

# Aero Modeller

INCORPORATING  
**MODEL AIRCRAFT**

November 1972

15p

(USA & Canada 75c.)



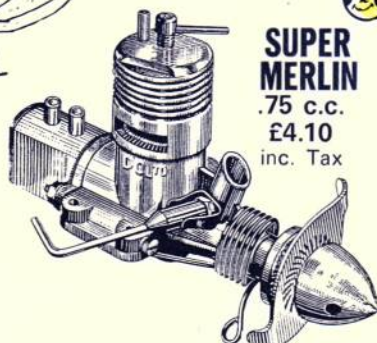
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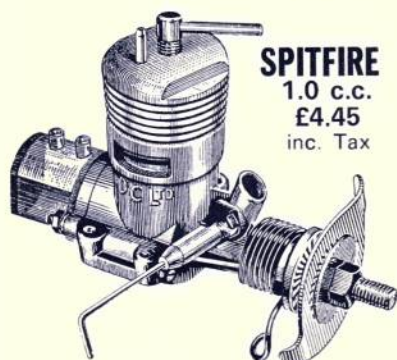


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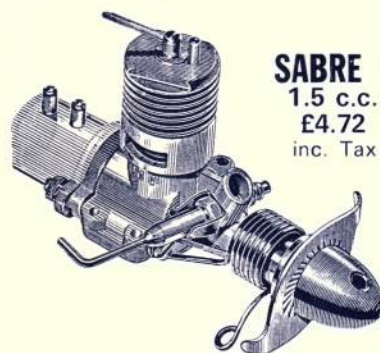
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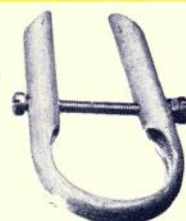
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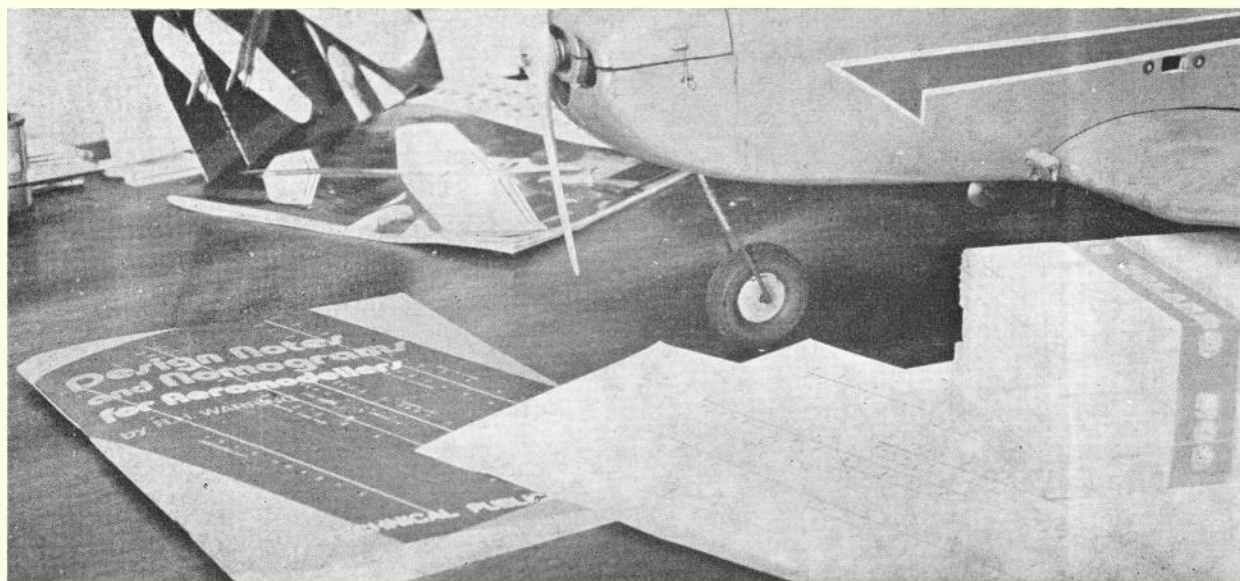


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Which brings us to the point that this is supposed to be an advertisement for Solarbo Balsa. Well, Solarbo Balsa *is* true *aeromodelling quality*, every single piece that reaches the model shops. As accurate as, and even more reliable than nomograms. The automatic choice for every aeromodeller who wants the best results!

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# Aero Modeller

INCORPORATING  
MODEL AIRCRAFT

November 1972

Volume XXXVII No. 442

## CONTENTS

HANGAR DOORS	615
'D.H. MOSQUITO & Me 110'	616
SIXTH WORLD INDOOR CHAMPIONSHIPS	620
PIERRE TREBOD INTERNATIONAL	625
BOX IT!	626
LATEST ENGINE NEWS	629
AIRCRAFT DESCRIBED - AJEP Wittman 'Tailwind'	633
TOPICAL TWISTS	637
FREE-FLIGHT AT THE U.S. NATIONALS	638
FLYING SCALE COLUMN	641
COMBAT INTERNATIONAL	644
CONTROL-LINE NEWS	646
FREE-FLIGHT COMMENT	649
GADGET REVIEW	652
WOODFORD RALLY '72	654
CLUB NEWS	656
CONTEST CALENDAR	657



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## COMMENT

The search for finding ways of encouraging Juniors to be interested in aeromodelling has always presented difficulties, yet there has to be a solution, for from where else do we recruit tomorrow's modellers? One man who has made great efforts to foster the enthusiasm of youngsters is Ray Favre, who in 1971 instituted the Junior Kit Contest for free-flight models. At the Nationals of that year, 50 juniors turned up to fly, but since then, entries have declined, and indeed at the popular South Midland Area rally, only 15 juniors entered the contest, despite the now relaxed rules. Even more disappointing was the Postal Event which Ray organised. Just four entries were received from the whole country. What is wrong? Why are entries so low, and why so few new faces?

A similar disappointing reaction has been found in the Junior Stunt competitions, culminating once more at the South Midland Area rally, when just one entrant came forward!

Prizes at Junior contests have always been good - and yet still the events are poorly supported. Obviously, we adults are overlooking some vital point, but what is it? In 1971 Ray received 150 inquiries concerning that first contest - where is all the enthusiasm now? We would certainly like to hear from the Juniors themselves as to what is needed - and quickly too - for, remember, no competitors - no contest.

## on the cover

The new World Indoor Champion, Merrick (Pete) Andrews of the U.S.A., who secured his title with two outstanding flights of 36 minutes 12 seconds and 34 minutes 57 seconds at Cardington. In practice, with warmer conditions, he achieved 41 minutes 5 seconds!

## next month

Two full-size plans! Scale drawings of the De Havilland D.H.88 Comet. Detailed Test of the latest O.S. - Graupner Wankel. Plans for Richard Evans' highly successful combat model Ironmonger, plus all the regular features in the December issue of Aero Modeller, on sale November 17th.



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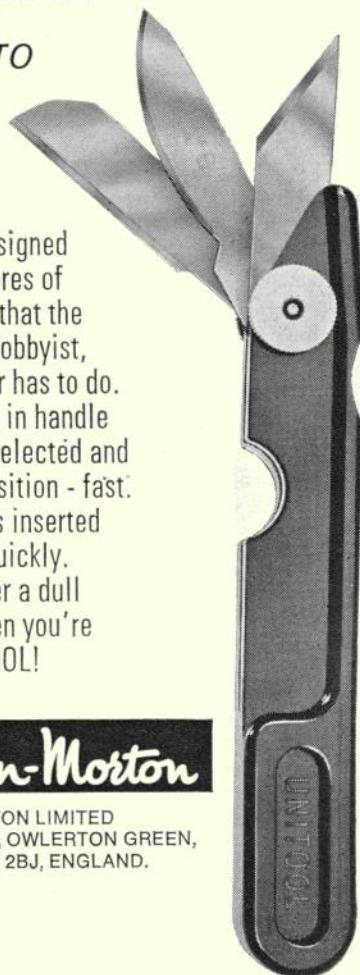
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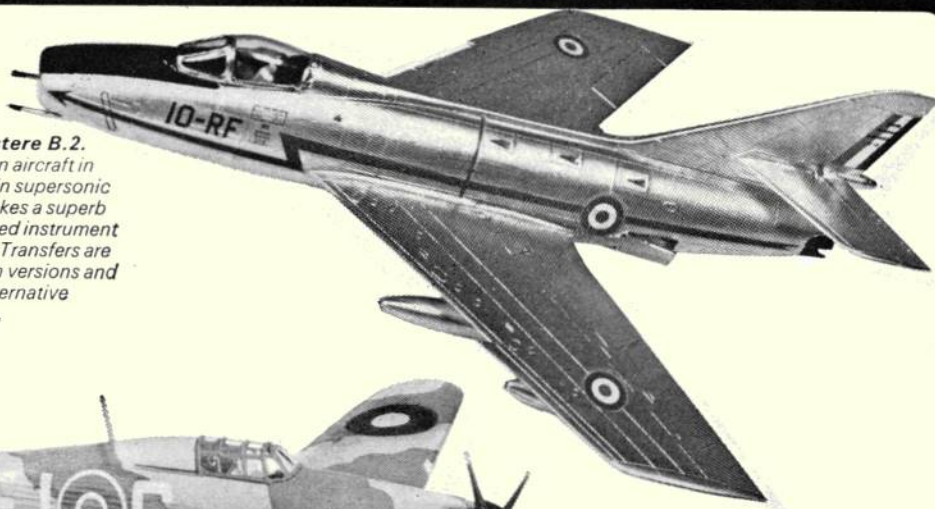
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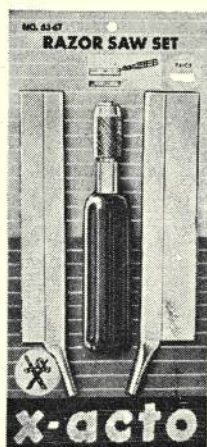




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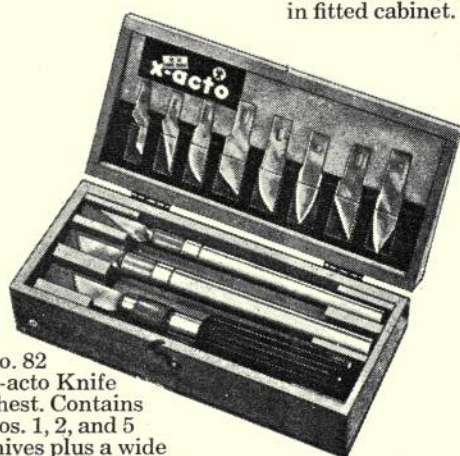


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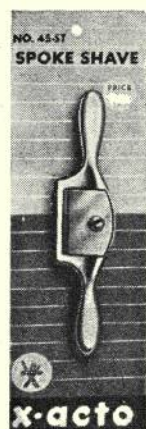


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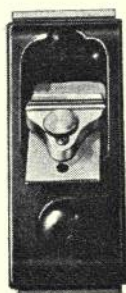
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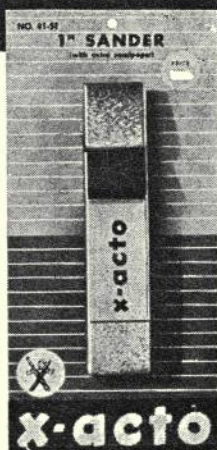
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## model making competition

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## Model Making Competition

Start collecting your pens now but—  
one word of warning—

make sure they are genuine Bic Crystal Medium  
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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 1972 BIC Model-Making Trophy.

10 Entrants should send their models to:

The BIC Model-Making Competition,  
c/o Montague House, 23 Woodside Road,  
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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 1972 competition will be held during 3-monthly periods and results will be announced during August 1972, November 1972, February 1973.
- 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?

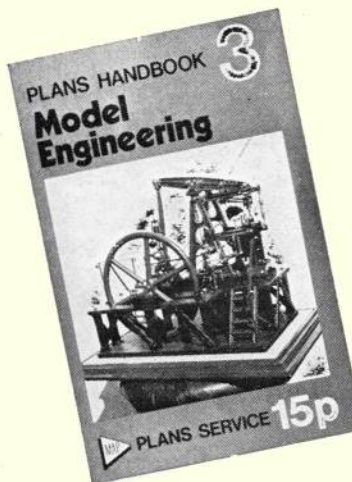
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# PLANS HANDBOOKS



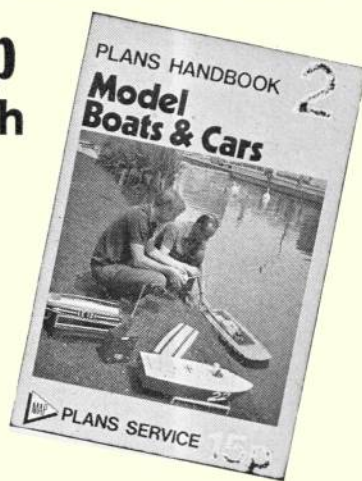
## Aeromodelling

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.



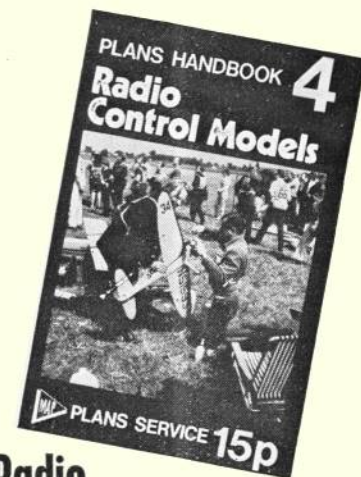
## Model Engineering

96 pages of working model drawings for steam locomotives, traction engines, steam engines, petrol engines, workshop equipment from LBSC, Westbury, Evans, Maskelyne, Bradley, Hughes. Plus useful model engineering information, screwcutting tables, standard threads, letter and number drills, wire and sheet metal gauges, miscellaneous information.



## Model Boats & Cars

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.



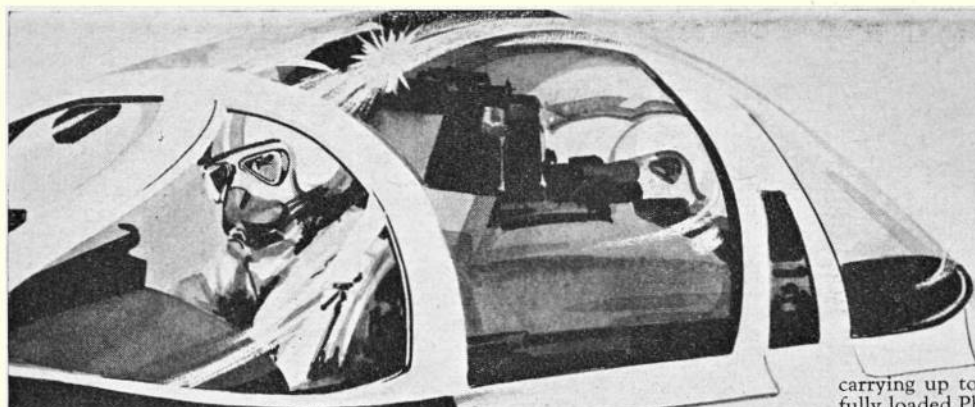
## Radio Control Models

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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13/35 Bridge Street, Hemel Hempstead, Herts.

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## **"You have control..."**

The smell of leather and oil mingled with warm paint; a half-deadened scream of two GEJ79 jets through a closed glass canopy; a blow on the chest that almost kicks the air out of you; the whole sky rushing to meet you — your eyes are pushed into your skull and your cheeks are being torn from your face — a dull pain is in your neck, chest and stomach. Then calm.

The sun glints on the blue sea. The carrier is far below; planes look like toys on its deck. Your air speed indicator reads 500 knots, and is swiftly rising. Two other planes on your sortie join you, flying wing-tip to wing-tip to the target firing area. Suddenly you're there. On your left, one of the Phantoms rolls and sweeps away in a vertical dive. Now a tiny dart, it straightens out and two dull red flashes burst from the mud as its first rockets explode — it whips upwards, curving round, almost lazily, on its back, while the aircraft on your right goes in.

Then your turn. The landscape tips on its side, as the Mach Indicator needle flickers towards Mach 1. Your head feels heavy and you can hardly move your hands. Your face mask is suffocating and the pure oxygen you are breathing no longer seems to keep you as alert.

Emptiness is in your stomach as you flatten out over the target; trees flash past the wings; you glimpse the target marker burning on the edge of the water. It's in your sights! You press the red button and pull the stick hard back. Below, the marker is almost blotted out by a cloud of flame and smoke.

The second run, and as you pull out through the smoke, you see the napalm

bomb burst in a flash of bright flame reaching out across 250 ft., and swell like a huge tangerine until the thick, black smoke shuts it off, and you are climbing high and away.

You have time now to see one of the other Phantoms dive again, streaking in low and fast, with the Vulcan Gatling Gun; nicknamed 'Puff the Magic Dragon'; pouring an almost solid wedge of exploding shells into the burning target. For a few minutes you circle high above, whilst the damage is inspected. You find yourself sweating. You're slightly lightheaded, through pure oxygen and excitement and your ears pop again. The radio crackles, "Ground control reporting, target totally destroyed."

You turn for home, aiming to land on an area little larger than a tennis court, with catch-wires trailing across the deck to grab a hook under the tail. The tennis court is also moving; up and down, and from side to side. Your landing must be calculated within inches and less than 10 m.p.h. If you miss all four wires, just flick a switch on the control stick and the jet's after-burner should, hopefully, hurl the plane away from the deck at a 45-degree angle.

You catch the first wire at 140 mph, and something is slammed across your chest, as you stop in less than 80 ft. You are helped, shaking, but exhilarated, from your seat.

You have just flown a practice firing sortie in a US Navy Phantom F-4J based on USS Saratoga. It sounds exciting, but it can be even more than that, it can be frightening. The Phantom, probably the finest intercepter/ground attack aircraft yet devised, can fly at 1600 mph and 40,000 ft.; can deliver all modern weapons and is capable of

carrying up to 8 tons of armament. A fully loaded Phantom can climb 4 miles high in 48 seconds, yet it can fly easily at speeds which make safe carrier or short strip landings possible. A Phantom unleashes a total thrust of 34,000 pounds from its 2 J79-GE10 jet engines and uses sufficient fuel in 60 seconds at full throttle to drive an average American car across America.

Revell's large 1/32 scale model of the Phantom-4J is 21½" long. It features a fully detailed J79 after-burning engine, detailed cockpit with dual hinged canopies, a completely detailed cockpit interior lay out, and a detachable nose-cone which reveals the radar scanning dish. The model also has folding wings, two crew members in authentic flying suits, 4 Sparrow missiles, movable wheels and official US Navy markings.

You may never experience the flight that we have described, but you can still experience the thrill of making up this superb Revell kit of an aircraft which has been called "The World's Finest Operational Fighter". You don't have to follow the kit instructions either. Perhaps you would prefer to make the British Phantom Variant with "Spey" engines by scratch building; or the "Blue Angels" model — even the Daily Mail Transatlantic Race winner. Remember — "you have control!"



## **a box full of action!**

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# RipMax

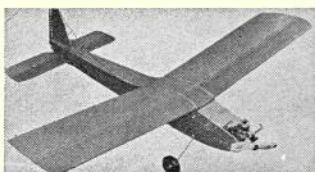
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3/16" SILICONE TUBING (per ft.)  
Thinwall ... 42p Heavywall ... 42p

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Tank type ... 29p  
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Moulded nylon throttle arm gives freedom from noise on R/C model. Pack of 15p

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True geometric design for equal movement. Pack of 2 10p

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Smoothed, vinyl JUSTICE CABLE ANCHORS. 32p

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Complete with hardware. 1/4" x 1/2" x 1/4" Small (pr) 44p  
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15 15 14p  
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60 60 14p

### OS 09 09 60p

Mounting Template for K&B 40L ... 14p

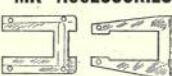
### RIPMAX REDLINE TUBING

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1/16" 11p 1/8" 14p 3/16" 14p 1/4" 14p 5/16" 14p 3/8" 14p 1/2" 14p

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TENSILE NYLON in white, yellow, red, orange, blue, khaki and new FLUORESCENT ORANGE. White 35p per yd., colours 42p per yd. (\$1.20 for 3 x 1 yd.). SUPALITE NYLON, white only. 35p p. yd., 99p 3 x 1 yd. ECONOMY NYLON 29p yd., 82p 3 x 1 yd.

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### STANDARD AIRSPAN WHEELS

1 1/2" dia. pr. 25p 2 1/2" dia. pr. 35p  
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4 ounce 22p 16 ounce 79p  
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BLASTING HIS OPPONENT OUT OF THE SKY.

BARON VON RICHTHOFEN LEADS  
HIS FAMOUS "FLYING CIRCUS" HOME...



THE RED BARON'S PLANE,  
A FOKKER DR. 1...

CANTILEVER WINGS:  
RATE OF CLIMB 1,850 FEET  
PER MINUTE.

SPANDAU MACHINE GUNS  
FIRING BETWEEN  
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WELDED  
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OBERURSEL  
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MAXIMUM  
SPEED 115 mph.

STRESSED FOR  
AEROBATICS  
WITH FULL  
LOAD.

THIS WAS 1918 - ONLY 15 YEARS AFTER  
MAN FIRST FLEW. YET ALREADY THE  
AEROPLANE WAS A DEADLY WEAPON  
OF WAR. HOW DID THIS FANTASTIC  
PROGRESS COME ABOUT?

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## Heard at the HANGAR DOORS

**LECTURE DATE** for all London and Home Counties modellers to note is Monday, November 6th when Lt. Cdr. Alwyn Greenhalgh will speak on *'The Development of Model Aviation in the United Kingdom'* to the Historical Group of the Royal Aeronautical Society. The Lecture, which was originally scheduled for early in the year, but postponed due to a rail strike affecting attendance, will commence at 7 p.m. in the Lecture Theatre at the Royal Aeronautical Society, 4 Hamilton Place, London W1V 0BQ.

The Lecture is to be illustrated and examples of classic vintage designs will be on view. Alwyn Greenhalgh is the honorary historian of the Society of Model Aeronautical Engineers and has collected a remarkable gathering of literature, models and photographs. His life-long enthusiasm for aeromodelling (he represented this country in the Wakefield Team when only ten years old, and grew up in his father's famous model shop) places Alwyn in a unique position to deliver the lecture, coupled with the fact that he is an entertaining raconteur.

Visitors will be more than welcome—admission is free but prompt attendance is requested.

**MODELLING** had a very bad Press in the last week of September—and it was all due to reports on adhesives. Discovery by a journalist that the comparatively recently introduced alpha-cyanoacrylate rapid bonding adhesives

carry warnings that contact with the skin is dangerous, led to the well worn stories of stuck-together fingers being cut apart in hospitals. While these adhesives might well require special attention during their use, it is also a fact that only the discerning modeller is likely to use them. And if you are one of these—take care! Second scare originated from the Coroner's report on the death of a 21-year-old Cambridge man as the result of glue sniffing. He was said to have been an addict for 11 years and was a frequent patient of the Cambridge Mental Hospital. While the problem has been the subject of State Law within the U.S.A., it has not previously come to notice in this country—largely due to anticipatory action by British manufacturers, as witness of this statement from a representative of HUMBROL. *'Ever since Humbrol became aware of the danger, Britfix Polystyrene cement has had the anti-sniffing additive, which would cause severe discomfort to anyone attempting to sniff it, but is quite unnoticeable in NORMAL use.'*

**POTENTIALLY** more bad publicity could also result from the irresponsibility of some model flying enthusiasts, as may be seen in the following quote from a letter received from Mr. A. J. T. Sly of the *National Farmers' Union*:

'In recent correspondence from our Lancashire County Branch, concern has been expressed about the operation of remote controlled model aircraft. In one particular



Pat Lloyd 'caught in the act' measuring up the subject of this month's drawing—the AJEP Tailwind. Above left is a 1/36th scale model Pat made for the designer as a 'thank you' for his co-operation.

instance, a herd of dairy cattle were being upset by a model aircraft being flown low over them, and it was the opinion of the farmer that this was deliberate.

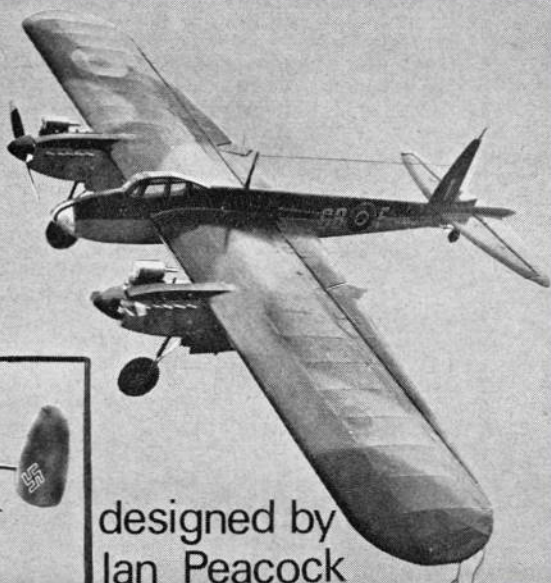
I am quite certain that the vast majority of modellers operate their aircraft in a responsible and sensible manner. It is, however, possible that some youngsters in particular might be inclined to "buzz" or "divebomb" stock. As you will know these models often have a very sharp noise, and stock would be easily unsettled or stampeded by such machines. The dangers involved are obvious, particularly to pregnant stock.'

Apart from the folly of such actions, it is well worth remembering that the majority of aeromodellers rely on the generosity of farmers for their flying sites.

**AN INTERNATIONAL** Coupe d'Hiver contest is once more being organised by the *Model Air Club de Nice et du Sud Est*, this year's event being held in the memory of the Club's late President, Pierre Andreis. Generous cash prizes will be awarded for this event to be held at Levens, near Nice, France, on Sunday, 3rd December. Inquiries concerning the *Coupe Pierre Andreis* should be sent to M. Guy Giudici at 15 Boulevard de Cessole, 06100 Nice, France.



# D.H. MOSQUITO and MESSERSCHMITT Me 110 PROFILE STUNTERS.....



designed by  
Ian Peacock

**Two fully aerobatic twin-engined semi-scale control liners, with simple construction, to suit any pair of 2.5-3.5 c.c. engines**

THESE TWO MODELS owe their beginning to a chance remark made at the 1968 Nationals when I had just completed an aerobatic flight with a profile Hurricane by landing, somewhat askew, on H.M.S. Flycatcher. The Hurricane was my ninth profile stunter from the basic design of my good friend H. C. Quek - this particular one being a little different as it was the second of a series using a styrofoam wing.

I had, at that time, been contemplating a C/L scale twin but had been put off by the high degree of 'finger trouble' apparently shared by the operators of most such models and the somewhat brick-like flights witnessed on the rare occasions when both engines could be persuaded to run together!

So the chance remark 'Why not a twin engine version of the Hurricane? Something like a Mosquito for instance!' - set me thinking. Based on the premise that the Oliver Tiger has a reputation for 'first flick starts' and knowing the aerobatic qualities of Quek's profile stunters, I set about producing a stretched version.

The Mosquito came first and was quickly followed by the Me. 110, both having identical flight characteristics. The 'Mossie' was powered by a pair of Oliver's of doubtful vintage and the Me. by a pair of fairly new Tiger Majors. Despite the difference in power, there was no appreciable difference in performances, which suggests that any combination of 2½ c.c.-3½ c.c. engines would be satisfactory with the accent being on ease of starting rather than extremes of power. There is no reason why a 3-line system should not be incorporated to operate throttles.

