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JUNE 1980

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MAP HOBBY MAGAZINE

Comment

FLYING SITES whether public, private or MoD, continue to be the biggest problem area for modellers of all interests. All seem to be under pressure of one kind or another from time to time. Where Local Authorities are involved, happily the Home Office now regularly seeks comments from the SMAE on all new model flying bye-laws in the country. This new

level of co-operation has only been achieved after two years of detailed discussion between the two bodies. Almost without exception SMAE involvement has brought improved flying facilities and they are now confident that they are providing the best possible service to the country's model flyers, by defending the right to fly. Over 25 new problem cases have been referred to SMAE so far this year, bringing the total of active cases at present to more than 60. Yet in several cases recently, SMAE officials have been unable to contact non-affiliated clubs

known to have a vital interest in such proposed new bye-laws in their area. Current flying site negotiations include Barking, Dagenham, Brighton, Crewe, Nantwich, Ellesmere, Neston, Harlow, Leek, Malvern, Reading, Sandhurst, Watford, Hillingdon, and Leamington Spa.

SMAE are now requesting clubs to register details with them, even if they have no intention at present of joining the Society, in order that model flying throughout the country may be safeguarded. Contact: SMAE Secretary Tel. 0533 58500.

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On the Cover

Colin Essex attended last year's *Aeromodeller* All-Scale Day at Old Warden, and took first prize with his superb Control Line Scale model of the BAM Swallow II, which is this month's Aircraft Described and Flying Scale plans feature, P318-324. Don't forget, this year the popular *Aeromodeller* All-Scale event has been extended to two days, 21st-22nd June - see you all there.

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Next Month

Free Plans Double feature *Night Owl* a 1500mm span Free Flight Glider of simple robust construction and *Tough Nut* a 750mm span Control Line Stunt trainer for 1-1.5cc motors. Aero Aces for Juniors gives advice on flying rubber powered models. R/C Sport Flyer continues with more handy hints for the budding R/C enthusiast together with features on Control Line, Free Flight and Scale modelling. On Sale June 20th.



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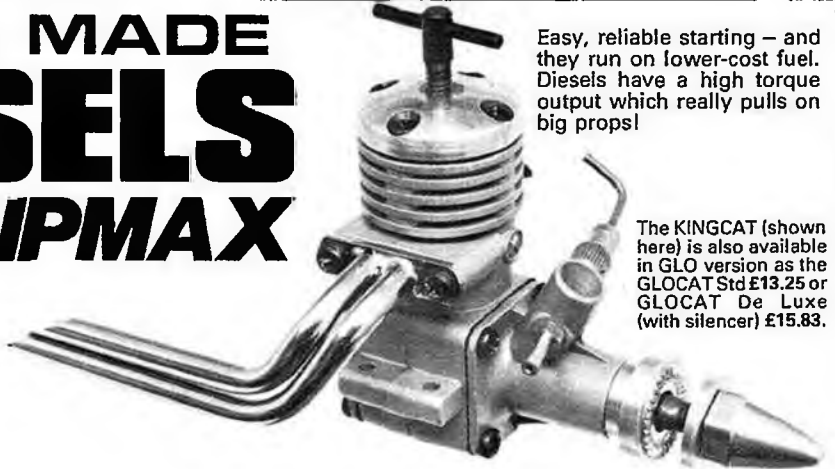
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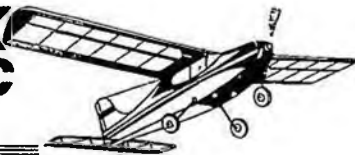
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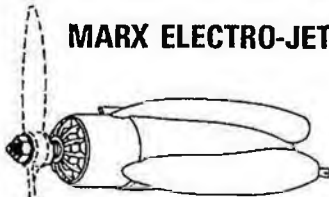
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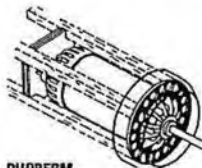
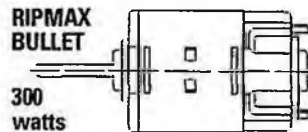
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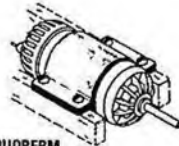
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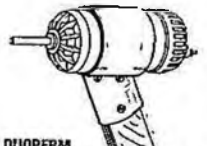
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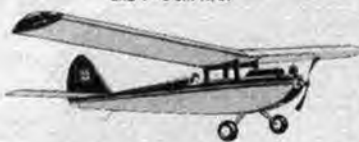
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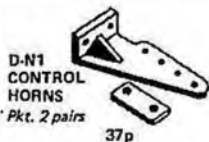
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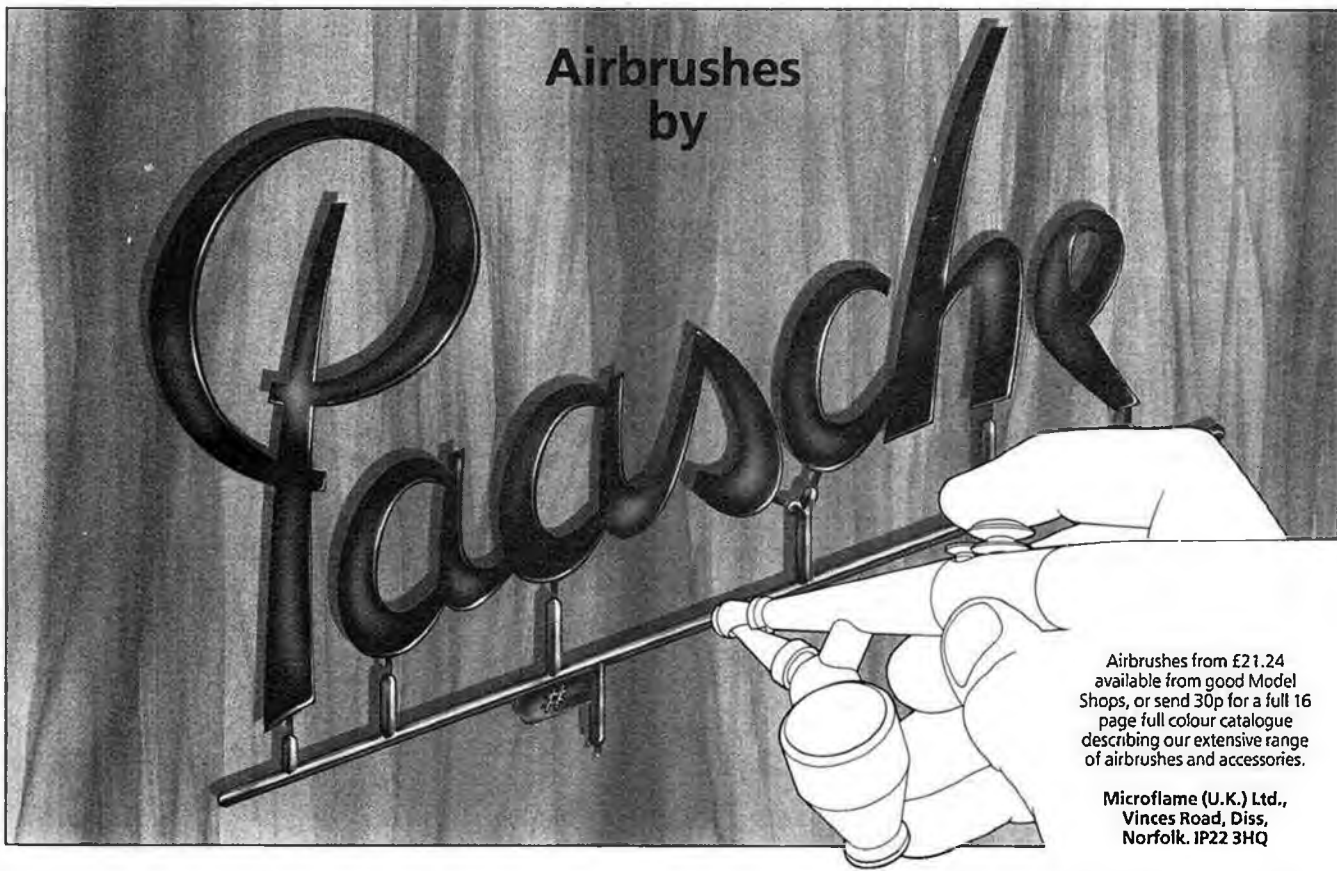
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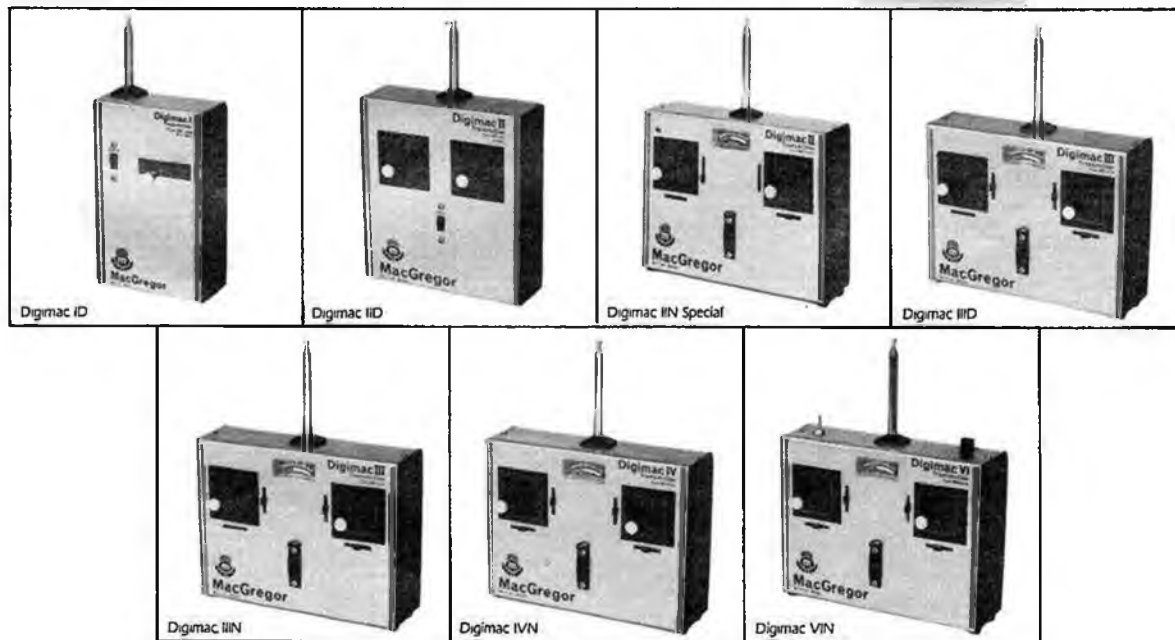
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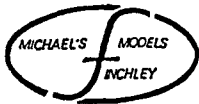


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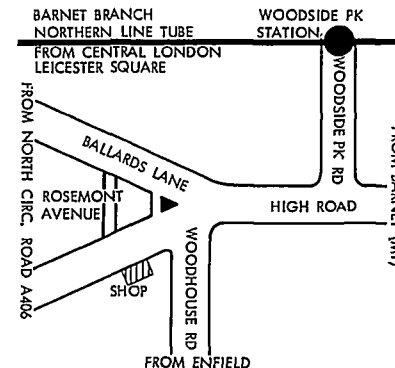
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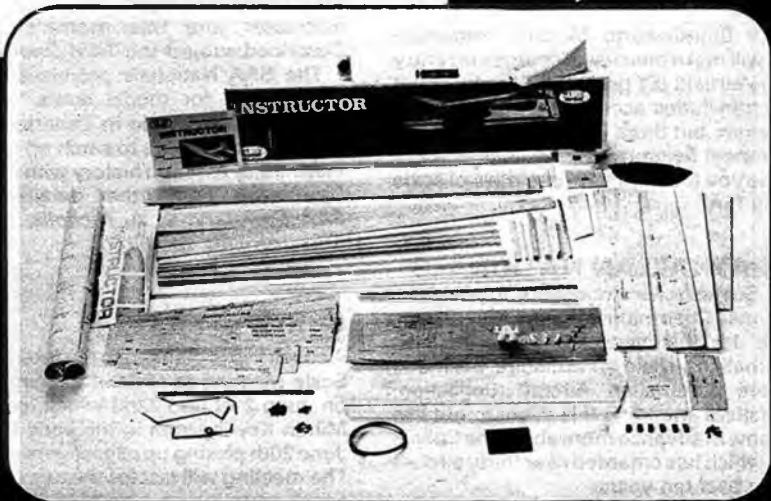
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ALL-SCALE TWO DAY

The problem with success is that you can be too successful! One of the true successes in scale model flying during the past decade has been *Aeromodeller's* annual All-Scale Day each June at Old Warden airfield, Beds, where, particularly in the R/C section, demand for air time has severely restricted the number of flights any individual can expect.

So this year, as an experiment, we're enlarging this jamboree of aircraft scale modelling to a full TWO DAY ALL-SCALE EVENT – Saturday, June 21st to June 22nd. Gates open at 9am each day and close 6pm, by which time, the airfield must be cleared. No overnight camping can be permitted on the airfield, but limited facilities will be available in the coach park opposite the north side of the airfield.

The Shuttleworth Museum organisation will make their usual charges for entry to the airfield (£1 per adult, 50p per child) which includes access to the famous air museum, but there is no extra charge for the model flying event.

See you there for two long days of scale flying fun.

STRATHALLAN NATIONALS

The Scottish Aeromodellers Association National Championships on May 31st – June 1st this year are to be held at Strathallan airfield in Perthshire, the home of the Strathallan Aircraft Collection. Modellers attending this event might like to know in advance more about the Collection which has amassed over thirty aircraft in the past ten years.

It all started almost by accident when Sir William Roberts, Bt, owner of the Collection, purchased a *Hurricane* and two *Spitfires* in 1970 as a result of an advertisement in 'Flight International'. Almost immediately, one of the Spitfires was sold but the remaining *Spitfire* (G-AVAV) was flown to Strathallan in December 1971 to be joined by the *Hurricane*.

Meanwhile, several more veterans had been purchased including two *Harvards*, a *Mosquito*, *Bolingbroke*, *Lysander* and a *Battle*. Early in 1973, five *Ansons* were flown into Strathallan; the remaining one, G-AHXX, now stands in the Museum in a dismantled condition for visitors to see what lurks beneath the fabric. In May 1973, a *Lockheed Hudson*, now G-BEOX, was flown in from Australia, followed by the *Puss Moth* G-ADBW and the unique *Reid & Sigrist Desford* G-AGOS.



Some of the aircraft in the Strathallan Museum, site of this year's Scottish Nationals.

Further arrivals in 1974 were the *DH Comet* XK655, *Short Scion*, *Magister*, *Dragon* and *Firefly*, the most exciting additions in 1975 being the *Lancaster*, *Shackleton*, *Avenger*, *Provost*, *Monarch*, *Fokker Instructor* and this month's Aircraft Described subject the *BAM Swallow II*.

The SAA Nationals promises to be a great event for model flyers, with F/F events at Newbiggin in Lanark, and the bonus of being able to catch up on some fascinating Aviation history with events at Strathallan. For further details contact SAA Secretary: L. A. Nicholls, 9 Orchy Cres., Airdale, Tel: 63712.

SCALE IN FRANCE

A coach trip is planned to the International Scale Meeting at Metz in Eastern France on June 21st and 22nd which leaves the Milton Keynes area in the early hours of June 20th picking up passengers en route. The meeting will last for the two days, the coach returning on June 24th. Seating will be so allocated to ensure room for models and camping equipment as a camp site is available at Metz. The cost for the return coach fare will be about £40. Further details from: Pete Smoothy, 5 Copse Gate, Winslow, Buckingham.

WORLD C/L CHAMPS UPDATE

News of the 1980 World C/L Championships to be held in Czestochowa, Poland, 12–18th July, is of a healthy entry with 28 countries so far intending to send teams. Amongst these nations is a welcome return to world class events from the Eastern European countries who have not competed since 1976, as well as entries from a newcomer to the event, The Peo-

ples Republic of China. Great Britain is sending full teams for all four classes of Speed, Aerobatics, Team Racing and Combat, although it now seems unlikely that reigning World Combat Champion Mick Tiernan will attend to defend his individual title. Team Manager Jim Woodside is organising transport overland by coach, interested supporters Tel: 051 734 2130.

NORTHAMPTON SHOW

Despite a controversial byelaw prohibiting model flying activity in all the local parks and public open spaces, the Northampton Borough Council it seems is at least anxious to promote the hobby of model aircraft building by again offering competition classes at their annual County Show from 25–27th July. Three classes of model will be on show for Flying Non-Scale; Flying Scale, and Non-Flying scale models. All local modellers and clubs are invited to submit models for which this year, unlike the byelaw, there will be no restriction on wingspan. For entry forms and further details, contact W. J. Balshaw, Parks and Open Spaces Manager, Cliftonville House, Bedford Road, Northampton.

ROTHERHAM MODEL SHOW

Following the success of two previous modelling exhibitions, the Rotherham Scaledown Association has been formed covering the South Yorkshire area. This year the Association is organising another exhibition at the Rotherham Central Library and Arts Centre from 3rd–5th October. All types of flying and static models will be on display and entries, which are free, are invited from all modellers in the area; contact Secretary C. Grice, 5 Squirrel Croft, Rockingham, Rotherham, South Yorks.

Letters

C/L SCALE REPLY

Dear Sir,

I read with interest Wal Cordwell's letter which appeared in the February issue, and sympathise with the contents of the last paragraph in which he attempts to rekindle interest in C/L scale competition.

No statement to my knowledge has been made by the SMAE to the FAI that 'No C/L scale flying is carried out in the UK'. It would be true to say that due to the diminishing interest of modellers to enter SMAE C/L scale competitions outside of the Nationals it was decided late in '78 by the committee to drop the one remaining competition previously scheduled for Little Rissington in '79. Due to the uncertainty of this venue it was rather unfortunate that the change in the contest programme included in the March technical committee meeting minutes duly circulated failed to register. *Aeromodeller* in the October '79 issue listed October 14th meeting to be held at Little Rissington with event controller as Eric Coates AND at Upwood with E/C Fred Coulson. Dear oh dear! utter confusion.

Perhaps the lack of interest in competition is because all C/L scale enthusiasts have excellent flying sites on their home ground without getting up early in the morning, as Wal so eloquently puts it.

My suggestion to all C/L scale competition enthusiasts is this. Let the technical committee know either through me or Vic Wilson the current C/L representative if you want and will support C/L competition outside of the Nationals, including the 'Team Trials'. On a recent circular from the Model Aeronautical Association of Canada, the SMAE FAI delegate was asked would GB be sending a C/L scale team to the World Champion-



Control Line Scale DC3 powered by two OS 10s, by Stan Rusbatch of the Oamaru Power Model Aero Club of New Zealand. A most impressive model which is covered with aluminum foil on wings, tailplane and lower fuselage, complete with simulated 'rivets'. Lights operate and cowls are made from plastic bottles.

ships to be held in Canada. Notable competition enthusiasts, including Wal Caldwell were asked by the committee to comment on the possibility of raising a team, and all expressed doubts. Consequently we advised our FAI delegate that in all probability we would not be sending a team. At this point of time we are awaiting a response from the Canadians as to whether or not they intend to hold an event for C/L scale.

Scale Tech. Committee Chairman Roy Yates

Dear Sir,

Thanks to Roy sending me a duplicate of his letter, I am able to have a prompt "on the Spot" reply.

Two points, first of all I felt that a grouse to the Technical Committee would only have resulted in it being swept 'under the transmitter', as we had no representative on the committee then, and in the second place up to July 1977 the *Aeromodeller* always bore on its cover the caption "Incorporating *Model Aircraft*", which until 1965 was the official journal of the SMAE, and surely speaks for the majority of aeromodellers, and my plea is for a section of that majority. Some may be considering joining the SMAE, and it gives the Scale Committee its chance to publicly reply - which they very ably have.

The reference to the statement made officially or otherwise, by 'a representative of the SMAE', shall we put it, that: "No C/L scale flying is carried out in the UK" - this was reported in the columns of the American magazine *Model Aviation* (April 1979) which is the Official Publication of the Academy of Model Aeronautics - the report was by Bob Wischer then the delegate of the FAI Scale Sub-committee representing the USA, and he says, regarding the coming 1980 scale World Championships in Ottawa: "Each committee member was asked whether Free Flight Scale and Control Line Scale were being flown in their countries. The US and England indicated activity in Free Flight and *only* the US for control line".

Now somebody in the SMAE said it! Who was the delegate at that meeting? But enough of this old 'argy-bargy', let's see some action on the C/L scale side, the rules are simple now, just a three view (at least 1/72) and some pictures, make 1980 a bumper year for C/L scale. *Streatham, London* Wal Cordwell

Latest news to reach us from the organisers of the 1980 World Scale Championships in Canada confirms that there will now be no event for Control Line models. — Ed.

What's Happening?

EVENTS

June 7th
RAF WADDINGTON OPEN DAY. Historic and Foreign aircraft on show with exciting air display 10am-6pm. Venue: RAF Waddington, off A15, south of Lincoln.

June 8th
FREE FLIGHT SCALE ASSOCIATION INFORMAL FLYING MEETING. Venue: Chobham Common. Contact: Bill Dennis, 27 Wheeble Drive, Woodley, Reading, Berks.

June 21st-22nd
AEROMODELLER ALL-SCALE TWO-DAY. The Biggest and best event of its kind held anywhere with hundreds of flying scale models to be seen R/C, F/F and C/L. Venue: Old Warden, Beds.

June 29th
VINTAGE MODEL AIRCRAFT SOCIETY 3RD FLY-IN. Bring your vintage models along for informal flying or just come to spectate. Venue: Chobham Common. Contact: Don Read. Tel: Farnham 723400.

CONTESTS

May 18th
NE AREA RALLY. F1A (No rounds), OIR, OIP COMBINED MINI HLG. (substantial cash prizes). Venue A: Alberman. Contact: Phil Moate Tel: 0642 557048.

