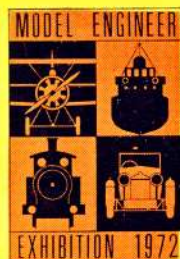


Aero Modeller

December 1971



15p. (USA & Canada 75c.)

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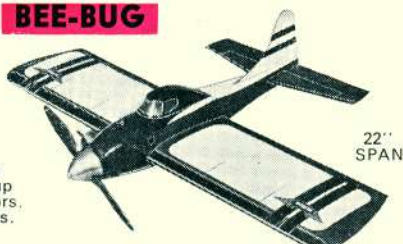


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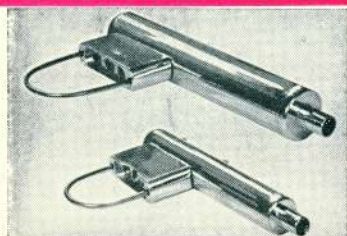
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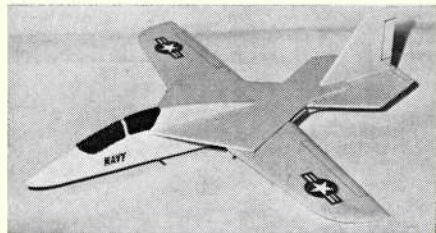


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Incidentally, our swing-wing model never did work out properly. We are still trying to think up a simple way to lock the wings back for a catapult launch and then have them swing forward at the top of the climb. Any ideas gratefully received!



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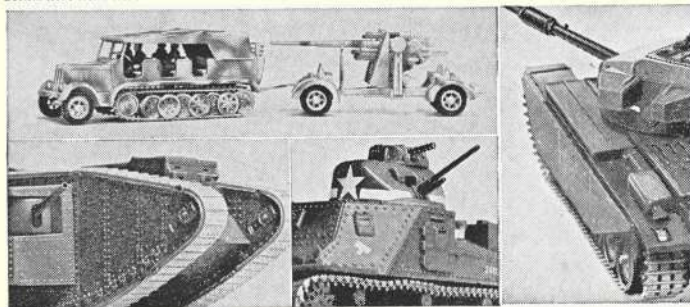
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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

December 1971

Volume XXXVI No. 431

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COMMENT

Two months back this column reported a drastic change of policy for the annual 'Nats', with division of the 'controlled' and 'Free' classes at two separate venues, and on two separate dates. Now we have further change. In response to free-flight appeals, their Nats is transferred from August to the Whitsun holiday. So now we have a truly divided Nats! Two events, one at Hullavington for C/L and R/C, the other for F/F (and R/C Thermal Soaring) at an undecided northern venue on the same days. Our summary still stands. The atmosphere will have gone from the Nats as it reduces to 'just another contest rally'.

Equally controversial are F.A.I. matters. The future location of World Championships remains uncertain, and the results of the 1971 R/C Championships were, in our view, indeterminate. Although the International Sporting Code has been 'sealed' for four years, this contest in the U.S.A. revealed many shortcomings which have yet to be resolved with clearer legislation.

Thus 1972 will have much to offer in the way of surprises - let's hope they are all pleasant and profitable for everyone!

Merry Christmas and the happiest of New Years to all of you!!!

on the cover

Sheltering under the nose of Hazel Sigafosse's Clipped Wing Cub at Doylestown are a few of the 120 models from all parts of the world. Top right, 'Bep' v. d. Heyden-Huybern and Bob White's Wakefield. Below left, World A/2 Champion Josef Klima of Czechoslovakia and his model; right, David Hardaker, aided by Mike Birch, preparing Dave's 'Capricorn' at Doylestown for last important flight.

next month

Drawings and constructional feature for making a hot air balloon. Plans for a twin-engined control line scale model of the Beagle Bassett. Return of Gadget Review! How to make the initial test flights with a free-flight scale model. Engine Test, Aircraft Described plus all the regular features, on sale December 17th.

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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.



Regd. Trade Mark

the pen they model on



Model Making Competition

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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

- 1 The participants of the Bic Model Making Competition will be judged on their originality and technical model-making expertise.
- 2 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.
- 3 Entries for the competition must be accompanied by the official entry form below.
- 4 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.
- 5 BIC Crystal barrels may be cut to shape or size, but each barrel must clearly show the Registered trade name BIC (as imprinted 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.
- 6 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 stamps.
- ### 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?

6A

PLANS HANDBOOKS



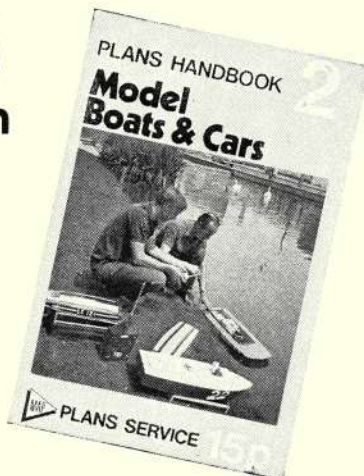
Aeromodelling

128 pages featuring hundreds of working model aircraft, illustrated almost entirely by photographic reproductions of the actual models, plus span, brief description and graded for ease of construction. Also selected engine list with tabulated data; index to illustrated plans, X List of vintage unorthodox novel plans, many other classifications, useful articles, order forms. Also good selection of trade advertisements.



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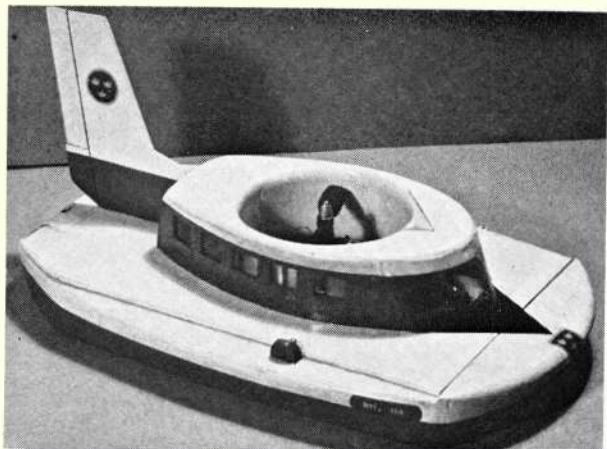
96 pages of plans of scale and semi-scale ships, tugs, lifeboats, submarines, paddle steamers, period ships, racing yachts, hovercraft, cabin cruisers, mostly illustrated, fully described, and classed for ease of building. Working model cars and usual vehicles are included and a large range of scale car drawings, racing cars ancient and modern. Index of drawings; useful articles on building; waterline plans; trade advertisements.



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96 pages of R/C models. There are 128 R/C aircraft, all illustrated, including S/C Sports Models and Trainers, Galloping Ghost Models, Competition Aerobatic Models, Multi-Sport and Trainers, Pylon Racers, S/C and M/C Scale Gliders and Soarers. 87 model boats suitable for radio control.

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Full-size plans for a hover model, powered by an .010 glowplug engine, are a feature of December's Meccano Magazine. With Christmas presents in mind, the news of new kits, books, etc. is extended and there is a look at what's involved in 'painting by numbers'. Stage coaches and modern snowmobiles contrast two very different modes of travel, and there are articles on a strange animal, pidgin English, Papuan stamps, stars, photography, air news, etc. An astonishing Meccano tellurion (an astronomical instrument), a coin-operated car-park carrier, and a simple and advanced models and mechanisms are included.

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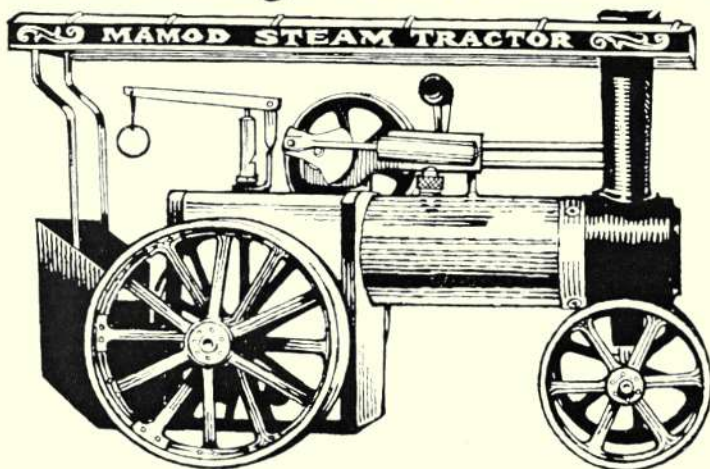
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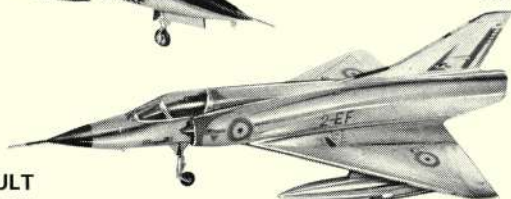
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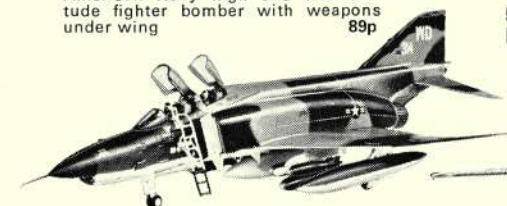


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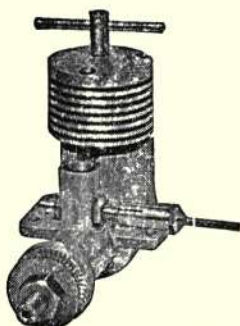
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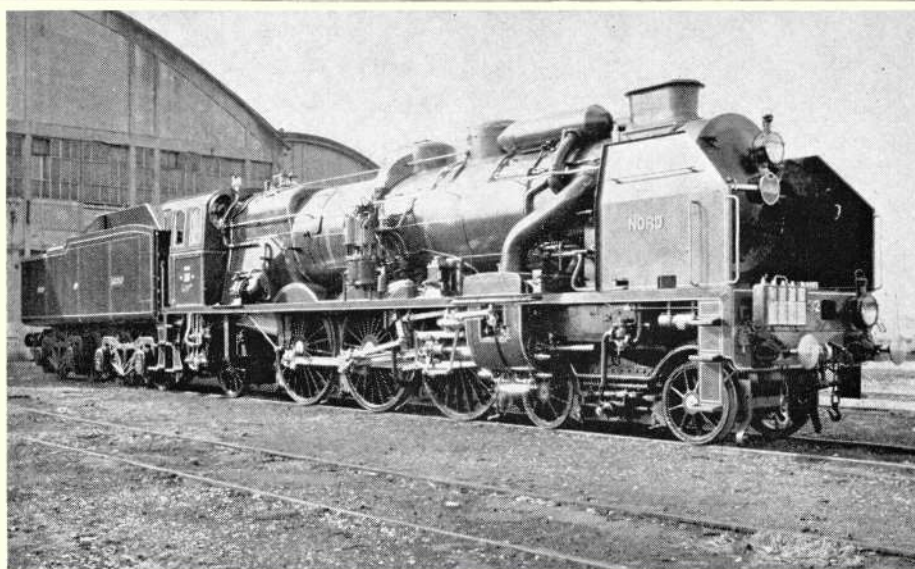
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Loco building, making trees and the first of a series of features about mass producing colour light signals are included in the Christmas number of

Model Railways

— the magazine for
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196 of 'THE TIGER MOTH STORY'.

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1 3/4" dia. 88p
2" dia. 96p
2 1/2" dia. 104p
3" dia. 112p
3 1/2" dia. 120p
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4 1/2" dia. 136p
5" dia. 144p
5 1/2" dia. 152p
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A HAPPY NEW YEAR!



Graupner

CIRRUS 118" span SCALE SAILPLANE £18.75

Quite the most fabulous kit yet, with finished fuselage mouldings in ABS plastic, pre-cut wood parts, covering materials, complete hardware adhesives, etc., etc., and QUICKBUILD plan.

For tow launch, slope soaring or powered glider, taking 2- to 6-channel R/C gear for rudder, elevator and aileron control. Wing area 806 sq. in. One-sixth full size!

FOKA 102" span £14.80

A true scale sailplane for free flight or R/C. Suitable for both tow launching and slope soaring. Wing area 710 sq. in. Weight 42-56 ounces. FUSELAGE incorporating wing mounts and fairings moulded in high-strength plastic, with other parts in balsa and ply (mostly fully shaped), fully shaped wire parts, canopy, covering material, adhesives, decals, etc., etc.

FINISHED ONE-PIECE

Pylon engine mount £1.32
Fuselage only £8.25
Mounting ribs 99p
Canopy 40p
Installation pack £3.40

NANCY A1 £4.15

KATY A2 £8.15

67" span. Quickie kit includes milled fuselage nose, die cut balsa, wing fairings & other parts in plastic.

48 3/4" span high performance contest-type model complete with dethermaliser and auto-rudder. Quickie kit with milled and die-cut parts, plus hardware.

63" span. Kit includes pre-shaped fuselage parts, die-cut sheet, milled and slotted stripwood, canopy, hardware, adhesives, etc.

DANDY F/F or R/C £6.90

ALL GRAUPNER SUPER DE LUXE KITS are noted for their quality and COMPLETENESS - right down to adhesives, covering material and decals.

UHU £2.80 Mk. III

All parts extensively pre-fabricated for quick and easy assembly by junior modellers or beginners.

FILOU £4.85

50" span sports type sailplane which converts to auxiliary power with pylon mount (mount 92p extra). Note: DANDY and AMIGO II also convert to pylon power.

AMIGO II £8.30

78 3/4" span

A contest type towline glider of conventional construction, also suitable for radio control. A very well engineered kit.

OTHER GRAUPNER GLIDER KITS INCLUDE: JOLLY A1 £3.55 45" span, 'Quickie' kit. FOUGA SYLPHIE 25 1/2" span £1.78 Scale type for Jetex.

TAXI £12.80

Specially designed as a sports model or R/C trainer. Extensively pre-fabricated kit for QUICKIE construction, pre-cut balsa, ply and balsa-ply parts plus all hardware, adhesives, etc. Engines .09 to .19 (1.9-3.9 c.c.).

Acclaimed as the FINEST R/C KIT YET for multi or proportional R/C installations.

KWIK FLY Mk. III £19.65

This kit makes an authentic duplicate of Phil Kraft's WORLD CHAMPIONSHIP winner. Kit includes glued and curved fuselage sides, shaped wood parts, diecut balsa and ply sheets, formed undercarriage wheels, canopy, hardware, etc. 59 1/2" wing-span. Engines up to .61.

R/C MIDDLE STICK £15.65

Wing span 55". Length 38 3/4" overall. Wing area 611 sq. in. Tail area 124 sq. in. Weight approx. 3 1/2 lb. (up to 5 lb. with radio). Suitable for .40 engines.

Assembly time is reduced to a minimum with plenty of pre-cut parts, including precurved, preglued fuselage sides.

AMATEUR F/F or R/C £7.65

43 1/4" span. Kit includes full length diecut balsa fuselage sides, diecut sheet and ply, shaped wire parts, wheels, hardware, etc. Takes engines up to 1.5 c.c. for sports flying, also 2- or 4-channel radio.

OTHER POWER KITS (not shown): CONSUL 41" foam plastic £9.95

KADETT 46" h/wing £5.40
MINI PIPER 28" quickie £5.90

NEW FOR 1972!

CUMULUS 2800 101" span scale sailplane

Length 56" Weight 56 oz. The last word in super de luxe prefabricated kits. Injection moulded nylon fuselage, etc. Wing area 755 sq. in. veneered foam wings, tail surfaces - all ready to assemble. A fabulous performer too. £41.60

BO 209 MONSUN CESSNA 177 CARDINAL

All sheet balsa construction. Injection moulded plastic fuselage, foam wings and tail - virtually assemblies ready to fly! Span 61". For 5-6 c.c. motors. powered. 21 1/2" span. £2.95 For free flight or R/C. £29.40

U.K. DISTRIBUTORS
RipMax Ltd 80 HIGHGATE RD LONDON, N.W.5
other Graupner Agents include—

U.S.A.: POLK'S MODEL HOBBIES, 314 Park Avenue, New York, N.Y.

AUSTRALIA: PAUL GROSMANN, 144 Tintern Road, Ashfield N.S.W.

HONG KONG: RADAR CO. LTD., 2 Overseas Road, Kowloon M.K.

CANADA: G. BOOK & CO., 45 Wingham Avenue, Toronto 19, Ont.

S. AFRICA: PHIL DE BRUYN, 85 Prichard Street, Johannesburg.

N. ZEALAND: BURTON BRANFORD, 241 Willis Street, Wellington, C.Z.

YOUR MODEL SHOP

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

Don't let the hobby come between you this season



**Mention
strong,
silky
smooth,
even
tempered
Belcobalsa**

**you never
know, she may
get interested!**

She may even get serious!
And every serious model man knows
what that means — an absorbing
interest in quality and performance.
Silky Belcobalsa, with its even grain,
superb finishing, accurate grading and
constant quality can only aid the
perfection you seek.
**Have a word with your supplier about
Balsawood, he will confirm the quality of
BELCOBALSA.**
— HAVE A HAPPY BUILDING SEASON

BELCOBALSA

The stuff that flying is made of

The Balsawood Co.(Ireland) Ltd • Kinsale • County Cork

KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

Heard at the HANGAR DOORS

QUOTE FROM the new Australian magazine *AIRBORNE MODELS* launched this year by Lyall Bailey and Dave O'Brien of Blacktown: *'WOMAN LASHES MODELLER WITH DOG CHAIN'*

'A youth had flown his plane on the Dane Road reserve on the 6th, 7th and 8th March. A neighbouring resident complained about the noise more than once, because of an elderly mother in bed with a broken leg. He then walked into the lines causing the plane to crash. His wife struck the flyer with a dog chain, then the husband took it and swung at the youth, who punched him and ran off. A student police cadet tried to intervene, when husband chased the flyer holding the dog chain. Meanwhile, the wife jumped on the plane as a cricket team arrived and wanted the ground cleared so they could start their match.'

'Cross summons of assault were issued and both parties were released on bonds. The wife was ordered to pay \$6.00 costs for damage to the plane.'

'We repeat that model plane flying is prohibited on Moorabbin's parks and reserves. Please fly at the airport.'

PERCIVAL NEW GULL MODEL has been stolen from the Shuttleworth Collection. No miniature, it is about 30 in. wingspan, well-made and very much wanted back at Old Warden. Any modeller having news of its whereabouts should contact the Editor.

WINTER ACTIVITIES come fast upon us and electric R.T.P. is getting increasingly popular. We recently enjoyed a very pleasant evening with Grantham and District M.A.C. with flights on up to 50 ft. radius lines, aerobatics, autogyros and even 4-up racing.

The Editor would like to hear from secretaries of other clubs who engage in Electric R.T.P. activity. There is every likelihood that a grand 'fly-in' can be arranged in the splendid hangar at R.A.F. Spittlegate with the Grantham lads.

COUPE D'HIVER is going to live up to its name this winter, and the

Editor would like to hear from all individuals interested in joining the AEROMODELLER party to the French organised International Meeting, near Paris, at the end of next February.

ANYONE LOST a Super 60 type R/C model from the Epsom Downs area? We are advised that one with white fuselage and red wings is awaiting a claimant since it arrived on private property about 5.30 p.m. on October 2nd. The claimants should contact the Editor by letter only, with a description and other identifying features.

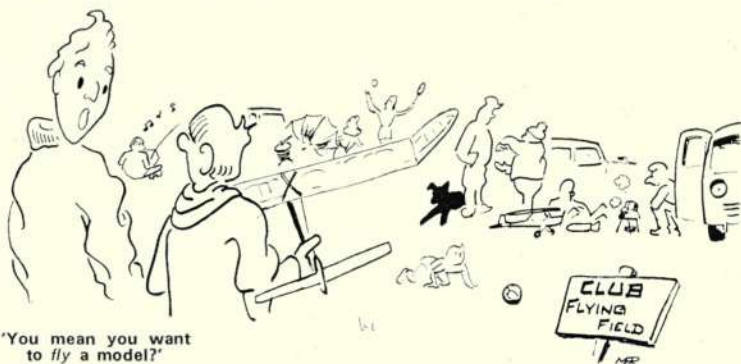
MOST MODELLERS, at one time or another, have a whim to run their own model shop – but very few have the courage of their convictions. This month, however, we have news that no less than two well-known personalities are opening-up retail shops.

Cliff Goater, who until recently was better known as a model designer for KeilKraft, has established Saturn Models at 20 Short Wire Street, Colchester, Essex in partnership with Peter Giles, and their very fine stock of models and supplies will cater for all types of enthusiasts.

A name which you *must* know is Mick Charles, and he, too, enters the retail trade when his shop opens on December 4th at 124 Canbury Park Road, Kingston-upon-Thames, Surrey. As may be expected from the World R/C Scale Champion, his speciality will be scale models and their accessories, but *all* will be catered for – from the humble rubber job to the latest in multi-radio control.

WE'RE ALL IN THE SAME HOBBY, YOU KNOW: A U.S. city council passed an anti-noise ordinance, which specifically banned Control Line models from that city. Well, the lawmen usually looked the other way unless there was a complaint. But the CL boys, though small in number wanted a permanent place they could call home. Meanwhile, a rather large tract of land was obtained for use by the RC boys, a much larger, better organized group. This site was out in the country, miles from people. Noting the plight of the CL people, the RC club got together and surveyed their area. There was one side of the field that was always off-limits to flying, either by reason of the sun or simply because the tool boxes and spectators had to sit somewhere. Between this "off-limits" area and the fence there was about 200 feet of unused area. Plenty of room for two large CL circles. Result: the RC club took in the CL members as full fledged members of the RC club, with the only stipulation being that they all be AMA members and that they run their own club in the way they saw fit. A common treasury with the same dues has been adequate so far, and the CL members work at improving their field while the RC members work at their own strip. When a common project comes up, such as the inevitable out-house or access walks or the like, both groups work together. A few of the RC boys have dragged out their old Ukies to give it another whirl and the CL boys have been asking about RC, so it looks like everybody will benefit. Why can't more clubs get together like this? Why not indeed!

Extracted from District (A.M.A.) News, U.S.A.



'You mean you want to fly a model?'

designed by
CLIVE KING

LUBE TUBE

**a 41in. wingspan, rubber powered duration model
for beginners or newcomers to competitive flying**

HAVING FLOWN Coupe d'Hiver class models for two seasons, the author decided that he would like an 'Open' rubber model of roughly the same proportions, but with much increased performance for flying in local and club competitions, and so with these thoughts in mind, a model having a rectangular sheet fuselage was quickly completed. With a motor run of approximately a minute, it performed quite well despite lacking a good glide, and while the fuselage proved to withstand motor breakages and landing on rough areas outside the flying field, it was obvious that the whole model needed to be lighter.

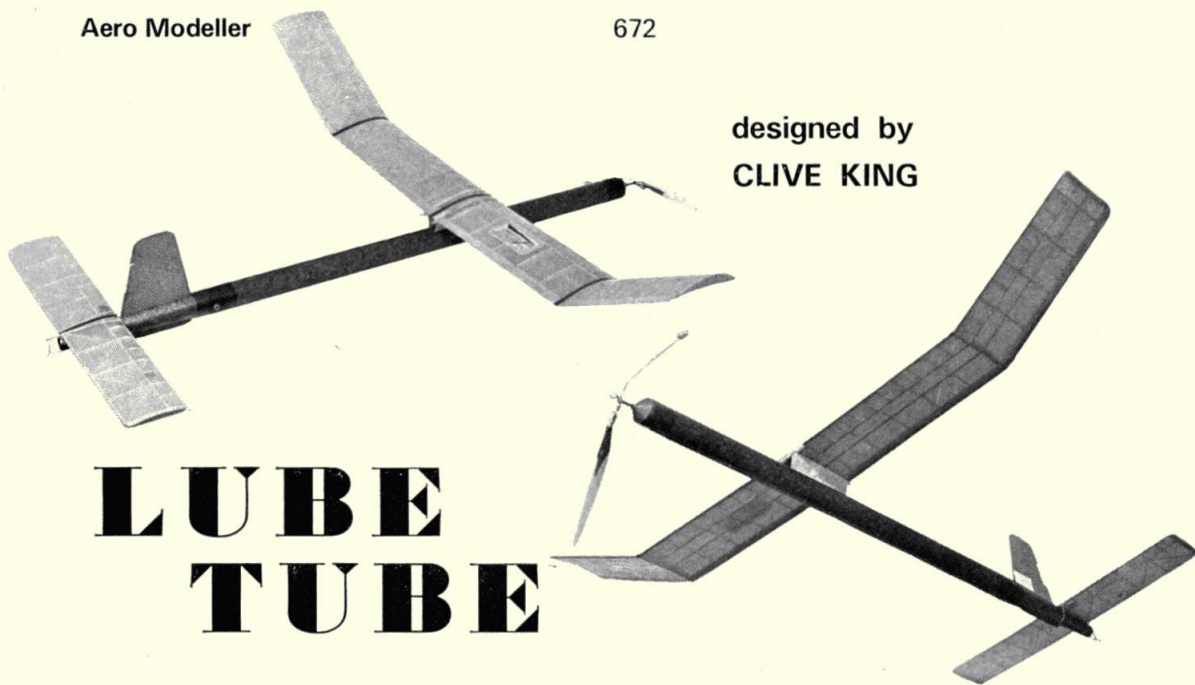
The second version presented here is virtually the same, but features a rolled sheet fuselage. When trimmed it has a good climb and three minutes have been exceeded many times. We do not pretend that this model will out-perform larger open rubber models, but Clive has flown *Lube Tube* successfully over the last two years both in contests and just for fun. The model rarely goes off trim and is as tough as one could hope for, while its simple construction is ideally suited for the beginner, and would form a perfect introduction to competition flying. If you would like to try a flying winding tube, read on!

Fuselage construction is really simpler than it looks. Firstly, choose a light straight-grained piece of 1/16in. sheet, 6in. wide, and cut it to the length of the main motor tube. The width of the balsa blank is determined by wrapping an off-cut of sheet around the former to be used, such as a broomhandle. This sheet blank then has a layer of light-weight tissue doped on one side, and is allowed to dry. Immerse the blank in water for about ten minutes, then wrap the soggy blank around the former, tissue side innermost, and bind same with bandage or tape of some sort, to form a tube. Do not attempt to cement the seam at this time. Allow to dry for 24 hours so that all the water is evaporated. Remove the tape, etc. and

cement seam, coating the former with a release agent such as soap or wax polish at the appropriate point to avoid the balsa cement adhering to it. The tube should be well sanded before removing it from the former. The rear of the fuselage is made in exactly the same way but on a tapered former. Add the 1mm ply pylon pieces, nose former and 1/16in. sheet doublers to the motor tube. Push the fin through slots cut in the rear fuselage cone, and cement onto the main motor tube. Alignment of the tailplane mounts is best carried out on assembly of the model and before covering. Finally add the D/T hook and snuffer tube for the dethermaliser fuse.

The single prop blade is made up from two 1/16in. blanks cemented together whilst being held down by tape over a curved surface with a diameter of approximately 7in. - 8in. (such as a large tin, etc.). When completely dry, a piece of 1/4in. dowel and reinforcing tube is cemented firmly into place and strengthened with a nylon patch. Sand blade to the section shown, then using a pitch template, drill the holes for both the prop-shaft and stop pin. The nose block and S-hook are as shown on the plan. A bearing made from brass tube is pushed through the nose block and cemented in place. The stop in the nose block should be positioned to give the blade the best position when folded against the fuselage as the turns run out on the motor. Finally balance the prop assembly with lead and solder on the end of an 18 swg counterbalance wire. File the weight until the prop is perfectly balanced.

The four wing panels are built over the plan separately. First cut out all the ribs, riblets and tips, then pin the leading and trailing edges down, noting the 1/16in. and 3/32in. packing that is required at the positions indicated to give the required wash-in and wash-out. Add ribs and top spars. When dry, lift panels from the plan and join each at the dihedral



Now the time has nearly come! Before proceeding to the flying field, make up several rubber motors, having a bobbin at the rear end to slide over the motor peg, the other end will just slip around the S-hook which should have a piece of plastic tubing over it to prevent cutting the rubber when it

The designer has found that to gain some extra few feet on the climb, the model should be launched just to the left of the wind, so that on the initial burst of power the model is turning into it, and thus prevented from screaming down wind horizontally. We hope your *Lube Tube* provides you with as much flying and fun as Clive has had from his.

A-47 SPAN RUBBER POWERED MODEL FOR BEGINNERS

LUBE TUBE
 Recommended by
C.King.
 copyright of
The Aeromodeller Plans Service
 12-25 Bridge Street, Haverhill, Mass. 01830

40p

BASIC MATERIALS LIST

3 Lights 1/16" x 3" x 1/16" Med. sheet balsa	2 Lights 3/16" x 5/16" x 1/16" Med. ship balsa
1 1/16" x 3" x 1/16" Soft	1 1/4" x 3" x 1/8" Soft sheet
1 1/16" x 1/16" x 3/16" Med. strip	1 1/16" x 1/16" x 1/16" Plywood
1 1/16" x 3/16" x 1/16"	1 1/16" x 1/16" x 1/16"
2 3/32" x 3/32" x 1/16"	1 1/8" x 1/8" x 1/16" Photo wire
4 1/16" x 1/16" x 1/16"	1 1/4" x 1/2" x 1/16" Dowel
2 1/16" x 1/2" x 1/16"	
2 1/16" x 3" x 1/16"	

NOTE: ALL WOODS BALSA UNLESS OTHERWISE STATED.

