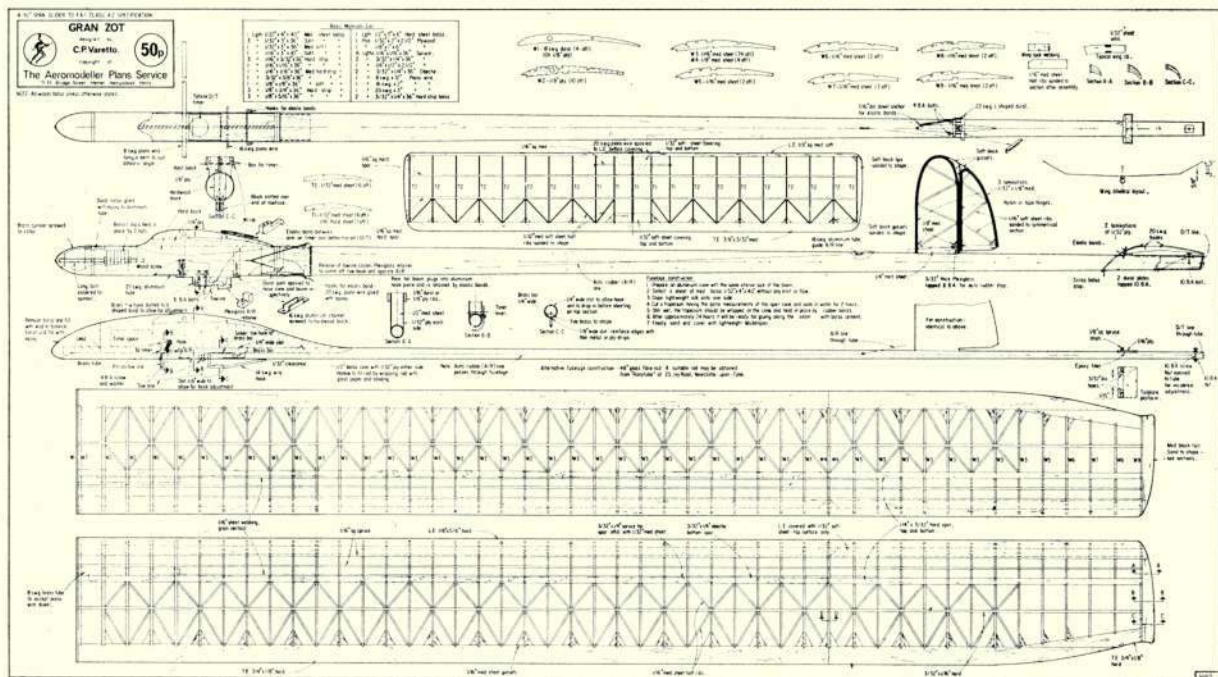
Epoxy the auto rudder mechanism to fuselage, checking that the lever is free to pivot, then connect to the rudder and adjust for correct operation. The auto-rudder works as follows:

The timer release arm is connected to the pivoted arm by a piece of stiff wire. The bottom half of the lever is pushed forward straightening the rudder against the tension of its elastic band, and is locked in position by the pin attached to the tow line. When the tow-line is released, the pin is pulled from its tube, releasing the arm, which pushes the D/T timer switch to the 'on' position, and at the same time applies right rudder.

Epoxy the dural W1 ribs to the wing roots, then cover the wings with lightweight tissue and the tail and fin with Jap tissue. The original covering was painted with thinned glue, and then dope was applied.

When doping is completed, assemble the entire model and check the C. G. position – this is done by adjusting the position of the brass discs on the rod in Carlo's version, or by adding lead at the nose (between the ply sides) on the 'British' fuselage. In the latter case, epoxy the lead in position very securely, and file it to blend into the shape of the nose.

FULL-SIZE COPIES OF THE 1/8th SCALE REPRODUCTION ARE AVAILABLE AS PLAN No. G/1103, PRICE 50p (10/-) PLUS 5p POSTAGE, FROM AEROMODELLER PLANS SERVICE, 13/35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.





AMSTERDAM CUP 1971

Martin Dilly, glider in hand, goes continental

The Wakefield winners wave their booty from atop the Olympics-like pedestal - smallest member of the quartet did not actually receive an award, he's just an interested spectator!

THE SIXTH CONTEST for the Coupe d'Amsterdam for the three FAI free flight classes was organised by the Amsterdam Aero Club under the auspices of the *Royal Netherlands Aeronautical Association* on May 8th and 9th at the Rozendaalse heide near Arnhem; competitors came from Canada, West Germany, France, Italy, Denmark, the United States and Great Britain, as well as the majority from the Netherlands.

The site is rather like a vast Chobham Common, but happily gorse-free and generally covered with low heather; it is crossed with dirt roads and there are areas of pretty dense pine forest which could be avoided by choice of launching area. The heath is on the edge of a 200 square mile nature reserve and is the best site in the country; Terlet, the national gliding centre, is a couple of miles away and, what with full size gliders and buzzards, a pair of which at one time formatted onto a thermalling A/2, the general activity there was quite intense. On the first day, when three rounds were flown, the lift was very strong indeed, A/2 flyers almost all either doing an easy 180 secs or else well under 100; at this time there was a light breeze, around 5-8 m.p.h. and temperatures were in the low 70s.

On the Sunday, round four was the sorter; only two maxes were scored in A/2, out of 34 competitors, and the sky was overcast; later in the day during round five there was quite heavy rain and the organisers called a halt for

lunch in the middle of the round, which must have caused some distress to those who had already flown. Although there were some mass launches several people found that the bottoms fell out of what had at first appeared to be quite nice steady thermals, and in the increasing wind some models were lost in the woods, among them Paul Jamison's Rossi 15 power model which had, along with Germany's Josef Brodarac, maxed out until the sixth round. With the deteriorating weather conditions the rule by which models had to be airborne within five minutes

Jan Hendriks launches an A/2 for fellow Dutchman van Merkestijn. Typical Dutch layout employed, with pylon-mounted wing and outrigger turbulator.





Fourth placed in Wakefield was Peter Monninghoff from West Germany flying this dural fuselaged model with 85-gramme all-wood wing.



Danmark's Thomas Koster with his all-wood model. Four-function Seelig timer operates motor, auto-rudder, then variable camber wing and V.I.T. simultaneously, and finally D/T. Wings are one piece and bolt on.



Jean Magniette of Aero Club Pierre Trebod in France, holds his wife's tenth placed A/2 glider.

of the allocation of the timekeeper was applied more firmly than during the earlier rounds; only one timekeeper was used per flight and this did lead to occasional disputes, once regarding a motor run and also on rule interpretation. However, the atmosphere was friendly and the weekend was most enjoyable; the organisers had arranged a dinner on the Saturday evening in a good restaurant in Velp near the campsite where most of the competitors were staying, and breakfast and a small packed lunch on the field were included in the entry fee.

As regards the models, the trend towards all-wood models seems to be continuing, so perhaps there are still countries where free-flight quality balsa is still obtainable readily. Most of the power models were all balsa, and particularly notable among these was Thomas Koster's, with variable camber wing; using his own airfoil, rather like a thinned Benedek 8353 b/2 with a sharper entry, this has a hinge line at 45% and straight dihedral on a one piece, bolt-on wing. The four-function Seelig timer operates the v.i.t. and the wing camber variation simultaneously and is enclosed. If he had used this model for his first flight, instead of his *Cream*, which was slightly off trim, there could well have been a Danish win in Power.

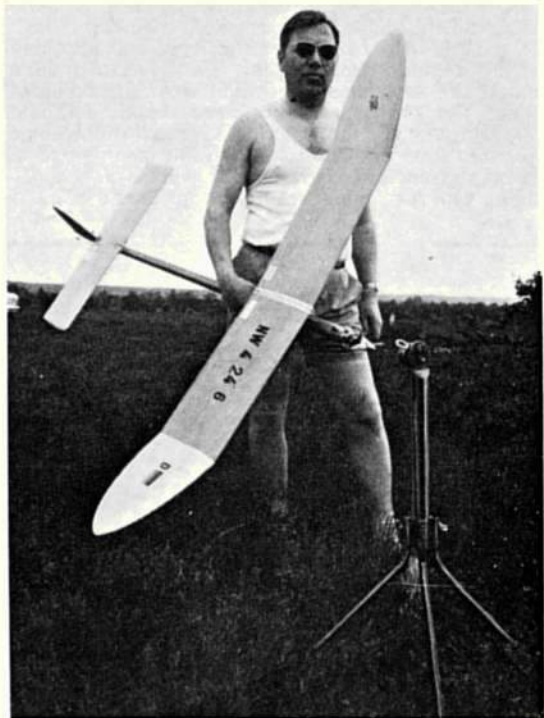
In A/2 the local flyers favoured in general a pylon mounted wing and forward elastic turbulators; in the main aspect ratios were moderate, but several of the Germans were using wooden wings, either solid à la S.P.L. or else of Jedelsky construction using the Benedek 6407 airfoil. Some of these employed a hollow leading edge section and one of these was cored with foam polystyrene and skinned with Imm. balsa. Gerd Muller from the Dusseldorf club used a Japanese wall hanging decorative hardwood, scored about $\frac{1}{16}$ " apart for his trailing edge on another Jedelsky-type wing.

Among the foreign entrants was Eugenio Libertino, who had come some 1200 miles by train from Salerno in Southern Italy, having built a straight dihedralled Davis airfoil A/2 to ease his transport problems in the three

Hans Schallenberg from West Germany with elliptical-winged variant of 'standard' German all-wood model. He uses a tripod-mounted Graupner inertia starter that is still going strong after four years of hard use.

days before he left home. Unfortunately, he only made one max and the model seemed under-elevated.

Walkie-talkies were in evidence, but there was an almost total lack of thermal detection devices. Several of the German power flyers used Graupner inertia starters mounted on welded steel tube tripods or quadrupods about a couple of feet high; these seemed to supply ample





Above: Wakefield by Hore Haacke of Dusseldorf uses a fuse D/T and Mono-Koted fin - model being held here by second place A/2 man, Josef Brodarac. At right, Bert Dahlmans (left) with his very neat, tissue-trimmed Dutch A/2 glider and Paul Jamison of the United States. This much-travelled visitor was unfortunate to lose his model after five maxes in Power.



torque to start FAI motors and one of them had been in use for the past four years. They certainly made tactical flying of power models much easier than is often the case. A number of A/2s as well as Wakefields were using fuse dethermalisers, while the rest of the Wakefields had variable trim actuated by Seelig three function timers, in most cases.

At the end of the contest there was a presentation of fine engraved cups, and an Olympic-style three level winners' dais had also been provided, on which the top three in each class were temporarily mounted. Of more interest to the Philistine element were competently kept scoreboards of the movable letter type and also very rapidly-produced duplicated full results sheets. In all, a contest well worth attending; with the current scheme of reduced ferry charge for long weekends the cost is around £24 for a group of four return, and with Arnhem some 180 miles away on good roads, the four hours or so of driving was most pleasant, especially with the thought of a contest with reasonable organisation at the end of it.

Results

A/2 Glider (34 entries)

1. G. Brinks	(Netherlands)	1154 secs.
2. D. Brodarac	(West Germany)	1152 secs.
3. G. Verbree	(Netherlands)	1143 secs.
9. M. Dilly	(GB)	1002 secs.

Wakefield (11 entries)

1. K. Boeren	(West Germany)	1192 secs.
2. S. Ruyter	(Netherlands)	1190 secs.
3. E. Oskamp	(Netherlands)	1180 secs.

Power (9 entries)

1. R. Guilloteau	(France)	1241 secs.
2. E. Reus	(Netherlands)	1232 secs.
3. T. Koster	(Denmark)	1209 secs.

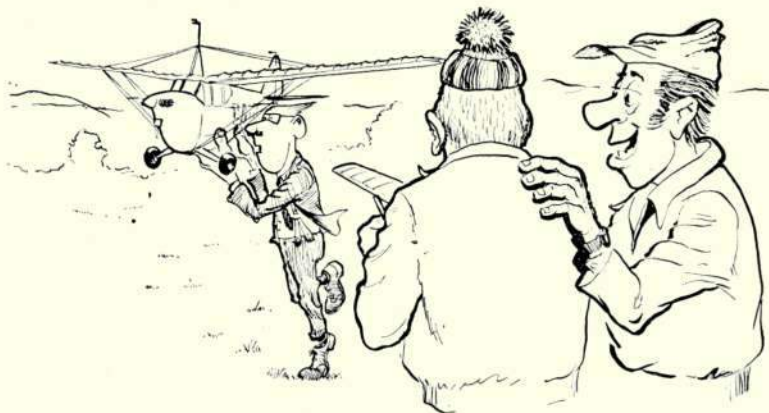
CONTEST CALENDAR

June 20th	AEROMODELLER/SCALEMODELS/R.C.M.&E. ALL SCALE RALLY at Old Warden, Biggleswade, Beds.	July 3rd	WOLVES CONTROL LINE FLY-IN. C/L Fly for Fun and Stunt Contest, and 'most entertaining flying'. Silencers. Details from W. A. Hatfield, 563 Stafford Road, Fordhouses, Wolverhampton WV10 6QE.
June 20th	ST. ALBANS M.A.C. SUMMER GALA. Open R/G/P, Chuck Glider, Vintage, Three rounds, start 10.30 a.m. Venue Chobham Common.	July 4th	CHESTER M.F.C. COMBAT RALLY. 10 a.m. start at Roodee, Chester. Pre-entry by 21/6/71, 15p to C. R. Fittness, 26 Raymond Street, Chester. Large cash prizes.
June 20th	SOUTHAMPTON C/L STUNT at Beaulieu Airfield, 11 a.m. Pre-entry (25p) to G. Alison, Kestrel, Church Lane, Fawley, Southampton.	July 4th	N.W. AREA RALLY. Open R/G/P, Chuck Glider, F.A.I. T/R, 1/2A T/R, Goodyear, Stunt, R/C 'Woodford Style' aerobatics. S.M.A.E. members only. Venue R.A.F. Leeming, near Allerton.
June 20th	CHESTER M.A.C. CLYWD SLOPE SOARING. Open Glider, R/C single channel, Inter and Multi. Pre-entry for R/C only (by 7/6/71) to C. R. Fittness, 26 Raymond Street, Chester, 25p. Also social, Saturday, 7.30 p.m. at Custom House Inn, Watergate Street, Chester.	July 11th	SOUTHAMPTON M.A.C. F/F GALA. Open R/G/P, C. d'H, Chuck, A/1. Perhaps 1/2A? 10.30 a.m. at Beaulieu Airfield. Map of airfield (S.A.E.) to P. Ireland, 16 Richmond Road, Southampton.
June 20th	BURTONWOOD CRITERIUM. C/L H'cap Speed, F.A.I. T/R, Goodyear, Stunt, Combat, R/C Pylon Racing - F.A.I., F.3 Open Novice. Pre-entry (radio only) 40p to M. Barker, 5 Norton Avenue, Penketh, Warrington. C/L events 25p on field, 10.30 start at Burtonwood.	July 11th	LONDON AREA C/L RALLY. Stunt, Junior Stunt, at Fairmile Common - Silencers. F.A.I. T/R, 1/2A, Combat at Hayes.
June 27th	FINCHLEY M.A.C. GALA. C/L Stunt Combat (A & B) Rat Race (A & B) 20p (4/-), pre-entry to J. F. Goodwin, 77 Gallants Farm Road, East Barnet, Herts. Venue, Glebelands, Finchley, N.12.	July 11th	S.V.A.S. OPEN DAY. F/F Scale and Vintage. All welcome at Old Warden, Beds.
		July 18th	S.M.A.E. CENTRALISED C/L MEETING. 1/2A F.A.I. T/R, Goodyear, also R/C events. S.M.A.E. T/R, Goodyear, Speed.
		July 18th	N.E. AREA GALA. Open R/P/G (perhaps Chuck), members only at R.A.F. Ouston (12 miles west of Newcastle on B6318).
		July 18th	HAYES F.A.I. GALA at Chobham Common. First round finishes 12.00 p.m. (7 rounds). Separate classes for F.A.I. R/G/P, also A/1, C. d'H, Chuck gliders.

topical twists

by 'Pylonius'

illustrated by 'Sherry'



Chucking a Dummy

Ever since Da Vinci, or whoever it was who launched the first model glider, you may be sure there was someone there to criticise it for not looking like the real thing. And since the real flying thing at that time was the flappy, feathery bird, the model was obviously neither flappy enough nor feathery enough.

This sort of carping on any model deviation from the accepted idea of what a flying machine should look like is still going on. Completely beyond the pale are the free fighters whose models just look like models, but the C/L side of the hobby has always been more conforming. Usually the artefact that circulates on the wire tries hard to emulate the appearance of its big brother. Apart from the general shape there is invariably a glass canopy or cockpit to delight the purist, and the fact that it's generally advisable to have a couple of wheels betwixt the tarmac and the model is just an added piece of luck.

Now, from Europe, the whole concept of dummy pilots, canopies and other simulations is being challenged. Absolute heresy, of course, but is that dummy pilot really necessary? Surely, the argument goes, the boy with the flying toy might need his dummy, but you can hardly act the adult aeronautist with the upper part of Action Man's uncle glued under a piece of fuel soaked celluloid. Would it be such a catastrophe for the model movement if team racers cut out the kid stuff and concentrated on pure flying machines? After all, they usually land with such an unrealistic thump that, were the dummy a real pilot, a broken neck would be the least of his troubles.

Publicity Stunt

Those hemispheric diagrams of stunt schedules look to be part of an illustrated lecture on how the model bug attacks the human mind, and I suppose in a way they are, although we could never quite mount the sort of fever that overtook the movement back in the days when the C/L stunt model was considered the ultimate in miniaturised flying. Since that time the once celebrated stunt model has drifted into obscurity, or rather resolved into the caper cutting combat model. Now and again, though, it emerges to challenge any would be judge who may think he has six heads and multi swivelling eyes. Usually, though, the quickness of the handle deceives the eye, and back goes the stunt model into retirement.

Mostly, the judges have drifted over to radio where, after a stately start, they are getting much the same treatment as they got in the C/L circle. We now all await breathlessly the introduction of Combat Radio.

'Ever heard that old saying about dogs resembling their masters?'

Nick of Time

It is said that time is relative, not just in the sense that most of us finish up with Uncle Nick, but in it having different values for different people. This thought occurred to me on reading an article which pondered with deep gravity on the problem of sealing the inside of a Wakefield fuselage from the insidious seepage of rubber lubricant. How, except in a different time context from one where work, household maintenance, car cleaning and 'Z Car' watching I have but a few fleeting hours in which to hastily stick a few bits of balsa together, can anyone find time for such refinements?

But they do. The other day I was flying my archaic and patched-up apology of a glider on the local common when a bloke arrived with a trailer bearing something like 3,000 hours of painstaking work embodied in eight feet of scale biplane perfection. Apart from the fact that the radio gear alone would have paid off my mortgage, I estimate that one wing would have taken me about a year, not including the time spent on knocking down the kitchen wall.

Still, that fuselage business made me a bit ashamed. Sheepishly I cast a probing eye down the innards of my utility Wake. All in good order, though. The hairy untreated balsa was as healthily hairy as ever. Perhaps it's a good thing I don't find time to lubricate the motor.

Decimation Money

Today, model design has gone about as far as it can go without altogether disappearing. For what with needle-thin fuselages and see-through coverings, it is almost possible to get an 'out of sight' on the other side of the kitchen table. This, coupled with the new pence cost of the means of model production, suggests that the nasty habit of getting into a nasty temper and jumping on the nasty remains of that nasty model can be an expensive and unnecessary way of relieving your inhibitions. What you now must do, however old the model and however fragmented the remains, is to shuffle them back into some sort of flyable order, which is where the science of 'bend-'em and mend-'em' comes in. Just think again before operating the obliterating boot or striking the incendiary match, how much hard cash it would take to replace all that soft balsa.



AIRCRAFT DESCRIBED NO. 205

ROLLASON BETA

the popular sports/Formula 1 Racer
drawn and described by PAT LLOYD

THE ROLLASON BETA can be fairly stated to have won its first competition even before it was built, though some explanation of this is necessary! The *Beta* at the time of this unusual feat, was in fact the *Luton Group Midget Racer 'Beta'* and was the progeny of a group of design engineers who were employed at that time by B.A.C. Luton.

The competition was held in 1964 and instituted by that stalwart of light aviation, Norman Jones, who in association with Rollasons announced that the competition was for a British-designed single seat sports/aerobatic air-

craft, mainly to arouse interest in clubs and home builders. Details of the limitation were as follows: to make use of the Rollason/Ardem/VW engines of 45 and 55 h.p.; a wing area of 65 sq.ft., detachable wings for towing and storage, and a stalling speed of 60 m.p.h. or less. Such detailed refinements as instrumentation crash pylon and shoulder harness were also suggested.