Originally May 18th now June 1st
BROADLANDS CL COMP. F2B+NOVICE AND JUNIOR STUNT, PROFILE 40 CARRIER, 1/2A COMBAT. 10am start. Venue B: Earham Park, Norwich. Contact: John Bailey Tel: 0503 868135.

May 18th
CL 2nd CENTRALISED. BTR, F2B+NOVICE, F2C, F2D, SPEED, RAT RACE. Venue C: Barkston Heath. Contact: Bob Horwood Tel: 0272 48869.

May 18th
CROYDON GALA. F1A, F1B, F1C, A1, CD/H, 1/2A, 10am start. Venue D: Bassingbourn. Contact: Ray Elliott Tel: 01-997 1563.

May 24th-26th
F/F NATIONAL CHAMPIONSHIPS (see P.264 *May Aeromodeller*). Venue C: Barkston Heath. Contact: SMAE Secretary Tel: 0533 58500.

June 1st
GRANTHAM DMAS. CIL STAND OFF SCALE. Venue E: Belton House, Near Grantham. Contact: Gerry Gibbons Tel: Spalding 66542.

June 1st
CHELMSFORD COMBAT RALLY CLASS A DIESEL. 10.30am start. Venue F: Kingshead Meadows, Chelmsford. Contact: Dave Clark Tel: 0245 66419.

June 1st
OXFORD MFC OPEN THERMAL TO BARCS RULES. Pre entry £2.50 (£1 returned on the day) limited entry. Venue G: Port Meadow, Oxford. Contact: N. Dean, 12 Nelson Street, Jerico, Oxford, with sso.

June 1st
FF 4TH AREA CENTRALISED TEAM GLIDER (MODEL ENGINEER+PLUGGE) F1C (ASTRAL), C.D.H. Venue: local area. Contact: Mike Fantham Tel: 01-736 7163.

June 8th
RAFMAA RALLY. OIG, OIR, OIP, F1A, F1B (THURSTON TROPHY) F1C & VINTAGE 60p entry, cash prizes. Venue C: Barkston Heath. Contact: Flt. Lt. Harry French, TG1 (b) 1 (RAF), RAF, Upwood, Huntingdon. Tel: 0526-21263.

June 15th
NOTTINGHAM MAC CL-FLY-IN STUNT, NOVICE & CLASS 2 SCALE. 10am start, individual and Team prizes. Venue H: Basford Hall MW Sports Ground. Contact: V. R. Ward. Tel: 07737 5052.

June 22nd
ST. ALBANS SUMMER GALA A1, CDH, 1/4, HLG, CO. Venue D: Bassingbourn. Contact: John Fletcher. Tel: Stevenage 68731.

June 27th
NORWEST NIGHT F2C Friday Evening Racing. Pre-entry essential. Venue I: Burton Wood. Contact: Jim Woodside. Tel: 051-734 2130.

NEW ANNOUNCEMENTS

July 6th
PETERBOROUGH COMBAT RALLY 1/4 COMBAT. Venue: Peterborough River Embankment. Contact: Neil Gill Tel: 0733 252645.

July 6th
TYNEMOUTH RACING RALLY F2C, 1/4 Limited access SMAE or SAA only. Venue: Alberman Barracks. Contact: R. Wilson. Tel: 0632 881127.



On MoD property, model aircraft may *ONLY* be flown by FULL SMAE members or contest entrants. All SMAE members (Associates and Juniors) and their families are welcome as spectators, and non members may be admitted by prior arrangement with contest director. For SMAE membership details Tel: 0533-58500.



Superb CIL Scale model by Colin Essex, with inverted PAW 19 motor concealed inside dummy Pobjoy engine.

★ **Scale**
1325mm SPAN

* **Control line**
version for
2.5–3.5cc
motors
by
Colin Essex

BAM SWA

THE SWALLOW is one of those delightful light aircraft which by virtue of the design and character of the original machine is a 'natural' choice for reproduction as a flying scale model. Furthermore the immaculate restoration of *Swallow* G-AFCL by the Shuttleworth Air Museum at Old Warden near Bedford, now provides modellers with a readily accessible original to duplicate. We first published Aircraft Described details, P144-145 February 1945 *Aeromodeller* followed by John Coasby's Free Flight scale model on P7-10 1954 *Aeromodeller Annual*. Together with the updated information from the Shuttleworth machine, this now forms the basis for two revised flying scale designs; a Control Line version by Colin Essex, winner of last year's award at the *Aeromodeller* All-Scale day at Old Warden (then 17 years old!), and a Free Flight version by Bill Dennis.

The plan details both models, but first a few words regarding their differences. The F/F *Swallow* is a lightweight structure suitable for 0.5-0.8cc engine with tongue and box knock-off wings, while the C/L version has stronger wing construction and a reinforced nose section to accommodate a 2.5-3.5cc engine and is of course a one piece model. Although some different parts are shown for each version, bear in mind that for the F/F model you should select very light wood for fuselage sides, wing and tail structures, but for the C/L

version quite firm wood can be used, especially for wing spar, bellcrank and undercarriage mounting. Other structural differences are more obvious from studying the drawings.

The F/F *Swallow* reproduced here is slightly different to that originally published. When Bill Dennis built his model (in just 8 days!) he incorporated a few practical modifications which are now included on the plan. The major one is the elimination of the pendulum rudder. The original plan states that the model must turn to the right but Bill found even the widest turn could eventually develop into a spiral dive. The safest trim seems to be a very wide left hand circuit. The alternative of a fixed but adjustable rudder is thus shown, and is to be recommended. There are also a few alterations to the outline in the interests of greater accuracy.

BUILDING INSTRUCTIONS

Lay plan side view over 0.8mm balsa sheet and trace through the complete flat side view including slots for centre section L.E. and spars. Repeat for other side of the fuselage. Cut out F12 and glue into position on side sheets with 3mm sq longerons, add the 1.5mm ply nose doublers for the C/L version only, then install the 3mm sq. uprights (3x1.5mm at nose for ply doubler C/L version). Prop up sides over plan view and install cross pieces, remove from plan, cut out and glue in all formers

with the exception of F1.

For F/F cut to length, drill and install engine bearers, which support 3mm ply plate incorporating side thrust. Cut out CS2 and CS6 and glue into position. Slots in F12 for CS6 will have to be enlarged a little; this can be remedied after CS6 is in position. Install 1.5mm sq. stringers on top decking, then cover with 0.8mm sheet. Make up CS3 and CS4. Drill for undercarriage thread binding and epoxy into fuselage. Form wire undercarriage and bind into position.

For C/L version, the centre section is constructed with engine bearers, and slotted into fuselage, with front leg of undercarriage bound on, complete with bellcrank, pushrod and mounting. On the Pobjoy model the cowl is made from fibreglass around a mould, or carved from block or laminated balsa, along with dummy engine crankcase and cylinders fabricated from scrap materials.

Install centre section L.E. Cut out CS1 and glue in position. Make up wing boxes and install into position for F/F version only. Cover bottom of fuselage with 0.8mm sheet. Form tailskid wire, bind to piece of very hard balsa or hardwood and epoxy into fuselage. Cut out and glue the 1.5mm sheet tailplane support on top of the longerons at rear. If building the Cirrus Minor cowled fuselage, cut out F1 and noseblock. Check that F1 fits onto longerons and bearers. Remove and glue to

Special

SCALE MODEL

* Free flight
version for
.5cc-.8cc
motors

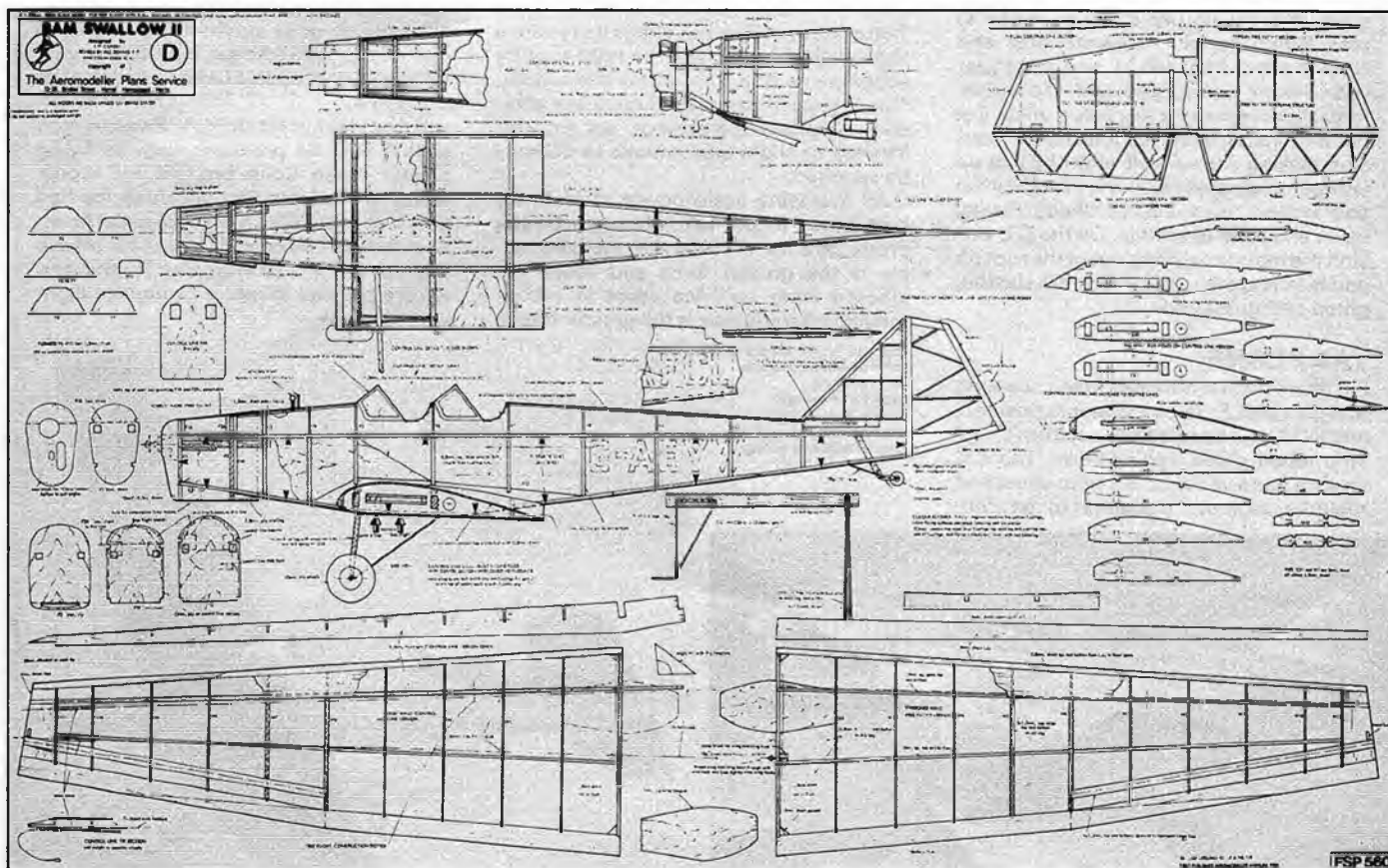
by
Bill Dennis



Original FIF Scale model by John Coasby powered by D.C. Dart inside sheet engine cowling of Citrus Minor version.

LLOW II

Full size copies of the plan, reproduced here to 1/7th scale are available as Plan FSP 560 price £1.70p plus 35p postage and packing. Overseas readers may obtain copies from their local agents, full details of which can be found on page 357, or from Plans Service, PO Box 35, Bridge Street, Hemel Hempstead, Herts HP1 1EE.





back of noseblock, temporarily bolt engine into position and hollow out noseblock to fit. Side cowling pieces are cut next and glued into position. Top and bottom cowlings are then made in one piece, then cover centre section top and bottom with 0.8mm sheet grain spanwise.

WINGS

Cut out TE from sheet, carve roughly to section, and lay into position together with rectangular LE blank and bottom spars packed up by 0.8mm to allow for sheeting and cap strips later. Install ribs and tip, followed by top spars, remember the C/L version has a much stronger full depth slotted spar. Remove any pins etc. from front of wing before covering top between LE and front spar with 0.8mm sheet and adding cap strips over ribs to rear. When dry remove from plan and cover bottom between LE and front spar with 0.8mm sheet, and add cap strips. Repeat procedure for starboard wing. Cut out and install wing tongues for F/F version making certain that root ribs line up with centre section ribs. Cover first bay top and bottom with 0.8mm sheet. Finally carve and sand to section. On the C/L version the main spar sticks out of the root rib and is later slotted into the centre section, glued and gusseted.

TAILPLANE

Pin down the 0.8mm balsa lower sheeting and glue the LE, TE and spar into position, and fill in with tips and ribs cut from 6x1.5 strip wood glued into position. The C/L version has a wider LE cut from sheet and requires separate elevators to be con-

nected by wire with horn and hinged. When dry, remove elevators from plan and sand to tapered section before gluing on 0.8mm top sheeting.

FIN AND RUDDER

These are constructed by glueing 3mm sq. outline and rectangular rib blanks each side of a 1.5mm sheet core before sanding to a symmetrical shape after assembly. The fin is glued to the fuselage, and the rudder glued straight for F/F and offset 12mm to right for C/L version.

TRIMMING

All test flying for the F/F *Swallow* should be carried out over long grass on a perfectly calm day. Assemble the model and check that CG is in position shown on plan. Test glide model until it glides flatly with a slight right turn. Obtain the right turn by adjustments to a trim tab on the rudder. The original model did not need any alteration to tailplane incidence, but elevator trim tab or slight adjustments to CG may be required.

All low wing scale power models are best flown to the left. Although torque produces a spiral to the left, the gyrocouple is the greater force and keeps the inboard wing up (vice versa in rubber models where torque is the greater force)

Very few scale models are able to maintain a safe right turn. Small warps are less critical on these slow flying models than, say, a power duration model. See Eric Coates' article on the subject p.197 April 1971 and p. 20/21 January 1972 *Aeromodellers*.

Adjust motor to half power and hand launch slightly across wind (if any) to the right. This should result in a straight climb and a very gentle right glide turn. When launched, model should climb gently to the left and increase its turn slightly to the right in the glide.

In obtaining the correct trim you will find the model is sensitive to sidethrust changes, so a separate replaceable engine plate is used to facilitate easy adjustment.

When trimmed carefully, the model is quite stable and very attractive in the air, although it does prefer relatively calm conditions. Don't forget the usual dodge of using a heavy pair of wheels to bring the CG down.

If you have built the C/L *Swallow* you should find no problems with its flying ability. When Colin brought his model along to All-Scale Day last June, he had only just completed it and had never flown it! In fact his first ever flight was his official attempt for the Aeromodeller Trophy, and we are pleased to report its maiden flight was faultless.

Top and Right: Views of John Coasby's original F/F *Swallow*. Detachable wings shown below, now replaced with knock-off tongue and box fixing.



Drawn by Bill Dennis

No. 242

AIRCRAFT
DESCRIBED



B.A.M. SWALLOW II

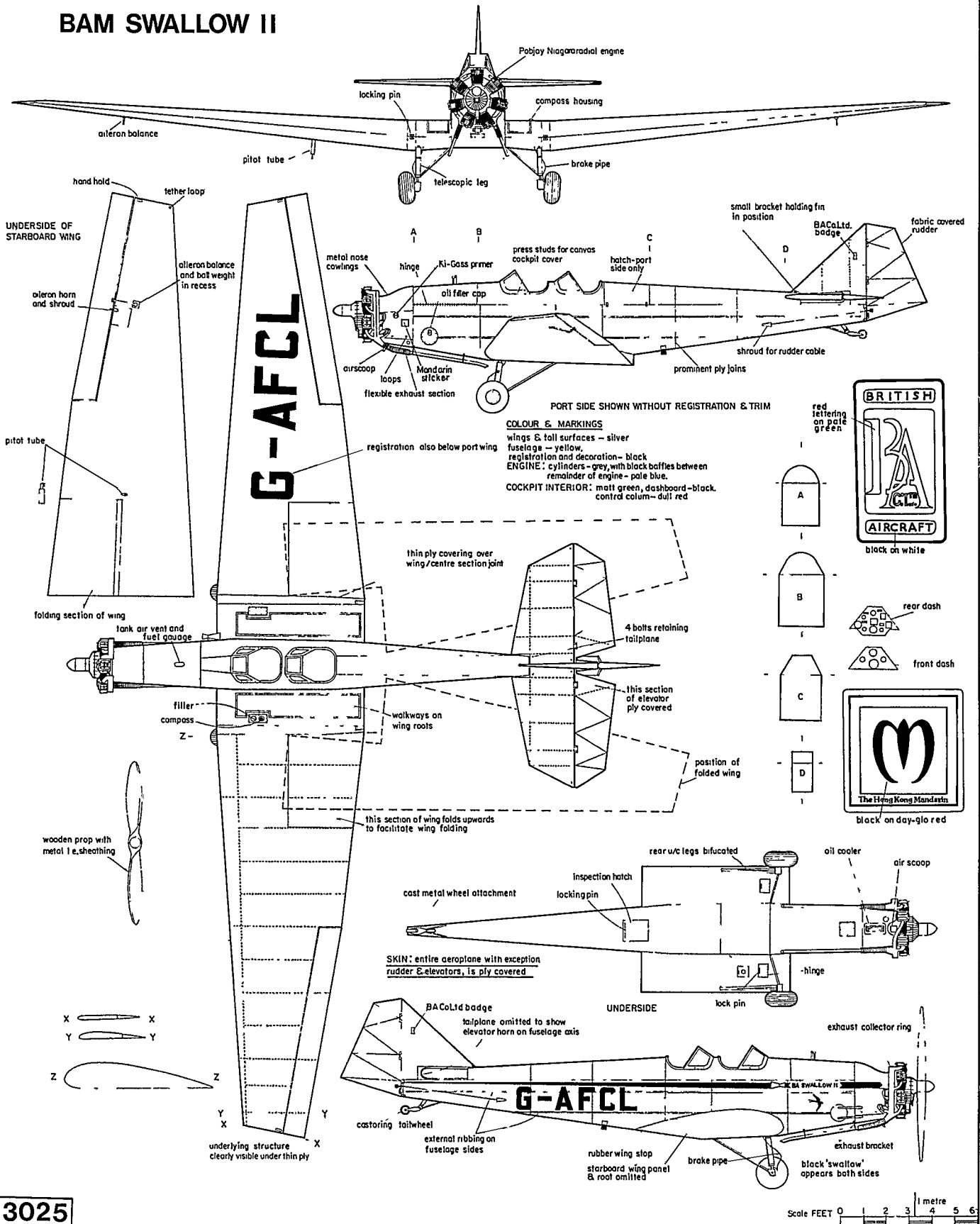
THE ANCESTRY of the *Swallow II* can be traced back to the German *Klemm L.25*, several of which were imported into this country during 1930-31. In 1933 the type was manufactured over here by the British Klemm Aeroplane Co. Ltd. of Feltham, the forerunners of the British Aircraft Manufacturing Co. Ltd.

Structurally the *Swallow* was not unlike its German prototype, a wider track undercarriage being fitted and certain parts of the airframe strengthened in accordance with British requirements. The final version was produced in 1935, the main differences being a more angular appearance, the wing tips, rudder and tailplane having straight lines for ease of production.

Above: A sunny day at Old Warden, home of the Shuttleworth Collection, as the BAM Swallow II (seen below taxiing) takes to the air, at one of the many popular flying days. Right: Owner and restorer of the aircraft G-AFCL, Tony Dawson, keeps the machine in immaculate condition, but prefers to leave the flying to the museum pilots. Originally manufactured by the British Aircraft Manufacturing Co Ltd, some controversy exists over the correct title of the Swallow and Tony chose reproduction trademarks on fin from the British Aircraft Co Ltd. See drawing for details.



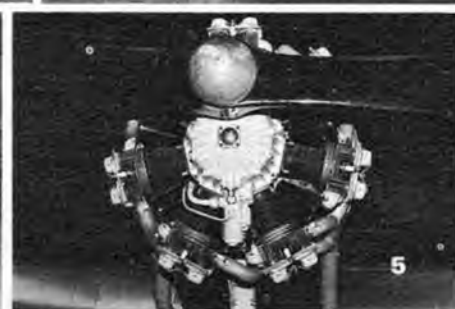
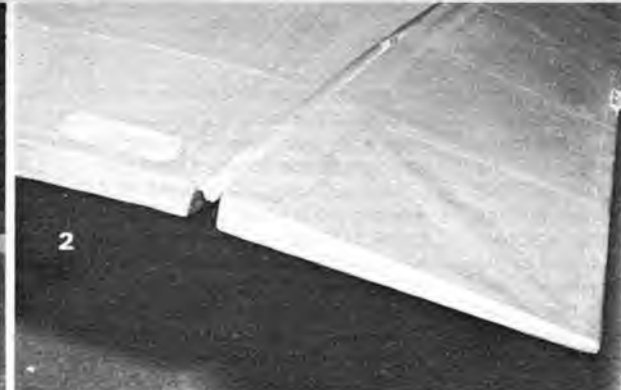
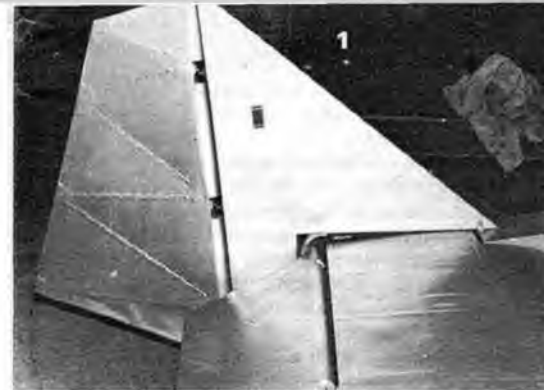
BAM SWALLOW II



3025

Scale FEET 0 1 2 3 4 5 6
1 metre

REPRINTS OF THIS FEATURE WITH 1/72ND SCALE DRAWINGS PLUS DYELINE PRINTS OF THE 1/24TH SCALE ORIGINALS ARE AVAILABLE AS PLAN PACK 3025 PRICE £2.05p INCLUSIVE OF VAT AND POSTAGE FROM AEROMODELLER PLANS SERVICE, P.O. BOX 35, BRIDGE STREET, HEMEL HEMPSTEAD, HERTS HP1 1EE.