CONSTRUCTION DETAIL OF ENGINE

BEARING FOLLOW PROPELLOR

- Propeller block is formed from curved surface of wood. It is made from two 1/16" blocks, cemented together, being held down by lock washers & 1/16" dowel.
- When dry, add 1/4" dowel hub, reinforcing with nylon patch.
- Good block is shown.
- Using patch templates drill hole for prop shaft and stop pin.
- Laminote nose block and shape insert brass tube bearing.
- Bevel S-block on stem, not forgetting the spring and washers.
- Propeller was stop so that propeller lies smoothly along side the fuselage when the rubber motor tension is diminished.
- Balance prop block with lead and solder as shown.

CONSTRUCTION DETAIL OF ENGINE

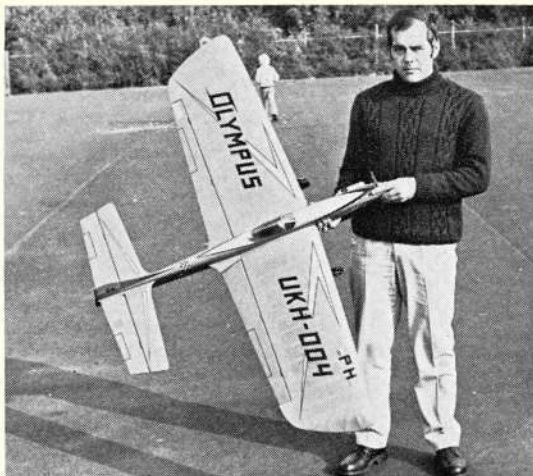
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CONTROL LINE -EUROPE STYLE

Steve Blake reports on
his excursions overseas
to see how they do it

At left, Louis v.d. Hout used his large area, Merco 49 powered model to take top honours at the Middle Netherlands Criterium meeting. Cowling is discarded permanently to help offset the weight added by the use of a silencer.

WHILST TRAVELLING to the European Championships in Hungary, four members of the British team, Mick Perkins, Dave Campbell, Brian Turner and the writer took the opportunity of competing in a Dutch contest. The flying site was a sports park situated in the centre of Geleen, a small industrial town in south-east Holland. Stunt and combat were flown on a football pitch whilst team race and speed used a netball area. The weather was perfectly calm and extremely hot.

Indicative of the different attitudes inside Aero-modelling in Holland, the organising club *Thermik 58* is predominately interested in radio control flying, however, everyone joined in to provide a really first rate organisation. Of course the two events which interested the British contingent most were stunt and F.A.I. team race. Stunt attracted only six entries, two of which were British! This demonstrates another difference in attitudes, in that continental modellers generally do not enter competitions until they feel they are good enough to figure in the placings.

The grass on the football pitch proved to be rather long, which made it necessary to hand launch several models. Paul Tupker's winning model was a *Grondal Nobler* powered by an ex Bob Gieske Fox 35 which ran superbly. I elected to use only my second string *Crusader G.T.*, as the *Starmaker's* undercarriage could not cope with the thick grass. However, it performed well and placed second, just 14 points behind the leader. Bert Metkemeyer flew his beautifully finished Super-Tigre 35 *Triatic* into third place. Bert has another, larger *Triatic* powered by a 45 but although he prefers flying it, his friends insist that the smaller one gets better points, thus he flies the smaller model in important competitions. Brian Turner flew some of his best ever flights to get up close with the leaders, and made the British result look quite respectable. Bert Metkemeyer's brother, Rob, flew a rather elderly model into fifth place, and Wim Cator followed in sixth place, using a *Stuka* which made an interesting contrast to the huge Merco 49 *Plano* he normally flies.

Unfortunately the lone British entry in F.A.I. team race did not meet with the same success as the results show. But I am sure that Mick and Dave were taught Lenzen/Rumpel (West Germany) won the F.A.I. team race event at Utrecht with the model Rumpel used at Pecs earlier in the year, piloted then by Dubowsky. Super Tigre G15 converted to diesel operation is quite a popular choice these days.

a great deal in the process. In particular the surface was very smooth which made the typical fast 'continental' landings much easier than is generally the case on runways. The Metkemeyer brothers made their mark again, (these boys fly just about every C/L class that exists) flying their modified S.T.15 *Turtle* into first place. Runners-up Karreman/Beugles went very well to produce the fastest heat, and a close final, at this rate they could soon be in the Dutch team.

Both Campbell/Perkins and Brian Turner were intrigued by the Dutch version of 1/2A team-race. Their rules specify that the model must have a minimum wing area of 93 square inches, minimum fuselage cross-section of 2½ in. x 1½ in., use a 1 in. diameter wheel and be powered by a 1.5cc engine with a 6cc fuel tank. Lines are .2mm (.007 in.) diameter and 45 feet long, one hundred laps being flown to equal 8½ kilometers. Whilst these rules produce models very close to our own specifications, the times in general are much slower, which made the British lads wish that they had brought their own 1/2A models! Most popular engine is naturally the Oliver Tiger Cub, but several Webra Records are also to be seen, due mainly to a very low price when introduced as a 'bargain offer' at one time.

Two classes of combat are flown in Holland, F.A.I.



and 1/2A, but by British standards both looked extremely amateurish. It seems strange that although British combat flyers have demonstrated their talents several times abroad, and many European visitors have seen them at our Nationals, that no European country has approached the British standards.

Speed was poorly supported, most popular class being 1.5 c.c., which had 4 entries. F.A.I. followed with 3, and 5 c.c. had just one. No pylon was available, the pilot indicating a run by a hand signal or calling.

The meeting finished with all concerned receiving a duplicated set of results, and a prize-giving ceremony. The winners were awarded small silver cups, whilst the second and third places had a bottle of wine each, in addition to diplomas.

With this taste of Continental competition, plus of course the International event at Pees, which ensued, the writer decided to try his hand at more 'foreign do's', and duly made arrangements with his Dutch friends to compete at the *Criterium Midden Nederland III* (Third Middle Netherlands Criterium), which was due to be held at Utrecht on October 9th and 10th.

Organised by the Utrecht club the event proved to attract entries from Belgium, West Germany, Great Britain and Holland. The flying site was situated in a suburb of the town, and was surrounded by schools, colleges and student accommodation. Normally a basketball area, the extremely smooth tarmac surface was barely large enough for two circles. One of which was allocated for Stunt whilst the other catered for Team Race and Speed.

Due to local restrictions, practice flying did not start until 1p.m., on the first day, with competition flying commencing about an hour later.

Although there were over a dozen pre-entries in stunt, only six made competition flights, but of these, five were internationally recognised flyers, so the competition was keen. Two rounds were flown on the first day, at the end of which Louis v.d. Hout (Netherlands) was the decisive and deserving leader, but the fight for places was much closer, the writer's second place being in jeopardy if either Paul Tupker or Rob Metkemeyer made particularly good final flights. Also, Bert Metkemeyer still had to fly, since he had forgotten his lines!

Meanwhile the heats for both 1/2A and F.A.I. team races were proceeding under commendably strict supervision. Times in 1/2A were not particularly fast, the heat times being very similar to those in Geleen earlier in the year, however the final was an improvement with the Buys-Visser team clearly out in front.

Naturally most team race interests centred on the F.A.I. event, though only the first round was flown. It turned out to be something of a disappointment with only three teams bettering 4:50 while some five teams were disqualified, and several other good teams failed to perform well.

British competition organisers could learn much from the Dutch method of running team race. Two judges, one equipped with an electronic loud hailer stood at the edge of the circle. When it was agreed that an infringement had occurred (and they were very quick to spot them) this was called over the loud hailer, and marked by a coloured wooden plate hung on a post beside the judges.

Following team race there was just time to com-

Lenzen had a successful time at Utrecht placing second in speed as well as piloting the winning team race model. His asymmetric model is Rossi powered - the reasoning behind the longer inboard wing is to fair in as much as possible of the drag producing lines, and to equalise lateral lift in supporting the lines.

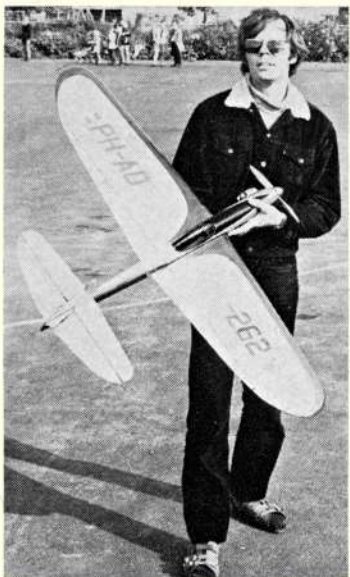


plete the first round of speed. It goes without saying that the event was to be dominated by Rossi engines, though Frohlich's (W. Germany) leading speed of 228Km/hr. was relatively slow. However it was 21 Km/hr. faster than his nearest rival Holle (Netherlands).

Conditions for stunt flying on the first day had been good, with only a light breeze blowing, but there had been abnormally strong turbulence, presumably caused by the surrounding buildings. For the start of the last round on the second day the wind speed increased, producing with it some treacherous turbulence. This was not consistent, and would hit the model suddenly. During the writer's practice flight his model flipped 90° to be viewed in full plan, when overhead in the reverse wing over, however line tension was completely unaffected and the *Star-maker* soon righted itself. In these conditions it was hardly surprising that no one managed to better their first two flights. Bert Metkemeyer made up for his two lost flights later in the afternoon when the wind had calmed considerably, which fortunately provided a very fair basis for comparing his scores. Thus Louis v.d. Hout, flying on his home site, won with some very smooth flying, though some of his shapes left a little to be desired. The writer placed second, with



Visser/Buys are keen Dutch team-race enthusiasts and use the latest in a long line of models named 'Turtle' - this version having anti-vortex tips which incorporate wing skids. Modified G15 used for power.



Paul Tupker, no stranger to *Aero-modeller* readers, has an ex Bob Gieske Fox 35 in his Grondal Nobler. Won the Geleen event, but was fourth at Utrecht. Member of the Dutch aerobatic team at Pecs international event.

Bert Metkemeyer flying his large Super Tigre 46 *Trianic* into third slot only nine points behind.

In the second round of team race most of the teams that had disappointed in Round One, redeemed themselves, though British Nats victors Kaul/Schwarz managed only to get a second disqualification as a reward for their 500 mile round trip from Germany! Obvious favourites after the heats were Lenzen/Rumpel (W Germany) with 4:27 to their credit, whilst their closest rivals Visser/Buys (Netherlands) returned a best heat of 4:40.

The semis were flown without incident, and the finalists were Lenzen/Rumpel 4:37, Helmich/v.d. Kroon (Netherlands) 4:58.8, and Visser/Buys 5:04.

The final was flown cleanly and the Germans flew to a comfortable victory in the very quick time of 9:12. This is 9 seconds faster than the Pecs final, and they were wasting seconds at each pit stop! All three of the finalists used Super Tigre G15 glow engines converted to diesel operation.

Not content with winning team race Lenzen returned 238.41 Km/hr. in speed using an asymmetrical model similar to the one used by fellow countryman Wamper, at Pecs. Frohlich responded with a second round 236.84 Km/hr., and in the third bettered even this with exactly 240 Km/hr. But Lenzen was unable to record another time, so he had to be content with second place. The rest of the field were completely outclassed by these flights, local man De Brie-Borra taking third place with a mere 219.52 Km/hr. All competitors used Rossi 15s, with the exception of a single Kosmic.

The last two rounds were flown over the stunt circle without a pylon but little if any 'arm' was used to record these speeds, and indeed it is possible that they would have gone slightly quicker in a pylon. Lenzen's flight sounded superb and 'at the limit', whilst Frohlich's winning flight left one feeling that their might still be something in reserve.

Thus ended this small, friendly meeting which was nevertheless taken very seriously by all concerned. Quality rather than quantity was the order of the day, it being remarkable that the performances in

both team race and speed were superior to the European Championships—not forgetting Louis v.d. Hout in stunt who on this form would certainly have been amongst the leaders in Pecs.

For the writer the whole weekend was quite an experience. Driving to Harwich from Luton immediately after work Friday evening, he travelled on the night boat to the Hook of Holland on foot carrying a 62in. x 21in. x 8in. model box and equipment weighing in total over 60lbs. Returning by the night boat on Sunday and driving straight to work Monday morning, and so as they say, 'all good things come to an end'. However, apart from being just another contest these insights into Continental meetings are most interesting, as one is able to meet different competition (and perhaps more important, other judges!) and ones flying standards can only benefit from this additional experience.

RESULTS

GELEEN, 4th July 1971

Aerobatics (6 entries) 1. P. Tupker 1736 pts, 2. S. Blake (UK) 1722 pts, 3. B. Metkemeyer 1720 pts, 4. B. Turner (U.K.) 1694 pts, **1/2A Team Race** (3 entries) 1. Karreman/Beugles 10:36, 2. Helmich/v.d. Kroon 10:44, 3. Buys/Metkemeyer – ret'd. **F.A.I. Team Race** (6 entries) Helmich/v.d. Kroon 11:22, **1/2A Combat** (4 entries) 1. Meyer, 2. N. V. Zijp. **F.A.I. Combat** (4 entries) 1. T. Kroon, 2. N. V. Zijp, **1/2A (1.5cc) Speed** (4 entries) 1. v.d. Kroon, 138 Km/hr., 2. Beugles 127 Km/hr., **F.A.I. Speed** (2 entries) 1. W. Holle 225 Km/hr., 2. Buys 212 Km/hr. **5cc Speed** (1 entry) I. W. Holle, 250 Km/hr.

CRITERIUM MIDDEN NEDERLAND III

Aerobatics (5 entries) 1. v.d. Hout (Netherlands) 2,331 pts., 2. S. Blake (U.K.) 2,111 pts., 3. B. Metkemeyer (N'lans) 2102 pts., **1/2A Team Race** (6 entries – all N'lans), 1. Buys/Visser 9:22, 2. Shippes/v.d. Sande 9:56.2, 3. Helmich/v.d. Kroon 10:32.9, **F.A.I. Team Race** (22 entries) 1. Lenzen/Rumpel (W. Germany) 9:12.8, 2. Visser/Buys (N'lans) 9:57, 3. Helmich/v.d. Kroon (N'lans) 10:02. **F.A.I. Speed** (9 entries) 1. Frohlich (W. Germany) 240 Km/hr, 2. Lenzen (W. Germany) 238.4 Km/hr., 3. De Brie-Borra (N'lans) 219.5 Km/hr.

Very efficient 'warning boards' were used to inform erring team race fliers that their misdemeanor had been spotted by the circle marshall. Incidentally, a much cruder system (simple coloured boards to be waved by the pitman) was tried at the South Midland Area rally this year. Hardly an unqualified success due to lack of experience at using them, but worth trying again. On one occasion a pitman waved the warning board at his pilot who promptly 'cut' the motor, believing it to be a pitting signal!





Are you between 10 and 16 years of age? Then don't delay, join today

CONTESTS FOR WINGSMEN

The last *Junior-only* contests of the year were held at the **South Midland Area Rally** at Cranfield, on September 19th - a day with practically perfect conditions, being very hot and with little or no wind. The results shown below are complete, which indicates a disappointing entry, although this could partly be the result of the organisers' rule which prevents S.M.A.E. members from the South Midland Area from competing at any of the events. Although necessary in order to 'recruit' sufficient helpers to run the many events, it must hit the Junior events harder than most, as these younger competitors cannot be expected to travel so far for a competition.

In view of the smaller entry, *Junior Kit Contest* organiser, Ray Favre, permitted any glider or rubber-powered kit to be used, provided that it was less than 48 in. span and had been built by the entrant. Performances were good, and for the first time girls were attracted to the contest. Once again, the Rubber-powered models proved to perform better than the gliders, and in this section, the winner only just beat his sister, both topping one minute by a good margin on each flight. Sheila McDonald produced two good flights, but then forgot to re-trim after repairing a breakage incurred at the end of her second flight. A really good climb under power was then wiped out by a poor glide.

The Glider winner proved that consistency pays in contest work with each of his flights being over a minute, and all three were contained within a spread of just five seconds. In second place was Mark Miller, who seems set on following in the footsteps of Mum and Dad already!

In the control line category John Heanen duplicated his Nationals success by placing top with his beautifully finished 'Nobler'. Less fortunate was N. Pounton of Long Eaton who, despite placing second at the Nationals, had to be content with the last position, while R. Calvert put in some consistent flying to place second.

Junior Kit Contest

Rubber	Total of 3 flts.
N. Watson	292 (Mentor)
Angela Watson	283 (Mentor)
M. Moore	278 (Gypsy)
Sheila McDonald	201 (Cub)
M. Child	159 (Mentor)
G. Moore	126 (Competitor)

Glider

	Total of 3 flts.
Reynolds	190 (Swan)
M. Miller	170 (Beginner)
Ablett	160 (Super Clipper)
Ingle	67 (Cadet)
K. Monaghan	62 (Cirrosonic)
K. Fuhrmann	8 (Captain)

Junior Stunt Contest

	Rd. 1	Rd. 2
1. J. Heanen (16 yrs.)	179.9	—
2. R. G. Calvert (16 yrs.)	152.6	157.5
3. M. Child (15 yrs.)	138.75	144.75
4. N. Pounton (14 yrs.)	116	51.2

J. Clark did not fly.
(All scores corrected for handicap.)

Next year, attempts will be made to run at least the Junior Kit contest at the Southern, Northern and South Midland Galas in addition to the Nationals, all to the same rules, i.e. any Rubber or Glider kit with a wingspan under 48 in. Of course, there is no 'copyright' on the contest, and with these very open rules the more venues the better - so organisers, please try to include one in your gala.

Dear John,

Recently I bought a Cox 'ready-to-fly' Spitfire from one of my friends. The power plant of this model is the Cox .049 Babe Bee engine. When I first tried to start the engine I could not find the air intake! I took the model apart and found out that there is no air intake, so, please could you tell me how you 'choke' an .049 Babe Bee engine.

John Spencer

Braintree, Essex.

Look closer, John, and you will find that there is an air intake - otherwise the engine could not run! This is situated in the middle of the radial tank backplate, and is covered by a piece of wire gauze. Naturally, when the motor is installed it is impossible to finger choke, so the remedy is to simply force fuel from the fuel tank to the engine. To do this put a piece of fuel tubing over one of the tank vents, seal the other with a finger, then either blow or squeeze more fuel down the fuel tubing. This has exactly the same effect as choking a conventional engine.

The engine is, in fact, the Cox Silver Bee - identical to the Babe Bee except for an extended radial tank.

Dear John,

I would be interested to know why there isn't a Junior combat contest at the British Nats., as there were some other Juniors-only contests. I would try to take part in a Junior combat contest at next year's Nats, if it was decided to hold one.

S. W. Britton

Teignmouth, Devon.

At the 1971 Nationals a Junior control line aerobatic contest was held for the first time, and received such good support that it is more than likely to feature again in '72. The Junior Kit contest for free flight models also held in '70, is equally popular, and assured of repetition next year.

Combat, however, already attracts many younger modellers - and they seem to be at no disadvantage to the older competitors at all - indeed many believe that anyone over 20 is 'past it' for combat! Suggest you practice hard during the winter season, get an organised pit-crew together, and enter 'open' combat at the '72 Nats.

Dear John,

I have been building models for many years and I have just begun to design my own models. I have an engine which is an A.M. but I am not sure whether it is an A.M.15 or an A.M.10. It has a blue cylinder head. I am designing a control line plane for a 1.5 c.c. engine which is to be a biplane but I am not sure what approx. wingspan I should have for a biplane and I would be grateful if you could give me some idea of this.

M. S. Smith

Coalville, Lincs.

Your engine is the Allen-Mercury A.M.15, a 1.5 c.c. diesel. These, unfortunately, are no longer in production - the A.M.10 (a 1 c.c. version) was identical in appearance except for a green anodised cylinder head, and fuel tank.

When designing a model, remember that the wingspan alone is really rather immaterial - it is the wing area that is important. Would suggest that you aim for a total wing area of 200-250 sq. in., which would best be proportioned as two wings of approximately 25 in. span and 4-5 in. chord. Aspect ratio (the ratio of the chord to the span) is usually between 5:1 and 6:1, as a rough guide.

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the 'Golden Wings Club'. With this application I enclose postal order (International Money Order) for 25p (5/-) to cover cost of the enamel club badge, two coloured transfers and membership card.

NAME IN FULL.....

ADDRESS

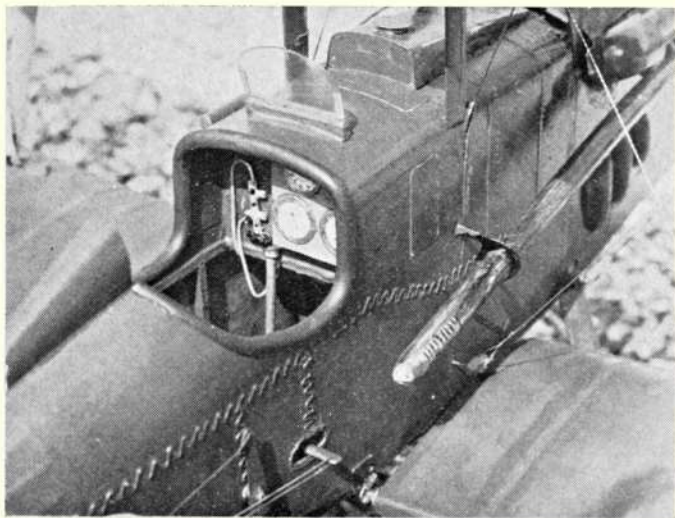
YEAR OF BIRTH.....SCHOOL.....

NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I

BELONG (if any)

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

12/71 15p in the £1 rebate plan purchase coupon for Golden Wing Members G.W. No.....



Cockpit of the author's B.E.12b illustrates many of the points contained in this article. Note the very basic '14-18 period instruments and the flying controls taken straight out of the cockpit. Aluminium framing is used for the windshield, neoprene tubing for the coaming, while fuselage sides are 'stitched' most realistically.

Part X

Important Detail Parts continued

FLYING SCALE MODELS

a 'how to do it' series by Eric Coates

LAST MONTH we looked exclusively at the detail work round the nose end of the model where undoubtedly, with one exception, the greatest scope lies for this class of work. The exception, of course, is the cockpit area and it is this region which I will deal with initially this month.

Cockpits can be divided neatly into two categories: Open and Covered. The majority of subjects which interest the F/F scale modeller have open cockpits – only in the latter half of the 1930s did military aircraft start to sport the luxury of total enclosure; when speeds and service ceilings had risen to such a level to make it impossible for flying crew to operate efficiently in 'fresh' air. Civil types with their less hardy occupants were enclosed at a much earlier date, although generally the 'driver' was required to sit in the open until roughly the same date. No doubt a leftover from the horse and carriage era only just past!

A typical 1914-18 war cockpit is shown in the photograph of my B.E.12b. Instruments were simple in those days and as there were so few of them (A.S.I., Tachometer, Altimeter and Compass being the normal complement), they were generally of much larger proportions than on later generations of aeroplanes. Switches were also of huge dimensions; resembling the brass domed domestic jobs of the era. No semblance of ergonomic layout seems to have been used. Instruments, switches, flare brackets, etc., were apparently just 'chucked' into the cockpit in the early days. Towards the end of the war some degree of order was beginning to be apparent, however. The S.E.5a cockpit looks almost tidy by comparison with its predecessors.

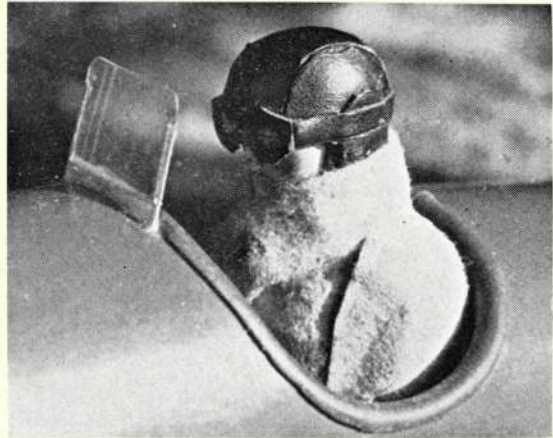
The earliest instruments had black figures on a white background; which are best produced by a sharp pencil on white card. Later instruments had

usually white figures on a black background and these can be reproduced by using white enamel, in a mapping pen, on a black doped card. Enamel is much better than dope for pen use as it is much slower drying – when used for figures on top of a cellulose doped surface it will not leach out the background colour as is always likely to happen when dope is used on top of dope. Never try it the other way round though, i.e. dope on top of enamel, as the whole lot will boil up into a horrible mess! All instruments of the First War period had large bezels. These were either made from aluminium or brass, sometimes painted matt black, and I have found the best way to produce these is to trap them from aluminium or brass shim (between .010 and .020 in. thick). For this I use a hand trapping tool made from an old pair of ink spring bows. The inner limb of the ink pen is removed and the remaining limb sharpened to form a cutting edge – a few spins with this little tool soon cuts a neat circle. Cut the inner circle first, of course. The instruments are then formed by glueing the bezel to a disc of celluloid, also produced by the hand trapper, and then to the figured card. Any type of impact adhesive is suitable for this purpose. If the instruments were flush on the panel, as on the B.E., then they can be glued straight on, but as often was the case, the instrument was back mounted, then a disc of balsa will have to be interposed between the card and the panel.

The rest of the cockpit furnishing is a matter of ingenuity with wire, card, dowel and balsa. Watch the weight, though, particularly in rear cockpits of two seaters which are a long way aft of the C.G. Seats are best made from card and balsa. The coaming can be reproduced from black neoprene fuel tubing, carefully slit with sharp scissors, and stuck with an impact adhesive over the edges of the cockpit. On larger models, or prototypes where the padding

was really thick, thin leather can then be glued over the neoprene tube. I find the leather elbow patches sold by Woolworths, to patch aeromodellers' sports jacket sleeves, to be ideal; particularly if the jacket has been worn at least ten years before the patch is salvaged from it! In this condition the leather is beautifully supple and will work easily.

Finally, we come to glazing. For an open cockpit this involves nothing more than a windshield. It is worth doing well though, as it is very eye-catching. Painted frames look awful even when new and after a few months' service, when the oil has softened the paint and half of it has disappeared, the effect is even worse. Always frame the shield in thin aluminium. For a simple job like the B.E., which is only half framed, light gauge shim can be folded round the edges, with an impact glue applied to both surfaces prior to folding. For more elaborate 'greenhouses', on aeroplanes of later vintage, these should be fretted out of light gauge duralumin (aluminium is too soft to fret) and stuck to the outside of the acetate canopy. A more simple method, which is not as durable but infinitely superior to paint, is to cut the frame from thin card, suitably painted, and glue this to the celluloid. Of course, if the canopy possesses double curva-



A 1/12th scale pilot in Eric's Blackburn White Falcon shows characteristic 'woolly' jacket of 1914. This was made from a substitute chamois leather (unused) which gives a very good 'hairy' effect more akin to a woollen greatcoat used in the early days.

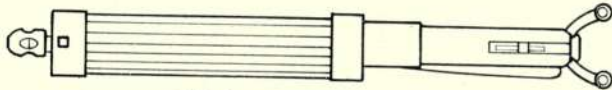
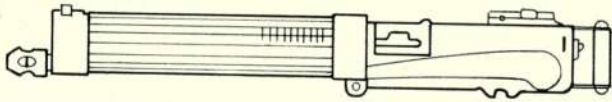


FIG 1 VICKERS

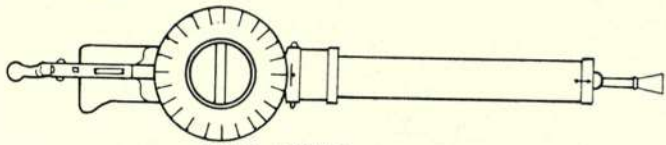
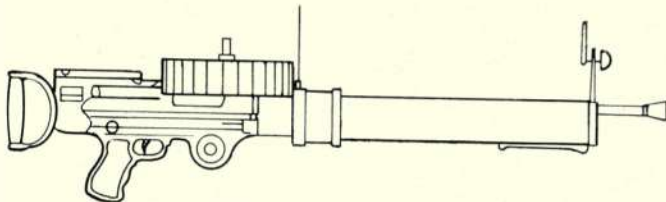


FIG 2 LEWIS

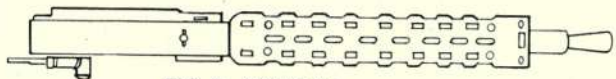
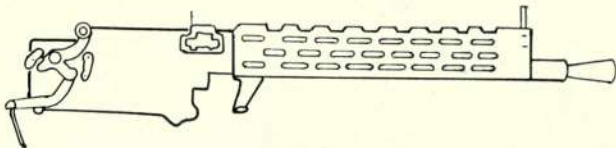


FIG 3 SPANDAU.

ture, then this will have to be hot moulded from acetate sheet. Methods of doing this have been described many times before in these pages and I do not intend to repeat them yet again.