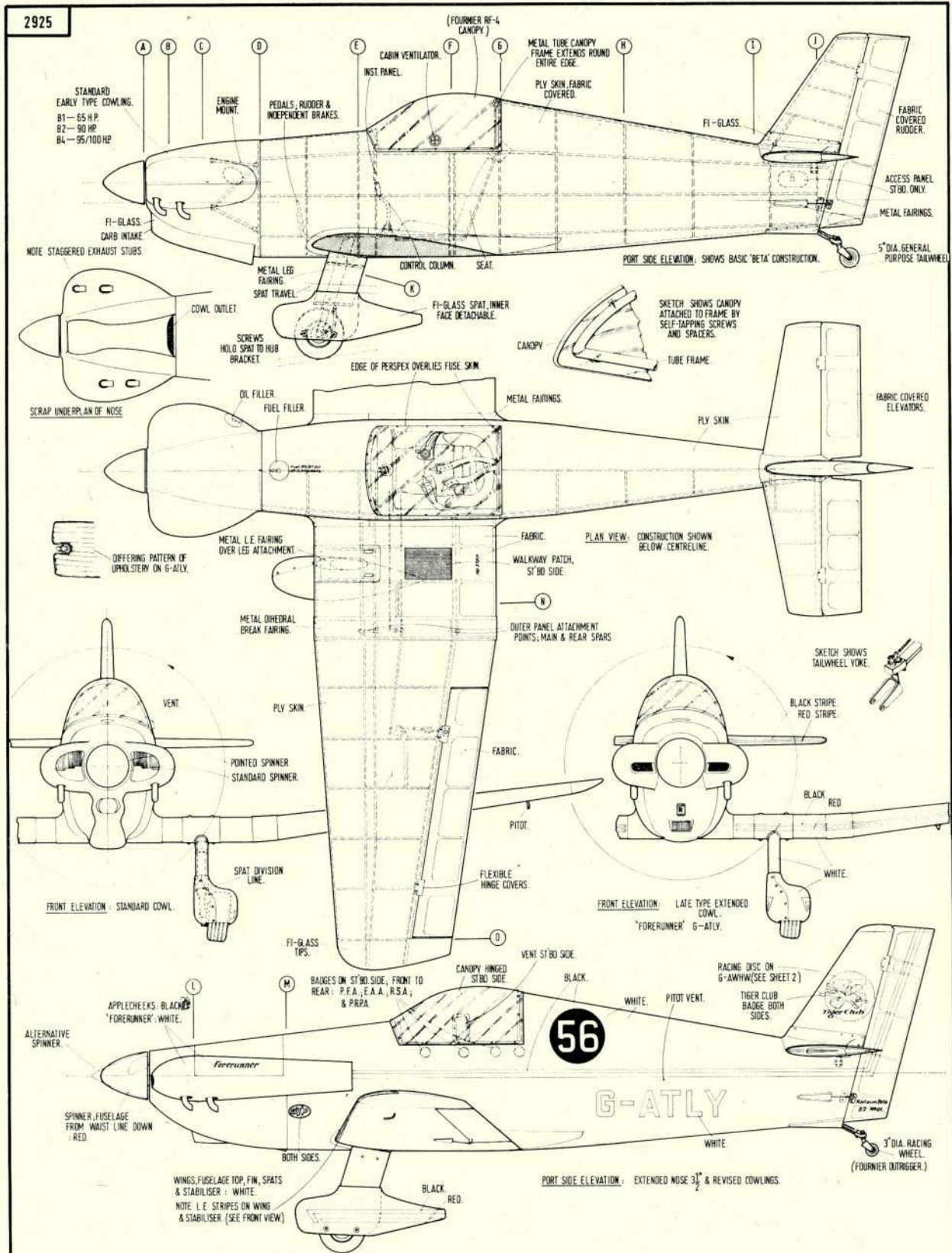
By the closure date in September '64 some 40 designs had been entered, and it was two months' later before the judges had selected some ten best designs, headed by the *Beta* and followed by the late John Taylor's *Titch* and

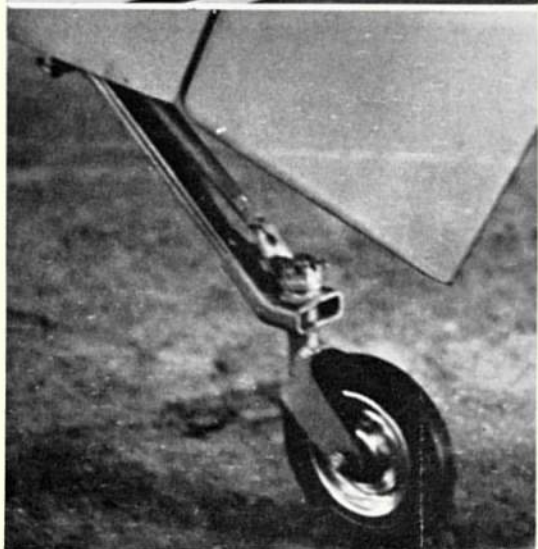
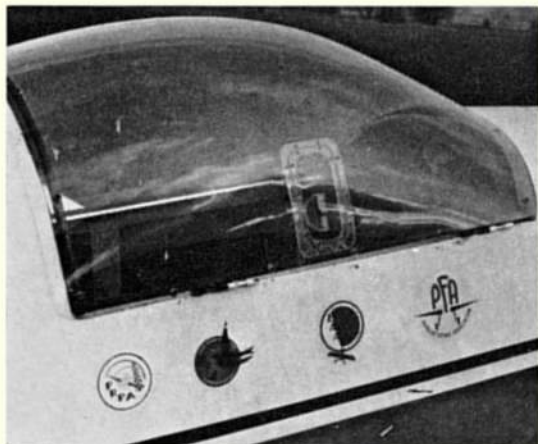


Heading shows the *Beta* which is the subject of our side elevation drawing opposite, known as 'Forerunner' and normally based at Redhill, Surrey. For 1971 the apple cheek fairings, which are black, have been extended to improve the airspeed.

REPRINTS OF THIS FEATURE PLUS FULL-SIZE DYE-LINE PRINTS OF THE 1/12th SCALE ORIGINAL ARE AVAILABLE AS PLAN PACK F2925, PRICE 50p FROM AEROMODELLER PLANS SERVICE, 13/35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTFORDSHIRE.

Decorated in a similar manner to the 'Blue Chip' in our drawings, with the black and white chequer panel on the rear fuselage, the third *Beta* G-AWHW 'Dandy Dick' is ready for take-off in one of the 1970 races. The applecheek fairings are of the earlier contour.





Top left, the four emblems on the side of 'Forerunner' are for the Professional Racing Pilots Association (U.S.A.), the French R.S.A. Organisation for Home-built Aircraft Construction, the American Experimental Aircraft Association, and the British Popular Flying Association. Top right, tail unit of Beta number 2 shows the Tiger Club emblem on the fin, and the slipper covers which streamline the hinge positions on the rudder and elevator.

Nice formation shot by John Blake of 'Blue Chip' and 'Forerunner' before their official 'christening' and with 'Forerunner' carrying the original wheel spats and applecheek fairings. Tail wheels vary but the standard racing size is 3 in., as seen in close-up above. The wheel unit is an outrigger from the Fournier RF 5.



then the Mitchell-Prizeman *Scamp* (later to evolve as the Mitchell-Proctor *Kittiwake*). The first two designs were mainly all wood, the latter all metal construction.

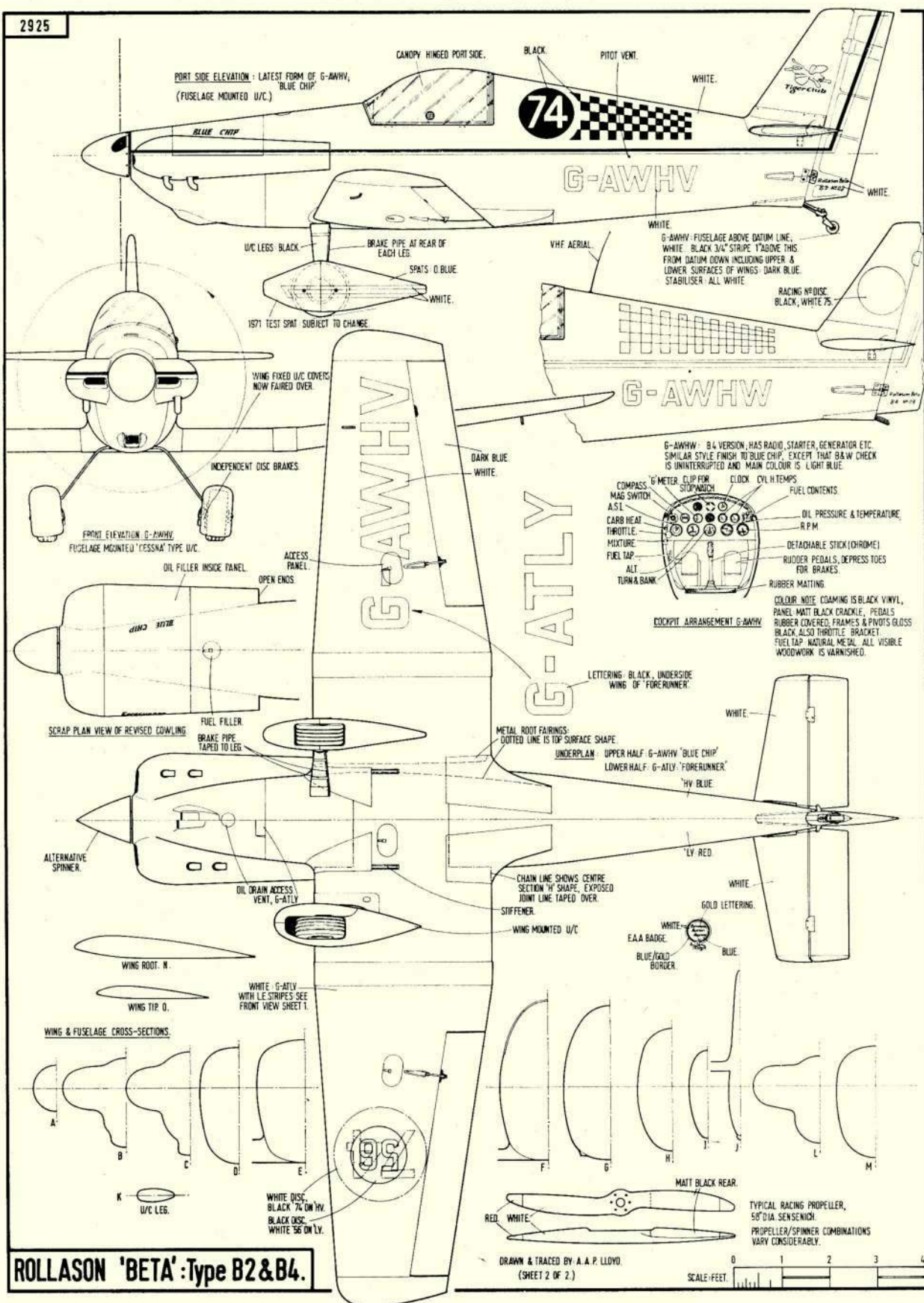
The competition having been won, Rollason now, as agreed, commenced to build the first prototype, which emerged in 1966 as G-ATLY, but differing mainly from the original specification in that it was powered by a Continental A-65 of 65 h.p. and recognisable by long undercarriage legs and separate spats.

This was the prototype of the B1 version using a 65 h.p. engine, next came the B2 variant with the C-90 engine of 90 h.p. Also projected, as dictated by the Competition of 1964 was the B3 derivative, with the Volkswagen/Ardem engine. It was felt at this time that Formula 'Vee' racing was coming, but as no hard-and-fast set of rules had been established, production of a B3 was left in abeyance until wing area rules had been decided and indeed no B3 has yet been constructed.

Lastly, the B4 type was evolved for the pilot who wished to tour for most of the time, but also to occasionally race - this type would use the 0-200A 100 h.p. engine with quickly-detachable generator/starter, radio and NAV/COM equipment, and a larger fuel tankage. The original B4 specification called for flaps to be fitted, but the B4 at present flying is not so equipped and does not seem to miss them.

The basic *Beta* is identical to the structural side elevation shown on sheet 1, although the home builder is





ROLLASON 'BETA': Type B2 & B4.



Cockpit on the 'Blue Chip', hinged to port. The interior is varnished and has the appearance of high quality yacht construction, with the emphasis very much on craftsmanship. A motor car seat accessory cover is used for upholstery. Instrumentation is similar in all Betas, variations being blanked out areas where some instruments are not fitted.

ply skin, the matt tautening dope daring you to think of a colour scheme!

The atmosphere here, a blend of cellulose, spruce and ply gave one a feel of aeromodelling, though the models were a bit large! The *Beta* has basically a ply-covered monocoque fuselage with thirteen frames. The fin and tailplane are ply-covered rib-and-spar structures, while the rudder and elevators have 'D' shaped leading edge boxes of ply, with ribs covered in fabric. The wing is of NACA 23012 section made in three parts, the centre-section basically 'H' shaped. In plan form the bar of the 'H' being the main spar-to-fuselage joint. The outer detachable panels merely bolt on to spar lugs - the aileron links also break here. A laminated mainspar is used, the twin rear spars having a ply web. Built-up ribs with ply webs are used, the whole wing being ply-covered although the ailerons may be fabric or ply covered - the latter with a slight weight penalty. Aileron construction is similar to the rudder and elevators, except that a mass balance is used. The centre section/fuselage joint, and dihedral joint are faired-in with light alloy covers.

The undercarriage units are rubber in compression, and are purpose built, although alternatives are those of Jodel/Condor type, while the canopy is cut-down from an RF-4 unit.

Both G-ATLY and G-AWHV have changed considerably in the last year, and now use the 'cleaner' *Cassutt* type front fairing, G-AWHV even has a fuselage mounted sprung undercarriage - these modifications being proved in racing when possible, and if successful any *Beta* builder can make use of them, by means of the Bulletin Service.

Many combinations of cowlings, spats and spinners are shown on the drawings for *Blue Chip* G-AWHV, and *Foreunner* G-ATLY, and consequently modellers would be well advised to 'back their guess' with photographs, especially if modelling a *Beta* seen on a specific occasion, at a certain meeting.

The *Beta* is a very pretty and aerodynamically very 'clean' aeroplane, fast and normally aerobatic, so it is obviously well within the original competition requirements, and as last year proved, is providing Formula 1 racing with another reliable competitor. More amateur-built *Betas* are nearing completion so perhaps 1971 will see lots of close competitions between them.

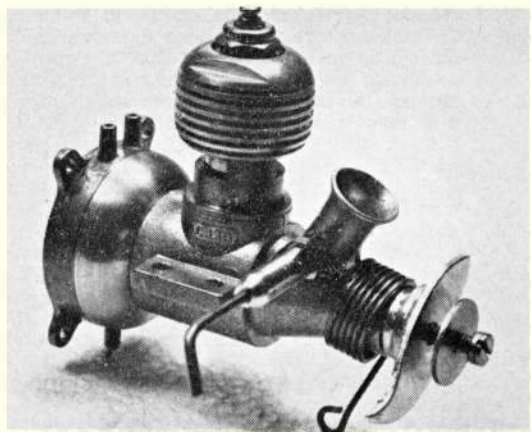
not provided with drawings of spats or cowlings - individuals may style these as they wish. If, however, cowlings are purchased from Rollasons, then the shapes may be chosen from any of those on the drawings provided.

So much choice is provided by Rollasons that one may buy an information package for £1.00, a set of plans at £28.50 or a ready-to-fly *Beta* to colour of your choice for £3,750.00. Between the last two prices are a vast number of 'break down' units in a bewildering variety of permutations, at varying prices.

At Redhill I visited the loft birthplace of the *Beta*, presided over by Bill Booth, where amongst jigsaw, sanders, drills etc. a *Beta* broken down in to its various sub assemblies stood resplendent in its fabric-covered



Home of the Tiger Club is at Redhill in Surrey, on the fringe of the Gatwick approach area, but despite this limitation an extremely active sporting flying centre, where we were given full facilities to produce the information in this feature.



THE *WASP* is an entirely new engine from Davies-Charlton Ltd., intended for beginners and those whose interests lie in baby glow engine models. At only £2.99, it is slightly cheaper than the same company's *Bantam*, but is a more up-to-date design and offers more performance. It comes equipped with the D-C Quickstart spring-starting device and optional extras include two types of fuel-tank permitting a choice of beam or radial mounting.

AEROMODELLER'S test sample was a pre-production unit that was collected by managing editor Ron Moulton during a recent visit to the D-C factory in the Isle of Man. The first production motors should be reaching the shops by the time of this report.

SPECIFICATION

Type: Single cylinder, aircooled glowplug ignition two-stroke with crankshaft type rotary-valve induction and spring starting device.

Bore: 0.407 in.

Stroke: 0.389 in.

Swept Volume: 0.0506 cu. in. = 0.829 c.c.

Stroke/Bore Ratio: 0.956:1

Weights:

43 grammes - 1.52 oz. (less starter, less tank, less silencer).

46 grammes - 1.62 oz. (with starter, less tank, less silencer).

48 grammes - 1.70 oz. (with starter and cylindrical tank, less silencer).

59 grammes - 2.08 oz. (with starter, cylindrical tank and silencer).

71 grammes - 2.50 oz. (with starter, radial tank-mount and silencer).

General Structural Data

Pressure diecast aluminium alloy crankcase and (unbushed) main bearing unit. Hardened and ground counterbalanced crankshaft with 9/32 in. dia. journal, 3/16 in. bore gas passage and 7/64 in. dia. crankpin and drilled and tapped for prop retaining screw. Non-hardened cylinder, externally threaded and flanged at base for attachment to crankcase and externally threaded above exhaust ports for attachment of cylinder jacket. Lapped steel piston, hardened on skirt surface only, with integral cup for hardened steel ball ended connecting-rod. Machined aluminium alloy screw-on cylinder-head with separate short-each glowplug. Machined aluminium alloy screw-in backplate, interchangeable with optional cylindrical or radial mount tank units. Machined aluminium alloy prop driver pressed onto knurled crankshaft end. Starter spring of 19 SWG steel wire anchored by brass spraybar assembly, 18 SWG aluminium starter pawl.

TEST CONDITIONS

Running time prior to test: 30 minutes

Fuel used: Keilkraft Nitrex-15

Air temperature: 64 deg. F

Barometer: 29.75 in. Hg

Silencer: D-C Quickstart absorption type with collector-ring

Peter Chinn's

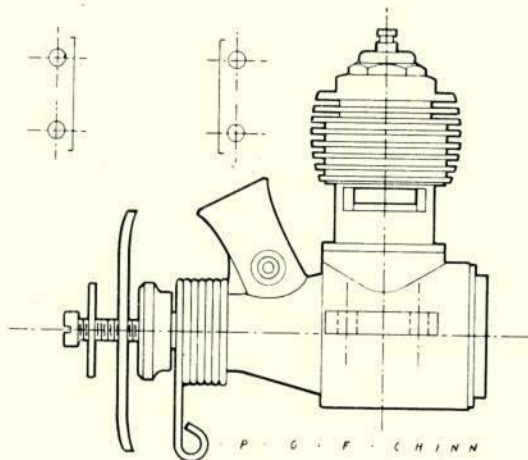
ENGINE TEST



DAVIES CHARLTON

QUICKSTART

"WASP"





Developed under the personal supervision of Heffin Davies at the Douglas, Isle of Man, works, the Wasp has been subjected to intensive pre-production tests. At left, Heffin Davies is checking out the needle setting on a test motor being held at 17,000 r.p.m.

The cylinder screws into the crankcase and continues the Bantam practice of having the cooling fins and cylinder-head in a single unit that screws over the upper part of the cylinder. A composition gasket is used between the top of the cylinder and the head. An integral glow filament is not used: instead, the engine is fitted with a normal replaceable glowplug, i.e. a K.L.G. EG.98 short reach. Incidentally, like other K.L.G. plugs, this is .325 in. across the flats instead of the 5/16 in. used by many other makes, and needs a 2 BA spanner (or DC's special spanner).

The crankshaft is much hefty than the Bantam's and incorporates a crescent counterbalance. It has a generous 9/32 in. dia. journal (Bantam: 13/64) and a generous gas passage. The aperture through the main bearing gives a 156 degree induction period, closing at 40 deg. ATDC. It is supplemented by a sub-piston air induction period via the exhaust port of approximately 50 degrees.