With the motors on full song, both models are capable of the complete aerobatic schedule and they will perform the round manoeuvres on just one engine - the INBOARD one. Do not attempt aerobatics

Ian's first twin was the Mosquito, which looks most realistic, despite the profile fuselage and nacelles - colour scheme is most important to give an air of authenticity. Power in this case was supplied by a pair of well-silenced Oliver Tiger 2.5 c.c. engines - plenty of 'urge' for all aerobatics.

on the outboard engine alone - the one time it was tried produced the best spin of the day and resulted in a major rebuild job!

Construction is conventional and very straight forward - anyone who has built a couple of C/L models should experience no difficulty with these. Therefore it is not intended to give a 'cut out part A and stick it to part B' routine but suffice to give a few useful pointers.

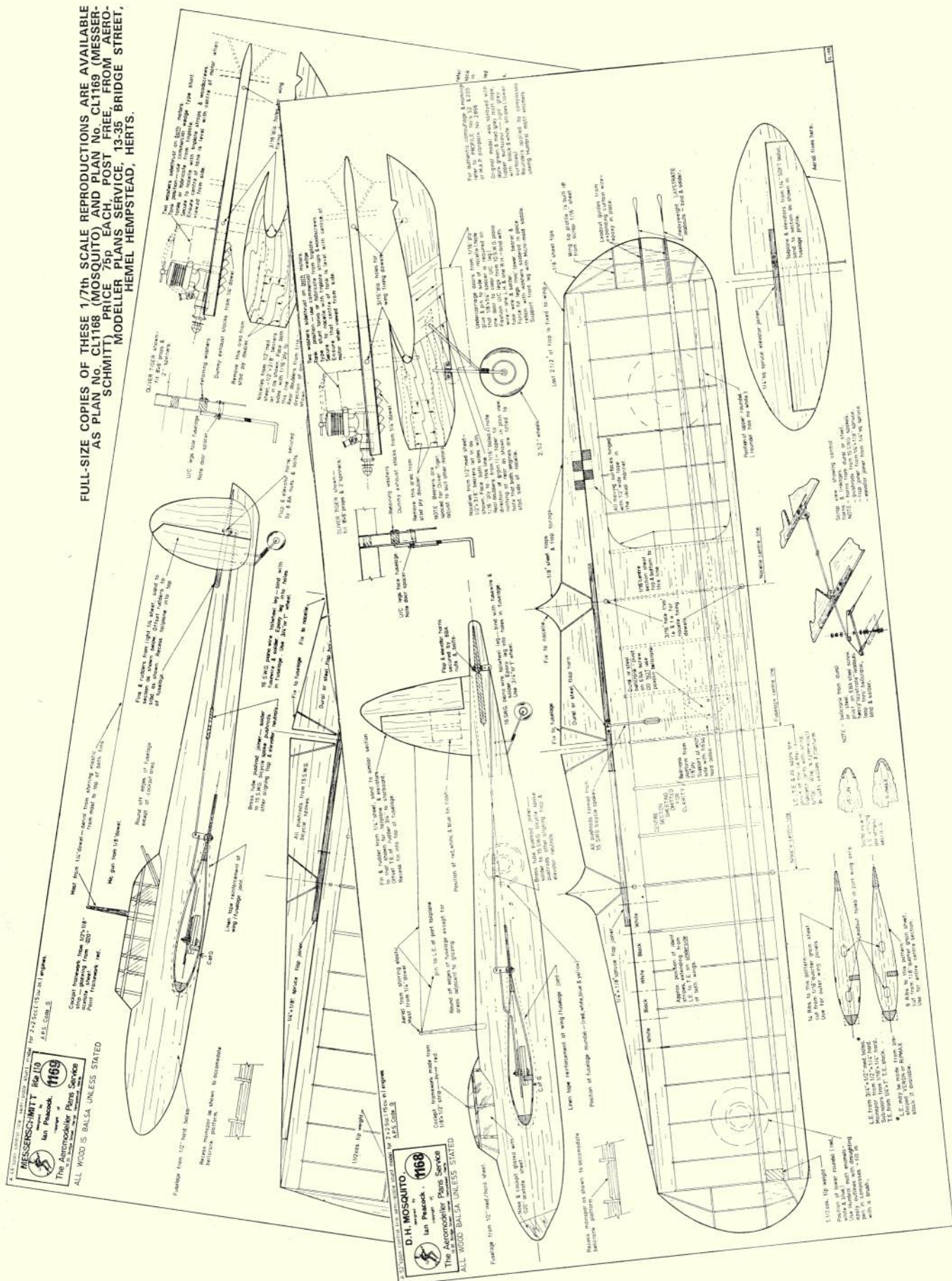
## Wing

The original wing used Veron spindle moulded L.E. and T.E. although the RipMax custom moulded L.E. and T.E. is equally good. This results in a simple and accurate L.E. form and it is worth seeking

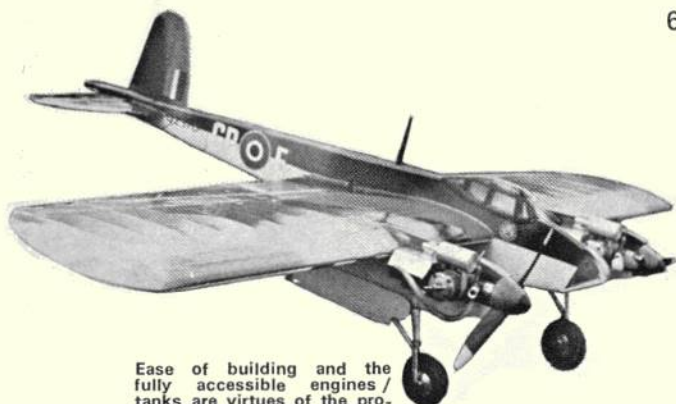




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Ease of building and the fully accessible engines/tanks are virtues of the profile model - no fiddling around with detachable cowlings necessary here!

out a stockist of these materials. However, a conventional L.E. may be made from  $\frac{1}{2}$  in. wide strips of  $\frac{1}{2}$  in. balsa and this method is shown on the drawing. All spanwise joints are made at the centre of the wing utilising scrap balsa braces and centre section sheeting for maximum strength. Sub spars of  $\frac{1}{4}$  in. and  $1/16$  in. hard balsa help to keep the section constant. Use a steel or dural bellcrank, aluminium has been known to bend and paxolin to break under the G-loads of this type of model. Heavyweight Laystray is used for the leadouts, double looped at each end, bound and soldered. The entire wing is covered in nylon in one piece from tip to tip. Do not at this stage hinge the flaps to the T.E. of the wing.

### Fuselage and Tail Assembly

The fuselage is cut from  $\frac{1}{2}$  in. sheet and sanded to section; similarly the tail assembly from  $\frac{1}{2}$  in. sheet. Do not attach the elevators to the tailplane before inserting the tailplane in the fuselage slot or they won't go through! Cover fuselage and tail assembly with lightweight tissue and apply sanding sealer. Cockpit framing is from  $\frac{1}{4}$  in. x  $\frac{1}{2}$  in. strip, painted red. Glazing is made from .020 in. acetate sheet.

### Nacelles

Cut from  $\frac{1}{2}$  in. sheet. Both nacelles are identical, having  $\frac{1}{2}$  in. x  $\frac{1}{4}$  in. bearers let in and faced on both sides with  $1/16$  in. plywood with  $1/16$  in. balsa behind. Sand to shape and cover with lightweight tissue. Apply a coat of sanding sealer. Drill for engine and tank fixing, then add U/C, doors and exhaust stubs. Note that both engines are fitted pointing right but that the U/C legs are left- and right-handed with the wheels pointing inwards towards the fuselage.

### Assembly

Take care to assemble the whole machine square both from the front view and from the top. Slide the flaps through the fuselage followed by the wing. Cement the wing to the fuselage, reinforcing the joint with linen tape, bandage or glass fibre, then hinge the flaps to the wing. Nacelles are cemented to the wing as shown and reinforced with  $3/16$  in. dowels at the L.E. and T.E. Clear dope the complete aircraft thoroughly.

### Finishing

As with all semi-scale models the accuracy of the painting and decorating must be first-class as this

more than offsets the profile appearance. The original models were sprayed with colour dope but Humbrol enamels may be used if authentic dope colours cannot be obtained. Correct shades and patterns can be obtained from any of the readily available reference sources such as *Profile Publications*. When selecting colour schemes, remember that these models rely on colour for their authenticity, so choose a fairly common scheme—leave the unusual ones to the real scale enthusiasts!

The original Mosquito was Dark Grey/Dark Green camouflage on top and Light Grey underneath with cockpit interior red. Black and white ident. stripes were carried beneath the wing with roundels and Squadron Codes in the usual places. The Me. 110 had Light Grey/Dark Grey upper surfaces—mottled on fuselage and fins—splinter camouflage on wings and tailplane and Pale Blue undersides with yellow wingtips. The crosses were sprayed on using newspaper and draughting tape to mask off the surrounding area. The R.A.F. roundels were of the correct proportions as laid down by the Ministry of Aircraft Production. Nothing spoils a scale or semi scale model as much as incorrect proportions to the roundels, or ragged edges. Clean edges were achieved by marking the rounded perimeters with a pair of compass fitted with a draughtsman's pen and using Humbrol matt enamels, filling in between the edges with a brush. Squadron Codes and Serial No's can be taken from standard transfer sheets.

Finally fuel proof the entire airframe—fit the engines and tanks, check the centre of gravity, and away you go. Balance, in fact, is not too critical, and the C. of G. can be up to an inch in front of where shown with the associated loss in manoeuvrability. Do not let the C. of G. fall more than  $\frac{1}{4}$  in. behind the position shown. Both the original models required 2-2½ oz. lead behind each tank—so keep the tail end light!

Flying presents no problem provided one is reasonably well organised—reliability of operation is the keynote to success with a twin. At several of the rallies where these models have been flown, as little as 15 seconds was taken to get airborne. Indeed, at one rally both models were airborne in the same circle within 30 seconds and were subsequently joined by two other twins. It must have been rather nerve-racking for the other two pilots (flying level circuits) to meet these two flying towards them inverted!

The general procedure with two motors has been outlined many times before but it bears repeating:

- Check out all moving surfaces, lines and connections (Both at model end and handle). 60 ft. to 70 ft. of lightweight three-strand lines are recommended.
- Fill the tanks and run each engine separately to determine the correct settings. DO NOT MOVE these settings once they have been established.
- Run each engine in turn until warm and then stop both.
- Refill the tanks and restart the starboard engine; when running correctly, start the port engine.

This sequence should guarantee that the starboard engine stops first and the port engine only a lap or two after, but if in doubt do not completely fill the starboard tank. Remember to keep the manoeuvres-lar and open on one engine, and never stunt on the starboard engine only!

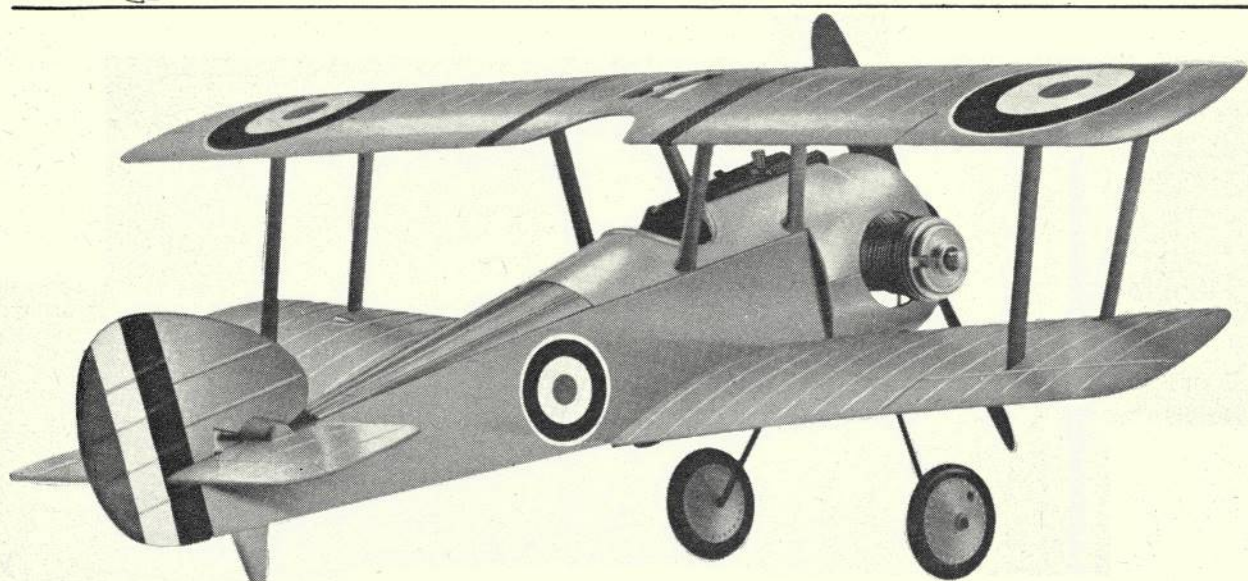


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## Pete Andrews wins the C.S. Rushbrooke Trophy. Narrow margin between U.S.A. & Czechoslovakia for Langley Team Trophy in biggest ever Indoor Champs

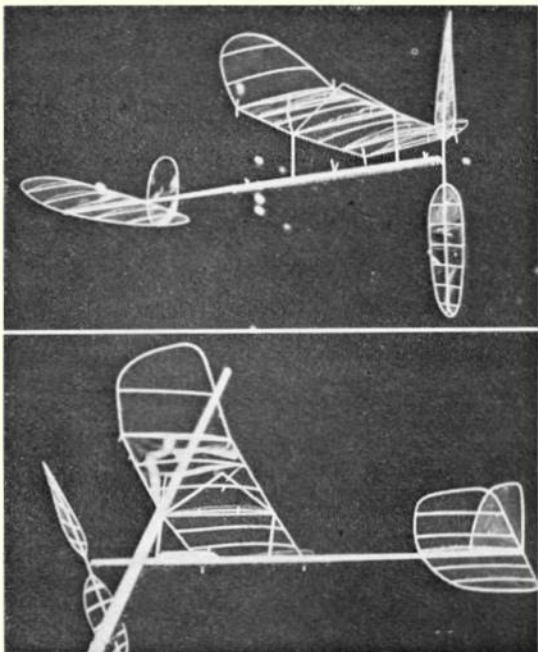
AFTER A TEN-YEAR gap, World Championships returned to the famous R101 Airship Shed at Cardington near Bedford. Compared with all previous meetings, it was a record-breaker in every sense except that of outright duration. But although no-one topped Riecke's famous 45 minutes with the old 'open formula' model, the achievements in the calm, cathedral-like atmosphere were more notable for the many new National records that were set, and the standards of a new generation of indoor model design.

Fourteen Nations produced 34 entrants, among them several with absolutely no prior experience of such high ceilings. What always fascinates us about indoor is how everyone arrives from the furthestmost quarters of the world, and appears to have an immediate understanding of the finite techniques connected with this branch of the hobby. Indoor flyers have Bud Tenny's *Indoor News & Views*, and

# 6th Indoor World Champs

R.A.F. CARDINGTON, BEDS, AUGUST 25th-28th

*Reported by Ron Moulton &  
John O'Donnell*



there are specialist material suppliers, but most of the mystique is solved by correspondence, and in the sphere of indoor there are some prolific writers and some very dedicated followers. So it is that torque meters, rubber strippers, film formulae, bracing methods and propeller design trends which are quite beyond the ken of any 'ordinary' modeller became the common ground for discussion among the fraternity of microfilmies.

With accommodation at Cranfield, and coach transport arranged to the Sheds, Indoor became totally detached from the associated Pylon event, with a degree of self-sufficiency that added to the mystique.

Some managed to sneak in a few practice flights on the Friday, but official access on a bright and calm Saturday provided first evidence of the high standards to follow. Pete Andrews went over 41 minutes in the ideal conditions of practice and this target filled everyone's hopes for the first contest day.

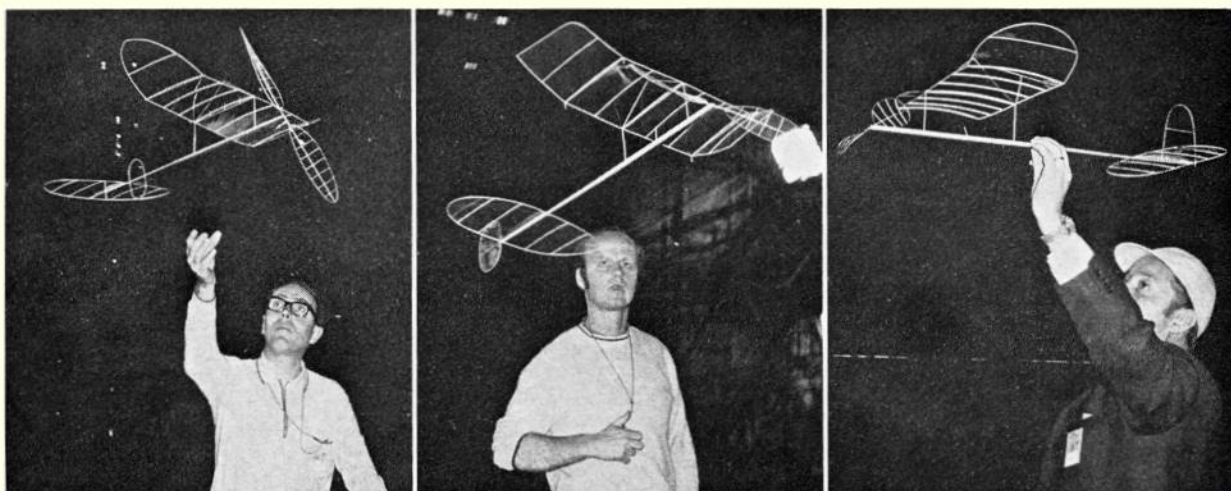
Unfortunately, the weather changed and an unusually cold airship shed greeted first arrivals on August 27th. Bombol

Top: the deserving Champ Merrick (Pete) Andrews of Bogota, New Jersey was the first man known to have broken the 30-minute 'Barrier' in indoor flying. He has also been responsible for many technical developments, and is now the World Champion after a very close tussle at Cardington. Left: upper, is Bud Romak's model descending after a momentous flight on the first day, in which it flirted with every barrier it could find, and eventually landed safe, with 26:57 to its credit. Lower, is Poland's Kujawa's unusually-shaped design, being steered during a trimming flight by means of a telescopic balsa rod, seen here just touching the wing.









Left: from the Netherlands, W. Beekmeyer (along with C. Wolthoorn) came to learn. By the end of the Championships they were approaching the 20-minute standard! A great pair of enthusiasts, they gained lots of respect for their endeavours, although inevitably placed at the bottom of the results by virtue of inexperience before the meeting. Centre, the last World Champ, Jiri Kalina of Czechoslovakia, this time in 4th place, but with the top official time of over 38 minutes. The tip shape gave trouble on one flight, folding over, to lose vital seconds of duration. Right: Vilim Kmoch – surely the world's greatest all-rounder aeromodeller who has flown in so many categories for Yugoslavia, we cannot imagine a Champs of any sort without him!

of Poland set the pace with the first of many over 25-minute flights, and soon a fast drift along the length of the shed was to attract Andrews and Kalina, the two main contenders. Andrews put 1,800 turns on his 'fast' prop which turns at 50 r.p.m., slowing to 40-45, and with 32:20 on the board after a moment of anxious steering with the balloon line, Pete was securely ahead at a comparatively early stage. Kalina's collisions in the rafters, four in one flight alone, plus three balloon steerings and a folded tip, left him with 29:48. One wonders what he *might* have done! A French thermometer was sent aloft on a balloon line to record that it was 20 degrees C. in the roof, 18 degrees at floor level. This, in its way, created 'waves' of flights, with up to the 14 (one per country) permitted in the air at a time, all searching for the warmer patches but anxious to avoid the rafters! Hinst and Romak were involved in an astonishing coincidence. First, Hinst hung up on the centre walkway, hung there for more than 15 secs., so that the flight was terminated – and along came Romak's model to touch and dislodge it! While Hinst got his model back, Romak's went on to hang up again! A single sandbag, pendant in the roof for a test purpose, attracted four models in its time! But it was not a meeting to be noted for collisions or

hang-ups like the last in a Roumanian Salt Mine. Rather, Cardington's riggers and the helium balloon lines saved the situation completely. In the end, only two out of a possible 204 official flights were untaken! By the end of the first day, and when the last indoor flyer was persuaded to leave and return for dinner at Cranfield, the contest was still very open between any of the experts from Czechoslovakia, and the U.S.A.

Now over to John O'Donnell for the decisive final day:

## John O'Donnell's report

### Contest Impressions

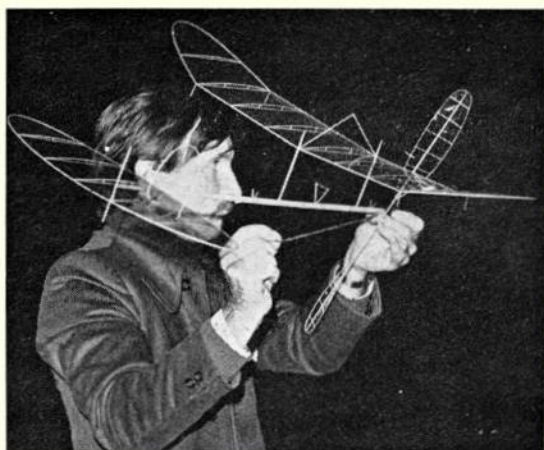
My reactions to this event are coloured by (1) only attending on the Monday – second day of the competition – and (2) having flown microfilm and hence being used to the sight of this extreme form of aeromodelling.

Overall, I would say the event was *very* successful. There was more to this than simply having a good site (No. 2 'Shed' at R.A.F., Cardington), especially cleared of most obstructions, and good flying conditions. The organisation seemed to have been pitched at the right level to suit the competitors – and for that matter the timers, supporters, etc. Some big events are 'organised' to the extent of being officious, but this was not the case at these Champs. There were still all the 'trimmings' – even to souvenir transfers – and all the special items peculiar to Indoor (like plenty of balloons for 'steering' wayward models).

As Indoor at World Championship level is a 'specifications' event, it implies processing. This was carried out immediately prior to flying and involved simple go/no go checks. There was a gauge consisting of two weighted strings the right distance apart for checking the 65 cm. span requirement, and a straightforward beam balance that tipped up (against a stop) if the model was heavy enough. These items were 'home-made', available in duplicate (at least), and completely adequate. They were also quick and easy to use.

There was a good score board, with a slip-in strip for each competitor. Scores were rubber-stamped as appropriate, and the strips reshuffled into sequence.

From France, J-C. Souveton about to hook up the rear end of his motor. Jean made one flight of just under 30 minutes for a new French record. Two modellers represented France, the other was Guy Cognet, and they placed 21st and 25th, with a team placing of tenth.





Test flying appeared to be possible although I am not sure how this was tied in with the contest itself – certainly there were quite a number of models in the air simultaneously. There was a restriction in that a country was only allowed to have one of its members airborne at any given moment. Surprisingly there was a marked absence of collisions and I only heard of one mid-air entanglement between two models – but there was also the remarkable incident when a model 'hung-up' in the roof girders was dislodged by another model. There were times when the sight of two, three, or even four models circling close together high in the roof looked remarkably like the common spectacle of several A/2s in the same thermal! Once considered highly dangerous, simultaneous flying seemed to pose little problem except that (to the uninitiated at least) of remembering which model was which.

Balloons, nylon line and wind-up reels were supplied to the contestants. Although the technique of balloon-steering is well known (to the British and U.S. in particular) some of the Europeans were inexperienced in its application; they cannot use hydrogen in the salt mines for instance, and have no helium!

'Rafter-banging' was commonplace, if dangerous, and seemed accepted as the inevitable accompaniment of high scores. Time to climb to the roof (or the girders immediately below the actual cladding to be precise) varied from 4 to 5 minutes (for one or two Rumanian flights) to a more leisurely teens of minutes. Certainly flights in this region from highly placed competitors were usually 'hang-ups'. The rules only give models ten seconds to fall clear and there were certainly instances where models released themselves – but not in time. Other models were saved through the availability of the services of a hangar 'rigger' who, I gather, got quite proficient at dislodging models with a minimum of damage.

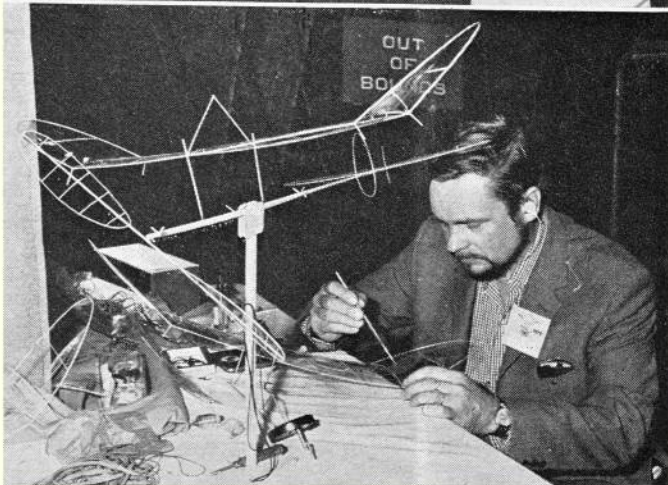
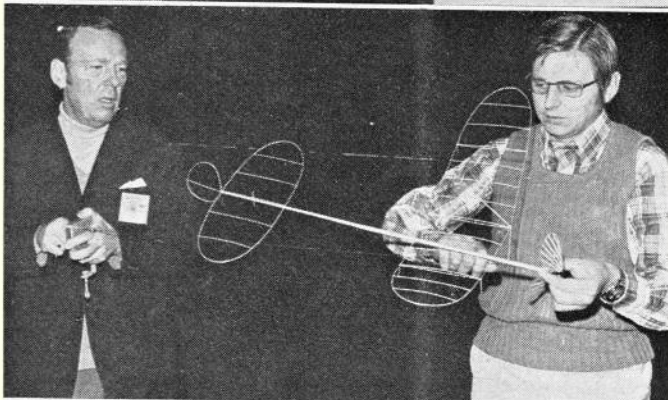
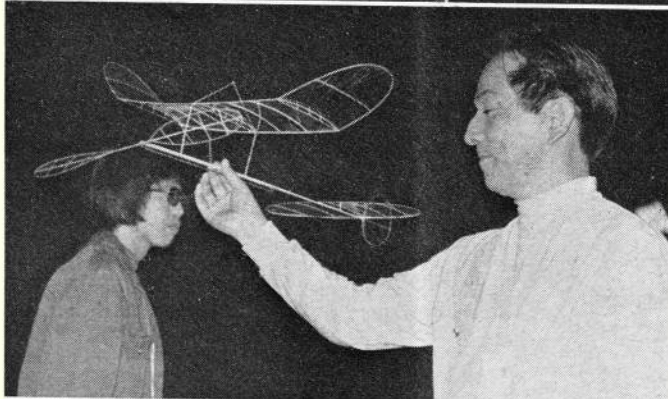
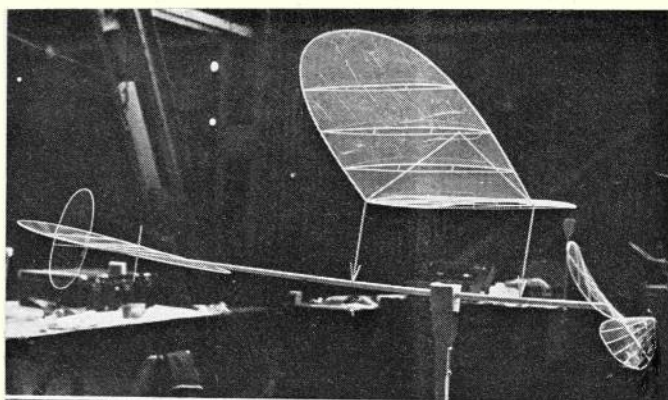
There were plenty of hard-luck stories. John Blount 'lost' a model when it hit a sandbag suspended on the end of a few feet of rope below one of the catwalks. This was at 14 minutes when the model had virtually levelled out at the peak of its climb. Jirasky (who ended up in third position) had a 13 second official flight, when the model power-stalled, touched the fin on the ground, and then climbed away for a 35 minute flight. If this had counted it would have won the Championship for him!