Pilots

The S.M.A.E. scale rules do not call for a pilot to be seated in the cockpit, and no marks, in fact, are given for such a figure when the model is statically judged. An open cockpit machine, however, looks ridiculous when flown without a pilot. You might just as well leave the wheels off! Certainly, when I am judging scale competitions, in any category, I always mark down the 'appearance in flight' section on all pilotless models. This is a fairly widespread view held by most judges.

Pilots can be carved from balsa, expanded polystyrene, cork, etc., moulded from papier maché, acetate, bought ready made or modified from dolls, plastic kits, etc. It matters little from what source he comes, but please fit one. Having obtained your man, again, don't paint him, dress him! A point here—dress him in the style of the period. Don't forget that up to April 1918 the R.F.C. was part of the Army and the uniform worn was khaki, not R.A.F. blue. This is best reproduced by clothing your 'man' in old washleather. Just cut the washleather into suitable pieces and glue on to the body. Flying helmets are best produced from elbow patching leather; again, cut as necessary.

Guns

Guns are very often poorly reproduced, chiefly, I am sure, because the modeller has not taken the trouble to find out what the original weapons really looked like.

During the 1914-18 conflict, and for a long time afterwards, the major pieces of armoury were the Vickers and Lewis, as used by the Allies, and the Spandau used by the Germans. These are drawn to one-eighth scale in Figs. 1, 2 and 3 respectively. The Vickers was water-cooled and because of its weight invariably used as a forward-firing fixed gun. The Lewis, being air-cooled, and much lighter, was used



View of Terry Manley's R.E.8 shows the cockpit and gun positions. The two figures are clad in discarded wash-leather, with helmets made from leather elbow patches - material is simply stuck to the basic figure with an impact adhesive. The gunner is seen poised for action over his Lewis gun, perched on its moveable Scarff ring.

both as a fixed gun, often mounted above the upper wing, as on the S.E.5a and Nieuport, and on the movable Scarff ring as rear cockpit armament on two-seaters.

A word or two about reproducing each gun in turn. (1) *Vickers*. The water chest can be made from dowel or round section balsa. The flutes are cut in with a hacksaw. All the rest, with the exception of the metal handle bearers, can be made from balsa.

(2) *Lewis*. The stock is basically of cruciform section and best made from strip spruce. The barrel fairing is made from dowel or balsa. The barrel end from brass tube with the end flared. Don't forget to make the slits, along the edges of the ammunition drum, with a hacksaw. These look most effective. The sights are made from wire.

(3) *Spandau*. With the exception of the air-cooled barrel surround the Spandau is produced in a similar manner to the other two guns. The air cooler is a bit of a swine! For small models, 1/12 scale and under, one can paint the cooling slots. Above this scale one has to roll the tube from card in which the slots have been previously cut. Either that or remain patriotic and build aeroplanes with Vickers and Lewis's fitted.

Undercarriages

Main undercarriage structure was covered in detail in Part IV. Tailskids are usually straightforward but just a word about the extended type fitted to the various B.E. types, the Bristol Fighter and the Blackburn White Falcon. Here the five-membered structure is formed from brass tube flattened at the ends and

drilled with a 1/32 in. drill. 20 s.w.g. wire is then passed through the lower longerons and is soldered to the tubes. A single pin passing through all five members, at their apex, is soldered also. A tinplate fork is soldered to the foot of the centre member, while the skid itself is carved from balsa with tinplate bindings at the central hinge position and upper end. All bindings and the tinplate running sole are epoxied to the skid. Springing is performed by a light rubber band - on simple semi-enclosed skids the skid hinge is simply passed through the lower longerons and the springing band anchored to the upper ones.

Wheels

Until the last few years one had no alternative but to make replicas of the *Palmer Cord Aerowheels* used almost universally until the 1930s. All model wheels sold were of far too fat a section. In recent years, however, the excellent wheels manufactured by Williams in America have been available in the U.K. Although not perfect, and rather expensive, they are a darned sight lighter and stronger than anything the average modeller with limited facilities, including a lathe, can produce. For sport flying, then, I can thoroughly recommend them. For a contest job, however, any model fitted with them will automatically receive a zero for workmanship, and not too many either for realism from some judges, in that particular section.

The biggest problem in home-built wheel manufacture is obtaining the tyre. This must be of rubber or similar elastomer. Believe me, the laminated balsa

Harold Yates flew this Gloster Gamecock at the Northern Gala scale event, but an overheating engine prevented it from qualifying for an official flight. The model is rather heavily loaded, which is an advantage in gusty conditions - lighter models are blown about rather severely. Event was won by Eric Coates' B.E.12b - one of only two aircraft to achieve a proper R.O.G. take-off in the indifferent weather.



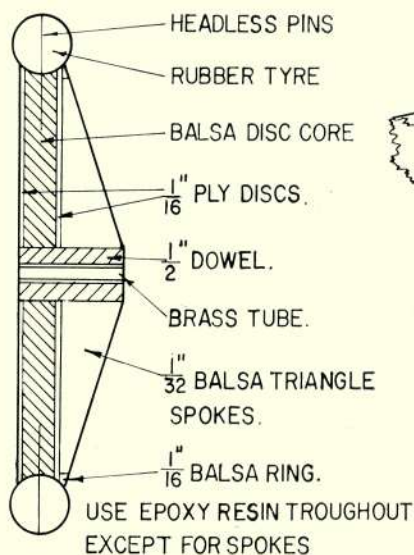


FIG 4 SECTION THROUGH WHEEL

types shown on the drawings of many scale models are utterly useless on a power model. Three take-offs and one heavy landing and the wheels look like something the dog has played with for a week!

The true scale modeller, whenever he sees a ring of rubbery material between 1½ in. and 5 in. in diameter promptly acquires it, or preferably two of it. It doesn't matter how it is acquired, either begging, borrowing or stealing it is of far more use to the scale modeller than its original purpose, for which there are bound to be replacements. Unfortunately, 95 per cent of all rings so obtained are the wrong size. Invariably the section is too thin. This particularly applies to 'O' rings and Hoover belts, which are only suitable for very early types fitted with glorified bicycle wheels. Other forms of sealing rings often are larger in section though. One source which, alas, is no longer available was the old red metal flanged wheels, fitted with rubber tyres, sold by Hobbies Ltd. The wheels of my S.E.5a were made from a pair of these tyres. They are as hard as nails, weigh a ton but at least are the right section and were obtainable in a variety of sizes. I hope someone else markets a similar product shortly. After all, what do all the wooden engine and horse constructors use these days?

Having obtained our tyre, by fair means or foul, we now have to make a wheel to fit round it. This is clearly explained in Fig. 4. Having constructed the frame, the 'spokes' are covered in tissue and silk. Before applying the silk, glue an aluminium bezel, produced as per the instruments, on to the tissue and then, after the dope is dry on the silk, cut the valve hole open. The tyre is now glued into place using epoxy adhesive. As I have found no adhesive that will retain a tyre when a heavy model makes a drifting landing, I also poke about eight headless pins through the tyre into the core to assist the glue.

Wheel used on the author's 1/7th scale S.E.5a. Spokes are made from balsa, and are then covered with silk and tissue - cutting a hole, of course, for access to the tyre 'valve'! This tyre is from a Hobbies Ltd. wheel, but these regrettably are no longer available.

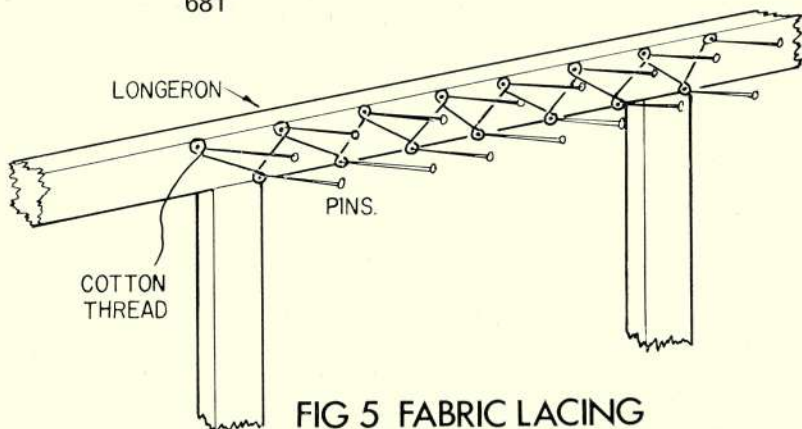


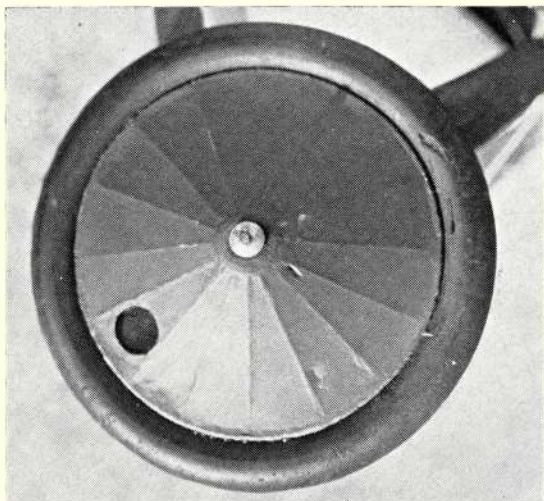
FIG 5 FABRIC LACING

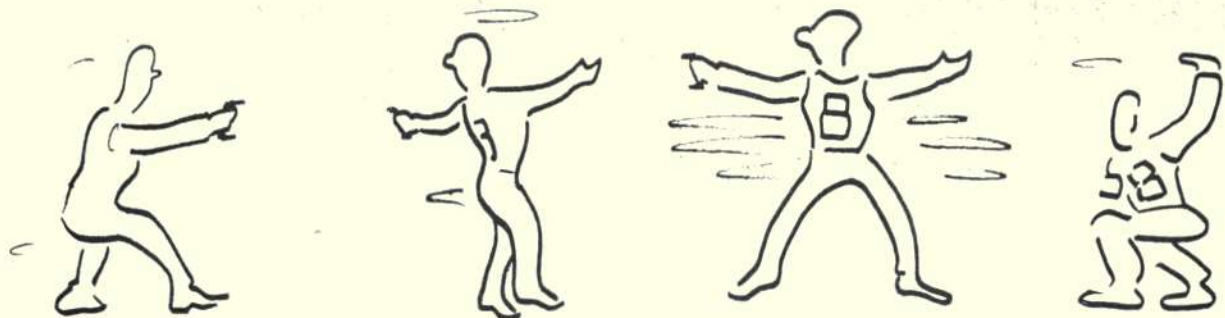
Fabric lacing

Most fabric-covered aeroplanes have areas where the fabric is laced together to allow areas of the fuselage to be regularly uncovered for routine servicing. During the war years it would appear that the entire fuselage sides could be stripped on the majority of aeroplanes. In post-war years a single lacing down the centre line of the belly seemed to be the most popular. It certainly looked neater! Generally, the stitching followed a longeron or cross-member. To simulate stitching we therefore stick pins into the longeron or cross-member, as per Fig. 5. A length of cotton is then tied to the end pin and passed round the pins as shown in Fig. 5 and anchored at the end with a blob of cement. Thick dope (100 per cent) is then plastered over the cotton and allowed to dry. The pins are then removed and the final effect should look something like the lacing on the B.E. Of course, this operation should be carried out before the final colour doping.

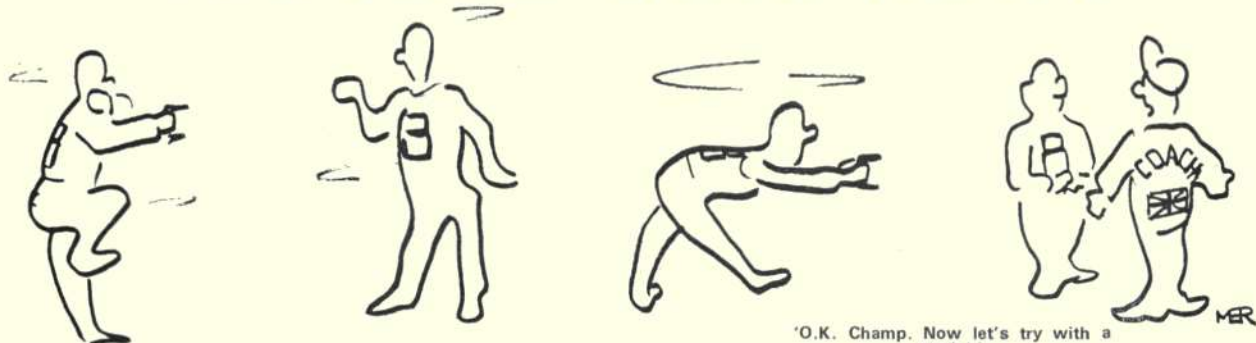
That, apart from the minor points peculiar to each prototype and far too numerous to cover individually, about finishes the detail stage and also the construction of the model.

★ ★ ★
Next month I will try and explain the best ways of coaxing the beast into the air and, what is more important, back down again in one piece.





CONTROL LINE NEWS



'O.K. Champ. Now let's try with a model.'

Team Trials

DISMAL WEATHER GREETED the would-be members of the 1972 World Control Line Championships team—R.A.F. Cottesmore being extremely damp and cold. Heavy rain had been falling for several hours, and the various contest categories got under way in a fairly steady downpour. This state of affairs improved early in the afternoon and the tarmac dried out, although conditions were still overcast.

Team race, once more under the strict supervision of Pete Freebrey had just 14 entries, and was organised so that each team flew as often as possible against different competitors. Times were extremely poor throughout, and most teams experienced troubles of one kind or another. Heaton/Ross, as could have been predicted, produced the best heat time (5:05) but this was way below their usual standard. Their ETA 15s were lacking in power, and in one heat the big-end broke to seriously slow the model, fortunately without damaging the liner. Second fastest were Smith/King of Feltham using a Kosmic 15 while third were Devonish/Davy with their

Our stunt team at the Championships will consist of (from l to r) Steve Blake, with his 'Starmaker' design, Jim Mannall, using his 'Nimrod', and Frank Warburton, plus attractive 'Tony'.

HP15D model. Three very different engines in our team next year!

A Kosmic was also used by Giles/Coote (not naturally since the pilot is the British importer of these Italian engines) but their hastily repaired model was only returning 27 laps at a lowish airspeed. This was an unusual complaint for the Kosmic which has something of a reputation for economy when suitably choked down, and seems to have a good potential for racing when 'fully sorted'.

Aerobatics attracted eight entries (nine really, but Pete Tindall generously forewent his flying to help John Perry to judge the event) and produced a very decisive result. Top man was undoubtedly Jim Mannall, who flew better and better in each round, and produced scores far higher than any other competitor — indeed his final total of 2,011½ points was some 204 more than the next, best, Steve Blake.

Frank Warburton Jnr. made one of his (for these days) few appearances at a stunt contest using the same 'Tony' that he flew at the Nationals — and promptly took third spot some 50 points behind

Top three speed fliers at the Trials were (left to right) Alan Woodrow, Brian Jackson and Ron Irvine. Despite ever-increasing popularity of the Rossi, it was Brian's T.W.A. which produced highest speed of 138.9 m.p.h.



Team race challengers at next year's Championships will be (left to right) Steve Smith piloting for Richard King, by way of a change, Malcolm Ross pitting for Derek Heaton (seen here still 'modelling' the hat supplied by a certain D. Rudd of Feltham) plus Joe Devenish pitting his HP15D for Les Davy.



Below right, Muncaster/Langworth produced this new 'continental' style racer for the Trials, but lack of time to familiarise themselves with it prevented them from performing at their best. Note the 'straight through' cooling and very neat rearward wheel/nose skid retained by dural plate.

Steve, but comfortably in front of fourth placeman J. Newnham. With Frank getting in some hard practice, and if Jim and Steve continue to fly at their 'normal' standards, then this could be our strongest aerobatics team for many years.

Speed, so often the 'orphan' with regards interest received very good support with 11 entrants – and was efficiently organised as usual by Gordon Farnsworth. Not surprisingly, the most popular engine was the Rossi, but it was Brian Jackson's TWA15 which performed the best, recording runs of 138, 135.5 and 138.9 m.p.h. respectively. In second spot was Alan Woodrow, his Rossi providing a best speed of 135.5 m.p.h., just in front of Ron Irvine's 134.7 m.p.h. Ron had not really expected to qualify for this team, but built a model in just one week, bolted in a Rossi 15 straight from the box, chose the first prop that came to hand and reeled off two runs at 134.7 m.p.h. – his last flight of 119 m.p.h. being caused by a loose pressure pipe! This third position was not left unchallenged, both Bill Firbank and Gordon Isles trying hard to better it, but their TWAs were unsuccessful in this bid – so too was Bill's second string Rossi model, their best speeds being 133.1 and 131.6 m.p.h. respectively.

Brian Turner, the only person to enter two events (aerobatics and speed) was unlucky enough to crash his model in practice, destroying both motor and model.

The speed event will probably provide the most interest at the World Champs, as now that Rossi's are so popular, it will be a question of who can obtain just a little more 'go' combined with reliability, during the next season.

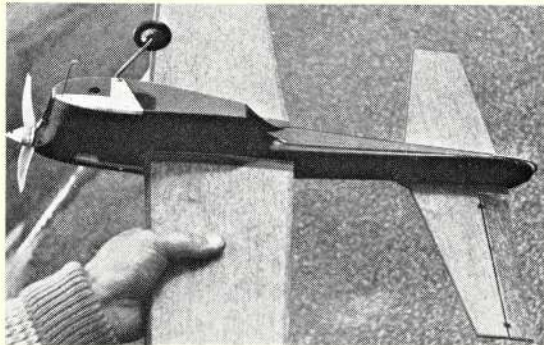
U.S. Team Trials

Just as our own team for the 1972 World Championships has been decided, we now have details of the American representatives, via the A.M.A.'s fine publication, *Competition Newsletter*.

Thirteen teams entered the team-race category, and each flew six heats, the final result being found by discarding the fastest and two slowest times, then averaging the remaining three flights.

A marginally-sized circle gave all competitors some

Winner of the Junior Stunt competition at the U.S. Nationals was Ralph de Palma who performed in a most competent manner with his F86D Sabre built from *Flying Models* plans, and powered by a McCoy 40.



degree of trouble, but judging by the final result (which is identical to the '70 team) this did not affect any one team too badly. Times for the first five teams were good, but beyond that the quality fell off rapidly.

Stockton/Jehlik in customary style had just one practice flight – but must have later regretted this confidence when the best time they could manage proved to be 4:45.8 and they only managed fourth place overall. Newcomers Hodgkins/McCollum compensated for a shortage of laps (29-32) with first-class pitting, and despite having an airspeed of just 93/4





Texan Bert McKinney flew his 63 in. span, Veco 50 powered, semi-scale Beechcraft Bonanza in the Open Stunt event at the American Glenview Nationals. Several competitors used semi-scale designs, but a conventional ship won in the hands of Bill Werwege.

m.p.h., managed a 4:39.4 and 4:44.8.

Dunkin/Wright and Albritton/Marvin (like Stockton) both used HP15D powered models to qualify for the team with average heat times of 4:44.85 and 4:49 (close!) while top honours went to Theobald/Barr using an ARM engine, naturally. Their average time was 4:34.7, with a best heat of 4:30.8—so they must be in with a chance, especially as the model returns 94/5 m.p.h. at the expense of 40-42 laps.

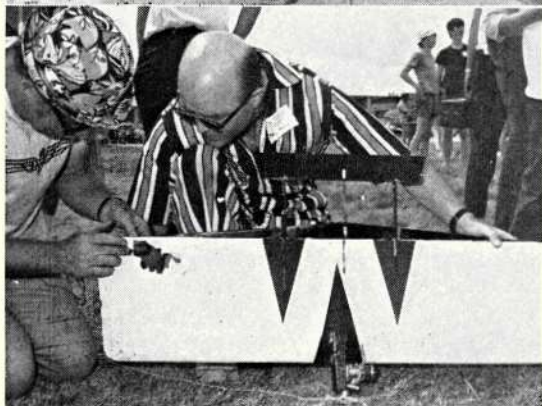
It is interesting to note that had the Americans used our system of the three fastest times forming the qualification for team membership, then Hodgkins/McCollum would have replaced Albritton/Marvin. Personally, we prefer the U.S. system, consistency is preferable to a 'flash-in-the-pan' result.

Aerobatics too provided an identical team to that which attended the previous Championships, despite some 23 fliers trying their hardest to 'make the grade'. Bill Werwege topped the list using the same beautifully finished jet style model with its forward cockpit, with which he became World Champion in Belgium. Gerry Phelps also used his '70 model in placing second, while Bob Gieske's modified *Nobler* now has the addition of a dorsal fin.

This was, of course, the Americans first introduction to silencer equipped stunt models, most favouring the Enya muffler or the venturi type of silencer manufactured by K.O. and Silence-Aire. Phelps alone used a home-made affair consisting of an aluminium cigar tube.

The biggest (indeed only!), shake-up occurred in the speed category, with none of the 'regular' top fliers (i.e. Wisniewski, Nightingale or Lee) qualifying for the first three places. Speed results were obtained by averaging the best two flights out of four recorded runs, and this gave Carl Dodge first position with an average of 144.99 m.p.h. from his TWA, fitted with his own tuned pipe, and bolted into a conventional all-balsa model. Second was Bob Spahr at 143.97 m.p.h., and third Charles Schuette (141.55 m.p.h.) who is remembered as a U.S. team member in '62 and '66. Both of these latter two fliers used sidewinder asymmetric jobs, powered by Rossi 15s fitted with K&B 'backends'.

Nightingale, Lee and Wisniewski filled the next three places, but were considerably slower at 138.63, 137.94 and 137.85 m.p.h. respectively.



More scenes from the 1971 U.S. Nationals. At top, Terry Herron used typical equipment in the Rat Race event — a speed-type model, Harter 'proto' pan, Super Tigre G40ABC and Rev-Up 8 in. x 9 in. propeller. Large capacity tank necessary for these 140 m.p.h. jobs! Centre, Joe Carr (left) and Leroy Moore, the pilot, survey damage inflicted on their Super Tigre 35 powered open combat model *Guillotine*. Below, someone's been busy recently! Long moment tail booms are favoured in the U.S., while Monokote covering is almost universal for combat models. Super Tigre engines were the most popular, usually operating on pen bladder fuel tanks.

topical twists

by 'Pylonius'

illustrated by 'Sherry'



Sparing our Blushes

Most changes, as we know to our cost, are for the worst—in aeromodelling as well as in the great, groaning world outside. If there is anything agreeable you have come to accept, then you might be sure that forces are afoot to clobber it in the not too rosy future.

Perhaps you have some nice little flying spot that no one has made much of a fuss over for a decade or so, then one day you hear a chugging noise behind you. 'Have the radio sports flyers caught up with me at last?' you ask in alarm. Worse. It's a bulldozer getting things flat for the flat flats.

Some changes, however, the minor ones, can be for the better although you feel you will be made to suffer for it later. One such, which must have occurred some time ago, only struck me the other day. It is that dope no longer blushes. Probably the younger members of our permissive society, who don't know what a blush is anyway, have no idea just how much it blushed, nor of the blushing it caused the owners of the ruined models. You needed to put it on in a hermetically sealed room to avoid your model finishing up like an artistic study of the Milky Way.

Odd this non-blush dope benefit, because its usually the grotty things like that which are so resistant to change. Model engines, for instance, seem to be just as hard to start as when the first pioneering digits plied away at the newly invented 'deezil'. Rubber motors continue to explode on half turns. And it always rains—and blows—on Sunday.

Rubbernecking

Personally, I have never favoured the practice of model flyers doing the boot licking act to the public; turning back somersaults and so on—with or without models—in order to present a good image to John Citizen, who just couldn't care less anyway. The public has a way of getting extremely bored with anything that has not absolute front page, novelty appeal. It happened to the wonder of its age, the control liner. At one time the crowds used to flock in from miles just to see a wing over, but now the hairiest stunt schedule will hardly turn a hair—except white on occasions. Now I notice the same detached symptoms in the radio spectating sphere. No longer do the crowds surge forward with the eagerness and bravery of kamikaze pilots, nor are the doctors' surgeries besieged by hordes of patients with cricked necks, and the only observer of the four leaf clover is the local resident seeking ammunition for his weekly letter to the local council.

It is all a question of the law of diminishing returns. The other day I witnessed an incident that

'Alright Fred, it's quite safe —
no one's looking. . . .'

reminded me of that old Battle of Britain cartoon in which a crowd of people ignore the great aerial battle overhead to concentrate on a real dog fight on the ground. The crowd the other Sunday seemed oblivious to the zooming radio planes overhead, but were gathered round a chap about to launch a rubber powered model.

Don't Fence Me In

Reading about the penitential nature of the U.S. Nationals, perhaps we should not be too critical of the good old British casualness we bring to our own fly-for-fun brand of meeting. It seems that when you reach a certain pitch of organisation you get too many people rushing around ready to take it out on anyone not wearing a uniform or armband, particularly if he happens to be a model flyer. The model flyer is an eccentric. At least eccentric enough to view the airfield as a mere launching point in the surrounding countryside which he views as his legitimate flying space. This attitude brings the official mind to boiling point, and it reacts by putting a few extra layers of barbed wire around the airfield and barricading all the gates. This not only demonstrates the importance of the occasion but shows the model flyer who's boss.

The lesson for us in this country is not to let on that we take our model flying seriously. Give the hint that you are putting on something big and you are likely to get a concentration camp situation, in which the only creatures who enjoy themselves are the guard dogs. And don't wave that international flag too vigorously either. This gives the authorities the worst type of security complex, which is why most international events are held in deeply concealed airfields, usually of microscopic size to allow for effective surveillance and surrounded by a thick belt of model catching trees.

Air-Screwy

One of the more pathetic sights to be encountered on the model field is the prop driven machine masquerading as a jet. We may not have a miniature jet engine, but I cannot see any reason why people should draw attention to it in such a highly unrealistic way. Particularly so, since the most engaging way of getting noticed on the flying field is by reverting to an age when full size aircraft looked like model planes. Bring out a phony jet and you get nothing but dubious glances, but trot forth a Bleriot Monoplane, looking little different from the glider comp participants, and you have the spectators drooling.

Readers' Letters

Dear Sir,

Where have all the stunt fliers gone? The 1970 contest season saw a most welcome upsurge of entries, and interest generally, in stunt. This year, however, average contest entries are down by 25 per cent.

The increased popularity of stunt at the end of 1970 was probably one thing which encouraged the introduction this year of junior events, first by the London Area and later at the Nationals. The high entry in the junior event at the Nationals was most encouraging and let us hope such events will continue to receive good support from rally organisers and entrants.

So, we have a good number of enthusiastic juniors willing to compete in stunt events with other fliers of similar ability. But where do they go when they are no longer juniors? Perhaps the answer lies in the phrase 'similar ability'. Do people consider open contests too much an exclusive experts' class? I hope not, and indeed when one considers that the winner of the Junior event at the Nationals can hold his own in an open event the fallacy of this view is clear. However, I am sure many potential entrants are discouraged because they feel 'Oh, I'm not good enough for competitions'. To these people let me say this: Don't be put off; if you want to enter a stunt contest do so. We all had to start somewhere and contest experience is the best way of improving your flying.

While hoping that more people will be encouraged to enter stunt events, I wonder whether the introduction of 'intermediate' events to bridge the gap between junior and open events would be welcomed? The competition I envisage would be open to juniors and seniors, but restricted to 'non-experts'. I hope fellow fliers will forgive the use of the term 'non-expert'. As a first suggestion I would class an 'expert' as someone placing 1st or 2nd in a national open event in the previous or current season. Winners of intermediate events would not be prevented from flying in further intermediate events.

Open events should, of course, continue as at present and all fliers encouraged to fly in them. Remember that the best chance we have of raising the standard of British stunt flying is by increasing contest entries.

Any comments, suggestions or criticism of the above would be welcomed at the address below or through this column.

J. R. Mannall

3 Totnes Close, Bedford.

Dear Sir,

Every so often the question is posed as to what was the correct colour scheme for World War I aircraft, the latest person requiring information being David Stokes in the September issue on the *Golden Wings* page.

The answer given was, quite rightly, PC10 on the top surfaces and clear doped fabric on the undersides, but apart from the useful hint about dyeing the tissue in tea to obtain the clear doped effect, there was no indication as to how to achieve the mysterious shade of PC10. References to 'brownish-green, almost chocolate', and 'khaki-green' give the description of the colour but it is not much help if one is not sure of the proportions in which the paint has to be mixed.

It may be of help to David Stokes and indeed to other scale modellers, to know that great use can be made of a range of Humbrol paints that perhaps is not readily considered, namely Railway Enamels. One big advantage is that they are semi-matt, thereby enhancing the scale appearance.

The following will give the shades required for aircraft of this era:

PC10 Equal parts of No. 126 CNR Green and No. 102 GWR coach stock chocolate.