1. Fin and rudder, note stitching clearly visible and position of B.A.Co. Ltd. badge. **2.** Thin section at wing tip and alleron with hand grip slot for ground handling. **3.** Close-up of vent, pipes and fuel gauges. **4.** Pitot tube underside starboard wing, with side view of undercarriage. **5.** Front view of 7 cylinder Pobjoy Niagara radial engine. **6.** Under the tailplane view of tail wheel detail.

7. Petrol filler cap and compass set in port wing alongside wing root walkways. **8.** Telescopic undercarriage leg and supporting struts. Note brake pipe to wheel hub and clip to thin ply wing joint cover strip. **9.** Venturi to airspeed indicator on starboard side. Instrument panels; front passenger cockpit **10**; and rear pilot's cockpit. **11. 12.** Port side view shows metal nose cowling to Pobjoy engine, note Mandarin Hotel sticker.



The machine was of wooden construction throughout, and was sheeted with plywood, with the exception of the fabric covered elevators and rudder. On the Shuttleworth machine restored by Tony Dowson this plywood is quite thin and the underlying structure is clearly visible – indeed the rib positions are taped in the manner of a fabric covered aircraft. The wings were made to fold and the undercarriage was very robust, the legs being attached to the front spar and the radius rods positioned so that the legs moved forward as the undercarriage took the landing loads.

Dual control was fitted and the adjustable tailplane could be trimmed about its front spar by means of a hand lever in the cockpit. A neat finish was given to the cockpits by incorporating a second skin on

the inside, thus effectively hiding cross-bruts and preventing the accumulation of dust and dirt, besides giving additional strength to the forward fuselage.

Fuel sufficient for a flight of 420 miles was carried in a tank aft of the engine and a tank – or tanks – in the centre section of the wing. Either the 80/90 hp Pobjoy Cataract III 7-cylinder radial or the 80/90 hp Cirrus Minor 4-cylinder in-line air cooled engines were fitted and the performance was slightly better with the Pobjoy owing, no doubt, to the saving in weight.

The manufacturers claimed that the *Swallow II* was the safest aircraft in the world. In practice the *Swallow* could be flown with perfect safety at speeds below 30 mph without the slightest sign of a wing dropping, and only by means of special loadings and elevator settings it

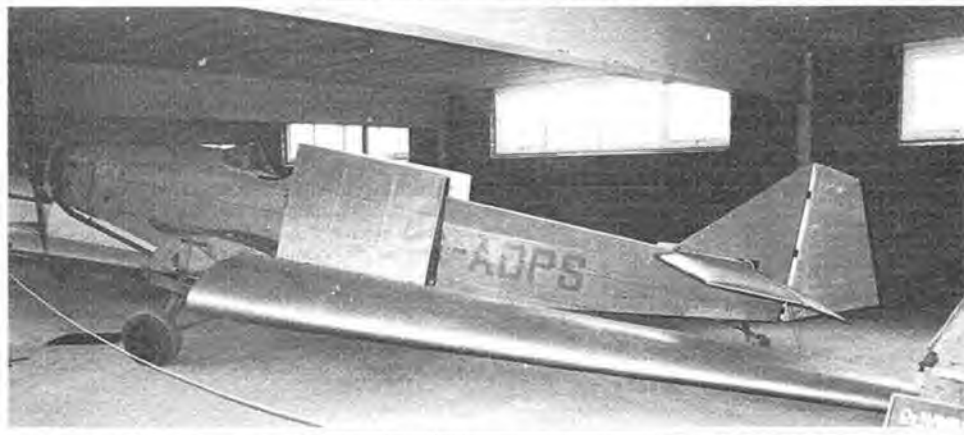
possible to force it into a spin. On two occasions a *Swallow* has taken off and flown by itself.

The *Swallow* proved extremely popular in civil aviation and, by Sept. 1939, over 150 machines of this type had been registered in this country alone. A large proportion of these were privately owned but the majority belonged to various schools and clubs, notably the Hanworth, Doncaster, Bristol, Liverpool and Romford Aero Clubs, where they did a considerable amount of good work in connection with the Civil Air Guard scheme, at the rate of 5/- (25p) per flying hour!

The machine at Old Warden G-AFCL was recently restored to its present immaculate condition, with silver flying surfaces and yellow fuselage. Anyone who has seen it perform will have been

Right: Vintage photograph of *Swallow G-ACMK* shows rounded rudder outline and pilot head fairing.

Below: Another Pobjoy *Swallow G-ADPS* currently housed in the Strathallan Museum shows the inboard wing panels raised to allow wings to be folded back for storage. Together with *G-AFCL* at Shuttleworth below, these two aircraft are ideal subjects for close inspection by modellers intending to build our flying scale plans detailed on Pages 318–320.



impressed by its very slow and quiet flight.

Thanks are due to R. W. Elliott and the staff of the Shuttleworth Collection for their assistance in the preparation of this feature. Another *Swallow G-ADPS* is kept in the Strathallan Collection, airworthy and with the Pobjoy engine, silver wings, mid French blue fuselage and Royal blue lettering.

The Cirrus Minor powered *Swallow G-AEYW* belonged to the Cinque Ports Flying Club at Lympne and was silver all over with a light blue top fuselage decking.

Specification: Length, 27ft; span, 42ft 8in; tare weight, 960lb; loaded weight, 1,500lb; max. speed, 112mph; landing speed, 30mph; ceiling, 17,000ft.



TOP PLANES

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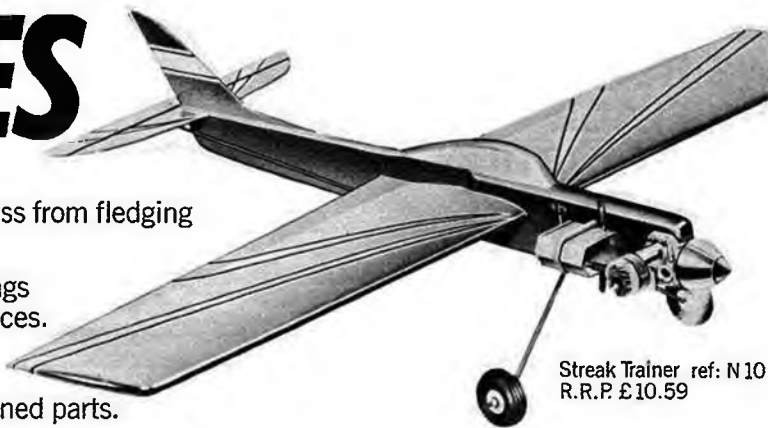
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THIS MONTH: RUBBER POWER MODELS: CONSTRUCTION PROPELLERS AND RUBBER MOTORS



FOR THIS SERIES of articles, a variety of beginners' kits have been provided, and issued to a number of my local young modellers. Most of the youngsters have had, virtually no previous experience in constructing flying models, but the few who had were given the four kits received that were powered by rubber motors. The rubber driven model is the logical progression from the glider, as the constructional methods are much the same, but with the addition of a propeller and its associated drive.

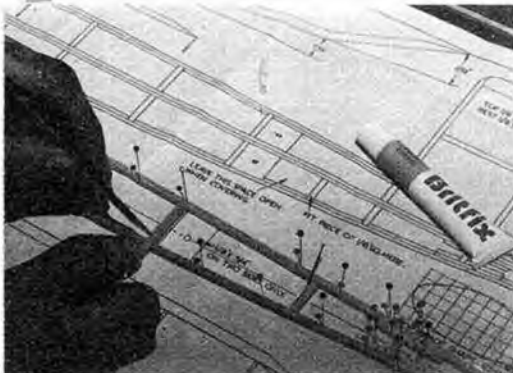
Our four kits were representative of the range of rubber driven models commonly flown, from the venerable Keil Kraft *Ajax*,

Prairie Bird design was much smaller than the others, and required more patience in building, because of the fiddly bits of balsa, but when completed, proved a pleasure to fly.

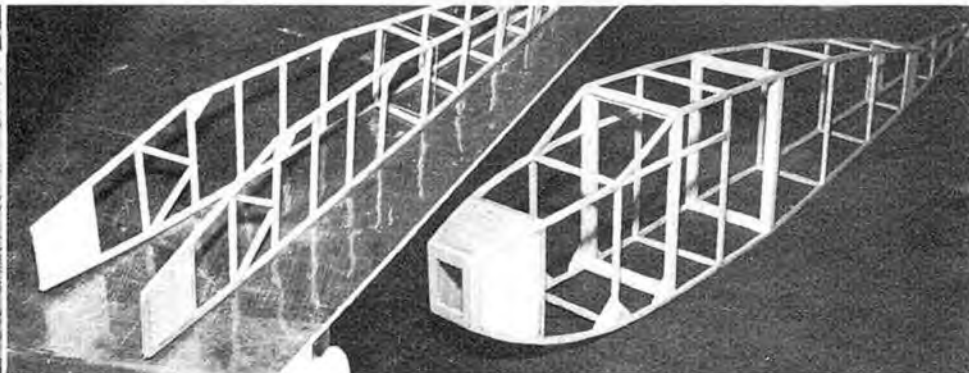
Ready-moulded plastic propellers supplied in three of the kits only required balancing to be ready for use, and this entailed sanding the heavy blade. The *Mentor* kit, however, uses quite a different style of propeller, and one that is commonly found on competition models. This only has one blade, hinged at its hub to enable it to fold backwards alongside the fuselage when the rubber motor has unwound. Glide performance of the

Mentor, it was soon apparent that the root of the propeller blade required some additional strength, and this was achieved by cementing cotton tape over it. The remaining models, with the conventionally shaped plastic propellers, have simple ratchets built into the hub, so that after the rubber motor has unwound, the propeller continues to free-wheel to reduce air drag.

All of the kits also featured undercarriages designed to keep the propeller clear of the ground, however, very smooth surfaces, such as tarmac are required for attempting Rise Off Ground (ROG) flights, and the chance of a successful landing back on such a surface is remote. In prac-



Fuselage side frames are built flat over plan, cut spacers to fit between longerons pinned down.



Side frames are raised when complete and joined together with more spacers, held together with bands.

Complete fuselage assembly with nose area sheathed for strength and front former ready to receive nose block.

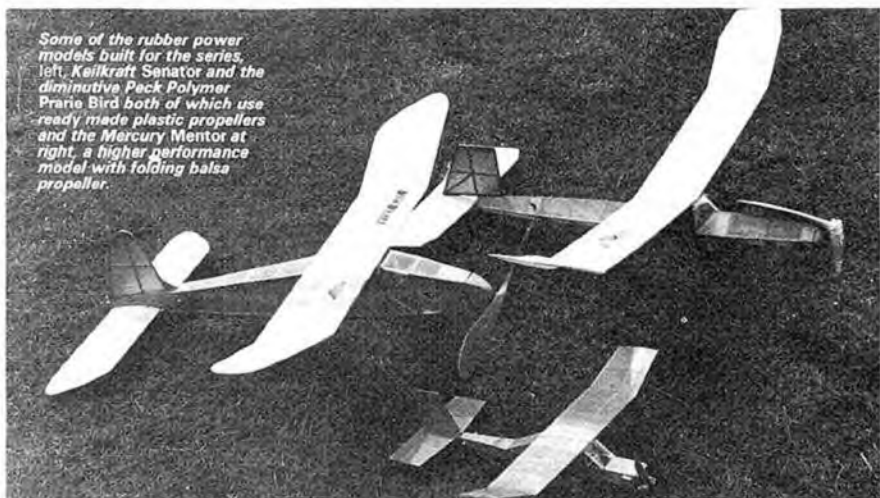
the slightly younger designs of Keil Kraft *Senator* and Mercury *Mentor*, to the recently released Peck-Polymers *Prairie Bird*, of American origin. With the exception of the last named, none of the kits contained rubber strip for the motor, but this is readily available from your model shop, and the kits contain details of the quantity required.

All of the rubber models used the built-up balsa construction as described in previous articles. The wings on the *Mentor* were slightly unusual in that they did not have a mainspar; instead, the strips of balsa for the leading and trailing edges were of larger section than normal, in order to carry the flight loads. In contrast, the *Senator* design employed numerous small spars to give the wing rigidity. The

model is thus improved by reducing the air resistance, or 'drag' of the propeller. To counterbalance the single blade, a piece of lead is carried on a wire arm on the opposite side. The modeller building the *Mentor* had previously built one of the gliders, and found little trouble with the kit, other than building the propeller mechanism. By reading the instructions carefully and studying the plan, he produced quite an efficient unit. Perhaps the main lack of advice was which way to carve the block of balsa provided to give the correct rotation of the propeller. By convention, model aircraft propellers revolve anti-clockwise when viewed from the front, and the notes on flying rubber driven models which follow next month will be based on this direction of rotation. During flight trials of the

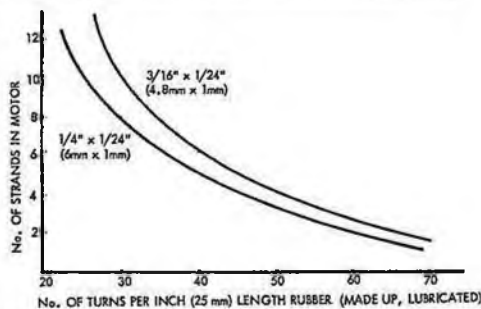
such undercarriages are of little practical use and often prove a positive disadvantage. Rubber powered models are invariably hand launched from shoulder height, therefore not requiring any wheels, and upon landing the long-legged undercarriage inevitably trips the model nose over onto its back! Undercarriages are therefore best dispensed with, this will simplify the construction and the weight saving will improve the flight duration. Should the propeller touch down first on landing, the nose block will simply pop out and no damage will be done.

On all the models, the rubber motor is secured at the rear of the fuselage by a wooden peg, and this peg has to withstand quite high loads. An early disaster overtook the *Mentor*, when the peg broke



Some of the rubber power models built for the series, left, Keilkraft Senator and the diminutive Peck Polymer Prairie Bird both of which use ready made plastic propellers and the Mercury Mentor at right, a higher performance model with folding balsa propeller.

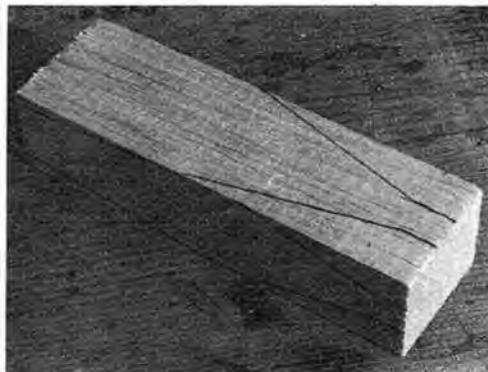
and the resulting thrashing about of the loose end of the rubber motor in the fuselage caused some damage. After repairs, a stronger peg of 3mm diameter was used. Because of this mishap, the builder of the Ajax substituted a piece of aluminium knitting needle (size No. 10) for his motor peg, but unfortunately made it only just fuselage width. Eventually, one side of the peg came out of its locating hole, and more damage ensued. The moral is to use a strong peg, with plenty sticking out on



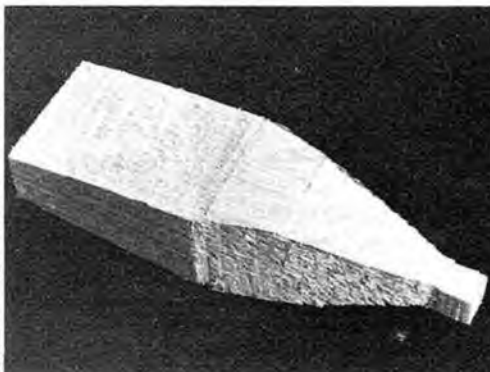
fitting nose-block to fall out at the end of the power run, ruining the glide. The solution is to "pre-tension" the rubber motor. Hook one end of the loop of rubber over a convenient projection (like a door handle) and apply a number of anti clockwise twists to the loop by means of a wire hook held in the chuck of a hand brace. After about twenty turns have been applied, hold the centre of the length of twisted rubber, and bring the ends together. The rubber will twist up around itself, giving four entwined strands. The length will be shorter than the original untwisted skeins. Apply enough twists to shorten the rubber to the correct length. This method is repeated if eight strands are needed, but for six strands, pre-wind two thirds of the loop length, let it twist, then add further turns to the remaining third and let it wind round the other. Secure the loose ends of the pre-tensioned motor with small elastic

MAXIMUM TURNS PER INCH (25mm) LENGTH OF MADE-UP, LUBRICATED AND RUN-IN RUBBER MOTOR

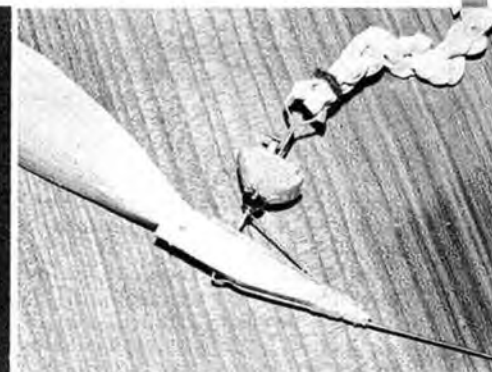
| RUBBER STRIP SIZE | NUMBER OF STRANDS | | | | | |
|-----------------------------|-------------------|----|----|----|----|----|
| | 2 | 4 | 6 | 8 | 10 | 12 |
| 1/4" x 1/24" (6mm x 1mm) | 60 | 46 | 36 | 30 | 26 | 24 |
| 3/16" x 1/24" (4.8mm x 1mm) | 66 | 49 | 41 | 35 | 31 | 29 |



Blade shape as shown on the plan transferred to balsa block ready for carving propeller for Mercury Mentor.



Balsa block roughly sawn to shape ready for carving underside first, diagonally from corner to corner.



Completed folding propeller with balance weight, sprung wire hub and stop peg behind nose block.

both sides of the fuselage. This overhang gives your helper something to hold onto when the motor is being wound up.

During the construction phase, with the fuselage and propeller assembly complete, it is very tempting to install the rubber motor and wind on a few turns. Don't! A surprising amount of torque, or twisting force, is generated by the rubber. This can only be resisted by the balsa framework of the fuselage after it has been covered with tissue, shrunk and doped.

Cover and dope the model in the same fashion as described for the gliders. Decorate the nose block in such a way that the top is clearly marked so that it is always replaced in the correct orientation; any mis-alignment of the propeller shaft bearing in the block will have to be allowed for

during the later flight trials, and thus it should always be in the same direction.

When purchasing rubber for your model only use the brown or grey types of flat strip rubber. Don't accept the white strip rubber sold as "Aeroelastic", this type of rubber has little energy storage capacity and is completely useless for model flying purposes. Your local model shop should be able to supply the correct type but if not try the mail order advertisers.

You will notice that the designers of rubber driven models specify the length of rubber required. This is tied (with a reef knot) to form a big loop, and then folded to give the correct number of strands. In this state, it will usually be found to be too long for the fuselage, and would allow a slack-

bands. Before using in the model, the rubber should be lubricated, by coating it in commercially available rubber lubricant. Alternatives are household green soap, castor oil or any vegetable oil, even cooking oil will serve the purpose, but might go rancid after a time. Never use mineral based oil as this will rot the rubber.

Load the motor into the fuselage, and try to position the knot at the rear end peg, where it will not rotate and cause damage. To prevent the wire hook on the propeller shaft from biting into the rubber, put a sleeve of cycle valve tubing over it, a piece of neoprene fuel tubing or a piece of PVC sleeve from electric flex. Put a spot of lubricating oil on the propeller bearings, but keep it away from the rubber.

NEXT MONTH: Flying Rubber Models.

ACE LETTERS

Dear Aero Aces,

I have recently discovered that domestic 'cling-film' more commonly seen around sandwiches, can be used for covering model aeroplanes. This is how it is done.

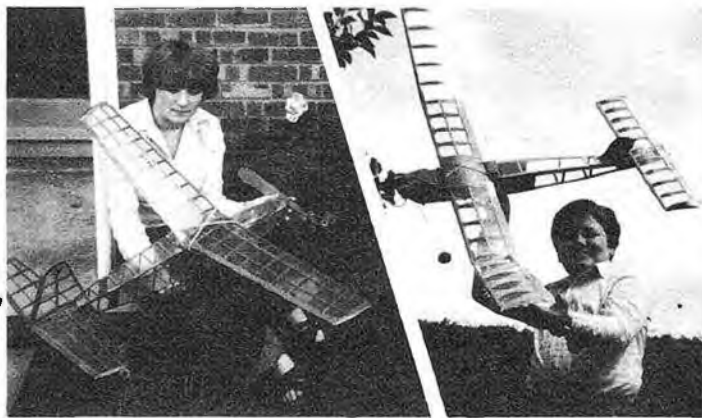
Firstly, eat your sandwiches . . . then thinly dope the bare airframe. This serves several purposes, it stiffens the structure, strengthens the joints (cling film adds little strength), provides a better surface for the film to cling to, and a more pleasing appearance. Secondly, wrap the frame, using the minimum number of pieces of film, consistent with a reasonably good fit. Try to wrap the cling-film onto itself so it cannot slip along the structure when shrunk. Thirdly, shrink the covering, using the hot air two or three feet above a small gas burner, or from a hairdryer, pressing it down along the edges while still warm.

The resulting finish is tough, diesel and possibly glowplug fuel proof, beautifully smooth, aesthetically pleasing and strong. However, the relatively low surface tension means that it can be employed on very light structures. I am contemplating a wind tunnel test, or possibly cine film of a model to check on its flexure in flight - the low surface tension is rather worrying, despite the convincing flight performance. Cling-film has now been tried on several model aircraft successfully, including rubber powered free flight and single channel radio controlled types.
Warwick Neil Downie

Dear Aero Aces,

I am a junior member of the Peterborough MFC and think readers may be interested in my indestructible spray bar unit.