Practically all the top placed fliers had one-or-more poor scores through collisions with the side or ceiling girder-work, or through other misadventures. Sole exception to this was American Sal Cannizzo (last-minute stand-in for Joe Bilgri) who was remarkably consistent with a worst flight of 29:06.

Despite its slow motion nature, the contest was not without its excitements, and the actual finish was very much a 'cliff-hanger'. From very early in the contest it had been apparent that the individual and team awards were going to be fought out between the Americans and the Czechs. On totals, the Czechs looked safe enough by the middle of Sunday afternoon. Then Bud Romak managed his personal best of the contest – just over 36:00 despite a very 'dodgy' encounter with the one remaining floor-to-roof cable in the building. This was soon countered by Jiri Kalina, who eventually managed to show his true form (after earlier troubles with 'hang-ups') with the meeting's best official flight of 38:18. This apparently was what he said it would do, all being well!

Then in the last half hour of the contest Merrick ('Pete') Andrews managed a very good sixth flight of almost 35 minutes to put him on top with almost two minutes lead over Rybecky. Once it had become apparent that the flight was going to be a good one, it was closely watched (and timed). The flier stood right at the end of the hangar – obviously 'sweating it out'. But contests are not won till they are over. Rybecky had launched for his last flight some minutes before and obviously had the potential to win. His model did not 'centre' quite so well, and although avoiding entanglement in the roof was starting to drift

Top right: from Canada and completely without prior experience of high ceiling work, expatriate Mike Thomas entered the only straight dihedral design. Steadily improving times throughout the event, Mike was knocking at the 20-minute barrier near the end. Next is Japan's lone representative S. Nonaka, who pushed his national record to 19 minutes on one flight, and was continuously learning as the contest proceeded. Third picture is of German manager Gunther Maibaum, back again on the World Champs circuit we are pleased to see, and Langner who used straight taper wings. Bottom: from Finland, Harri Raulio, the utterly dedicated (and stone deaf) aeromodeller who has been in free-flight power, team racing and indoor teams before. Harri seemed to spend most of his time repairing at Cardington.







toward the side walls. At about 22 minutes Rybecky decided to attempt to steer the model towards safety. It was still very high for this to be easy or precise. The nylon line touched the model, the wing bent, and the model started to slide down the line. All seemed lost when the model suddenly disengaged, the wing straightened out, and the leisurely cruise-down was resumed. A white-faced Rybecky left the model well alone thereafter, and the eventual touchdown came at 33:54. This increased his total - but still left him second.

Australian proxies - and how they left their mark! Erv Rodemsky the manager and Manny Radoff the flyer for Boyd Felstead just after they finally wrapped it up with a real big motor in an endeavour to 'all or bust'. Best times of 28:48 and 28:52 show what can be done by remote control! Model had never been flown before leaving Australia, was built to postal instructions and flew right out of the box.

'Pete' Andrews was looking overwhelmed. He has flown indoors for more years than most have been modelling at all, and is always remembered as the first person in the world to do the magic half-hour. Now he has capped this by winning the official World Championship title! He promptly gave his 'winning' model to Laurie Barr - a very nice gesture to someone who had done so much work behind the scenes to make the meeting successful, and then had 'everything go wrong' when it came to his own participation. Andrews had been the man to watch from the word 'go' - as he had done over 41 minutes in Cardington on the test-flying day. He broke this model on a 'hang-up' part way through the contest, but a virtual duplicate (apart from a slightly different airfoil) was up to the task demanded - and was the model given to Laurie.

#### Technical data as follows:

Wing	26" x 8"	double ellipse	2 1/2" tip dihedral
Stab	18" x 5"	double ellipse	
Motor Stick	15"		
Boom	12"		
Prop	20" dia. x 32" pitch		
Rubber	18" loop of 0.056 Pirelli		1964 Vintage
Weight with prop	0.038 oz.		

Some of the techniques used, and gadgetry (usually for the benefit of the rubber motor) on show were both impressive and interesting. Comment, however, will have to wait for the Technical follow-up that will appear next month.

## Results:

		Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Flight 6	Total best two flights
1. M. Andrews	U.S.A.	32:20	36:12	10:14	27:45	30:38	34:57	71:09
2. K. Rybecky	Czech.	32:37	33:29	—	35:41	15:53	33:54	69:35
3. J. Jirasky	Czech.	29:30	32:37	36:12	00:13	31:39	29:36	68:49
4. J. Kalina	Czech.	29:48	22:35	14:32	13:00	30:24	38:18	68:42
5. S. Cannizzo	U.S.A.	29:06	34:02	30:50	30:21	34:08	32:58	68:10
6. O. Popa	Roumania	33:31	04:20	09:28	32:02	24:45	06:12	65:33
7. P. Romak	U.S.A.	26:57	25:22	11:51	09:27	29:05	36:04	65:09
8. J. Blount	U.K.	31:18	14:18	25:16	29:57	28:00	32:52	64:10
9. S. Bombol	Poland	25:50	26:43	32:02	30:15	29:11	13:02	62:17
10. A. Frioli	Italy	22:41	30:25	31:29	06:51	00:06	27:02	61:54
11. T. Strazberger	Yugoslavia	26:22	32:33	14:40	23:58	28:52	29:28	61:51
12. O. Hinst	Roumania	27:48	08:36	27:22	04:20	29:47	31:33	61:20
13. Y. Knoch	Yugoslavia	26:05	30:09	00:23	24:44	23:04	29:53	60:02
14. P. Nore	Finland	26:33	27:55	22:56	29:04	30:01	28:25	59:05
15. V. Nicoara	Roumania	28:56	04:56	12:09	17:01	29:42	19:19	58:38
16. C. Gabriel	Yugoslavia	28:52	29:23	28:13	23:05	27:47	00:25	58:15
17. C. Cotugno	Italy	24:51	27:53	27:02	19:40	26:31	30:18	58:11
18. B. Felstead	Australia	28:48	28:52	00:07	27:07	23:24	00:06	57:40
19. M. Shepherd	U.K.	23:31	28:03	08:54	28:49	21:38	00:06	56:52
20. K. Vogler	Germany	26:50	00:26	25:10	29:22	26:25	07:51	56:12
21. J. Souverson	France	23:16	29:13	26:28	13:53	24:04	23:09	55:41
22. S. Kujawa	Poland	26:46	26:34	14:54	24:44	27:33	09:12	54:07
23. R. Czechowski	Poland	24:35	25:17	26:15	00:17	17:46	25:16	57:32
24. H. Erofojeff	Finland	20:43	23:56	25:53	24:59	10:28	—	50:52
25. G. Cognet	France	19:30	24:42	24:41	24:52	17:38	00:21	49:34
26. H. Raulio	Finland	23:05	23:08	20:56	24:24	23:58	17:08	48:22
27. G. Masciullo	Italy	23:54	23:55	20:45	23:03	18:09	16:28	47:49
28. L. Barr	U.K.	00:09	25:51	17:11	15:53	18:23	20:10	46:01
29. H. Thiemann	Germany	20:54	20:35	19:02	20:10	21:39	23:26	45:05
30. M. Thomas	Canada	17:19	18:12	16:11	18:14	18:27	19:34	38:01
31. H. Langner	Germany	15:20	19:03	17:28	18:15	00:12	17:15	37:18
32. S. Nonaka	Japan	00:12	13:42	19:00	09:55	00:15	10:16	32:42
33. W. Beekmeyer	Netherlands	06:53	09:46	07:15	03:40	13:23	19:02	32:25
34. C. Wothoorn	Netherlands	06:55	05:36	08:13	06:03	13:25	18:49	32:14

#### Team Results:

1. Czechoslovakia 207:06; 2. U.S.A. 204:28; 3. Roumania 185:31; 4. Yugoslavia 180:08; 5. Poland 167:56; 6. Italy 167:54; 7. U.K. 167:03; 8. Finland 158:19; 9. Germany 138:35; 10. France 105:15; 11. Netherlands 64:39; 12. Australia 57:40; 13. Canada 38:01; 14. Japan 32:42.



# PIERRE TREBOD INTERNATIONAL

report by Mike Woodhouse  
pictures by Roy Collins

## RESULTS:

Class F1A (A/2 Glider)	1. P. Allnutt (Canada)	1231 sec.
	2. P. Lanier (France)	1225 sec.
	3. J. Berthe (France)	1222 sec.
Class F1B (Wakefield)	1. P. Lepage (France)	1239 sec.
	2. L. Dupuis (France)	1214 sec.
	3. I. Keynes (U.K.)	1210 sec.
	4. R. Pavely (U.K.)	1198 sec.
Class F1C (Power)	1. R. Monks (U.K.)	1260+180+180
	2. M. Jean (France)	1260+180+175
	3. C. Zimmer (France)	1260+180+147

Globe-trotting Canadian aeromodeller Peter Allnutt picked up yet another International victory, this time by winning the A/2 category at Maringay-le-Grand. With him on the winner's rostrum are Lanier and Berthe of France.



THIS YEAR'S competition was the culmination of an International free-flight week held on the airfield at Maringay-le-Grand near Sezzane. The competition attracted entries from France, Germany, Denmark, Spain, plus a large contingent from Great Britain. David Greaves and the trio from Crookham were using the event as practice before proceeding to the European Champs in the Saar.

The airfield is very long but narrow, and as was to be expected, the wind blew across the width, taking the models out into the countryside on the first day. However, recovery was often easier outside the field, the models landing in recently harvested corn fields. The weather

was good, at times very hot, and while the first day was breezy the second varied from flat calm to light drift of a variable direction.

An unusual feature of the organisation was in the method of timekeeping. The entry was divided into groups of eight—usually of the same nationality—each group being provided with a timekeeper for the round. The system gave an average of 12 minutes per competitor in which to fly, the other members of the group helping and ensuring that they each got their fair share of the round. By and large the idea worked well in that no queue formed at control, each timekeeper being kept fully employed.

The flying was an 'English-

speaking' triumph, Ray Monks repeating his last year's win in the five-man fly-off, beating Michael Jean of France into second place for the second year running. Jean failed to max by five seconds on the six-second engine run round; his motor cut at just under five seconds. Peter Allnutt won the glider event with a score of only seven seconds below maximum. His model was unusual in that it featured 24 in. tips on the fully-sheeted wing, using the Hacklinger section complete with turbulator. The hat-trick of wins failed to happen; Ian Keynes could have won but failed to contact sufficiently good enough air on his last flight, Ian finishing third just in front of Ray Pavely.

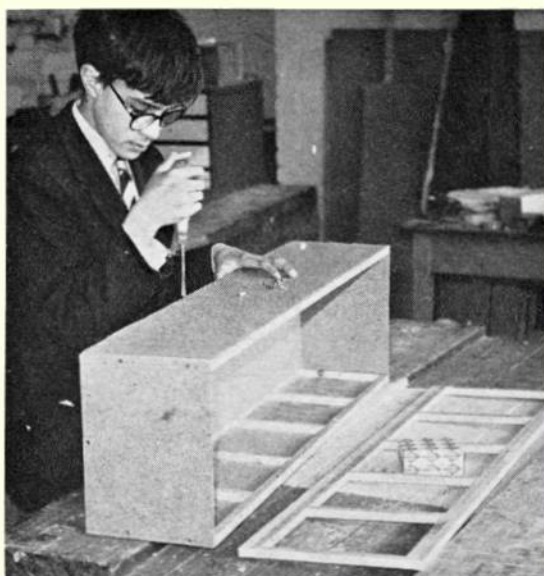


Left, Michael Jean, the current European Power Champion readies his model for the fly-off, assisted by his wife. For the second year running he was defeated into second place by Ray Monks.

Right, Ray Monks makes the winning launch in the Power category where he recorded nine consecutive maxes—seven off 10-second engine runs and then two more from eight- and six-second runs! Last year Ray became the first person to max off a 4-second run.







Piers Coleman screws up the box side to the base frame. This model box may be easily extended (as described in the text) to encase larger models that may be built in the future. No new box needed for each model!

Ron Coleman says

**DON'T BREAK IT ...**

**BOX IT!**

Newcomers to aeromodelling will find the model box described here inexpensive, strong and easy to make

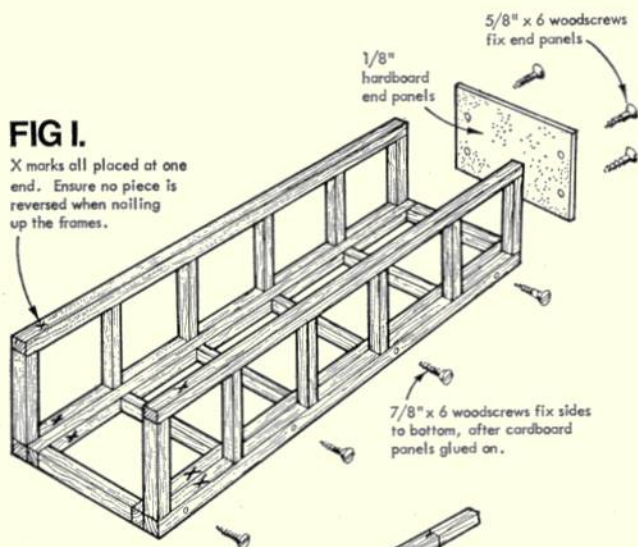
WHOEVER BOTHERED to make a box for their first model? Whoever makes a box, anyway? Well, the car's a box, isn't it? Let's put the model in the boot, for goodness sake, and get out to the flying field. Watch it! Look what you've done, shut the boot lid right down on that new wing! Look, the dihedral angle's all changed now. . . .

Add up all the disasters that can happen to a model and it's a wonder why aeromodellers continue at all! Well, there are flyaways, when one doesn't think a dethermaliser will be needed. So what if a flyaway is a back-handed compliment - it's still a total loss. Then there are trees. All very well for 1973 to be declared *The Year of the Tree*; every tree's the year of the modeller, or something. Lastly, apart from dogs, cows and horses that eat models, there's the sheer wreckage and destruction wrought by day-to-day handling. And this is a contingency which most certainly can be avoided.

The base framework about to be covered with cardboard from a grocery box - a light and cheap material. P.V.A. glue is best for this job, buying a large pack proves to be a good economy.

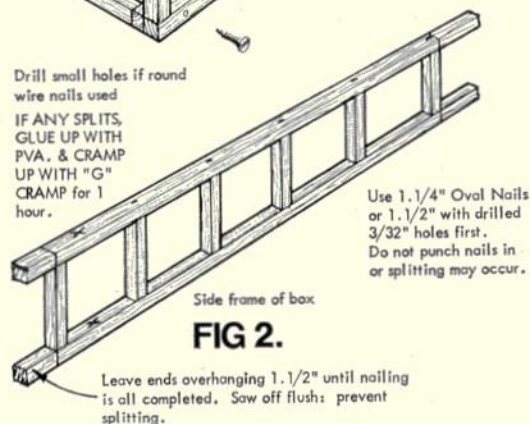
**FIG 1.**

X marks all placed at one end. Ensure no piece is reversed when nailing up the frames.



Drill small holes if round wire nails used

IF ANY SPLITS, GLUE UP WITH PVA, & CRAMP UP WITH "G" CRAMP for 1 hour.



Side frame of box

**FIG 2.**









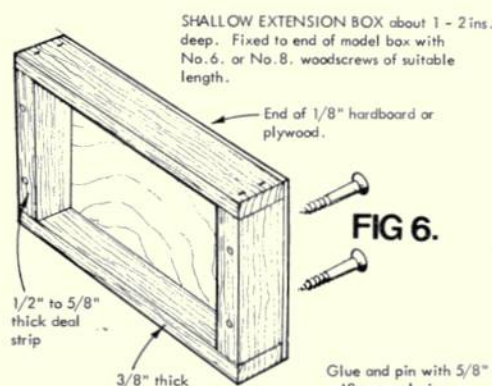


FIG 6.

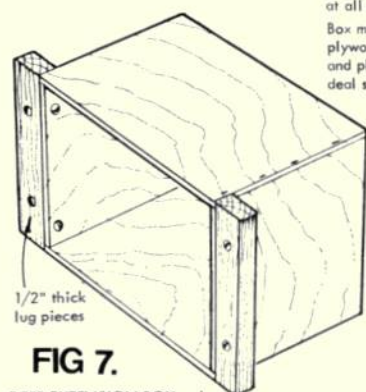


FIG 7.

DEEP EXTENSION BOX makes model box 5 or 6 inches longer. Attached by woodscrews through lugs or machine bolts and nuts  $\frac{3}{16}$ " dia.

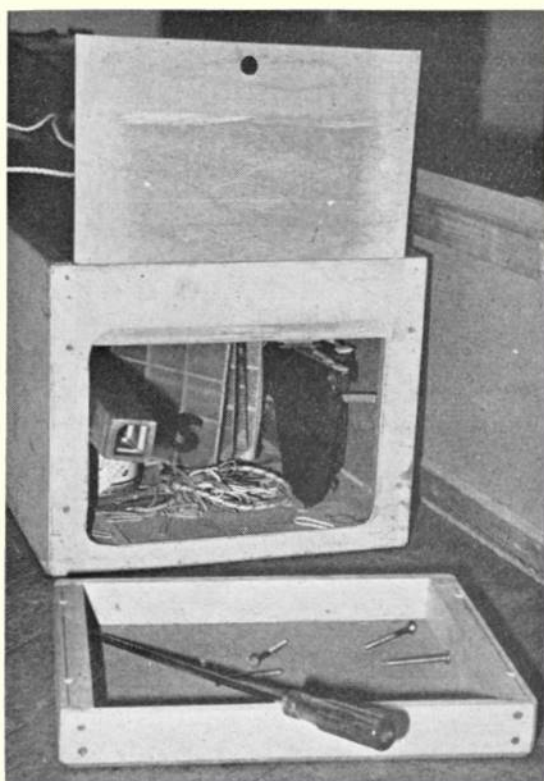
printed lettering and also help to partially waterproof the cardboard. Leave the inside surface unpainted so that cardboard patches can be glued on later over any punctures and damage which may occur. The box can be waterproofed still further with one or two coats of polyurethane varnish, or use oil-bound paints throughout. The end panels of  $\frac{1}{8}$  in. hardboard can be fixed with four or five  $\frac{1}{8}$  in. x No. 6 countersunk woodscrews.

The box lid is strengthened with an extra  $\frac{1}{2}$  in. square strip of wood glued and nailed along the outer edges. The lid is held in position by  $1\frac{1}{2}$  in. lengths of  $\frac{1}{2}$  in. square deal glued and pinned on the underside at the corners. (See Fig. 3).

Figure 4 shows the carrying handle, simply made from string or nylon cord and a strip of wood. The handle cords should be adjusted as tightly as possible whilst just allowing removal of the handle. In this way, the lid will be effectively held down on the box. Slight bruising of the cardboard top at the edges is immaterial.

It may be decided that a much stronger box is required. In this case, simply substitute 3 or 4 mm plywood or  $\frac{1}{8}$  in. hardboard, glued and panel pinned, for the cardboard panels. Also, the frame can be made from  $1 \times \frac{1}{2}$  in. deal for a larger box, with ample scope for the use of plywood gussets and steel angle brackets at the frame joints. Dowel joints plus mortice and tenon joints are ideal for those aeromodellers wishing to spend more time and effort to produce a

Glue and pin with  $\frac{5}{8}$ " x 18g. panel pins at all corners  
Box made of  $\frac{1}{8}$ " plywood, or hardboard and ply or deal side pieces

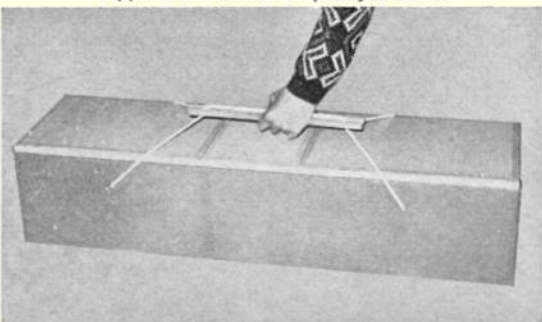


A shallow extension box (approximately 1 in. deep) just removed from the main box reveals the author's 'Harlequin' Coupe d'Hiver model encased within. Sliding door - seen in the raised position - is used when this extension is not required.

more efficient, more robust article, capable of giving many years of service.

Finally, if you find that you have made your box too short for that latest glider - the wings are just one inch too long - don't despair . . . simply take off one end panel and screw into place the special frame end piece shown in Figs. 5 and 6. Now you can attach an extension box (see Fig. 7) which allows your new wings to protrude through the box end safely. When not wanted, the extension box can be unscrewed and the open box end is closed with the sliding door panel.

The completed box (although the lid has yet to be painted), together with its simple handle which will transport your model to and from the flying field without damage. What happens in between is up to you alone!





# LATEST ENGINE NEWS

by Peter Chinn

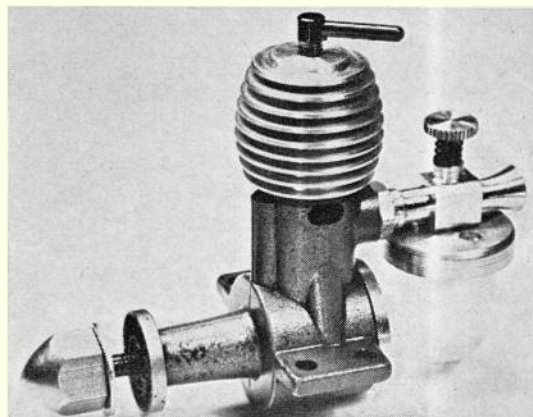
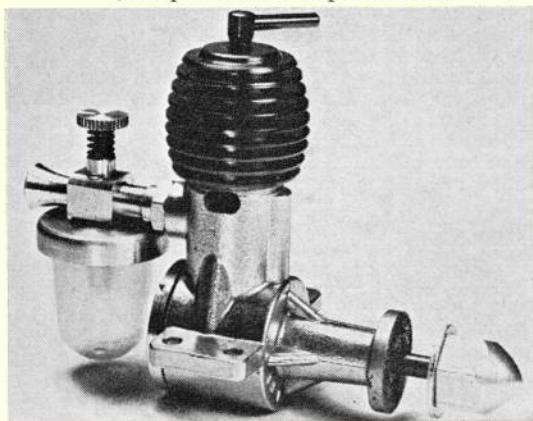
## Doonside Mills 75 Tested

As promised in the September issue, here are some details of the 'Doonside Mills'—the Australian-built copy of the Mills 75. Actually two versions have been produced, consisting of 250 'Mk. I' units and 750 'Mk. IIs'. The Mk. Is are faithful replicas of the Mills P.75 and were produced as a 'limited edition' for the benefit of the original subscribers to the Doonside Mills project. The Mk. II's are identical except for a strengthened (webbed) crankcase nose.

Some idea of just how close the Doonside Mills is to the original can be gained from the photographs. In most cases, parts are practically identical. One thing we ought to point out here is that the Mills engines themselves did vary quite a bit so one should not expect parts from the Doonside replica to fit *any* Mills 75. However, a comparison of the Doonside parts with those of a 14-year-old sample of the original Mills-built product has shown that most parts are interchangeable or that Doonside parts can be installed in the older engine with a minimum of refitting.

We ran some side-by-side tests of the Doonside Mills 75 and the original model and found them to be fairly evenly matched. Typical prop revolutions achieved with the Doonside Mills included the following:

5,600 rpm on 9 x 4 Keilkraft nylon  
7,000 rpm on 8 x 4 Power-Prop wood  
7,000 rpm on 8 x 3½ Top-Flite wood  
8,600 rpm on 7 x 4 Top-Flite wood



Australian-built Doonside Mills 75, Mk. I version, of which 250 only have been made. Below left, the Mk. II version. This is distinguished from the Mk. I by a webbed crankcase and is available in a choice of natural aluminium or coloured cylinder jackets.

8,800 rpm on 7 x 4 Tornado nylon  
9,250 rpm on 7 x 3 P.A.W. Trucut wood  
10,500 rpm on 7 x 3 Top-Flite nylon  
11,000 rpm on 6 x 4 Keilkraft nylon

The engine, like the original Mills, is really at its best on the 8 x 4, 8 x 3 and 7 x 4 sizes. Although its swept volume is actually less than that of the typical 'Half-A' glowplug engine, it develops its peak output at very much lower revolutions and typical 'Half-A' size props (6 x 4, 6 x 3, 5½ x 4, etc.) are too small and will allow the engine to exceed its b.h.p. peak in the air.

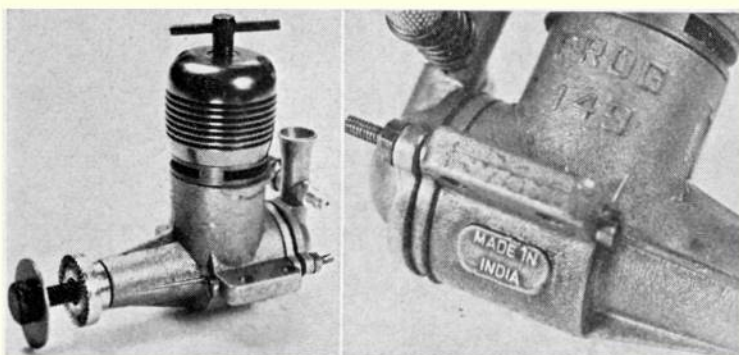
Starting was good—as, indeed, any engine claiming to be a 'Mills Replica' should be. Running qualities were good, although there was a tendency for the compression lever to run back at the higher speeds—i.e. when the engine was lightly loaded with a small prop. Fuel mixture was not critical. We used a blend comprised of 30 per cent Castrol M, 35 per cent I.C.I. technical ether and 35 per cent kerosene, plus 1 per cent amyl-nitrate.

The Mills design, of course, is quite unlike the typical small model engine of today. Dating back to 1950 (and to 1946 in its 1.3 c.c. version) the Mills Diesel followed the original model compression-ignition engine concept, as first demonstrated by the Swiss Dyno motor, of a very high stroke/bore ratio, with induction via a piston-controlled cylinder port from a rear-mounted carburettor having a bowl type fuel tank hung beneath it.

The quoted bore and stroke of the Mills 75 was 0.330 in. x 0.520 in. for a stroke/bore ratio of 1.576:1 and a swept volume of 0.73 c.c. Actual measurements varied a bit, however. The Doonside engine has a (measured) bore and stroke of 0.336 x 0.512 in. giving a swept volume of .0454 cu. in. which is somewhat closer to the nominal .75 size at 0.744 c.c.