Clear Varnished Fabric No. 103 GWR Coach stock cream (this is the alternative to dyeing the tissue in tea and would be suitable for plastics, cold tea having no effect on polystyrene).

Light Grey No. 124 CPR Grey.

Black No. 127 Black.

Cockades - red No. 121 Signal Red; white No. 128 White; blue 2 parts matt blue No. 25 to one part GLOSS white No. 22. (These two shades, however, are not Railway Enamels.)

Stuart V. Tucker

Ashted, Surrey.

F. H. BOXALL



Fred seen in characteristic pose as he prepares to launch his familiar open rubber model at the '64 Surbiton Gala. He remained faithful to this distinctive design, with its deep fin, for a great many years.

AEROMODELLING lost one of its most respected brethren on October 27th when F. H. 'Fred' Boxall died at the early age of 50. There cannot be many among the free-flight brigade who have not benefited from the help of this kind and so genuine man who for 32 years has kept the name of Brighton to the

forefront. Twice he represented the Nation at World Championships; Wakefield during 1951 in Finland and A/2 Glider in Italy, 1956. His interests were universal; but his fame centred largely upon his open class 'Bloater' gliders and power-packed rubber models. The sight of Fred piling 2,000 turns on 3½ oz. of rubber contained in a 2 ounce airframe was something to remember. For years Fred held the rubber class duration record with a flight of 35 minutes in sight, and his name will be found engraved on many of the S.M.A.E. free-flight trophies. His exploits downwind were legendary and he will always be regarded as the pioneer of compass retrieving, a skill which must have owed something to his wartime service as a Navigator in B.24 Liberators. Hero of many retrieving epics, he was fearless of heights and slender branches. 'Fred'll get it down' was a by-word and his generous, unselfish aid cost him many a contest place. He was also an ardent cyclist, and typical of the man, would give up a day's work to search out a club-mate's model. He did that just by cycling 45 miles one day from Brighton to Chobham, finding a Ramrod 600 and cycling 45 miles back to the grateful owner with the big model attached somehow to the ever-willing back. Yes indeed, there are few so warmhearted and understanding as Fred Boxall, whose reward in life was to enjoy the brotherhood of man with a wonderful appreciation of human nature. It was perhaps fitting that one of his latest contest successes was his personal target, the Bill White memorial trophy which had been established in memory of the Blackheath club stalwart. Now there will be a Fred Boxall Memorial Fund and we are sure there will be no shortage of subscriptions which should be sent care of Greenwood, Still, Teacher and Lucas, 13 Prince Albert

Street, Brighton, Sussex, to honour the memory of a remarkable aeromodeller. We extend our condolences to his twin brother Reg in his great loss.

A Tribute to Fred Boxall

I first met Fred in the early 1950s when, together with his twin brother Reg he was a familiar sight arriving at the flying field in the famous 'Morgan' three-wheeler.

Over the years I was fortunate to become a close friend of Fred, both on and off the flying field.

To a casual acquaintance, he would have appeared to be a real country rustic with his rich Sussex accent and weather-beaten features, but to those who knew him over the years he was quite an extraordinary person. Apart from his endless model flying achievements I am sure he will be most remembered for his encouragement and assistance to fellow modellers - beginner and experienced alike often at great cost to himself; he always found 'time to help'. Whenever Fred was around he seemed to cast a spell over things - how reassuring to know that Fred was downwind, or that Fred was assisting, or Fred was taking a compass bearing on your model! The confidence he gave beginners with wise advice and encouragement, and should a model still be lost after a day's flying no matter whose it was, he would take a day off work, make a round trip by bicycle of 80-90 miles and search for hours until it was found. His tree climbing and retrieving exploits are legendary and indeed their story would fill a book, but above all his truly marvellous attitude towards people and life was an inspiration. Sadly the flying scene will never be quite the same again. I am humbly proud to have known him.

John West

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by D. M. COLLINS

Your FREE plan! A 28" span free-flight scale model using 0.5 to 0.8 c.c. engines

THE CAMEL, in the eyes of the author, was quite the most fascinating aircraft flown in the First World War and by all accounts also the most effective in terms of enemy aircraft shot down. However it has some very obvious shortcomings as a flying scale subject which should be borne in mind by the builder. The full size aircraft was tail heavy and the model will be also unless care is taken to keep the fuselage aft of the cockpit, and the tail assembly, as light as possible. Use the lightest balsa available and limit the number of coats of dope applied at the tail end. Some relief from the C.G. problem can be obtained by making a really robust cowling of glass fibre with about $\frac{3}{8}$ in. wall thickness, or at least by covering a balsa cowling with a layer of glass fibre. The other problem is the small tail moment available with the scale tail area. One solution is to have a pendulum operated elevator. Pendulum controls are often justifiably criticised on the grounds that acceleration of the whole model will make the control operate, but remember that the only *significant* change in forward speed occurs at the launch and in that case the slipstream quickly damps out any such oscillations. Some folk limit the movement of the control surface, but the designer prefers to limit the weight on the pendulum relative to the control surface area, and rely on aerodynamic damping. Do not increase the weight 'for good measure'. The outline is to scale although the wing section is thickened to improve warp resistance and give more docile flight characteristics. Rigging wires are not needed for flight which speeds up assembly time after hard landings,



especially with cold fingers in the winter! Of course they may be added by the meticulous using shirring elastic thread, but on small models this often looks overscale. Engine installation is a bit of a problem due to the shallowness of the cowling. This does seem to rule out those trusty Mills .75s but the original flew well on a D.C. Dart .5 c.c. and the D.C. Merlin would also be suitable. Small glow motors are out unless they can swing a 7 in. x 4 in. prop at a reasonable speed. Incidentally the torque of a Dart on a 7 in. x 4 in. can be improved by making a con-rod .02 to .05 in. longer between the centres of the big and little ends. This reduces the exhaust and transfer periods of the otherwise high speed timing. Fortunately Darts will start and run without any adjustment of the controls once they have been warmed up, so for this reason no external access to needle valve or compression screw is provided. If you must 'twiddle', you will have to make an extension handle for the compression screw, the gap between the prop and the top wing is too small unless you have unusually high aspect ratio fingers! Alternatively the motor can be inverted, with appropriate adjustment to the thrustline, and the compression screw extended backwards by soldering on a wire to come out of the cowling bottom vent area. Construction is quick and simple for a scale model but the following points will help guide you on your way.

Start the fuselage by cementing a piece of $\frac{1}{16}$ in. sheet on top of the engine bearers to give the correct spacing, then bind and cement on the pendulum assembly. The cabane and undercarriage wires are



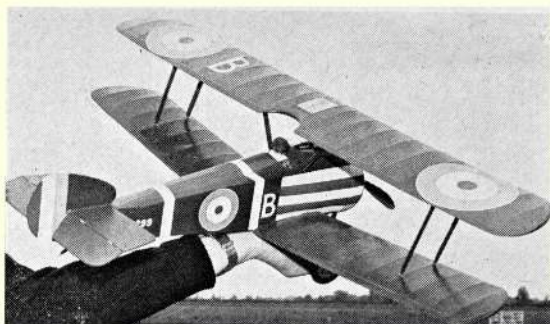
Heading pictures show the designer hurling his brightly decorated Camel off into the blue for yet another quick sortie around the airfield. At left, looking most realistic, the Camel poses on the tarmac in front of the building at R.A.F. Hullavington during the '71 Nationals.

bound and cemented to their formers F1 and F2 before cementing them to the bearers. If F1 is positioned at the edge of the building board so that the undercarriage legs dangle over the edge, then F1, F2 and F3 may be joined to the fuselage sides the right way up over the plan view. When this assembly is really set the fuselage sides may be pulled together at the sternpost and the other formers added. The cowling can be made by turning a wooden pattern to the required outside diameter, moulding a female glass fibre or plaster mould from this and finally the required cowling inside it. Rather roundabout perhaps but you should end up with a good external finish, but don't forget the parting agent! Children's crayons are good for this – most wax polishes contain silicone which stops the resin setting. Alternatively, make a conventional balsa cowling, a little undersize, cover with glass fibre and file smooth. The press studs for the cowling are quite simple to install, just press three pairs together with a scrap of thin polythene sheet between each. Wedge the fuselage up on end with F1 horizontal and put a dab of epoxy resin on each face of the studs and all round the plywood former in the cowling, put the studs on F1, then the ply former, finally place the cowling over the former. It will be necessary to make holes in the ply former to accept the pip on the sprung half of the press stud and allow it to seat down properly.

The wings are conventional until you come to the press studs which are sewn to the ply strips. When these are cemented in the wing use them to locate the mating parts on the cabane while soldering. Bind the 'pip' part to the cabane with a few turns of fuse wire. Press the studs together with the wing on a level surface and the model inverted. Check that the wing is straight by equalising the distance from each wing tip to the tail – a piece of cotton makes a useful check. Tack solder the studs to the cabane wires, separate the wing from the fuselage and finish the binding and soldering. If you prefer, extend the top rails fore and aft and use rubber bands to hold the wing on. You will then need to sheet over the wing top surface at these bays with 1/16 in. sheet.

All surfaces are covered with lightweight Modelspan tissue, white underneath and dark blue on top to give 'body' to the colour finish. Two coats of well thinned clear dope and two of well thinned 'Olive Green' on the top surface are sufficient. Olive green can be made by mixing two parts green with one part red, the result should be more brown than green. Roundels and markings were taken from the *Profile Publication* No. 31 and are applied with thinned Humbrol enamels using spring bow ink compasses to set out the roundels. Finally the fuselage was fuel proofed only as far back as the cockpit. The more elaborate silk-on-tissue covering method described by Eric Coates in his recent articles should almost eliminate maintenance between flying sessions.

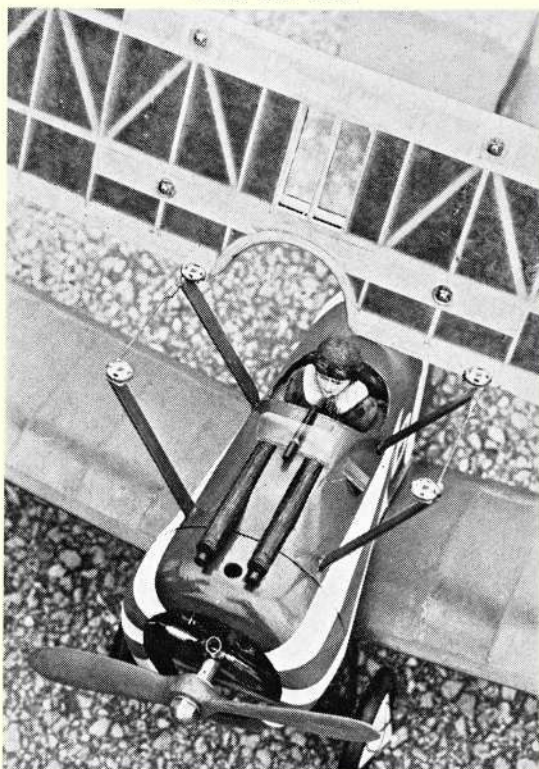
With the model completed, it is most important to get the balance point right, do not attempt to fly with the balance point further aft than shown. The designer uses a range of spinner nuts turned from hexagon bar to add weight to the nose – as a guide the original model weighed 10½ oz. ready to fly. Do not assume that the pendulum eliminates the need for trimming, it doesn't! The elevator should be parallel with the tail surface (i.e. neutral) when the model is held with the nose approximately 20 degrees down. A few smoothly launched test guides should be made to check that the glide is straight or with a touch of right turn. It is difficult to glide the model without a few oscillations of the pendu-



Only a small model, but a great flyer with only a little power needed to stay aloft. Glow plug engines are not really suitable for this type of model due to their high revving characteristics – a diesel will turn a larger prop at moderate speed.

lum occurring so do not worry too much if the elevator trim seems a little out. A few flights with increasing power will establish the engine sidethrust – aim for a turn to the left under power and a gentle glide to the right. Adjustments can be made to the glide angle by gently bending the elevator horn. If the glide is right but it stalls under power, then you need more engine downthrust. The model will take off from a runway surface followed by a steep straight climb; as the speed falls the pendulum should get the upper hand and just prevent any stall developing. Happy Fokker hunting!

Press studs are used extensively on this model to retain both the upper wing and the glass fibre cowling. Interplane struts are quickly detachable and will fly-off in a 'prang' – thereby saving damage for the model. Note realism of the pilot – carved from balsa.





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RADIO CONTROL WORLD CHAMPIONSHIPS

ACADEMY of MODEL AERONAUTICS INITIATES A NEW-STYLE CHAMPIONSHIPS BY ARRANGING TRANSPORT FROM EUROPE

Three contests with controversial results pose problems for the F.A.I. rulemakers. Sportsmanship and generous hospitality heal disappointments in an experience which exposed the weakness of International radio control regulations reports RON MOULTON.



THE AMOUNT of physical effort, planning and administration required for organisation of a World Championships is so great that it can only be undertaken by a dedicated host for whom the only satisfactory reward is an accolade for a job well done. If the treasury can show that the financial load breaks even or perhaps makes a profit, then the satisfaction is doubly rewarded. I know, for I can speak from experience, and it is with a U.K.-based World Champs so fresh in my mind from the summer of 1970 at Cranfield that I can say I am specially pleased that the A.M.A. has now had a taste of playing the host.

They took on a mammoth operation. It was called 'Friendlift' and through it the A.M.A. carried 248 people representing 18 nationalities from Paris and London to Doylestown, Pennsylvania. It was the first time in my recollection that supporters benefited from a subsidy (and the *last*, I sincerely hope). The operation of transport alone, surface and air, involved a budget many times in excess of any previous Championships *in toto* and it was carried through under the firm

Weltmeister Bruno Giezendanner waits his turn with 'Marabu Mk. 3' (Webra 61) in the ready box and assistant Albert Frei watching the opposition. R/C is Frei Digi-Fly, prop a Top Flite 11 x 7½ and U/C is KDH retract.





F.A.I. Models Commission President Sandy Pimenoff completed his Graupner 'Cumulus' on site, seen here taking tips from designer Fred Militky; went on to win the Thermal Soaring event.

What is needed most now in the F.A.I. is a productive technical committee for radio control to thrash out the anomalies and have everyone tackling the contests 'the F.A.I. way' as distinct from the 'American', 'Asian' or 'European' way. Make no mistake, the competitors understand their boring schedule as well as their national alphabets, they also know the pylon race course blindfold, and the thermal event calls for no understanding whatsoever. It is because the methods by which the performances are categorised into a results table are virtually thrown open to the R/C organiser, that there is so

fast pace of flights so efficiently, or to monitor those flights so safely. We come to the tangle when we deal with the way in which the figures arrive on the scorecards.

For a detailed blow-by-blow report on the World Champs, the reader will have to seek out a copy of our sister magazine *Radio Control Models & Electronics*, November and December editions. What I would like to convey here, in a non-R/C title, is the manner by which I arrive at a different result to that which has been promulgated under the terms of the Sporting Code.

The method employed at Doylestown was to be *as used* in 1969 at Bremen. That is to say, 10 judges deployed in two teams of five. Half the entry is viewed by team A, the

direction of the A.M.A. office in Washington with a degree of efficiency that deserves the highest praise.

Having taken Europe to the U.S.A., the Academy then got down to the job of running the three contests - one World Championships and two Limited Internationals. It was in this side of the venture that things began to creak, and the problems which arose make it clear that radio control contests have a long way to go before they reach the maturity of control-line or free-flight World Championships.

Having said that, and lest the reader and the A.M.A. membership feel I'm an ungracious old Colonial spiking the guns of hospitable friends who have tried their best, I must first admit my own responsibility for the situation as a member of the F.A.I. Models Commission. Being on the International jury, I am just as responsible as the organisers for three unsatisfactory results. They stem from loose interpretations of the often poorly worded regulations, in each case affecting the manner of determining the winner.



Above, Bob Violett, U.S. National Champion in the F.A.I. Pylon class, now first winner of F.A.I. International Pylon with his Miss B-S Mustang. Clubmate Clifford Telford tunes the Super-Tigre 40, R/C is Pro-line 72.08 Mc/s and retract gear by Rom-Air.

much lack of International understanding. And when the organiser delays his announcement of the judging system to within 14 days of the event, or the pylon racing method to within 18 hours of the first heat, then who can blame anyone for a degree of confusion? Perhaps the greatest difference at Doylestown was that the events were run on an autocratic rather than an institutional basis.

Speaking as a European I'd much rather stick to the latter by deploying authority over a committee rather than just one individual when it comes to defining how the events will be run.

By that, I do not mean the physical control of the flights, for in this department the A.M.A. excels. I doubt if there is another organisation anywhere else in the world that could control such a

other half by team B in Flight 1. The judging teams reverse for Flight 2. This is repeated, so that a total of four flights are made. Since there is no allowance of a false attempt, the lowest flight score is discarded, and the better three flight scores are accumulated to determine the results. The assumption is that the judging standards are equal. They are *not*, nor ever will be.

For Doylestown, the A.M.A. introduced two innovations. The highest/lowest scores of the five judges in each team were discarded at Bremen, as is accepted practice in control-line, but here they were



King of the Belgians Trophy for Individual, M.A.P. Trophy for Team and the F.A.I. Pylon Trophy given by Sir Thomas Sopwith, with the F.A.I. winners' medals and certificates at prizegiving.



Wolfgang Matt, to many the 'unofficial' winner, and Mk. 2 'Super-Star', using Simplog R/C, HP 61 engine, KDH retract gear. He won flights 2 and 4, topped the two rounds as described in text.



Jim Whitley and his 'Daddy Rabbit' (above) uses Webra 61, Pro-line R/C and retract gear, was 6th overall, 3rd in flights 2 and 4. Below is young ace glider pilot Hanno Prettnr, of Austria, and 'Super-Sicroly', Dirigent R/C and Rossi 60, a combo to watch. Placed top in flight 3.



retained. Secondly, the medley of the judging teams was changed for the third and fourth flights. The object of this operation was to remove the 'Good guy', 'Bad guy' image of unbalanced judging teams. So whereas the first and second flights were judged by ABCDE and FGHIJ; for the third and fourth flights the judges were ABHIJ and FGDE. Few could have foreseen that the accumulated judging standard of the ABCDE team was to produce scores in excess of 20 per cent increase over the scores of FGHIJ! The result was that the great majority of discarded lowest scores were those flights which had been judged by the FGHIJ combination. By changing the medley, A.M.A. foresight saved a degenerating situation; but the system of using these flights as 'rounds' becomes clearly unfair. Had any of the top ten goofed in front of ABCDE they could have said goodbye to as much as 1,000 points!

A 'round' is not truly completed until all competitors have been exposed to all judges. Thus the result for the first **round**, in my view, is as follows:

ROUND ONE

		Flt. 1+2 TOTAL
1.	W. Matt	Liechtenstein 12670
2.	P. Kraft	U.S.A. 12425
3.	B. Giezendanner	Switzerland 12370
4.	J. Whitley	U.S.A. 12335
5.	H. Prettnr	Austria 12090
6.	R. Chidgey	U.S.A. 11985
7.	D. Hardaker	UK 11600
8.	J. Wester	Germany 11585
9.	K. Shimo	Japan 11260
10.	Y. Sugawara	Japan 11195
11.	G. Pagni	Italy 11190
12.	M. Birch	UK 11120
13.	B. Bertolani	Italy 11115
14.	F. Schaden	Austria 10975
15.	E. Giezendanner	Switzerland 10640
16.	R. Brand	South Africa 10635
17.	P. Stephensen	Norway 10590
18.	P. Marrot	France 10485
19.	W. Hitchcox	Canada 10455
20.	G. Werion	Belgium 10140
21.	G. Ridderstrom	Sweden 10115
22.	G. Hoppe	Germany 10060
23.	K. Aker	Norway 9940
24.	R. Ragoni	Switzerland 9650
25.	J. J. B. Van Vliet	Netherlands 9560

Bruno Giezendanner dropped in Flight 2 because he 'lost' the figure M in a calling mix-up, the most regrettable result of which was the dismissal of the Swiss Team Manager - by the Swiss team! Given credit for a Giezendanner 'M' he might well have led the 'round' by 200 points, but the fact remains that he didn't.

Meeting was not dominated by any one make of R/C, and produced many variations of how Tx's are held. Wester's waist-mount at left and Terry Cooper's in-built stand base for the plastic case of 'Mid-West' are typical of the variety.

When the judges were changed around for the third and fourth flights, the two flight lines slipped amazingly into balance, completely by accident. Score disparity for the same person before either team of judges was of a minor, acceptable order and for what it is worth, these last two flights were infinitely better indications of true standards.

ROUND TWO

		Flt. 2+3 TOTAL
1. W. Matt	Liechtenstein	13350
2. B. Giezendanner	Switzerland	13240
3. H. Prettnner	Austria	12740
4. P. Kraft	U.S.A.	12610
5. J. Wester	Germany	12495
6. J. Whitley	U.S.A.	12220
7. R. Chidgey	U.S.A.	12095
8. Y. Sugawara	Japan	12075
9. F. Schaden	Austria	12075
10. B. Bertolani	Italy	11930
11. K. Shimo	Japan	11840
12. E. Giezendanner	Switzerland	11555
13. P. Marrot	France	11445
14. D. Hardaker	U.K.	11350
15. M. Birch	U.K.	11340
16. G. Hoppe	Germany	11140
17. G. Cappuyns	Belgium	11065
18. W. Hitchcox	Canada	10455
19. G. Ridderstrom	Sweden	10785
20. P. Stephansen	Norway	10775
21. T. Cooper	U.K.	10700
22. G. Pagni	Italy	10660
23. M. Kato	Japan	10475
24. W. Kosche	Germany	10330
25. J. J. B. Van Vliet	Netherlands	10255

Note that Matt has again won the 'round' conclusively, and that he and Bruno Giezendanner are way ahead of the opposition. Truly there's little to choose between these talented young men. The official result gives a difference in scores of only 0.17 per cent, and Bruno gets the edge over Wolfgang Matt by virtue of a few imperfections on Matt's part in his third flight. As we quoted in last month's issue, the best three flight totals were 20315 for Bruno, 20275 for Wolfgang; but if we take the 'rounds', the order is reversed. Matt becomes winner with a margin of over 200 pts. in each round. Frankly, I believe the latter course

to be fairer and a better reflection on true standards. Certainly they'll sort it out between themselves, for they are great pals and between them they have really shown the Americans that Bremen was no fluke.

Teamwise the story is different. Completely against the trends, three U.S. 'oldies' mopped up the M.A.P. Trophy as other teams lagged, each with one lame duck. The exception was the U.K. which, bless their efforts - had the next best spread of positions to that of the U.S.A. but, of course, if we are to use the 'rounds' as described here with all flights to count, our U.K. position drops through an engine cut on Terry Cooper's Flight 2.

So what do we learn from all this hindsight? First we need to arrange the medley of the judges after they have shown their standards in adequate warming-up flights. The medley for each team (assuming we are stuck with the two flight-line system) must be balanced. Then, second in importance we need a return of an attempt clause to call off a flight. This in turn will permit use of more flights to make up complete 'rounds' as a further safeguard against imbalance of the judging teams. Finally, the contest needs more time. Throwing fliers into the arena the day after arrival, following up to 30 hours of exhausting travel, can produce peculiar scores from judges, and the judged, on flight No. 1.

Happily, most of these problems are tabled for the F.A.I. meeting in Paris on December 2nd/3rd.

The Pylon and Thermal Soaring events were secondary to the World Champs; but nevertheless attracted 7 and 5 Nation entries respectively.



F. Schaden and 'Condor' of Austria (Digi-Fly R/C, HP 61 and fixed U/C) placed high as 4th in flights 2 and 4, was 8th overall. Model was one of few with a cabin arrangement.



Above, the Japanese newcomer, Y. Sugawara and 'Sawada' with all-O.S. equipment except Kato U/C. Was 6th in flights 1 and 3; 9th overall. Below, Australian 'Silverstone' maker Ron Young with O.S. 60 'Super-Star'.





One got the impression that they were treated as 'fill-ins' rather than as true F.A.I. authorised Limited (two teams of three from each Nation) International Contests. A late start, and use of a matrix system in pylon calling for decidedly impromptu heat planning, prolonged pylon over schedule. The Glider event was terminated to permit its prizegiving and a following model display. Such, I dare to suggest, would never have happened elsewhere! I didn't hear a single unkind word for pylon's extended time schedule, but I had plenty for the kind of inflexibility which negates a contest in deference to a display programme.

Dave Dyer makes his points bonus-winning spot landing above, to place 2nd in the Thermal Soaring International. At right, Geoff. Dallimer releases his 'Thermal Hopper', which came 6th. Both would very much have liked the chance of a third flight.



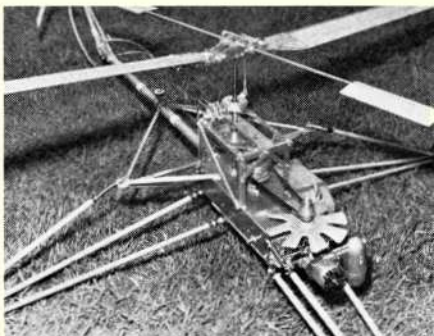
The entrants had waited for days to discover what was expected of them. Then suddenly they were pitched into the two events. Those that had experience knew what was to happen. Those without experience hardly got started. There were 19 heats in pylon with 16 entrants, each allowed four races. Frequency clashes meant that not every heat had four starters, but a 4, 3, 2, 1 place points system applied, so that

no matter how many in the race, a winner got a '4' – even if he was the only one to take-off. So the criterion was reliability plus speed around the sticks and those that hadn't practised soon got left at the start with dirty fuel pipes. It seems depressingly unfair that good and bad heats earn the same merit points, and though our U.K. team placed high with excellent reliability and well-earned places by Allan Mann and Tony Dowdeswell at second and third in the table, I am sure they much prefer the knock-out system leading up to a fastest four in the final.

Then came Glider. Anyone who has seen a nine-footer on almost 1,000 feet of towline and tried to watch the moment the pennant falls away will realise that this is stretching things a little too far in more than one respect. Moreover, 10 minutes seems to be a long 'max' to endure, though it's not necessarily easy in turbulent conditions. Even the skill of a spot landing fails to raise a sense of achievement. Sandy Pimenoff cov-



Left: Bob Violett and Cliff Telford, both airline pilots, and a fine F.A.I. Pylon racing team, with the F.A.I. Pylon Racing Trophy donated by Sir Thomas Sopwith. Below, Geoff. Franklin releases Allan Mann's No. 82 as a Mexican awaits the one-second delayed start. Right, one of the American Helicopters, unidentified but we believe to be John Burkam's.

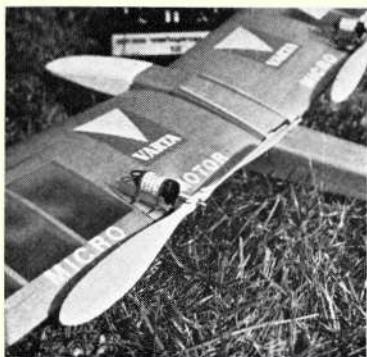




ered and assembled his *Cumulus* after arrival from Finland. Then he used old free-flight tactics to seek out good air, and led by the second flight. Dave Dyer was close behind at that stage when the shutters went down for a non-event and a dozen exasperated entrants from five Nations began to wonder why they had bothered. As it happened the heavens opened up and washed away the model display, but not before the amazing Schlueter Helicopters had done their party piece.

Sponsored by Franz Kavan who is to kit the *Hueycobra*, Gottfried and Schlueter put up a show that must have set the U.S. trade agog. They made it look so easy, that I fear a lot of newcomers will rapidly come to grief as they attempt to emulate so polished a performance. As scale models they could wipe the board. As helicopters they defy adequate superlatives and as a spectacle they border on the unbelievable.

If much of the foregoing sounds a little rough on A.M.A., then you



Left, Bruno Gottfried, who, with Dieter Schlueter, put up the splendid display of scale Helicopter flying with their 'Hueys'. Bruno's is in U.S. Army colours, Dieter's in German markings. Performance is fantastic. Above, detail of Fred Militky's 'Silencer' 2 motored electric R/C, which makes flights of up to 30 minutes with Stop/Start motors.



honour to attend, and moreover, one which has even returned a slight financial profit.