After crashing my PAW 149 powered model inverted, on my second flight, I wrote off the spray bar and therefore made a guard before my next flight. However this guard was obviously not good



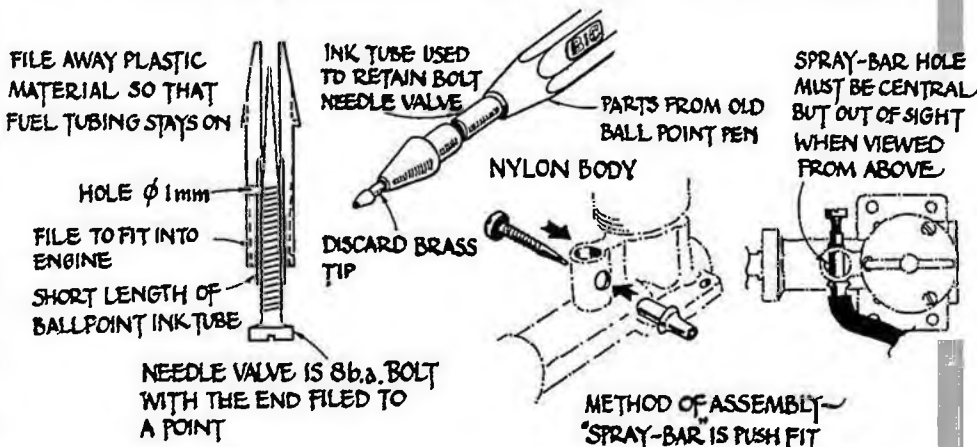
Far right: Glyn Ackerley displays his single channel R/C own design model, covered in sandwich wrap cling-film. Right: Sister Diane poses with Neil Downie's Kail Kraft Gypsy also covered by the same method.

enough as the new spray bar also broke on the first contact with the ground. When I at last made a proper guard I found it was also a very efficient scoop for dirt and soon became crammed with mud. With spray bars costing around 70p I decided what was required was an assembly so short that it never touched the ground. My idea came to me one Sunday evening having broken yet another spray bar, when I was looking at my ball point pen. It occurred to me that the brown plastic end would

serve as a spray bar using a 8BA bolt for the needle. Some slight modification, filling it to shape, allows the assembly to be a pushfit into the carburettor requiring no further fixing. As a further refinement, I now glue the ink tube in place using cyanoacrylate.

Since the end of last Summer after many hard landings I have suffered no further breakages.

Thorney,
Peterborough Mark Montgomery-Smith



Don't get left out of the flying fun this summer, join the Aero Aces by sending for your Membership card, badge and transfers. Members can benefit from our question and answer service to help them overcome familiar problems facing Aeromodellers, and the chance to win APS plans vouchers for the most interesting letters published.

Join the **Aero club for Junior modeller** model flyers to speed you to modelling success

To join the Aero Aces fill in the handy membership form and send to Aero Aces, PO Box 35, Bridge Street, Hemel Hempstead, Herts HP1 1EE. You will receive Badge, membership card and transfers.



I wish to join **Aero Aces** and enclose Cheque, P.O. or Money Order for 75p made payable to M.A.P. Ltd to cover the cost of Badge, Membership Card and Transfers.

FULL NAME BIRTHDATE
ADDRESS

Tick Interests F/F C/L R/C Scale Indoor

Send to **Aero Aces**, P.O. Box 35, Bridge Street, Hemel Hempstead, Herts HP1 1EE

400mm SPAN
for 1-1.5cc
motors

OWL RACER

*Bob Walker's 1/12 scale profile
Mini Goodyear version of
George Owl's 1969 original
Owl Racer. Model is fitted
with PAW 149, the ideal motor
for this fun event.*



MINI-GOODYEAR RACING

by Bob Walker

THE OWL RACER has been built as a basic trainer by many people in our club; it is also capable of giving a good account of itself in racing.

In preparation for the 78 Nats we made several models but only the *Owl* was completed in time for the event. It has had quite an eventful career sustaining two crashes without damage, one because of the single strand lines binding together in damp conditions and the other when the pilot got dizzy! In the week before the

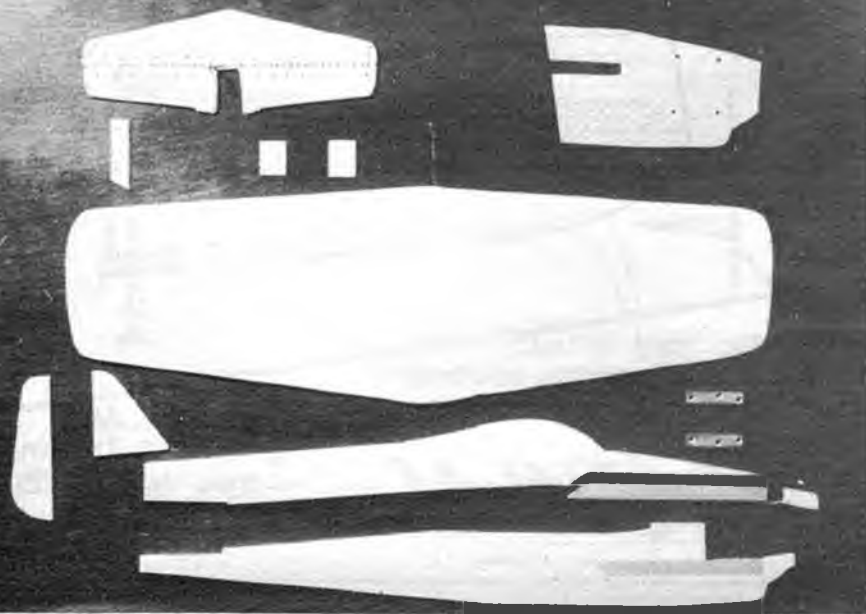
Nationals we managed 100 laps in 4:36 getting 48 laps per tank. Several more models were also being built and after much midnight oil were ready in time.

Some of the lessons we have learned during our two years of flying Mini Goodyear are as follows: Fuselages should not be made of very light wood; straight grain medium weight is needed to prevent repeated breakages. The most reliable elevator hinge that we have yet found is the linen thread criss-cross sewn

type. Three ply elevator horns must have their outer lamination grains vertical but the bent wire type is generally more satisfactory. Another fault resulted from wear in the circular bellcrank where the 18 gauge pushrod went through it, appropriate modifications have now been made to the design and these are shown on the plans.

The first part of building is to choose the wood. If this is your first model, you are better with strength rather than lightness but neither do you want rock hard material. Make card templates of wing, tail and fuselage. When they are cut out check them against the plan and amend if necessary. Then draw on the wing and fuselage centre lines using the plan as a guide. Lay the wing template on one end of a 75 x 6 mm sheet with the centre L.E. flush with edge of the sheet. Check that the grain is spanwise and then draw round the template. Cut out this piece about 3mm oversize all round. The remainder of this sheet is offered up to the piece just cut out to find which way round gives the best edge to edge fit, and is marked in position. Next, using a steel rule and a sharp knife bring the inboard L.E. to size. Cut from centre to tip so that if the knife does follow the grain it does not go into the part that you need. Keep the knife vertical to give a good seating for the 6mm square spruce leading edge. Try the two together and if necessary correct the fit with a little sanding using a block. Cut the leading edge over-

Layouts of parts cut out ready for assembly. Note how hardwood bearers slot into profile fuselage, bottom, with plywood nose doubler and tailplane with sewn on elevators at top.



OWL RACER

HATCHING DENOTES:
METALLIC OLIVE GREEN

JOINT LINE

SPLIT FUSELAGE ALONG
THIS LINE TO AID
CONSTRUCTION

PAINT TO SIMULATE
COCKPIT.

ANTI-GLARE MATT BLACK

9mm x 7mm
BEECH BEARERS
ALLOY MOUNTING
BLOCKS -
33mm x 7mm
x 4.5 mm

EXPERIMENTAL

JOAN ALFORD

BLOCK TANK FAIRING

K.K. 10CC
TEAM RACE
TANK - NOTE
FEED PIPE POS'N

FUSELAGE 9mm MED. SHT.

LINE OF 1mm PLY DOUBLES
6-9mm BALSAM CHEEK

WHITE

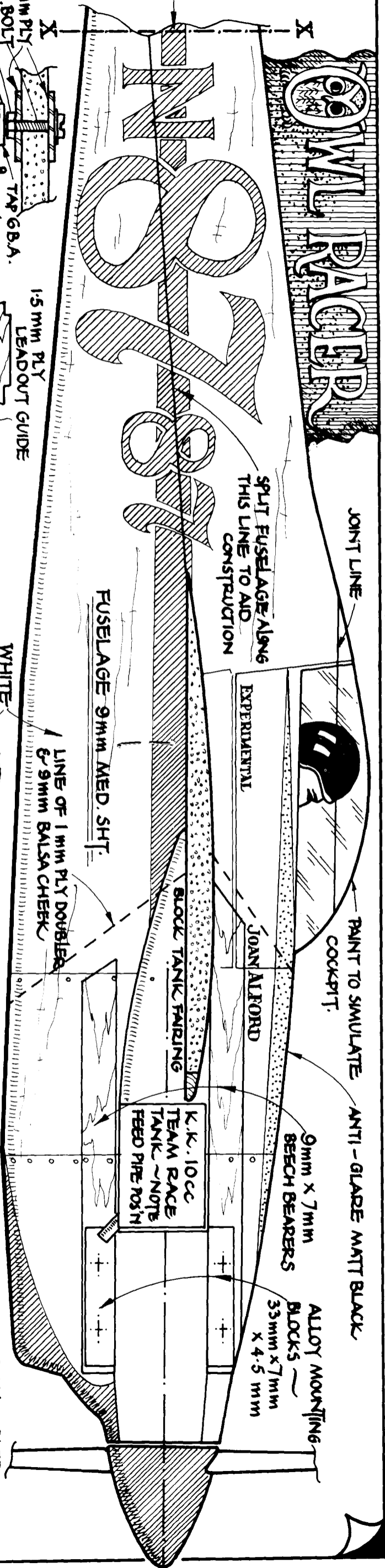
15mm PLY
LEADOUT GUIDE

1.5mm PLY
6 B.A. BOLT
NUT
TAP 6 B.A.
SOLDERED
CUP WASHER
TO RETAIN PUSH ROD

IF ALLOY BELL CRANK
EXTRA PIECES
EPOXIED ON

SECTION A-A

LE 6mm SQ SPRUCE OR HARD BALSAM



LEAD-
OUT GUIDE

WING 6mm
MED/SOFT SHT.

AILERON MARKING LINES

Aero Modeler
Full Size
Plans
Centre
Spread

by Bob Walker

PINS TO LIMIT
ELEVATOR MOVEMENT
FOR BASIC TRAINED

ALL BALSAM
SHEET IS 75mm WIDE
- JOIN WHEN NECESSARY

H.W.T. LAY STRATE
LEADOUTS - END
LOOPS BOUND
w/FUSE WIRE
& SOLDERED

18 SWG PUSH ROD

BLACK

BIND & SOLDER
18 S.W.G.
PAIRS TOGETHER

ELEVATOR HORN

NOTE ANGLE
OF TANK

3mm SHIT TAIL ELEVATORS

EPOXY ON HORN &
BIND WITH GAUZE

WING IS SYMMETRICAL
418mm SPAN

10g.
TIP WEIGHT
LET IN
UNDERSIDE
P.A. W.149
SHOWN

BALSAM CHEEK, PLY DOUBLER,
8 B.A. BOLTS - EPOXY
SCRAP
FAIRING

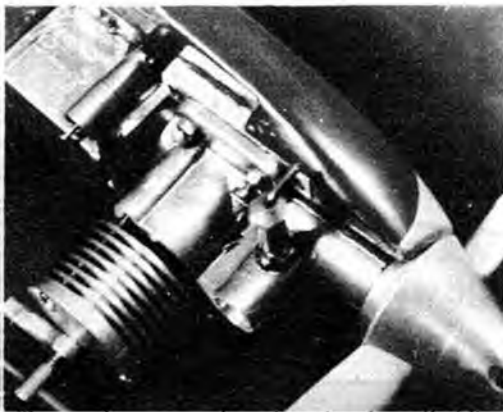


long and then glue together the three pieces dealt with so far. Pin them down on a flat board whilst the glue sets with thin polythene underneath to stop it being stuck where you don't want it. Meanwhile sand the tail and fuselage wood to remove saw marks before marking out the pieces from the templates. Continue work on the wing by sizing the outboard L.E. Pin down again while the glue sets. Then use the template to get the correct wing planform and trim off the surplus at tips and T.E.

The fuselage centre line is then drawn on and the inner bearer line marked on accurately. For the PAW these lines are 11mm either side of centre. Mark L.E. and T.E. positions across fuselage. Measure the thickness of your wing and draw another line this measured distance under the top bearer line. The oblong formed is the wing position. Cut the beech bearers and use them as templates to mark their position on the fuselage. Carefully cut out space for the bearers and crankcase – when it is done, the engine must sit happily in the correct position on its bearers. Now is the time to drill the bearers to take 8BA screws to either hold the motor direct or to hold the mounting blocks. If you are using blocks, employ them as a jig to get the holes accurately positioned then screw them lightly in position and drill the holes for the engine holding screws. Next mark the tailplane position and cut out the slot, again using the steel rule. The tailplane must be square to the fuselage and a good fit. If you make a mess of this, open out the slot and pack with thin sheet. The wing aerofoil centre line is 2mm above its bottom surface; mark this in at L.E. and T.E. on the fuselage. Cut from the wings T.E. to the point of the top bearer and then separate the fuselage into two pieces with one careful cut from tailplane L.E. to wing T.E.

Back with the wing – draw a line all round the edge 2mm up from its bottom surface. Mark the position of the top bearer and keep this square while you razor plane and sand the rest of the wing to section. Do not thin the T.E. too much as a knife edge is not necessary. Next install the line guide and the tip weight. Then

The most popular choice of engine, the PAW 149, seen here fitted with threaded compression locking lever and alloy spinner. Commercial 10cc fuel tank has been modified with "Schraeder" tyre valve to be detailed in next article.



Model is best assembled using white woodworking glue, adding extra glue fillets between wing and tail joints to fuselage for improved strength. Aluminium motor mounting blocks screwed to hardwood bearers are optional extras.

offer up the wing to the upper fuselage, holding the bearer in position and carve wood away to get a good fit. Then trim the bottom fuselage piece. You know when it is right by the two pieces joining without a gap.

The tailplane and elevators need rounding where they join before sewing together. Use linen or button thread and a strong sewing needle. If you start on top at one side it must next go underneath on the other; zig-zag along and then go back using the same holes to give a complete zig-zag pattern top and bottom.

Assemble using Borden white wood glue or similar. Glue the bearers into their respective fuselage halves and pin on a flat board whilst they set. Assemble the bellcrank details and make sure there is no binding.

The wing and top half of the fuselage are then glued together making sure that they are square. The bottom half can be held with rubber bands whilst it sets. Mark the fin and rudder position and carve and sand the rear fuselage down to these lines keeping the full width at the tailplane leading edge. Take care with the ply doubler that it is not too tight or it will cut a slot in the wing. Mounting blocks or ordinary fixing screws should be installed next before the cheek. Any spare pieces are attached and any necessary carving of the fuselage or sanding completed. The 10cc tank should be epoxied in place.

Finishing is easiest without the external bellcrank. Give two coats of clear dope and gently sand when dry. Tissue cover the whole plane. Cut the pieces to shape first then position them and brush on thinners; the dope will be softened and the tissue will be stuck on. Give another one or two coats of clear dope and finish off with Humbrol enamel. If you have time for a better finish, use car primer filler and 400 grade wet and dry paper used wet between coats to get a glass like surface before applying the enamel. The enamel will require filtering and thinning for this method.

If this is your first control line model, it is a good idea to limit the elevator move-

ment by sticking pins through the fuselage to act as stops. The last thing to do is to check the balance point. This is very important because if it is too far back your model can be unflyable. The further forward it is the easier the model is to fly. If necessary, add weight to the nose such as steel strip fastened to the forward end of the doubler with screws so that the balance point is about 5mm back from the centre L.E. It is most unlikely that weight will be needed at the tail.

Choose a calm day for your first flights. If you prefer to get the speed down and reduce the tendency to dizziness, you can put the propeller on back to front. It will still pull the plane along quickly but not as fast as usual. Set the engine for maximum speed but slightly rich; between a quarter to half turn open from minimum needle setting. Check that you have the handle the right way up and away you go. The most difficult part is the take off. The popular mistake is to allow the model to climb too steeply so that it goes up one side of the circle and down the other into the ground. If you are going to crash, it is better to do it soon before the model has time to build up speed!

If you have problems that you think we can solve, write to the address below enclosing a SAE, or if you are 'within range', perhaps we could arrange a flying session. Model Aircraft Club, Allerton Grange High School, Talbot Avenue, Leeds LS17 6SF. Plans for another Mini Goodyear Racer, *L'il Quickie*, with more flying hints will appear in the August issue.

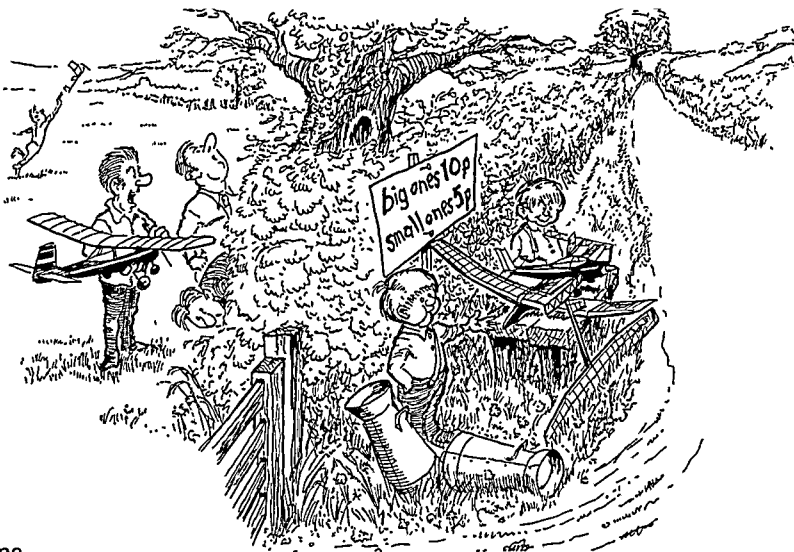
MINI GOODYEAR AT THE NATS

Don't forget that there will be specially organised Mini Goodyear racing events, flown over grass, for young flyers at this year's Nationals held at RAF Barkston Heath near Grantham on 23rd–25th August. You still have 12 weeks to build an *Owl* Racer yourself, so why not bring a model along or simply turn up to spectate? We'll all be there – see you at the Nationals.

TOPICAL TWISTS

by Pylonius

illustrated by Sherry



FINDERS KEEPERS

At one time, if you lost a model, you could conjecture with some fair certainty on its possible fate. It will either lie mouldering for all eternity in some forgotten hedgerow; become the short lived plaything of a gang of urchins (pre-vandal children); be returned through the post in a 6 inch square package; or, most pleasant thought of all, salvaged by some helpful, civilised person who knows a bit about model planes. That, however, was all back in the civilised past. What is now to be the likely fate of your fly away model, even when 'lost' only inside the airfield, is that it will fall into the hands of the professional model snatcher. Even he, at one time, may have stripped the model of such valuable goodies as it had, and dumped the rest, but in his more sophisticated role he is likely to hold your defenceless model up to ransom in true terrorist style. He is cunningly aware that the Free Flight model is virtually worthless except to its owner, to whom if it doesn't actually represent his life's work, may well feel like it at the time.

If you do find yourself victimised in this way you are asked to descend on the rapacious kidnapper with the friendly, neighbourhood policeman. All very well, but such coppers are now as scarce as the kind with Britannia on them. On ringing the police station you would probably be told that all available officers are engaged on strike picket duty, or you would be asked to call in to fill out an official form of complaint in triplicate. If by chance you did get a friendly, neighbourhood policeman to act on your behalf he would no doubt be met with an innocent, "What model plane?" as a wisp of smoke issues from the chimney. In a more desperate situation the local police station might get a call to the effect that a friendly, neighbourhood policeman has been found etc., etc.

If you do get a fly away, though, you are advised to have your model suitably labelled, preferably on each component. Only trouble is that such labelling detracts from the general artistry of the model, and, for that reason, are usually of microscopic proportions. Even so, it is amazing how much solid, unnecessary information is crammed into a few square centimetres of trailing edge. All of which, though, could be very much a waste of time since half the population nowadays cannot read and write, and the other half just couldn't be bothered. A better idea would be to incorporate a miniature cassette recorder from which a Dee Jay could be heard giving out details of the reward etc., in breezy style, talking over a background of suitable pop music.

NO STRINGS ATTACHED

I'd always imagined pylon racing to be the hairiest form of model flying – so hairy in fact, that no one seems to summon up the courage to do it any more – but I reckoned without human inventiveness for the insufferable. And this time the demon devisers have come up with a real beauty: Radio Combat. Just like C/L Combat: a slab of wing carrying an engine and a streamer, but without the saving grace of the tethering wires. I would be interested to know when an event of this kind is to be staged so that I could get as far away as possible.

But this set me thinking about what attracts people to model

"I PUT ALL THIS MODEL STEALING DOWN TO A PROFESSIONAL GANG"

flying. The urge, at its most gracious, is the thrill of seeing your own small flying machine borne aloft on the invisible currents of air – the sheer poetry of flight and all that. At the other end of the scale you have the guided missile mentality, bent on testing the mechanical limits of something or other, and losing all the flying fields in the process. Somewhere in between you have the majority of model flyers, not likely to go into ecstasies every time a model wheels overhead, nor wishing to plough the fields and scatter. They like a nice, handy, realistic model, the majority of which they have built themselves, with a touch of competition now and again to prevent the whole business becoming too much of a routine. After all, you can have the most graceful model in the world, at which the very eagles blush with shame, but after the sixth outing the wonder of it begins to pall. If only you could prove it a better flyer than that contraption of Old Bloggs, or get it in the Guinness Book of Records for the greatest number of consecutive loops.