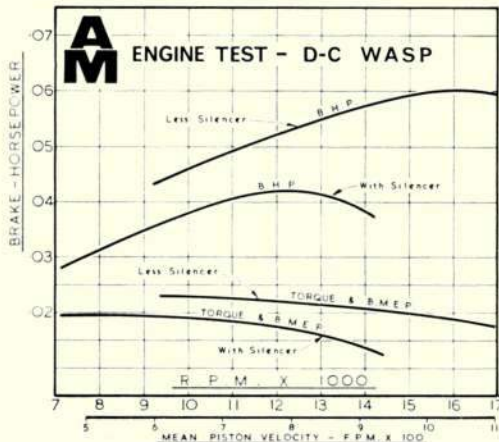
Our engine was supplied with three backplate

The design of the Wasp is quite a bit different from that of the Bantam and shows a certain amount of American influence, particularly in regard to the piston/conrod assembly, cylinder and crankshaft.

Instead of an aluminium connecting-rod coupled to the piston in the normal manner by a gudgeon-pin, the Wasp uses a hardened steel conrod with a spherical small end. This is inserted into a cup suspended from the underside of the piston crown, the edge of the cup then being spun over to retain the ball. To keep the metal ductile for this latter operation, the entire piston, with the exception of the skirt o.d., is first copper plated so that only the rubbing surface is exposed during the subsequent hardening process.

In place of the radial slit type exhaust and transfer ports of the Bantam, the Wasp has the more fashionable arrangement of two large, rectangular, diametrically-opposed exhaust ports with internal flute type transfer ports between them. This offers better scavenging than the Bantam set-up, together with the opportunity of extending the transfer period although, in the case of the Wasp, the transfer period is still fairly short at about 100 degrees of crank angle. The exhaust period is 132 deg.

Below, top photo shows the range of accessories available for the Wasp with the two tank variations for beam or radial mounting, and the silencer unit with its collector and separate manifold. Bottom photo illustrates the component parts of the standard Wasp with its new departure connecting rod with ball and socket little end fitting in the piston, and the entirely new crankcase casting with its impressive intake trumpet.



Wasps by the hundred in the Davies Charlton test room. The stages of assembly are each undertaken by personnel dealing with particular parts. The engine is then passed to the Test Room, where by means of a quick mounting system, the engines are checked for operation - a unique service for such an inexpensive motor.



units. The first of these was the standard type fitted to the engine. The second was simpler but with the addition of a tapped centre boss for a cylindrical type tank. Both these are for use with beam mounting. The third type, incorporating a large diameter bell-shaped tank includes a diecast zinc alloy radial mount.

To enable the Wasp to be fitted with the 'Quick-start' bent-tube 'silencer-manifold,' a machined exhaust collector-ring is available. To fit this it is necessary to remove the cylinder jacket and clamp the collector ring between the cylinder base flange and the cooling jacket.

Performance

The Wasp is fitted with D-C's familiar starter spring unit and, generally, this gave a more positive start than normal prop flicking. Our engine liked to be fairly 'wet' for starting, needing either a prime into the exhaust port or (when the silencer prevented this) a few drops of fuel into the carburettor intake.

Tested without the silencer, power was a great deal better than was achieved in tests of the Bantam and Bantam De-Luxe in 1960-63. Making due allowance for different fuels, the bhp developed by the Wasp would appear to be a good 50 percent better than the earlier engine.

Typical prop rpm recorded on Nitrex fuel and without the silencer, included 11,500 on a 6x4 Top-Flite nylon, 13,000 on a 6x3 Tornado nylon, 13,100 on a 6x3 KielKraft nylon, 14,800 on a 5x4 Tornado nylon, 16,700 on a 5x3 KeilKraft nylon and 17,100 on a 5x3 Tornado nylon. These are quite good figures, particularly at the top end and the peak output of 0.6 bhp at just over 16,000 rpm is well up to performance expected of the .049 (0.8 c.c.) glow engine.

It is a rather different story when the collector-ring and silencer unit are fitted. Quite apart from the power loss caused by back pressure resulting from the steel-wool packed outlet pipes, the fact that the piston skirt uncovers the exhaust ports at the top of the stroke undoubtedly results in exhaust gas being drawn into the crankcase thereby diluting the charge. The overall effect on test was to knock 1,000 rpm off the engine's speed when loaded for speeds around the 10,000 rpm mark, rising to more than 2,500 rpm at the top end. Torque fell off much more rapidly and as a result, power levelled out at around the 12,000 rpm mark with a 30 percent drop in peak bhp.

It was noticeable that the engine ran more steadily with the silencer removed and that the needle setting then necessary to achieve the best performance, was less critical. Incidentally, the silencer cannot be fitted in the normal position when the radial tank-mount is used as the latter's top mounting lugs get in the way of the tailpipes. The solution here (depending on the model in which the engine was installed) would be to shorten the tailpipes and/or turn the manifold sideways, and/or relocate the backplate so that the engine can be mounted with the cylinder horizontal.

To sum up, the Wasp is easy to start and, unquestionably, a great improvement on the Bantam as regards performance. It is pleasing to find that this has been achieved with a *reduction*, rather than an increase in price.

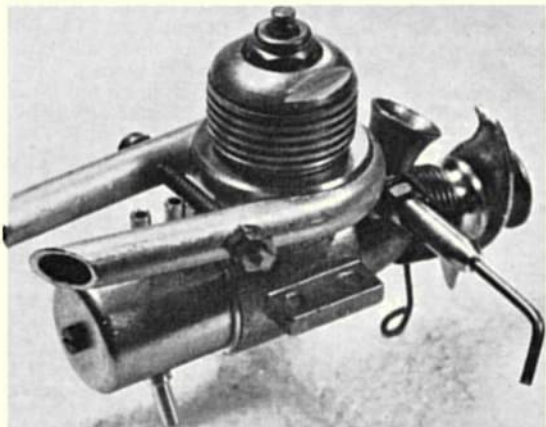
Power/Weight Ratio (as tested):

0.34 bhp/lb (less tank with starter, with silencer)
0.59 bhp/lb (less tank with starter, less silencer)

Specific Output (as tested):

51 bhp/litre (with silencer)
72 bhp/litre (less silencer)

Fitted with the 'barrel'-shaped tank, the collector ring and exhaust manifold, the Wasp is readily adaptable to free flight or control line. It can also be radially mounted as seen in the heading photograph for this test feature.





NO – it's not a plastic!

Doug McHard, the maestro of mini-scale
tells how to make a 1/36th scale rubber-driven

GLOSTER GLADIATOR

THERE IS NOTHING particularly difficult about building the *Gladiator* and all the information needed by anyone who has previously built a flying model, is shown on the full sized plan. Further details clarifying the basic assembly may be gleaned from the accompanying photographs.

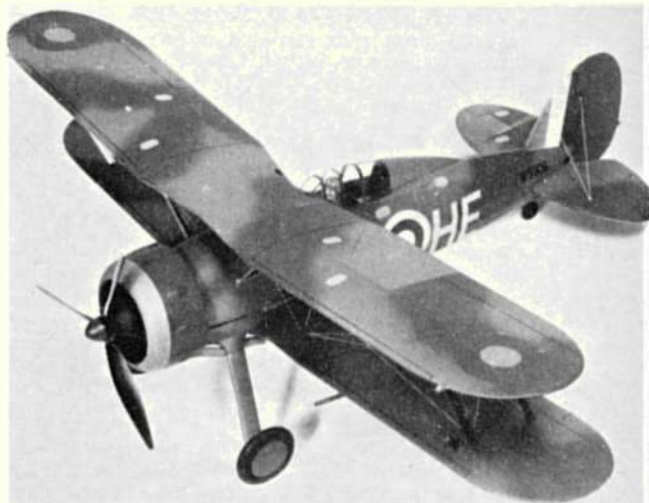
The model is not recommended as a first attempt, since workmanship must be accurate, and warps – a seemingly essential part of any first try – are to be avoided at all costs! It is also important to keep the weight to a minimum and, if adequate strength is to be maintained, this largely depends on careful material selection and the use of no more adhesive than absolutely necessary. Heavy wood, globs of glue and excess dope can double the weight in no time and this would destroy any chance of a satisfactory flying performance.

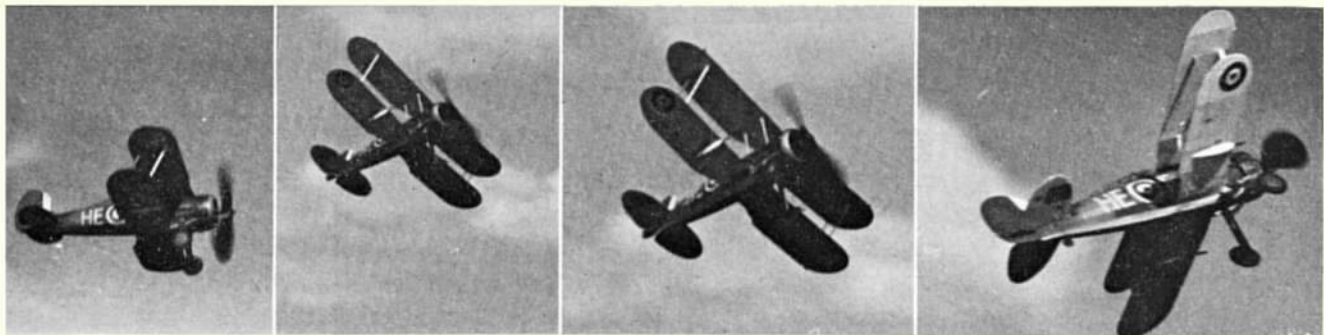
Don't be too discouraged by these remarks – just keep weight and workmanship in mind *all* the time and your Peanut Gladiator will be a winner.

In designing the model I have avoided over-sophistication. For instance, it would certainly be possible to reduce the weight below the 18g (0.6 oz.) of the original, if (a) material cross sections were reduced and (b) colour dope omitted.

Fitted with scale propeller to take away the enormous paddle effect of the flying prop, Doug's Gladiator is difficult to distinguish from a well built static scale plastic model – or even the real thing at some angles. Colour scheme patches are from the 'Profile' monograph on the Gladiator.

However, the first would put the construction into the 'experts only' class, and the second would have reduced the model's photographic appeal. If though, you have no spray gun enabling the application of a *really* thin coat of colour, then don't use colour dope at all. The weight of even one brushed-on coat of colour dope will certainly reduce flying performance.





Use coloured lightweight tissue (Jap if you can get it), steamed to shrink it, and given one thin coat of clear dope to strengthen and seal the pores.

If you cannot get 1/64th in. sheet balsa for the fuselage forward covering, reduce thickness of some 1/32nd in. by using fine sandpaper on a flat block and sanding away from the holding point. Sand both sides to avoid warping unduly. Do this over a perfectly smooth surface and sand along the grain. You only need about a foot of 3 in. wide material, so this is not such a chore as you might imagine. If you are still not sure - use cartridge paper for the forward fuselage covering.

When constructing the wings, note that the rib spacing is not the same on both upper and lower wings although the span is uniform. Build the wings over the plan in the normal manner but do not fix the upper spar until the dihedral has been set.

The wing tips of the upper wing should be propped up $\frac{1}{4}$ in. before cementing the leading and trailing edge joints at the dihedral break point. This will avoid the need to crack the wood. In the case of the lower wing, the leading and trailing edges should be cut and re-cemented where the dihedral commences (minor constructional differences will be noted between plan and photographs - follow the plan!). The wingtip and tail outlines are easily made by laminating 1/64th strips, using P.V.A. glue thinned 50/50 with water to produce a creamy paste. Soak the strips in the thin glue, then bend altogether round a waxed cardboard

One, two, three, four . . . round the local park as Doug's faithful Leica records the flight! What a beauty. It could almost be back to those wartime days of 263 Sqdn.

or balsa former. Allow to dry overnight.

This construction is strong and light but if you prefer, of course, you can form the tips by cutting sectional pieces of 1/16 in. sheet in the more conventional fashion. It's surprising how frightened modellers sometimes become when faced with a laminated structure like this. In fact, it's much easier than a sheet-fashioned shape; lighter, stronger and looks better, too - try it!

The whole cockpit blister (including the cabin fairing) is moulded from 5 thou. acetate over a wooden former, and is attached neatly to the fuselage by running thick clear dope round the join line. The cockpit can be fabricated from flat acetate if you don't like moulding. Do, however, use only *thin* acetate - it's heavy!

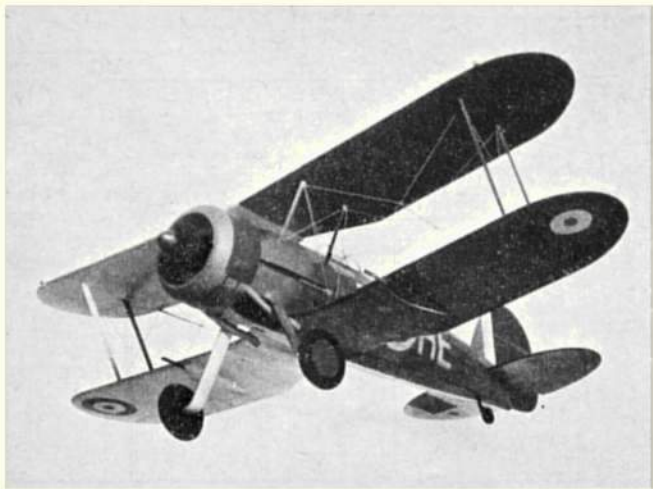
Wheels are balsa discs bushed with aluminium tube. Roll this tube from shim if you can't buy a fine enough gauge. Retain the wheel with a spot of solder in a countersunk wheel centre and cover the hub with a disc of acetate moulded to a shallow dome.

Leave a small gap at the top of the u/c leg fairings to enable the legs to flex to absorb landing shocks. Notice that the 22 s.w.g. wire passes in front of the lower ends of former 6, uprights, and behind the former 6 crosspiece at the top - cement well.

The whole of the fuselage underside between formers 6 and 8A is covered with sheet, which is later cut away to allow the lower wing to seat properly. The correct incidence angle is automatically achieved by butting the wing spar against the lower longeron, the trailing edge is located flush with the lower edge of former 8A.

When assembling the upper wing to the fuselage, sharpen the lower ends of the bamboo cabane struts, and carefully press them into the locally reinforced upper fuselage longerons at the angles shown. Coat the ends with P.V.A. glue before inserting. Press the upper strut ends into the 1/16 in. ribs R-1 and adjust the incidence angle before the adhesive hardens. Do not cement the upper ends of the struts, but allow the fuselage/lower strut joints to set, then remove the wing and cover it before re-inserting the struts in the original rib holes and securely cementing in place, carefully rechecking incidence and 'squareness' from all angles.

Undersides in black and white. Colour discs on the wheels, top surfaces camouflaged dark green and dark earth, the Gladiator is ready for action - at an all-up weight just a shade over half an ounce.

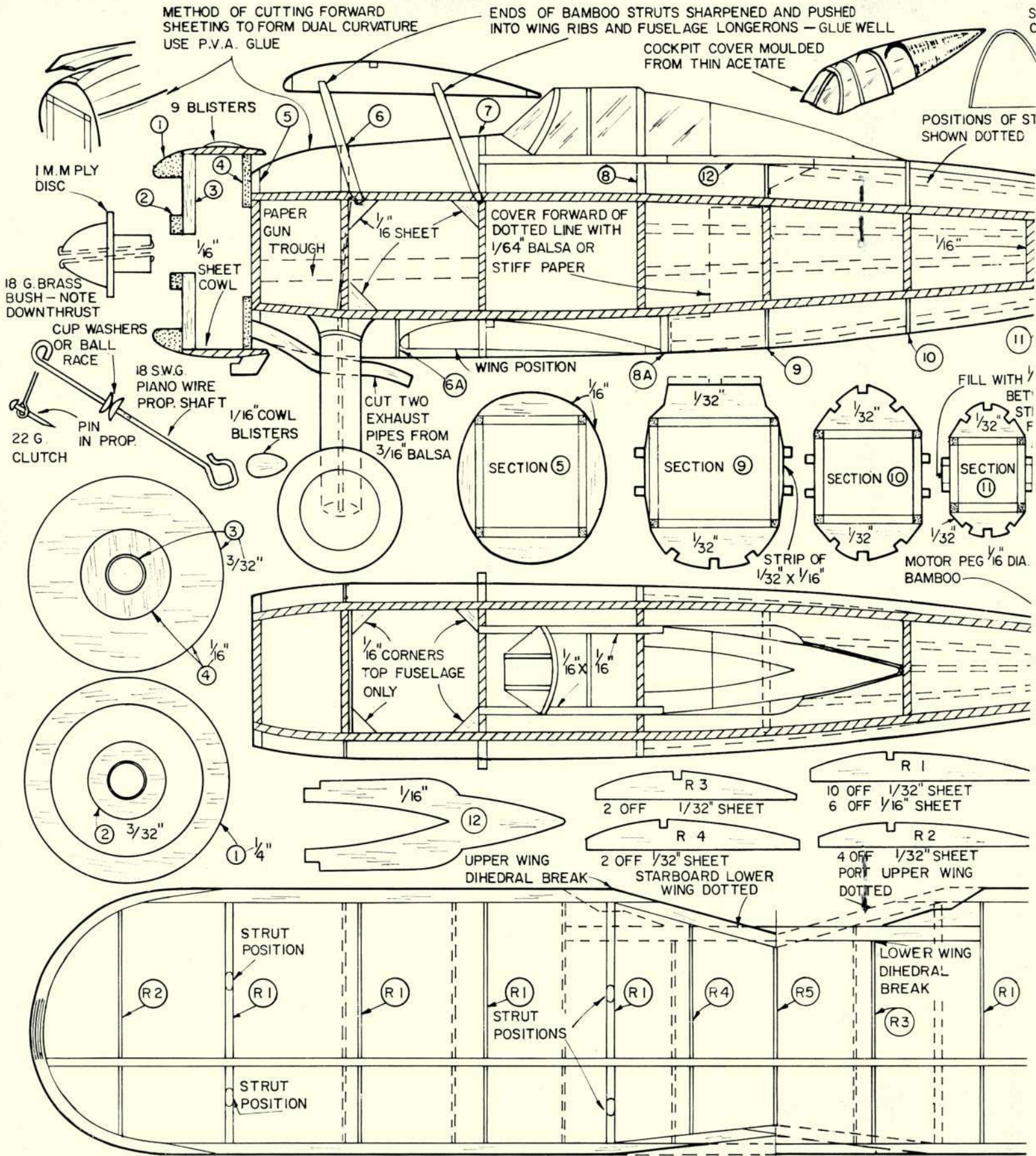


METHOD OF CUTTING FORWARD SHEETING TO FORM DUAL CURVATURE USE P.V.A. GLUE

ENDS OF BAMBOO STRUTS SHARPENED AND PUSHED INTO WING RIBS AND FUSELAGE LONGERONS — GLUE WELL

COCKPIT COVER MOULDED FROM THIN ACETATE

POSITIONS OF STRUTS SHOWN DOTTED



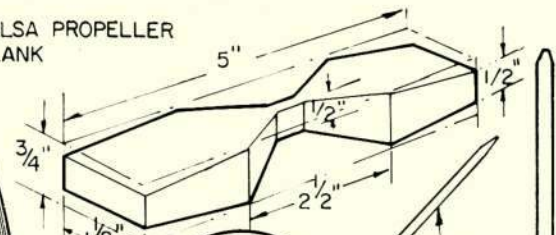
SHARPENED AND PUSHED
 GE LONGERONS — GLUE WELL
 IT COVER MOULDED
 THIN ACETATE

SECTION OF
 COCKPIT COVER

BALSA PROPELLER
 BLANK

POSITIONS OF STRINGERS
 SHOWN DOTTED

$\frac{1}{16}$ " SQ.
 ELEVATOR
 POSITION



SPLIT
 BAMBOO
 STRUTS
 TRUE STRUT
 LENGTH

CUT OUT GUN
 TROUGHS
 AFTER
 COVERING
 FORWARD
 FUSELAGE

CEMENT WIRE
 BEHIND TOP
 CROSS PIECE

SECTION 6

SOFT BALSA
 FAIRING

WHEELS ARE TWO
 LAMINATIONS OF
 $\frac{3}{32}$ " SHEET

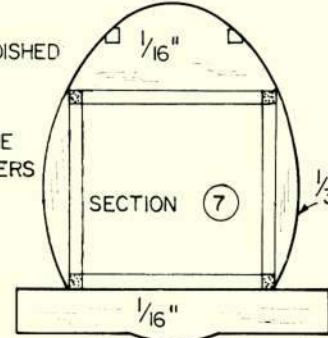
6A $\frac{1}{32}$ "
 U/C LEG FROM TWO
 LAMINATIONS OF $\frac{1}{16}$
 SHEET

U/C FROM
 22 S.W.G.
 PIANO
 WIRE

FINISHED SHAPE
 OF U/C LEG

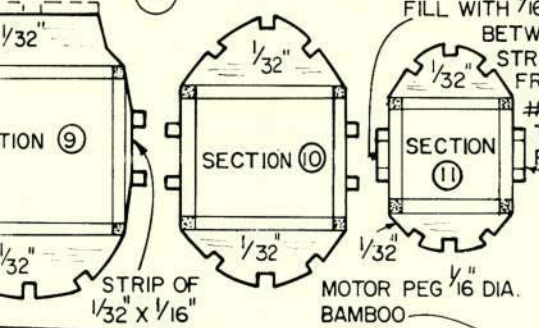
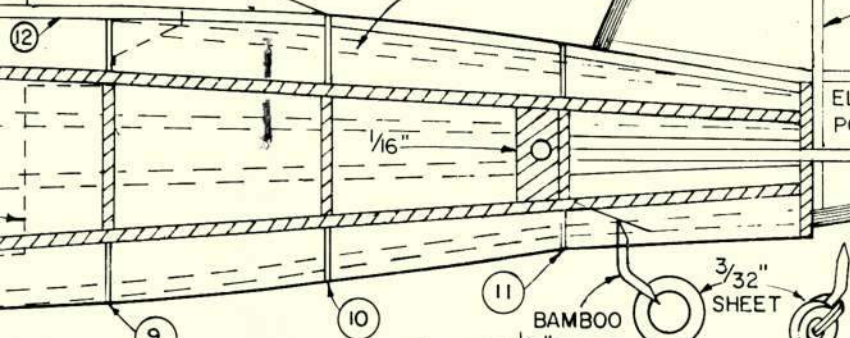
WING
 STRUTS
 (4 OFF)
 $\frac{1}{16}$ " x $\frac{1}{8}$ "
 BALSA

ACETATE DISHED
 DISC.