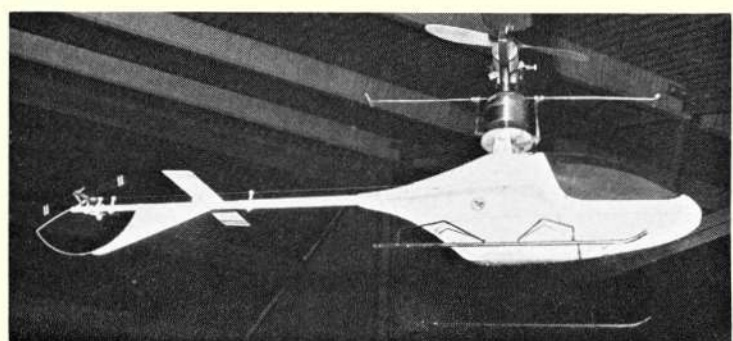
R/C PYLON RACE INTERNATIONAL (SOPWITH TROPHY)

7 Nations	16 Competitors
1. R. Violet (U.S.A.)	16pts. 1:57.5
2. A. Mann (U.K.)	15pts. 2:05
3. A. Dowdeswell (U.K.)	13pts. 2:28
4. T. Prather (U.S.A.)	12pts. 1:53.6
5. B. Smith (U.S.A.)	10pts. 1:56.8
11. P. Pilsworth (U.K.)	4pts. 2:37.5

THERMAL SOARING INTERNATIONAL

5 Nations	12 Competitors
1. S. Pimenoff (Finland)	1082
2. D. Dyer (U.K.)	1070
3. O. Heithecker (U.S.A.)	920
6. G. Dallimer (U.K.)	756

Right: Fred Militky of Graupner and the incredible electric powered soarer. Silent climb is fascinating. Trailing folded props which restart when wanted open a whole new future in small field flying. Below left, a 'Bug' that came to demonstrate but lost out to the elements, decorated as a Wasp. Right, the Dubro reaction type helicopter was flown at the Motel car park. Simple yet very clever.





AIRCRAFT DESCRIBED No. 209

YAKOVLEV YAK 9 FIGHTER

described and drawn by G. R. DUVAL

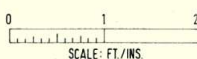
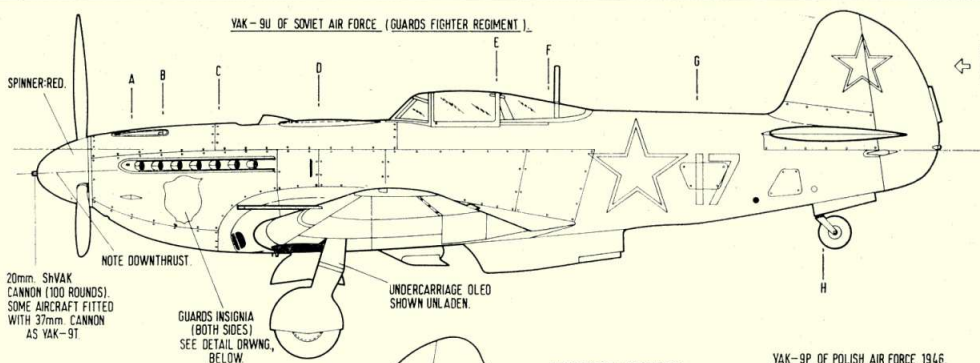
IN 1938, the Soviet Government, aware of the obsolescence of its Polikarpov I-16 and I-153 fighters, ordered the established bureaux and young designers to submit new fighters on a competitive basis. The following year, several fighters were constructed: the Yakovlev I-26, Lavochkin I-22, and Mikoyan/Gurevich I-61. The well-tried selection procedure was severe, with accent laid upon performance, armament, suitability for mass production by semi-skilled labour, and material to be used (light alloy was in short supply). Final selection was to be made after comprehensive ground and air testing by the N.I.I. V.V.S. test pilots of the Red Air Force. All three were accepted and eventually equipped Fighter Regiments as the Yak-1 (I-26), LaGG-3 (I-22), and MiG-1 (I-61).

Using conventional steel tube fuselage structure with wooden wings and fabric covered ply surfaces, the Yak-1 was Yakovlev's first fighter design, and rolled out on 1st January, 1940; but 11 years of brilliant design work lay behind him. His earlier BB-22 aircraft had impressed the authorities to such an extent that, apart from the all-important production order, he received a new car, 100,000 roubles and the Order of Lenin! On May Day, 1940, a unit of these BB-22 twin engine bombers flew over the Red Square parade. The development of the Yak-1 was the Yak-7U, a very necessary two-seat trainer powered by the improved M-105PF engine, followed by the Yak-1M with a cut-down rear fuselage and a bubble-type canopy. A requirement for a night-fighter led to the conversion of the Yak-7U to single seat configuration as the Yak-7A, following which the best features of the -1M and -7A were combined in a further variant, the Yak-7B. By this time, the light alloy supply problem had eased, and Yakovlev rebuilt the -7B with metal wing spars, utilising the space thus made available within the wings to fit extra fuel tanks. A few of these variants were built as the Yak-7D1 (DI-long range fighter), but Yakovlev quickly added some further refinements and re-

designated the final form as the Yak-9, the first examples of which reached front-line units of the Red Air Force in December, 1942. Together with the Lavochkin La-5, the Yak-9 made its first operational sorties in the Stalingrad area, providing an unwelcome surprise for the Messerschmitt Bf 109 and Focke Wulf 190 pilots of the *Luftwaffe*. It should be explained at this point that the Soviet High Command regarded their fighting aircraft as flying artillery and machine-gun positions operated by specially-trained men of the Red Army; their sole purpose to destroy enemy troops and machines hindering the Army advance. In consequence, the *Luftwaffe* fighters, designed for operations at high altitude, found themselves at a definite disadvantage in actions fought from around 16,000 feet down to ground level – a height band where the Russian fighter aircraft were at their best, and busily engaged in protecting the swarms of *Shturmoviks* at their task of smashing the Wehrmacht armoured columns.

In the spring of 1943, two further variants of the basic Yak-9 appeared, the Yak-9M and -9B, this being coincident with a large-scale increase of production, particularly in the case of the -9M, which differed from the -9 only by the addition of one more 12.7 mm machine gun. On the other hand, the Yak-9B was fitted with an internal bomb-bay for a load of 992 lb. Little is known of this latter variant, but unconfirmed reports suggest that it was not entirely successful. In the same year, a Kremlin conference was held on the subject of fighter aircraft range, which at the time was too short to permit effective deployment of fighter Regiments over the extended areas of the Eastern Front. Yakovlev agreed to modify his Yak-9M for greater range capability, and received authorisation for increased supplies of light alloy to facilitate the work. The result was the Yak-9D, in which one of the 12.7 mm guns was removed for weight considerations and fuel capacity increased to 143 gallons, giving a range of 882 miles. Following this, an even larger tank

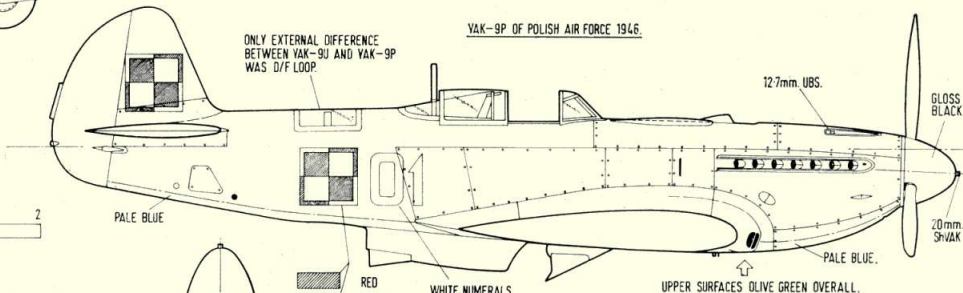
YAK-9U OF SOVIET AIR FORCE (GUARDS FIGHTER REGIMENT).



GUARDS REGIMENT INSIGNIA.

RED:— FLAG AND STAR.
 WHITE:— STAR BACKGROUND.
 GOLD:— LAUREL LEAVES, FLAG LETTERING, FLAGSTAFF TASSELS AND RIBBONS, SCROLL, STAR AND FLAG EDGING.
 "СССР" ENGRAVED ON SCROLL.

YAK-9P OF POLISH AIR FORCE 1946.



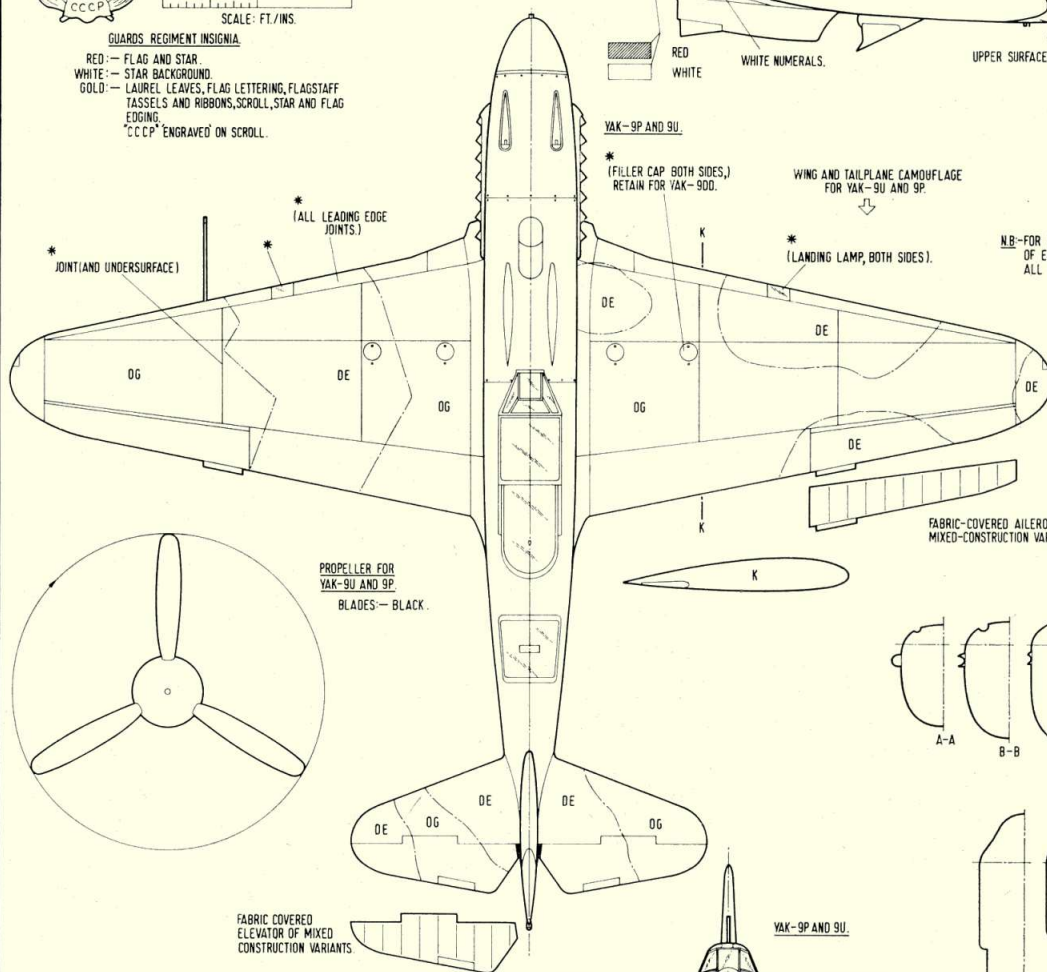
YAK-9P AND 9U.

* (FILLER CAP BOTH SIDES.) RETAIN FOR YAK-900.

WING AND TAILPLANE CAMOUFLAGE FOR YAK-9U AND 9P.

* (LANDING LAMP, BOTH SIDES).

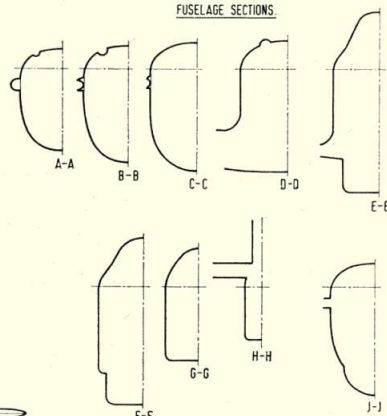
NB:—FOR PLYWOOD COVERED WINGS OF EARLIER VERSIONS, DELETE ALL DETAIL MARKED *.



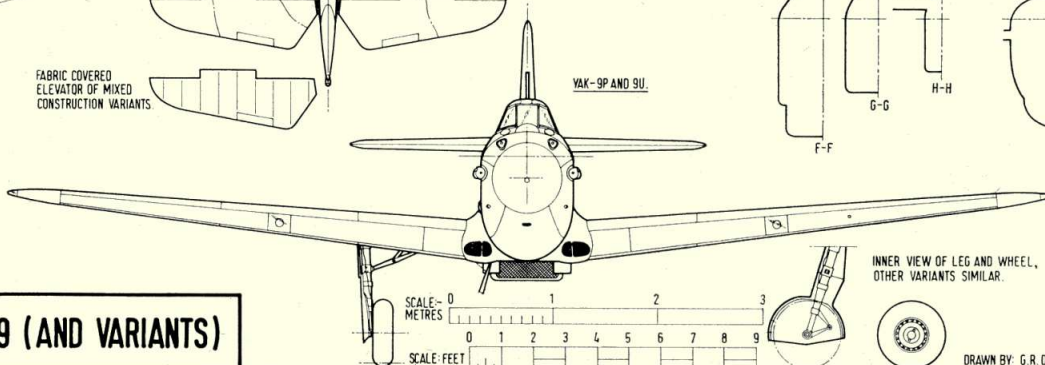
PROPELLER FOR YAK-9U AND 9P.
 BLADES:— BLACK.

FABRIC-COVEREDAILERONS OF MIXED-CONSTRUCTION VARIANTS.

FUSELAGE SECTIONS.

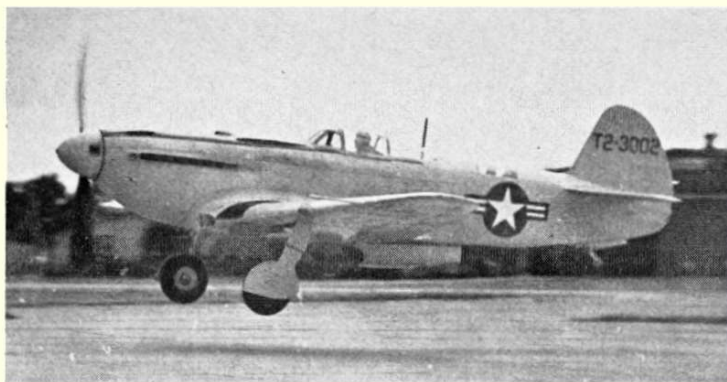


YAK-9P AND 9U.



YAKOVLEV YAK-9 (AND VARIANTS)

DRAWN BY: G. R. DUVAL.



Heading photo, previous page, shows a line-up of YAK-9DDs of the 236th Fighter Division V-VS at Bari in Italy. Note the star insignia on the wheel covers as well as to maximum possible size on the vertical tail and fuselage - plus the spinner! Wing tips are light colour. I.W.M. photo.

The YAK-9P in U.S.A.F. markings is on test after return from Korea. Note the transparent cover over the DF loop in rear fuselage. T2 number on the fin and rudder. U.S.A.F. is painted under the port wing. Size of pilot emphasises the small dimensions of this fighter.

was fitted to the Yak-9DD variant, which, combined with a belly overload tank, gave a maximum range of 2,200 miles. During the winter of 1944/45, the 236th Fighter Division became one of the few Red Air Force units to operate outside the Soviet Union, flying their Yak-9DDs from Bari, in Italy, in support of the Yugoslav partisans, and later operating from a Yugoslav base. This unit was also responsible for training nearly 300 Yugoslav pilots and for escorting U.S.A.F. B-17Gs on 'shuttle' raids terminating at Bari.

In 1943/44, two ground assault versions of the Yak-9 were produced; the Yak-9T, armed with a 37 mm NS 37 cannon firing through the propeller shaft, plus one 12.7 mm machine gun in the upper cowl, and the Yak-9K with a 45 mm cannon. The great length of these weapons required major modification to the fuselage, the cockpit being moved aft by 15½ inches. While the -9T and -9K were effective in action against German tanks, the pilots suffered some discomfort from heavy accumulations of cordite fumes while firing was in progress. Yakovlev's only failure with a variant of the Yak-9 was the Yak-9L, a 'stripped' model designed for the interception role. The -9L had an M-105PD engine, one 12.7 mm and one 7.62 mm machine gun, reduced fuel capacity, and a climb rate of 3,000 feet per minute. A small batch of these machines produced in 1944 were rejected in favour of Lavochkin's La-7.

However, more important developments were under way, centred around the production of the Klimov-designed M-107A engine which offered 1,600 h.p. - 340 h.p. more than the M-105PF, for similar dimensions and a greater weight. The supply of light alloy had now vastly increased, and Yakovlev decided to prolong the effective life of the well-proven Yak-9 by building an M-107A-powered version of all-metal construction. The general arrangement of the original was preserved, but weight/balance considerations dictated retention of the aft-positioned cockpit of the -9T and -9K, and the movement aft of the ventral radiator. The nose was cleaned up by deletion of the intake scoop; carburettor and oil cooler intakes being combined in the wing root leading edges, and a propeller of larger blade area fitted. A pilot's canopy of improved streamline shape was introduced, and the armament consisted of twin 12.7 mm machine guns and a propeller shaft 20 mm cannon. Designated Yak-9U (U-improved), the prototype made its first flight in January, 1944, and after modification involving a slight increase in length of the rear fuselage, the Yak-9U was approved for production, the first air-

craft being issued to Guards Fighter Regiments in the autumn of 1944. The changeover to all-metal construction made little difference to the output of Factory No. 153, with which Yakovlev's bureau was integrated, and in a very short space of time the Yak-9U became the standard general purpose fighter of the Red Air Force. The final variant was the Yak-9P, differing from its predecessor only by virtue of an improved radio installation, and having a direction-finding loop aerial mounted internally in the rear fuselage under a plexiglass cover.

In the early days of the Korean War, in 1950, a small force of North Korean Air Force Yak-9Ps succeeded in destroying a C-54 Skymaster on Kimpo airfield - the first U.S.A.F. aircraft casualty of the conflict. After providing the first three victories for U.S.A.F. Twin Mustangs a few days later, the Yaks were withdrawn, leaving one machine captured in American hands. This Yak-9P was shipped to the United States for evaluation, during which its performance was found to closely parallel that of the P-51 Mustang. As with most Russian aircraft examined previously by Western experts, comments were made on the crude construction. For all this, the total production of Yak-9 variants exceeded that of all other Soviet aircraft types, and worldwide was only surpassed by the German Bf 109. During the war, it equipped Polish and French units on the Eastern Front, and post-war the Yak-9P was exported to Poland, China and North Korea.

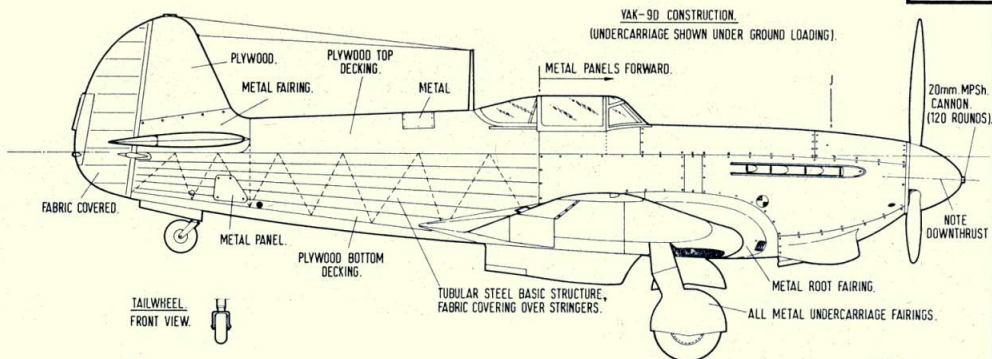
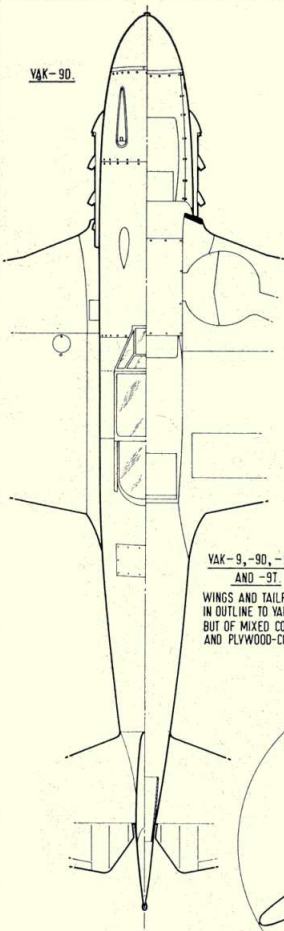
PLANS NOTICE: REPRINTS OF THIS FEATURE PLUS FULL-SIZE DYE LINE PRINTS OF THE 1/24th SCALE ORIGINAL ARE AVAILABLE AS PLAN PACK JH2928, PRICE 45p plus 5p postage, FROM AEROMODELLER PLANS SERVICE, 13/35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

SPECIFICATION — YAK-9

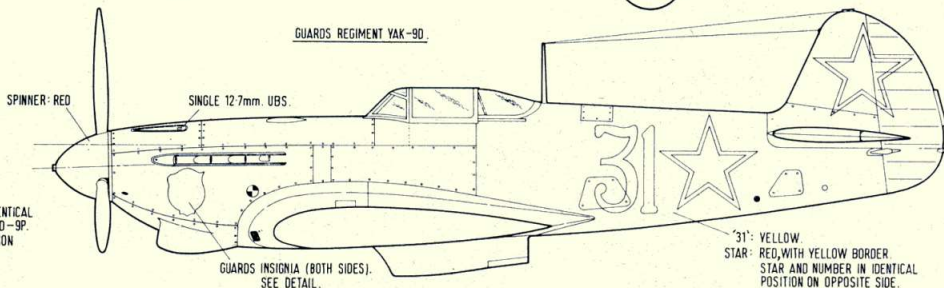
As this information has been obtained from the Soviet Union, all figures are given in the original metric measure to avoid possible errors in conversion.

Aircraft	Engine/H.P.	Span (m.)	Length (m.)	Loaded Wt. (kg.)	Max. Speed (km./hr.)
Yak-9	M-105PF 1,260	10	8.55	2,873	592
Yak-9M	M-105PF 1,260	10	8.55	3,060	580
Yak-9D	M-105PF 1,260	10	8.55	3,115	600
Yak-9DD	M-105PF 1,260	10	8.55	3,300	590
Yak-9B	M-105PF 1,260	10	8.55	3,460	560
Yak-9T	M-105PF 1,260	10	8.66	3,250	495
Yak-9L	M-105PD 1,200	10	8.55	2,600	610
Yak-9U	M-107A 1,600	10	8.71	3,170	698

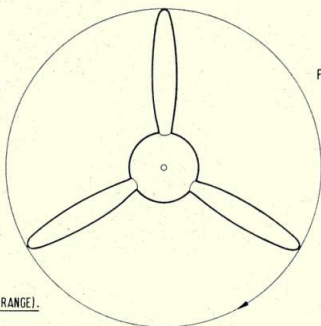
YAK-90.



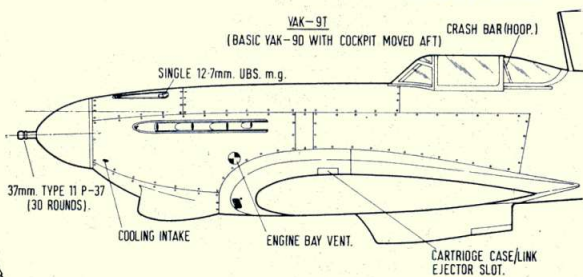
GUARDS REGIMENT YAK-90.

YAK-9, -90, -90D
AND -9T.

WINGS AND TAIL PLANE IDENTICAL
IN OUTLINE TO YAK-90, AND -9P.
BUT OF MIXED CONSTRUCTION
AND PLYWOOD-COVERED.



PROPELLER
FOR YAK-9, -90, -90D
AND -9T.
BLADES: BLACK.

YAK-9T
(BASIC YAK-90 WITH COCKPIT MOVED AFT)

YAK-9U AND -9P.
BOTH RUSSIAN AND POLISH AIRCRAFT
HAD PALE BLUE UNDERSURFACES.

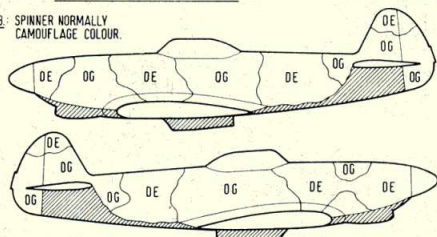
YAK-90D (LONG RANGE).

D/F LOOP INSIDE.

POLISH INSIGNIA—
(BOTH SIDES OF UNDERSURFACE.)RUSSIAN INSIGNIA—UNLINED STAR,
(BOTH SIDES OF UNDERSURFACE.)

CAMOUFLAGE FOR YAK-90 № 31

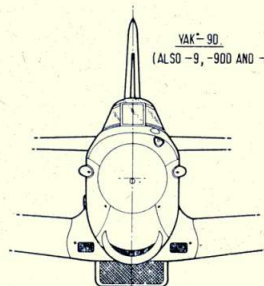
N.B. SPINNER NORMALLY
CAMOUFLAGE COLOUR.



O.G. — OLIVE GREEN SIMILAR TO U.S.A. A.F. COLOUR USED IN EUROPE IN 1944.
D.E. — IDENTICAL TO R.A.F. COLOUR 'DARK EARTH'.
PALE BLUE — MIX TWO PARTS MATT WHITE WITH ONE PART HUMBROL № 76 'HELGRAU'.
N.B. — MANY VARIATIONS OF ABOVE SCHEME EXISTED. PRIOR TO 1944, MOST
YAK-9'S WERE OVERALL OLIVE GREEN ON UPPER SURFACES, BUT
PALE BLUE UNDERSURFACES WERE STANDARD.

YAK-9
AS YAK-90 № 31 BUT WITH
FIXED TAILWHEEL.

YAK-9M
AS YAK-9 BUT WITH TWO
12.7mm. GUNS.

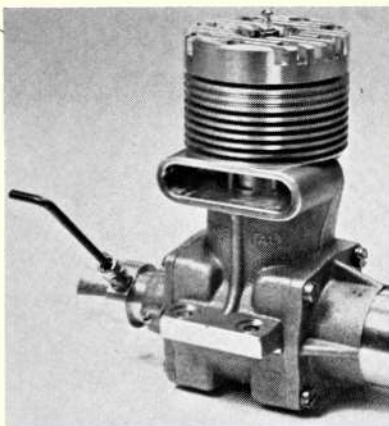
YAK-90
(ALSO -9, -90D AND -9T).

YAKOVLEV YAK-9 (AND VARIANTS)

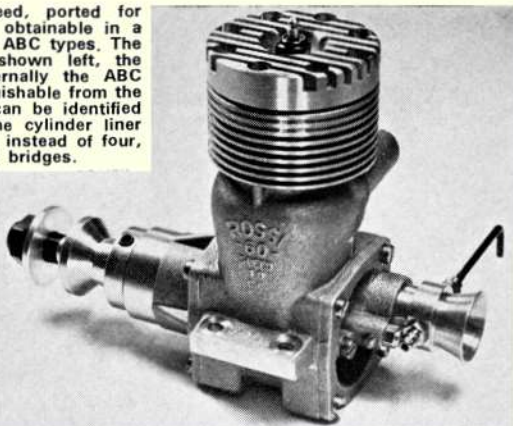
DRAWN BY: G.R. DUVAL.

SCALE: METRES 0 1 2 3

SCALE: FEET 0 1 2 3 4 5 6 7 8 9



The Rossi 60 Speed, ported for tuned pipe use, is obtainable in a choice of ringed or ABC types. The ringed version is shown left, the ABC at right. Externally the ABC version is indistinguishable from the ringed engine but can be identified by the colour of the cylinder liner and its use of two, instead of four, exhaust port bridges.



Peter Chinn's

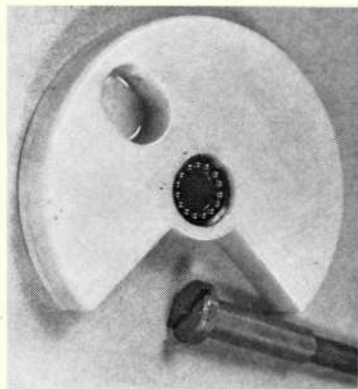
LATEST ENGINE NEWS

Rossi 60 Speed

The engine which had the biggest impact on the C/L speed and F/F scene during the 1971 season was unquestionably the Rossi 15. The Rossi brothers, Cesare and Ugo, entered the model engine business, initially, by specialising in the modification and tuning of Super Tigres for competition purposes, as a result of their own considerable C/L speed success in both domestic (Italian) and international contests. They followed this up, a little over a decade ago, with an engine of their own construction, the Rossi 60.

The original Rossi 60 was clearly inspired by the McCoy 60 Series 20 which had first appeared in 1948 and which, for something

Unusual feature of Rossi 60 is the use of a ball thrust rotary-valve bearing. Timing is quite conservative for an engine of this type.



like 15 years, remained the world's foremost 10 c.c. C/L speed motor. The basic Rossi layout followed that of the McCoy (it even had the McCoy bore and stroke instead of the more usual continental 24 x 22 mm. combination) and was intended to do the same job slightly better. This it eventually succeeded in doing and on the McCoy's home ground. At the 1963 U.S. Nationals, in the three Class C speed categories, six of the top nine places were taken by McCoy's and there were no Rossis, but in 1964 and 1965, Rossis outnumbered McCoy's by 5 to 2 in the top placings. Shortly afterwards, Winfried Holle set a new Dutch record of 178 m.p.h. (these were non-pipe speeds, remember) the fastest to that date in Western Europe and which remained unbeaten until Holle himself bettered it four years later with a piped O.P.S.