On balance the chap who can retain something of that early, rapturous enthusiasm is the luckiest, and who gets a kick out of every visit to the flying field even if only flying a lashed up chuck glider. I know its a great boost to the ego to fly the English Channel inverted or to win fame and glory on the contest field, but give me every time the chap who is over the flying field early on Sunday morning, bright eyed and eager. Trouble is he is likely to be the one to do all the great feats while the others lie in bed hoping that the wind will blow strong enough to give them the excuse for another few hours between the sheets.

DEGREE OF SUCCESS

Going back a few decades, to the fifties and before, the expert of those days had a relatively easy time of it. Models then were just simple concoctions of balsa and tissue that anyone with access to a corner of the kitchen table could build using nothing more lethal than discarded razor blades. Gadgets were few, involving nothing more demanding than a bit of wire bending, and you did not have to hold a degree in aerodynamics. But to be at the top of the tree nowadays, if that isn't a too unfortunate choice of expression, you have to be all sorts of a genius. By way of underlining this we were recently shown a piece of gadgetry by which one of the top boys gets a variable adjustment on the wing of his power model – much more scientific than dirty big corrective warps – and all to get just a few seconds advantage over his equally ingenious boffin rivals.

What gets up my nose, though, is the way these geniuses leer at you from the pages of the model books. They know you can't even get a warp in the right way round, let alone build a timer operated, variable incidence wing. They also know you don't stand much chance against them in a contest unless you have a B.Sc. in advanced sciences, and access to a modern, fully equipped workshop.

Still, not to be discouraged – clear that kitchen table for action! Now, where did I put those blasted razor blades?

AEROBATICS

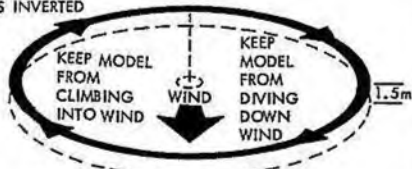
by Glen Alison

THIS MONTH I conclude my advice on how to fly the Novice Stunt schedule which I started P.224 April 1980 issue.

Inverted

Generally this manoeuvre is performed quite well, apart from a tendency to fly a bit on the high side, not enough allowance is made when the model is travelling upwind and downwind. The model will tend to climb a little going into the wind and lose height when going downwind and this should be compensated by small corrective movements of the handle, to maintain truly level flight.

2 LAPS INVERTED

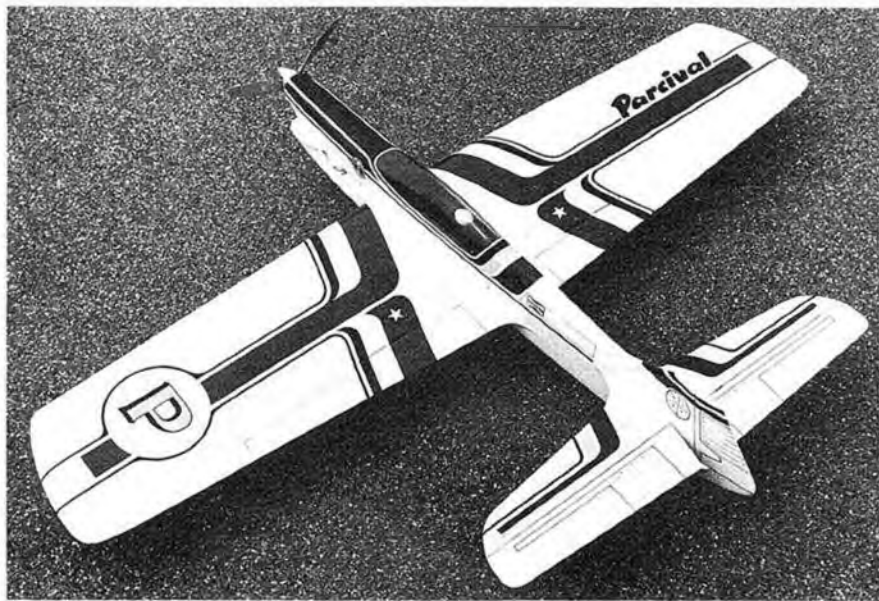


USE HORIZON AS REFERENCE FOR LEVEL INVERTED FLIGHT

Reverse Wing over

There is one fundamental necessity with the reverse wing over, and the overhead eight which is basically similar in concept, and that is to enter the manoeuvre early enough to ensure that the vertical climb is exactly from the upwind part of the circle. Most fliers leave it too late with the result that the wind pushes the model out of position and line tension is often lost in trying to get the model to the overhead position. The entry radius doesn't have to be tight, it is best to do a gentle turn up so as not to lose airspeed. The same applies on the exit into inverted or the re-entry for the second wing over,

Below: Last year's top Junior in the Novice Stunt event at the British Nationals was Clive Wallace from Leicester who flew his profile fuselage model.



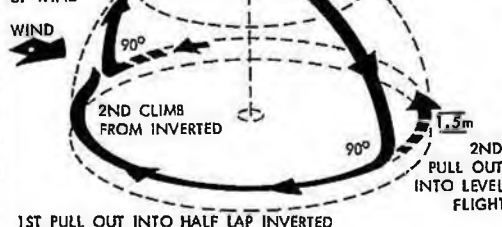
Above: Latest aerobatic model to emerge from the prolific designer Claus Maikis is this Parcival, following along the lines of his earlier Patatin. Originally fitted with a Super Tigre 46 the model now has an OS40FSR driving a 275 x 150mm three blader assembled from Top Flite blades, all up weight is high at 1.8kg!

smooth control will prevent those unsightly "panic jumps". Again, choose a reference point on the horizon during the previous laps exactly upwind to line up the climb on.

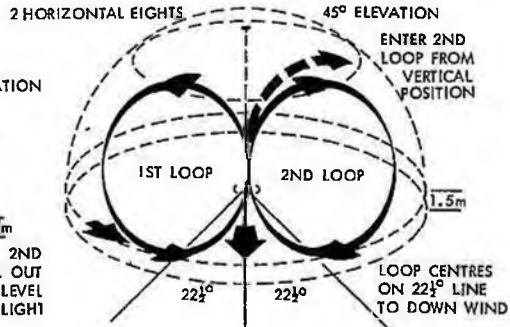
model is truly vertical at the intersection. So you perform 1½ loops inside and then change to down control at that vertical point for one complete outside loop and then back again to up for the second inside loop.

REVERSE WING OVER

START CLIMB TURN EARLY ENOUGH TO ENSURE VERTICAL CLIMB FROM EXACTLY UP WIND



2 HORIZONTAL EIGHTS



Horizontal Eights

The way I think of a horizontal eight is two loops – one inside, one outside – which just touch each other at exactly the downwind point. Therefore as the loops should be 45° in diameter, the first loop must be begun at 22½° before the downwind point. Failure to do this means that the outside loop on the left which is flown second, will be too far round the circle into wind. This causes unevenness and line tension problems. If you consider the two loops separately then it is easy to ensure that the

Vertical Eights

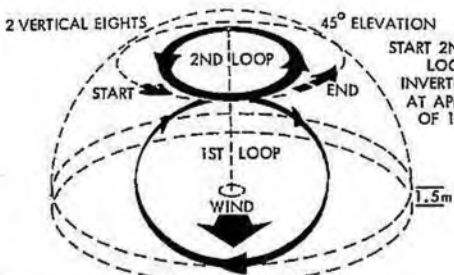
Much of the comment on the horizontal eights applies here but it is more difficult because one loses the ground as a reference point, and the wind has greater influence on the top loop.

The first loop is straight forward in the downwind position with the top at 45°. Fliers tend to enter the second loop too early before the model is horizontally inverted and thus the top loop is not directly over the lower one but biased over to the left, or the right if too

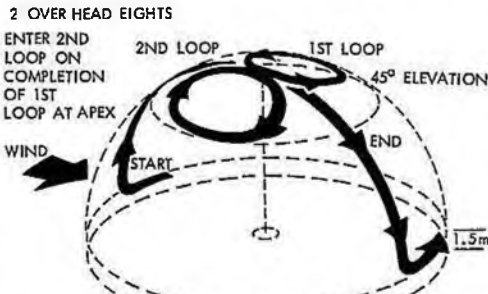
late. One must be careful especially in windy conditions to ensure that the model gets well over the pilot's head before starting the descent. The wind will try to blow the model down and the pilot can easily be caught without enough airspace to complete the bottom loop!

Overhead Eights

See comments on Reverse wing over and remember to consider the eight as two loops which just touch at a position vertically above your head. Note: if it is windy then make the loops larger for safety.



START 1ST LOOP EXACTLY DOWNWIND AT 45° ELEVATION



START TURN FOR CLIMB AS FOR WING OVER ENTER 1ST LOOP FROM APEX OF CLIMB

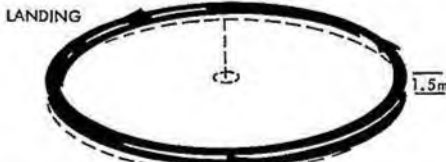
Square Loops

Rather difficult to say that there is one particular error but rather a general lack of precision throughout the stunt. However, general faults include:

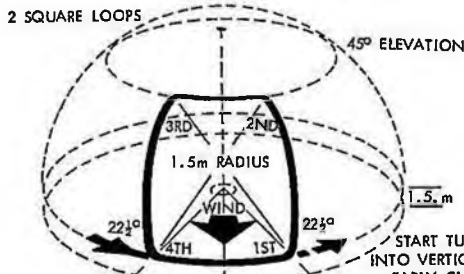
- First corner pulled too tight resulting in loss of airspeed and often climbing back on itself as in a triangle;
- Top corners too open and imprecise;
- Panic turn on last corner causing model to jump and waver on pull out.

Landing

Be aware of the wind direction and try to land into wind so that you have maximum airspeed with minimum groundspeed. A downwind landing on grass usually results in a nose over.

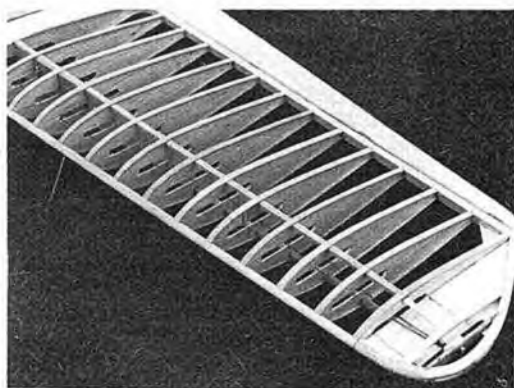
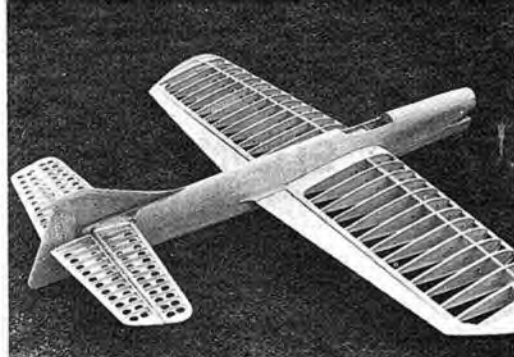


ALLOW 1 LAP TO DESCEND FROM LEVEL FLIGHT MODEL COMES TO REST WITHIN 1 LAP

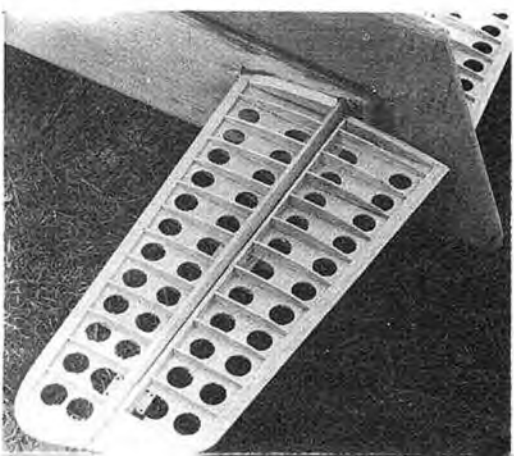


START TURN INTO VERTICAL EARLY CLIMB ON 22 1/2° LINE TO DOWN WIND
FIRST AND FOURTH CORNERS OPEN 90° PLUS
SECOND AND THIRD CORNERS TIGHT 90° LESS

Silencer on 1976 World Aerobatic Champion Les McDonald's model from America, has multihole outlet which can be progressively blanked off with screws to alter power, tank pressure and duration of tank run.

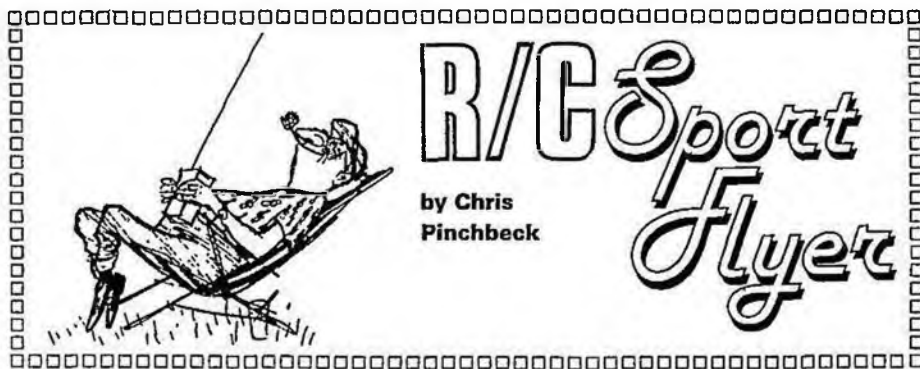


*Above: Glen Alison has been hard at work himself over the winter building season, producing this quite complex model Stilmag designed by Frenchman Yves Fernandez. Full length ribs are capped over the spars which are webbed to half span.
Below: 75mm differential length on leadouts exit through the same hole in an adjustable tip block and tailplane utilises the increasingly popular half rib and sheet construction.*



THIS MONTH:

R/C GLIDING TOWLINE BUNGEE & POWER ASSIST THERMAL SOARING



LAST MONTH we looked at slope soaring, the way in which gliders gain altitude, and the importance of test gliding. Thermal soarers should, in addition, be checked for correct positioning of the tow hook. Ideally the position should be adjustable relative to the C.G. of the model. However, only a few trainer models have this facility and our advice should be compared against the designer's recommended position as shown on the plan. Too far forward and the glider will weave on the line and not ascend very readily; too far back and the model will climb faster but will tend to become directionally unstable and veer off to one side.

THERMAL SOARING

Once again choice of weather for the first flight is important. Ideally conditions should be much calmer than for slope soaring, such as a warm day with a light breeze of up to 10kmph. Whereas the slope soarer relies upon rising air being

forced up and over a hill or ridge, the thermal soarer relies upon a heated bubble of air rising as a thermal. As the air in contact with the ground warms up so it expands and being lighter than the surrounding cold air rises, rather like a slow motion bubble in a tank of water.

As in slope soaring, the model is constantly descending in relation to the surrounding air. If that air is ascending faster than the model's sinking speed it will gain altitude in the thermal. So, the object is to launch the model initially to a height of about 150m and from there fly into one or more thermals to maintain or gain further height.

There are two basic methods of launching an unpowered glider. By towline or bungee, also called hi-start. In both cases the main control used during launch is rudder to ensure that the wings remain horizontal and the model is kept heading into wind. If all goes well then elevator is rarely used. However the idea is to keep the wings at a 'high angle of attack',

remember last month that we said this was controlled by changing the attitude of the tail by use of elevator. The object being to maintain line tension and no more. Care must be taken that the angle and tension are not too much as to persuade the wings to part company with the fuselage!

The simplest and cheapest launch method is by using a towline which normally comprises of a drum to take the line, fitted to a geared winder of the hardware store grindstone type. The line itself which is usually 150m of 25kg breaking strain nylon monofilament fishing line, and a 25mm ring to be a loose fit on the model's tow hook. It is normal to fit a brightly coloured pennant at the top of the line to facilitate release and to help find the end in long grass.

An assistant should be employed to act as tower. The first thing to do is to agree a set of simple signals, remember that you will be 150m apart, eg. wave=ready, arm horizontal=abort, arm vertical=go. The line is laid out exactly into wind from the model, the glider hooked on, and held up with the wings level and nose up at 35-45°. On the go signal, given by the pilot, the assistant starts to run forward, and as the line tension is taken up so the pilot also begins to run until the model feels as if it has reached flying speed. The glider should then lift itself out of the pilot's hands.

The tower will need to vary his speed depending upon the wind speed, he should run quite fast at first, but once the model has started to climb steeply, the tower can reduce speed as necessary, ensuring that the model continues to climb steadily without undue load on the wings, until it reaches the top of the line overhead. The tower then releases any remaining tension on the line and simply shakes it free from the model. Alternatively a pulse of down elevator at the top of the line will allow the model to sink and drop off the towline. In strong winds the assistant need not run so fast and indeed may even be able to walk back towards the model as it climbs in the wind. Conversely in light winds your assistant will have even more work to do and will need to run much faster to sustain the climb during tow.

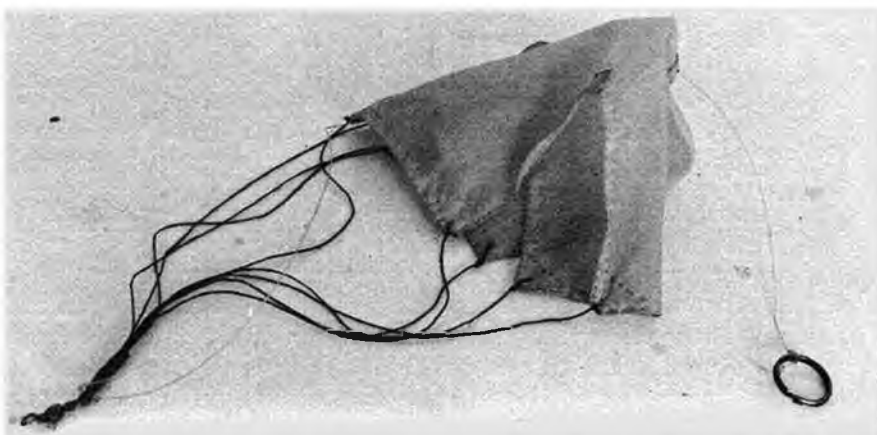


Whether flying solo with a bungee or with a helper to tow up the model, hold the glider nose up 35-45° into wind and run forward a few paces to allow the model to start lifting before release. Be ready for direction corrections using rudder only, leaving elevator control until the model is gliding free.

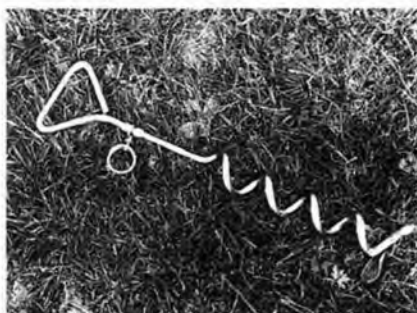
If you have ever flown a kite then the above description will be recognisable. As the model climbs it may weave from side to side; it is possible that by slowing down the 'tower' may stop this but the real cause comes from a towhook too far forward relative to C.G. Alternatively, the pilot will have to correct by judicious use of rudder until the model can be adjusted. Do not over-control, this will only make the situation worse. Very gentle movement of the control surfaces should suffice, but be ready to feed in the compensating correction. If possible, obtain the assistance of an experienced glider tower, as the safety of your model will largely be in his hands and he can ensure a good high launch.

Bungee launching is a method of slowly catapulting the model into the air. The main advantage being that it can be carried out single handed. The launch mechanism consists of an anchoring stake, a giant "cork screw" type dog stake is ideal; 50m of 4-6mm dia bungee elastic; 100m of 25kg breaking strain nylon fishing line; a drogue parachute; and towing ring. Bungee elastic can be purchased from most model shops and consists of a bundle of thin rubber threads sheathed in woven cotton or preferably silicone rubber tubing. The drogue parachute is an integral part of the line, and most model shops stock purpose designed examples. In use the drogue remains closed during tow due to tension on the line and opens only when tension is released from the line. It can assist release from the towing hook and once free, fills with air to slow the rate of descent allowing the line to weathercock back downwind towards the feet of the flyer, laid out in a straight line ready for the next launch.

The best way of making connections between the stake, bungee and line is to make up a type of hook and eye from 18swg piano wire. The wire fittings are



Above: Drogue parachute, a standard accessory, remains closed during tow, opening up for descent.



Left: Large "corkscrew type" dog stake used to anchor bungee line to ground.

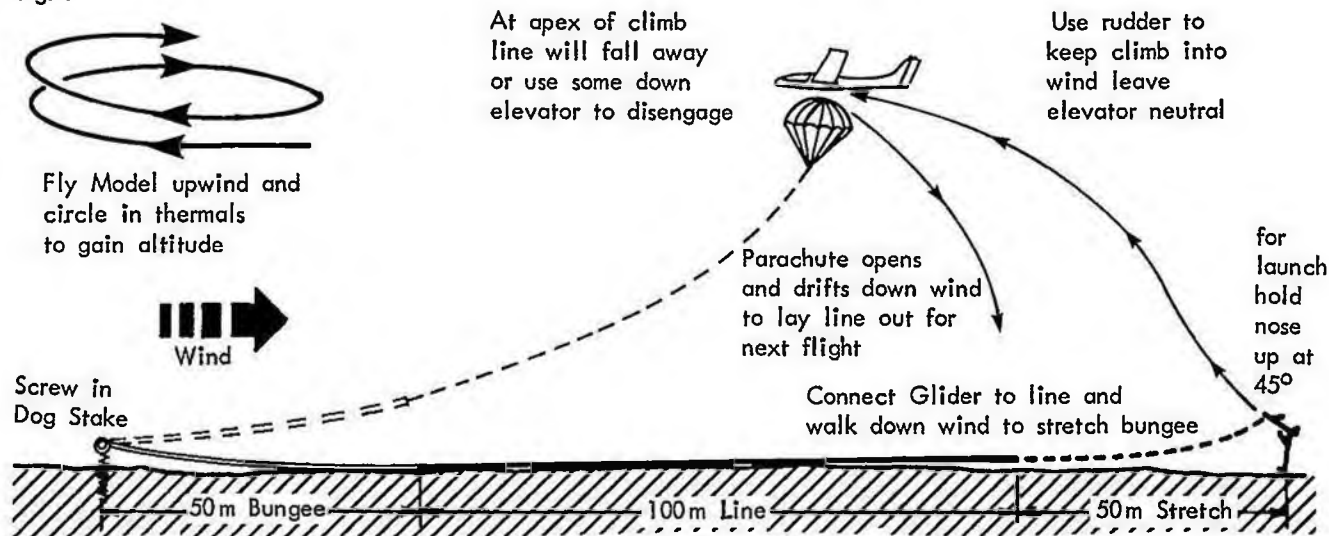
bound to the bungee with sewing thread which should be passed through the bungee cord once or twice and the binding then coated with Epoxy adhesive. The nylon line is simply tied to the 'eye' using one of those cats cradle type contrivances beloved of fishermen and which have been specially developed for use with nylon filament.