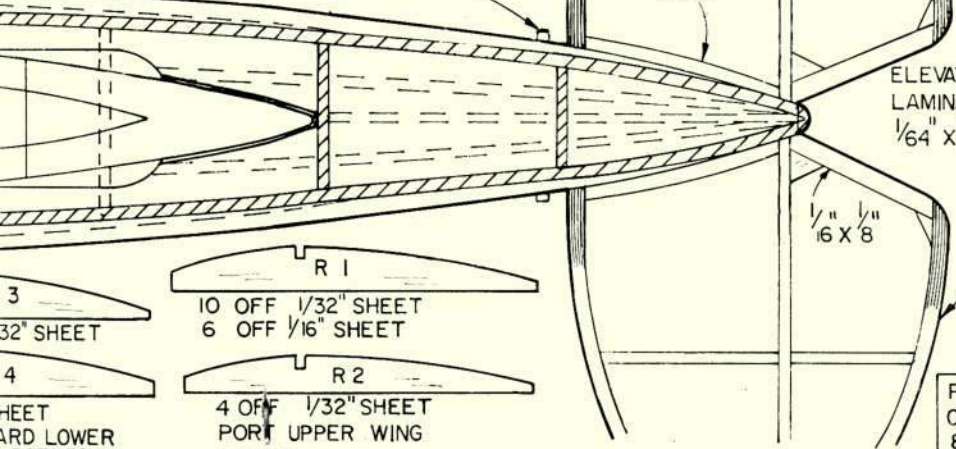
ELEVATOR OUTLINE
 LAMINATED 5 LAYERS
 $\frac{1}{64}$ " x $\frac{1}{16}$ "

SECTION 7



FILL WITH $\frac{1}{16}$ " SHEET
 BETWEEN THESE
 STRINGERS
 FROM
 # 11 TO
 TAIL
 POST

MOTOR PEG $\frac{1}{16}$ " DIA.
 BAMBOO

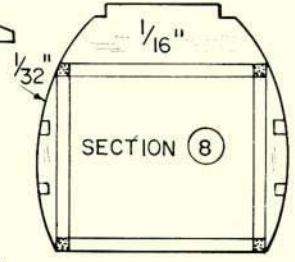


R 1
 10 OFF $\frac{1}{32}$ " SHEET
 6 OFF $\frac{1}{16}$ " SHEET

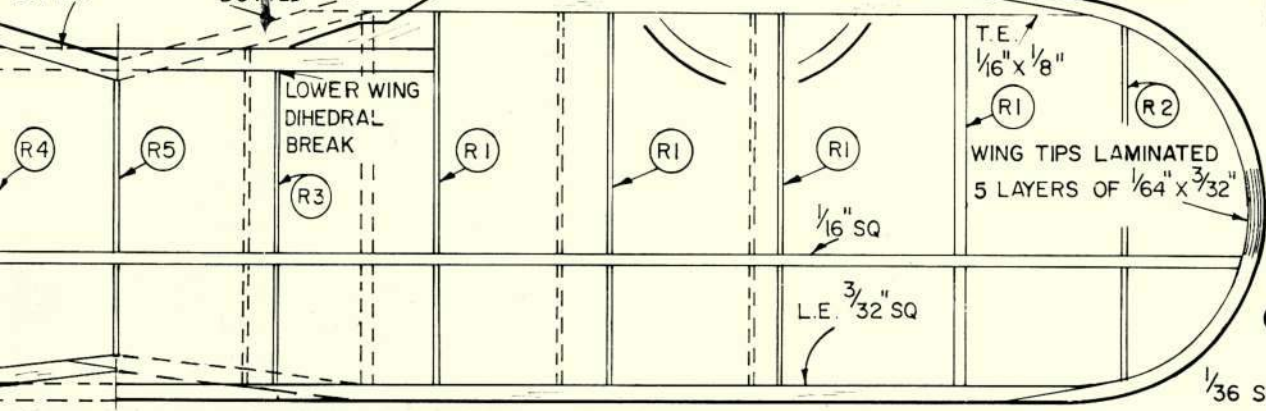
R 2
 4 OFF $\frac{1}{32}$ " SHEET
 PORT UPPER WING
 DOTTED

R 5
 1 OFF $\frac{1}{32}$ " SHEET

POWER IS ONE LOOP
 OF $\frac{1}{16}$ " FLAT RUBBER
 8" LONG



SECTION 8



LOWER WING
 DIHEDRAL
 BREAK

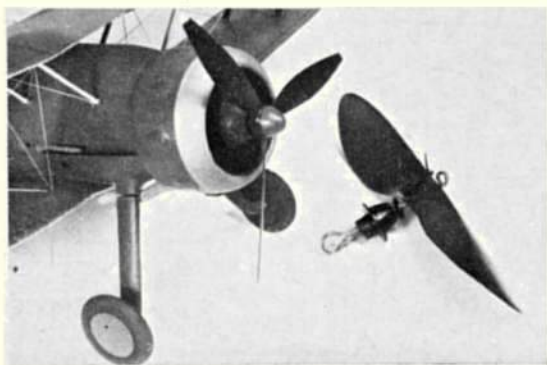
T.E. $\frac{1}{16}$ " x $\frac{1}{8}$ "
 R 1 R 2
 WING TIPS LAMINATED
 5 LAYERS OF $\frac{1}{64}$ " x $\frac{3}{32}$ "

L.E. $\frac{3}{32}$ " SQ

GLOSTER GLADIATOR II

BY J.D. McHard

$\frac{1}{36}$ SCALE FREE FLIGHT



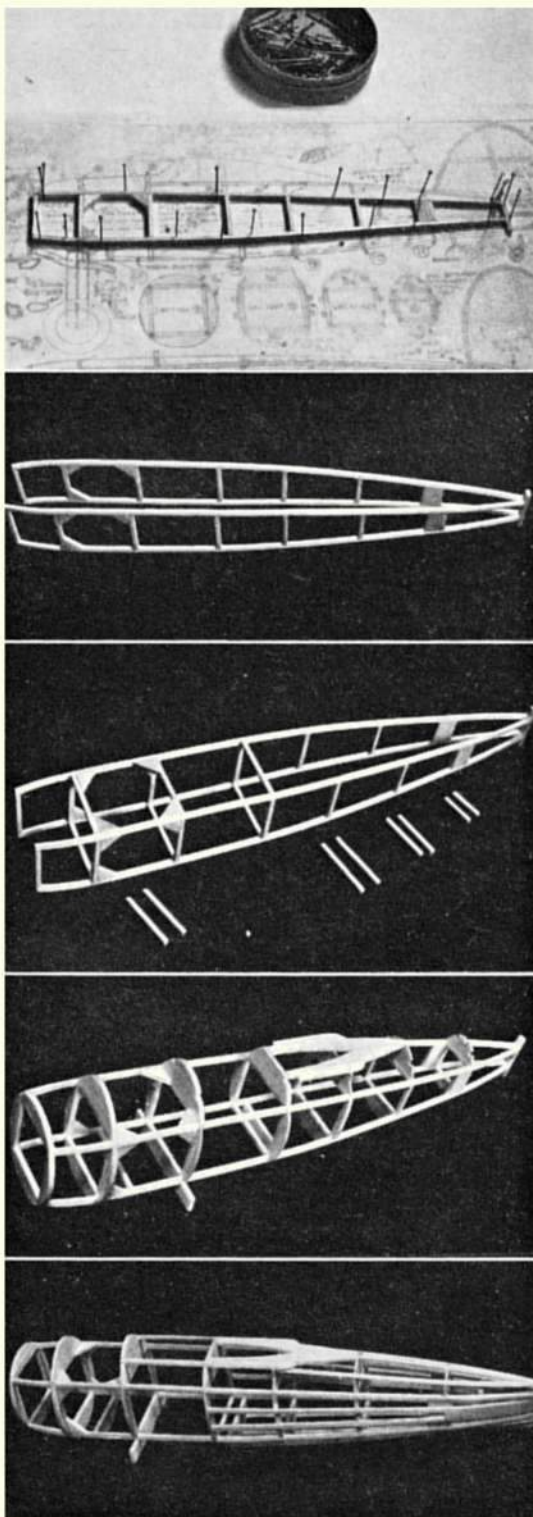
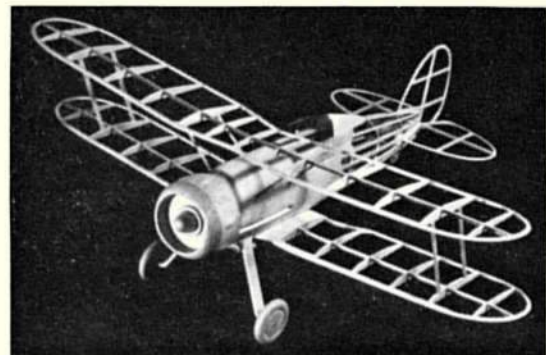
Above: the two propellers. 3-bladed for static appearance and the paddle blades for flight. Note the free-wheel clutch used on the big prop, see plan for details. Note also the angled drilling through the nose plug to obtain variation in thrust line trim.

P.V.A. or Alphatic Resin glues give you time to adjust such settings before starting to harden and for thin sheet work there is not the shrinkage distortion that always results when balsa cement is used. These glues are strongly recommended for the entire construction of the *Gladiator*.

The angled bushing in the nose-plug enables the thrust line to be varied by rotating the plug in the cowling hole. When the position has been found - **mark it!** The plug should be a snug fit in the cowling to prevent its rotating in flight.

The *Gladiator* will fly in either left or right-hand circles, but left is perhaps safest for initial tests. Add a little Plasticine to the nose if the model stalls on gliding. The original needed no trimming at all with its 'Hangar flying motor' (four strands of 3/64 in.) but a little nose weight was required when an out-door motor (two strands of 1/8 in.) was fitted.

Right: top to bottom. The basic structure of the *Gladiator* has been deliberately kept simple. First photo shows the side assembled directly over the plan. Utilise the hatched areas on the drawing to indicate the basic structure. Next photo shows the two sides at first stage of assembly, joined at the sternpost. Centre photo has the spacers joining the main frames at points 6, 7 and 8, with other spacers ready to be fitted. Then the 1/16th and 1/32nd frames are added to the basic frame, and in photo below right, rear fuselage stringers are fitted. Complete airframe, ready for covering is seen below. Encouraged? Come on, let's see those *Gladiators* airborne in the Clubroom.





Malcolm Ross (left) the pitman, and Derek Heaton the pilot are a familiar sight in their blue track suits at every major event in the country, where they have a habit of performing rather well!

**Going
Racing?
Why not try
this highly
developed
model?**

F.A.I. Class Team Racer

TIMETA

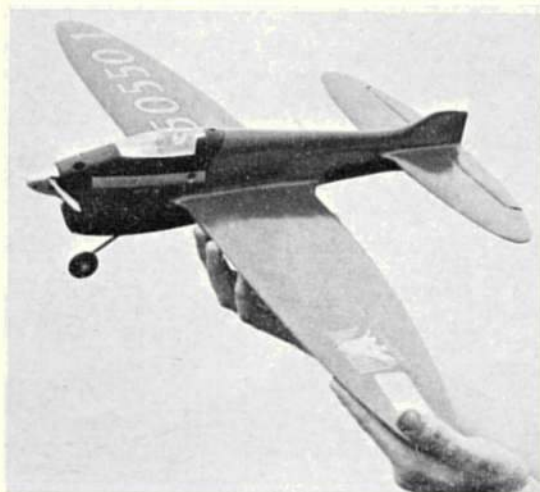
by Derek Heaton and Malcolm Ross

OUR TIMETA MODELS have been developed over the past five years and in this time we have experimented with a wide range of tanks to achieve maximum consistency, and have found that the simplest and most reliable has been the straight, single cell version - as drawn on the plan. The latest addition to this has been a fuel cut-off system (operated by down-elevator movement), and although this does not necessarily mean faster pit stops, it does allow the engine to be cut at the best possible point of the circle for consistent, quick stops - it also allows immediate adjustments to be made to the engine in the event of a poor run. A good example of this occurred during the 1970 World Championships when the engine began to harden up around the 84th lap mark. Derek immediately cut the motor enabling Malcolm to richen the needle, losing very little time - certainly less than otherwise would have been the case. The pressurised re-fueling system (based on a Volkswagen windscreen washer bottle) although not essential, does help and at least leaves the right hand free to catch the model! By using a cast aluminium engine mounting plate the heart of the system (engine/tank/cut-off) may be lifted in and out of the model without any trouble or risk of disturbance.

Construction is centred on choice of the pan. The designers can supply suitable pans, or else a commercial unit may be used, adapting the fuselage shape to suit. It is very important to fit the engine to the pan so that there is no 'rock' on the engine lugs - this can be done with a sheet of emery paper on a flat surface i.e. surface plate

Smooth, functional lines of the Timeta are just part of the reasons for success - much practicing of flying and pitting are essential before you can manage sub-five-minute times for the 10 kilometre heats. Although of simple appearance, much detail design has gone into this racer.

or sheet of glass. Once the engine is seated squarely, drill and tap all the mounting holes. Using the pan as a template, drill the mounting holes in the beech bearers. Recess 6 B.A. mounting nuts into the underside of the bearers, and epoxy them in position. Now bolt the pan to the bearers and mark them to suit the curves of the pan, as well as to fit snugly around the engine lugs and needle valve. Remove to carve and sand to shape. Once more refit the pan to the bearers, and add the $\frac{1}{4}$ in. balsa crutch followed by the $\frac{1}{4}$ in. x $\frac{3}{8}$ in. spruce strengtheners.



Cut out the spaces for the wing and tail, and glue in position. Check the controls for free movement, then cement the upper block securely in position.

The undercarriage block is made from two pieces of $\frac{1}{8}$ in. ply. Fret out the lower piece to fit snugly around the U/C leg, then epoxy to the upper piece, clamping in place using the aluminium cover plate and 4 B.A. bolts - epoxy the nuts securely to the plywood. When set, carefully recess the bottom $\frac{3}{8}$ in. lamination to fit snugly around this block, and glue both securely in place. Carve and file to follow fuselage contours when dry.

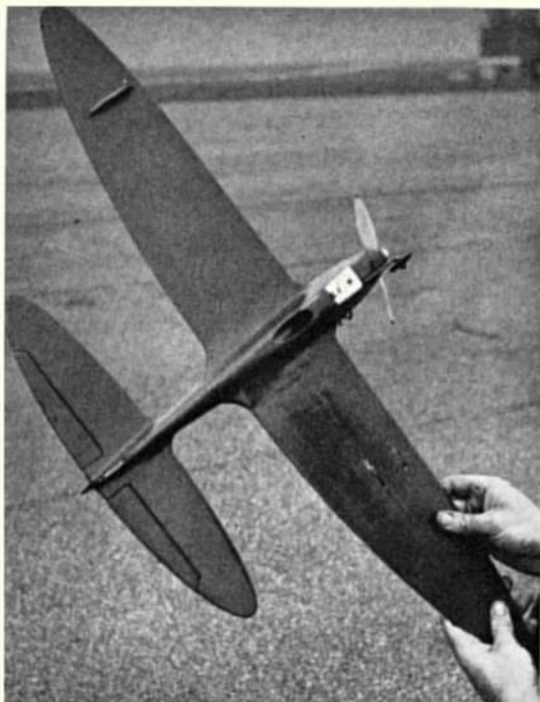
Add the top block and cut away the area for the cockpit. Carefully cut away the detachable portion using a fine-toothed saw. Add 1/16 in. ply. facing to rear of this portion as well to the underside. Install pilot, paint cockpit area, then add the canopy. Add the two 6 B.A. hold-down bolts, and form the air inlet. Finally, add wing fillets by building up from soft balsa, followed by the tail skid, let into the rear fuselage.

Sand the entire model smooth - remembering that the final finish depends on this being performed thoroughly. Apply two coats of clear dope and completely tissue cover the entire model. Follow with more coats of dope or sanding scaler, rubbing down between each coat, until you have a very smooth finish. Use any colour decoration you wish, followed by your S.M.A.E. number.

Now a few words on the hardware. Firstly the engine - we have used ETA 15s exclusively in this design, nearly all in basic form. We have found however that this engine must be taken apart after each day's flying and thoroughly cleaned and de-lacquered. This can be done by using a worn-out 'Scotch-brite' cleaning pad and washing-up liquid used under the tap. Scrub the piston, liner and contra piston until all traces of colour have been removed. The 'Scotch-brite' pad cannot damage the surfaces. Dry thoroughly with tissue paper, then reassemble using '3 in 1' lubricating oil. We have found that up to 10 m.p.h. can be lost with a dirty engine. The only other 'mods' we do to the engine are to balance the disc and check that the shaft is free-running in its housing.

The tank is made from brass sheet - not too thin a gauge or you may 'blow up' the tank with the filling pressure. The overflow pipe size should be varied to suit your filling system i.e. the bore should be small enough to force the fuel into the engine when filling in order to prime it. If you find that you are flooding the engine when filling, try a larger overflow. The cut-off is made from brass and should be mounted as close to the engine as possible to reduce the time lag on operation. The wheels which we use are made from 1 $\frac{1}{8}$ in. dia. rubber tap washers with homemade steel hubs.

On the flying side we have had most success with Bartels 7 in. x 7 $\frac{1}{2}$ in. Drazek Special glassfibre props trimmed to 6 $\frac{3}{4}$ in. diameter, well thinned and carefully balanced. Recently we have had promising results from a reworked 7 in. x 8 in. Punctillio cuffed-root prop which



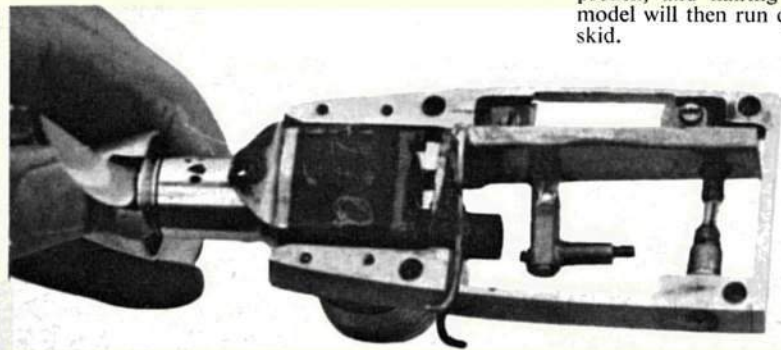
Underside view illustrates easily-changed torsion bar undercarriage leg, wing catching aid and lead-out hatch for reduced drag. Note how monowheel is offset towards the port tip so that model maintains line tension on take-off. Allen screw is used in lieu of comp-screw lever.

was cut down to 6 $\frac{3}{4}$ in. x 8 in., again very well thinned and balanced. This prop does not appear to rev as high as the glass props but also enables the motor to hold steady revs if the pilot gets 'held up' in the centre. With a glass prop the motor soon goes off song if this happens.