Since that time, there have been many other challenges in the 10 c.c. class particularly from more modern Schnuerle port designs, with top honours usually going to highly developed specials. The current Rossi model, however, is still one of the most powerful of orthodox cross-flow scavenged designs and, so far as commercial engines are concerned, the quality of its construction among the best yet.

The latest Rossi 60 is now manufactured in a variety of models, including R/C and marine versions, but the details that follow concern the current piped speed motor. This is obtainable

with a ringed piston or with an ABC type set-up. Both types were received for examination.

Dealing first with the ringed engine, this has a single, pegged compression ring. The aluminium alloy piston, turned from what appears to be a gravity diecasting, has the usual type of baffle and has two 7 mm. skirt ports which line up with similar ports in the lapped chromed steel cylinder-liner at bottom dead centre. The gudgeon-pin is tubular, closely fitted to the piston and is retained by wire circlips. The connecting-rod is machined from high-duty alloy with a plain small end and a bronze bushed big end with oil-hole and spiral oil groove. With ring, the piston weighs 10.6 grammes. The gudgeon-pin contributes a further 2.6 grammes and the conrod 5.3 grammes.

In the ABC engine, the same basic skirt-ported piston is used but without the ring groove. Instead, its finely lapped surface is very closely fitted to the tapered bore chromed brass liner. There is not very much difference in piston weights (the ABC piston is only about 2% lighter) and the same gudgeon-pin/conrod are used. The cylinder liner has no skirt ports but, being somewhat shorter than the standard steel sleeve, allows the piston skirt ports to be partially uncovered at BDC.

To suit tuned pipe operation, the exhaust ports are timed to open and close 80 deg. of crank angle each side of BDC, the transfer ports being open for 60 deg. each side of BDC. In the ABC engine,

the port areas are slightly larger because the elimination of the piston ring has allowed four of the port bridges to be dispensed with. Thus, the original five-window exhaust port is now converted to one narrow centre window flanked by two wide ones, while the transfer port is now divided into two instead of four windows.

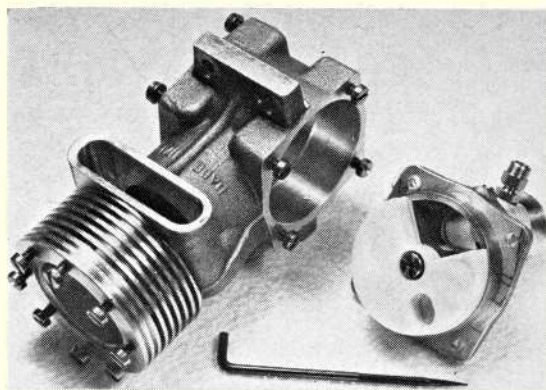
The machined bar-stock cylinder-head has an unusual double hemispherical combustion chamber shape with a central glowplug and a slot for piston baffle clearance. It is secured to the cylinder casting with eight screws and an aluminium gasket is used. The main casting is solidly proportioned and very well turned out. Front and rear joint faces are finely machined and the mounting lugs and exhaust tract are also machine finished. The transfer passage is as cast, without milling but is nicely contoured and of adequate volume.

The crankshaft has two 9.5 mm. journals and runs in identical 22 mm. o.d. 7-ball brass-caged bearings mounted in a flange fitting front housing. It is of the internally counterbalanced type with a full circle crankdisc and a 6 mm. crankpin and is ground all over.

The rotary valve is fairly conservatively timed, opening at 40 deg. ABDC and closing 180 deg. later. The moulded valve rotor is bronze bushed, runs on an adjustable steel pin and is equipped with a ball thrust bearing. The carburettor air intake has a bore of 11.5 mm. and an effective choke area of approximately 90 sq. mm.

The exhaust system comprises a conventional double-cone tuned pipe and, for attaching it to the

Rossi main casting and backplate unit. All castings are robustly proportioned and finely finished - virtually a Rossi trademark! Needle valve has fine thread for precise adjustment.



engine, a long elbow which slides into the pipe and permits a fair amount of adjustment to enable the resonant length to be adjusted to engine r.p.m. According to Rossi literature, the engine peaks at 20,500 r.p.m., where it is rated at 2.20 b.h.p.

The pipe adds 84 grammes (3.0 oz.) to the weight of the Rossi. With pipe, the standard engine weighs 18.2 oz., the ABC fractionally less at 18.1 oz. The engines have a bore and stroke of 23.88 x 22.20 mm., giving a swept volume of 9.94 c.c. or 0.6068 cu. in.

Russia's 'Akrobat' Stunt Motor

In the *Latest Engine News* column for April 1970, we briefly described the Russian 'Poljot' 5.84 c.c. control-line aerobatics motor. As we commented at the time, this was a decidedly rough-hewn piece of machinery and it does not appear to have been used in contests by any of the leading Soviet

stunt modellers.

In contrast, the more recent Russian 'Akrobat' motor was used by the entire U.S.S.R. team in the last (1970) World C/L Championships. This is similar in general layout to the Poljot (both being distinctly 'Fox 35-ish' in basic design) but is, perhaps, a little more pleasing than the earlier Russian motor as regards outward appearance.

Bigger than the Poljot, the Akrobat has a bore and stroke (according to measurement of our particular example) of 21.5 mm. x 19.3 mm., which gives a swept volume of 7.007 c.c. or 0.4272 cu. in. In other words, it is in line with the current trend towards a slightly larger displacement than the traditional stunt 35. The engine weight, however, is only very slightly increased. Our motor was received minus its original prop driver but, fitted with a driver of suitable dimensions, all-up weight was 220 grammes or 7.76 oz.

The Akrobat's construction in-

Rossi ABC piston and cylinder assembly - note the two exhaust port bridges which identify it from the ringed version. Unusual combustion chamber shape employed is double-hemispherical.



Rossi front housing and bearing assembly displays internally counterbalanced crankshaft and prop drive unit, secured to the shaft by a grub screw.



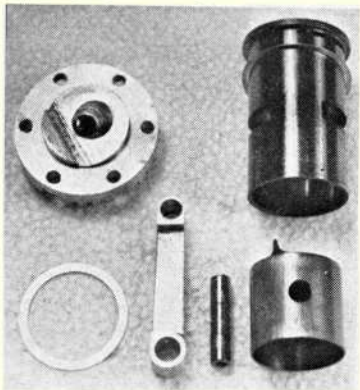
volves a one-piece gravity diecast crankcase and cylinder block with bronze bushed main bearing. The counterbalanced non-hardened crankshaft has an 11 mm. dia. journal, a 6 mm. crankpin and an 8 mm. gas passage fed from an oval induction port. Mixture is drawn from a conventional spray-bar in a 7.6 mm. choke, the effective choke area being approximately 13 sq. mm., which should ensure plenty of fuel suction.

The Akrobat uses a lapped cast-iron piston of conventional design and light weight, i.e. 10.7 grammes, or 13.1 grammes including gudgeon-pin. The latter is 5 mm. dia., tubular and fully-floating but (rather surprisingly, since a non-hardened cylinder liner is used) without end-pads. The connecting-rod is of machined aluminium alloy with plain eyes and is without oil holes. The cylinder liner is a plain drop-in sleeve with orthodox open loop scavenge porting. The machined cylinder-head has a wedge pattern combustion chamber with the addition of a shallow circular depression adjoining the glowplug hole.

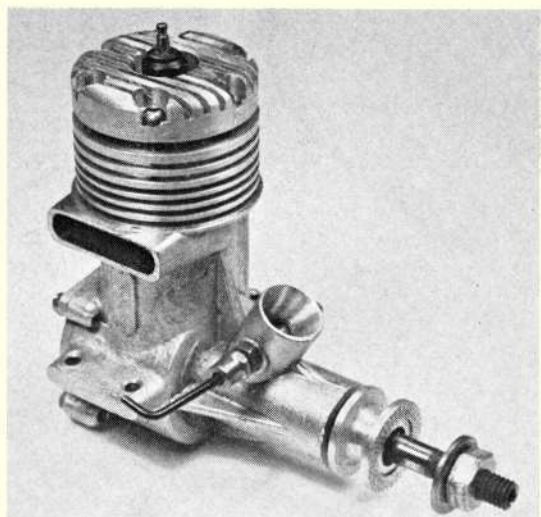
Fox Developments

Noted American engine manufacturer Duke Fox was in the U.K. recently and told us of plans to expand the Fox engine range. After several years during which work for the U.S. government has had to take precedence over model motor production at the Fox Manufacturing Company's well-equipped plant at Fort Smith, Arkansas, it is good to know that several new and improved Fox engines are in the offing.

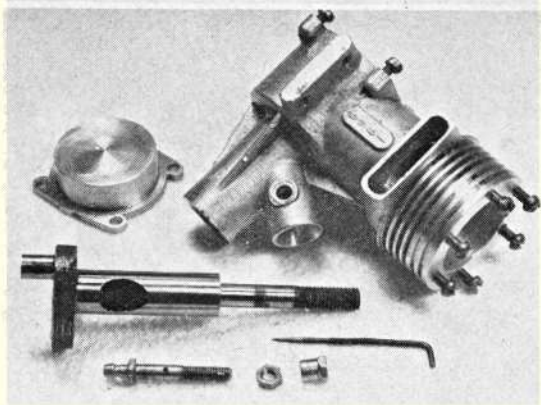
Among these will be a much modified racing version of the recently introduced 40. This will have a form of Schnuerle loop scavenging, a ringed aluminium



The Russian 'Akrobat' 7 c.c. control line stunt engine as used by the U.S.S.R. team at the 1970 World Championships. Has a certain resemblance to the Fox 35, internally as well as externally.



Crankcase of the Akrobat is a one-piece gravity die-casting with bronze bush main bearing. Crankshaft is counterbalanced but not hardened. Small area of choke should ensure good fuel draw even under the most violent manoeuvres.



piston and a ball-bearing shaft. Another new model will be the Fox 25 (4 c.c.). Fox made a .25 many years ago. It could now be a useful in-between size for those who need an engine that will pull a little more prop than the typical .19 but who do not want the extra bulk and weight of a .29 or .30. An entirely new radio-control .60, to be known as the Fox Eagle, is also on the way. This is much lighter and more compact than the previous Fox 60 which, formerly made also as a '74', is now in production solely in a .78 cu. in. displacement.

To answer critics who say that it is not good enough for an engine to be well made inside, but that it ought to have a fancy finish on the outside too, Duke Fox has recently installed equipment to give a more attractive

Akrobat cylinder and piston assemblies. Unlike some East European engines, plug hole is tapped to take standard 1-32 thread.

casting finish. He showed us crankcases for the Eagle 60 and Stunt 35 that had been so treated. The system involves a preliminary chemical treatment followed by a special polishing process.

In contrast to some manufacturers, who seem content to follow contemporary design trends and whose engines therefore show little or no originality, Duke Fox is a man to whom ideas come thick and fast and who sees no reason not to make use of them. Consequently, Fox engines not only look different from other people's: they do not necessarily look like each other either. Obviously, a certain amount of rationalisation is desirable in the interests of production economics, but this does mean that new Fox designs nearly always contain some out-of-the-rut features, particularly in the case of R/C engines.

Details of the new Fox engines will follow in these columns shortly.



'On the left, Madam, we have the more convenient, portable machine, while on the right is the more permanent device, for those of a lazier nature.' Bryan Spooner and Reiner Hofsaas man their respective bubble-making thermal detectors at the recent World Championships.

FREE FLIGHT COMMENT

by John O'Donnell

IT MAY WELL have been noticed that last month's *Comments* contained more contest *results* than actual reports. In consequence, I still have plenty of ground to cover!

The **Southampton Club** could hardly have asked for a sunnier day for their rally at Beaulieu on July 11th. As there was only a light breeze, even in mid-afternoon, conditions during much of the day were really too hot for comfort. With such a day, plus the use of one of the largest flying fields in the country, the organisers can scarcely have been thrilled with the attendance.

Lack of numbers was offset to some extent by high scores in all events. There were several 'double appearances' in the prize list – but the only person to manage two *first* places was Mike Fantham, winning both chuck glider and Coupe d'Hiver – the latter with the rather pretty model that gained a 'Commended' at the 1971 M.E. Exhibition. His winning score of three 'twos' was made on a re-entry – after I had decided to persevere with a short first flight!

Scores in the Open Power event reflected the present low standard of flying in this class. Russell Peers recorded a treble (with his ETA 29 *Woodpecker*) quite early in the day – and no one was able to force him to a fly-off. Nearest was Pete Stewart, fresh from his proxy stint in Sweden and apparently finding maxs more difficult in England's unstable air. Len Larrimore made a re-appearance on the contest scene and placed third with a 35-powered *Ramrod*.

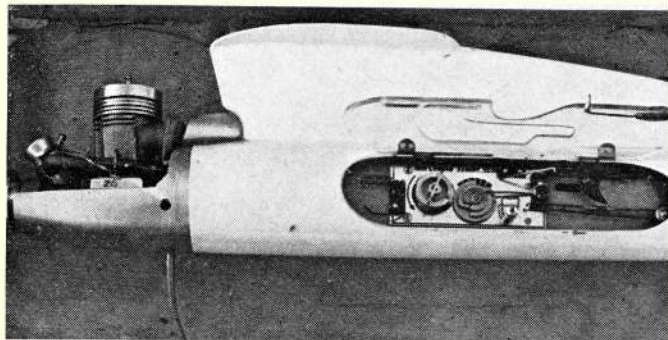
The other three events all needed fly-offs – even A/1 glider,

that was flown on a 3 flight, 3 min. max. basis – not the 5 x 2 alternative preferred in the North. Bert Turner found a fourth thermal to record the winning time of nearly five minutes, Dave Glue achieving just over half this for second place. Mike Keevil did not take his fly-off – presumably having lost his model. As Bert Turner was a member of the organising club he did not accept his prize – an action that put Gary Madelin, at fourth, into 'the money'.

There was abundant lift for the Open Glider fly-off, with the flights being launched far from simultaneously. Drift proved to be less than most people had expected, and some fly-offs D/T'd well in sight – these *included* the winning flight by Dave Glue. He was using an extender disc on his timer, D/T'd at around 14 minutes and was seen all the way down to tree top height – his conventional design A/2 was well-decorated with chrome tape that 'flashed' throughout the flight and improved visibility considerably. The flight, in fact, was almost a duplicate of his fly-off at the Nationals. Second place went to Jim Baguley, whose A/2 faded O.O.S. into the haze at 10½ minutes. The flight D/T'd at about 15 minutes and ended in the woods at eighteen! The Brighton club retrievers, waiting downwind, found Dave's model, but not Jim's. Third place went to Dave Hewitt, who used a *much* shorter D/T.

Open Rubber was decided in even calmer and relatively lifeless conditions, which should have given some indication of model performance. My brand new *Maxine* made its con-

Koster's solution to keeping the oil and dirt away from the timers is to 'hide' the mechanism within the fuselage behind a hinged plastic cover. Very neat, drag-free answer. Note also the engine exhaust deflector mounted on the pylon. Belt and braces at work here!





Pete Harris had a field day at the Cranfield Rally, qualifying for fly-offs in both the Open Rubber and Open Power events. Exceptionally good conditions meant that all such fly-offs were watched 'to the ground', and within the airfield.

test debut in the form of three maxs, but suffered enough damage to unsettle the trim and make me revert to its much-battered predecessor. This did nearly six minutes in the fly-off, to give a 20-second lead over Nigel Clark, flying a large (probably nearly 300 sq. inch wing) if not particularly light model. Mike Fuller was third with a rather short fuselage design that looked smaller than its actual 230-240 sq. inch wing area.

Junior prizes seem to have reappeared on the contest scene, the one at this meeting going to Robert Clark with a score of 8.11. The Southampton club were able to present quite substantial prizes of cash plus merchandise thanks to the generosity of their local model shop, R. G. Lewis of 17 Hanover Buildings, Southampton. This help is given despite local trade being practically all radio. The organisers also asked me to point out that the recently published 'permits' (for flying in the New Forest) are not needed by fliers attending purely for a day visit to their rally.

The English summer is so uncertain in its behaviour as to be something of a joke. Nonetheless it is pleasant to be able to report that the next Sunday, July 18th, was also hot and sunny, and not unduly breezy. This description fitted conditions, at both ends of the country. Hayes ran a rally at Chobham. I went 'the other way' to the North East Area Gala held at R.A.F. Ouston - site of the 1965 Nationals.

Turnout was numerically similar to that at Beaulieu the week before. It was certainly disappointing to those in charge - especially as absentees included many from the comparatively local Yorkshire clubs. The weather conditions made for lots of 'ups and downs' and this is reflected in the score sheet.

Open Glider was naturally the best supported - but only produced a single treble, from Pete Whitehead, and seems to have signalled his coming 'on form'. His A/2 designs are quite conventional in the White-Wiseman style. Second place went to Tony Evans of Liverpool, nearly a minute ahead of Dave Hamley at third. Both these fliers (and indeed the next four as well) had two maxs and one otherwise.

Open Power was again topped by Russell Peers with a treble - although this time he had to re-enter in order to max-out. As it happened he need not have bothered as his short flight, plus two maxs, would still have been good enough. Local Tynemouth clubsters Brian Martin and Jim McCann provided the only sign of opposition - and they seemed to have consistency problems under power.

Chuck glider was well supported by the N. W. contingent - but was won by Ewan B. Jones thanks to having three thermal-assisted flights amongst his 'best five from nine'. Barry Kershaw was only five seconds behind and lost yet another chuck glider in lift!

The only fly-off of the day came in Open Rubber and was between Ron Pollard and myself. For the crucial deciding flight, Ron produced his 360 sq. inch wing area 'monster'. Not only is it large but it is intended to be easily visible thanks to a mixture of black tissue and lots of 'day-glow' paint. On the fly-off it seemed to lack climb through a combination of indifferent air and being somewhat underpowered (subsequently rectified by increasing the number of strands to 18 of 6 x 1mm Pirelli). It did however glide into rather better air. I had been forced to use my old *Maxine*, through having difficulty locating the new one in the heavily cropped countryside, and had to concede the contest to Ron. Third place went to Ken Brown, just eight seconds short of a treble. Also unlucky was Paul Lester who not only dropped a flight, but also burnt most of a rubber model - set alight by its own D/T fuse. The incident, though uncommon, is not unique - and his model

had one feature in common with other instances of which I have heard i.e. the use of the same brand of dope.

The meeting was marred by an act of vandalism that brought prompt complaint from the R.A.F., plus the prospects of a large bill to be met. Lights alongside the runway were damaged, apparently by stones thrown at them by modellers' children. Correspondence on this topic has already been printed in *Model Flying* and gives considerable detail. What is now needed is suitable action so that the persons responsible have to foot the bill.

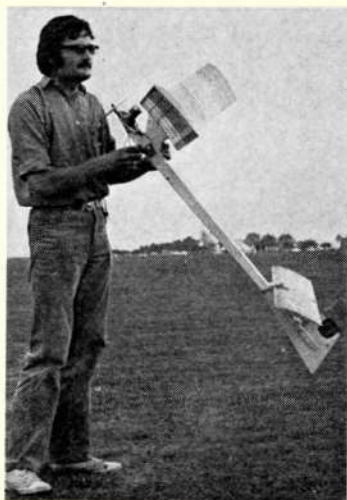
July 25th saw yet another trip over the Pennines, this time for the well-established Northern Area F.A.I. Meeting held at R.A.F. Topcliffe. As well as the three categories, there was also F.A.I. Team Race and a B.M.P.R.A. Pylon race. The latter was located far too close to free-flight, and must have given trouble to both 'them' and 'us'. Better collaboration between the different parties would seem to have mutual advantages.

The weather throughout the day varied to an unbelievable extent, the effects of which were shared out evenly enough by virtue of the events being flown in rounds. The start of the contest was decidedly windy with models going well off the aerodrome for three minute flights. There was plenty of lift of the sort that was easy to detect. Following the one hour 'lunch break', between rounds three and four, the wind dropped noticeably and there was a very hot sunny spell. This didn't last, and the wind reversed to herald a heavy rain shower that took up most of the sixth round. When the rain cleared the final flights had to be made in very calm 'flat' air.

Even though this meeting no longer attracts the Southern enthusiasts who were once regular attenders, it was quite well supported and the top places were hotly contested. This applied particularly to A/2, as it had soon become apparent that the event was not going to be won with seven maxs. In fact the winner, Mike Reeves, dropped just over two minutes in all. He flew a pair of his *Humblehound* design - both with two-piece wings but with large diameter (1in.) metal rod wing joiners to give the stiff wing that he claims is a help in towline stability. Second place went to Clifford James who has been doing well this year, but without quite making the 'top spot'. John Boon and Brian Picken filled the next positions just ahead of the other two Hayes glider exponents, Jim Punter and Jim Baguley. Top junior place and prize went to Dave Barnes with a modified *Accipiter*.

Wakefield proved to be a battle between Tynemouth members Ron Pollard and Allan Jack, and myself - with Birmingham's Dave Greaves and Reg Lennox just that little bit behind. Eventually I managed to repeat my previous year's win - with the same model. One thing did become apparent during the day that had never been so obvious before. Whilst my model can be thrown on launch in calm weather, to do so in wind produces several tight flat circles that waste all the power burst. A gentle release in wind gives a perfectly normal climb! Luckily I was flying 'for lift', so I got away with this unwanted manoeuvre on a couple of flights. It's amazing how some things only show up under contest conditions!

My final flight proved rather nerve-wracking but gave just enough score to beat Ron Pollard by four seconds. He had under-D/T'd by five seconds on his initial flight to keep in front of the crops and ensure quick recovery! His



Dick Johnson won the Open Power event at the Leeds Rally with a model obviously influenced by fellow St. Albans club member George Fuller! Power supplied by a Super Tigre G40 R.V.



Brian Baines has been having a fair degree of success recently with his conventional A/2, winning the A/2 event at Leeds, and also the open glider contest at the Northern Area Rally, Lindholme.

piece of luck came in the form of what he reckoned was generous timing on another flight. Close behind all the way was Alan Jack, despite losing his best model through D/T timer malfunction part way through the contest. All the Tynemouth Wakefields follow the modern trends of circular section fuselages, Schwartzbach propellers, and timer operated VIT and A/R. One of Alan Jack's models has a 'penny rocket' style fuselage with a glass-fibre rod grafted onto the end of the motor tube – as illustrated last month.

In comparison with the other two events, that for F.A.I. Power was poorly supported. Half of the eight flyers dropped out after the second round, leaving only four contestants to vie for top positions. Winner proved to be Ray Monks flying the elliptical tipped model he used in Sweden – but with a rather flat power pattern. This caused him to drop score on four flights – but only by a minute total. Russell Peers managed six maxs but had one very bad flight when the model stalled down. This was attributed to a broken rubber band on the auto-rudder. His model is the Monks design, as published in *Free-Flight News*, and is powered by a very poor example of the G15. High scores came from 'picking the air', usually by tactical flying under the gliders! Brian Martin and Jim McCann were the only others to finish their flights.

The Team event, based on a club's best single aggregate in each of the three events, aroused very little interest. Although at first awarded to Birmingham it was really won by Whitefield. Our 'victory' was almost accidental, as we had not planned a team approach in advance and then could not persuade our Power representative to continue after he had lost a model.

Prizes were most generous by present standards and the array of modelling kits, books and accessories brought back memories of my early days in the contest field. The firms responsible on the present occasion included Keil-Kraft's, Veron, Solarbo, Humbrol and Profile Publications. There were also trophies, plaques and cash – all given out at an almost formal prizegiving. There was even a draw to award a prize to one of the unplaced competitors.

The National events, flown at various area-centralised venues on August 8th, presented their usual difficulties with

providing comprehensive coverage. Even if I had the information I could hardly describe the varying fortunes of each Area throughout the country – as this would take far too much space. If it were possible, it might, however, bring home just how much flying conditions vary throughout the country. This alone makes these events basically unsatisfactory as serious contests. Some areas, in fact, have steadily become more disillusioned with Area-centralised events and regard them as little more than occasions for running their own domestic events. As these provide both visible opposition and prizes, they take most of the interest and effort both competitive and administrative.

Having said this about 'extra' events, I will restrict my actual report to the S.M.A.E. events. The team glider event for the 'M.E. Cup' was quite well supported nationally with 130 individual scores from a total of 40 clubs. There were three individual entries from Country Members, a phenomenon that seems both pointless and of questionable legality.

M.E. winners, by quite a substantial margin, were Norwich 'A'. Barry Halford wrote to describe their area's efforts. Apart from a single Anglia flier, Norwich provided all the entrants with two complete teams. (I wonder what they do for 'foreign' timekeepers?) Furthermore, Norwich really flew as a team, with one team 'helping' the other. Good conditions in the morning gave way to a windy afternoon that led eventually to poor fly-off scores. Runners-up in the Team event were Croydon 'A' despite having no trebles. Top individual score was recorded by Pete Stewart of Crookham who got nearly a six minute fly-off, flying at Chobham.

Two top places in Coupe d'Hiver were also won at Chobham. These went to Mike Fantham (who did 5 x 2, followed by a mediocre fly-off) and Dave Tipper. I managed third with the same old *Hatband* I have flown for years. Entries in this contest were a lot more than I expected and totalled 44.

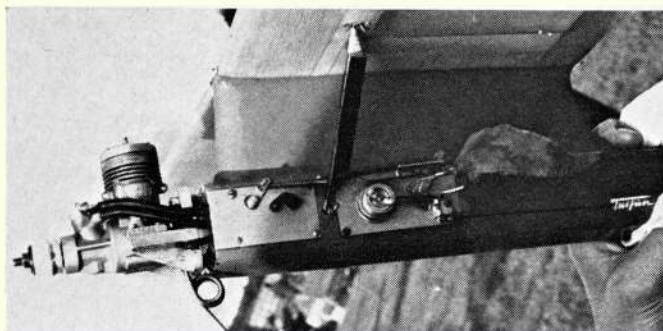
F.A.I. Power was poorly supported as often happens when the contest and conditions are such that the 'top exponents' are unwilling to risk their complex and expensive models. However, there was no doubt about the quality of the winning score that gained the 'Astral Trophy' for Jim McCann. Flying at Topcliffe, he managed a perfect seven maxs, and followed this with a respectable 3½ minutes fly-off. The model used had fully-sheeted *Night Train* outline and section flying surfaces mounted on a glass-fibre rod fuselage. Power was a Rossi 15. Jim had found that by using a Rev-up 7½ x 3½ wooden prop compared with the fashionably smaller sizes he lost 3,000 r.p.m. – and yet gained in altitude. Successive scores in the *Astral* went down very quickly, roughly at minute intervals. Derek Wain and John West were second and third.

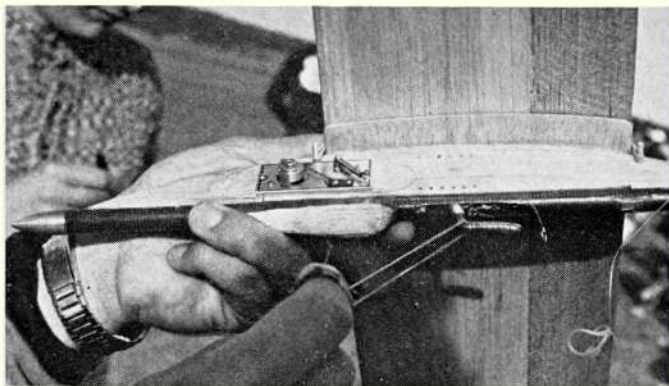
The S.M.A.E.'s Two-Day F.A.I. Meeting was introduced into the Contest Calendar two years ago in order to provide a focus for F.A.I. interest in the years between Trials. Whilst the turnout and keenness evident at the Trials can only be engendered by the chance of a team place, something of an approximation can result from a well-run 'prestige' contest.

This year's event was run at Syerston over the week-end of 21st and 22nd August. The contests were flown in a rubber/glider/power sequence in 45 minute rounds. On Saturday there were three rounds for power and four for Wakefield and A/2 – with the balance on Sunday. There was a vaguely defined downwind limit on launching – but no processing. Contestants were expected to find their own timekeepers 'as usual', and it was insisted that two were employed on each flight. Particularly in glider it was difficult to find timekeepers, unless one had habitual helpers or some sort of exchange system.

Saturday was overcast and quite windy. There was still plenty of lift, and maxs usually landed a field or two outside the drome. Fortunately the wind direction was such as to give no trouble with either the adjacent river or the turb-

Business end of Russian Viktor Onoufrienko's power model reveals Super Tigre mounted on an alloy mount rather than the more usual pan, with plenty of adjustment to the degree of offset possible. Home-made timers have obvious Seelig resemblance. Note struts supporting the wings either side of the pylon and sprung nose-leg attached to the engine mount.