Having secured the stake in an up wind position and layed out bungee and towline, hook up the model to the line and walk steadily back down wind perhaps

40-60m. A line tension of about 15-20kg should be aimed for. Get the help of experienced bungee operator if possible to assist in stretching your own launch system the correct amount, or use a spring balance until experience is gained, but even the novice will get the feel for line tension surprisingly quickly - the usual fault being too little rather than too much tension.

The actual launch technique is similar to towline in that the model's wings should be level, with the nose pointing well up. As an approximate guide the pilot should just be able to see the top surface of the wing as the model climbs away from release. As the line tension decreases towards the top of the launch, the drogue parachute will open and the line will fall free leaving the model to glide serenely on! On windy days the model may remain kiting on top of the towline wherupon a pulse down will free the line, Fig. 1.

Fig. 1





How to hold the transmitter is largely a matter of personal choice. Left "Thumbs" method allows transmitter to be gripped firmly in hands; right "Finger and Thumb" grip may offer greater control but really needs neck strap to support transmitter.

The flight pattern will depend upon the amount of lift gained from thermals but as far as possible keep the model up wind at all times so that you can land reasonably close to your starting point. By virtue of their design, thermal soarers seem to go on for ever on the landing approach so your final turn into the wind should be at about 10m altitude and 75-100m down wind, as a very rough guide depending of course on wind speed relative to model flying speed and penetration. Once again ensure that the nose is kept pointing into wind and the wings are level.

The last method of launching is by power assistance from a small diesel or glowplug engine. As a guide a .8cc (.049cu in) engine will take up small to medium size gliders of about 72in wing span, and a 1.5cc (.09 cu in) engine should be used for anything larger. Remember that the object is a long gentle climb of 1-2 minutes not a vertical take off!

Some kits like the Veron *Big Impala* or the Edmonds Model Products *Corona*, make provision for a small engine to be fitted and usually the engine is on a small pylon which is subsequently fitted over the wing or onto a dummy canopy. It is important of course that the CG position is not affected when mounting an engine, or that if it is then corrective ballast is used.

Having started the engine, the model should be launched with wings and nose level. A few brisk steps forward and a gentle forward throw type launch is used. Simply allow the model to settle into its own climbing attitude, do not start feeding in lots of up elevator to gain height or a stall will almost certainly be the result. The flight pattern should consist of large, flat, circles until the fuel runs out and a normal glide can commence. Fuel consumption is normally quite low, and a good starting point is to use a 10cc fuel tank. The quan-

Power pod nose on Edmonds Model Products Cock Sparrow shown fitted with Testor 049. Small motor allows gradual height gain from extended motor run prior to glide.



tity can be adjusted to suit individual requirements of model, engine and conditions once experience has been gained.

THERMALS

These invisible, elusive, 'happenings' have been mentioned earlier and as previously stated are caused by warm air rising. Sometimes in an apparent 'column' and sometimes as a wide 'bubble'. The important thing to remember is that if hot air rises then other colder air has to descend to take its place. Thermal lift is therefore associated with down draughts, and the better the lift the more severe the down draught. It should also be remembered that thermals will drift down wind as they rise.

Since they are invisible, thermals are not too easy to find, however as a guide you should try over concrete, cropped fields, and to the lee of a copse or wood. Bear in mind that if thermals are being created at ground level in these locations they will extend down wind by a distance in proportion to the wind strength. If you see birds circling without flapping their wings and gaining height then they are certainly in a thermal, or if the swallows and swifts seem to be flying in a particular area, it is reasonable to guess that they are feeding on insects which are rising on thermal currents. If your model lifts a wing for no apparent reason then you are probably on the edge of a thermal so turn in towards it.

Thermal hunting is an acquired art which comes from experience and careful observation coupled with a dash of luck. There are no set patterns and each flying site will differ from another in respect of thermal producing areas.



Gräupner BETA constructed especially for the series proved to be an ideal beginner's model for flat field sites. Generally speaking thermal soarers are larger and have lighter wing loading than slope soarers; this allows them to take advantage of rising thermal currents of hot air to prolong flight duration.

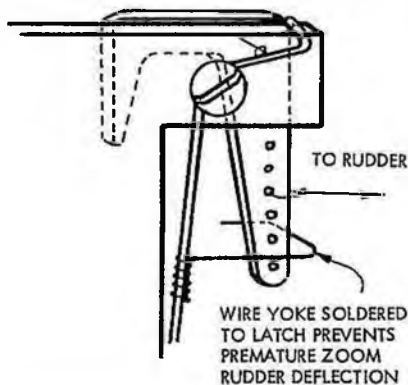
Martin Dilly reports...

ISSAENKO CIRCLE HOOK MODIFICATIONS

One of the characteristics of most circle-and-zoom towhooks is that as the towline tension is increased the hook extends and allows some rudder to come into effect; the intention is to direct the aircraft into its glide turn just before release from the line, but in strong gusts the effect is somewhat different, with the model trying to turn before you intend it to. One way to overcome this is to increase the pre-load of the spring that holds the hook latched against line tension, but this can mean that you have to put a lot of energy into the run-up needed to accelerate the aircraft into the release mode.

The Czech hook variation is one way round the dilemma, and I have now made a modified Issaenko hook that works in the same way. The multi-holed crank to which the auto-rudder line is attached normally moves as soon as the hook is extended under line tension, but in my modification I have soldered a 22 swg wire yoke to the latch so that the crank is unable to move at all until the hook is unlatched. Unlike some circle hooks in which you get some rudder applied as soon as unlatch occurs, this mod. still allows you to tow straight with the hook in the open state if for some reason you have to abort the release after unlatch. Once unlatched, however, rudder deflection increases with line tension.

ANTI-ZOOM MODIFICATION

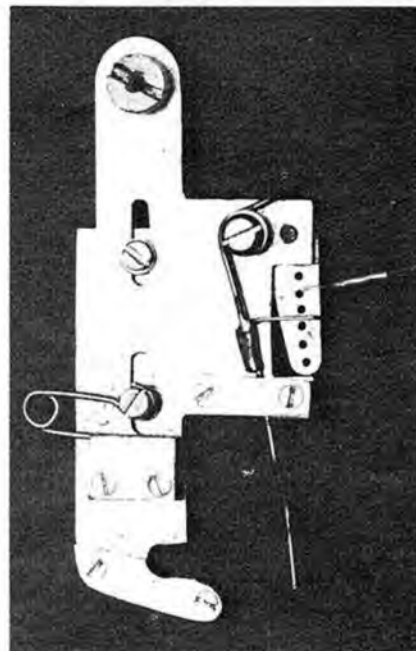
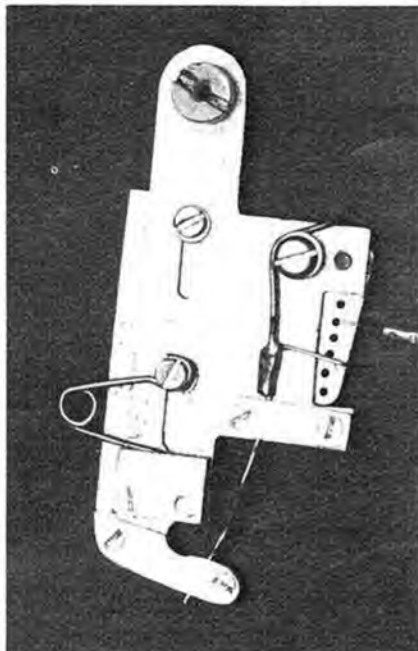


Some people now feel that rudder deflection should actually *decrease* with increasing airspeed, in order to avoid excessively tight turns being induced at launch: a cambered flying surface, including a fin and rudder, generates increasing lift as the airspeed rises, and in the case of rudders this means tighter turns. Once the aircraft is off the line, this airspeed takes several seconds to drop to normal gliding speed, and if released in a tight turn the result will be a height loss instead of a gain. It is for this reason that rudder delay systems are sometimes used, notably by the Soviet flyers; the idea here is that the glide setting for the rudder does not come into effect until this excess airspeed has been converted into height gain after release. To actuate this separately from the D/T timer, I am using an ultra-light all-nylon clockwork timer that weighs around 5 grammes; if an overseas source of these becomes economic I will keep you informed. Meanwhile, no letters please!

STEVE HELMICK'S TIMER START

It is said that there's nothing new under the sun, and at Teft it turned out that both Steve Helmick (Bat Sheet editor and glider flyer) and I had independently arrived at similar ways to convert the ubiquitous Issaenko circle towhook to give a timer-start-on-unlatch facility. In my case, the slight of a new and promising A/2, gliding off towards the sea at Beaulieu trailing most of its broken towline as it dangled from the nylon timer start line after the hook unlatched, concentrated my mind on finding a solution. As well as ensuring that the timer starts when the hook unlatches, this system also allows you to release the ground end of the towline, as long as the winch is not attached.

Both our methods use the latch spring as a means of pulling a lock out of the timer, and run the connecting



line close to the hook pivot (as in the modification of the Hatschek hook now available) so that the timer does not 'know' when the hook swings backwards and forwards. Mine runs the connecting line through a couple of pieces of radiussed aluminium tubing, while Steve uses Teflon or PTFE surgical catheter tubing, used for artery probing; I suspect that the Maxaid PTFE tubing is very similar. The drawing makes the system clear; original idea is credited by Steve to Kevin Collins.

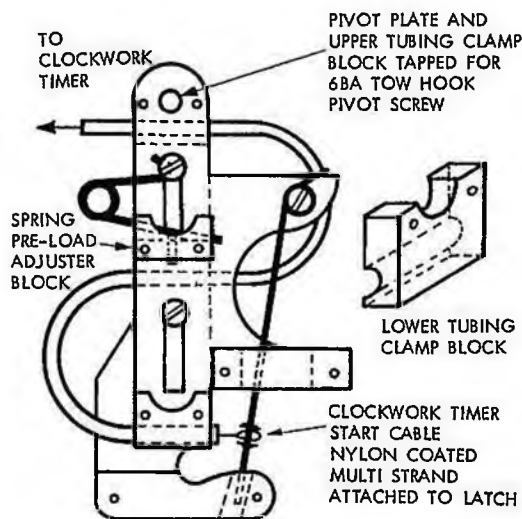
The Helmick version of the hook uses my adjustable spring layout, but sensibly moves this up the hook to alter the pre-load on the upper, rather than the lower, of the two screws that slide in the pivot plate. This probably allows rather more scope for variation of pre-load, as the slotted block, holding the adjuster screw and the lower end of the spring, can be further away from the sliding screw that the spring bears against. My version, with a low-mounted block, is restricted by the need for the adjusting screw to be kept clear of the actual hook region where the tow ring may foul it.

It appears from this sketch that Steve does not use the zoom rudder facility on his hook, as the multi-hole crank is not shown; in any case it makes the timer start system easier to follow. For the release line that goes to the vane or escapement of the timer, use either nylon-coated stranded steel cable like that sold by Maxaid, uncoated steel cable (with the timer end soldered to prevent unravelling) or stiff 40lb+ nylon monofilament. The hook end of this is, of course, attached near the end of the sprung latch wire and pulls rearwards when the hook latch opens.

Another Helmick nice idea is to tap the pivot hole of the hook and use a suitable machine screw - 4-40 in this case, which is approximately 6BA - to position the hook laterally in the fuselage; this avoids the need for washers and spacers to prevent the thing jamming against one side of the hook compartment. The pivot plate of the hook is .063" aluminium alloy and the small rotational movements of the hook during use would be unlikely to cause much wear at the hole.

Above left and Right: Issaenko type tow hook (originally detailed P276-727 December 76 and P101 February 78 Aeromodellers) incorporating anti-zoom wire yoke shown in tow and release mode overriding the auto rudder line arm.

STEVE HELMICK'S TIMER START MODIFICATION

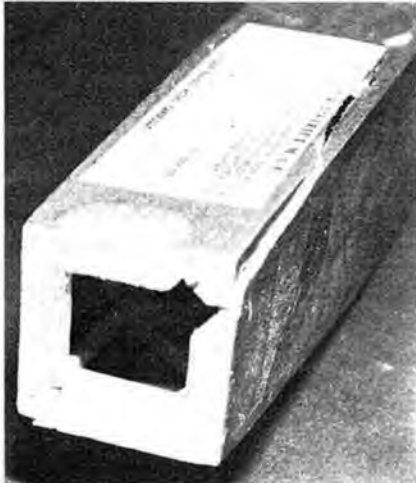


BRYAN SPOONER'S PROP HUB

A new Coupe d'Hiver model by Croydon member and past team manager Bryan Spooner uses an elegantly simple torque-sensing system that incorporates a hold mode as well. The main shaft is bent into a square U shape at the front and carries a top-hat shaped washer soldered to it to take the tension of the rubber (a later modification uses a long sleeve with an integral flange at its rear end to do the same job, without being reliant on a solder joint to withstand motor tension). The shaft (or sleeve in the case of the mod.) runs through a prop carrier, a sliding brass tube to which the wire propeller arms are soldered; a compression spring between the front of this tube and a washer soldered to the front end of the shaft pushes the propeller back. Because the prop arms are coiled round the brass tube and thus staggered fore-and-aft, only one of them can engage with the stop on the noseblock ensuring identical blade folding every flight. This pin takes quite a heavy shock load and is epoxied at its front end into a light alloy faceplate and at its rear to a ply plate at the rear of the noseblock.

To give a positive position for the prop carrier in the drive mode, Bryan has filed a groove in the U bent shaft drive pawl, into which the driven prop arm locates. In use, the prop carrier is pushed back after the motor is wound, so the stop pin engages with the rearmost prop arm; this enables the model to be held fully wound, while looking for lift. Before launching, the prop carrier is simply pulled forward to engage with the drive notch, simultaneously disengaging it from the stop pin. As well as a thrust race, the Spooner hub uses twin ball races to ensure that the maximum power from that 10 grammes of rubber reaches the prop.

Another hub working on a similar principle is that of Georges Matherat, first published in the Vol Libre Coupe d'Hiver Special, edited by André Schandel. Instead of a pin fixed in the faceplate of the noseblock, this employs a wire pin twisted round and soldered to the sliding prop carrier; as the torque declines the carrier is released to spring rearwards and locate into a suitable hole drilled in the faceplate.

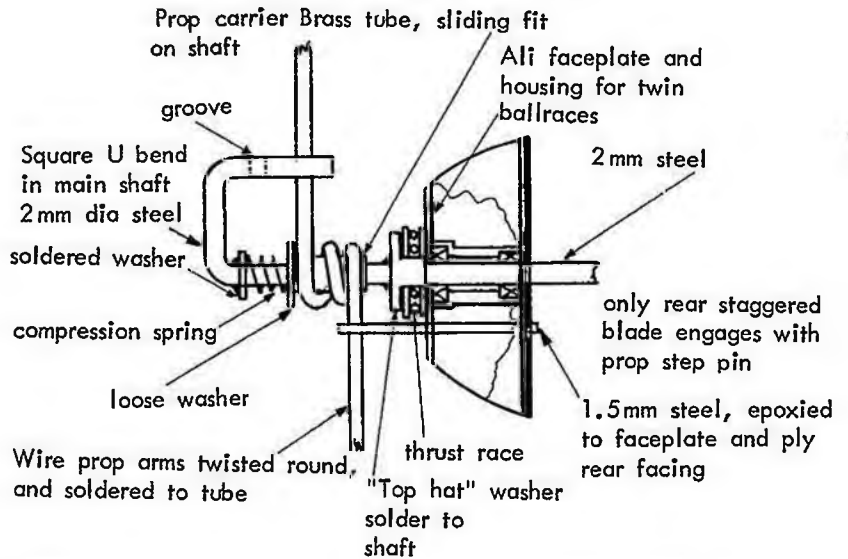


Above: Damaged nose resulting from shock loads of Montreal propeller stop.

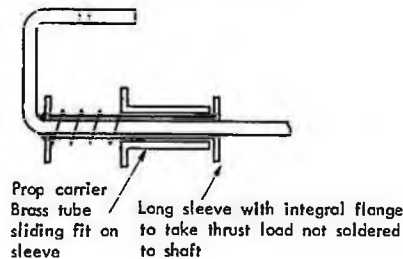
SHOCK LOADS ON MONTREAL PROP STOPS

It is sometimes difficult to appreciate just what sort of loads occur in Free Flight aircraft. Having noticed that the drop-in pin on some of my early Montreal stop systems was bending in service, in spite of being made of 18swg wire for a Coupe model. I realised that the sudden stopping of even a fairly slowly turning propeller imposes quite a strain. This was recently emphasised when the front 100mm of a Coupe model of mine was found to have split in flight. I had used a 0.8mm ply nose former, backed with 3mm square spacers and 1.5mm balsa nose sheeting, but the former had had a rectangular slot cut in one corner to clear the rear peg when inserting cartridge-contained motors. This served to concentrate stresses and eventually three years of contact flying proved too much for it, and the repeated shocks as the nose block tried to twist as the drop in pin engaged finally caused the damage shown in the photo. A few turns of thread binding round the repaired nose will hopefully avoid a repeat.

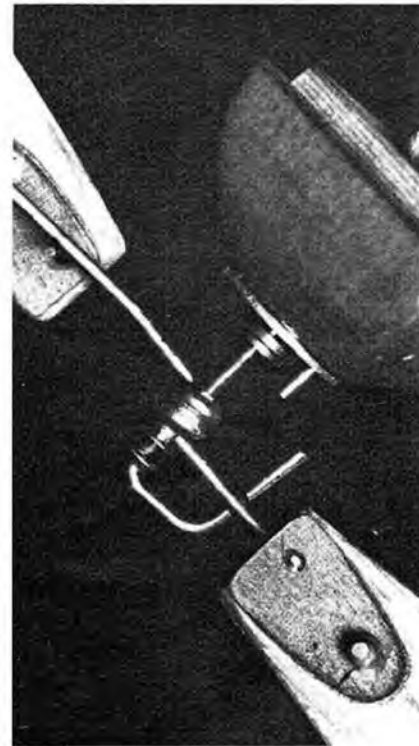
BRYAN SPOONER'S PROP HUB



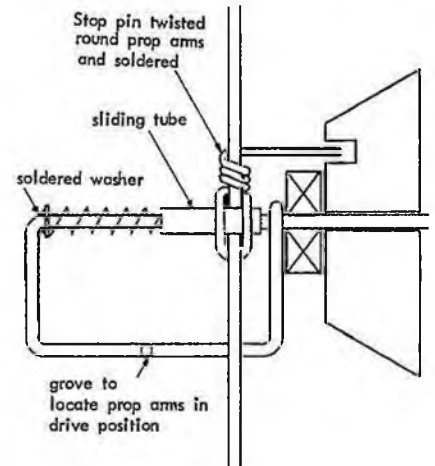
MODIFIED SPOONER HUB



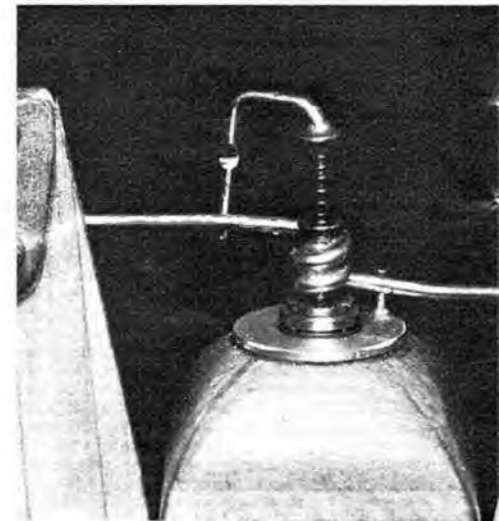
Below: Bryan Spooner's propeller hub shown in the forward running position.



GEORGE MATHERAT'S PROP HUB



Below: Spooner propeller hub with shaft retracted and blades folded.



Dave Hipperson reports....

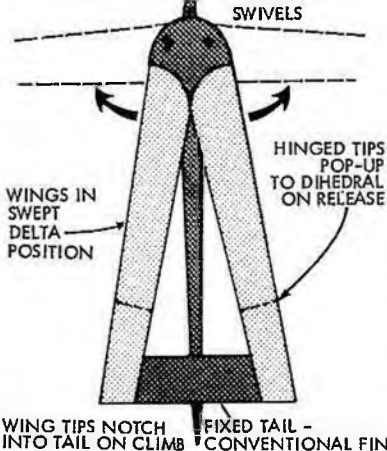
Further Folders

Gerhard Heideman has been experimenting with FAI folders, and not unnaturally reports considerable problems at pull-out. It seems that any turning forces acting at the moment of wing tip release understandably tends to unfold the tip on the outside of the turn faster than the tip on the inside, because of the increased air speed of the outside tip. This has the effect of worsening the turn and puts the model into a spin from which it never recovers. To put it into Gerhard's own words - 'the turn gets closer and closer until the model crash!'

To rectify this he has devised a double pulley wheeled arrangement that links the two tips throughout the wing with control line wire. It is similar to the system some people use on extreme out-rigger props to stop one blade folding before the other. In theory this should keep each tip's movement in phase with the other. However, although he reports this to have worked well on an .049 prototype in practice on the full scale FAI model the inherently larger forces at work serve to either bind the whole lot solid or introduce too much play to allow the linkage to be effective. He has crashed a model when one tip jammed shut!