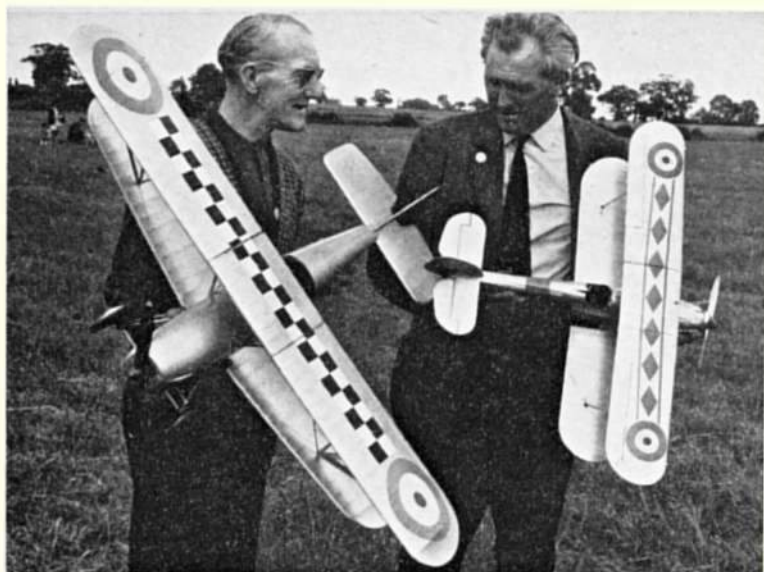
Our fuel brew is 48% Paraffin, 30% Ether, 22% Castor oil or Castrol M to which 3% Amyl Nitrite is added.

To this we have recently added 3% Redex (following a suggestion by Richard King) and although it does not prevent the lacquering, it does seem to slow the process down.

Finally it should be noted that the control set up of the model is based on the pilot using a close-spaced handle. This handle makes the model very smooth to fly and reduces the effect of pilot 'nudgings' - the fewer undulations the model does, the faster it will fly. The model can be landed as fast as the pitman can catch it without undue bouncing, by making a fairly flat approach, and flaring out just before touchdown. The model will then run quite happily on the wheel and tail skid.



Heart of the model is this aluminium crutch carrying the ETA 15, single cell tank and fuel cut-off unit. Note also tank filling valve at bottom right hand corner of picture.



J. Archbold of Leicester with his model of John Isaac's man-carrying model 'Fury' confers with author Eric Coates (holding Nimrod) at our rally for Scale Models, Old Warden. Don't forget this year's great event at Old Warden on 20th June.

Part V Rigging and Wing Attachment by Eric Coates

FLYING SCALE MODELS

THERE ARE BASICALLY two types of wing structure in which we are interested: those that are braced, and cantilever wings. Almost all biplane wings, with the exception of Fokkers, fall into the former category, while monoplanes can be either. The bracing for a monoplane usually takes the form of parallel or Vee struts, running from around the middle of the under-surface of the wings to the lower fuselage longerons. Earlier, i.e. chiefly pre 1914, monoplanes were braced by a multiplicity of wires running to a kingpost above the fuselage and the under-carriage beneath it.

The reason for the division is that the biplane and braced monoplane wing structure is generally lighter and more flexible than the cantilever wing, which has to have heavy spars in order to carry the bending loads (due to lift) without external assistance. Mechanically it is much more efficient to take-out the lift loads through a high tensile wire, than in shear through a spar, but aerodynamically it is hopeless in terms of drag at speeds much in excess of 250 m.p.h. The drag is not much of a worry to us in the free flight scale world, but it must be appreciated that it results in a much higher rate of sink, with the engine cut, than a corresponding monoplane of similar weight. Also more power will be required to pull the externally braced machine through the air.

As the connection of the wing to the fuselage does not have to carry any bending load (I am speaking of full sized practice now) only a shear load has to be carried, and the connection is usually made by means of a fork-end and pin. The spars have only to be sufficiently strong enough to carry the lift loads to the various attachment points of the wires and attachment pins. Invariably aeroplanes which are wire braced have two spars, to which the interplane struts in the case of a biplane, and

the flying and landing wires are attached. The loads are therefore taken out at four places, in the case of a single bay, and six places in the case of a double bay machine. If we are to build a wing using something like the scale wing section the early machines used, it is essential that we take at least part of these loads out by these points.

Before looking at the wing structure in detail I intend to devote the entire article this month to the bracing, rigging and wing attachments for non-cantilevered models.

In part four of this series, I stated that I considered the piano wire dowel to be the best form of wing attachment for biplanes that I know - it is also one of the simplest, and is shown in Fig. 1

The wire dowels emerge from the centre section and engage with brass tubes, passing through the first two ribs and epoxied to the forward face of the wing spars. This attachment will carry a considerable amount of bending, as well as shear, and if they were substantial enough (10 swg for a 40" span biplane) and provided the wings were thick enough for deep spars, as in the case of most biplanes of the 1930s, then no external bracing would be required. Some method however would have to be found to prevent the wing sliding off the dowels due to engine vibration, rigging normally performing this job. Provided the dowels are no longer than 1", the wing will knock off, or at least 'give' sufficiently in a prang to reduce the risk of damage.

If the wing loads were taken entirely by the rigging wires then a pure shear connection to the wings to the centre section, and fuselage in the case of the lower wings, could be used. For many years I used stub dowels either $\frac{1}{8}$ " or $\frac{3}{16}$ " diameter, protruding approximately $\frac{1}{4}$ " to effect such a wing fixing. The dowels located in the wing 'pick-up' adjacent holes in the fuselage or centre section. Both end ribs need to be faced with 1 mm. ply to take the shear load and so as not to wear out rapidly. Although this method works well for the job intended and is very light, its drawback is that it tends to be too 'knockoffable'. With all but the smallest model anything heavier than a gentle landing results in the wings coming off and the subsequent collapse of the wing cell, with wires and interplane struts flying everywhere. One then spends the next half hour playing that game, peculiar to the F/F

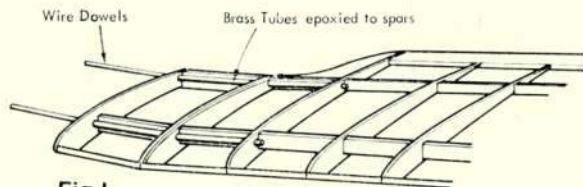


Fig.1

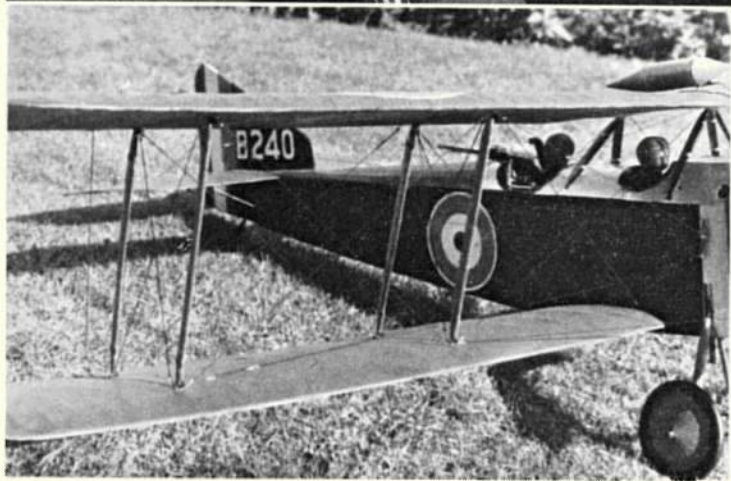
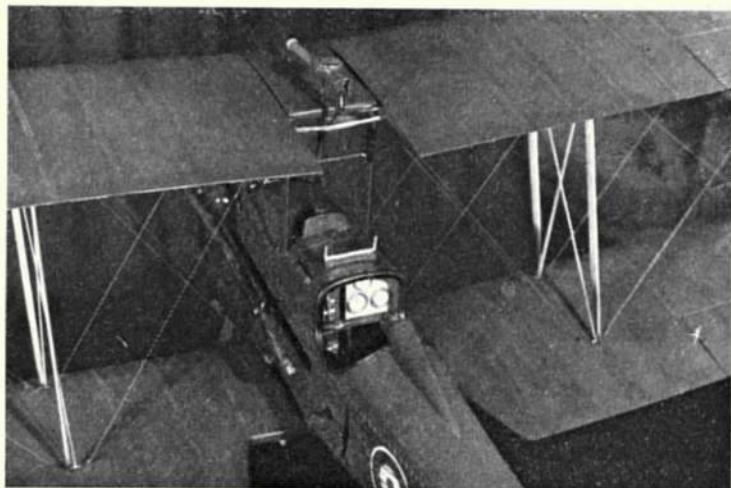
Right, top: the B.E.12b uses the rigging system as shown in figure 5, which provides an invisible method of attaching the wings, yet is still flexible enough to survive a prang. Below: Terry Manley's latest model, an Armstrong Whitworth FK8 uses shirring elastic most successfully as a rigging medium, although the author prefers 'proper' bracing.

scale fraternity, known as 'hunt the landing wire'.

This problem can be overcome, still using the stub dowel wing attachment, on two bay biplanes by making the upper and lower wings of each side into a rigid cell. Either the rigging in the outer bays can be made solid with no 'give', achieved by rigidly attaching it to the respective spars, or the interplane strut attachments to the wing can be made stiff enough to carry bending loads. A simple method of doing this is to fret the interplane struts out of 2 mm. ply in pairs including a dummy section of rib; as shown in Fig. 2.

Double ribs are fitted to the wing structure at the interplane strut stations. After the wing is covered the material is removed from between the ribs, and the necessary spars cut to allow the interplane struts to be inserted. Bracing wires in this case then can be of shirring elastic as it is called upon to do no work. The wing cell is quite stiff within itself. I used this method on my first powered F/F scale model, the Avro 504K, also on my D.H.9a and finally on the Rumpler C.V. before abandoning the system. The major drawback of this system is that although it works extremely well when the wings receive a backwards blow, should the models fall on a wing tip then the bending load, at the roots of the interplane struts, very often fractures the plywood. The only possible repair being to remove the pair of interplane struts and fit new ones. After the third time one becomes bored with the operation! It is quite suitable though for a knock-about lightweight job. For a contest machine today, however, it is hopeless both from a strength point of view (contest winners are heavy) or from the appearance aspect. There are two other acceptable methods of attaching interplane struts to a wing in my mind - both allowing the struts to be made individually. The first I used for many years, chiefly for single bay machines of which the Bucker Jungmann and the Blackburn Ripon are examples.

Fig. 3 illustrates this type of strut which consists of nothing more than a $\frac{3}{8}$ " dowel ($\frac{3}{16}$ " for larger models) faired with hard balsa. The ends of the strut locate in hard balsa sockets glued to the spar and adjacent wing rib. Rubber bands are used for incidence wires and the tension of these keeps the strut pulled securely into its sockets. This is undoubtedly a very simple, light and neat interplane strut, very suitable for single bay machines, but unfortunately flies off rather easily in a prang; particularly if used with stub dowel wing attachments.



A type of fitting which holds the interplane struts more securely, yet is flexible in a heavy landing or crash, is shown in Fig. 4. Here the strut must be made of spruce, for strength, as it must take much more punishment than the fly-off variety.

The ends of the strut are slit with a 'Junior hacksaw' and a tinplate insert epoxied in. The 20 s.w.g. (18 s.w.g. for larger machines) clips are bent to be a tight fit on the spar to which they are epoxied; after the wing cell has been temporarily rigged for the first time. The interplane struts can be retained either by a short piece of rubber tube (the insulation from 2 amp copper wire is ideal) or more permanently after the model is trimmed, by soldered

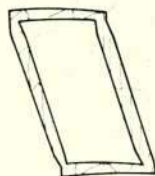


Fig. 2

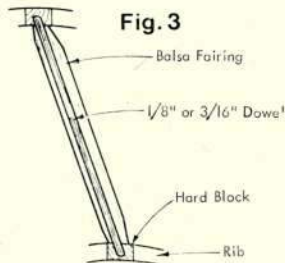
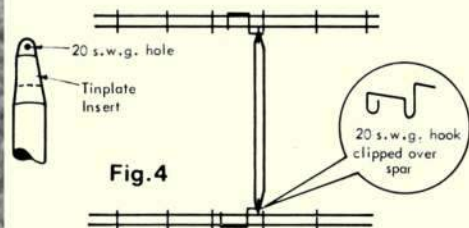


Fig. 3



Ken McDonough's D-C Dart diesel-powered Instone Airlines D.H.4a weighs only 8 oz. fully rigged and ready for free flight.



washers. This method of interplane strut retention is particularly suitable for 'N' struts; used on the last generation of biplanes such as the Nimrod, illustrated in previous articles. For these later biplanes, which usually had small-section metal interplane struts, semi-flattened aluminium tubes are more suitable than spruce. The ends are hammered completely flat, filed to shape and drilled for the clips.

On the whole I think that this type of interplane strut system is the best developed to date. In a very bad crash it may smash a spar, but I have yet to suffer this although I have only used it on my last three scale models. I have found it very suitable for two-bay aeroplanes.

We will now turn our attention to the main bracing wires i.e. the flying and landing wires. If we wish these to

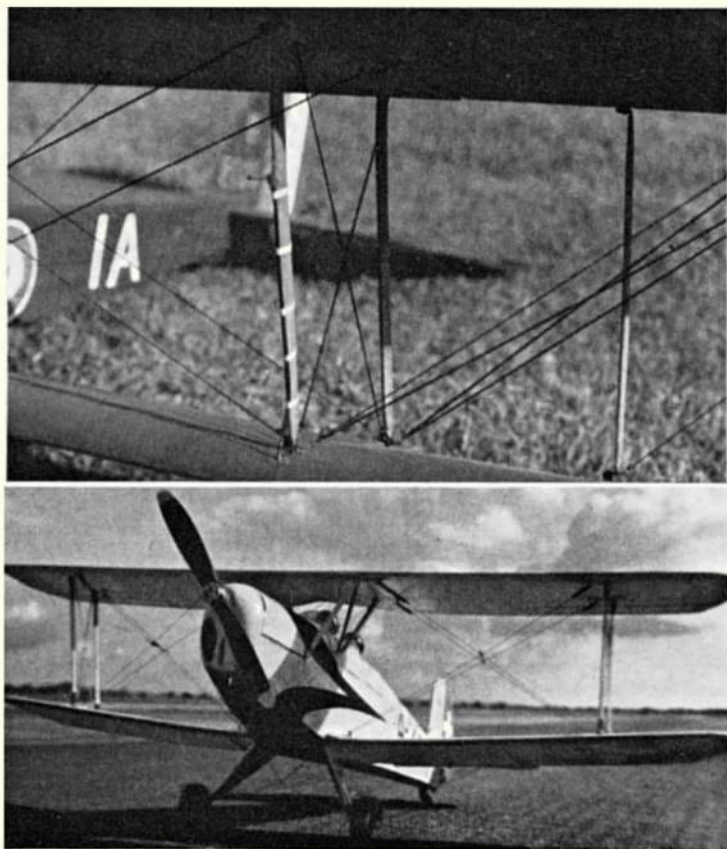
do work then they must be either 24 or 22 s.w.g. piano wire, or even stranded control-line wire. If we only want our wires to be ornaments then shirring elastic, or golf ball elastic, is quite suitable. As I have stated before, I personally do not like to use elastic wires these days – the last model I made using this technique was the Rumpler C.V. back in 1956. Several modellers, however, continue to use shirring elastic with great success, and in fact, Terry Manley uses such rigging on his latest model, the A.W. FK8. The shirring elastic rigging is usually retained with small S hooks made from soft 22 s.w.g. wire. Interplane struts are normally retained by the method illustrated in Fig. 4, but the wings must work as cantilevers when this form of rigging is used. However, when the wings are rigged in two bays, as the FK8 is, a certain amount of girder effect takes place which prevents the wings from deflecting under load anything like as much as they would if completely independent. With a 1914-18 model, however, a certain amount of wing-section thickening is almost inevitable to make the wing stiff enough.

Above right: another view of the FK8 shown the piano wire hooks and eyes for fastening the shirring elastic. Struts are attached as per figure 4. Below: the author's Bucker Jungmann uses the 'plug in' strut arrangement, detailed in figure 3.

The alternative to this method is to make the wires work as in the original. To me this has a satisfaction within itself – it makes it more of a scale model.

Dealing with bracing the wing cell first, I would advocate the use of piano wire for single bay machines and stranded control line wire for double bays. For single bay types, the wires are sprung, by small rubber bands, to 22 s.w.g. wire hooks to the wing spars – the rubber band substituting for the turnbuckle on the original. I used to use rubber bands at each end of every wire, but nowadays find a single band, at the upper end as used on the Jungmann, to be quite adequate.

One can use a similar technique for two bay machines but the number of wires tends to become excessive: at least 8 flying and 8 landing wires. If the wing cell collapses



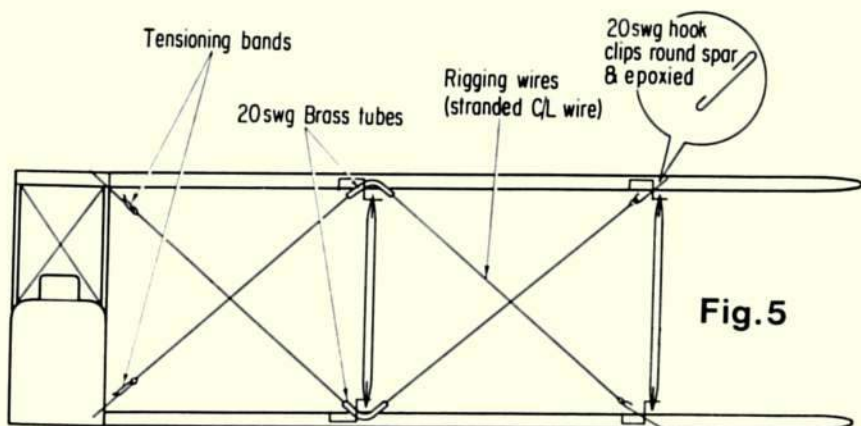


Fig. 5

during a trimming session due to a hard landing, it would be dark before you had re-rigged it ready for the next flight! I therefore advocate the method I have tried for the first time this year, with great success, on my B.E.12b, shown in Fig. 5. Only 4 wires per side are used, just as in a 2 bay machine, each wire acting as a landing wire in one bay and a flying wire in the next. The wires are led past the inner pair of interplane struts through 20 s.w.g. brass tubes, bent whilst hot to the shape required and epoxied to the appropriate wing spar. The wires are held in tension by rubber bands to small hooks attached to the centre section and fuselage. The tension in the wire produces sufficient friction between the wire and its guide tube to prevent the wing cell moving under normal flying and landing loads. However, if the model gets a heavy thump the whole lot distorts. When used in conjunction with wire dowels for wing retention, one has a beautifully flexible wing structure which is as near crash proof as anything I have seen, as well as being very acceptable from a scale appearance point of view.

When wire is used for bracing parts of the structure other than the wings, it is not necessary, or indeed desirable, to spring the wire. Tail surfaces very often require bracing. If they are built to a scale thickness and light, as they need to be, then solid bracing is very desirable to

strengthen up the whole back end. It is usual with tail bracing of 1914-18 machines, when viewed from head on, that the total bracing forms a diamond; with the tail surfaces an enclosed cruciform.

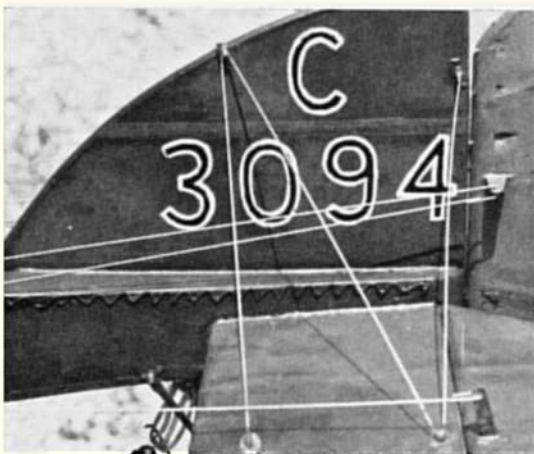
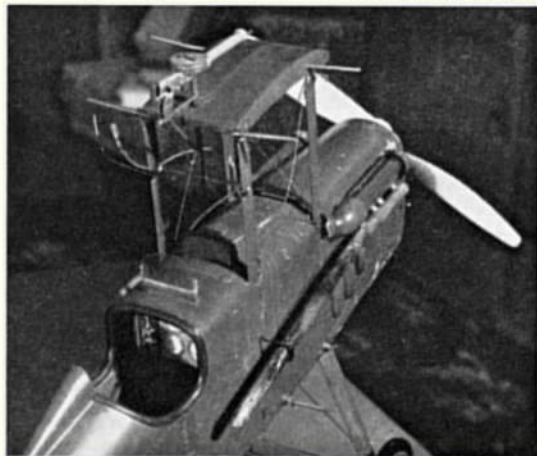
There is a strong case for using shirring elastic for the control wires although I often use 24 s.w.g. piano wire for this purpose. The one major objection I have to shirring elastic is that it rots in time due to fuel settling on it and requires replacement at intervals of about one year. It is much easier to use for control runs though, as one can stretch it to the required length.