Close-up of Giora Hertzberg's (Israel) A/2, seen at the World Champs, reveals spring-loaded tow hook, similar to the Russian's in theory, but somewhat simplified. A 0.8 to 1 Kilo pull on the line will clear the anti-fall-off device, while a full 3 Kilo tug is necessary to operate the extra rudder and release the model. Spring neatly encased within the glass-fibre rod fuselage.

ulence that plagued the last Trials. At the end of the day there were no perfect scores in any event, although I had only dropped five seconds (O.O.S. early) in A/2. Dave Digby looked very well placed with a 40 second lead in Wakefield, whilst Dick Johnson headed the power list.

The following day brought very different weather conditions. It was calm all day with plenty of lift from late morning till mid-afternoon. The fifth and sixth glider rounds were very easy with large thermals filled with a cloud of A/2's. The final glider round was rather a different story with weak and sparse lift that could decay rapidly. I missed a max at this stage to spoil what should have been a satisfying weekend - it wasn't bad enough to cost me first place, however, Pete Whitehead pulled up several places by dint of a final max and ended up in second place. Jim Punter did nearly as well on his seventh flight for third place - nearly a minute behind Pete, but just ahead of the next couple of fliers.

The top positions in Wakefield were reshuffled throughout Sunday. John Mabey rose to first place with three good flights at moments indicated by rising soap bubbles from Jack North's portable machine. It was certainly John's lucky day as his model came down on its final flight with the D/T timer having stopped after it had actuated the V.I.T. His model followed the modern rolled balsa fuselage trend and used 16 strands of Pirelli to swing a helical 560 x 700 mm (22 x 27) in. prop.

Runner-up, mainly through stalling on glide on his last two flights, was Alan Jack. He flew both models depicted last month. They use 16 strands and a Schwartzbach nominal 560 x 700 mm prop. Dave Digby dropped to third position through making a poor fifth round flight.

F.A.I. Power was topped by Pete Buskell with one of the models that he flew in Sweden, but which is now fitted with a thicker section tailplane. Power plant is a Super-Tigre G20 fitted with a G15 liner, and turning one of Pete's own carved $7\frac{1}{2} \times 3\frac{1}{2}$ 'Tufnol' props. John West was second with six maxs and a $1\frac{1}{2}$ minute flight. He broke his 1965 model attempting his fourth flight, when the auto-rudder wire broke at 5 or 6 seconds. His reserve is a year newer. He uses G15 engines, 'stock' apart from having Cox heads; and either 7 in. x 4 in. Topflite nylon or reworked Super Record $7\frac{1}{2}$ in. x $3\frac{1}{2}$ in. wooden props. Bob Bailey edged his clubmate Roger Melville down to fourth place.

This meeting really needed some kind of finale to round it off. Unfortunately prize-givings cannot be held without prizes and there were none to distribute at this contest.

The Autumn Bank Holiday weekend saw two rallies being staged. Woodford was reported in detail in the last *Aero Modeller*, but it is opportune to mention the **Torbay Rally** held at Woodbury Common near Exmouth. Barry Hyle supplied me with results and a brief report:

'Wind strength varied considerably throughout the day. It was strong enough at one stage for Brian Bow to break an A/2 wing - but eased appreciably towards the end of the day. There was only one model lost, and that was through D/T failure.

'The All-in F.A.I. event for the "Torbay Trophy" was won by Mike Warren flying gliders. One at least was impressive with a "better than average" glide, perhaps through having a sheeted undersurface with close set ribs and inset spars - all on an elliptical tipped wing. All the other entries in F.A.I. were gliders, except for John Hook who flew a power model into third place.

'Open glider saw a clear win for Colin Morris with a rather low score of 7:20 and still nearly a minute ahead of Mike Warren. The air appeared "difficult", and it was not easy to fly tactically. Rubber had only two entries with Colin Chapman suffering one downdraught to spoil his hopes of a perfect score.

'Power was better supported than might have been expected, and Andrew Chilton flew well to win with a very pretty and potent 1/2A with unusual swept tip LE, and 5½ oz. total weight. Peter Ward was second with an ETA 29 model, whilst Fred Chilton was third with a fixed surface open model powered by a "worn-out" K & B 15.'

The **Northern Area** were unbelievably lucky with the weather for their 'public' rally at R.A.F. Lindholme on September 5th. It was calm, warm and sunny until late afternoon. There was lots of lift, and more than enough activity to render tactical flying very easy. It was perhaps just as well that the rally did get such conditions as the programme contained far too many events for a single day's flying. There were 30 events altogether, of which free-flight accounted for 14! The all-in entry fee of 30p was facetiously described as 1p per class!

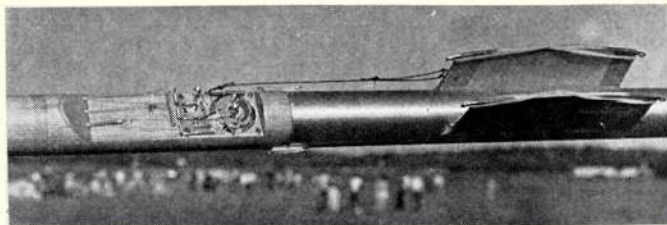
All of the 'normal' events attracted substantial entries, and had to be resolved in fly-offs. This contrasted strongly with the minority classes that were indifferently supported and which, in general, had quite low scores. The most unusual of these events was Jetex, reappearing after a ten year absence from the British contest scene, and almost certainly prompted by recent remarks regarding the availability of units and charges. I resurrected a 21-year-old model, and shocked many people by showing that it would catch thermals like anything else! Roy Roberts took second place with a chuck glider to which a '50' unit had been added! Single entry in the Junior '50' contest was A. Gregory who only needed to make one flight.

The Vintage event was won by protagonist Jim Moseley flying, I believe, a *Lulu*. Successive entries read more like the list for a scale event - Terry Manley and Eric Coates! Tailless was topped by Alan Brocklehurst whose rubber model beat George Simpson's glider by a clear $1\frac{1}{2}$ minutes.

Chuck glider was flown on a best 5 from 9 basis, with a one-minute max and was very closely fought. Ewan Jones was first with five maxs - just ahead of Roy Roberts and Barry Kershaw who missed maxing out by just two and eight seconds respectively. Roy lost two chuck gliders upwards in lift.

All the 'popular' events needed fly-offs, with those for rubber, glider and F.A.I. being particularly large. Not sur-

Emil Gouverne of France used an unusual Wakefield at the Save Championships, which featured the D/T timer mounted in a recess on top of the fuselage, while the wings were supported on twin pylons. Aluminium motor tube used with plug-in tubular balsa rear fuselage.



prisingly the organisers found that obtaining the necessary timekeepers (and co-ordinating them with the fliers) was a major undertaking. The fly-offs commenced with those involving the smallest numbers of qualifiers. At this point there was no wind to speak of – and as the Mini fly-off soon showed, there was very little lift. Mike Sanderson found just a trace with his Coupe d'Hiver and won decisively. Following scores were grouped closely together with my A/1 just squeezing into second place.

A trace of breeze caused some delay whilst the power qualifiers walked part way across the airfield. Ray Monks flew early with an F.A.I. model and appeared to find good air. This gave Russell Peers the chance to follow smartly with his better gliding (through being lighter loaded) ETA 29 model – and to win. Andrew Brewster flew his Rossi powered F.A.I. model into third position. Derl Morely had his engine timer race to a premature (four-second) cut-off – and then found definite lift when he check-flew immediately afterwards!

At this stage the weather broke. A cold still breeze suddenly sprang up just as if 'a door had been opened'. Moreover it was blowing in such a direction that the organisers found themselves on the downwind edge of the 'drome'. The walk to the other end took up much valuable time. F.A.I. was the next event away. Ray Monks had the best chance with the only power model – and made no mistake about it. His old elliptic tip model disappeared well downwind at a little over four minutes. Next was Ron Pollard who launched his Wakefield under the most promising of the gliders. The top A/2 was provided by Phil Owens at third.

Open Rubber followed and proved to be a timekeeper contest. The light was fading rapidly, and models drifting quite quickly. Scores bore no relations to distance flown, and little to size of model. Having another fly-off to follow I got a helper to chase my *Maxine* whilst I stayed with the timekeepers. They gave me just over four minutes which I considered generous! The winning score was nearly 50 seconds better – and gave Mike Sanderson his second win that day. The model was a conventional diamond pylon design of around 240-250 sq. inch wing area – and possessed no apparent aids to visibility. Second place went to John Carter with a 300 sq. inch, fat fuselage model well daubed with dayglow paint – and third to Alan Jack. Retrievers from this fly-off were still struggling back to the 'drome in the pitch dark'!

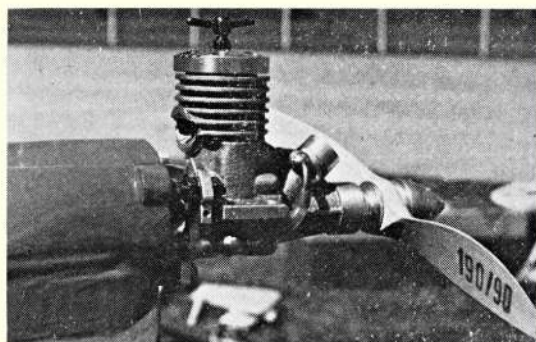
Open Glider was held last – and timing must have been very tricky. There was only enough lift to prolong the glide slightly – so recovery at least was no problem. Brian Baines towed for several minutes before releasing well upwind, and won by a mere two second margin. There was only seven seconds spread over the top five places – successive positions going to Bill Parker, Jack Kay, John Boon and Mike Woodhouse. All flew A/2s except Boon who used his '1½ Caprice' ultra lightweight. Terry Dilks had the tissue of his scantily-doped version slacken alarmingly in the damp of late evening, and reckoned this was responsible for his wing break on tow.

The prizegiving was practically a torchlight affair – but it saw the distribution of £55 in cash (out of the gate takings) to free-flight alone, plus an impressive array of tools donated by *Stanley Tools Ltd* and some modelling items provided by *KeilKraft*. It is gratifying to see 'The Trade' giving support once again. This time there was no overall Gala championship – perhaps through the difficulties of trying to devise a satisfactory system. It should not go un-noticed that re-entries *WON* two of the 'big' events.

One unique feature of this rally must not go unmentioned. There were *indoor* events scheduled – and run in one of the R.A.F. hangars. It was not really the day to tempt spectators inside – but most of those who did go to watch had their eyes opened by 'slow motion aeromodelling'. Support for the events was a bit lacking with but four *official* scores in microfilm (won by John Blount with a couple of 11 or 12 minutes flights) and one in tissue. I know these were not the only flights made but they were the only ones recorded. The indoors 'Peanut Scale' event did not attract any participants at all. Nevertheless it was an experiment well worth trying, and a welcome move to hold events in other venues than Cardington.

Most of the country would appear to have had reasonable weather for the fifth S.M.A.E. Area-centralised events held on September 12th. The North West had marvellous weather at Chetwynd, it being calm, hot and thermally. I heard of a 46 minute chuck-glider flight that landed 200-300 yards from the launch. There was also a ten-man fly-off for the area's domestic open glider contest – and predictably little interest in the S.M.A.E. events.

S.M.A.E. results show that top positions were spread round the country. The 'Keil Trophy' for Team Power was won by Birmingham with just under 34 minutes, and closely followed by Brighton and Northampton. Their scores are indicative of most clubs' difficulties in mustering four members



Jaroslav Sedlak (Czechoslovakia) used the latest MVVS diesel (as described in *Latest Engine News* in the October issue) at the Swedish meeting, with the rear facing exhaust port casting cut almost completely away. No prizes for guessing prop size!

for team events – never mind four who can be expected to max-out. Individually there were a round dozen in the fly-off, with the top four places covering only a five second spread. Best was Bob Wells flying with East Anglia at Watton. They reported good flying conditions with plenty of lift – but poor support.

The A/1 glider event attracted virtually the same number of entries as the power class! This 'minor' class needed a six way fly-off to decide the event – final winner being Tony Cordes flying at Topcliffe. Conditions had gone rather dead by evening – but he found just a little helpful air to do 2½ minutes. His model resembles a miniature A/2, complete with glass-fibre rod fuselage. Andy Crisp and Gerry Pink took second and third.

Least support was for the Wakefield contest for the 'Gutteridge Trophy', perhaps seven flights is a deterrent! National winner was M. Evatt of Northampton – only recently returned to the hobby after many years layoff, and starting off in fine style. He did seven maxs and a very good fly-off with 'South Midland' at Henlow. Runner-up was Dave Greaves who flew at Barkston Heath, Ian Kaynes was third, just two seconds ahead of Alan Jack who was very disappointed as he only missed the lift on his last flight. He also lost a model in one of the woods alongside Elvington!

Results:

TORBAY RALLY, Woodbury Common, 29th August, 1971

Open Glider (12 entries) 1. C. Morris (St. Albans) 7:20; 2. M. Warren (Richmond) 6:27; 3. E. P. Drew (B. & W.) 5:52. **Open Rubber** (3 entries) 1. C. Chapman (Torrey) 8:40; 2. B. Hyde (Torrey) 4:59. **All In F.A.I.** (8 entries) 1. M. Warren (Richmond) 11:22; 2. R. Woodruffe (Swindon) 11:01; 3. J. Hook (Southampton) 10:50. **Open Power** (7 entries) 1. A. Chilton (Croydon) 8:42; 2. P. B. Ward (Torrey) 8:35; 3. F. Chilton (Croydon) 7:17.

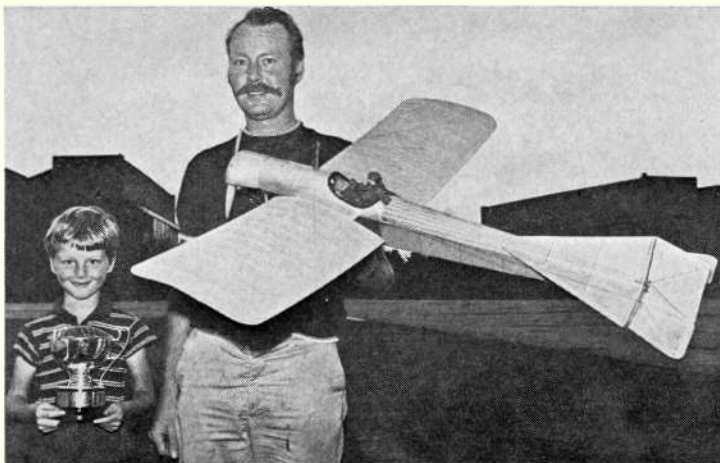
NORTHERN AREA RALLY, Lindholme, 5th September, 1971

Open Rubber (37 entries, 14 in fly-off) 1. M. Sanderson (Grimsby) M+4:55; 2. J. E. Carter (Spitfires) M+4:34; 3. A. G. Jack (Tynemouth) M+4:24. **Open Glider** (58 entries, 23 in fly-off) 1. B. Baines (R.A.F.) M+2:46; 2. W. Parker (Norwich) M+2:44; 3. J. Kay (Leeds) M+2:43. **Indoor Chuck Glider** (2 from 10 throws) 1. B. Kershaw (Wigan) 22-22+20 seconds; 2. R. Roberts (Wigan) 22-22+19 seconds; 3. E. Higham (Liverpool) 22-22+11 seconds. **Indoor Micro Film** (Best two total) 1. J. Blount (Croydon) 25:11; 2. S. Wade (C.M.) 18:10; 3. L. Barr (Hayes) 17:58. **Indoor Tissue** (Two Flights total) 1. J. O'Donnell (Whitefield) 14:45.

Mini Comp. (39 entries, 5 in fly-off) 1. M. Sanderson (Grimsby) M+2:16; 2. J. O'Donnell (Whitefield) M+1:30; 3. F. Elton (Leeds) M+1:27. **Jetex** 1. J. O'Donnell (Whitefield) 7:46; 2. R. Roberts (Wigan) 4:11; 3. P. Robinson (Grimsby) 1:19. **Juniors Jetex** 50 1. A. Gregory (Sheffield) 1:24. **Tailless** 1. A. Brocklehurst (Halifax) 7:02; 2. G. Simpson (C.M.) 5:37; 3. J. Palmer (Sheffield) 2:25. **Vintage** 1. J. Moseley (Leeds) 7:06; 2. T. Manley (Blackburn airc.) 5:34; 3. E. A. Coates (Leeds) 3:49. **Open Power** (32 entries, 6 in fly-off) 1. R. Peers (Falcans) M+5:10; 2. R. Monks (Birmingham) M+4:20; 3. A. J. Brewster (Leeds) M+2:59. **Combined F.A.I.** (44 entries, 13 in fly-off) 1. R. Monks (Birmingham) M+4:11; 2. R. Pollard (Tynemouth) M+2:31; 3. P. Owens (Liverpool) M+2:27. **Chuck Glider** (17 entries, 5 from 10.1 min. max.) 1. E. B. Jones (C.M.) 5:00; 2. R. Roberts (Wigan) 4:58; 3. B. Kershaw (Wigan) 4:52.

FIFTH S.M.A.E. AREA CENTRALISED MEETING, 12th September, 1971

Gutteridge (Wakefield) Trophy (57 entries) 1. M. Evatt (Northampton) 21:00+4:24; 2. D. Greaves (Birmingham) 20:22; 3. I. Kaynes (Croydon) 20:10. **A/1 Glider** (65 entries) 1. A. Cordes (Tynemouth) M+2:32; 2. A. Crisp (FACCT) M+2:19; 3. G. Pink (South Bristol) M+2:14. **Keil Trophy** (23 teams) 1. Birmingham 33:59; 2. Brighton 33:29; 3. Northampton 33:15. **Individuals** (67 entries) 1. A. Wells (Norwich) M+4:50; 2. J. Hook (Southampton) M+4:48; 3. R. Peers (Falcans) M+4:47. **Plugge Points after 5 Events** 1. Birmingham 1225 points; 2. Norwich 1072 points; 3. St. Albans 966 points.



Winner of the E. J. Riding Memorial Trophy was J. Watkins with his incredibly slow-flying Blackburn Monoplane, from A.P.S. plan FSP/567 (50p), an 1/16 scale model which suited the conditions perfectly.

If 1971 is going to be remembered for anything, it will be for the incredible weather record of the Model Rallies. We cannot recall any previous year with so fine a series of calm days and October 3rd was no exception. There was, however, a difference, in that the Central Flying School at R.A.F. Little Rissington was blanketed by low cloud for the greater part of the meeting. This produced a ghostly atmosphere which contributed to a most unusual contest.

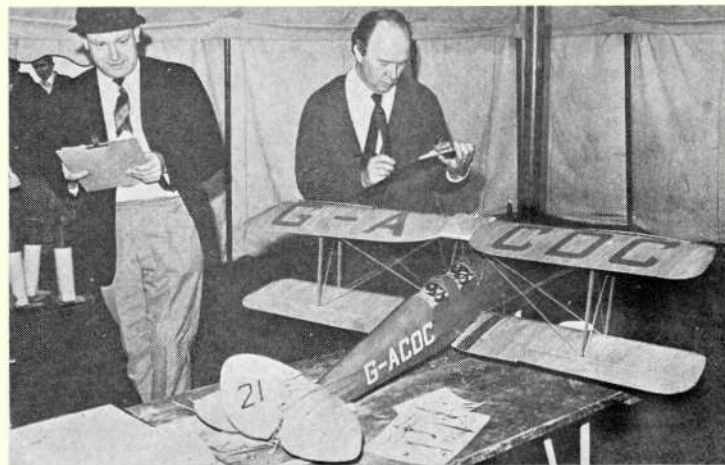
S.M.A.E. SCALE RALLY

ALL SCALE MEETING, LITTLE RISSINGTON, OCTOBER 3rd, 1971
RESULTS

			Scale Crafts. & Compl.	Flt.	Total
Radio Control (Ripmax Trophy)					
1. R. Yates	Eastcote	Proctor	475	784.5	1259.5
2. T. Melleny	W. Drayton	Moth Minor	521	706.5	1227.5
3. J. Sheldon	W. Drayton	Sop. Pup.	330	715.5	1045.5
4. P. Neate	N. London	Hanriot HDI	406	578	984
5. N. Butcher	Buckaneers	Fok. DVIII	472	453	925
6. D. Bryant	Bromley	Roll. Condor	504	357.5	861.5
7. D. Vaughan	Kidderminster	Miles Master	502	303	805
Free Flight (E. J. Riding Trophy)					
1. J. Watkins	Wolves MAC	Blackburn Mon.	340	281	621
2. E. Coates	Lee Bees	B. E. 12b	316	272	588
3. T. Manley	Blackburn	Vickers Vimy	385	75	460
4. J. Turvey	Lee Bees	Sop. 1 1/2 Strutter	280	68	348
5. W. McDonald	Edmonton, Alta.	Tiger Moth	136	200	336
6. J. Neate (Jr.)	N. London	Tiger Moth	98	137	235
Control Line					
1. D. Goddard	C.M.	Tiger Moth	489	193	682
2. H. Venables	Wolves MAC	Fok. DVIII	433	134	567
3. R. Ivans	Three Kings	11. 2m	102	152	254
3. W. Kulczuk	Upper Heyford	F. 100.D	146	108	254



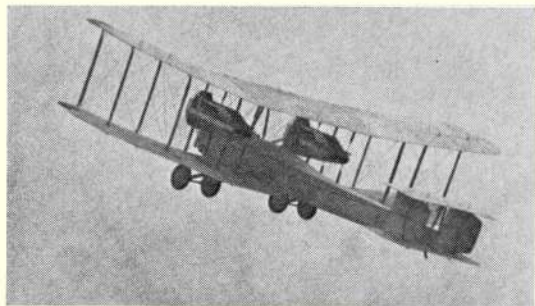
Cockpit view of Derek Goddard's new Tiger Moth, a replica of the oldest Tiger still flying, with perfect interior detail.



Co-operation of the R.A.F. was magnificent. They provided a fine large tent to be used as an H.Q. for judging the entries, and in return requested that cars use a parking area near the hangars. It was then only a short walk through the mist to a vast area of concrete apron.

The visibility was no real handicap for free-flight or control line, although three of the former disappeared out of sight; but radio was inevitably delayed. Thus flying

Judges of control line, Dennis Bryant and Roy Yates taking time out of competing in the R/C Scale section to judge the winning Tiger Moth.



took place in two separate stages, and everyone had the opportunity to enjoy some remarkable flights. Although the result does not indicate it, free-flight attracted the largest entry, a sure consequence of Eric Coates' instructional series of articles. Some newcomers came unprepared, without the necessary documents and thus do not appear in the list. Clearly the outstanding model was the *Vimy* by Terry

After a couple of 'dicey' zooms off the ground, Terry Manley played safe by hand-launching his transatlantic Vimy. Two Mills .75s run at balanced revs with a common fuel cut-out.

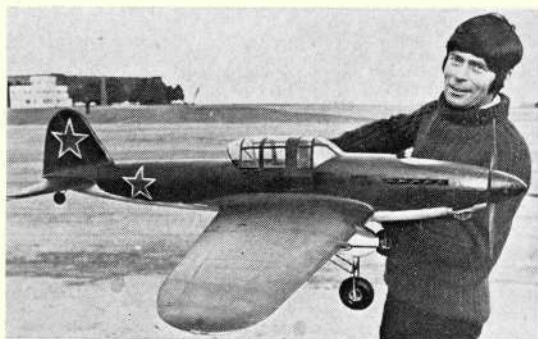


Big surprise – first seen in American Aircraft Modeler, now here in competition is a really practical ducted fan C/L scale model jet – the F.100 Super Sabre by W. Kulczuk of Upper Heyford.

Manley. It is early days yet for this adventurous twin, but each time the large bulk went majestically airborne, all onlookers relished this venture and the new challenge it presents.

Control line had a suitably striking innovation with American Bill Kulczuk's ducted fan Super Sabre showing the way to a new use of

Unlucky with flight attempts but one of the most intriguing paint jobs yet seen was J. Kilburn's (Whitefield) Fokker DVII from A.P.S. Plan FSP/916 (25p).



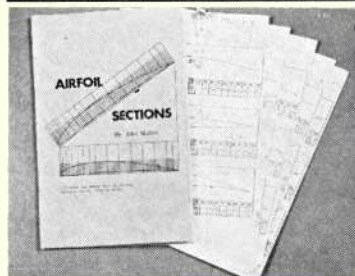
power. His detachable fan units which clip into the air duct are well engineered and show the way to many 'Jet' scale subjects. As the cloud lifted, then came the revelation that the area which had been used for flying was only just in front of the Hangars with attendant obstructions dispersed

downwind. But R/C being reliable and with the entry so experienced, the risk was minimal and a splendid contest developed, with Roy Yates bringing out his famous *Proctor* for a narrow points lead over Terry Melleney's *Moth Minor*, a situation which could well have been reversed had Terry used better positioning.



Bob Ivans has an all-working Il-2 m with retractable landing gear and also capable of making loud bangs if the occasion permits!

This rounded off a most pleasant day. Perhaps not too well supported: but well organised and adequately contained to the extent that it had something of a Garden Party atmosphere, far removed from cut-throat contest rivalry.



Above, scale pilot from the I.M. Company would make an ideal 'fitting' for the cockpit of any '39-'45 period scale military aircraft. Legs detach beneath the knee joint for alternative installation. Left, John Malkin's highly informative book containing some 300 airfoils.

JUDGING BY THE NUMBER of letters we receive from the more technically minded of our readers, John Malkin's informative book *Airfoil Sections* should meet with immediate success. The staple bound (enabling pages to be easily removed if required) book contains 114 pages of various airfoil sections and their ordinates plus advice on airfoil plotting, and thus is a great boon to all would-be model designers. Free flighters are particularly well catered for, with no less than 46 Benedek sections being described, as well as the Eppler and Göttingen favourites. Airfoils such as this book contains are never easily available (our own files are made up from pages of various publications, many of them Polish) and the author has provided a great service to enthusiasts by providing so many in a conveniently sized reference book – a publication not to be overlooked at just 75p.

As was announced in the October issue, the M.E. Heron and Snipe diesels of 1 and 1.55 c.c. capacity respectively are once more available, now being produced by Moore Engineering Company of the Isle of Man. These engines when originally produced soon found favour among the sports and free-flight scale enthusiasts and their demise was sorely missed. The current range continue unaltered (except for a nylon fuel tank being substituted for the original metal one) but incorporates several modifications introduced since Peter Chinn tested the Marown built version of the Snipe R/C in the January '66 issue of *Aero Modeller*. These engines are now available via your usual model retailers.

Yet again a bumpy sized parcel arrived, courtesy of Ripmax Ltd, bursting with all the latest 'goodies' – in fact far too many to mention here all at once!

Taking the items aimed at the scale enthusiasts first, we have a pair of 'full length' pilots to one-eighth and one-tenth scales, moulded in a thin, flexible plastic. These are

Trade Notes

A review of the latest products to reach the model market

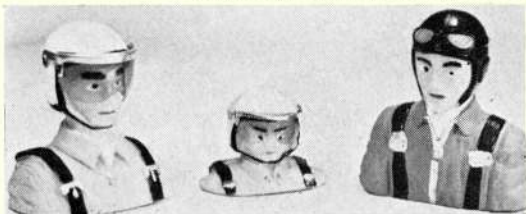
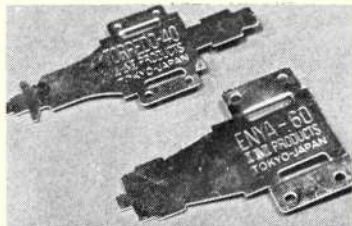
beautifully executed figures of World War II style R.A.F. pilots, very light, (the largest weighs under 1½ ozs.) and are supplied with separate 'legs' so that these may be adjusted, or omitted, to suit the model in question. A separate leaflet gives full colouring instructions. Priced at 95p (one-eighth scale) and 79p (one-tenth scale) they are not cheap, but are extremely realistic and far better than even the most skilful could carve from balsa, while still being competitive on weight.

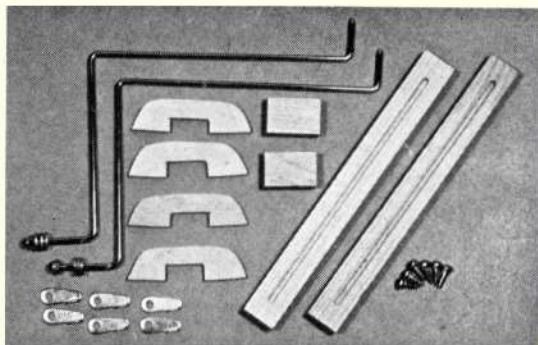
More for the scale buff comes from the Japanese IM company (whose products accounted for the majority of the aforementioned parcel). These consist of cockpit instrument sets to 5, 7, 9 and 12 mm. scales, all priced at 39p per set. Each set comprises of 5 (in the two smaller scales, 6) metal bezels with a selection of some 20 alternative instrument faces (transfers) to fit these. A separate printed sheet identifies each of the instrument faces, so there is no excuse for a scale model with the fuel pressure indicator placed where the cylinder head gauge should be!

Rather less scale-like, although quite suitable for 'sport' type aircraft, are a further selection of three pilots 'head and shoulders', each ready painted and available in one-eighth and one-twelfth scales. Two versions of the larger pilots are available, with visor (48p) or a 'sport' flyer equipped with goggles at 39p. The one-twelfth pilot is 'visor' only, and costs 39p also. As can be seen from the photographs, the painting of these figures leaves a little to be desired, and would be greatly improved with just a little care and a steady hand.