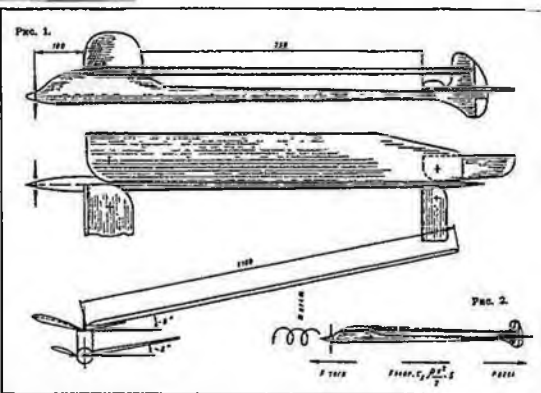
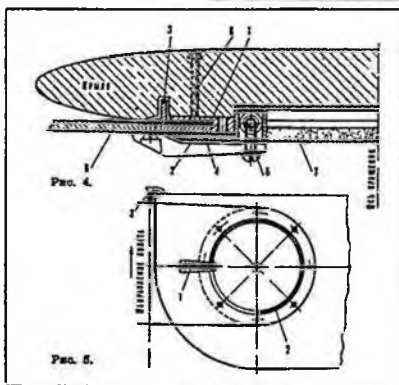
On the other hand we have pictures from the USA of Bill Gieskieng proudly displaying his version. From previous drawings Bill has sent me I know that the release device relies on that thin pylon pivoting back in the fuselage. The close-up view shows some of the tremendous complexity that goes into making the rig work every time. He has reported no problems with uneven release although I know he doesn't link the tips. Reassuring to see he uses the good old fashioned elastic band to pull the whole assembly into the glide setting when the moment arrives. Note also enormous stepped turbulators well aft of wing section high point.

We also have news of a Russian development into the realms of swing wing. Now if Sir Barnes Wallis was still alive he would definitely approve of this development. A V dihedral is used with a very complex skewed hinge so that both sides of the wing lay back along the fuselage for the powered portion of the flight. In fact although probably unnecessary the tail is similarly swung back as well. Obviously this gets around some of the mechanical problems inherent in flappers and folders but introduces others. What wing section and how do you trim a power pattern with a configuration that most closely resembles a plank of wood? The way may be to build it along the lines of my drawing here which I assure you was made before I saw the Russian version. Wing tips flap up into dihedral after release!

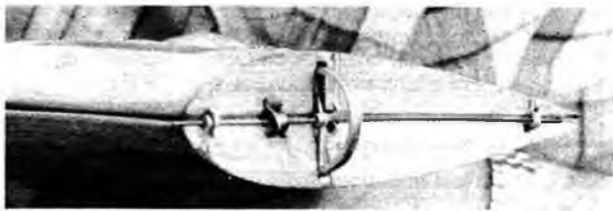


Above: Bill Gieskieng with his latest FAI folder, attending to the folding fin! Left: Timer mechanism set for climb with wings folded and parallelogram pylon skewed forward.

Below: Details of Russian FAI swing wing design complete with working drawings of hinge point which indicate wing halves linked by twin pulleys similar to Heideman's method.



Below: Gerhard Heideman, top FAI Power flier in Europe last year, displays Flipper in power and glide mode. Linked pulleys at dihedral brake help ensure simultaneous operation.



SMAC Centralised Meeting

Barkston Heath, April 5th-7th

Open Glider: 1. M. Coomes (Grantham) 9:00+9:24 (100%), 2. C. P. Williams (Richmond) 9:00+5:43 (98%), =3. J. Baguley (Birmingham) 9:00+5:21 (96%), =3. M. Dilly (Croydon) 9:00+5:21 (96%), 5. J. Bailey (Biggles) 9:00+4:19 (92%). Open Rubber: 1. P. Ball (Grantham) 9:00+7:38 (100%), 2. J. Fletcher (St Albans) 9:00+8:31 (95%), 3. R. Peers (Falcons) 9:00+7:15 (90%), 4. J. Bailey (Biggles) 9:00+7:04 (85%), 5. M. Presnell (St Albans) 9:00+7:02 (80%). Open Power: 1. J. K. Smith (B.A.C.) 9:00+8:04 (100%), 2. T. Smith (B.A.C.) 9:00+7:56 (94%), 3. D. Reader (Birmingham) 9:00+5:06 (88%), 4. J. Bailey (Biggles) 9:00+3:54 (83%), 5. A. G. Jack (Tynemouth) 9:00+3:02 (77%). Club Championships: 1. Grantham (Ball/Coomes/Gilmore) 261%, 2. Biggles (Bailey/Bailey/Bailey) 260%, 3. Birmingham (Walker/Baguley/Reader) 239%, 4. Tynemouth (Anderson/Jack/Jack) 220%, 5. East Grinstead K. Taylor/K. Taylor/R. Taylor) 163%. European Team Trials: F1A: 1. G. LeVey (N. Yorks) 21:00, 2. B. Baines (RAFMAA) 20:56, 3. J. Bailey (Biggles) 20:50, 4. P. Bayram (Richmond) 20:39, 5. A. Cordes (Whitefield) 20:08. F1B: 1. G. Foster (RAFMAA) 21:00+4:00, 2. I. W. Kaynes (Croydon) 21:00+1:56, 3. M. Woodhouse (Norwich) 20:38, 4. J. O'Donnell (Whitefield) 19:59, 5. P. Ball (Grantham) 19:27. F1C: 1. K. A. Faux (Freebird) 20:51, 2. A. G. Jack (Tynemouth) 20:47, 3. S. Screen (Birmingham) 20:46, 4. P. Rowledge (C/M) 20:29, 5. R. Monks (Birmingham) 20:28.

OLD WARDEN RUBBER SCALE CONTEST

Readers referring back to 'Scale Matters' P.731 December 1979 *Aeromodeller* will find a report on a contest for outdoor Rubber Scale models held at Old Warden Aerodrome in July last year. This particular meeting was successful enough to encourage a repeat fixture for 1980 and this is now scheduled for July 20th.

Last year's event was blessed with quite perfect weather, and an excellent turn-out of models and builders enjoyed a very good, and of course, very quiet day's flying.

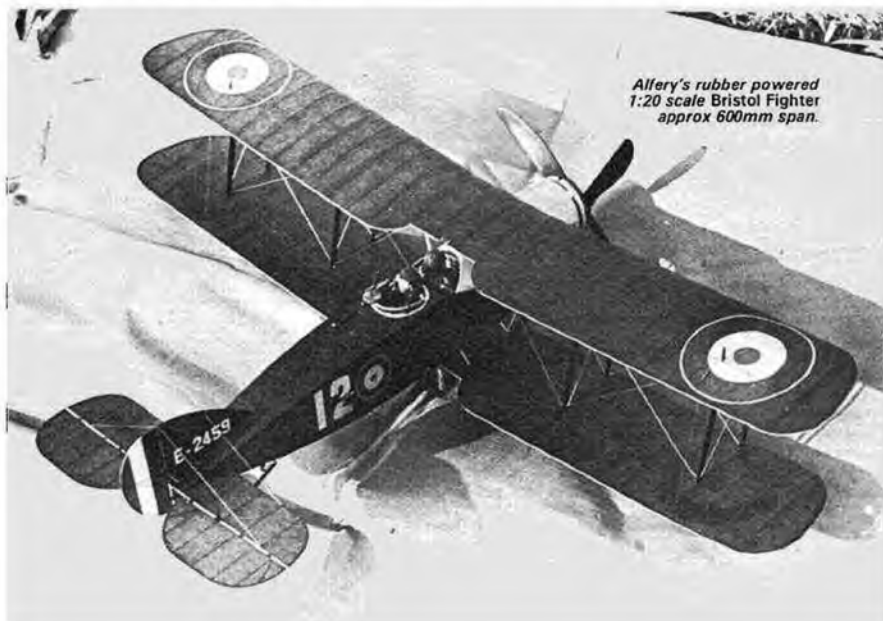
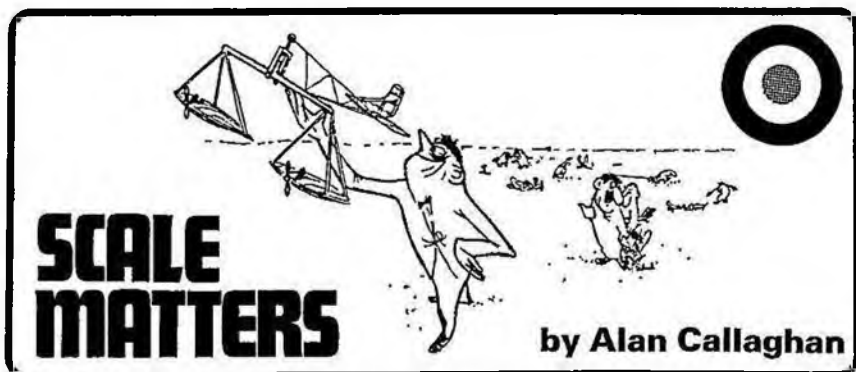
This year, a Control-Line Scale (Class 2) event will also be held on the same day, but the emphasis in both events will be on participation and enjoyment rather than competition. SMAE membership is not *essential* as a condition of entry, so that a few more of those who fly purely for sport may be tempted along, though some scale documentation will help for both events. The rules used in the Rubber contest last year were specially drafted for the occasion, with the emphasis on simplicity, and are as follows:

The contest is divided into three sections each of which can score a maximum of 50 points. All items are marked out of 10 and multiplied by the relevant K factor.

OPEN RUBBER SCALE RULES

| A Static Scale | K Factor |
|---|----------|
| 1. Overall Scale Accuracy | 2.5 |
| 2. Quality of Workmanship | 1.5 |
| 3. Complexity: | |
| (a) of subject | 0.5 |
| (b) of colour scheme & markings | 0.5 |
| B 1st Flight – Scale (2 attempts) | |
| 1. Take-off & Climb | |
| (a) ROG <i>or</i> | 1.5 |
| (b) Handlaunch | 0.5 |
| 2. Cruise | 1.5 |
| 3. Landing Approach and Touchdown | 1.5 |
| 4. Special Flight Option e.g. U/C retract, bomb-drop, aerobatics etc. (valued by judges) | 0.5 |
| C 2nd Flight – Duration (2 attempts) | |
| Timed duration up to a 50 seconds maximum. An attempt over 10 seconds will count as a score, but a competitor may forfeit first attempt if unsatisfactory, and the second attempt must then count as final. | |

The potential maximum score is 150 points, last year's winner scored 113, and the rules were accepted quite happily by all competitors. It goes without saying that the emphasis is on flying, but every single point (and half-point) counts, and the flying more or less has to be right first time! One final note; any Rubber Scale model is eligible *except* Peanut Scale models. The



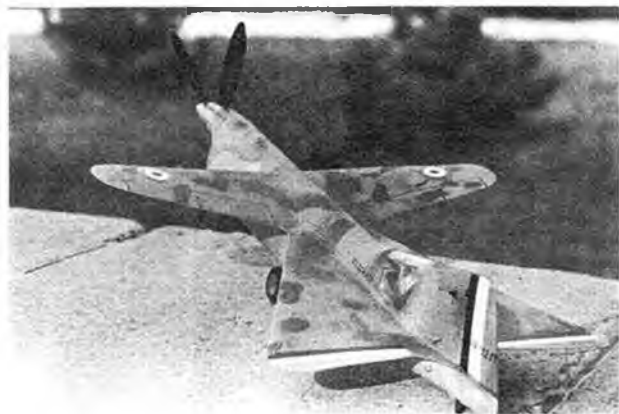
aim is to encourage larger, but not necessarily more complicated models, in the hope of seeing this event become a regular annual meeting. A very good spread of prizes was in evidence last year and we hope to have something similar for Event Number Two.

SCALE IN CZECHOSLOVAKIA

Still on the subject of Rubber Scale mod-

els I was pleased to receive another report on scale flying in Czechoslovakia from Ing Lubomir Koutny of Brno. News from this part of the world has appeared in the scale column on several occasions in the past and the latest batch of photographs show that interesting and unusual model subjects continue to dominate scale contests there. At one meeting with a total of thirty models, no less than six twins and five

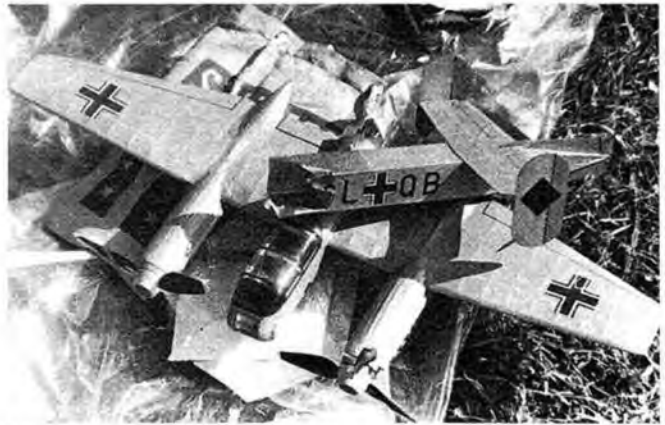
Remarkable 1:20 scale Payen Pa 112 C1 by Lubomir Koutny features contra-rotating props on common shaft axis, retracted undercarriage and fully detailed colour scheme. Such a model is typical of the ambitious rubber powered projects undertaken by Czechoslovakian scale modellers, really light weight construction and sparing use of colour helps make these unusual subjects really top performers in the air.



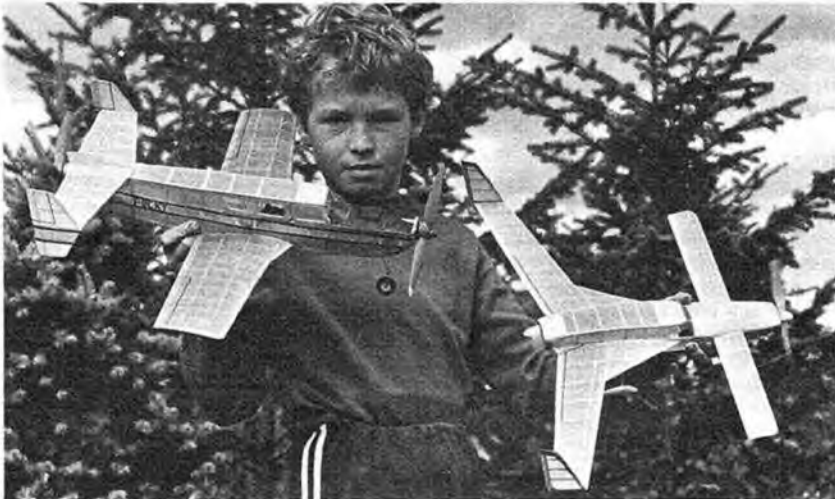
canards were counted – all rubber powered! At another event Ing Koutny's twin DH Hornet returned a flight time of 150 seconds with the aid of some of the latest Pirelli and a friendly thermal.

Close examination of the photos submitted shows that few of these models are very highly detailed, although overall proportions, outlines and areas appear to be quite accurate and to scale. Finishes appear to range from straightforward tissue covering to dyed tissue or tissue with very lightly painted surfaces. Models with a totally opaque scale finish of the type regularly seen at meetings in the UK are something of a rarity, due no doubt to the penalty of such heavy finishes on flight duration. In view of some of the flight

Right: *Unfortunate end for Stranik's Arado 240 with "broken back" after heavy landing. Lightweight structure is apparent and twin props contra-rotate.*



Below: *Peter Koutny displays his own Moynet Jupiter with his father's Rutan Defiant. Both twins are good performers.*



times claimed (200 seconds with a rather semi-scale Rutan Defiant push-pull twin) this emphasis on very lightweight models but with excellent performances to make up for what they lack in ultimate scale accuracy, is surely a very sensible way to fly, and worth emulating here in Britain.

It seems that all Czechoslovakian contest models are built to a constant scale of 1:20 so that most, but especially the multi-engined types, are models of a reasonable size, but probably much too large for comfortable indoor flying. Peanut Scale models are flown regularly but they are not the most popular type. One group of fliers were able to fly their specially built floatplanes at a swimming pool but no details are given of how well they fared.

From a large batch of photos the following subject seemed to be a fairly representative selection.

The somewhat damaged *Arado 240* twin was built by a student, Mr Stranik, and shows a very simple square-box type fuselage that has not stood up very well to a rather heavy landing. Three-bladed contra-rotating props are used and the model also features a moulded cockpit canopy. At 1:20 scale this model would work out at approximately 830mm span.

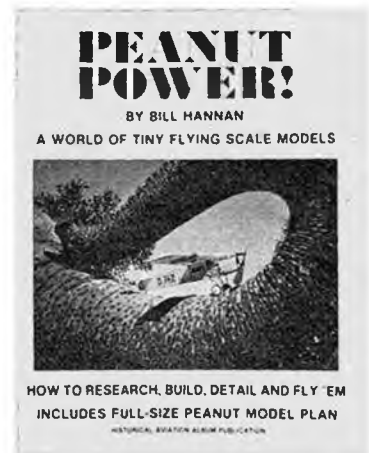
Also with contra-rotating props, but this

time with them both on the same shaft, is a quite unique *Payen Pa 112 C1* by Ing Koutny himself. This model is built with the U/C retracted, a proper painted camouflage colour scheme, and is 230mm span. With all that wing area within its tiny wingspan this would be the avid Peanut Scale modellers' dream. I wonder who will be the first to try it? Lubomir's son, Peter, is shown holding a *Moynet Jupiter*, built by himself, together with his father's *Rutan Defiant*. Both these models are push-pull twins, have a very simple structure and area neatly covered and trimmed in tissue. These, as well as all the other rubber models in fact, feature very well proportioned and carefully carved propellers – obviously much of the secret to good flying performances.

Lastly and to show that not all are out-of-the-way subjects comes a beautifully built *Bristol Fighter* by a Mr Alfery. This model comes nearest to the UK approach in scale modelling by virtue of its fully-detailed and occupied cockpits, scale propeller – no doubt replaced for flying by one with more blade area – and full rigging and colour scheme. It is possible however, to see the roundels on the underside of the lower wings, so it would be interesting to know *exactly* what the finish is!

PEANUT POWER!

Recently received for review is a quite superb new book with the above title by American Bill Hannan. Bill's activities are well-known through the pages of *Aeromodeller* and he was at the forefront of the rediscovery and development of small scale flying from the early 1970s to date.



The book is produced in the house style of the familiar Historical Aviation Albums by Paul Matt, and is lavishly illustrated with photographs, diagrams, charts, tables, and information that will prove invaluable in one volume to the small scale model flyer. Chapter headings include everything from 'Motives' (very amusing!) to 'Transportation, Storage and Display', with just about every single aspect of Peanut building and flying taken in along the way. A full-size plan of a *BD-4* is also included for those who will no doubt be inspired by the highly readable text. The eighty pages demonstrate a wealth of knowledge and experience to refer to, and are written with just the right balance between seriousness and fun to make this aspect of scale flying seem very attractive indeed. Very highly recommended! The UK distributor is: W. E. Hersant Ltd., 228 Archway Road, London N6.

G-MARK 1cc

G-Mark engines, manufactured in Japan and sold in the UK by Irvine Engines, are a recent addition to the market. The first to appear was the G-Mark .03 (0.5cc) in 1976 and this was followed by .061 cu. in. (1cc) model, called the 'Seagull', in 1977. This model was briefly described in the February 1978 *Latest Engine News* column but, since then, an entirely new .061 has been introduced.

This new .061 is of more conventional design than the original version. Unlike the earlier model, which had a separate machined crankcase barrel with detachable front and rear ends, the current version has a pressure cast crankcase with integral bronze bushed main bearing. Like the Seagull, the current .061 is supplied complete with a silencer, but this is now pressure cast in two parts, instead of being assembled from four machined components.

The engine is of the lapped piston type with crankshaft induction. The piston is of steel, ball jointed to a steel conrod and runs in a one piece machined steel cylinder. The cylinder, which has two diametrically opposed exhaust ports and two internal flute type transfer ports, is threaded at the bottom and screws into the crankcase. The cylinder head is of aluminium, is attached with four screws and uses a separate glowplug.

The crankshaft has an 8mm dia. journal and a 3mm dia. crankpin on a full disc web with crescent counterbalance. It is knurled at the front for the pressed-on prop driver. The prop is retained by a 3mm screw.

The engine has a bore and stroke of 11.20x10.15mm, giving a swept volume of exactly 1.00 or .061 cu. in. It is available either as a standard free-flight/control-line engine with plastic venturi insert and conventional spraybar assembly, or with a simple barrel-throttle carburettor for R/C. Checked weights are 58 grammes for the standard engine or 63 grammes for the R/C version. The silencer adds a further 15 grammes to these figures.

These engines are well made and nicely

Engine News



The throttle-equipped .061-RC version of the G-Mark 1cc engine, with silencer fitted.

by Peter Chinn

finished inside and out. Like most very small glow engines they are at their best on a medium-high nitro fuel (20-25 per cent nitromethane). Recommended prop sizes are 6x6 or 6x3.

G-MARK TWIN TESTED

This engine is based on two G-Mark .061 cylinder and piston assemblies, horizontally opposed and simultaneous firing. The result is a very attractive small lightweight twin weighing only 5oz. but which performs uncommonly well.

On test, our motor recorded the following prop rpm figures.

10,200 rpm on an 8x5 Power-Prop maple

11,600 rpm on an 8x4 Power-Prop maple

12,200 rpm on a 7x5 Power-Prop maple

13,600 rpm on a 7x4 Top-Flite nylon

14,200 rpm on a 7½x3½ Bartels epoxy-glassfibre

15,600 rpm on a 7x3½ Bartels epoxy-glassfibre

16,200 rpm on a 7x3 Top Flite maple

16,400 rpm on a 6x5 Top Flite maple

18,400 rpm on a 6x4 Top Flite maple

Peak power output was determined at just over 18,000, so there would be little point in using a prop smaller than 7x3 or

6x5. The engine prefers a reasonable nitro content in the fuel. We found 10 per cent to be the acceptable minimum. The tests were conducted on 25 per cent nitro and with the engine's integral collector-ring type silencers fitted. Handling was good and throttle control, for a small engine, was also quite good.