Among the improvements incorporated in the Doonside Mills is a completely machined carburettor and tank assembly. In the Mills original, the tank top was of stamped aluminium sheet with a pair of bent tabs to secure a moulded acetate tank bowl. In the Australian product, the top is machined from aluminium bar and the bowl, of machined nylon, is retained by a circlip, a much neater solution. The appearance of the replica also gains from its rather better finished crankcase (gravity cast like the original but in an aluminium instead of a magnesium alloy).





Another Commonwealth replica - an India-made version of the British Frog Vibramatic 149, produced by the India Hobby Centre.

Below left, parts of the Indian Frog 149. In the lower picture are shown the components of that engine's unique 'Vibramatic' induction system.

and machined (instead of cast) backplate.

Internal working parts are, for the most part, identical to the original, apart from some changes in material specifications. The crankshaft has a 3/16 in. o.d. journal running in a bronze bushed main bearing. It has a 1/8 in. o.d. crankpin, counter-balanced by cutaway web flanks. The cylinder-liner has two diametrically-opposed exhaust ports and two tiny circular transfer ports at the front which are uncovered by a deflector step in the piston. Two similar circular ports located lower in the rear wall of the liner form the induction ports from the carburettor which screws into a boss in the rear of the main casting.

Mainly because of its heavier crankcase alloy (aluminum instead of magnesium), the Doonside Mills is a little heavier than the Mills P.75. Checked weights of the two examples examined for this article were 49.9 grammes (1.76 oz.) for the original and 58.1 grammes (2.05 oz.) for the replica.

For the benefit of readers who may have missed the earlier announcement, the Doonside Mills is avail-

able (so long as stocks last) from Ivor F. Stowe, Box 11, Doonside, New South Wales, Australia 2767, price 14.95 Australian dollars. We understand that the Modellers' Den, 2 Lower Borough Walls, Bath BA1 1QR will have a few in stock.

### Taipan 3.5 Glow

The parts for the Doonside Mills were manufactured by Gordon Burford & Co. Ltd. of Henley Beach, South Australia who make the well-known "Taipan" range of model diesel and glowplug engines distributed in the U.K. by Performance Kits and Veron. Gordon Burford has been manufacturing motors of all kinds for more than 20 years and has what is undoubtedly the best equipped model engine factory in the Southern Hemisphere; capable of turning out engines of high quality and excellent finish.

Recently, Gordon's eldest son Peter paid us a visit and discussed some of the company's current activities. The factory's best seller at the moment is the Tyro 1.85 c.c. diesel described in the March 1972 *Latest Engine News*. This engine has proved to be outstandingly reliable and is very popular in Australia. Another new model for which there are high hopes is the recently introduced Taipan 3.5 c.c. glow-plug engine. Currently in production as a plain (bushed) bearing unit with a choice of standard intake or throttle type carburettor, this engine will also be offered in a ball-bearing version in the near future.

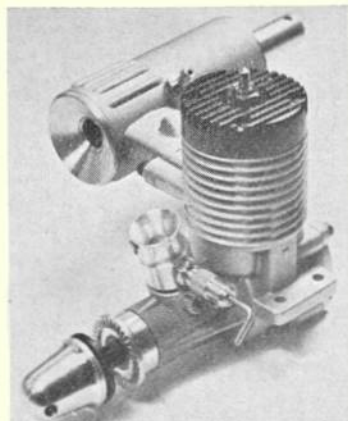
The Taipan 3.5 Glow illustrated is the standard free-flight and control-line version and is shown fitted with the Taipan silencer designed for it. It is a most attractive motor, of purposeful appearance and having the usual outstandingly well executed Burford gravity castings. The latter include a detachable cylinder jacket to facilitate casting the Schnuerle type transfer channels. Long screws tie the cylinder head and jacket to the crankcase. The cylinder head has a 2 mm. squish-band surrounding a hemispherical combustion chamber. The lapped cast-iron piston has a flat crown, a fully floating solid gudgeon-pin and runs in a hardened steel cylinder-liner.

The crankshaft, which is supported in an iron bushed main bearing, has a generous 7/16 in. dia. journal and a replaceable prop stud. The induction hole through the shaft is 0.297 in. i.d. and draws gas, via a parallel sided shaft port and circular intake boss, from a machined aluminium venturi with conventional brass spraybar assembly. Effective choke area is approximately 14 sq. mm.

The silencer is of an extractor pattern. It consists of a cast body, machined end-plates and a screw-in "venturi" tube. The latter has three long slots totaling a very generous 90 sq. mm. outlet area. The silencer attaches neatly and firmly to the engine with







Australian Taipan 3.5 c.c. Schnuerle-scavenged glow engine with its special silencer. Robust construction and elegant finish.

two Allen screws and has provision both for cylinder priming and tank pressurisation.

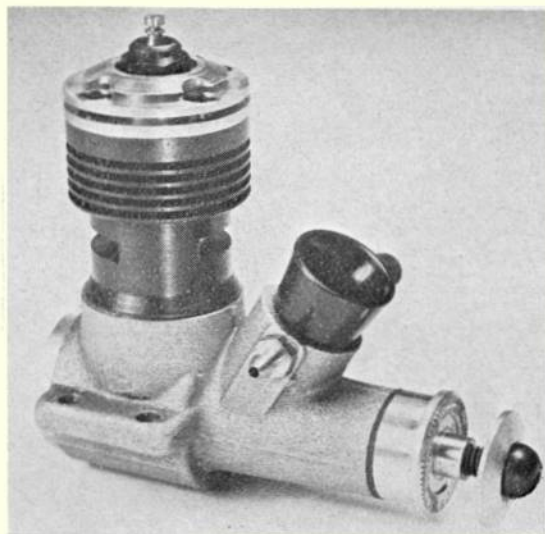
The Taipan 3.5 has a swept volume of 0.212 cu. in. or 3.474 c.c., derived from a bore and stroke of 0.660 x 0.620 in. The engine's weight complete with silencer and safety spinner-nut as shown, is 9.4 oz. Silencer weight is just under 2 oz.

The engine shown in the photographs is an early production model. Some minor changes are being incorporated in the latest version. We hope to give some test figures on this at a later date.

### Cipolla Junior

The Cipolla Junior is a new offering from Italy (it is made by the brothers Cipolla of Trezzano) in the 1.5 c.c. glow motor class. A hint of Cox 09 in its external appearance is confirmed by inspection of its component parts, many of which clearly show that its constructors were strongly influenced by the

The new Italian Cipolla Junior 1.5 c.c. glow motor has many features in common with the Cox .09 but features a cast crankcase rather than the American's machined unit, and simpler carburettor. Parts revealed at right show that the most marked Cox influence lies in the design of the cylinder and crankshaft. Conventional screw-in glow plug is used. Engine is quite robust, yet weighs just over 3 oz.



design of the famous Californian product. This is no bad thing since the Cox Tee-Dee 09 is an exceptionally fine motor with a level of performance unequalled in the 1.5 c.c. class. If the Cipolla can reach even 70 per cent of the Tee-Dee 09's potential, it will still be a match for most of its rivals.

The Cipolla Junior features that most readily identify it with the Cox 09 are to be found in its cylinder design and crankshaft. The engine's bore and stroke, as checked by actual measurement of the sample illustrated, are 0.494 in. by 0.472 in. (Cox: 0.497 x 0.471 in.). The cylinder is machined in one piece with integral fins and screws into the crankcase as on the Cox Tee-Dee and has the latter's scavenging arrangement of twin exhaust ports and twin internal transfer flutes. The piston is similar to the Cox's insofar as it is flat-crowned and has a hardened skirt surface but a pressed-in gudgeon-pin and a machined aluminium conrod are used rather than the ball-joint hardened steel rod of the Cox.

The crankshaft, at 9 mm. dia., is 0.5 mm. smaller than on the Tee-Dee 09 and has a very slightly smaller gas passage but otherwise closely follows the distinctive Cox pattern including crescent counterweight, divided journal and a very large rectangular valve port.

Where the Cipolla differs fundamentally from the Cox is in its crankcase construction (cast instead of machined and without the Cox's unique induction housing) and in its cylinder-head. The latter is attached with four screws instead of screwing into the cylinder, has a squish-band surrounding a bowl shaped combustion chamber and has an orthodox separate glowplug instead of an integral filament.

In general, the Cipolla Junior is nicely made. At 3.05 oz. it is 0.3 oz. heavier than the Cox but is undoubtedly more robustly constructed especially in regard to the crankcase. The engine is listed in Italy at 8,500 Lire or almost exactly £6.00 at the current rate of exchange.









# AJEP WITTMAN 'Tailwind'



## AIRCRAFT DESCRIBED No. 217

### Pat Lloyd takes a ruler to Mr. Perkins' pert two-seater sport plane

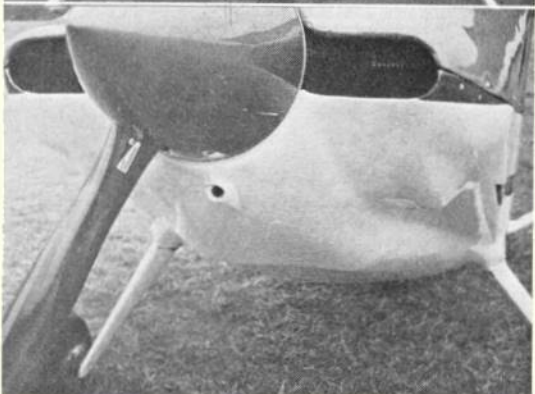
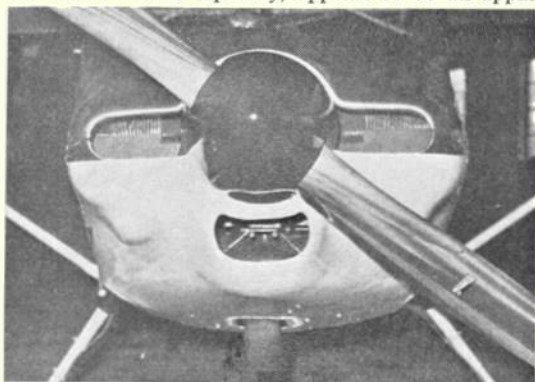
WHEN Andrew Perkins told us he was making Europe's first example of a W-8 'Tailwind' no further away than in Aeromodeller's home county of Hertfordshire, the initial reaction was when could we see it? The 'Tailwind' is a much copied and widely reproduced favourite among home constructors in the U.S.A. and deceptively, appears to be an appar-

ently ordinary machine. However, realising that famous racing pilot Steve Wittman's designs are not as a rule ordinary, judgment was reserved.

We duly arrived in the midst of a horizontal snow storm, to be shown AJEP's workshop where rests his first project, a Taylor Monoplane—much modified. This aircraft provided much experience in building and flying, but was retired as not having enough performance or seating!

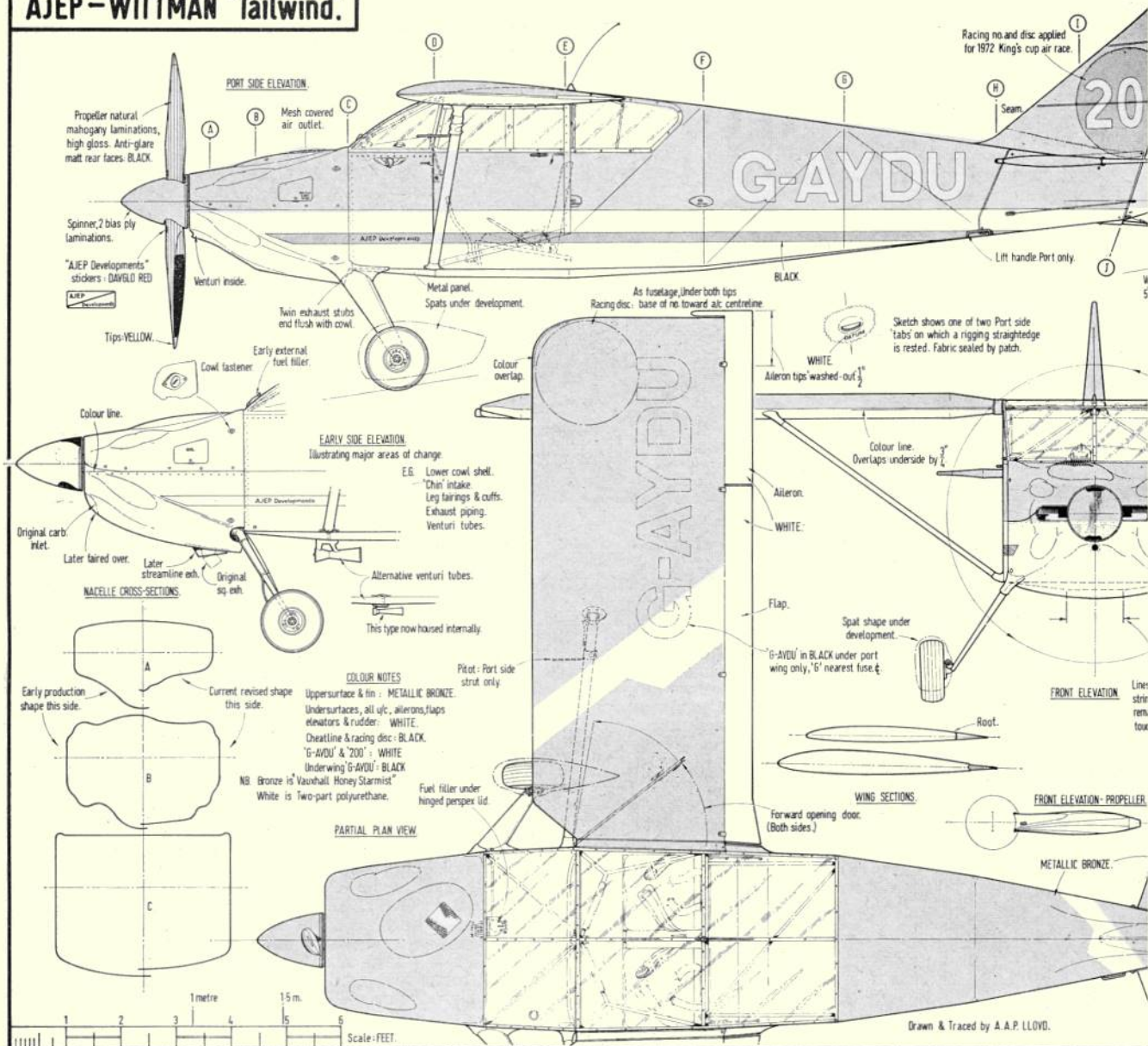
Next we saw a 1/6th scale model of the W-8, which was used to ascertain what could be modified from the basic Wittman design. Anxiously wanting to see the real thing we braved the blizzard and entered the hangar, some 2° warmer than outdoors. And there was a G-AYDU. Suffice to say that the initial impression has remained unchanged through each of our subsequent visits: it is a pretty, neat machine for two seated side by side, plus luggage space. It is compactly small and finished in a most attractive colour scheme.

Above left is the early cowl shape used, readily distinguished by the large carburettor air inlet and large square exhaust. Current revised shape, which is neater and more streamlined, is shown below. Details of this aircraft are constantly changing! Below, good attention to detail is evident in the closely-spatted tail wheel, of only 5 in. diameter.





# AJEP - WITTMAN 'Tailwind'

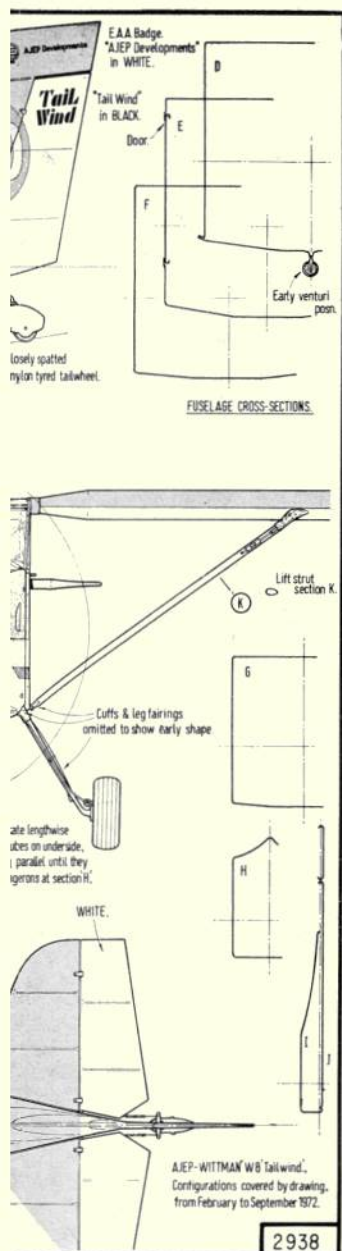


Cockpit accommodation is well furnished and well equipped. Duplicate rudder controls are provided for the passenger sitting in the right-hand seat, but may be folded down out of the way if required. Neither engine or brake controls are duplicated.

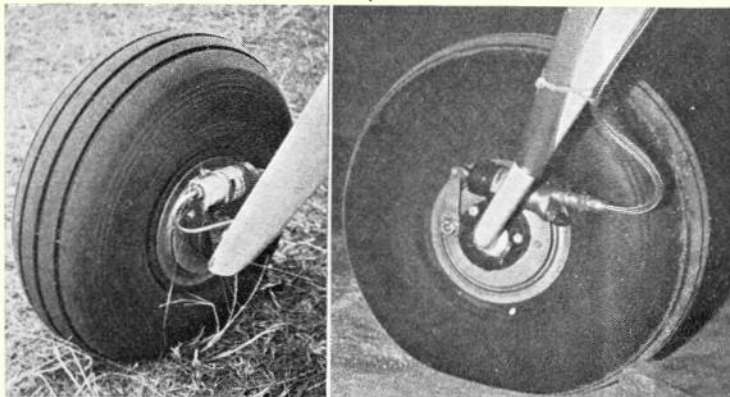
Andrew Perkins poses with his much-modified and very personal 'Tailwind'. Note the excellent visibility provided by the glazed cabin roof, and the 'get up and go' appearance of the aircraft, accentuated by the swept-back undercarriage and streamlined nose section.







Above top, is a very early 'Tailwind', photographed in California before the minimum size of registration letters was introduced (just visible on rudder)! Beneath that is another view of the aircraft in its early stage - identified by the deeper cowl shape, lack of leg fairings and the external venturi tube. Smart colour scheme of metallic bronze and white aids appearance considerably. Below are details of the simple hydraulic braking system. Wheel spats are now under development.



By the way, 'AJEP' are the initials of Andrew Perkins, so the 'AJEP' Tailwind is designated with this prefix to point to the fact that this machine is different to any other W-8. The most obvious differences are the more extensive glazing to the cabin roof, the side windows and the distinctive 'swept' fin and rudder. There are, altogether, some 35 detail modifications, either minor or not easily visible.

Construction is conventional, the fuselage being steel tube framing, with doors and forward panels metal skinned. There is an access metal cover at the sternpost, each side. The cowlings are glass fibre, and distinctive with humps to clear the power unit beneath. Wings are of a conventional spruce structure with ply covering, and have quite large span steel tube construction flaps and ailerons. Flaps have three positions of deflection which helps with small field aerodromes.

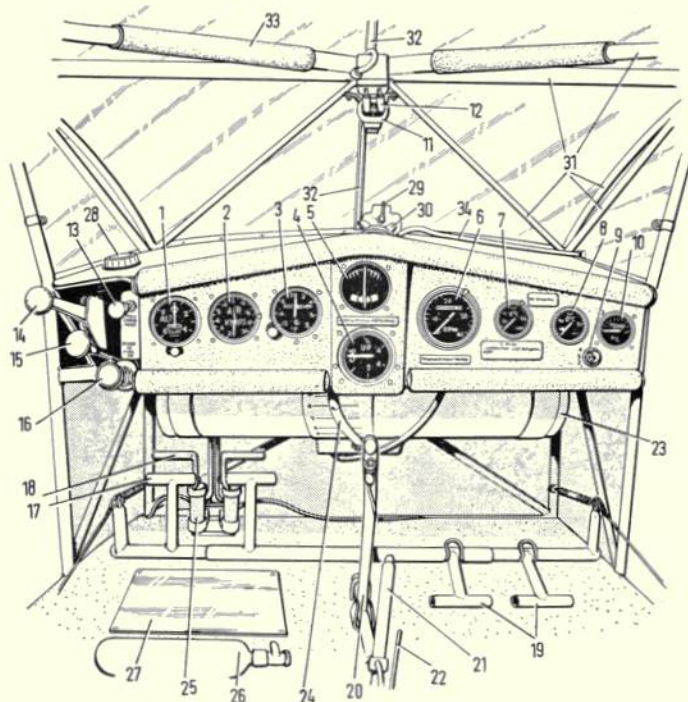
Span is 22 ft. 6 in., overall length 20 ft. 9 in., and

G-AYDU is quoted as having a level maximum speed of 165 m.p.h.; this with a modified Continental ground power unit! At an economical cruise speed of 135 m.p.h. the consumption is approx. four gall. per hour, leaving lots of range in the 17 gallon tank.

Controls are conventional too, except perhaps the centrally mounted stick (à la Bolkow and Victa) which enables the Tailwind to be flown from either seat. The passengers' side has 'fold down out of use' duplicate rudder pedals but neither engine controls or brakes are repeated on the right side. Instruments on the right side have small white triangles on their rims at relevant pressures and temperatures, easily checked by a glance from the left hand seat.

A recent innovation has been the addition of fibre-glass sheet leg fairings, anchored at their top rear edges by a light spring, in turn hidden by small rigid cuffs. These fair the tapered solid steel swept back legs which are a feature of the Wittman design. The





INTERIOR LAYOUT: AJEP-WITTMAN W8 'Tailwind'

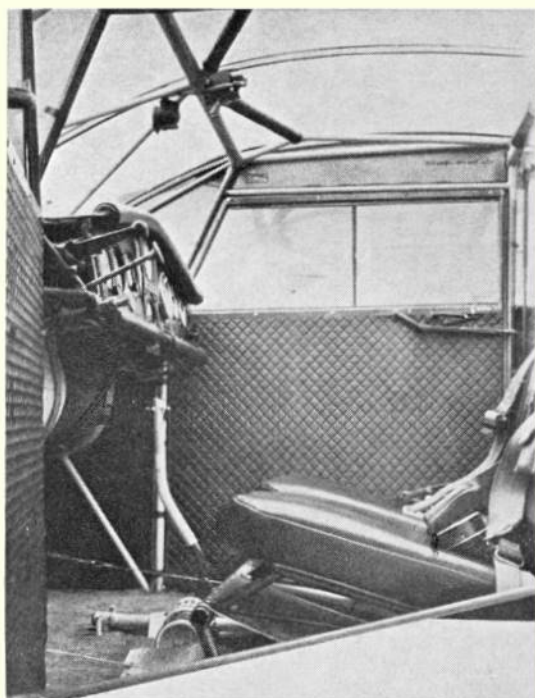
- |                                       |                                    |                                    |
|---------------------------------------|------------------------------------|------------------------------------|
| 1. Altimeter.                         | 12. Magneto switches.              | 23. 17Gallon fuel tank.            |
| 2. Airspeed Indicator.                | 13. Carburettor heat.              | 24. Fuel contents visible in tube. |
| 3. Accelerometer, 'G'.                | 14. Throttle.                      | 25. Hyd. brake master cylinders.   |
| 4. Rate of climb.                     | 15. Fuel on/off selector.          | 26. Fire extinguisher.             |
| 5. Turn and bank, Art. horizon.       | 16. Priming pump.                  | 27. Metal heel plate.              |
| 6. Revolution counter.                | 17. Rudder pedals.                 | 28. Filter for hyd. reservoir.     |
| 7. Oil pressure.                      | 18. Independent toe brakes.        | 29. Catch on windshield flap.      |
| 8. Oil temperature.                   | 19. Passenger's rudder pedals.     | 30. Fuel filler cap.               |
| 9. Thermocouple selector, Cyl. heads. | 20. Central control column.        | 31. Structural tube frame.         |
| 10. Temp gauge, reads with 9.         | 21. Flap lever.                    | 32. U-Section glazing supports.    |
| 11. Compass.                          | 22. Elevator trimmer.              | 33. Anti-bump padding.             |
|                                       | 34. Overboard fuel tank vent pipe. |                                    |

Visible framing: PALE GREY. Carpet: BLUE-GREY. Inst. panel, seats & padding: BLACK Leather.

legs flex a great deal on rough ground, and these 'sleeves' adapt well to the deflections. Ultimately the spats will be integral with these and retain flexibility. Detail fairing has been applied to the tail-wheel, which is closely covered by a glass fibre spat and which is actually in contact with the nylon tyred wheel.

Recently the AJEP Tailwind was flown to Grenoble for the EAA Convention, and whilst there was flown on several occasions by Steve Wittman. He liked G-AYDU a lot and congratulated Andrew Perkins on the aircraft, offering useful hints on how to improve performance. Perhaps this knowledge inspired the handicappers at the recent Kings Cup Air Race to err less generously on their allowances, to the point where pilot Manx Kelly decided it wouldn't be worth competing. However G-AYDU still bears its racing No. 200 as a souvenir, which suits its colour scheme very well.

Actually, the footnote at the right of the drawing wasn't added lightly as lots of mods came and went. During the last visit before publication Andrew was



Another view of the well-appointed cabin shows the (padded) structural tube framing and the V-section glazing for the perspex 'roof'. Note the fire extinguisher lying beneath the pilot's seat and protective padding to the instrument panel. All-leather seats and padding plus carpeted floor give an air of luxury for such a sporty aircraft.

hinting darkly of closer cowls and exhausting through gills in the cowl sides! Perhaps we could make it the AJEP Tailwind saga with a monthly newsletter! (Whoa there Pat... Ed!).

Finally we must convey our thanks to the man behind AJEP Developments for his patience, both with us and the detail of his aircraft which is an absolute 'Natural' for modelling.

FULL-SIZE DYE LINE PRINTS OF THE 1/12th SCALE ORIGINAL PLUS A REPRINT OF THIS FEATURE, ARE AVAILABLE AS PLAN PACK No. A2938, PRICE 45p PLUS 5p POSTAGE FROM AERO MODELLER PLANS SERVICE, 13-35 BRIDGE STREET, HEMEL HEMPSTEAD, HERTS.

Tailpiece. Although the 'Tailwind' never actually flew in the Kings Cup Air Race, she still carries her racing numbers proudly - which blend in nicely with its generally sporting appearance.





# topical twists

by 'Pylonius'

illustrated by 'Sherry'

'Did you build it yourself, mister?'



## On the Scrap Heap

I suppose that in the evolutionary scheme of things they, like the American Indians and the Dodo, had to go. I mean that legendary race of model builders who took fierce pride in making up everything from the basic resources. And if they are now spinning in their graves as the commercial package model takes the air, you can be sure they are doing so on home made bearings. To them the purchase of a ready made spinner was an act of extreme immorality, for all you needed to get the same result was a cotton reel and a few pints of midnight oil, with not a wasteful penny spent. What the old type modeller couldn't acquire from the waste bins of the world had to be improvised, and it was marvellous to see to what miraculous use a cocoa tin could be put in the days before it became drinking chocolate. It was always refreshing to call upon one of these individualists to find him busy drawing his own piano wire over his home built furnace, undeterred by the fact that the finished product was available for a few pence per strip.

That, of course, was back in the days when the builder of the model rule was regarded as the 11th commandment. Perhaps the only one worth observing since the others had little bearing on model flying. Then again, if you weren't flying your own model this did not mean you had bought it, for in the old days the toy trade aspired no higher than the oiled silk stick model; usually an unflyable copy of an early model flying machine. No, you would be unsportingly flying the proceeds of someone else's three hundred workbench hours. A crime indeed, but nothing to the sacrilegious act of flying a ready made one, if one were available.