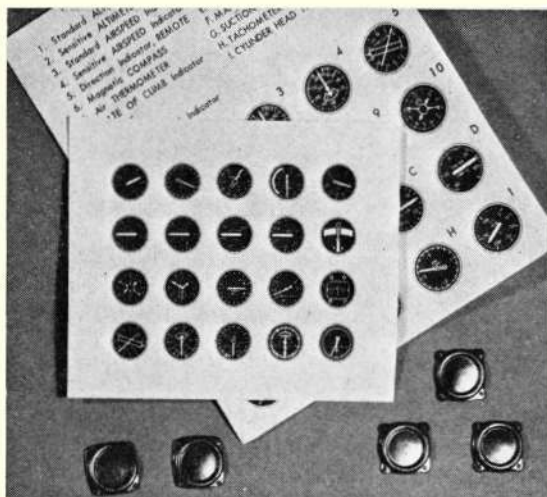
Any power modeller will appreciate the advantages of the engine mounting templates supplied by the same manufacturer. These are stamped metal planforms of

Right, two examples of the engine mounting templates from I.M. – no excuses for elliptical mounting holes now! Below, the same company's sports pilots, which could benefit from improved painting.





Above, very complete torsion-bar undercarriage mounting set by I.M. includes threaded axles, ply reinforcement pieces, retaining plates plus the preformed legs and grooved blocks. Well suited to C/L as well as R/C models. At right, I.M.'s cockpit instrument set (available in several scales) comprises Bezels, instrument face transfers and dial identification sheet.



engines with the mounting holes drilled out and the crankcase width indicated by right-angled pressings. Thus an engine installation may be easily and accurately made, without necessitating the engine itself, and indeed it is never an easy task to drill engine bolt holes accurately, particularly when the engine has a side exhaust stack to obstruct one's view. A very useful 'gadget' costing just 14p each, and available to suit the Enya and O.S. ranges of engines, plus the K & B 40 R.R. We can only hope that other engines will be 'covered' soon.

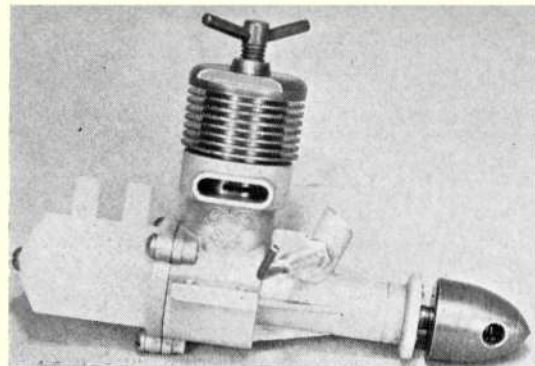
Rather more mundane, though equally useful, items are a metal fuel filter (detachable) at 22p and a clunk weight filter, again detachable, and again costing 22p. Two grades of 3/32 in. i.d. silicon fuel tubing are available at 42p per 40 in. length, the thinner being ideal for contest modellers, whether control-line or free-flight power, who use a fuel shut-off consisting of squashing the tubing. This thin wall grade is very flexible, whilst both of course are unaffected by proximity to exhaust gases or hot cylinder heads.

Although many of the I.M. company's products are aimed at the R/C market, several of these goods could quite well be adapted to other uses, as a few modellers have already found. Apart from the more obvious elevator horns etc., items such as torsion bar mounted undercarriages are ideal for larger control line models, being simple to install, while the legs are easily replaced

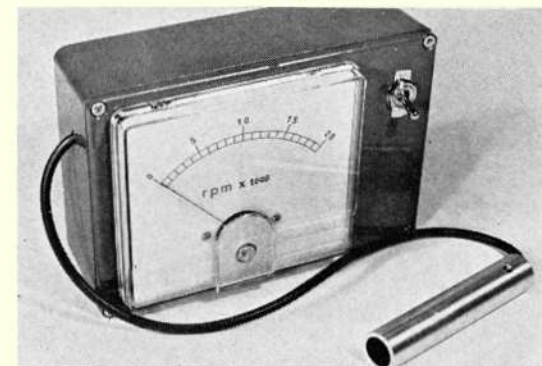
should a heavy landing distort them. Three different-size sets are available costing from 57 to 60p each, and consist of two grooved hardwood blocks, plywood reinforcement for the ribs, pre-bent U/C legs with threaded axles, plus the necessary screws and plates to mount them. In addition, with the increasingly popular idea of detachable wings on C/L stunt models, the I.M. cam-lock fasteners make excellent attachment devices, requiring just a 90° turn with a screw driver to positively lock them. Again three sizes are produced, all priced at 44p per pair, including bolts to attach them to the fuselage sides or formers.

And finally, still another new product (or rather a pair of new products) from the ever-expanding, specialist range of equipment by **Ron Irvine**. These are light-impulse operating tachometers which will read off the r.p.m. of your engine instantly and without 'loading' it. Operation is simple; just switch on and hold the photocell scanner in front of the turning prop, and read off the r.p.m. on the large (3 in. wide) scale. Two versions are available, one with a range of 0-20,000 r.p.m. the other reading from 0-30,000 r.p.m., both being priced at £16.00. The instruments seem very accurate, check readings agreeing with the much more expensive direct-gear driven devices, and are robustly encased in metal rather than plastic. A long lasting, useful gadget essential for those who operate 'performance' engines.

The Irvine light-impulse operating tachometer has commendably large scale and is easy to use - simply hold 'sensor' unit also available in R/C form.



The Irvine light-impulse operating tachometer has commendably large scale and is easy to use - simply hold 'sensor' unit in front of the prop arc.





CLUB NEWS

Good support by members of the Eastbourne M.F.C. at their 'Kit and Chuck Glider' contest evident in this picture. Selected kits were the KeilKraft Ace, Senator and Ajax, plus the Mercury Mentor, which introduced some members to this 'basic' aeromodelling, while reminding others what they had forgotten!

THAT GRAND ANNUAL club excursion, which we know as the Cranfield Rally, was blessed again with a glorious patch of calm, autumnal weather. Ideal conditions for the free flight events, in which a gratifyingly large entry filled the sky with high performing models all day, and also for displaying the many vintage and off-beat models that come to Cranfield each year. I thoroughly enjoyed the outing, and can recommend this and similar meetings to all club fliers.

We start off with a report, containing something of a paradox. Whereas you would expect a club to expand into radio control from less sophisticated beginnings, quite the opposite was the experience of the **Warwick Model Fliers**. Mr. J. A. Carpenter, the Chairman, writes to tell us that the club was formed some eighteen months ago as a basically Radio club, but has since extended its scope to include all branches of the hobby. He goes on to tell us that the club has two flying grounds: Warwick Common and Gaydon Aerodrome. The common, we learn from the accompanying, very copious newsletter, has been largely spoiled as a flying ground by the laying down of a nine hole golf course. Naturally the club is up in arms about this, and a protest has been made through the local press and to the Town Councillors. When I hear of this sort of thing I wonder about the legality of the action, particularly where common land, which is protected by certain ancient rights, is concerned. A common should provide the greatest amenity for the greatest number, which means generally to keep it as open land. Why not a word to the local Member of Parliament? The other club field, R.A.F. Gaydon, is available to restricted number of radio fliers, although the limit of twenty should adequately cover the regular fliers. The club is still very much of a fly for fun concern, but hopes are expressed that next season will see a venture into the contest field.

The leading editorial piece in the August/September issue of *The Message* is taken up with a reader's proposal for the S.M.A.E.'s Golden Jubilee to be celebrated in 1972. He suggests that a national newspaper be approached with a view to sponsoring a National 'One Kit' contest for a large prize and a celebrity prizegiving at the final. Age limit for boys and girls, 15 - but no half-way for girls stipulated. The reader, Mr. A. S. Bailey, believes that a small rubber model, using a 12 in. plastic propeller, would best suit the conditions, and thinks that the eliminating rounds could be run by the various Areas. No room here to cover all the proposed details, but would seem a suggestion worth examining, although time is somewhat short. Results of the Woodford Rally appear in the newsletter, but with no accompanying report. The low times, and short entry lists, however, would seem to indicate a somewhat breezy day. Considering the capriciousness of our climate, and the way model fliers shy at a puff of wind, it's a wonder anyone is optimistic enough to organise a contest at all. A good chuck glider plan here by Dave Yates of Wigan, although Dave confesses he is no Popeye in the arm department, relying for success upon consistency rather than brute strength.

Ian Wyllie, Editor of **Belfast M.F.C.'s Nitro**, is somewhat sharp this month with all those non-subscribers to the newsletter. He feels himself out on a limb, but jobs such as his often turn out to be one-man affairs. Why members are so reluctant to subscribe to their own magazines is something of a poser, but springs from the same attitude that leaves the same old stalwarts to do all the donkey work. Reports in the newsletter cover a whole host of events held north and south of the border during the late summer. Eventful was the Phoenix C/L comp staged at Baldonnell. Four colourful racers took the field in Goodyear, but came a spot of carb trouble, and then there were three. One off tune motor, and then there were just two, racing neck and neck all the way. Won by Dickson/Hamilton of Belfast. Later in August came the Ulster F/F Champs. Limited to A/2 Gliders only

on a 2 minute max basis. Stiff breeze operating, t'wood seem. Won by newsheet editor Ian Wyllie with a full house of five maxes (he even has to win the contests!).

Whilst some newsletters suffer from severe emaciation due to lack of contributory nutrition, the **Concord of the Valkyries M.A.C.**, has more than its share of well nourished bulk. From whence we gather that the club is very proud of its display team, not least for the grand slam way they finish off the demo: the blowing up of the model rocket site! Equally spectacular, but not rising quite to the same heights, was the flying Traction Engine built by John Stevens for the Traction Engine Rally (these model fliers get everywhere!). It flew like - well, a traction engine. Altogether an amusing newsletter content. I particularly liked the individualistic spelling.

Flying field troubles are currently besetting the **Maidstone M.F.C.**, according to the latest newsletter. After losing the field at Hollingbourne, due to the plough being mightier than the sward, the club lost its new site at Stockbury almost as soon as it was obtained, thanks to complaints from noise conscious residents. Bloody, yes, but still unbowed, members are negotiating for yet another field. To go from losses to gains, Ron Lovatt took away a useful prize from the Ashford Scale competitions in the form of a three channel proportional system. A good return, we are told, for the work he has put in on his Scout.

In the newsletter of the **Flying Druids M.A.C.**, we find a report of the S.M.A.E.'s Taplin Trophy event for Radio Aerobatics. Weather was warm and sunny with a helpful take-off wind of 10-12 m.p.h. Only one flight line was used but all 11 competitors managed to get in three flights apiece. Winner was Tony Doust, with C. D. Wright coming second to qualify for the Concord Trophy, donated by the Flying Druids. After the comp Tony Doust went through the schedule in slow time for the benefit of the crowd. A detailed commentary on each manoeuvre was given by Jack Hartley and Derek Giles. Much appreciated. Light relief was provided by Ron Marsh towing up a king-size streamer. He was hotly pursued by Tony Bull and John Singleton, out for a Combat sortie. Tony managed to cut it down to less than royal size after a ten minute chase. A writer in the newsletter has a few wry things to say about his trip to the States. He took fistfuls of money, but found nothing really worth buying. Degree of prefabbing enough to make the builder of the model rule hide its head in shame. Doubtful, though, if the models thus purchased climb as high as the prices: £30 for a multi kit. New method of construction seen there: take a foam core, plank it, cover with a layer of fibre-glass, then melt out the foam with acetate. Back at home the Druid display team hobnobbed with the Red Arrows and other 1:1 Scale exponents at R.A.F. Abingdon during the September Open Day. The team put up a variety of models in a half-hour show - well received by the public.

Mr. J. Glen of the **Scottish Aeromodellers Association** has sent along a few reports on recently held contests and events over the border. First, Combat at Motherwell. Eight entries and a number of even bouts, cut for cut, decided by ground time. A few hairy collisions added a touch of excitement; one such occurring in the Coutts/Haywood final when a bump removed the elevator of I. Coutts's to give P. Haywood a win on time penalty. Next, we have a report on the progress of the **Caledonian Inter Club Shield**. The three contests, F/F, C/L and Radio, have now been run. Clyde Valley Fliers emerged as the winners, with a 177 point total as against 149 for the second club, Scotmac. Only these two clubs of the four participating took part in all three events. And so to the S.A.A. publicity event at Blackburn, a come-and-see-us-fly affair (and have a bash yourselves if you can beat the footballers to the kick-off)

drew a large crowd of modellers and spectators. Main demo of the day was given by radio exponents Lew Weaver and Scott Smith, supported on the C/L side by fliers from the Glenrothes, Motherwell and Scotmac clubs. A large indoor football field was used for the static display and concours. Sideshows included slot car racing and a demonstration by Ian Dunn of Perth of the latest ground-to-ground missile craze, R/C cars. Only complaint, the lack of helpers. Membership should not be a wholly one-sided affair; it carries the duty of participation. Finally, a few words on the Intermediate R/C Aerobatic Comp held at Hartfield Moss on September 5th. Seven entries from the Motherwell and Clyde Valley Clubs. Won by Ian Glen of Motherwell flying an enlarged Ghost Rider S.T.35.

Star of the **Bilston M.A.C.'s** Combat group is John Allcock, ably backed by a very slick pit crew. John's recent second place successes at the Northampton Combat Rally and Woodford Rally has had an exemplary effect on other Combateers within the club, and it is certain that the name of Bilston will feature prominently in Combat circles next year. Another consequence of John's achievements is an increase in interest from the local press. Mr. J. Marsh has sent us along a cutting from the *Express* and *Star*. A good write-up covering all aspects of club life, together with an excellent photograph of member Graham Guest with large Scale W.W.1 model. A further boost to club morale and prospects has come from the display side. Impressed by the entertainment value of model flying, an agency has obtained bookings at a Sports Day and a Festival for next year. Apart from the publicity it gives there are those no noise problem flying fields to think about!

Whatever is happening to Radio these days that so many people are putting aside the bleep box for the rubber winder? The report we have from Norman Couling, 'unpaid' P.R.O., of the **Eastbourne M.F.C.**, tells of members of this radio dominated club getting back to the grass roots of model flying via a couple of events which get down to the real basic stuff: a kit rubber model and a chuck glider comp. In the kit event some quite respectable times were put up. David Marchant topped the results with his *Mentor* with a 6:51 aggregate, but lost his model in the process. Later retrieved from the crops in a somewhat warped condition. Second was John Tucknott with a *Senator* at 4:24, and third, Mrs. Suzy Binks (*the Suzy of Suzy Que* fame) with 2:58. Mr. Ken Binks asks that his score be not divulged. But he more than made up for his lack of seconds in the Chuck Glider event, where he scored a commendable 2:59 for three flights. Mick Baker was second with 2:14, and Brian Packham third with 2:08. Not bad, and all flying Aero-modeller *Yellow Birds*, too.

An increase in club members, drawn from a wider sphere has encouraged the **Wellingborough M.A.C.** to change its name to the more comprehensive sounding **Nene Valley Aeromodellers**. A less happy development was the abandoning of the clubroom due to mounting costs, although the consequent drop in membership fees attracted a number of new members into the club. And if the club is now without a clubroom it at least has a good flying site, a farm field. The Secretary, J. Dickinson, can be reached at 85 Highfield Road, Rushden, Northants.

Whitefield M.A.C.'s newsletter lists some of its recent contest successes. John O'Donnell has come back right on form of late, although it was doubtful if he were ever off, and he is strongly backed by Jim Reeves, who took a first in the N. Area F.A.I. meeting Glider event, and P. Oliver, who won in Glider at the N.W. Area Centralised Meeting and the South Midland Cranfield Rally. The latter against a 27 strong fly-off field. John's successes are too numerous to list, but suffice to say he even won Jetex at the N. Area Gala.

No lack of ideas for beguiling the long winter evenings in **Lee Bees M.A.C.'s** 1971-72 Winter Programme. Nicely presented in small card form the programme details an almost weekly series of events, including quizzes, talks, film shows and beer and skittles evenings.

Losing a bit of old English verbiage in the cause of progress, the **Leicester Model Aero Club** has now changed its name to the **Leicester Model Flying Club**, leaving Aero to the chocolate eaters. And so with the accent on flying

CONTEST CALENDAR

November 28th ST. ALBANS M.A.C. WINTER GALA.
F.A.I. R/G/P. Five rounds, 10.30 a.m. start. Also 1/4A, A/1, Cd'H, Vintage (S.M.A.E. rules). Venue Chobham Common.

December 5th FALCONS GALA. Open R/G/P plus Chuck Glider at R.A.F. Chetwynd.

CLUB SECRETARIES:

Please forward details of your forthcoming contests or rallies as soon as possible to avoid duplication of dates and/or interests in next season's Calendar. Items for insertion in the Calendar must be received at this office by the 20th of the month for publication in the next immediate issue. Details should be brief but explicit, and include exact location of venue.

comes news that Wymeswold is now free of crops and OK for free-flight. For the wherewithal to fly there is the productive output of the Winter Building Competition to be considered. Question raised: what is the aggregate noun for Biplanes? Surely not a clutch or gaggle, but what about a waggie or a struttie? Anyway, the double wingers were to be seen in that sort of force at Wymeswold a month or two back. Spotted were a couple of *Passadena Specials* and a *Tiger Moth*. On the free-flight side the unreliability of ultra modern flying machines has cast minds back, a bit nostalgically but also practically, to the mid 1950s when models were a bit more robust, particularly gliders, which didn't seem to be so overcome by a drop of fast moving air.

The Chairman of the **Buckaneers Model Club**, Bob Ratty, writing in the current issue of *Scimitar* has no complaint about the way the chief subject of the solar system has been beaming down on us through this long, hot season, but is not so happy with the other solar system, the laying on of the model covering film. Stretch it as he may he is still left with those persistent wrinkles in the compound corners. Not that he should worry, I still get them with tissue! A lad, however, who knows a wrinkle or two of another calibre is member, Steve Blake. In the Stunt event in Hungary he achieved the honour of being the highest placed British entry since 1954. Not so expert, but highly exciting was a slight novice loss of control experienced by club radio member which pointed up the hazards of flying in the not so twinkly twilight. Darkness fell as he chased the model over field and meadow, but hurrah for good old bang-bang escapements, a spot of probing key brought forth a loud clanking response from a darling branch. Another item in the newsletter recalls the hardy pioneering days of radio some 20 years ago. All big valve stuff then, with giant batteries and only one model up at a time - and that was often one too many.

The summer issue of *Marsh Gas*, the newsletter of the **South Essex M.A.S.**, is belatedly to hand. A good issue this, well produced and full of readable substance. Oddly enough the chap who produces the magazine on his personal Roneotronic, Mr. Bob Thorndike, is not a modeller, nor indeed a member of the club, but nevertheless does a first rate job. The editor is proud to point out that the next issue, due out soon, will be headed Volume 2. We look forward to seeing it.

Another magazine, also of substantial proportions, but seeking something of a wider audience is Ron Firth's *Model Aeroplane Gazette*. Ron in his editorial is exultant about the model flyer's summer he, and I hope all of our readers, have rejoiced in. Sad exception to the almost continual run of fine days was the nasty interlude that coincided with the N. West Woodford Rally. Ron braved the high wind with his A/2 but got involved in a cross country chase for a mere 1:57. A good report, however, of the Northern Area Model Flying Rally. Wonderful weather, a large entry and a high attendance made for a great day. Generally it would appear, things are looking up, free-flight wise, up North.

On the look out for a suitable slope soaring site in the hills of the Great Dyke and Mazoe is the **Mashonaland Model Club**. But as reported in *'Propshaft'*, no luck so far. Even so, Thermal Soaring has a popular appeal, with exponents of same putting up flights of almost an hour. My own limit is ten minutes on Ivinghoe slope, after that it just gets boring.

Keep those reports rolling in.

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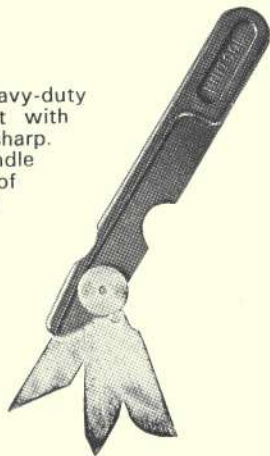


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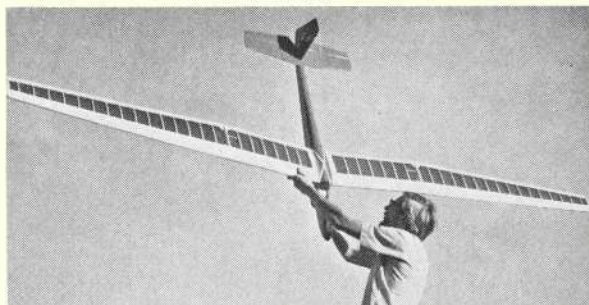


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R.C.M.&E. Plans Service feature this month will be a semi-scale model of the Slingsby Skylark 4 - a super performance soarer spanning 120 in.

Other features of this issue will include an introduction to intermediate competition aerobatic rules as used in Ireland and Kit Review which this month examines the True-line Phaeton kit.

Regular features this issue include Radio Motor Commentary, Straight & Level and Wave Lengths - our R/C boating column.

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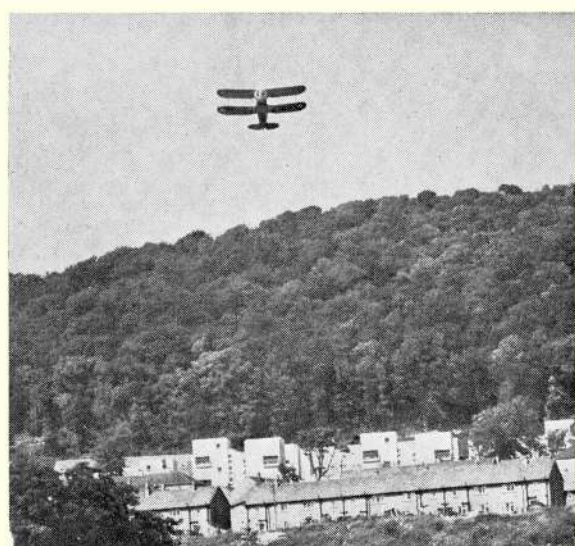
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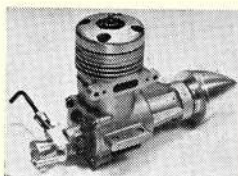
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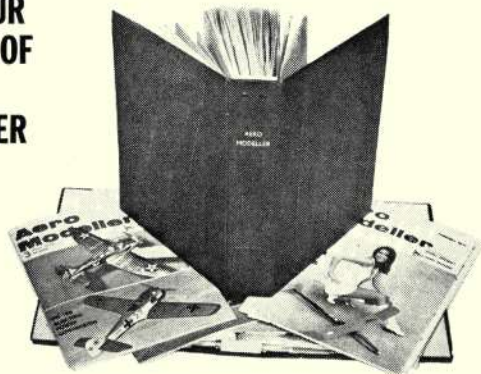
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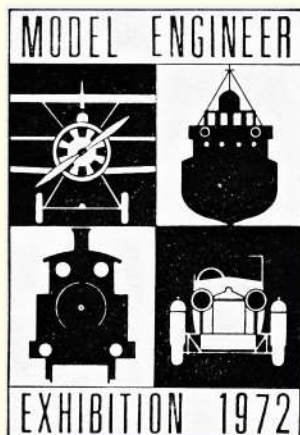
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4th January – 15th January 1972

Opening hours: Daily 10 a.m.-9 p.m.
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Model Aircraft, Locomotives Boats, Traction Engines Military Models, Crafts

WHAT WILL BE ON DISPLAY

THE MAIN HALL will be laid out in a completely different manner, offering a grand 'open plan' scheme with more room for models, which will be grouped under the gallery balcony and in the centre, with a WINNERS' PODIUM to display class champions. The popular S.M.E.E. PASSENGER RAILWAY enjoys its usual position, but with the added feature of the immense 2-8-4 Berkshire Superpower 10½ in. gauge locomotive based on its American prototype and destined to operate on Lord Gretton's Stapleford Park Railway. This is nearly 19 ft. long and will be on show alongside the track. Another locomotive specially built for Stapleford Park will also be on show at the entrance – The Hon. John Gretton's ROYAL SCOT – a fine scale model embodying many of his own design features.

A FLYING CIRCLE stretching right across the hall from balcony to balcony will be available for electric model aircraft flying. This will be at BALCONY LEVEL and provide splendid and spectacular sport with electric models doing nearly all that more powerful outdoor, i.e. engined models do – or so we hope!

TRADE STANDS – fewer in number than before, since 'club' and other special stands are in another hall – are tastefully grouped in three units, giving convenient access in the MAIN HALL.

Introduction of a MODEL ENGINEER WORKSHOP manned by the S.M.E.E. last year proved immensely popular and will be increased in size and scope, again with experts from S.M.E.E. in charge and assisted by M.E. consultants. Working models under compressed air will also be on show.

BRYANSTON ROOM will be operating as the CLUBMEN'S CORNER with stands manned by the principal governing model bodies of the country, plus club units demonstrating, and offering combined club 'little exhibitions'.

LECTURE HALL will be arranged as the BATTLEGROUND with three WARGAMES TABLES for regular miniature battles, where clubs will be invited to run wargames of all popular periods, with opportunities for running commentaries. MILITARIA entries will be displayed here.

BOATING MARINA: For the first time we have taken the SMALL SWIMMING POOL to operate as a nearly 100 ft. long indoor lake for boating activities. R/C boats will be demonstrated daily. Evenings will be given over to inter-club and individual contests. Pool will also be big enough for some steam powered boats to operate by arrangement.

GALLERIES will provide sitting out space, spectator room and house additional club displays including our favourite BOYS' EXHIBITION. Furniture and craft entries under the auspices of Woodworker will be on show.

Advance Booking and details from:

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Price of admission at the door will be 25p adult, 15p child. A child is regarded as anyone at school. Children under 5 who have not started school and are accompanied will not be charged.

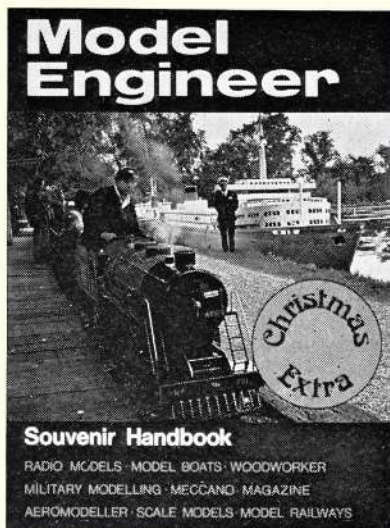
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A combined family ticket can also be bought in advance.

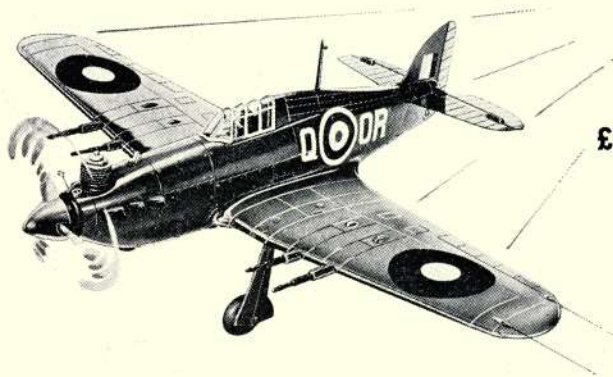
SOUVENIR GUIDE

Another CHRISTMAS EXTRA issue of *Model Engineer* will be coming out 2nd Friday in December with entries, trade stands, articles galore to assist the visitor and solace the stay-at-home.



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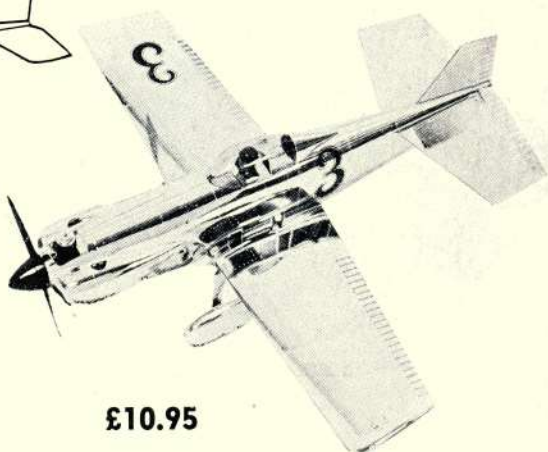
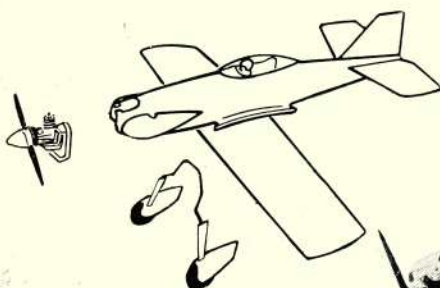
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