It goes without saying that piano wire must be used for bracing those highly stressed units; the cabane and undercarriage.

One can go on writing *ad infinitum* on the subject of rigging wires. Everybody has their pet ideas and I know many people will not agree with mine. As will be gathered from this article I have altered my own ideas several times in the last twenty years and no doubt will do so again as new materials become available. I hope that within these pages something new and of interest to some has been put forward on this vexed subject.

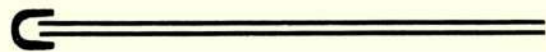
Next month we shall look at the structure of the wings and tail surfaces we have just braced.

The tail section of the same aeroplane illustrates an example of where the author still prefers to use wire bracing rather than shirring elastic, mainly due to the latter's short life when in contact with diesel fuel.



Before and after photographs show John Hannah's mini-stunter made from card. As can be seen, few ply parts are used, but a larger model would probably run into trouble through lack of stiffening. Must be about the cheapest possible model to produce!

CONTROL LINE NEWS

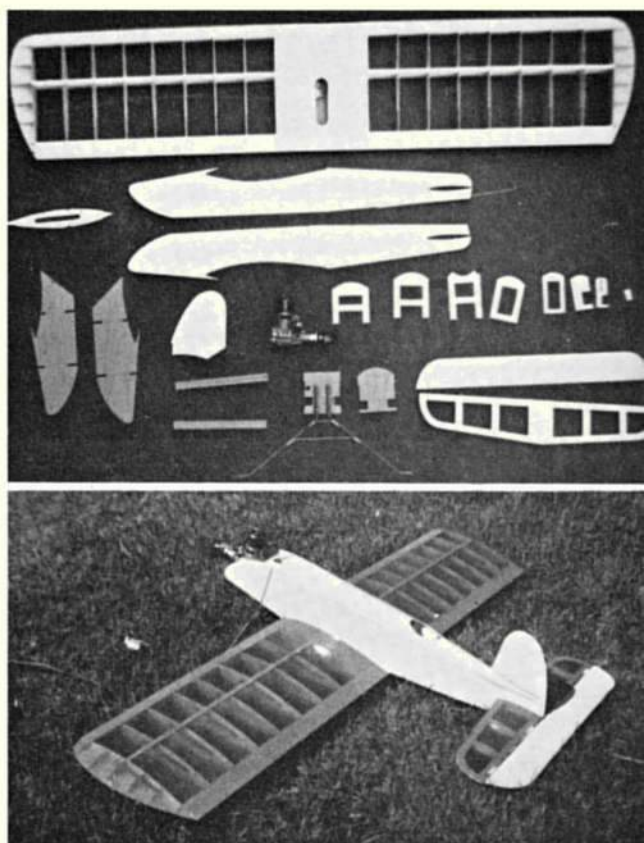


CANADIAN JOHN HANNAH has been experimenting with a 'new' modelling medium; one that is very cheap, easily available and simple to work with—ordinary thin card! By using a suitable structure arrangement, it was found to be possible to utilise a card thin enough to equal the weight of 1/16 in. balsa—the only non-card items being 1/32 in. ply nose doublers, two plywood firewall mounts and bell-crank platform, plus two oak bearers. With regards to strength, this is, of course, hard to estimate, but it is at least as strong as an all-balsa equivalent, and possibly a little better. From the point of view of weight, the experiments have proved equally rewarding—the model shown weighing just 5-7 oz. complete. Although not a light-weight, this is by no means heavy. John has built several models of similar size in balsa which were no lighter, and even though the idea behind this project was not to rival the weight of balsa, the result is worth noting. Also in connection with the weight is the fact that the card only needed one coat of clear dope preparatory to applying colour finish—a useful point for rapid building.

Syerston '71

The Midland Area rally at Syerston was fortunate to receive hot if rather windy weather—in contrast to the previous day's torrential rain. It was also rather unusual in that while well supported in terms of enthusiasts with models, the entries themselves were

John Horton's *Shoestring* Goodyear racer is typical of current practice. Note the rearward wheel location with forward wire skid, and large (120 c.c.) fuel tank which extends nearly to the trailing edge! Veco 19 on pressure feed, turning 7 in. x 8 in. Bartels glass fibre prop provides power.



rather low. As one of the first 'major' events of the year, it was particularly interesting to see the new (if any) developments which had evolved since the previous season.

Interest in rat-race was practically nil—has the silencer requirement been too effective by silencing the 'rats' into submission, or has the cost and high mortality rate been the deciding factor? In contrast,

Dave Clarkson's *Sorenson Deertly* Goodyear has a pressure fed MVVS diesel turning an 8 in. x 6 in. nylon prop cut down to 7½ in. to achieve around 85 m.p.h. Rearward undercarriage consists of twin 14 s.w.g. legs to provide suspension. 70 cc tank used, making a cut-off essential wear.



the Goodyear following continues to grow, with speeds now being obtained which had originally been thought impossible. Few are taking advantage of the maximum engine capacity of 3.5 c.c. allowed by the rules, the favourite engine currently appearing to be Super Tigres in all their variations. Certainly, the event winner, John Dixon, had superb engine runs, high speed and virtually first flick restarts - enabling him to easily beat the existing record for the five miles with a time of around 3.40 although the timing was a little suspect. His Super Tigre G.15 glow consumes fuel at a fantastic rate - John's model being fitted with a 115 c.c. tank! Several competitors have found these large capacity tanks essential when using glow engines - his was not the biggest by any means! Another growing feature is a rearward wheel with a forward-mounted prop skid.

Competition in this class is certainly keen - let's hope that it does not fade from the scene like its bigger brother.

In F.A.I. team race the most noticeable aspect was the absence of several top teams - practicing for the Nats in secrecy, chaps - or were you all the at the Leigh versus someone or other rugby match? Nothing radically new in this branch, but nice to see some new faces, and even one or two new models! Seen practicing during the afternoon were Dick Place and Don Haworth. Nothing unusual in that - except that Don's now experimenting with a pressurised refuelling system, although up till now now he has favoured the simplicity of a squeeze bottle.

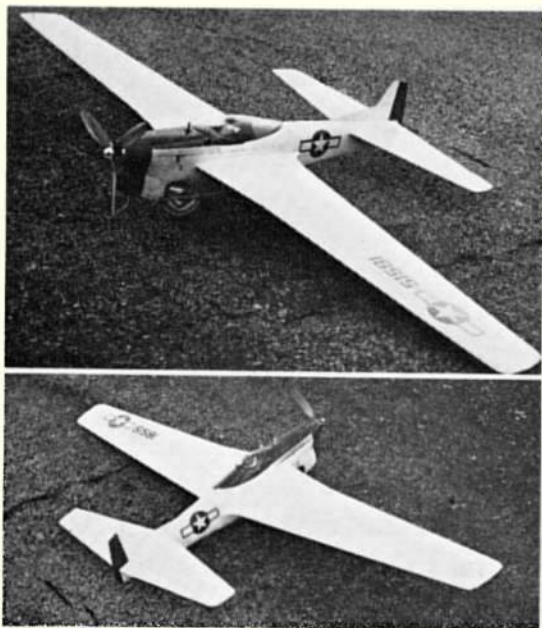
A very low entry in stunt (7) gave another victory to Steve Blake, now flying an own-design model *Star-maker* since the demise of his faithful *Nobler* at a previous contest. The model is doing rather well - only nine flights so far, but two wins already. Brian Turner also flew one, finished in the same colour as Steve's - very confusing! Jim Mannall was out of luck with his usual *Nimrod* and a very rough engine run, and for the first time in many a long season, failed to place in the top three.

Much interest was shown at the speed circle, with, for once, many models and flights in evidence. Brian Jackson was going well with his reserve T.W.A. - over 135 mph - and stands a good chance of shining at the forthcoming international in Hungary. His K&B 29 performed even better, achieving 153.3 mph (98 per cent of the existing record) to win the event. Ron Irvine, also in the British team, did not fare so well, his new T.W.A. reaching only 124.3 mph, but this was its first outing, and in a heavy model at that.

Shining example

Reader (and son of the designer of the recently published 'Barracuda') J. McAlroy sent us a useful tip for owners of 'well used, but used well motors'. Seems he unfortunately tent-pegged his six-year-old *Thunderbird* and on withdrawing it from the ground noticed the appearance of the engine (an easy task, as there was little balsa to prevent him from seeing it now!). The engine, a Merco 35, had been installed in the airframe since new, and had had more than its fair share of use, evidenced by the heavy deposit of burnt castor oil securely adhering to the head and fins.

Not having any appropriate cleaner, he washed it in 'Ariel' (aptly named, don't you think?) washing powder, then flushed it in petrol before finally thoroughly lubricating with light machine oil. Result, an 'as new' engine, and a wife wanting to scrounge some methanol for washing shirts!



The Hill/Wright team racer is most attractive, being based on a *Midget Mustang*. A three-bladed, home made glass fibre prop is used, blade shape being taken from a Drazek prop thinned and cut-down. No speed difference between this airscrew and a two-bladed one are apparent, but the range has improved, the ETA 15 now providing 40 laps at 90 m.p.h. A 'Dick Place' style large mono-wheel is used, just the tip protruding from the fuselage.

Jack Muncaster built this 'quickie' racer, designed to be covered in Solarfilm. Superbly built as usual, he has used this material most successfully - the only 'cheating' being that he pre-painted the major joints to prevent fuel seepage. Model with Oliver Tiger IV prepared by pilot Bernie Langworth, weighs just 18 oz.



24th AUSTRALIAN NATIONALS



Last day of the 'Nats' brought better weather, as seen here, where the R/C class III models line up by the control caravan. Lack of roped-off areas presumably indicate little 'over-keen' spectator trouble!

By Mike Mildren

Winter conditions hit a mid-summer event 'down-under' at Adelaide – so, too, did a British postal strike – hence this delayed report

THE 'LAND OF THE SUN' failed to match its reputation for the 1970 Nationals, held from 27th December to 2nd January, with temperatures in the low 60's, a wind strength of 10–20 knots, and rain squalls nearly every 30 minutes for four days! In contrast just a week later the temperature was around 95 deg. with 20–25 knot winds.

The venue, Strathalbyn, lies just 28 miles south east of Adelaide, and proved ideal with its large agricultural show grounds complete with tarmac oval, caravan park and hall large enough for indoor chuck-glider. Free-flight events were held in a field of flat-tend stubble (which would have normally been a dust bowl at this time of year) some six miles outside of town in an area practically devoid of trees for at least a mile around.

Although the weather was miserable, it was not impossible, as fortunately the wind dropped-between rain squalls and indeed the first competition day was one of the better ones, which was lucky for the first round of the control line aerobatics event. The stunt flying was to a high standard, but motor

Theo Merrifield (left) maxed in the 6th round of Wakefield despite atrocious conditions, to win. Fellow 'Westralian' Mike Beilby (right) won Open Power, while both placed in control line team racing – versatile, these chaps!



trouble and overconfidence at the bottom of the square-eights brought an end to several flights! For the last time, unsilenced models were allowed to fly in this event, although most models were so equipped. Winner Paul Turner used an own-design model powered by a Fox 35 while in second place was John Tidey flying a Merco 35 equipped *Super Master* from the Aeromodeller plans service. John was the clear winner in wind but lost out in the calmer second round.

F.A.I. combat was very lively in most heats – continuous high speed clover-leaf manoeuvres were the order of the day, with the occasional streamer cut for good measure. Many models were tissue covered and following the inevitable clash of wings, spectators were covered in the confetti!

2.5 cc rat-race was well supported – the rules calling for ten-minute heats with pit stop and a 20 minute final with two. The four-up heats ran smoothly enough with no accidents – not so the six-up final with a line tangle only two minutes after the start, leaving just one model airborne at the time, and Open Combat runner-up Roy Summersby (left) used the F.A.I. model that also won him F.A.I. combat, *Super Tigre G 15* powered. Winner Garry Bourne (right) used a *Super Tigre G21/40*! The three different model styles shown typify Australian models in this class.





Ron Neville's 'Powerhouse' gave both timer and motor troubles, which he finally overcame, when it flew like a venerable gentleman to gain third place in the Vintage event.



Paul Turner's winning stunt model has Fox 35, and is his own design. It has no development history, being the first of a future series, in which the first mod will be to make the wing asymmetrical.

putting two out for good.

Although receiving the benefit of relatively little wind, the control line scale event still received more than its fair share of accidents—even Ken Whemham's winning *Mustang* suffered to some extent during a heavy landing.

As is typical in scale events, many of the models were overweight to the natural detriment of their flying ability. Ron Gottish's 34 in. span *Spitfire* with a Glowchief 29 was an example of this, its 3lb. weight causing it to fly very sluggishly although well enough to place second.

The free-flight events, starting at the unearthly hour of 5.30 a.m. on the second day, met with a steady breeze, and in the first round of 47 flights in the A/2 glider category, two maxes were recorded. Round 2 was wet but with little wind, and four maxes were scored, and things improved yet more in the third when the sun appeared briefly, as did a few thermals, to produce 14 maxes.

By the sixth round, all hell let loose, and only seven out of 31 flights were recorded. Eventual winner Lew Riley used a model which seemed to like the rough weather, but a line breakage in round 5 caused a cancelled flight—however, he managed maxes in rounds 3, 4, 6 and 7.

'Novice' R/C is an aerobic event for those who have never placed at a National contest before, and provided some reasonable flying but with poor presentation—most entrants lacking the contest experience necessary.

That same evening, the indoor rubber event was

held in the town hall—the first time that this event had been held at a 'Nats' since 1951. Only the 'old hands', Bert Harnshaw, Boyd Felstead and Gordon Burford—flew microfilm, and three or four others had tissue jobs. Indoor hand-launch gliders produced 23 entries with times of 9 or 10 secs. from the 18ft. ceiling.

Very high winds on the fourth day caused many free-flight events to be postponed by a couple of days, but even so these events had little support. Interest in Wakefield is practically dead in New South Wales and Victoria, and, indeed, only three people entered, and just Bob Greenhill completed seven rounds. F.A.I. Power had six entrants survive the whole distance, and in the rough conditions, only four maxes were made.

A new event was F.A.I. R/C Glider to 'flat land rules' (presumably thermal soaring!), but all the lightweight entries soon floundered in the breezy conditions, and even the 'heavies' had to scratch to make three minutes. In 39 flights just two maxes of six minutes were recorded. Pylon racing, held in the evening, was not greatly affected by the wind, and was won in fine style by Tom Prossor with a very fast model, not noticeably slowed by the conditions, in a time of 2:10—a new Australian record. This event is run to A.M.A. and not F.A.I. rules, and had ten entries.

No accidents occurred to any of the seven R/C scale competitors, which speaks well of their flying ability! Tom Prossor flew his six-year-old *Piper Pawnee*, which although has won three previous



F.A.I. Team-race place getters were (L to R) Tilley/Shing (who also won class II, came second in JA team-race and third in combined speed), Casey/Wilson, and Beilby/Hoozenkamp. Model in the centre seems to have distinct Edmonds influence, whilst the one on his left is of more recent heritage, perhaps slightly Russian biased?



Ken Whenham's winning control-line scale Mustang is 46 in. span and weighs 5 lb., powered by a Merco 35. Heavy landing during a qualifying flight knocked several pieces off, but did no structural damage.

Nationals, failed to repeat the honours. A very fine *Zaunkonig*, scratch-built from prototype drawings by Geoff Whatley, spanning 78 in., made a spectacular 60° climb after take-off, as per full size, helping him clinch second place.

Although engines up to 6.5 c.c. were allowed in the Open Combat event, many competitors used their F.A.I. models, and perhaps partly due to this, the standard of flying in this contest was generally low. Most popular 1/4A motors were the Oliver Tiger Cub and the Taipan 1.5 c.c. - although only one of the latter reached the final, and then suffered the misfortune to break a prop, relegating it to third position.

Chuck glider was held on the last day of the meeting, just as the weather improved. The fine and sunny weather producing several thermals, so the winner was to be the one who could find and use them to the best advantage.

Incredibly, only one free-flight scale model, a *Beagle Pup*, made a qualifying flight, and even then it was disqualified for scale inaccuracy! Under Australian rules, six major dimensions (such as fuselage width/height, wing span/mean chord, etc.) are checked and they must all be within 5 per cent of true scale - if not, the model is disqualified, as was the case was the Pup.

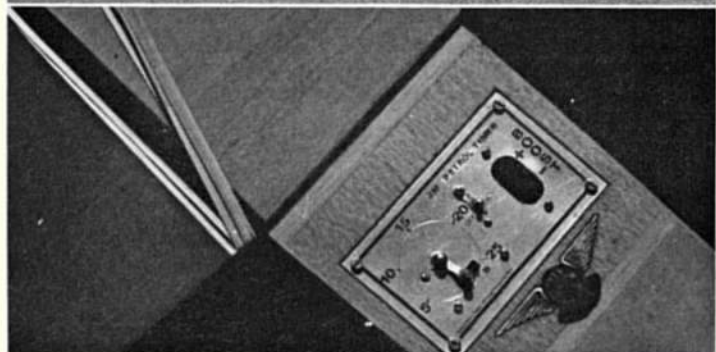
Final event, and a great crowd pleaser, was the Power Scramble, which attracted a wide variety of models, including numerous flying saucers, a flying carpet and even a 4 ft. span, fabricated and tissue covered boomerang with a Cox Pee Wee mounted on one arm! The standard was high, with three-quarters of the field still flying after 50 minutes. Winner Roy Summersley used a D/T timer to bring his model down under power - not always finding it necessary to re-start!

Novel entry by Gerry Enery and Bill Abbot of Victoria were these R/C scale Tiger Moths built as a team project, 72 in. span, weighing around 10 lb., they are powered by Enya 60's, being built from prototype drawings. In the background is Bob Millhouse's Monocoupe.



Results

Event	First	Second	Third
A/2 Sailplane	O'Reilly NSW (927)	Borrill NSW (791)	Van Leeuwen WA (584)
A/1 Sailplane	Buckmaster Vic. (482)	Harden S.A. (459)	Hammond SA. (436)
Chuck Glider	Harden SA(180&139)	Nearmy SA (180&43)	Boughton Vic.(174)
Wakefield	Merrifield WA.(437)	Greenhill Vic.(373)	Edwards NSW.(299)
FAI Power	Borrill NSW.(674)	Van Leeuwen WA (634)	O'Reilly NSW (559)
Open Pwr. Duration	Beilby WA.(637)	Lloyd Vic.(588)	Holmes NSW.(55)
Scramble (Night)	Birkin Vic.(535)	Voak WA.(490)	Seigmann SA.(441)
FAI Speed	Vodopivec SA. (127.8mph)	Lee NSW(127.1)	Kimonides Vic.(119.0)
Class II Team race	Tilley/Shing NSW.(6:53.4)	Rowney/ Merrifield WA.(8:15.0)	McCulloch/ Evans SA.
1/4A Team race	Wilson/Casey Vic.(9:44)	Tilley/Shing NSW(9:44.9)	Reichardt/ Short NSW(9:50.8)
Combined Speed	Buck SA.(Class III 162mph)	Buck SA.(Class III 157mph)	Tilley/Shing NSW.(Class III 152mph)
FAI Team race	Tilley/Shing NSW(9:38.2)	Wilson/Casey Vic.(11:15.8)	Hoogenkamp/ Beilby WA.
FAI Combat	Summersby NSW.	Rowney WA.	Willing NSW.
Motor Segler	Coppock SA.(844 secs)	Buckmaster Vic.(200sec)	Neville ACT.(14secs)
FAI Stunt	Turner NSW(1942)	Tidley NSW(1941)	Hanna NSW(1850)
Novice multi R/C	Kay Vic(7190)	Prince SA(6585)	Pentland Vic(4885)
Class III R/C	Green Vic(14076)	Mc.Grane Vic(13906)	Prossor NSW(12867)
R/C Pylon Race	Prossor NSW(2:10.9)	Green Vic.(2:26.5)	Angus Vic(2:38.5)
Single Channel R/C	Muxlow	Koch	Wearing- Smith SA(57)
FAI R/C Glider	SA(461) Prossor NSW.	SA(112) Pring SA.	Chidezey Vic.
R/C Scale	Prossor NSW (Pawnee) Whenham	Whatley Vic. (Zaunkonig) Gottish	Enery Vic. (Tiger Moth)
C/L Scale	SA(Mustang)	SA(Spitfire)	
Open Combat	Bourne Vic.	Summersby NSW.	Davis Vic.
Class I Pwr.Dur	Lloyd Vic(643)	Summersby NSW(564)	O'Reilly NSW(562)
Open Rat race	Ratten Vic(373)	Bourne Vic(325)	Thompson Vic(292)
2 1/2cc Rat race	Siegmann SA(357)	Osman SA(343)	Johns Vic(292)
Indoor Rubber	Felstead NSW(246)	Burford SA(198)	Prossor NSW(137)
F/F Scramble	Summersby NSW(1021)	Evans SA(727)	Siegmann SA(691)
Indoor Chuck	Prossor NSW	Scott NSW	Carnaby
Old Timers	Smith Vic.	Lloyd Vic.	Neville ACT.
Junior A/1 Glider	O'Reilly NSW(96)	O'Donnel NSW(56)	
Junior Chuck Glider	Griffiths NSW(146)	Blackburn SA(128)	Dearden SA(101)
Junior Stunt	O'Donnel NSW(1276)		
Junior Rubber	O'Donnel NSW(107)	O'Reilly NSW(27)	
Junior 1/4A Team race	Wilson/ Kennedy NSW	Patsky	
Junior FAI Combat	Ratten Vic.	NSW Wilson NSW	Anderson NSW.