Things are different nowadays. Often it is difficult to tell whether a model has been painstakingly built or flippantly purchased. The bags under the eyes could indicate either, more fashionable, ways of spending long evenings. What is most shocking, though, is the way the commercialised model is actually overtaking the individual builder in the matter of cleanness of line and perfection of finish. It takes more than a few struggling man hours to emulate the subtly contoured, shimmering elegance of the plastic fuselage. And though the dogged super builder can still turn out something comparable, you might be sure that his handcraftsmanship will ultimately be overtaken by machine perfection. You could be a veritable Michaelangelo with your hands

and still come a bad second to something straight off the toy counter.

This trend, though at present giving a short cut to the flying field, is not a healthy one. By the year 1990 we shall only be working about five hours a week, if we have any jobs at all by then. Now, a good old fashioned whack of model building could take up quite a bit of this leisure slack, but by that time the balsa knife and the dope tin will be museum pieces.

## Unhappy Landings

The model aeroplane, for all its sublime virtues, is not, alas, highly filmic. Splendid the shots as it stands rarin' to go, but, oh dear, once it starts its hoppy progress over the clumpy grass your epic begins to look like an introduction to the World of the Wobblies. And even when airborne, a small darting object against a huge background of extremely empty sky is not likely to give much competition to such classic film subjects as *A Swedish Rapture* and *Dracula and the Drag Queen*, particularly when the slightest camera shake will send the model into absolute convulsions—together with the audience.

Odd then, that someone should make a film using model flying as a theme. For one thing it is a dramatic convention that anything seen flying must come to a disastrous end, whether it be bird, craft or angel, hell or otherwise. And you can imagine the groans of dismay that would greet the sight of a model plane returning safely to earth. Again, as far as the humans are involved in the film, the audience always expects a happy ending, and in this case it would be the model flyer returned to a state of normal sanity by the care and devotion of his model hating lady love.

## The Inch War

Metrickation, which is about to take over our inch, foot, yard conditioned way of life in the same way that decimalisation made us pound foolish and penny even more so. It will be odd trying to gauge the wingspan of a model when given in centimetres, although we might be grateful that there will be no such thing as a new inch to confound us, but, come to think of it, we could well do with an enlarged inch to offset the doubling in price which we got with the new pence.





## FREE-FLIGHT at the U.S. NATIONALS

as seen through the lens and  
described by the pen of  
**BOB MEUSER**

This twin pusher set a record for Joe Scuro in 1935, and still has most of the original parts! Flown in Oldtimer Rubber.

TO FREE-FLIGHTERS who went to the Nats hoping for the best, but expecting the worst, the 1972 Nats was a pleasant surprise; the Nats started as a loser, but ended as a winner in several respects. The cessation of Navy sponsorship has been a threat for several years, and in the Spring that threat seemed to have become a reality, for the Navy announced that it could not justify the financial burden of another Nats. A month after that stunning announcement, however, the *Academy of Model Aeronautics* announced that the Nats was on again, under limited Navy sponsorship; the Navy would make the site and facilities available, but the A.M.A. would have to pay the bills and supply the personnel. Previously the timing of free-flight events was performed by Navy personnel; this year it was done by the contestants on a 'time one before you fly one' basis. Most agreed that it worked out as well as the previous system, while many felt that the new system was better.

The weather co-operated admirably by getting all of the meaneys out of its system on the first day of outdoor flying - it rained most of the afternoon. After that the weather became progressively better, and by the last day it was warm, not too humid for comfort, and except rarely, windless - quite typical of the Chicago area in the summertime. The flying field is not small, but as there are many other activities taking place, the free-flight launching area can seldom be placed in the best location. In previous years the

result has been that virtually all three-minute max flights went off the airbase, and even with the aid of the efficient Navy model recovery teams, many ships were lost. This year the wind co-operated both in intensity and direction, and at worst a max flight terminated in the area of the Navy buildings - far better than landing in beautiful downtown Glenview.

The dozen lamps hanging from the 90-foot ceiling of the old armoury made indoor flying difficult, but some excellent times were posted. Bucky Servaites made a winning flight of over 22 minutes in Indoor Cabin, which helped him win the *Open National Championship* for the fourth time. He won the event in 1968, and placed second in 1969 and 1970, so his winning wasn't too surprising. Indoor Stick was won by Clarence Mather, but the time fell far short of that for previous years. A new record was set in the Paper Stick event - 23 min. 19 sec. - by Larry Cailliau who only recently returned to modelling after an eight-year absence. Larry beat Jim Richmond's long-standing record using a modified version of Jim's own *Paper Tiger* design - flatter airfoil, 15 in. diameter, by 36 in. pitch prop, and heavier than Jim's. Dennis Jaecks won the unofficial Pennyplane event for the second time using a model with an 8 in. chord - span and length are limited to 18 inches. This was the first year that Indoor Flying Scale was flown under rules which limit flight points (one per second) to the amount of the 'scale' points; previously a semi-scale duration model was favoured.



Jack McGillivray demonstrated his wing-folding Class A model. Glides like a well-tempered Nordic, engineering superb. Had trouble sorting out the climb 'pattern'. (A vertical straight line is a pattern?)



Right, construction of Fulton Hungerford's Boeing 80-A1 Tri-motor is similar to the Ford he demonstrated in 1970, all three motors are rubber-powered. An outstanding achievement, but short on flying ability. Below right, William Jenkins flew this large model, modified from an R. F. Tanner design, to 1st place in Open Rocket (Jetex). Many had two maxes, none three, so the third flight decided all of the top positions.



The National Free-Flight Society passed the half-decade milestone with its yearly Symposium, which this year consisted of a 'technical workshop' on one evening, followed the next evening by a presentation of more 'popular' subjects. The latter included movies, a short talk by A.M.A.'s Executive Director, who deftly parried several shots from the audience regarding A.M.A.'s role and attitude with respect to Free-Flight.

Dick Mathis talked about his experiences with radio-assisted free-flight, a subject which seems to have increased the activity of the adrenal glands of F/F and R/C devotees alike. His thesis is simply that by adding limited R/C to what is essentially a free-flight model, he can engage in an activity that is awfully close to pure free-flight in the parking lot! There were also presentations by some of the recipients of *NFFS Model of the Year Awards*.

The Canadians did extremely well in FAI events. Peter Allnutt won Towline Glider with a rather tired and very wet *Adagio*, the third time in four years. Andy DeMello took fourth, and later placed second



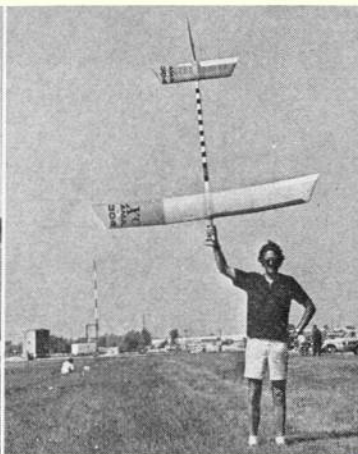
in A-Gas with his much repaired *Half-Nog*. Young Cameron Ackerly and Jack McGillivray took second and third in Wakefield, while Brian Eggleston won FAI-Power; he maxed out by 10 o'clock, and remained the only one to max out all day.

Willard Smitz, who won the *Mulvihill Trophy* for Unlimited Rubber in 1970 and placed second in 1971,

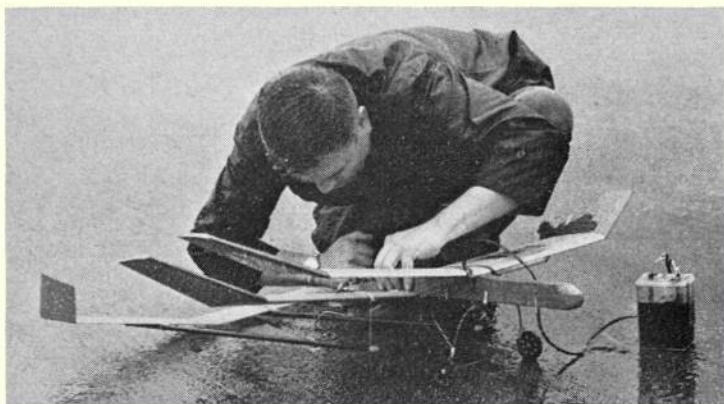
George Perryman flew this Unlimited to second place and won Coupe d'Hiver with model of similar design. Polyhedral stab, swept-back wings, and chequered tissue are his trademarks.

When Hard Brodersen, Executive Director of the National Free-Flight Society, and his K&B 40-powered Class C model are stacked end to end, they are 13 ft. tall. Model made unsuccessful attempt to punch hole in a brick wall.

Robert Lyons, placed 2nd in 1971, came up to first this year in Rocket, Jr., using his original-design all-balsa 'Cheap Thrill'. Activity in Rocket is increasing.







Those who waited for better weather were out of luck. Don Monson won the Cargo event with this small-gap, large-stagger biplane in the rain!

spent most of the day repairing his Unlimited model as he did in 1971, so had little time left for flying. We can't feel sorry for him though; he had won the Wakefield event the day before. George Perryman, having smashed his first-line Unlimited, smashed his reserve model, too, on his attempt at an eleventh max, to be beaten by Phil Klintworth, flying a rather rugged, rolled-tube 300 square inch. George won Coupe d'Hiver as a consolation on the following day.

The Rocket Power event, flown with Jetex 150 engines, was won by William Jenkins, after changing hands many times, but the times made by Senior winner Charles Wiese and Junior winner Robert Lyons would have been good enough for second and fourth in the Open age class. No one maxed on both of their first two flights, although many made one max, so the whole contest hinged on the deciding third flight.

Handlaunch Glider, flown under perfect conditions, much holding of the breath too, as some of the best scores were posted late in the contest. Paul Kosmala won with five maxes plus a 31 sec. flight flying an aft-rudder model of Canadian origin.

Outdoor Flying Scale, Gas-Powered, was won by Harold Warner flying a beautiful Waco cabin biplane having operating doors and a complete interior, beating Tom Stark, who had won the preceding three years, by a clean margin; but Tom took the rubber-power event with a tiny 18 in. Mister Mulligan, and ultimately became Scale Category Champion.

In the gas-powered events, the trend toward smaller models has continued, although many outstanding performances continue to be made with larger models

built before the switch to shorter engine runs for the fly-offs. Most novel gas model was Jack McGillivray's skilfully engineered folding wing model. The rate of climb with the wings folded is respectable, although not as fast as one might expect for such a small wing area. The glide, with wings extended, would do justice to a Nordic glider. We hope that this will not be the direction that free-flight will take in the future, but the folding wing concept deserved investigating, and McGillivray did the job superbly.

A seven-day Nats is not simply seven one-day contests, and it has special problems: housing and feeding the contestants and officials, providing work space for model preparation and repairs, to name a few. At this writing the future of the Nats is uncertain, but there is a feeling that the Navy might continue its limited sponsorship. In any event we'll quote the theme that pervaded Nats week: 'Thanks, Navy.'



Above right, this Loening M-4 brought Darrin Mathews 1st place, Gas Scale, Jr. Same design has won Open three times for Tom Stark.

Right, Harold Warner's Waco YKS-6 won Gas Scale, Open, toppling Tom Stark from the spot his Loening M-8 has held for three years. Doors open, exposing thoroughly-detailed interior.







I HAD HOPED to commence the 'column' this month with an account of the *Eddie Riding* Contest held once again this year at the North Western Areas Woodford Rally on August 27th. Unfortunately urgent personal matters prevented me from attending at the last minute and I understand that one or two other regular F/F competitors were also unable to attend, and the event was rather poorly supported.

I was particularly disappointed in not being at this year's event as it would have been a personal celebration for me. It is twenty years since I entered my first F/F Scale contest—the *Eddie Riding* of 1952. That year I flew my first D.H.9a and was placed 4th—I seem to remember there were about 20 entries in those days. It was partially to celebrate this occasion that I built a second D.H.9a this year hoping to better my achievement of 20 years ago, but unfortunately this was not to be; still, there is always the 21st anniversary next year! Incidentally I have flown in the *Eddie Riding* on many occasions in the intervening years and on several occasions managed second place, but I have yet to win the event.

The following week, on September 3rd, I did

Heading picture, Ken McDonough had a veritable fleet of his superb miniature models at Cardington for the Indoor Scale meet. Here, he launches his Blackburn Dart for another superb flight.

Right, Ted Smailes built his rubber-powered Douglas 0-38 from Aero Modeller plans (FSR 1123, price 75p), which placed fourth in the Selby Trophy at the Northern Area rally. Flew extremely well in the relatively high wind, using an ex-Wakefield motor.

manage to attend the **Northern Area Rally**, held at R.A.F. Lindholme, on the other side of the Pennines. Here I competed in the *Selby Trophy* competition, which was very well run by David Clarkson of the Blackburn Aircraft Club.

The weather in the morning was ideal for scale models with little wind and quite warm although a breeze sprang up in the afternoon and it turned quite chilly, but most people had flown by then. An innovation by the organisers this year was in allowing competitors to enter as many models as they liked; at 25p a go. I think this is an excellent idea which could be used to good effect in all F/F scale competitions. With models which are so critical on trim and when the wind strength plays such an important part in things, a worthy competitor can easily fail to make a qualifying flight or, if he does, it can be a bad one. I am not advocating an indiscriminate number of entries but I consider a maximum of two to be perfectly reasonable. This would allow a competitor to fly a well proven machine, which is past its best, as a type of insurance policy, as well as his latest pristine effort in which the trim may still be a little suspect. Or a low wing loaded machine and a heavyweight may both be entered to cater for the extremes of wind conditions and it would also boost the number of entries, which would be a good thing. This is a point which is worth debating with the S.M.A.E. Scale Committee and I should welcome comment from readers on this subject.

To return to the *Selby*, only I took advantage of the multi entry and flew both the 9a and the B.E.12b. Terry Manley spurned a second entry (too mean!) and proved you only need one good model by winning with his D.H.4.

Most interesting flight of the day was made by Ted Smailes, more well known in Northern rubber duration circles than as a scale flyer. Ted flew a 40 in. span rubber powered Douglass 0-38 biplane; built from Ken McDonough's *Aeromodeller* plans. It must be many years since a rubber model competed in a serious scale competition and I have never seen one flown so effectively especially as the wind was around the 10 knot mark. The take off, as with all rubber models, was somewhat abrupt due to the power surge, but this was followed by a steady right climbing turn to about a hundred feet and a long flat glide and good approach. Total flight time, 1 min. 30 sec.!

#### Results:

1. T. Manley (*Blackburn Aircraft*) D.H.4, 895 pts.; 2. E. A. Coates (*Lee Bees*) D.H.9a, 879 pts.; 3. E. A. Coates (*Lee Bees*) B.E.12b, 854 pts.; 4. E. Smailes (*Blackburn Aircraft*) Douglas 038, 747 pts.; 5. V. Priest (*Leicester*) B.E.2e, 699 pts.







Terry Manley won the Indoor meeting with his Fokker E3 – an ideal subject for this class with its large wing, simple construction and low all-up weight. Small tailplane was its only drawback, making it tricky to trim.

After competing in the *Selby*, Ted Smailes then produced his diminutive rubber powered *Andreasson BA4*, built from the full size plans published in *Aeromodeller* and flew in the 'Peanut Scale' event held in one of the hangars. I believe he attained joint first place in this event.

A week later, on September 19th, rubber scale models were again very much to the fore. The first **S.M.A.E. Indoor Scale** competition for this class was held in the great Airship Shed at Cardington; scene of the Indoor Duration World Championships held two weeks previously. An encouraging number of modellers took advantage of the occasion, not everyone taking part in the competition however.

The morning was spent in trimming as most people had never had the opportunity of flying in such massive indoor surroundings before. There were a considerable number of models built especially for the occasion which had never flown before; inside or out. By far the most impressive models there were from the extensive collections of those miniature scale experts Doug McHard and Ken McDonough. Doug's machines are relatively well known to attenders of the Nationals and other big meetings where, if a hangar is available or if it is calm outside, they have delighted modellers for many years. His models are usually built in the conventional manner of balsa open framework covered with Jap tissue and immaculately finished with an air brush. He had his pair of *Heinkel 46's* there, one now converted for CO<sub>2</sub> operation, his *Fokker Triplane* also now CO<sub>2</sub>



powered, the *Gulphawk* and the *Gladiator* (full sized plans of which were published in *Aeromodeller* last year). He flew the last named model in the competition. Doug also had a new model of a *Spitfire* somewhat larger than the rest – about 20 in. span. This looked superb but still requires trimming correctly. It 'bit' the concrete rather hard on several occasions. The hardness of the floor was a fact that several people trimming new models hadn't bargained for. One doesn't normally trim this class of model over a concrete runway which, in effect, is what the hangar floor is, and it is therefore advisable to trim over grass on a calm evening prior to flying indoors. Unfortunately the 20 m.p.h. wind outside prevented any such excursions on the 10th.

Ken McDonough had the largest collection of models. Ken's form of construction is relatively simple using very thin sheet balsa throughout, the wings being single surface cambered units. Such is the artistry of Ken though that the final effect is uncannily realistic. All details, every rib etc., are painstakingly reproduced with a paint brush and pen. Some of his models, such as the *Sopwith Pup* and



No indoor meeting would be complete without Doug McHard – give him a hangar or even just a patch of grass on a calm day, and he'll fill the air with superb miniatures. Here, he launches his rubber-powered *Gladiator* – normally a faultless performer, but beset with troubles on this occasion.

*Bristol Scout*, are real miniatures, of only 7 or 8 in. span, looking just like a flying plastic model. Others are larger such as the wonderful *Short Seaplane* complete with miniature launching trolley and trestle. My favourite was his *Blackburn Dart* of about 14 in. span. His best flyer, however, was the *A. W. Siskin* which he entered in the competition. A full description of his methods appeared in *Scale Models*, September 1971.

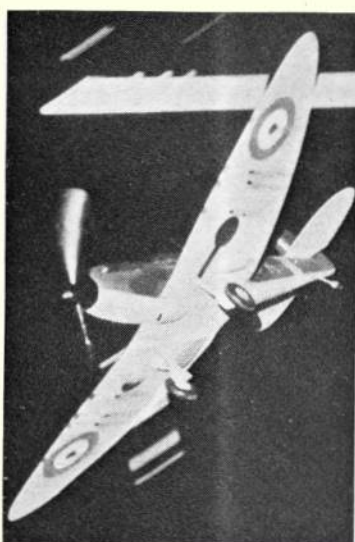
The rules for the competition provisionally drawn up by the Scale Committee, over a year ago, are very simple. Models must weigh less than 3 oz. and fly for 15 seconds minimum to qualify. Marks are fairly evenly divided between flying and static, flying marks being awarded for take off, quality of flight, approach and landing. Due to the universally smooth surface and lack of wind the landing can be marked fairly

Ken McDonough, with motor wound, prepares to launch his delightful all-sheet (though who would guess it?) *Hansa Brandenburg C1*.





Left, our columnist found that even soliciting the aid of the judges failed to raise his position higher than fourth! Cesare Milani lends a helping hand to Eric as he winds his 'worn well, but well worn' Hurricane.



Right, Doug McHard's latest masterpiece is this Spitfire, though trimming problems have yet to be overcome. Pictured at bottom right of page is yet another McDonough creation - his A.W. Siskin which placed third. Note fully-detailed engine and rigging wires.

for the first time in a free-flight contest, there being no luck element!

T. Manley studied the rules carefully and selected what he considered to be the ideal prototype for the competition. Large wing area and simple construction, to give a low wing loading, are very desirable features and for this reason he selected the *Fokker E.3*. About the only thing against it was the relatively small tail area but, although a little sensitive, the lack of disturbing gusts allowed the model to get away with marginal longitudinal stability and it flew well in the contest. Built in just over a fortnight, the model was very neat and scored fairly high static marks. This combination put Terry 10 points clear of the rest of the field.

I dug out my 20 in. span *Hurricane 1*, built with slight modifications from a KielKraft kit a couple of years ago for a club competition. This is definitely a 'Class 2' model as regards appearance but it flies remarkably well, scoring the highest flight points, but coupled with the lowest static score came no higher than 4th in the final result.

C. Hadland used a *Piper Super Cruiser*, built I believe from a Veron kit, which also flew very well and being rather less bashed about than my *Hurricane*, scored a higher static mark to put him in 2nd place. Doug McHard's *Gladiator* flew very badly in the contest, which was out of character and very unusual, so, despite the highest appearance points by a mile, he only managed 6th place. The same applied to D. Deadman's *Nieuport 17*, a miniature built from sheet in a similar manner to Ken's machines.

Looking back it was a very enjoyable day and the rules worked well for a first airing. The qualifying time of 15 seconds seems about right, keeping the wing loading of the machines in bounds, as does the concrete floor! The ratio of flying to static points seems to strike a very nice balance - allowing the good flyer to keep up with the good looker. Of course, as in any scale competition, the high static scoring good flyer will always win, but this is a combination difficult to achieve - as it should be. Willing judges (as ever) were Cesare Milani and Mick Charles.

Without doubt the finest flying of the day came

from Doug McHard's pair of CO<sub>2</sub> powered machines - the diminutive *Triplane* being most impressive. Aerobatic flights of nearly two minutes, rising to 50 feet or so, were regularly to be observed. See the *Aeromodeller* Annual this year for Doug's full description of how to best use these power units.

I do hope we have many more of this type of meeting. The availability of the Shed, of course, being the key factor. However, I observed that few rubber models climbed more than 30 ft. and most flew within a 70 ft. diameter circle - both dimensions well within the parameters of the standard R.A.F. aeroplane hangar. I am sure it would be easier to obtain the occasional use of one of these hangars, which after all are strategically dotted around the countryside. I think an indoor scale event would be a popular competition at any rally - particularly if windy outside.

#### Results:

	Model	Static Score	Flight Score	Total Score
1.	T. Manley <i>Fokker E.3</i>	68	62	130
2.	C. Hadland <i>Piper Cruiser</i>	54	66	120
3.	K. McDonough <i>A.W. Siskin</i>	75	38	113
4.	E. A. Coates <i>Hawker Hurricane 1</i>	41	67	108
5.	B. Harvey <i>Lockspieser Canard</i>	59	48	107
6.	D. McHard <i>Gloster Gladiator</i>	86	20	106
7.	D. Deadman <i>Nieuport 17</i>	71	25	96





# COMBAT INTERNATIONAL

reported by Mike Callaghan

SEVENTEEN of the top British Combat exponents made the journey to Holland to compete in the International F.A.I. Combat Meeting, organised by the Amsterdam Model Flying Club 'Daedalus' on 12-13th August.

From the outset it was obvious that 'Daedalus' had put a tremendous amount of effort into the organisational side of the affair and all competitors were given a set of F.A.I. rules (multi-lingual) with a special amendment sheet carrying the latest regulations, including clarification of the infamous 'knot' rule which upset so many flyers at our own Nationals. The rules simply stated that the knot which connects the thread to the streamer must remain attached, otherwise the last cut is not valid. Clear, but not popular with our fliers!

The venue was a local football ground upon which two circles had been made available. These were utilised so that while one heat was being flown in circle A, the next competitors were making ready in circle B—a system which worked exceptionally well in practice.

A good entry was received, 53 in all, consisting



of 17 British, 14 Dutch, 11 German, 7 Belgian and 4 Danish competitors. All losers from the first round were re-drawn against each other, the winners going through to the second round.

Standards varied widely in the first round, although it was noticeable how the Continentals are increasingly turning towards *Warlords* and *Dominators* powered by *Olivers*—and using them to good effect. The Germans and Belgians used very fast models which were virtually unmanoeuvrable and easy prey to the medium speed, tight turning British models. Many of the bouts in the first round were rather uninteresting to watch due to excessive amounts of ground time incurred by many of the Continentals, many of whom need to improve their pitwork.

The second round brought a raising of standards and saw the exit of a number of British flyers, which in some cases would not have happened under the 'old rules' concerning cuts of the string. By the end of the third round the only non British competitor left in the contest was Jensen from Denmark, and he was perhaps more than a little lucky to be in this position. One area of controversy arose in this round when Mick Tiernan flew against Van Zijp of the Netherlands. Mick clearly beat his Dutch opponent, then, after the final whistle, flew straight and level—only to have the Dutchman take four cuts off his



Heading picture shows finalists Richard Evans and Derek Dowdeswell, victory going to Richard with his 'Ironmonger' design, plans of which will appear in the next issue of 'Aero Modeller'.

Above left, Dutch pilot Van Zijp (left) used a model based on the 'Liquidator' but with slightly less wing area and fitted with an Oliver Mk. III. A really good pilot, beating Nagyi of Germany by 440 pts. to 70 in the first round. At left, Van Mechelen of Belgium (centre) is a pilot to be watched in the future, together with his well-organised pit area. Model is a Dominator, unfortunately, only tissue-covered. Power is supplied by a Super Tigre G2-D.



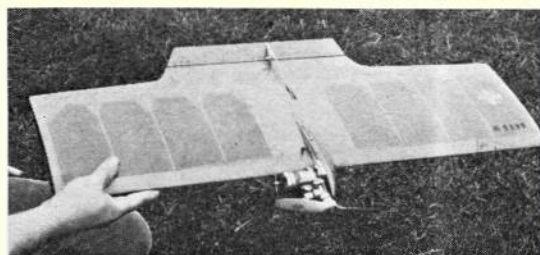
Dubel of Germany (left) with typical Continental model featuring lightweight construction and Solarfilm covering. M.V.V.S. diesel used, turning a 7in. x 5 in. propeller at 16,500 r.p.m. Model is fast but loses speed drastically in manoeuvres. Alpine headgear is glass-fibre-coated inside!



Below right, Rasmussen of Denmark used this simple lightweight, nylon-covered design fitted with a Webra Mark II diesel, although many Continentals are following the British preference for the Oliver Tiger.

streamer! The Dutch crew claimed these as genuine cuts, but fortunately the circle marshall (who sat in the centre of the circle) saw what happened and would not let his judgement be swayed by his countrymen. Indeed, this official earned everyone's praise for his unbiased judgement—and for his patience in officiating at every single bout over the two day period. Incidentally, a further example of the Dutch club's efficiency was the insistence on a safety check and pull test on the lines before each bout.

Jensen continued his winning ways in the quarter finals beating Bob Morgan in a very closely fought contest, with a final score of 315 to 285. He then went on to meet Richard Evans in the semi finals when his luck ran out, Richard giving an excellent exhibition of accurate streamer snipping, being credited with three cuts, although, in fact, several were convinced that the scorers missed a couple of very small nips. The other semi final was fought out between Derek Dowdeswell and Mick Tiernan—victory going to the former after another good scrap. The ensuing final promised combat at its very best but after a mid air collision and the resulting model change, the latter part of the contest was rather an anti-climax, Richard coming out on top with 412 points to Derek's 185. A fly-off for third place saw Mick Tiernan beat K. Jensen fairly easily.



The prize giving proved to be a glorious affair with over £200 worth of prizes, largely donated by local traders—the first few finalists receiving Lenco stereo equipment while every competitor (in point order) chose a prize from the vast array on display. In conclusion, the 'Daedalus' club have really demonstrated the way a competition should be run, with organisation easily on a par with World Championship standards. Congratulations 'Daedalus' on both your enterprise and tenth anniversary.

#### Results:

- |                  |           |
|------------------|-----------|
| 1. R. Evans      | (U.K.)    |
| 2. D. Dowdeswell | (U.K.)    |
| 3. M. Tiernan    | (U.K.)    |
| 4. K. Jensen     | (Denmark) |

Mike Neville battles it out with Ronald Kaptyn of Holland — potential line tangle situation here!