FREE FLIGHT COMMENT

by John O'Donnell

Jim McCann's Junior 60 is brightly finished in heavyweight Esaki tissue. Close-up shows the ignition timer, consisting of a home-made face-plate with 'Letraset' inscriptions hiding KSB works.

THERE ARE SOME YEARS when the contest season is slow to get under way—but 1971 is hardly one of them. Even though this is being written before the Nationals, there are quite a number of meetings to report.

It is convenient to take events in chronological order, starting with the **S.M.A.E. Area-centralised** events, held on 25th April. Thanks to most areas having weather that improved throughout the day, despite a forecast to the contrary, the contests were quite well supported. There were over 130 entries in the Open Glider event—and around 50 in both F.A.I. Power and Open Rubber. That these two contests should attract almost equal numbers would seem more a reflection on interest in the *Plugge Cup* (Club Championship), for which F.A.I. power counted, than in the classes themselves.

The **London Area** had very good conditions at Chobham, with light drift and thermals in abundance, which enabled them to take the top two places in F.A.I. power, and to provide nine out of 15 trebles recorded in Glider. The *Halifax Trophy* went to Nigel Clarke, with the contest's only perfect score. He was probably disappointed with his flyoff, but didn't need it to win. Another new name in this event was runner-up R. Melville, of St. Albans. The London Area also managed the top two glider places, despite the flyoff being held at a time such that only John Blount and Pete Jellis found any real help. They both D/T'd from a good height whilst well in sight, through not using an extender disc and relying on having their normal timers fully wound. Surprisingly, there were only two who flew off in Open Rubber at Chobham, although I have heard of another eligible participant who didn't bother either to flyoff or hand in his flight card. I wonder why?

In area-centralised events like these it is often more important to have good weather at flyoff time than during the rest of the day. The **Northern Area**, flying at Topcliffe, were certainly fortunate this way when it came to the Rubber event. Their three-way flyoff saw Frank Elton and Jack Kay launch into lift, and have the drift and visibility necessary for them to take the top two positions in the National results. Both models were D/T'd near the expected limit of timekeepers' eyesight, and retrieved successfully. Frank's *Gamage Cup* winner is smaller than the current fashion, being only of about Wakefield wing area—and is the model which he flew at the N.W. Area's Easter Meeting. Compared with Rubber, there was only a single glider flyoff at Topcliffe—nearly four minutes by Ewan Baxter-Jones.

For once I flew with the **N.W. Area** at Chetwynd—hoping that the Pennines would provide shelter from the forecast N.E. wind! Rubber flying started just after 8 o'clock, which is as early as the S.M.A.E. allow. It remained pretty calm for one-and-a-half to two hours, after which a quite stiff breeze sprang up rapidly. Nevertheless, at least three Rubber fliers finished their flights in the 'easy' conditions, whilst Birming-

ham were already well advanced with their F.A.I. Power flying. They were obviously keen to maintain their initial lead in the *Plugge*, despite Ray Monks flying an old model (due to World Champs considerations), and Dave Wiseman's other interests only allowing him the morning in which to fly. Roger Baggott made the top F.A.I. score at Chetwynd with a string of maxes interrupted by one poor flight (due to an out-of-wind launch). I could have beaten him but for landing in a tree on an over-run, trying for my seventh and last flight. The combination was fatal for my contest hopes—but not for the model! Roger and I had nominated flights to count for the N.W. domestic Open Power event and were eligible to flyoff against Mike Duce's 1/4A model. As Mike had to opt out of both this and the Rubber flyoff (for a hospital visit to wife and 'new arrival'), Roger and I were able to split the Area's prizes without risking models in a breezy flyoff. The Rubber flyoff qualifiers did make the extra flight, in the hopes of 'coming up' in the *Gamage*—John Boon managing an eye-straining six minutes, with a big, light model, for fourth in the country.

Elsewhere, other areas reported an indifferent morning followed by a steadily improving afternoon. This situation was exploited well by Derl Morley, who left home at 3 o'clock in the afternoon and still had time to drive to Barkston Heath for a treble in Rubber, followed by a 6½-minute flyoff. His model was large and light, with a 285 square inch wing on a 50 in. fuselage and an a.u.w. of 7.4 oz., including 4.1 oz. of rubber. Although he D/T'd in sight on the flyoff, he reckoned that this improved visibility and increased his score!

The **East Anglian Area** reported a similar weather pattern, with a calm thermally afternoon. Nevertheless, conditions were deceptive and no-one maxed out at Watton, even in Open Rubber. Best score came from Barry Halford, who cleared 20 minutes in F.A.I. Power. Notable from this Area was mention of a Junior Kit Contest. This is open to those 16 years old and under, flying any kit design, and is being tried out regularly at their A.S.C. events. Young Edward Brambley scored a respectable 4:28 out of a possible 6:00 (3 x 2:00), flying a Goose glider (new one on us, can anyone enlighten us as to the manufacturer?) Obviously owing something to the similar type event at the Nationals, this is an idea worthy of better support.

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The **Northern Area Contest at Topcliffe** on May 2nd was described as the *Vintage* and the *Pannett* meeting at different times. Perhaps this is a sign of personal, and differing, interests. In fact, these were only two out of four separate events held at this gathering.

The *Pannett Trophy* is awarded for Open Power and this year's event attracted considerably more entries than the

last couple of occasions. Bright and sunny, if breezy, weather certainly helped swell the numbers, even if it caused trouble to those attempting to trim out power models. From watching some of these modellers, I would think that they were trying to keep pace with heat warps.

Out of a couple of dozen entries there eventually proved to be just four with trebles. Russell Peers was the first to fly in the contest and rapidly recorded a nerve-racking treble with three flights that started in sink but ended in weak, low-level lift. Roger Baggott and I had no trouble qualifying - whilst Derl Morley spent most of the day trimming his Monks design before making his official flights rather late. Many of the other entrants were able to muster quite potent looking models and motors, but an assortment of troubles kept them out of the flyoff - Bob Bailey being the best of those who just missed. Ray Monks produced his usually so reliable Cox T.D. 15 model, only to have the engine timer stop and the model climb O.O.S. In common with most V.I.T. systems, such a failure also precludes the tail tipping, even though the D/T fuse itself functions. As Ray's model had little tail movement it would still glide quite well and searching was pointless. (I would add that Ray heard of the model some days later and recovered it intact).

Prior to the flyoff, the contest organisers suggested launching in sequence, so as to avoid the possibility of simultaneous engine runs being mistimed. As participants preferred to pick their own moment to suit the weather, the suggested scheme was dropped, and the normal freedom to launch at any time inside a 15-minute period was allowed. When the time came, Russell Peers launched in what proved to be too small a 'warm patch' and repeated the pattern of his contest flights. He flew two models during the day - both ETA 29 versions of his usual *Woodpecker*.

A few moments later a larger and warmer spell was felt and the others flew in quick succession. Roger Baggott had his ETA 29 F.A.I.-size model go completely off-pattern, and was lucky to have the motor cut out with some height left! Derl Morley went right to the textbook 9.8 sec. engine run with his O.S.19, orange surfaced Monks' design and looked well set in good air. I was last to go, and centred nicely in the thermal. My model was the O.S.35 open model that I have had for some time, but which was plagued with a variety of troubles, all appearing to stem from engine vibration! The solution appears to have been found - but time alone will really tell. With the possibility of a 'visibility fly-off' combined with having a large and easy-to-see model, I had no intention of losing the contest through D/Ting in sight. As the Seelig timer is not used for D/T purposes, the model is rigged for fuse all the time and it was merely a case of using a larger piece. I got over 10 minutes in sight, saw it D/T, and found it about 2½ to 3 miles downwind. Binoculars and compass are the necessary aids!

The other three events were run under the rather unusual rules of not allowing reserve models - but permitting a second entry with a different model. This is reminiscent of Chevenay. Coupe d'Hiver used five flights and hand launch. Frank Elton proved an easy winner with four maxes out of five, flying a far more conventional (to English eyes, at least) model than the ones he used in France. Henry Tubbs and I were second and third - although I missed a flight completely through losing my faithful *Hatband* when it did not D/T. The most likely explanation is that of failing to light the fuse properly in the rush of tactical flying!



Andrew Brewster prepares to launch his Rossi 15-powered F.A.I. model. Very fast, even at testing stage, engine performance indicating that the days of the Super Tigre G.15 being the automatic choice, are numbered.



Terry Dilkes took both his 1½-size Caprice and his A/2 out to the fly off line at the Midland Rally. Ian Allen assists.

A/1 was won by Tony Cordes, who repeated the five two-minute maxes that he recorded in the Northern Area 'Mini-comp' the week before. His model is just like a miniature A/2, complete with D/T timer and glass-fibre boom - and is well over the required minimum weight. John Turner missed a max on one flight but secured second place, whilst I collected another third.

The Vintage event always attracts interest, partly through the nostalgia that is responsible for its existence and partly through the 'different' designs to be seen. Eye catching through bright and colourful covering were two brand new examples from Jim McCann. These were a McCoy 19 powered *Super Phoenix* and an O & R Junior 60. The latter featured a most impressive ignition timer that proved to be a home-made device using KSB 'works'. Nevertheless, power models do not seem to be the answer for winning Vintage events, even with the generous engine run allowed!

First and third was Henry Tubbs, who seems to produce a 'new' vintage model each year. He won with a treble that looked no trouble to his 'GH20' Wakefield - and flew a *Mick Farthing Glider* (the original diamond fuselage version) into third with two maxes out of three. In between came Jim Moseley with a *Lulu* that did its best to ascend on D/T to give the owner a very long chase! Jim is very much a vintage 'fan' and tells me that he received only a handful of replies to his recent *Aeromodeller* advert appealing for information to aid an historical survey he is compiling.

Meanwhile, some 300 miles distant, the Devon Rally was also in progress on Woodbury Common, near Exmouth. Barry Hyde sent me a report and results. They were lucky with the weather, which consisted of a warm and breezy morning followed by a calm afternoon, giving almost dead air conditions at flyoff time. Entries and scores in Rubber and Power were low - the former being topped by J. H. Gunn, using a diamond fuselage Open model with Montreal stop for the folding prop and a fuse operated V.I.T. and auto-rudder. The same fuse also serves for the D/T.

Most glider entrants 'doubled-up' flights for the All-in F.A.I. event. Surprisingly, although there were four trebles in glider, there wasn't a five-max score in F.A.I., where top scores were in the 14 minute region. The glider flyoff witnessed a 10-minute wait for the sun to come out - but only Dave Tipper found any helpful air - only to have his reserve model stall and fail to hold the lift. Winner of Open Glider was Gerry Pink, with a *Lively Lady*, whilst Colin Morris was runner up, and also first in F.A.I.

★ ★ ★ ★ ★
The North Western Area have run a special meeting for a club team contest for many years. The rules have been changed several times in an attempt to keep up with changing circumstances. The latest revision called for a team of three individuals to be nominated in advance of flying, and their best scores in any category being totalled as the team score. In anything like reasonable weather this should have resulted in a clean sweep for any club able to field three Rubber fliers. Despite much discussion on this possibility, these rules remained in force for this year.

To forestall any objections (on the grounds of bias) to our intended proposal to have a more balanced representation of the different model classes in each club team, my club made a determined attempt to win this year's event. This was despite having only two Rubber fliers. The expected opposition was not as keen, and several people who have Rubber models did not fly them. The weather was windy, but very far from unflyable. Perhaps club members do not really consider team events as important. This might well be the case, as some clubs in the N.W. (and no doubt elsewhere) are purely artificial groups intended to spread modellers over more clubs than would otherwise be the

case—and hence enable 'non-club timekeepers' to be found. This illustrates another case for a major rule re-think!

The *Rootes Trophy* for the winning team went to Whitefield's 'A' team, comprising Brian Hooley (flying power) and Mike Reeves and myself (flying rubber). We totalled just 80 seconds short of the possible 27 minutes, whilst runners-up West Lincs were a scant four seconds ahead of our all-glider 'B' team.

The individual events necessitated a two way flyoff in Rubber and a three-way one in Glider. The former ended in a dead-heat with an identical fourth flight of 4:16 for both Joe Barnes and myself. Working 'as near as possible to S.M.A.E. rules', there was no provision for a fifth flight—which was perhaps just as well, Joe was flying a lightly-built model, unusual in having a single blade feathering prop.

Glider was won by Norman Duncan with an unhurried and comfortable 3:56, after both Wayne Pritchard and Brian Worthington had launched into unhelpful air. Norman used a conventional glass-fibre rod A/2, Wayne a slightly scaled up *Caprice*, and Brian a *Humblehound*.

I won Power with my O.S.35 model, despite an overrun and a middle flight in sink. Pete Branigan, editor of *The Message*, was second whilst Brian Hooley was third with a G15 open model.

Chuck Glider was keenly fought. Despite the restriction of a launching box; Barry Kershaw, Tony Slater and Roy Roberts lost a model apiece in the process of taking the top three places.

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In contrast to the purely free-flight meetings already described, the *Midland Rally*, held at Syerston on 16th May, catered for several C/L and R/C classes. The free-flight side was run, almost single handed (with but one stand-in) by Derek Culpin, who arrived considerably after many of the contestants. To be fair, no official starting time had been announced! Queries as to re-entry were resolved by a decision to allow one such re-entry up to 2 o'clock. Entries could be made at any time!

The weather was bright and breezy, with plenty of lift and the corresponding downdraughts. The rubber and glider flyoffs filled up steadily throughout the day, but scores in power remained low, with but a single treble. This gave eventual victory to M. Bradley, of Grimsby, although his clubmate, Mike Sanderson, could have forced him to a fly-off if he had found his $\frac{1}{2}$ A *Train* after its second max. Another $\frac{1}{2}$ A did come second—this was a high thrust line model on the lines of the Veron *Skyrod* flown by Bernie Sinclair. I managed to edge Roger Baggott out of third place thanks to his cutting the D/T too fine on one flight.

Chuck glider was flown to a best five out of nine basis, with a one-minute max. Barry Kershaw won again—with just six seconds short of a perfect score. Successive places were very close with 3 or 4 seconds separating Eric Higham, Mike Duce and Ian Allen.

Of the two flyoffs, that for glider was held first. The six participants spread themselves out naturally—with only Terry Dilks preferring to fly from the runway. He took out both an A/2 and his $\frac{1}{2}$ *Caprice*—and elected to fly the latter. His launch was made with little delay and was straight into very weak lift—but sufficient to hold up the big lightweight glider until it dropped behind a downwind wood after 6:46. Out of the rest, only Bill Parker found a thermal, to D/T in sight after five minutes plus. Colin Morris recorded a steady $2\frac{1}{2}$ minutes to place third, in front of Arthur Wharrie, whose model looked as if it had found 'something' when it suddenly dived almost all the way to ground level. Perce Perry and Mike Woodhouse made up the flyoff participants—with Mike having his model become unstable on tow, to eventually hit the ground still on the line.

The Rubber flyoff followed, with all five fliers recording good scores. Joe Barnes was first away, and found definite lift with his single feathering model. With a seven-minute D/T he must have been seen almost down.

I followed, to get no lift at all until too low to help—or be seen. Just afterwards, John Carter contacted a good thermal halfway across the drome whilst only at a moderate height, and was timed O.O.S. at 7:21, despite having the largest model. Last away were Russell Peers and Dave Hiperson. Russell launched left and had his model complete an immense loop just above ground level—and then climb away in lift. He got the longest time in sight to emerge as winner, and found the model without trouble. John Carter was not so fortunate, as his model was apparently picked up by a farmer just after landing—and hence had to be collected the next weekend. The tailless event was poorly supported with entries forthcoming only from the Halifax Rubber Exponents and George Simpson with a largish glider. Winner was Ken Attiwell with a respectable 8 minute total.

Prizes were cash—derived from the entry fees—and substantially more than at most events.

Frenk Elton has been doing well of late. He test glides the un-English-looking Coupe d'Hiver model that he flew at Chevenay. He used a more conventional model at Topcliffe on 2nd May.



A recent letter from David Anderson contained news of the Australian team members for the forthcoming World Champs in Sweden. Dave has been acting as co-ordinator of arrangements for proxy flying, transport and the like. The Australians are not sending any power models—but the other teams are:

A/2 Leo O'Reilly (New South Wales)
Peter Nitschke (South Australia)
Allen Loppoch (South Australia)

Wakefield
Bob Greenhill (Victoria)
Alan Edwards (New South Wales)
Bob Emslie (South Australia)

From the 'potted histories' supplied to me, it sounds as if the team members have plenty of experience behind them, most flying other classes as well as their specialities. The models are being flown by Swedish proxies, and are being flown out to the Champs—but returning by sea to save expense.

NORTHERN AREA MEETING

Open Power ('Pannett' Trophy) 23 entries, 4 in flyoff. 1. J. O'Donnell (Whitefield) M + 10:11. 2. D. Morley (C/M) M + 5:46. 3. R. Peers (Falcons) M + 3:58. **Vintage** (3 x 3) 13 entries. 1. H. Tubbs (Leeds) 9:00. 2. J. Moseley (Leeds) 7:53. 3. H. Tubbs (Leeds) 7:05. **A/1 Glider** (5 x 2) 17 entries. 1. A. Cordes (Tynemouth) 10:00. 2. J. Turner (Dardington) 9:46. 3. J. O'Donnell (Whitefield) 9:21. **Coupe d'Hiver** (5 x 2) 9 entries. 1. F. Elton (Leeds) 9:18. 2. H. Tubbs (Leeds) 7:38. 3. J. O'Donnell (Whitefield) 7:08.

DEVON RALLY

Open Rubber. 1. J. H. Gunn (Bristol & West) 8:54. 2. B. Hyde (Torrey) 8:30. 3. C. Chapman (Torrey) 7:02. **Open Glider**. 1. G. Pink (South Bristol) M:00 +1:44. 2. C. Morris (St. Albans) M + 1:21. 3. D. Tipper (St. Albans) M + 1:12. 4. D. T. Newth (Swindon) M + 1:08. **Open Power**. 1. R. Woodruffe (Swindon) 7:35. 2. A. Chilton (Crookham) 6:43. 3. F. Chilton (Crookham) 3:00. **All-in F.A.I.** (5 flights). 1. C. Morris (St. Albans) 14:30. 2. D. T. Newth (Swindon) 14:23. 3. E. Drew (Bristol & West) 14:03. **Chuck Glider**. 1. Silcocks (South Bristol) 2:19. 2. Cummins (Bristol & West) 1:40.

N.W. AREA 'ROOTES TROPHY' MEETING

Team. 1. Whitefield A (Hooley, O'Donnell, Reeves) 25:37. 2. West Lincs 20:58. 3. Whitefield B (Crane, Moss, Oliver) 20:54. **Open Rubber**. 1. J. O'Donnell (Whitefield) M + 4:16. J. Barnes (Liverpool) M + 4:16. 3. R. Peers (Falcons) 8:46. **Open Glider**. 1. N. Duncan (West Lincs) M + 3:56. 2. W. Pritchard (Falcons) M + 1:35. 3. B. Worthington (Whitefield) M + 0:51. **Open Power**. 1. J. O'Donnell (Whitefield) 8:45. 2. P. H. Branigan (Liverpool) 8:19. 3. B. Hooley (Whitefield) 7:59. **Chuck Glider**. 1. B. Kershaw (Wigan) 6:44. 2. A. Slater (Leatherhead) 6:18. 3. R. Roberts (Wigan) 5:47. **Junior**. 1. K. Lord (Syke). 2. D. Barnes (Liverpool).