Winner of the German Championships, held at Stuttgart, Rob Streefkerke, also of Holland, takes on British flyer Avery

The Glevum 'Black Spot' symbol goes International! Frank Smart tackles Mau of Denmark. (P. Tupker photos.)







A round-up of the latest news and views on the control-line scene.

Albrecht Reichle, the German Combat champion, is easily recognised by his hat! Looks like an H.P.15 is fitted to his flying wing — enough to make any team-race enthusiast weep. . . .

### Team Trials

Miserable weather greeted the would-be team members for the 1973 International meeting at RAF North Luffenham on September 10th, with a strong, blustery, cold wind blowing for practically the whole of the day.

Aerobatic flyers had the luxury of five judges, and the event was flown on the basis of two preliminary flights, from which the top six of the 11 entries (decided on the best individual flight) went forward to a qualifying 'sudden death' round. The wind caused severe problems as it was inconsistent, and this spoilt many a potentially good flight. At the end of the first two rounds, a few eyebrows were raised when it was discovered that Steve Blake and Jim Mannall were *not* jostling for first place and, in fact, lay fourth and sixth respectively, with Neil Billington way out in front. The third round fly-off then produced more surprises, with Mick Reeves falling from third to sixth place, and Steve being unable to improve his position, in fact dropping to fifth. At the final reckoning it proved to be Neil Billington still on top with his Merco 35-powered *Dolphin* (with which he has put in much practice recently — obviously to good effect), followed by John Newnham and Jim Mannall, who managed to pull back sufficient points to qualify for the team.

The varying strength of the wind affected the stunt fliers, but its low temperature upset the speed men even more so — a tuned pipe engine on straight fuel just cannot perform properly under such conditions. Not surprisingly, only a few of the nine fliers recorded times, and these were correspondingly low. Brian Jackson had a new lightweight model, but his chances of success were dramatically reduced when the up line broke, and Gordon Isles broke the rear fuselage of his model when it landed on the edge of the runway. Unluckiest man of the meet was Ron Irvine, who only discovered that the 'official fuel'

Mick Reeves flew this 62 in. span 'Revolution' design at the Team Trials. Uses a foam wing with large sections cut out, leaving 'ribs' of approximately  $\frac{1}{4}$  in. thickness. Bellcrank is carried in fuselage with leadouts lying over the wing, which simplifies making this unit detachable with no adverse effects on performance. Enya 45 power used.

which he had been given was straight *methanol* after his best two Rossis had seized. As he dryly remarked, 'But didn't they go before they seized!' Slight compensation for his expensive day's outing was his third place, behind Peter Hallman and Allan Woodrow — the latter having had much success recently with both of his old-type Rossis.

The team race event had been cancelled due to the lack of pre-entries (just two), and these Trials will now be held early next year, possibly in April. Time for more practice, lads!

### Rebore Service

Good news for all owners of worn-out lapped piston motors is that team-race enthusiast John Daly is now offering a rebore service, so if your 'mill' needs a new lease of life, drop him a line at 262 Adswood Road, Adswood, Stockport, Cheshire (S.A.E. please). Basic charge for motors with a 'simple' piston (no internal milling) is £1.75 including postage, registered post 15p extra, increasing to £2.75 for a piston with internal milling, deflector top and circlip grooves in gudgeon pin hole. (The latter price being only a guide, although probably the maximum charged.)

### Team Race Topics

Among the many British spectators at the Helsinki World Championships was Dave Clarkson, perhaps better known as a keen team-race enthusiast





and champion of the phrase 'North-West is Best!' Enthusiasts in his area are now compiling their collective knowledge of racing with the aim of raising all their standards – a system which the Danes have used to good effect for several years. From his notebook, filled at this meeting, he made the following observations:

#### Tanks

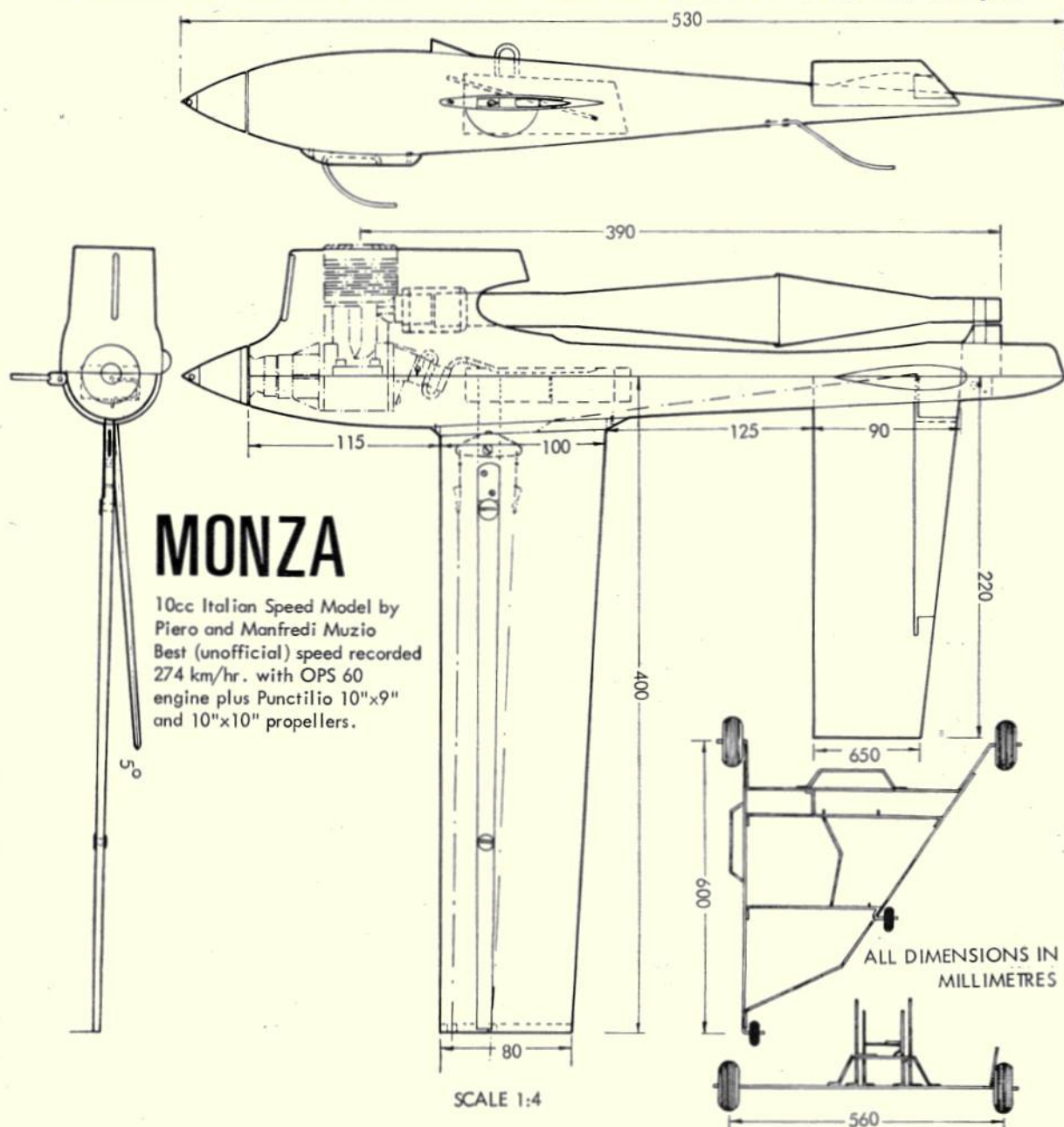
Basically, three types were seen, namely the Uniflow, the long, thin single cell (favoured by Heaton/Ross) and the twin-cell Jehlik type, although the latter was very rare. The Uniflow types were very popular, due to the even runs which they produce – the Russians used these, with the outboard front

corner in the same vertical plane as the venturi, to enable accurate ground setting of the motors. They needed little practice, seeming to be able to reset the motor on the ground before every heat with great accuracy.

The twin-cell tank may become more popular, particularly as Paul Bugl recommends one, and Per Hasling has been experimenting with one to replace his Heaton/Ross type. It is perhaps significant that many of those who suffered motor cuts on take-offs used Heaton/Ross-type tanks.

#### Props

The most common types were the Bartels 7 x 7½ in. Drazek special and the Bartels 7 x 8 MVVS-type GRFP props (a few of the latter were pitch





gauged at  $6\frac{1}{2}$  in. pitch after being told by Don Jehlik that is what they were). The Czechs used either  $6\frac{1}{2}$  in. or 7 in. pitch, while the Russians used greater pitches of around  $7\frac{1}{2}$  in.-8 in. on speed-type props of moderate blade area. Those using the 7 x 8 MVVS GF prop revved noticeably higher than almost all others, while the Russians' revved lower than most. There must be something in all of this, but I really don't know what! Don Jehlik preferred the 7 x 8 MVVS GF prop because it readily gives a nice thin blade and also provides nearly  $\frac{1}{8}$  in. tip width, which he (and seemingly the vast technological back-up of the whole U.S.A.) liked. The Russian props also had a good thin blade section right up to the hub (one reason for cuffed roots) and fairly wide tips (said to lessen tip stalling). The use of the pitch gauges in reworking props was common, and one was borrowed by Heaton/Ross to do their props for their Bugl in Helsinki. It seems that using a pitch gauge while working-up GF prop blanks is the only way to make sure that the prop is balanced for pitch and of known pitch - many teams at Helsinki held this to be important.

### Models

Few real pod and boom models, other than the infamous Bugl model and derivatives, were evident, however, many streamlined pod and boom-types were seen - a compromise between practicability and appearance. The big feature of the models felt to be important was the weight. The Continentals really stressed the benefits of the light model (by light, 16-18 oz. is meant) for the big saving in time in acceleration and deceleration of these models. To achieve light weight means using very light wood and GF cloth covering (.03 mm.) all over and/or epoxy resin finishes. Doubtless, the very light weight of the Russian models (16-17 oz.) enabled them to use such big pitch props and still accelerate quickly and completely. Hodgkins/McCollum had 22 oz. models and resorted to  $6\frac{1}{2}$  in. pitch to get the models to accelerate to top speed, and yet were noticeably slowed in traffic simply because of the heavy model.

The use of light models brings handling difficulties, but these are apparently overcome by using asymmetric wings and tip weight. A typical asymmetry is with the inboard panel 1 in. longer than the outboard on a 34 in. span wing, coupled with  $\frac{1}{2}$  oz. tip weight (1 oz. for a windy weather model).

In addition to the GF covered surfaces, the Rus-



Above and below left. The perfect answer for single-handed flyers? Lines in this case are wrapped around the pulley shown below, so that the pilot starts his engine, then merely picks up his handle and releases the model, which rotates around the pulley until the lines are fully extended, and then the take-off is made in the normal way! Simple, and it works every time for its inventor, Frenchman François Couprie.

sians achieved the low weights mentioned with  $\frac{1}{4}$  in. thick wings and planked fuselages with  $\frac{3}{8}$  in. (approx.) average wall thickness away from the nose (also epoxied). They used  $\frac{1}{4}$  in. dia. Chinese straws for push rods to save weight and extensively used titanium and magnesium alloy for metal work.

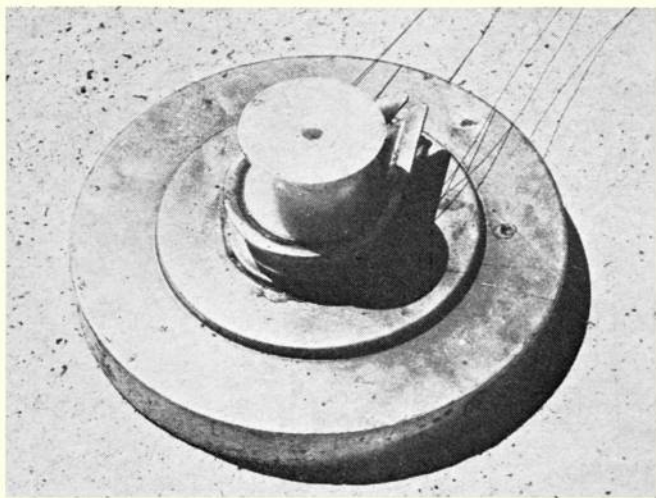
With a light model it appeared to be unnecessary to employ landing braking techniques to slow the model for the catch, since they naturally decelerated at a high rate (a sort of controlled falling out of the air!).

### Times

Typical times taken by the nine semi-finalists to cover ten laps, with no apparent whipping and with the range as stated, were:

	Seconds	Range (laps)	Semi-final time
Trnka/Drazek (Czech)	26.2	approx. 35	4:56
Penso/Marini (Italy)	25.5	up to 33	4:47
Kamerenko/Krasnorutsky (USSR)	23.2	approx. 38	4:15
Plotsinsh/Timofeev (USSR)	23.3	approx. 40	4:18
Votvpka/Komurka (Czech)	—	up to 33	4:50
Hodgkins/McCollum (USA)	24.0	up to 35	4:51
Shapovalov/Onufrienko (USSR)	22.6	approx. 35	4:34
Rivold/Geschwendtner (Denmark)	26.1	up to 33	4:54
Safler/Kodytek (Czech)	24.9	up to 33	5:07

As perhaps a further indication as to the benefits of a lightweight model, it is worth comparing the total time taken for a pit stop. In the final, all the models weighed around 16-17 oz., Krasnorutsky taking 6.5 seconds, Timofeev 8.4 and Onufrienko 8.0. In contrast, Konrad Kaul took 9-11 seconds with his 18 oz. machine, while Malcolm Ross's *Timeta*, weighing 21 oz., was delayed by up to 13 seconds - and he was possibly catching the model faster than anyone else, in addition to producing his usual immaculate 1-2 flick restarts. These times noted were calculated as the difference between ten laps containing a pit stop and ten laps without, thus including deceleration, refuelling and acceleration times.







# FREE-FLIGHT COMMENT

by John O'Donnell

Phil Ireland recorded seven consecutive maxes at the first free-flight Team Trials with his Rossi-powered model. Will have a spare machine for the next Trials!

SUMMER IN ENGLAND is notorious enough for its varied weather and general unpredictability to have become something of a National Joke. Even by our standards, 1972 has excelled itself for 'unseasonal weather' and a number of contests have suffered in consequence. It is quite usual for afflicted events to be interspersed between 'good' Sundays (or even between a flyable Saturday and a better Monday).

It is nothing new that many modellers are unwilling to fly when the weather is rough. However good are the flier's models or his abilities there is obviously more risk of loss or damage in wind than in calm. Of late there has been a noticeable increase in the number of people who attempt to justify their non-participation by arguments that 'windy contests prove nothing' and the like. This attitude leapt into prominence when flying was stopped at the Easter Meeting and the Nationals because of the wind. It is a little ironic that it is the supposedly strongly-constructed F.A.I. models that were involved!

I've always subscribed to the view that in wind one beats not only those with lower scores—but also all those who 'opt out' of flying. Ideas that contest participation should be restricted (via legislation) to only calm or breezy conditions fill me with misgivings—there are too many implications. Already there have been murmurings that the F.A.I. 'limit' of 12 metres/second (approx. 27 m.p.h.) is too high. I am reminded of the proverbial story of the American scale flier who reckoned it was too windy when a two foot long grass stalk, held up vertically, tremored in the breeze!

Perhaps fortunately there is little that can be done in the way of deliberately curtailing the flying in the S.M.A.E. Area-Centralised events. This type of contest is clearly affected by weather variations throughout the country, which is bad enough but fliers are never sure how their conditions compare with others! At times participation in wind can be pointless, whilst at others one has an excellent chance of topping the National Results. This situation was exemplified by the various contests held on August 6th. It was windy and wet throughout the country, and entries were low as a result. Most interest centred on the Team Power contest for the Keil Trophy. This event counted for Pluge Cup points towards the season's club championship.

Northampton provided a shining example of what determined effort could accomplish. Flying at Henlow in very poor conditions, both from weather and retrieving considerations, they had a very successful, if expensive, day. The club won the Keil by a substantial margin, Dave Short had the top individual score in the country, and they jumped into the lead in the Pluge Cup. Price was the leaving downwind of over £70 worth of hardware in the shape of engines and timers on several lost models! As only one power model failed to return the risks would seem well worthwhile! The winning team comprised Dave Short, Trevor Payne, N. Parry and Mike Cowley. Second place in the Keil went to York—their top man being Arthur Wharrie.

Birmingham had very unfavourable conditions at Barkston Heath. It was very windy, with drift the shortest way across the drome and straight on to miles of growing crops. After one short D/T'd flight by Ray Monks, the club decided that competing would be inadvisable to say the least—and they decided to 'opt out' of the team Power event. This decision almost certainly cost them their hopes of retaining

the Club Championship for a third year.

I went to Topcliffe to fly with the Northern Area. A murky, overcast and drizzly morning delayed flying 'till around noon. First to fly were Tynemouth Wakefield fliers, Ron Pollard and Alan Jack. A couple of o.o.s. flights into the overcast involved them in long hard searches for the rest of the day! Shortly afterwards the weather cleared just a bit more, and it was possible to do maxes in sight. Tony Cordes made his flights just as fast as he could go, aided by none being good enough to clear the airfield, and totalled a very modest 14:38. I got in four reasonable flights before the weather broke—the last three were ruined by turbulence; one flight being so bad that the model hardly flew out the turn! My aggregate was just short of 14 minutes and a few seconds more than that of Bob Hymers. 'What a waste of time and effort' was my reaction at the time (and at my times!). I revised my opinions when I got the National results—we had the top three places in the contest! This is the second time Tony Cordes has won the Gutteridge Trophy flying very 'ordinary' designs. Topcliffe in fact provided well over half of the total National entry in the Wakefield event (13 out of 21).

John Turner topped the trophy-less A/1 Glider contest with the same model shown in my July 'Comments'. He flew at Topcliffe and had two good flights out of three. Second and third were Tony Grantham and R. Seal—both of East Grinstead and presumably flying at Ashdown Forest.

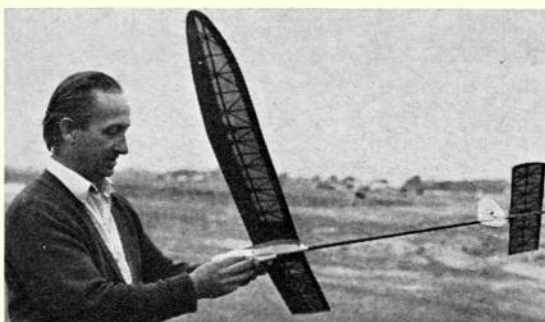
East Anglian activity was restricted solely to participations in the Keil Trophy. Les Brambley reported that his Area flew at Thetford Heath where retrieving was the main problem. Norwich had a full power team and worked hard for a very modest total of just under 22 minutes—the sole max of the day came from Steve Bowles' Super Tigre powered 'Dixielander' derivative. Their efforts brought them third place in the Keil, and a move up to second in the Pluge. It was said that the seven flights required for Wakefield, plus the proximity of the First Trials, were sufficient to deter any prospective entrants. No doubt the same could be said for several other areas!

The following Sunday was the one before the Trials and seemed to have been left blank by general consent. It appears to have been a gorgeous day throughout the country, and presumably was much appreciated by those who needed to trim their F.A.I. hopes.

Somewhat parochial in scope, but perhaps interesting in concept, was an un-advertised contest held locally. This was the Whitefield-Skye Junior Challenge Event. Skye started off as an all-junior club and liked it that way; they have had to stretch their age limit, however, as their members get older! Last year they challenged Whitefield's juniors to a contest, and the repeat event was held on 13th August at Lobden Moor, near Rochdale.

Calm, sunny conditions, with plenty of lift made for a very pleasant day—and some rather surprising results. Glider was very close with the top three all having one max, one mediocre, and one dreadful flight apiece! Winner was Stephen Williams, who also topped Rubber with a very respectable 7:50. Chuck Glider saw Keith Lord catch three 'bumps', losing his model as a final flight of 10 to 15 minutes. Overall Whitefield proved the winning club. At a time when the hobby occasionally admits to a 'junior problem' the very existence of this contest should qualify





David Bloom of Shrewsbury won the mini-comp at Woodford with his A/1 using 'Syncopator' surfaces on a cut-down Rongtube A/2 glass-fibre boom.

for being 'news'.

The most important contest of the year is how many modellers regard the Trials to select Britain's World Championship Teams. The reasons are pretty obvious, and I will save space by not discussing them here!

The weekend of 19th-20th August saw the first half of the Team Selection Trials being held at R.A.F. Strubby. The weather was good, perhaps too good, throughout the whole weekend. There was plenty of sun, strong lift, and (apart from the final round or two) little wind. In consequence there was a high percentage participation out of the good entry and, as most people continued flying to the end, the scores were high.

The date chosen for the First Trials was hardly ideal. It came immediately before two important Internationals (at which British representation was expected) and a string of major domestic rallies. Even more potentially dangerous was the date's position relative to the harvest. The crops outside Strubby were high and healthy—and ready to swallow models wholesale. As it turned out most flights terminated inside the field, but it could have been otherwise so easily. Even as it was there was a number of models lost on either D/T failures or on overlong descents through strong lift. One person so afflicted was Irish exponent Maurice Doyle over from Belfast on holiday, and flying as a 'visitor' so I understand. He left his best power model well downwind. Incidentally, it was one of the very few planes seen with 'Solarfilm' (or other plastic) covering.

There were seven three quarter hour rounds for each category, these being flown in a rubber/glider/power sequence throughout the Saturday and Sunday. There was far too much activity for me to provide a 'football commentary' type of report and, even if it were possible, it would seem of doubtful value. A few observations might be of more general interest.

Many entrants obviously 'came out' for the Trials, having bothered little with the rest of the contest season. Some of these people fall into the 'performance flier' category—and can have models of considerable potential.

Most surprising was the absence of any new developments on the actual models themselves. Despite all that has been written about the idea, there were no flapped power models either flown or in evidence. I understand that Peter Buskell has a wing warp changing device on one model but this is a long way from 'going the whole hog'. In Wakefield no one has utilised the delayed-prop-release that has caused so much interest when seen on my Coupe d'Hiver.

What has happened is that much more attention has been given to the problem of finding thermal lift. The Trials were flown using a launching line—but with no restrictions as to where along it one flew and this led to much congestion in places. Most fliers seemed to have 'solved' the timekeeper problem by either bringing helpers or by having a reciprocal arrangement with other contestants.

The Croydon bubble machines were watched by very many fliers—sometimes to definite advantage—and interpretation given by the bubble seems to have improved dramatically if the success rate that was observed is any indication. In consequence Wakefield scores were much higher in general than I would have expected, due almost exclusively to better thermal detection. In short, Wakefield is now almost the same type of event as glider!

A/2 itself saw many mass launches, not all into lift—and a natural reluctance to go-it-alone. Those who were willing to trust their own judgement often tried to fly at the end of the line, or to tow off to one side where

piggy-backing would be more difficult. The penultimate glider round dashed many hopes as lift was obvious only right at the start of the round (when few were ready). Many fliers waited too long and then flew in crowded circumstances. Line tangles and 'crossings' were commonplace to an extent that many such incidents could have been deliberate. The advantages of repeating the flights if it fails to max are self-apparent—and available after a momentary line cross that leaves the model unaffected and capable of being towed indefinitely thereafter! A fair solution to this situation is not apparent! If this meeting was any indication the late Saturday A/2 round is the one that really counts.

Power is a combination of a horse-power race, and a struggle to keep the model 'in the groove'. For some reason the current style of F.A.I. power model, whether of the elliptical tipped or the sheeted-surface approaches, appear reluctant to hold trim. They all look knife-edge to an extent that is more than I would expect. As the weather was kind, few entrants had disastrous power pattern problems, and scores were predictably high.

At this half-way stage there can be little indication of the final outcome. So much depends on the weather on 30th September-1st October. If it is good then a high First Trials score will be essential for any hopes of a team place. Should it be rough (and I can guarantee that there will be considerable opposition to any ideas of curtailment) then almost anything could happen—in A/2 and Wakefield at least. Even so, top models and modellers are sure to be of interest.

There was only one 'full house' in Wakefield—from John Mabey. His model had new flying surfaces on an old fuselage and prop—but elliptical tips apart it is identical dimensionally to the design drawn out in *Free-Flight News* earlier this year (issue 72/B). For those who do not read this newsletter I had better say that the model follows the usual modern trends of circular fuselage, low pylon clockwork timer, etc. The prop is helical in pitch, even though the blade shape is Schwartzbach! Earlier this year John attended the *Criterium de Nord* meeting in France and lost the original wings and tail when some local children found the model in a downwind wood, and then hid the components.

Ron Pollard was runner-up in Wakefield, flying a new rear-fin model—complete with aluminium tube front fuselage, A/R, V.I.T., etc.

Top in Wakefield at the Trials with seven maxes—John Mabey. Model has new surfaces on an old fuselage/prop. He also won the European Cup for Wakefield in Saar.





Tony Young had top score in A/2 – just five seconds short of a perfect 21 minutes. He was using the 'normal weather' model that he flew for part of the World Champs at Save. The wing sections are a composite of two Benedek profiles, top and bottom contours coming from different airfoils, and is quite thin. The wing is largely, but not completely, sheet covered. After years of 'ringing the changes' on his basic design Tony has decided that the original fuselage length, moment arm, etc., were a most fortuitous choice, and he has gone back to where he started as regards their dimensions. He now uses double D/T timers as standard and still likes a white tissue-cum-natural wood finish. His timekeepers are not so keen and have been known to offer him brightly coloured paint!

Power had three all-max scores – from Roger Baggott, Mike Green, and Phil Ireland. Treating them alphabetically, Roger was flying his old reliable, elliptical-tipped design, unique in having a pale pink painted fuselage, and unfashionable in being powered by a G15 mounted on bearers. Mike's model had sheeted surfaces and glass-fibre rod fuselage, and again, a G15. Only Phil was using a Rossi 15, and had a very fast-moving model. It was all-sheeted with a balsa box fuselage that looked rather longer than usual. Of the Power trio, Phil at least only had one model at Strubby – but anticipated finishing a back-up model before the Second Trials.

The August Bank Holiday weekend was very busy as regards aeromodelling. The Cranfield/Cardington combined affair and Woodford are reported separately, leaving me with only the **Torbay Rally** to cover in these 'Comments'. As usual with the meetings held at Woodbury Common (near Exmouth), Barry Hyde sent a very prompt report. At the start of the contest it was windy enough to cause thoughts of reducing the max. However, by flying from well upwind of the car park it proved possible to get three minutes inside the common. Lift was not the fierce turbulent type often found at Woodbury.

The contest was unusual in that no fly-offs were needed, and only one event had a perfect score. This was glider – topped by Gordon Bunney, flying both an A/2 and a light-weight *Pelican*. Successive places went to R. Inker and Colin Hart – the latter being a Woodbury 'regular'.

Open Power was taken by S. Goodwin of Southampton, flying a *Dixielander* type model with V.I.T. and a Super Tigre RV15. Runner-up was Fred Chilton with a G15 F.A.I. model, whilst Chris Chapman was third with an O.S. 15 *Eureka*.

Rubber winner, Mike McAiskie, was presumably on holiday (as he comes from Hull), and his model was unusual in having 20 strands of 6 x 1 mm. rubber, but only a 24 in. x 24 in. prop. The only other competitors, Chris Chapman and Barry Hyde, were handicapped by using Wakefields for part or all of their flights. All-in F.A.I. was flown to five flights, and, for once, did not seem dominated by fliers 'doubling up' from other events. Winner was Tony Rogers, flying A/2, and complaining loudly about the Woodbury terrain! He had a minute lead over Phil Ireland and P. Scrivens – both flying A/2s. Final event was Chuck Glider, flown using the aggregate of five flights, and was won by R. Inker with a good score of over five minutes.

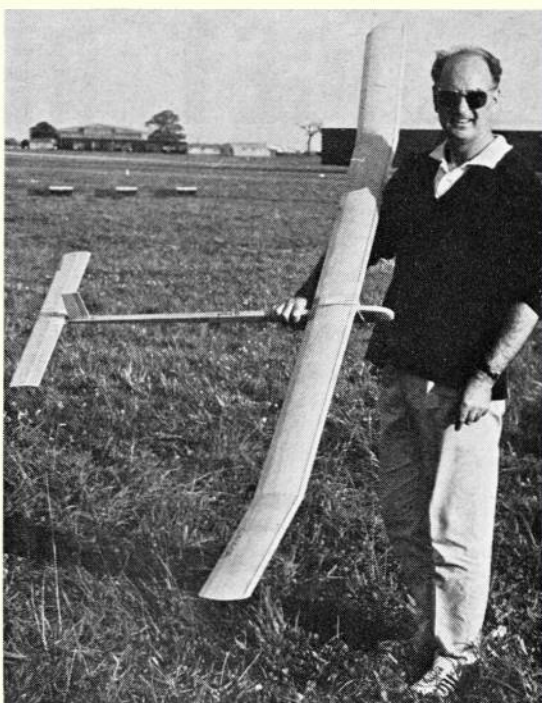
It would be inappropriate to close without due mention (and appropriate congratulations) regarding recent British successes in the *International* field.

John Mabey became the European Champion (section F1B) at the *Europa Cup* event in the Saar. He tied with Rone Koen of Turkey – both recording 20:39. Despite this not being spelt out in the F.A.I. *Code Sportif* the situation was resolved sensibly enough by a fly-off, which John won.

John Mabey won the European title with an old model, having left his best plane and rubber at home in readiness for the Second Trials! To travel at one's own expense to a foreign contest, and as a member of an officially recognised British team, with such an approach seems just a little inconsistent!

Less spectacular were British results in the *European Power Championships* in Yugoslavia, won by Michel Jean. No third team member could be found, and only Peter Harris and Bob Taylor attended – only to have to be content with relatively modest positions.

The timekeeping system (as described in Mike Woodhouse's report on the *Pierre Trebod*) used on the Continent is interesting. The order is determined by draw or mutual agreement – but effectively limits one's waiting time to 5 or 10 minutes. This might not matter too much for F.A.I. Power (where there is performance to spare) or A/2 (which can be towed till life is encountered), but is rather hard on Wakefield fliers. Unbelievably, to quote *Vaclav Horcicka* in the *New Zealand South Island News*: 'The average European prefers it this way. After all, they argue, it would never do if the best man was able to win all the time!' With their liking for an aeromodelling variation of bingo, and the rough flying ground and worse recovery area, I have no regrets at all about declining to go to compete in the Saar.



Tony Young was first in A/2 at the Trials, with model as flown in Sweden. Natural wood finish and white tissue which Tony says he can see, but admits his timer has offered him some paint!

## RESULTS

**FIFTH S.M.A.E. AREA CENTRALISED EVENTS, 6th August, 1972**  
**A/1 Glider** (21 entries) 1. J. Turner (Darlington) 6:38, 2. A. Grantham (E. Grinstead) 6:21, 3. R. Seal (E. Grinstead) 5:50, **Gutteridge Trophy** (Wakefield) (21 entries) 1. A. Cordes (Leeds) 14:38, 2. J. O'Donnell (Whitefield) 13:59, 3. R. Hymers (Darlington) 13:50, **Keil Trophy Team Power** (20 teams) 1. Northampton 28:44, 2. York 23:16, 3. Norwich 21:55, **Keil Trophy Individual** (52 entries) 1. D. Short (Northampton) 8:55, 2. J. West (Brighton) 8:52, 3. M. Harveys (Leeds) 8:24, **Plunge Cup Position After Five Events** 1. Northampton, 1,144 points, 2. Norwich, 1,048 points, 3. Leeds, 1,025 points.

**SYKE v. WHITEFIELD JUNIOR CHALLENGE CONTEST, Lobden Moor, Whitworth, Rochdale, 13th August, 1972**  
**Open Rubber** 1. S. Williams (Whitefield) 7:50, 2. K. Lord (Syke) 2:17, 3. D. Williams (Whitefield) 2:15, **Open Glider** 1. S. Williams (Whitefield) 4:53, 2. D. Williams (Whitefield) 4:51, 3. K. Lord (Syke) 4:50, **Chuck Glider** (6 from 10) 1. K. Lord (Syke) 5:44, 2. D. Williams (Whitefield) 2:22, 3. S. Ellwood (Syke) 1:37, **Totals** (best from each class) 1. Whitefield 15:05, 2. Syke 12:51.

**FIRST F/F TRIALS, R.A.F. Strubby, 19-20th August, 1972**  
**A/2 Glider** 1. A. G. Young (Croydon) 20:55, 2. J. Baguley (Hayes) 20:45, 3. J. Punter (Hayes) 20:42, 4. I. Fairgrieve (Grantham) 20:32, 5. D. Thompson (Croydon) 20:14, 6. G. Madelin (Croydon) 20:03, **Wakefield** 1. J. Mabey (Croydon) 21:00, 2. R. Pollard (Tynemouth) 20:43, 3. C. P. Williams (Richmond) 20:35, 4. D. Hipperson (Croydon) 20:32, 5. R. Elliott (Croydon) 20:24, 6. D. R. Morley (C/M) 19:47, **F.A.I. Power** Equal first R. Baggott (B'ham) 21:00 and M. Green (C/M) 21:00, 3. P. Ireland (Southampton) 21:00, 4. F. Chilton (Croydon) 20:51, 5. R. A. Collins (Anglia) 20:40, 6. A. McCombie (Blackheath) 20:36.

**TORBAY RALLY, Woodbury Common, near Exmouth, 27th August, 1972**

**Open Rubber** (3 flew) 1. M. McAiskie (C/M) 8:40, 2. C. Chapman (Torbay) 8:20, 3. B. Hyde (Torbay) 5:42, **Open Glider** (10 flew) 1. G. Bunney (Bristol & West) 9:00, 2. R. W. Inker (S. Bristol) 8:17, 3. C. Hart (C/M) 7:55, **Open Power** (6 flew) 1. S. E. Goodwin (Southampton) 8:40, 2. F. Chilton (Croydon) 7:40, 3. C. Chapman (Torbay) 6:24, **All-in F.A.I. Torbay Trophy** (5 flights, 9 flew) 1. A. Rodgers (Swindon) 13:36, 2. P. Ireland (Southampton) 12:38, 3. P. Scrivens (Cheltenham) 12:24, **Chuck Glider** (agg. 5 flights, 3 flew) 1. R. W. Inker (S. Bristol) 5:18, 2. R. Greenslade (S. Bristol) 3:15, 3. M. McAiskie (C/M) 2:44.



# GADGET REVIEW

Readers'  
hints and tips

WHEN A GLOW PLUG engine is installed within an aircraft featuring a full cowl, the problem which always arises is how to connect the battery leads to the plug for starting. Many people have their own solution, but reader John Langrish of Ross-on-Wye has a simple, yet neat device which can be made entirely from bits and pieces in the scrap box, as seen in **Sketch A**. The device is really a 'permanent' connector clip fitted to the cowl. This comprises of a piece of hardwood to which suitably-shaped pieces of tin plate are epoxied which fit around the glow plug itself. The end of this connector protrudes through the cowl, thus enabling a conventional 'clothes peg' type clip to be attached to heat the plug. The home-built connector should ideally be a tight sliding fit in the cowl side so that it may be withdrawn when a plug change is necessary, while the protruding end may be 'camouflaged' as an exhaust pipe or air intake on a scale model.

Roundels or similar markings are always a problem for scale models. Commercial transfers never seem to be to the correct scale, while hand painting produces a rather ragged edge, no matter how expert the artist. Farnborough reader Jasper Bardon favours a well-established technique – that of using a suitable mask for the various colours employed. For example, to produce a two-colour roundel, he firstly takes a sheet of self-adhesive transparent plastic (the type used for covering books) and with a pair of dividers, scores out a circle equal to the maximum diameter of the roundel. The centre piece is then set aside and the 'hole' remaining in the sheet is then pressed on to the wing in the required location. Red paint is then applied to the masked-off area. When quite dry, a second circle of film (from the 'scrap' piece of the first mask) is cut out to the diameter of the centre of the roundel, placed in position and then the remaining area is painted blue. Remove the plastic film marking – and presto – a perfect roundel results! See **Sketch B**.

Discarded ball-point pens are always a source of irritation to ourselves – it seems such a shame to throw them away, but just what *can* they be used for? P. A. Scorey of Finchley can perhaps rescue our sanity, and provide an excuse for having hoarded these hexagonal plastic tubes! He finds that they make excellent dowel tubes for models with detachable wings (**Sketch C**). Roughened with a file or glass paper, they may be epoxied directly to the fuselage formers and will accept a 3/16 in. diameter wing dowel. The tube should be kept short, and if necessary reinforced with nylon – particularly in the case of larger free-flight models. Of course, they can also be used as wing 'boxes' – being built into each half of wing panels which are joined by 3/16 in. dowel at the centre section.

Another gadget from the same reader is a rather de-luxe item for determining the exact centres of dowel, etc., known as a 'Mini Bell Centre Punch', seen in **Sketch D**. This device is also built from discarded items, which proves that one should never throw anything away! Firstly, carefully cut the top off an aluminium Multi-core solder container and a piece off the tapered end of a fuel can spout. Gently

make the fuel can spout a force fit into the aluminium cone, and check for true alignment with a wheel brace or lathe. When satisfied, epoxy the two items together. A 1½ in. long panel pin is then inserted in the spout and the 'machine' is ready to use. See **Sketch D**. The operation is simple – place the conical end squarely over the end of a piece of dowel, lightly tap the panel pin with a hammer, and the centre of the dowel is clearly marked.

John Radford of Upminster, Essex, does not like hand-starting engines, so he made up the simple mechanical device, shown in **Sketch E**. Construction is straightforward, the box being made from 9 mm. plywood, securely screwed and glued at all joints. A handle is fitted so that the box doubles as a holdall for fuel cans, control-line wires, etc. The ball races can usually be obtained second-hand from a garage or motor cycle dealer at very low cost – perhaps even free! The clutch device was bent from 1.5 mm. thick aluminium, but metal tubing would obviously be better, but must be a loose fit on the propeller hub, yet not able to slip off on to the prop. blades. This starter has been used with complete success with a 1.5 c.c. diesel, producing starts at the first attempt each time, whatever the needle or compression settings. To operate, place the box on the ground – holding it securely with the right foot. Preferably have a helper hold the aircraft with the prop. nut engaged in the clutch, then pull the cord smartly off the spindle. This rapidly spins the motor over about 20 compressions. Avoid setting the compression too high, as conrod damage could result – likewise take care not to flood the engine.

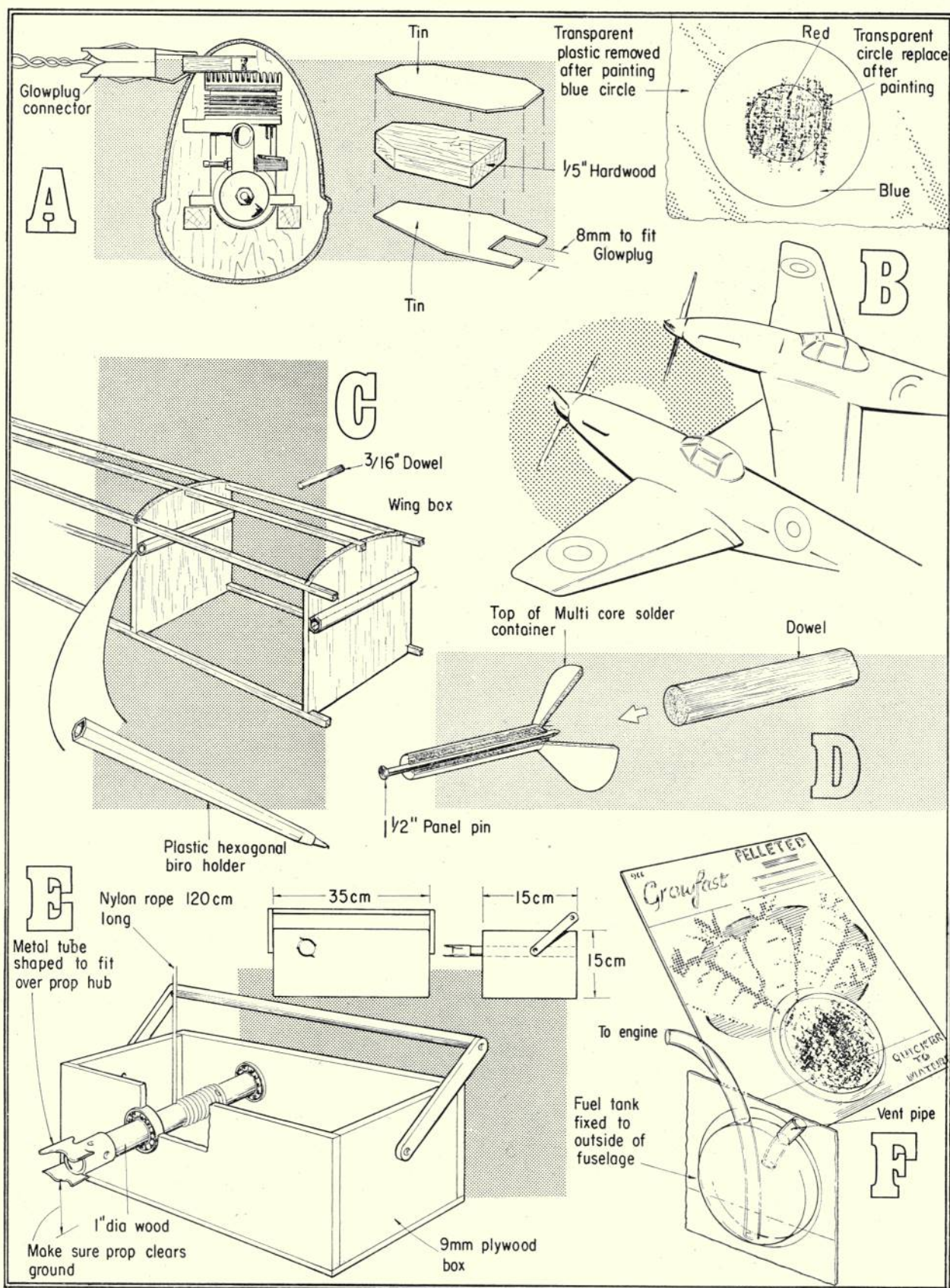
Free-flight tanks can be a problem, but Mr. H. Pickles of Burnley has a neat – if unusual solution (**Sketch F**). He discovered that *Carters* seed are sold in substantial 'bubble' packs which he has suitably adapted. Once the fuel tank position has been determined, that part of the fuselage should be thoroughly fuel-proofed. Remove the 'bubble' from the pack, and glue to the fuel-proofed portion of the fuselage – which thus becomes one side of the tank. Use balsa cement or epoxy for this job. Make two holes for the feed pipe and vent, push them in place and the result is a neat transparent tank ideal for small diesel engines. Do not use glow fuel, of course, or a nasty sticky mess will be the only result!

## NOT ILLUSTRATED

Well-known free-flight enthusiast Martin Dilly has an improvement on the commercial type of finger protector used when starting engines. Most of these items are a little too thin to really cushion a determined crack from a glass-fibre-propelled motor (they stop the blood, not the bruise!), and also tend to get pretty hot and sticky inside. Instead, he uses heater hose from a Mercedes, which has a bore of 22 mm., is made of fabric and laminated rubber and has a wall thickness of nearly ¼ in. Price is around 15p per foot.

Another of Martin's tips concerns checking the wind direction when flying towline gliders. Why throw tufts of grass into the air when you merely have to glance at the bow in the towline between you and your helper holding the model? Surprise, surprise, it is caused by the wind blowing from the side, so move across the wind, away from the bow, until the bow disappears. This indicates that the model is lined up exactly into wind. If waiting for lift, frequently check the bow in the line, in case of a shift in wind direction.



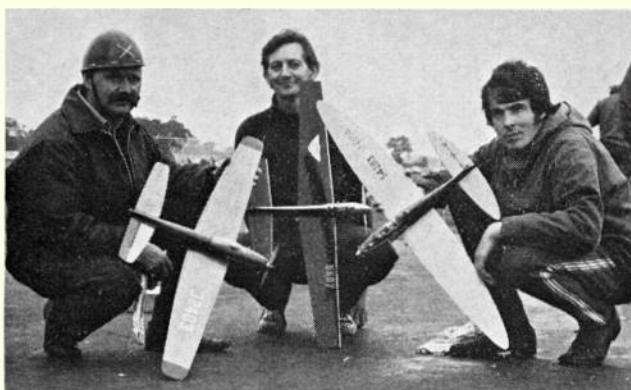




# WOODFORD RALLY '72

reported by John O'Donnell

F.A.I. team race finalists were (l. to r.), Muncaster who was placed second, Kirton who was third, and winner Devonish who pitted for his regular pilot Les Davy.



OPINIONS REGARDING the weather on the traditional Bank Holiday Monday date of the Woodford Rally would probably vary greatly between modeller and public. It was overcast, cool, and with a steady 10 m.p.h. wind which made for quite a reasonable flying day, but it was hardly ideal for spectating. Nevertheless the public arrived in sufficient numbers for the financial success of the rally to be assured, this being due to good advance publicity in the form of advertising in local newspapers, plus the publicity of a handout photograph and write up in the large-circulation *Manchester Evening News*.

Free-flight at Woodford can be 'influenced' most markedly by the wind strength and direction, but on this occasion conditions were favourable enough. Despite early vagueness that necessitated moving 'Control' just when flying should have commenced, the wind blew diagonally across the airfield all day, giving sufficient length of field for maximums to finish only just outside the perimeter.

Power made a welcome reappearance on the programme following a couple of years when it was excluded in deference to the Handley-Page 'Victors' that dotted the airfield. The event was poorly supported with but 14 entries. Russell Peers made his inevitable early start and recorded an uneventful treble very quickly using his 'old' Eta 29 *Woodpecker*. Opposition was hardly of top standard and the only real threat to Russell's premier position came right at the end of the contest when Brian Picken finished off his flying by launching two models in quick succession—only to drop three seconds with one of them. His power units made an interesting comparison—being an old type K&B 15 and a P.A.W. 15 diesel. Third, at just over 8 minutes, was Trevor Grey with a straightforward O.S. 19 model.

As is becoming common A/1,  $\frac{1}{2}$  A power and Coupe d'Hiver were combined into a single event. 'Minnie', as it was spelled on the Woodford trophies, is a bit unbalanced as regards relative performance. Woodford had

unique rules of three flights with a three minute max. As  $\frac{1}{2}$ A was allowed the normal 10 seconds engine run the contest *should* have been dominated by the power models; in practice this was not so, and it became simply a 'thermal' event with A/1 gliders being generally most successful—whilst Coupe d'Hiver was at a decided disadvantage. I've a feeling that this was intentional in view of recent contest results! If so, then the high max did its job, as my delayed-prop-operations model finished up second! Winner was David Bloom of Shrewsbury despite a short D/T on one flight. His model had *Syncopator* surfaces on a modified fuselage utilising a cut-down Ronytube A/2 rod. The same style rod was used by clubmate (despite his flying still for Leatherhead) Tony Slater on his MVA 123 section model. Julian Hopper, all the way from Stanstead, was fourth with remarkably consistent flights of around 2.40 a time.

Chuck glider was flown to a 90 second max with the best 5 out of 9 launches counting. There were only four maxes recorded in this contest, one apiece by the top four contestants! Barry Kershaw topped the list with his *Sweep* design—after much experimentation he has now reverted to the version drawn in *The Message* back in 1970. Second was Ian Allen making all his flights in an 'hour off' helping run the F/F events. Tony Slater and Ewan Jones took the next positions. The event was also notable for having a number of first-time entrants from 352 ATC Squadron—surely a potential source of modellers!

Free-flight ended very early—at 4.15—so as to enable fly offs to be concluded before the prizegiving. This schedule caused a hectic finish to flying, aggravated by erroneous notices indicating an even earlier close at 4 o'clock—a discrepancy which caused complaint in some quarters! Only the open rubber and glider events needed a flyoff.

There was very little delay in holding the flyoffs—so little, in fact, that P. Gaunt of Leeds did not get back from his third max in time to make his rubber flyoff. The other 11 participants all got away and all cleared four minutes. Visibility was critical in that several models contacted lift and were clocked off 0.0.S. Winner proved to be Joe Barnes, apparently by stalling all the way down on glide and hence being relatively easy to see for a 7.21 decider. Joe's model is conventional except for the single-blade feathering propeller—a device native to the N.W. and viewed with disbelief elsewhere! Runner-up was John



Left, Joe Barnes, winner of rubber event. Below, Bob Ivans with his spectacular Henschel 129.





Carter, flying the immense model illustrated in my 'Comments' last month (wrongly attributed to John Cooper!), and seen for only 7.12. Jack Kay was third with 6.45 whilst I was the only other to clear six minutes - flying a Coupe size 'lash-up' using Wakefield motors remade into six strands.

Glider followed immediately and was a four way affair. Martin Dilly, using bubbles to indicate the conditions was first to go - only to find nothing helpful at all, managing just 1.56. His model had an 8 year old set of sheet-top wings and a 'Ritz' section tail. I decided to move away from the others and tow upwind for my 'own' lift - with Pete Oliver walking in front to strew bubbles! This scheme worked well enough for a respectable 2½ minute flight and first place. Second was P. King of Widnes, only just returned to modelling after a year's 'resting', and reported to be flying a 'Lively Lady' style A/2. Dilly was third, just ahead of Jim Radcliffe (from the local Timperley club) who stalled his model off the line. There was one other prizewinner in glider - David Williams - who received the Junior glider trophy. He lost one *Accipitor* on his second max, but failed to find lift on his last flight.

There were five distinct control-line events. The stunt judges tell me that the event was a close fight between Jim Mannall and Neil Billington - the former won with impeccable style from his *Nimrod V* but he only had 13 points lead over Neil (who is steadily improving) and his lightweight jet-style Merco 35 model. Pete Tindall was third with an impressive Jim Van Loo designed *Chimpunk* powered by a Fox 35.

F.A.I. Team Race proved to be a Wharfedale clean-up with winners Devenish/Davy using the same HP 15D that once powered my F.A.I. Power Model. There can't be many motors that have won both a C/L and a F/F event at the British Nats!

I can say little about Goodyear except that the Team Race names are now appearing at the top of the list! First were Place/Howarth, followed by Horton/Kirton - also Wharfedale - and then Johnson/Shaw of F.A.C.C.T., taking a rest (?) from R/C thermal soaring.

Handicap Speed was notable in that winner Mike Billington established a new British 10 c.c. record. His speed of 176.5 m.p.h. represents 8 laps in 12 seconds! Engine was a Super Tigre ABC60 tuned by Mike with a view to easier handling. Fuel was 65 per cent Nitromethane, 25 per cent Ucon polyoxide oil, with the rest presumably methanol. An 8 x 10 in. Puntillio prop was used. The very light (29 oz. a.u.w.) model was built in 1960 and is all metal apart from a glass fibre top fairing. Second place went to Alan Woodrow's Rossi 15 F.A.I. class model at 147.2 m.p.h., just a couple of m.p.h. slower than it went in the Helsinki World Champs. Ken Morrison was third with 158.6 m.p.h. - 94 per cent of the old 10 c.c. record! At the risk of being unpopular might I say that I still feel apprehensive when I seen an unfenced speed circle at a public rally!

Combat finished very late, even compared with the rest of the C/L events. In fact, the 'drome was looking quite empty when Vernon Hunt and Paul Stanley fought out the final. Vernon had broken three of his Copeman Oliver powered *Warlord* models during the day and was down to an experimental design with a diminutive tail plane. Nevertheless he still proved the winner over Stanley who was flying basically a *Warlord*.

Scale was best represented with separate contests for C/L, F/F and R/C. Again this was an obvious part of the 'attractions' provided for the public. Bob Ivans won C/L with a *Henschel* 129. Like most of his fleet this follows his successful formulae of a large twin engined model with working gadgets that is impressive rather than a museum-style replica. Runners-up were S. Perry and Ian Barratt flying a *Hawker Henley* and an *Owlet* respectively.

R/C Scale saw but a few entrants compete for generous trade-donated prizes, which ran to fourth place plus another for the best flight of the day. Messrs. Thompson, J. Worden, J. Bodle, and E. Evans took the contest prizes, with the 'bonus' going to E. Rhodes. There was also a series of demonstration non-scale flights embracing such things as formation-flying, glider towing and (regrettably) spectacular low approaches over the F/F area!

F/F Scale started to have a familiar sound when I found it needed a fly-off! Eventual winner was John Palmer, all the way from Havering. He flew a four-year-old *Sopwith* 1½ *Strutter*, 1/9th scale, and finished in the colours of No. 3 Wing R.N.A.S. It had an AM 15 for power and Simmonds-type pendulum elevator and rudder for control. A tie on points was unresolved by two flyoffs and it was only on the third try that a decision was reached - Palmer's r.o.g. proving decisive, and gaining for him the famed E. J. *Riding Memorial Trophy*.

Woodford seems the only Rally that still stages anything resembling a formal prizegiving. This year was no exception despite the non-arrival of a certain young lady due to present the awards! Area Chairman Mike Reeves found a very acceptable solution in the shape of his teenage daughter, Clare, who seemed very much at home giving out the various trophies, vouchers and other prizes. One

Mike Billington looks happy, with good reason - his Super Tigre ABC 60 speed model has just broken the British 10 c.c. record.



winner not yet mentioned was Pete Harris who worked very hard indeed for the Rally Championship - decided on the total aggregate over all free-flight events. He flew in five events, including chuck glider using his normal A/2, and accumulated exactly 30 minutes in *toto*. Quite a performance in the limited time available.

## RESULTS

### FREE-FLIGHT

**Open Power** (14 entries) 1. B. R. Peers (Falcons) 9:00; 2. B. Picken (West Lancs. F.F.S.) 8:57; 3. T. Grey (C/M) 8:07. **Open Rubber** (29 entries) 1. J. Barnes (Liverpool) M+7:21; 2. J. E. Carter (Falcons) M+7:12; 3. J. Kay (Leeds) M+6:47. **Open Glider** (48 entries) 1. J. O'Donnell (Whitefield) M+2:43; 2. P. King (Widnes) M+2:00; 3. M. Dilly (Croydon) M+1:56. **Mini Comp.** (30 entries) 1. D. Bloom (Shrewsbury) 8:55; 2. J. O'Donnell (Whitefield) 8:13; 3. T. Slater (Leatherhead) 8:02. **Chuck Glider** 1. B. Kershaw (Wigan) 6:09; 2. P. Alan (Falcons) 5:15; 3. J. B. Newton (B.A.C.) 4:46. **Junior Glider** 1. D. Williams (Whitefield) 7:22. **F/F Scale** (E. J. *Riding Trophy*) 1. J. Palmer (Havering) 'Sopwith' 1½ *Strutter*, F/F Champion 1. P. Harris (Evesham) 30:00; 2. J. O'Donnell (Whitefield) 26:13.