MIDLAND AREA RALLY

Open Rubber 18 entries, 5 in flyoff. 1. R. Peers (Falcons) M+7:39. 2. J. Barnes (Liverpool) M+7:24. 3. J. Carter (Spitfires) M+7:21. **Open Glider** 46 entries, 6 in flyoff. 1. T. Dilks (Spitfires) M+6:46. 2. W. Parker (Norwich) M+5:35. 3. C. Morris (St. Albans) M+2:29. **Open Power** 18 entries. 1. M. Bradley (Grimsby) 9:00. 2. B. Sinclair (West Lincs.) 8:58. 3. J. O'Donnell (Whitefield) 8:30. **Tailless** 4 entries. 1. K. Attiwell (Halifax) 8:08. 2. G. Simpson (Nuneaton) 5:55. 3. A. Nobbs (Halifax) 4:22. **Chuck Glider** 12 entries. 1. B. Kershaw (Wigan) 4:54. 2. E. Higham (Liverpool) 4:17. 3. M. Duce (Liverpool) 4:16.



SEEING AN ARTICLE the other day on the principles of flight caused me to reflect on the very small amount of theory assimilated by the modeller of today. Generally, now, we seem to work by rule-of-thumb and the following of generally accepted practices. All very well to get by on, no doubt, but I cannot help feeling that any model flyer should have some idea of how and why his model flies. Certainly the top free flight practitioners all seem to have a good theoretical knowledge upon which to base improvements in layout and to work out the finer points of trimming, but even in Radio many a modeller would get away to a happier start if he had some idea why his model was so uncontrollable.

A good deal of expertise was to be seen in action at the *Crookham Gala*, where the finesse of free flight was demonstrated in a day of highly competent flying. And contributing much to the expertise and enthusiasm was the evergreen *Croydon & D.M.A.C.* A particularly strong feature of the club is its well integrated glider section, and this provided 35 per cent of the fly-off in the cooling evening air. Unfortunately, the bubbles were not flowing the *Croydon* way, and the lack of lift kept the club out of the top placings. At the next outing to Chobham, for the *North Surrey Rally*, there was a tricky, turbulent wind to cope with. Useful, however, to Chris Hayward, who had a five year accumulation of dust on his *Aiglet*. He made a convincing comeback to win, only two seconds short of a full house. Look out for the club F.A.I. evening contests. The idea of choosing cool, evening air is in order to practice in conditions like that which may be expected in Sweden. Scandinavian weather laid on, but bring your own blondest!

We are asked to publish the following: 'The *Finchley and District M.A.C.*, wish Ron Irvine all good luck and every success in the forthcoming European Championships Speed Event in Pecs, Hungary, on July 9-13th. Message ends.

If free flight still enjoys popularity in spite of the lure of Radio, the same could be said of control line flying, which, continues to maintain a sturdy and loyal following. One club that has made its name in this field is the *Feltham & D.M.A.C.*, whose P.R.O., Les Clarke, brings us up to date on what the club is about this season. Practice flying proceeds apace, but a new circle is urgently needed, and the club is hoping to use the new one under construction by the Esher club. Speed flying, that supreme test of nerve and technique is attracting more adherents. John Dixon, in particular, getting over 130 m.p.h. with his Rossi 15 powered model—and more m.p.h. to come, he promises. But ships have deserted the Rat this year. Reason: lack of competition. Old models still operational, though, with Frank Bradley's record of 2:38 for five miles still standing. New members welcome, that is if they have nitro in their veins (but not bad circulation!), at Fairholme Primary School on Tuesday. Footnote: There are rumours of a .40 size Goodyear.

It is not only on the flying field that modellers like a bit of space around them; there is the question of where to stow the year's crop of models. Rumour has it that a member of the *Heswall M.A.C.* has solved his problem by moving his family into a tent. This gives his new brood of a *Crusader* and *Geisha Girl* plus an A.P.S. *Yak 9* under construction room to flex a wing or two. I presume these models to be of the C/L variety, as also another *Crusader*, a *Canri*, a *Mustunt*, a *Bristol Bulldog*, a *Super Kama*, a *Bolkow Junior* and a *Hawker Tempest*, all awaiting to tug the wires. Scale flying models usually means power these days, but the rubber powered scale model can still set a challenge to people looking for low cost model flying. Here the *Heswall* club is mounting a well codified event for this class of model. By codified I mean that it will not be just

CLUB NEWS

The 'Three Kings Aeromodellers' have an efficient control line (what else from this club, although that looks suspiciously like a free-flight vintage ship hiding behind the model box!) display team who perform at various fetes throughout the season. The provision of a clearly visible timetable of events is a sound scheme, and well worth copying—providing you can keep to schedule.

a question of chucking something vaguely resembling a *Puss Moth* into the air, for points are to be awarded for Realism, Proof of Identity, Workmanship and Extra Detail. Models to make a 10/15 second qualifying flight. Sensibly this will only be held at a time when the weather is gentle enough for these rather vulnerable models. Should make a worthwhile project for any club to follow.

Disappointing for the *Three Kings Aeromodellers* who went to the S.M.A.E. centralised C/L comp on march 21st at R.A.F. Cottismore, was the disrupting strength of the wind. Only six flew in Stunt, with Steve Blake coming out on top after crashing his *Nobler* on the first flight and using his *Crusader* on the second. On the Goodyear front the club's retiring secretary, Dave Woods, has donated a gold anodised trophy 'to promote Goodyear racing in the club'. Its inviting appearance has caused much envious mutterings and building resolutions. But where to fly? Why, on the *Three Kings Piece*, now enhanced by a large, gleaming notice board carrying the legend 'Three Kings Piece' executed in the form of a coat of arms with the motto *Stand Fast in Honour and Strength* (Cement tube and model regardant?)

The advantage of using a starter motor, we learn from the *Flying Druids M.A.C.'s* newsletter, is that you get a mangled con rod instead of a mangled finger. That is, if you are unwise enough to use the club's latest acquisition with a flooded motor. Comfort, though for the weary flicker. And, if you don't like flying without an adequate fuel supply the club is holding a barbeque type fly-in. The multi course will include sausages and a few rolls! Reference to a visit to Boscombe Down on a recent royal occasion is of a wet, cold flying display, with too much wind for the veteran aircraft to show their leisurely paces. But plenty of static aircraft to look at, particularly on the model side, where a close up view was possible of such delectations as Dennis Bryant's geared McCoy 60 *Gauntlet* and Roy Yates's *Proctor*. And whilst on the subject of Boscombe Downs, slope soars should note that Beacon Hill is out of bounds. Not that this worries some flyers, as they say that the army interference is something chronic (battery trouble?). And from where eagles wouldn't dare to the whispers of dicky birds. These tell us that the newly formed *Andover* club is negotiating through the S.M.A.E., for the use of R.A.F. Andover. And, speaking of flying sites, the club has been asked to give a display in the Cathedral School Grounds, Salisbury. Club opinion is that it would save the use of one pylon at least.

Controversy still raging between Maurice Doyle and Brian Hooley in the pages of *The Message*, the N.W. Area news-sheet. Brian Hooley quotes figures to prove that the Open Power model of the 1950s had a performance equal, if not better, than the jobs we fly today. One reason for the failure of the expected evolutionary improvement is that most jobs currently flying are to F.A.I., specification, where the extra weight offsets the advantage of greater engine power. Seems difficult to believe since the 1950 models had to r.o.g., and, to my mind, were nothing like so consistent as their present day counterparts. Reference to large aircraft on the Woodford Aerodrome seems to suggest that, as the huge birdies are there to stay, powered free flight, whether 1950 style or modern, will not be possible for the August meeting again this year.

Ron Firth, in the latest edition of *Model Aeroplane Gazette*, waxes eloquent on the sort of dream day flying weather he met with at the Area meeting at Chetwynd: a fine warm day, with but the gentlest of breezes, and most of that going upwards. Like butterflies, a warm, balmy day brings the model flyers out in swarms, and very gratifying was the 77 entry for the four events. In glider, where 32

entrants towed manfully in the midday heat, the threat of the oversize *Caprice* was again apparent; John Boon getting a 5.55 in the fly off. The success of such meetings gives point to a letter in the *Gazette* from Mike Reeves. He refutes the idea of free flight being singularly threatened, suggesting that this basic form of model flying from which all controlled forms of flying have derived, will survive, as it does very much today, as long as model aircraft are flown. Competition wise, it requires the minimum of organisation, and will continue to provide an attraction from that factor alone.

Watford Wayfarers remind us in their newsletter that summer is icumen in. Duly warned, model flyers are turning their attention to indoor flying.

The newsletter of the **Maidstone M.F.C.**, gives news of some of the fine Radio scale models making their appearance this season. Very much of a trend, Radio scale, giving scope for the sort of detail lacking in the functional machine. The choice of Ron Brownfield is the *Fokker D VIII*, a high wing monoplane, and that of Dennis Young, a superb *Great Lakes* from the Don Stother's plan. I've seen one of these machines performing, and I can well understand the enthusiasm which greeted Dennis Young's flying display. Noel Lovatt has produced a *Gaupner Amigo* with propo gear on rudder and elevator. He did a few short flights by tow launching but has now gone over to an engine pod. I should have thought that a 'purer' solution to the problem of altitudinism would have been a bungee type launch. What did Brian Hubbard find in the cupboard? Supermarket 'Toilet Paper' with which to cover his *Super Star*. This has given a nice, dimply finish, though I should have thought that it would have been more suited to Miss Bikini!

S.E.A.D.O.G., newsletter reports that a talk was given at a S. East Area Committee meeting by Mr. Norman Chapman (London Area Delegate to the Standing Conference of Sports Organisations). Apparently he, along with many other people, are trying to get aeromodelling recognised as a Sport. Were it to be so, help could be forthcoming for the obtaining and keeping of flying sites, and even grants to help teams get to the world champs. Personally I cannot see that an activity which has now become part of our culture, need be defined in this way in order to be recognised as nationally beneficial. Question is though, can you afford sport radio? Odd, that in spite of inflation and all the gloom and doom financial news we are given so many people can afford proportional radio equipment. In fact, this form of affluence is so widespread that it brings Chris Foss to write of the complete lack of Single support in last year's slope soaring events. However, he hopes for a better response this year, even if it means some people having to modify their propo gear to rudder only! Some of the excitement of Single glider flying is getting the model in a strong thermal. It's like having a power model on the end of a piece of string.

According to *Exhaust Fumes*, the **Speke M.A.C.** has been agitating for a new flying site, presumably C/L, through the local press and radio station, but so far without result. Clarke Gardens, the existing club site, is being converted into a crematorium, and thus can be considered a dead loss. The authorities seem to have the idea that model flying is dangerous, and obviously do not wish to incur the cost of further burial grounds. Model planes can, of course, be dangerous, although with C/L models the noise factor is more of a handicap. Given a few simple precautions and the model on a wire is safer say, than a cricket ball. An offer to the Liverpool City Councillors to attend a demonstration came to naught, but an appeal direct to the Mayor appears to show more promise. And from where to fly to how to fly them. In reproducing the vogueish design we are apt to forget the complex interaction of forces which keeps our models airborne. Just by way of a reminder Mr. A. J. Draper (who is reputed to have his own T.V. show) is writing a series of articles for the mag on the subject of aerodynamics and proportions. Worth reading, as an understanding of theory enables you to design and trim to a purpose.

The cutting of a certain gentleman's lawn, referred to in the **Valkyries M.C.** newsletter, is not to be undertaken with low flying models but with the gentleman's own lawnmower - in return for using the said appliance on the club field. Plenty of activity to be noted in the newssheet; contests, displays and even a picnic in the autumn.

The **Telford M.A.C.** has got itself a good write up in the local newspaper. The article tells how the club has trebled in size to a membership of 46 since it was formed last June. Telford is in Shropshire. The club has a field suited to controlled flying only and is now on the look out for a free flight patch.

Odd how we get these sudden upsurges of interest. It was only a couple of months ago that the **Belfast M.F.C.'s Nitro** was bemoaning the lack of juniors on the flying field, but with the coming of an inspiring spell of fine weather quite a few tender reeds have shot up amongst the old annual hardies. Mostly the influx is attracted to C/L, but

since the club also has a good F/F field it is hoped to broaden their interests accordingly. Should we scrap the 'builder of the model rule' asks someone in the newsletter, suggesting that, since it is the flyer and not the machine that counts, we would get rid of an anachronism and broaden the scope of competitive flying. Question again. What sort of models should the beginner opt for? The answer here is a combat model and an A/2 glider, both, in their way, exciting forms of flying and relatively cheap.

Coming from the *Academy of Model Aeronautics* of Washington, D.C., is a publication called *Competition Newsletter*. Not limited to any one facet of the hobby it appears to cover the whole contest range. The twelve closely printed pages make for good informative, and often lively reading. Did you know, for instance, that radio failure is often due to the framus in the ceramic pot causing stumped resolution? Just a humorous extract from one of the many letters published in the mag. Another letter, in more serious vein, seems to suggest that the powers that be (in America) regard free flight as dead in spite of the obvious fact that at any meeting the free flighter outnumber the radio contestants. It goes on to suggest that the trade should pay more attention to free flight in the way of kits, etc. Ah, but the money's in radio, where, however, and if flown. For Scale fans there is a useful article on building trussed ribs. A tricky business, though: a 'wide' rib is made up of sheet and strip, and then sliced up into a number of highly realistic thin ribs.

Speedy Diaz is the very apt name for the President of the **San Diego Orbiters**. Their newsletter, *El Torbellino*, covers the free flight scene in that part of the world. Last month I was puzzled to know how a non-flotatious model meeting was held on Lake Elsinore, but it would seem that a reference to the bed infers that the lake has dried up, or rather part of it has. Point here made on the new Indoor limited weight rule. Clarence Mather hopes to keep the wing loading light by a biplane set up. What with the weight going into longer motors it could be the new ruling will result in higher durations. Outdoors the desert is just the place to hold a contest; miles of flat retrieving space and not a cornfield in sight. And you can use chicken feathers for thermal detecting without worrying about the litter. Watch out, though, for snakebite and soft, wheel-swallowing sand.

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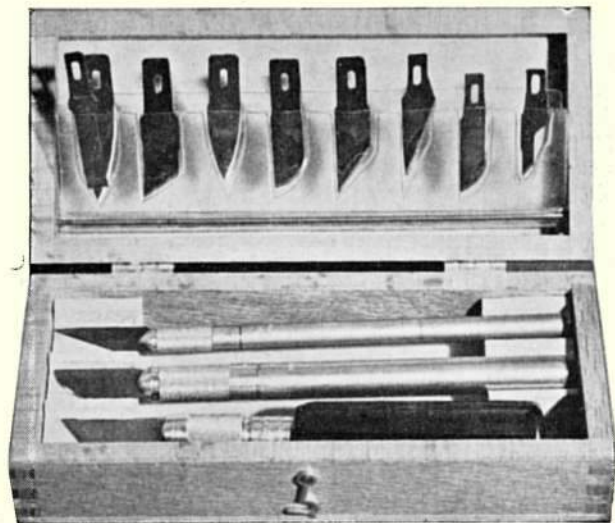
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The ubiquitous *Phantom* serving with many Air Forces in numerous roles is the main scale drawing subject of the July issue. British variants, the F-4K and F-4M are dealt with in copious detail with measured from life drawing data to aid the modeller or aviation student. Novel car feature covers the Jabford 1172 c.c. special trials car - a positively unique subject for plastic card modelling. Extensive kit review covers the Revell P38 Lightning twin engine fighter and the little appreciated (outside France) *Pourquoi Pas* exploration ship as kitted by Heller. More kit news in 'New to You' includes the Harley Davidson *Electraglide* enormous motorcycle as kitted by Revell, plus informative features on all aspects of scale modelling are in this fact packed issue on sale June 11th.

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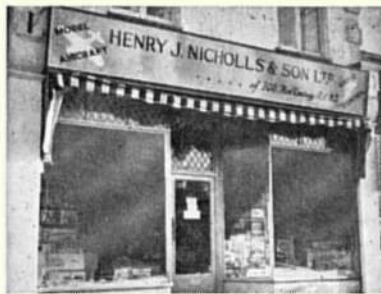
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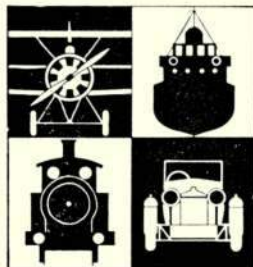
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Details from the Exhibition Manager.

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S.M.E.E. Workshop ready to show you how . . . Ever-popular S.M.E.E. PASSENGER TRACK in operation, plus enormous surprise item on show . . . The Bryanston Room will be devoted to club stands, demonstrations, and provide a visitors' Clubroom. This room will also house the TRACTION ENGINES. New! Lecture Hall will be BATTLEGROUND - where three BATTLEGAMES will be taking place with running commentaries, plus MILITARIA display. Upstairs regular CINEMA SHOW.

If you feel you can help in any of these projects, get in touch at once. Big contest classes will have improved stewarding; all small models and entries under glass. Write in for further particulars.

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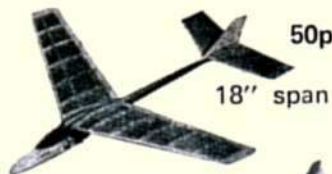
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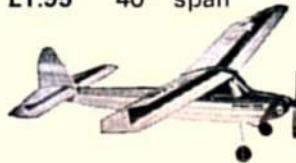
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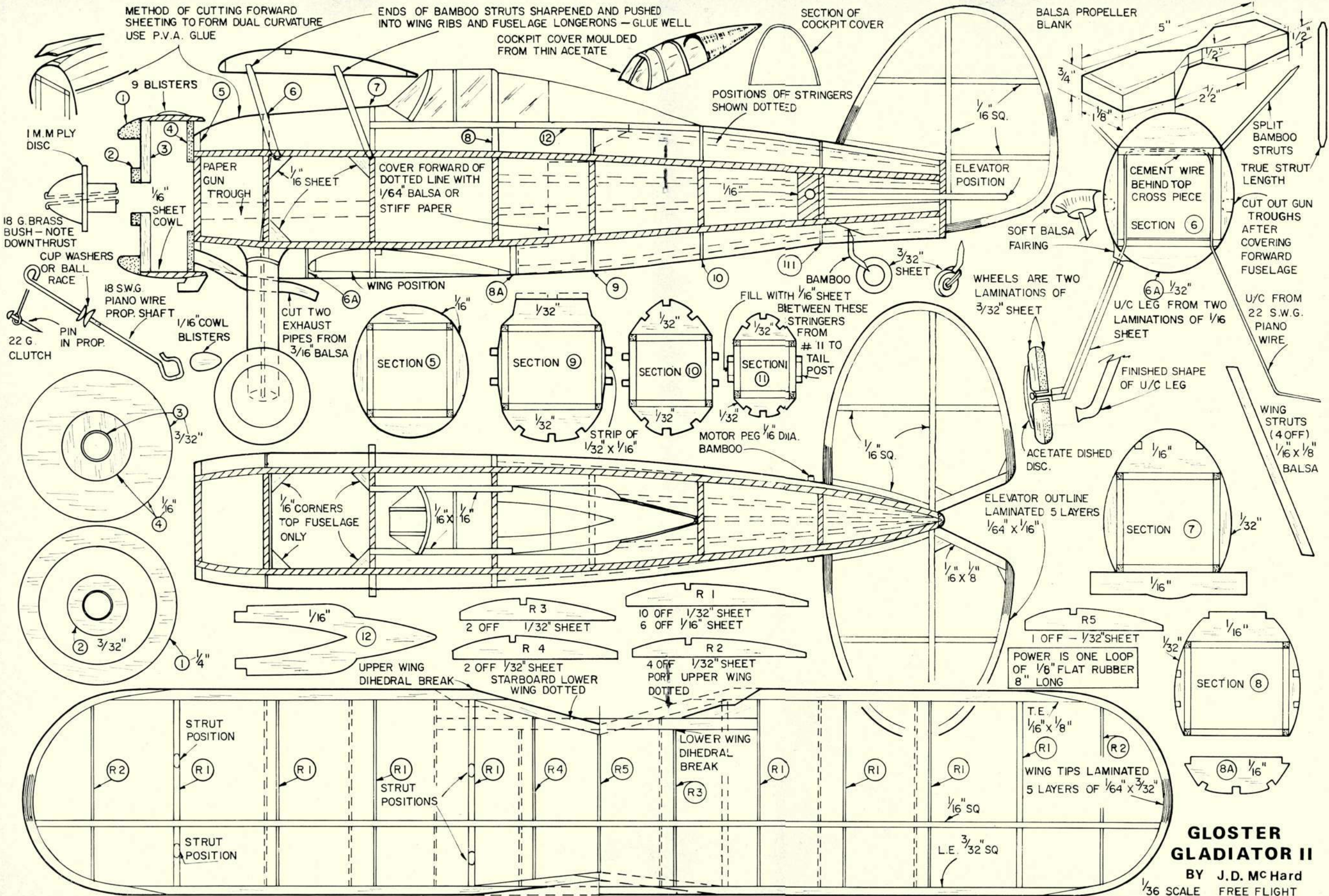


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