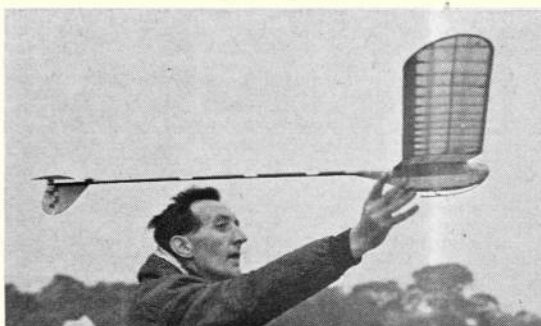
### RADIO CONTROL

**Scale** (Class 2) 1. M. Thompson (Wharfedale); 2. J. Worden (Blackpool); 3. J. Bodle (Leicester); 4. E. Evans (Wirral). Best flight of the day: E. Rhodes.

### CONTROL LINE

**Handicap Speed** 1. M. Billington 176.5 m.p.h. (10 c.c.); 2. A. Woodrow 147.2 m.p.h. (F.A.I.); 3. K. Morrissey 158.6 m.p.h. (10 c.c.). **Stunt** 1. J. Mannall (Buckaneers); 2. M. Billington (Falcons); 3. P. Tindall (Dagenham). **Scale** 1. R. Ivans (Three Kings) 'Henschel'; 2. S. Perry (Wolves) 'Hawker Henley'; 3. W. I. Barrett (Urmston) 'Owlet'. **F.A.I. Team Race** 1. Devenish/Davy (Wharfedale); 2. Langworth/Muncaster (Wharfedale); 3. Kirton/Horton (Wharfedale). **Goodyear** 1. Place/Howarth (Wharfedale); 2. Horton/Kirton (Wharfedale); 3. Johnson/Shaw (F.A.C.C.T.).

Brian Picken glides his very successful A/2, 'Humblehound' surfaces on glass-fibre fuselage featuring underslung pod and fin.







## CLUB NEWS... CLUB NEWS... CLUB NEWS... CLUB NEWS...

**ONE QUALITY** we often overlook in producing a new model, which is really a very essential one, is that of repairability. Quite how you go about putting together the pieces of a model made of the new synthetic materials I do not know, but I was thankful the other week that the model that tried to stick its nose into the stone hard flying field was made of that highly mendable substance, balsa. A harder material would tend to splinter and a softer one crush to pulp. The thing to do, in the event of a mishap, is not to do your top but to salvage all the pieces; it's surprising what you can put together.

The **Sittingbourne & D.M.A.C.**, have just produced their first club newssheet. Not very expansive but nicely printed. Among other suggestions for a suitable title is one inspired by the state of the club field, **Bog Paper**, but this has certain other connotations which are none too flattering. And subject to some misconstruction, too, is the club insignia initials, **SADMAC**, though the concept of a rather doleful Scotsman is surely not intended. Membership, apparently, is on the up and up, with the Radio and C/L sections becoming perhaps a bit too crowded.

Mr. A. Johnson writes to tell us that he and a few fellow enthusiasts have founded a C/L group in the home of the Broads, Norfolk. Fittingly it is called the **Broadlands Controlled Group**. The club is only a dozen strong, but strong being the operative word since they are all keen flyers. Some keener than others have ambitions in the tough world of competitive flying, while others prefer to do their own thing on home pastures. The main interest is Combat, but Goodyear, Team and Stunt also have their adherents. Mr. Johnson says the club would be interested in either a local competition or a fly-in with other model flyers in the East Anglian Area. His address is 8 St. Mary Close, Attleborough, Norfolk. The club meets on the first Friday of each month at the Norwich Y.M.C.A., where, no doubt, any prospective member would be welcome.

Derek Goddard writes in the **Three King's Court Circular** of the British Team's visit to the Flying Scale World Champs at Toulouse. He reports a very high standard, with the top placing Polish models really outstanding. The British boys came bottom in the five team event, but nevertheless enjoyed the outing, seeing much to spur them on to higher endeavours in the future. Not that the Three Kings flyers are at a loss for ideas. The model of the month, by 'Hurricane' Bill Miles, is an own design autogiro, but would appear from the crane job rear and dummy torque rotor to be a simulated helicopter. Should look good in flight. Runner up was Ken Gardner's white *Aircoupe*. Powered by a Super Tigre 20/30 this goes every bit as good as it looks. Strong point of the Three Kings is its well attended club meetings. These manifest in the exchange of ideas and friendly argument the enthusiasm that is shown on

the flying field. It is suggested here that people who enjoy the club meeting atmosphere should try a visit to the heady environs of a London Area Meeting.

The August Newsletter of the **Scottish A.A.** covers the contests run over the border during the summer (?). Weather was every bit as atrocious as we got down here, with the free-flight events suffering the worst effects. No F/F flying for instance at the Motherwell Gala, but an encouraging number of R/C flyers took up the climatic challenge. They again stood firm against a gale force wind at Howgate Hill to compete for the Motherwell Trophy—some 20 in all, plus an equal number of doughty spectators. Events consisted of Pylon, Aerobatics and Limbo. Winner was E. Murphy. And plenty of wind in evidence at the July F/F DESCENT Event for Gliders. The S.A.A. team turned up, but conditions were too bad for a reasonable score to be returned. A report on the Scottish Open R/C Champs is given by a 'Sunday Flier'. Not surprisingly he had nothing to report on the Saturday as he is religiously what he claims to be. Flying his Super 60 as an 'also engaged' in the Sunday Pylon event he established a new all comers duration record for the ten laps of 5 min. 5sec. to roars of applause from the flagmen and crowd. The day was started with Lew Weaver dropping sweets to the delighted children below. What our Sunday flyer missed was the Aerobatic event on the Saturday. There was a tidy entry of 13 flying in dry and windless conditions and the many high scores testified to the proficiency of the pilots in a complex schedule. Won by D. Hardaker with a *Super Star*. Interesting point here. Whereas in free flight the commercial or plan design is the exception, it is the own design model that is the exception in R/C. Obviously it is the piloting that counts rather than the aerodynamic idiosyncrasy. In lighter vein the Egg Bombing provided a treat for the spectators, with 'bomb door' realism—and accuracy—a feature of D. Hill's model.

More of a magazine than a programme is the way I would describe the souvenir issue for the International Pylon Racing Championships at Cranfield. A good tenpence worth for the Radio enthusiast. But the thing that caught my eye was a picture of the late Stan Rushbrooke holding a 1934 Wakefield type model. What an ideal vintage project! 'Rushy', incidentally, used to edit this column way back. In covering the history of the S.M.A.E., the programme also features a shot of 'Bob' Gosling launching one of the famous 'A-Frame' pushers. Surprising what high durations

Heading picture shows the large British contingent at the recent Combat International meeting, held in Amsterdam, and reported on page 644. Eventual winner Richard Evans is seen standing, fourth from the left, Derek Dowdeswell, the other finalist is kneeling second from right.



were achieved by these highly functional though inelegant models. Naturally the Pylon event will be covered too expertly elsewhere for me to make any comment, but I would just like to emphasise the warning given to visitors to the field that model flying can be dangerous. And not only spectators should bear this in mind—it is the flyers themselves who have the prime responsibility.

Harking back again to the early days of model flying—not all that long really—we have come a whole epoch from the rubber powered speed model to the development of the Speed R/C model which is discussed in the August issue of the *Salisbury* (Rhodesia) M.F.C.'s *Prop Shaft*. The electronic and camera gear required for timing to a hundredth of a second is expensive but available, although the whole timing procedure would call for quite elaborate facilities, which would hardly make this type of flying an everyday activity. A 'Fun-Fly' meet described in the newsletter might well offer clubs some ideas. For instance, in 'Dice Throw' you use sponge rubber dice. The competitor throws the dice, takes off, completes the number of loops shown on the dice, and on landing tries to throw the number again. Won on a time basis. And here's one for the good glide model called 'Duration'. You climb like made for 30 seconds, cut the engine and glide in. Highest duration wins. Possibilities here for powered glider flying.

In the States 'Antique' model flying has become almost a way of life. A listing in the latest issue of *Hot Leads*, the magazine of the *Southern California Antique M.P.S.*, gives no less than 10 different contest categories, if not more. Although old in design many of these models are quite potent performers, capable of series of 3 minute maxes. My own idea of vintage is pre-war as opposed to the post-war types so popular. Only trouble is getting the plans. One attraction of the oldie contest model is the design variation. Each of the well known pre-war models was instantly recognisable; that point of absolute refinement which makes model planes—and racing cars—look like peas in a pod had not nearly been reached. Even radio enthusiasts can now indulge the vintage craze. Only the other week I saw a 'Rudderbug' in action. And very sweetly it flew, too.

An outline drawing on the cover of *Torque*, the official mag of the *Christchurch M.A.C.* (New Zealand), gives the dimensions of a giant radio soarer as 160" across the wings and 90 inches in length. Now this is a lot of model to unleash over any open space, and if we are to take the Reynolds factor as a guide (efficiency increasing with size) all that wing area should give a definite edge over relatively minuscule rivals. The contest trend is certainly in this model expanding direction, and seems to indicate a need for some sort of size restriction. Is the annual trophy an outworn institution? At least the Christchurch club finds the yearly retention basis no longer a tenable one. In future trophies will be presented, but then retained by the club for display. The trophies were beginning to suffer through indifferent treatment of one kind and another, and the cost of the annual engraving was becoming prohibitive. Perhaps they should take a tip from the Olympics and award permanently kept 'gongs' or plaques. Odd point noted here is that, in free-flight, Open and F.A.I., events are run together on the same flight schedule. Perhaps an unnecessary duplication.

An item in *WMC Patter* (Oregon, U.S.A.) lists the award winners in the NFFS model of the Year. One, we see, goes to George Fuller's *Dixielander*, a model which by now must be almost in the vintage class, although very much of today in performance. Other winners were Thomas Koster's (of split wing fame) *Andromeda* and an indoor model of Joe Bilgri. The American contest is a vast place, and an indication of this is the setting up of a Northwest U.S.—Canada Free-Flight Council for contest purposes. The area covered includes Idaho and Oregon and western Canada. And in Free Flight Power it's the climb that counts—the flat bottomed wing section is now almost universally favoured over the more floatious undercambered section. Featured on both two semi-elliptical wing power jobs by Bob Stallick.

From far away places to the populous environs of London, if Epsom can be included in the general urban sprawl. Anyway, a letter from Mr. P. Bragg gives us an outline sketch of the *Epsom Radio Flying Club*. A small membership, or relatively so, of two dozen active R/C flyers, which, of course, is quite enough for the committee of five to handle, particularly if most of them turn out to fly at week ends. Mostly multi, in keeping with modern trends, with only a couple of single channel flyers. In fact, the S/C flyer is becoming something of a rarity in our affluent society. But where to fly? No problem here, seemingly. The club had a field at Claygate, but have abandoned this for more spacious pastures near Leatherhead, made all the more spacious by the removal of a bisecting run of electric fencing, sadly obviating any chance of free battery charging on the site. And a bit of uppishness, too, for the lads fly on Epsom downs now and again just to show less superior clubs, 'like that Esher crowd' what this R/C flying is all about. They said it, not me! Unlike many

## Contest Calender . . .

- October 22 **YORK M.A.S. RALLY.** A/2, Open R, P, Chuck, Cd'H. Venue: Elvington.
- October 22 **WHARFEDALE 13th RUFFORTH 1000.** S.M.A.E. — members only, no spectators. Venue: R.A.F. Rufforth, Yorks. Details: J. C. Horton, 10 Lawn Avenue, Burley-in-Wharfedale.
- October 22 **BRIGHTON D.M.A.C. HYDRO CONTEST.** Power & Rubber classes of hydro models. Non-hydro's not permitted — 10 a.m. start at Ashdown Forest. 25p pre-entry to J. West, 12 Northfield Way, Brighton.
- October 29 **SOUTHERN GALA.** Open R/G/P, 1/4, Chuck, C/L Stunt, F.A.I. T/R, Goodyear, Combat (first 32 entries only), Class 2 R/C scale F/F Scale, Junior Kit, S.M.A.E. (plus Jnr. Kit entrants) only. Venue: R.A.F. Odiham, nr. Basingstoke, Hants. Power flying from 12.15 to 18.00 hrs. only. Pre-entry (normal S.M.A.E. rates) to N. Couling, 7 The Green Walk, Willingdon, Eastbourne, Sussex.
- November 26 **ST. ALBANS M.A.C. WINTER GALA.** Open R/G/P, 3rds from 10.30 a.m. plus Cd'H & A/1. Power for Simeons Trophy. Venue: Chobham Common.
- December 3 **FALCONS GALA.** Open R/G/P, Chuck Glider. Venue: R.A.F. Chetwynd. S.M.A.E. members only.

radio groups the membership is still open to newcomers. If interested in expanding your radio knowledge and contacts and flying on a safe and organised basis why not drop in on the first Thursday in the month at the 'Albion' near the junction of West Street and High Street, Epsom. 8 p.m. start.

But Radio is not the only thing that is flourishing, for the *Sudbury M.F.C.*, an exclusive C/L group, boasts of a tremendously successful year. Mr. Peter Miller, our informant, says that the club has performed in spectacular style and at many fetes and carnivals throughout the year, the highlight of which has been a set piece bombing raid by a B17 Flying Fortress on a 9 ft. long bridge. Explosives electrically fired. A particular success for the club came with a visit to Old Warden on the *All Scale Day*. Weather was vile, as it has been all summer, but far from a gloomy day, made even brighter by Reg Cuthill winning the *Carter Memorial Trophy*. Fame, too, for the club when it became the star subject of a television spot. It all came about through Pete Miller running a 10 week course on Aero-modelling at the *Sudbury Adult Education Centre*. The cameras came to film the members flying and to focus upon the models in the studio with Pete Miller answering the questions. Good publicity, too, from the local press, which has pitched in with several articles about the club. Upshot is a change of public attitude towards aero-modelling. Club has a hard nucleus of 10 members with others more casual.

The copy of the *San Valeers Satellite* we have to hand is a bit back dated: May, in fact. The issue is taken up mainly with the F/F Championships held at Taft in the same month, May. Great success. Mentioned *en passant* in the report was the discovery of a new super field repair glue called 'Hot Stuff'. It costs—wait for it—five dollars per 1/2 ounce. But sticks like mad. Liquid. Get it on your fingers and they have to be cut apart. Available through Satellite City, Bill Hunter, 9486 Sandusky, Arletta, Ca. Clubman.

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Papa Tagar: C/L F.A.I. team racer .15 (2.5cc) 37 in.  
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Corby: F/F semi-scale sports flier .020 (32cc) 26 1/2 in.  
Aerona Defender: F/F scale rubber 27 in.

M.A.N. 37A O.K. Two: 0.2 R/C twin-engine .020 (32cc) single-channel 38 in.  
M.A.N. 38A Swamp Box: R/C single-channel .09-.15 (1.5-2.5cc) 48 in.  
L.V. Duster: C/L 1/4 speed model .049 (8cc) 8 1/2 in.  
Chipper Jr: F/F sports, all sheet .020 (32cc) 30 in.  
M.A.N. 42A U-All-2: R/C 'Galloping Ghost' .020 (32cc) 50 in.  
Belly Dancer: F/F Wakefield rubber 48 1/2 in.  
Two Tube: C/L twin-boom sport .049 (8cc) 27 1/2 in.  
M.A.N. 45A Morane Saulnier: R/C aerobatic scale 50 1/2 in.  
Grabber: F/F Wakefield or open rubber model 50 1/2 in.  
M.A.N. 50A Santa Maria: R/C single-channel scale .09 (1.5cc) 42 in.  
Sundowner: F/F open power .15-.23 (2.5-3.83cc) 6 in.  
Blue Bonnet: C/L open speed .15 (2.5cc) 16 1/2 in.  
M.A.N. 57A Ryan PT-22: C/L scale trainer easy to fly .35 (6cc) 50 in.  
Ringer: F/F 1/4 contest model .049 (8cc) 42 in.  
M.A.N. 59A Viper II: C/L proto speed, mono line .29 (5cc) 24 in.  
Harbinger: F/F A/2 twice in U.S.A. team by N. Ingersoll, 82 in.  
Mayfly: R/C single-channel trainer .09 (1.5cc) 36 in.  
M.A.N. 60A Aerona C-3: R/C scale single-channel .09 (1.5cc) 53 1/2 in.  
Pat-I: C/L basic trainer .049 (8cc) 24 in.  
Javelin JC: F/F R.O.W. 1/4 pylon .049 (8cc) 50 in.  
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Furstep: F/F cabin rubber trainer 24 in.  
Little Pronto: C/L basic trainer .049 (8cc) 18 in.

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Stratolark: F/F open rubber, contest model 52 in.  
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Prop Busters: C/L profile trainer .15-.29 (2.5cc) 27 in.  
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Bitty Viper: C/L Proto speed model .049 (8cc) 18 1/2 in.  
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GRMZP-F8: Rat Racer .040 (6.5cc) 36 in.  
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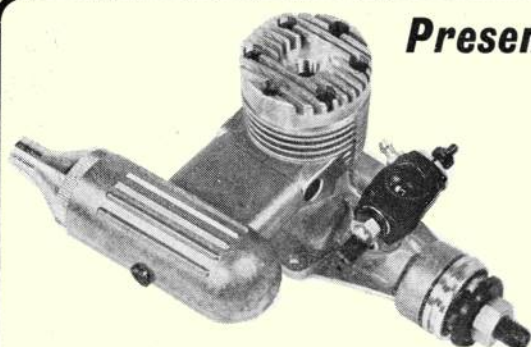
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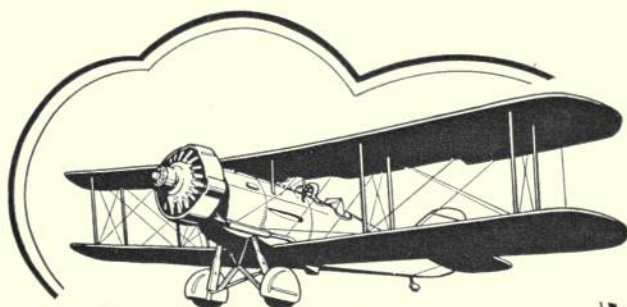
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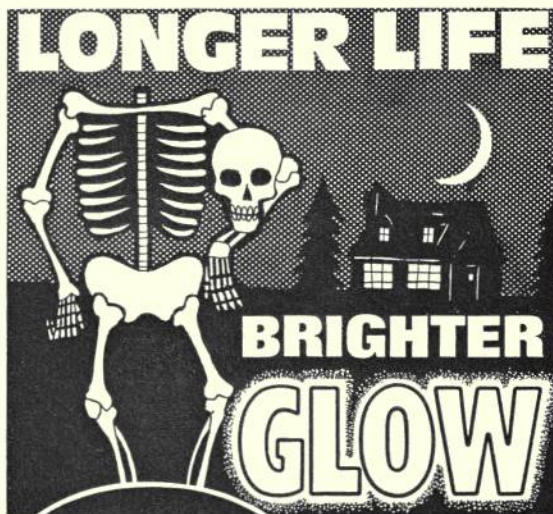


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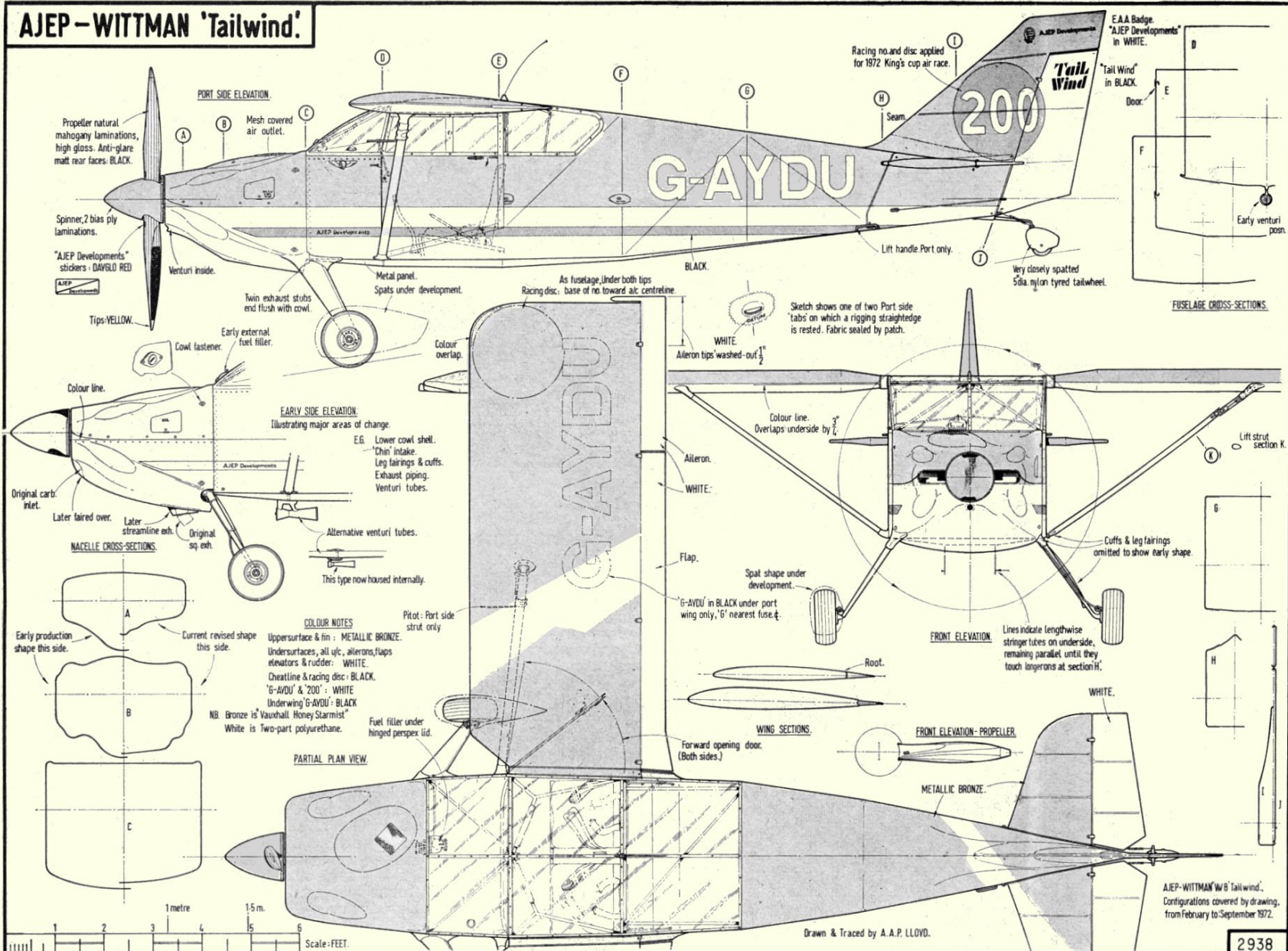
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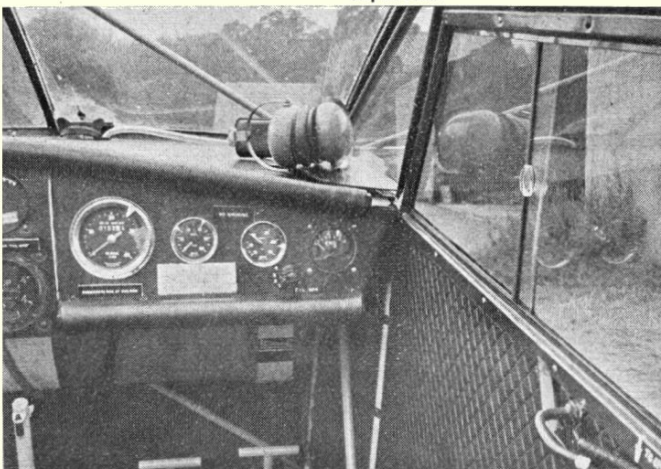


# AJEP-WITTMAN 'Tailwind'

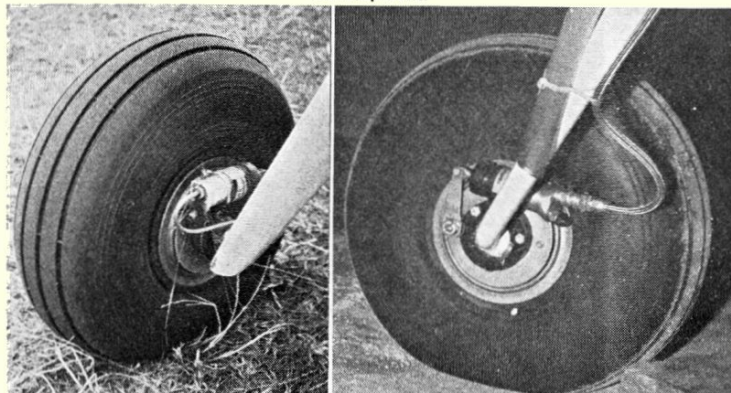


Cockpit accommodation is well furnished and well equipped. Duplicate rudder controls are provided for the passenger sitting in the right-hand seat, but may be folded down out of the way if required. Neither engine or brake controls are duplicated.

Andrew Perkins poses with his much-modified and very personal 'Tailwind'. Note the excellent visibility provided by the glazed cabin roof, and the 'get up and go' appearance of the aircraft, accentuated by the swept-back undercarriage and streamlined nose section.



Above top, is a very early 'Tailwind', photographed in California before the minimum size of registration letters was introduced (just visible on rudder). Beneath that is another view of the aircraft in its early stage - identified by the deeper cowl shape, lack of leg fairings and the external venturi tube. Smart colour scheme of metallic bronze and white aids appearance considerably. Below are details of the simple hydraulic braking system. Wheel spats are now under development.



By the way, 'AJEP' are the initials of Andrew Perkins, so the 'AJEP' Tailwind is designated with this prefix to point to the fact that this machine is different to any other W-8. The most obvious differences are the more extensive glazing to the cabin roof, the side windows and the distinctive 'swept' fin and rudder. There are, altogether, some 35 detail modifications, either minor or not easily visible.

Construction is conventional, the fuselage being steel tube framing, with doors and forward panels metal skinned. There is an access metal cover at the sternpost, each side. The cowlings are glass fibre, and distinctive with humps to clear the power unit beneath. Wings are of a conventional spruce structure with ply covering, and have quite large span steel tube construction flaps and ailerons. Flaps have three positions of deflection which helps with small field aerodromes.

Span is 22 ft. 6 in., overall length 20 ft. 9 in., and

G-AYDU is quoted as having a level maximum speed of 165 m.p.h.; this with a modified Continental ground power unit! At an economical cruise speed of 135 m.p.h. the consumption is approx. four gall. per hour, leaving lots of range in the 17 gallon tank.

Controls are conventional too, except perhaps the centrally mounted stick (à la Bolkow and Vicia) which enables the Tailwind to be flown from either seat. The passengers' side has 'fold down out of use' duplicate rudder pedals but neither engine controls or brakes are repeated on the right side. Instruments on the right side have small white triangles on their rims at relevant pressures and temperatures, easily checked by a glance from the left hand seat.

A recent innovation has been the addition of fibre-glass sheet leg fairings, anchored at their top rear edges by a light spring, in turn hidden by small rigid cuffs. These fair the tapered solid steel swept back legs which are a feature of the Wittman design. The