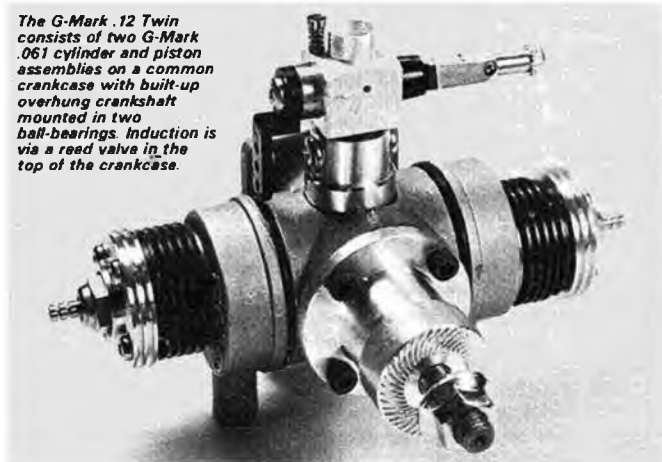
O.S. FT-120 'GEMINI'

Mention of a new twin cylinder engine cannot be allowed to pass without reference to another twin now coming onto the UK market, even though it may be somewhat beyond the reach of most readers.

This is the magnificent new O.S. FT-120 'Gemini', which is quite the most elegant and realistic engine yet offered to the aero modeller. Aimed at the top end of the radio-control market, it is a 20cc (i.e. ten times the G-Mark's capacity) horizontally-opposed four-stroke engine designed very much along full-size light aircraft engine lines. It has overhead valves enclosed in scale type rocker covers and operated through push rods, via mushroom tappets, from a camshaft in the bottom of the crankcase and gear driven from the rear of the crankshaft. Despite its scale appearance and the fact that it is an obvious collector's item, it is a



The G-Mark .061 engine in its revised version with conventional crankcase and showing its new two-piece diecast silencer.

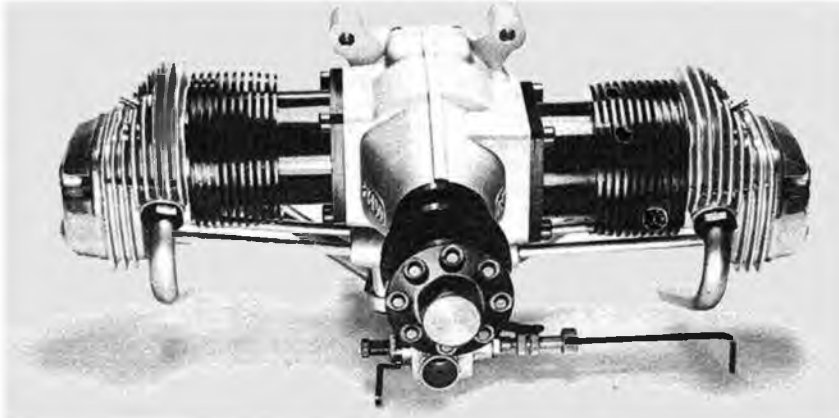


The G-Mark .12 Twin consists of two G-Mark .061 cylinder and piston assemblies on a common crankcase with built-up overhung crankshaft mounted in two ball-bearings. Induction is via a reed valve in the top of the crankcase.

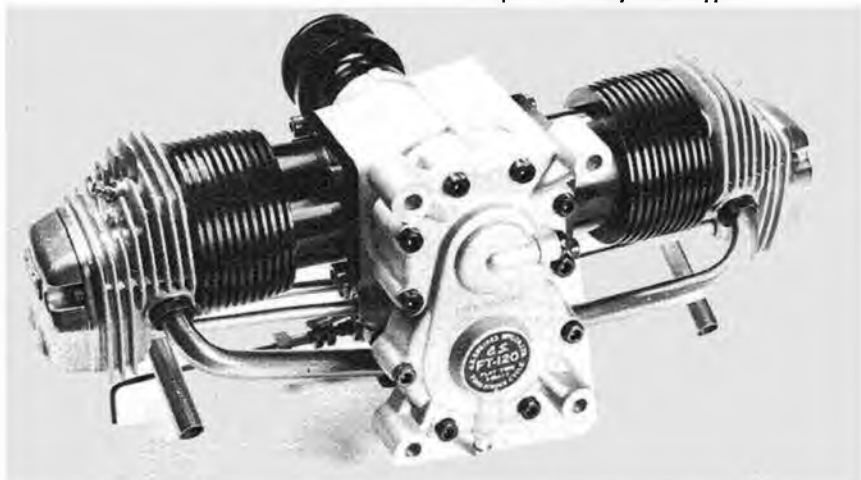
thoroughly practical power unit, strongly built and designed to withstand the normal rigours of the flying field.

On test, our Gemini was easy to handle and produced 1.3 bhp at 10,000 rpm, but it can be loaded down to much slower speeds and still produce plenty of power. Recommended prop sizes range from 16x6 to 18x6, using models of 9 to 15lb weight and 1,200 to 2,500 sq. in. wing area.

The engine weighs 34oz and has a bore and stroke of 24x22mm, giving a swept volume of 19.90cc or 1.215 cu in. Construction throughout is to the usual O.S. high standards and the engine is supplied complete with an optional bulkhead mounting plate, plug leads and clips, a selection of spanners and Allen keys, a



Above: The "ultimate" model aircraft engine, the splendid new O.S. Gemini twin-cylinder four-stroke engine with rear view below. Current UK list price is £356. Engine is radially mounted direct to model or via special cast alloy mount supplied.



pair of feeler gauges for tappet adjustment and a 20-page instruction book. Currently, demand is running well ahead of supply and, to date, only a handful of these engines has reached the U.K. distributors (Keilkraft) and all of them were immediately sold.

NOVA-I

Noted Wakefield flyer Mike Thomas, writing from Canada, sent the photo of his Nova-I diesel and explained:

I occasionally take time off from my Wakefield and indoor flying to make the odd engine: I've made fifteen over the years. Mainly, I construct engines of my own design, but I also enjoy building engines from published plans, such as the Westbury models. I have a soft spot for early diesels and have built the Sparey 0.8cc which I thought was the earliest English published plan until I recently came across 4.5cc Nova-I, a Dutch design published in the May 1946 issue of Model Aircraft. It is a big, chunky, heavy thing – more like a 10cc size. It turns a 16x6 prop (as per plan!) at 4,000 rpm! The crankcase is sandcast light alloy – all the rest is machined from solid. The transfer passage and intake tube are silver-soldered onto the cylinder.

Mike would like to hear of any other known examples of the Nova-I and/or of any earlier published diesel engine drawings. As far as we are aware, the Sparey 5cc (*Aeromodeller*) and Nova-I (*Model Aircraft*) were the first diesels of which working drawings were offered in the U.K. (1946), although some drawings for the construction of diesels were published on the Continent a little earlier: for example, by Morin in France and by our old friend Jan David-Andersen in Norway who wrote a book on the subject in 1944-5 and published working drawings for a 2.4cc engine at the same time.

The prototype Nova-I was built in December 1943 in Holland by I. J. van Leeuwen and its design was typical of the early diesels. One of the late Alex Houlberg's excellent cutaway drawings published in the May 1946 *Model Aircraft* shows it to have been a long-stroke engine with a plain bushed main bearing and induction via piston-controlled port at the rear of the cylinder. A steel cylinder with integral fins was flanged at its base and attached to the crankcase with screws. The aluminium cylinder head, containing the compression screws, was also attached with screws. Fuel was drawn from a neat cylindrical tank behind the crankcase.

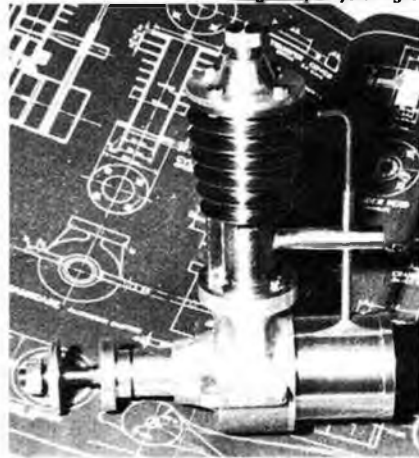
O.S. MAX-40FSR STUNT

The adoption by several C/L stunt flyers (including a World Championship winner) of the Max 40FSR radio-control engine, has finally resulted in the manufacturer offering a special C/L aerobatic version of this engine, to be known as the Max-40FSR Stunt. In addition to having a stunt venturi and needle-valve assembly, it has revised induction timing and a differently shaped combustion chamber.

O.S. SPEED ENGINES

Several readers have asked us about the experimental O.S. Max-15SR rear exhaust, rear disc valve racing engine that was first seen in 1978. We checked with O.S. engine designer Joe Mihara (who actually built these engines) on this matter and learned that it is *not* the company's intention to put this motor into regular production. Examples are, however, being used from time to time in contests and one of them, in the hands of Japanese speed flyer Akeshi Kasumoto, placed third in the 1979 U.S. Nationals Class A open event. Kasumoto also placed in the Class D event at the U.S. Nats using a converted O.S. Max-65VR marine engine. This is also a rear exhaust, rear disc valve unit and the engine was virtually standard except for replacement of the flywheel assembly and water cooled head.

Nova-I diesel built by noted Wakefield flyer Mike Thomas from drawings published by Model Aircraft magazine, 34 years ago.

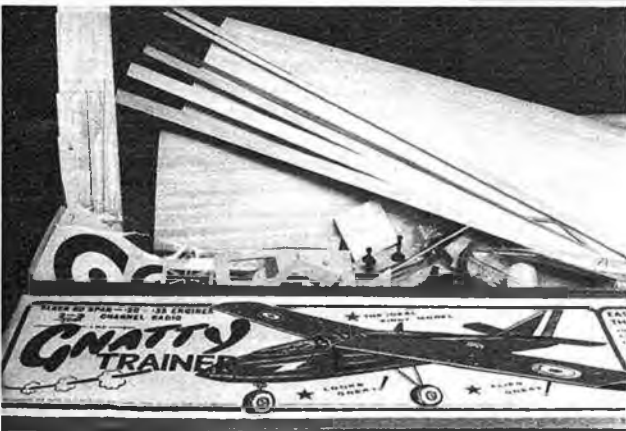


DPR MODELS CHUCKIES

Everyone agrees that the easiest and most enjoyable way to start model flying is with a simple Chuck Glider. Yet until recently no British manufacturer offered a kit for one of these simple quick-to-build all sheet models that represented up-to-date design. These two new kits from *DPR Chuckie* and *Winner*, now fill a much needed gap in the market and having seen them in action at the Pontins Model Holiday weeks, where they were built literally by the dozen, by eager youngsters attending instruction classes introducing them to the hobby, we can certainly endorse the performance and fun they offer.

EVO-STIK 60 FIX

One of the problems with most two part adhesives is that often the mixing takes longer than the fixing! Not so with this latest two part adhesive from *Evo-Stik* because activator and adhesive are spread separately onto each surface to be joined before the two are brought together to complete the bond. Using **60 FIX**, the parts require to be held together



Above: New Chuck glider kits *Winner* and *Chuckie* from *DPR Models* reflect latest design styling and promise hours of fun flying. Left: An *R/C Trainer* with a difference, *Leicester Model Centre's Gnaty Trainer* combines attractive lines with light stability. Right: Latest blend of fuels from *Model Technics* developed in consultation with engine expert *Peter Chinn*. Below Left: *60 Fix* from *Evo-Stik*, two part high strength glue that needs no mixing.



for 60 seconds but approximately 30 seconds is available for alignment before the two components chemically interact to complete the curing. *60 Fix* is claimed to bond most materials: metals, woods and some plastics, but not polythene, paper or fabrics.

GNATTY TRAINER

"Red Arrow" styling and jet-like outlines distinguish this basic trainer, specially developed by Leicester Model Centre, and sets it apart visually from other traditional design models. In most other respects the *Gnaty trainer* offers the newcomer to *R/C Power flying* a standard first-time trainer package; quick build foam veneer wings; all sheet tail and fin; simple balsa box fuselage; shoulder wing seating and generous dihedral for adequate inherent stability. Thorough instructions are aimed at novice builders and a most comprehensive hardware package supplied virtually everything except glue, covering, engine and 2-3 channel *R/C* equipment. Once the controls have been mastered or if this is not your first model, an aileron wing option is offered to enable conversion to 4 channel control for more advanced flying. If you are looking for an attractive model that won't make you look like a raw beginner, this could be the kit for you.

MODEL TECHNICS DYNAGLO

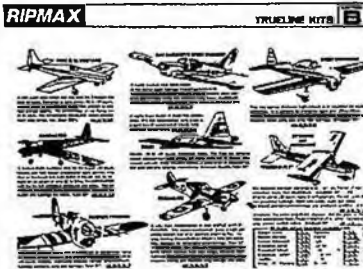
A new generation of fuels for glow plug engines has been announced from *Model Technics* which contains a new oil substitute *EDL* (Extreme Duty Lubricant) under the name *Dynaglo*. In addition to acting as a lubricant, *EDL* is claimed to take an active part in the combustion process, thereby effectively increasing the overall power rating of the fuel. *Dynaglo Straight* fuel for example is claimed to give a similar power output to other castor oil based fuels containing 10-15% Nitromethane and with the addition of Nitro, *Dynaglo* offers further increases in power output. Other qualities such as cleaner running, less gumming up or lacquering of parts are also claimed. *Dynaglo* fuels contain 10% *EDL* blended with Methanol or the addition of 2, 5, 10, 16, 25 and 40% Nitromethane and is also available separately for modellers wishing to mix their own fuels; just a reminder though that non castor based straight fuels are illegal for *FAI* fuel events.

FIND OUT WHAT'S NEW!



Hundreds of NEW ITEMS are illustrated and described in the 1980 EDITION of the RIPMAX MODELLERS HANDBOOK. New TRUELINE and PEERLESS kits... new Graupner gliders - and the Elektro-Max and Elektro-Fly. The latest kits from Monarch, Mick Reeves and Precedent. Detailed up-to-the-minute information on the latest Futaba radio... the latest glow fuels... right down to new tools and accessories. Plus a number of NEW EDITORIAL FEATURES. It's the one reference book YOU CAN'T AFFORD TO BE WITHOUT.

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G.60 F.I. R/C £53.55

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| X45 FI R/C ABC | £46.28 |
| ST60 BB R/C | £46.08 |
| X60 SE FI R/C | £70.78 |
| X80 RE FI R/C | £67.83 |
| G60 BH ABC R/C | £93.55 |

| | |
|------------------------------------|--------|
| Accessories | |
| S15 fits G & X up to 25 | £5.38 |
| M60 fits G & X 60 | £7.06 |
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CLUB NEWS

AT THE TIME OF WRITING the long awaited Spring is making its usual tantalising attempts to establish itself but the spate of blustery winds and drenching rains keep putting off the happy event. To make matters worse there are all those jobs around the house and garden that seem to provide stiff competition for your services once that Winter appears on the skids. Even so, I usually get to the flying field before the season is too far advanced, though not alas with those super models I had promised to build myself during the Winter months. Spring may be in the air, but little else.

But model flying goes on, Winter and Summer, both Indoors and Outdoors. Our first report, from Mr R. C. Smith, Hon. Sec., of the **Waltham Chase Aeromodelling Club**, gives news of an RTP Spot Landing competition won by Adrian Horwill, and an Indoor Rubber Powered event which went to Howard Metcalf. In the great outdoors, the prospects for the flying season looked grim without a flying field, but the Meonstoke Parish Council came to the rescue with the use of the village recreation ground for one day a week. Things brightened up even more when two local farmers offered access to gliders only on one site and all types of flying on the other, available only on Sundays. And by way of getting into trim for a hectic season ahead the club organised a sponsored walk to raise £250 for the local Cancer Hospital. *Sec.: R. C. Smith, 18 Elizabeth Road, Meon Park, Wickham, Fareham, Hants. PO17 5HN.*

In these progressive days when aeromodelling gets ever more scientific and technical a well equipped workshop has its particular appeal. We are therefore interested to learn that E. Kenlay of Manchester, has headed a small group which has formed a **Cheetham Model Engineering Society**; the base of which is the aforesaid workshop which has drilling machines, mechanical saws, saw benches, brazing facilities etc. Mr. Kenlay goes on to tell us that the workshop, forming part of a large school, is within two miles of the city centre, and that there is plenty of car parking space. Just at present the group is holding meetings every Tuesday at 7.30pm, and anyone interested is welcome to come along. Also he extends a welcome to any model club or society, including aeromodelling, which would like to enjoy the splendid facilities on some mutual basis to get in touch with him. *E. Kenlay, 8 Wythburn Avenue, Cheetham, Manchester M8 7RS. Telephone: 061-205 1338.*

Our next report comes from E. E. Jordan of the **Keighley and DMAC**. The club has a long history, having come into being way back in the 1930s. Its origins remembered today by founder member, Harold Williamson, still an active modeller, but mostly now in trains rather than planes. Four years ago the club underwent something of a renaissance; the result of which has been a much expanded club now numbering 61 members. Members interests are mainly centred around Radio Control, covering power, scale and aerobatic, and also gliders. The flying ground is Harden Moor. Club nights are on the first Tuesdays of each month at the Guide Hotel near Harden Moor. New members welcome. *Contact PRO: Edwin Jordan, 41 Parklands, Ilkley. Phone Ilkley 608390.*

Stuart V. Tucker, Hon. Sec., and Treasurer of the **Leatherhead MFC**, sends along the third issue of the club newsletter. Concern in the editorial is over the composition of the membership. Considering that the club appears to be mainly R/C I should have thought a junior section comprising 21 of the 42 members is not all that bad, particularly as some R/C clubs are worrying whether to give cut price subs to pensioners. Saturday afternoon flying sessions are on Effingham Common where the strategy is to build up a large group of competent R/C pilots by mid-summer for a possible invasion of the contest scene. *Sec.: Stuart Tucker, 'Fairways', The Warren, Ashted, Surrey.*

Stuart Lodge, Chairman and PRO of the **Bath MAC**, is a gentleman with a lively sense of humour. He opens his letter to us by describing himself as 'Chairman/PRO, of the toy aeroplane club of



Banbridge Aeromodelling Club member, Brian McCartan, is presented with the Secretary's Shield by District Council Recreation Officer, Gilbert Honeyford. Brian also won the Skelly Cup and the Exquisite Trophy. Mr Honeyford, on left, is a founder member of the BAC.

the good Roman city Aquae Sulis . . . and goes on to say that the name possibly derives from the local weather if the summers in the time of Claudius were as wet as they are now. Not exactly what you might call a plug for Bath, but Mr Lodge may be somewhat biased against toy aeroplanes as he is accused of spending too much time playing club and county hockey. Bully for him. In outlining the nature of the Bath MFC, Mr Stuart suggests somewhat paradoxically that its strength, that is the diversity of interests and keen involvement of its members, is also its weakness when presenting a local image of club togetherness: members are so often away at various contests. But an opportunity for members to get together comes in the Wednesday evening flying sessions on the club field, 'Aqua Sulis' weather permitting. The club newsletter consists mainly of a witty rundown on club members and their current involvements. Appear to be a pretty active lot. *Sec.: Ernie Burles, 46 Coronation Avenue, Oldfield Park, Bath, Avon.*

Mr N. H. Goodman, PRO, of the **Coventry and DMAC**, has sent along a copy of the March newsletter, *Wings and Fins*, asking us to particularly note the way the club Free Flight competitions have been programmed on the lines of 'mini-galas'. On a one-a-month basis, classes to include HLG, A1, Open Rubber and P30. Other comps scheduled are for Thermal Soaring and Radio Aerobatics. *Sec.: N. H. Goodman, 23 Berwyn Way, Stockingford, Nuneaton, Warks. CV10 8QW.*

Having two EZB models rarin' to go but nowhere to fly them (built for the recently cancelled Cardington events) I could not help being just a wee bit envious of the **South Bristol MAC**, members who, according to the March newsletter, enjoy regular Indoor meetings. The events combine pleasure with an act of public goodwill for they are held at Hanham Hall Hospital. Not only that they get a good and appreciative audience for their rubber powered and Electric RTP antics. They also hold Indoor meetings at a Community Centre, reminding me that, at times when Indoor flying enjoyed an upsurge of popularity in the past, it was invariably the school hall, or luxury of luxuries, the local cinema with its lofty ceiling. Venturing outdoors, with a touch of Spring weather to give an impetus, comes the ceremony of unrolling the club take off strip over the grass at Tytherington. At least it saves all that mowing and rolling. *Sec.: Gordon May, 4 Burchells Avenue, Kingswood, Bristol.*

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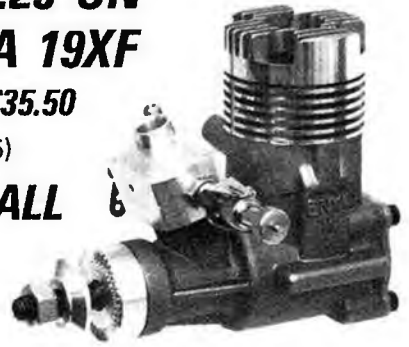


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In the **Watford Wayfarers'** Newsletter the main topic is one of flying sites, for which the need becomes the more urgent as the weather improves. Interestingly, the Department of the Environment has advised the local council that the proposed restrictions for flying on the Moor are too stringent and have directed that further negotiations should take place. But other options are needed, and to this end a member has put an advert in the local paper asking for a farmer to rent the club a field. No takers yet but they are still hoping. At least something of a jumbo sized field, far from the madding crowd, will be needed for John Greenfield's huge *Jungmeister* which it was hoped would be ready for Sywell. *Sec.: P. Christy, 277 Somervell Road, South Harrow, Middx.*

News in the **Leicester MAC Bulletin** is of the perennial Winter Building Comp holding the headlines. In spite of appeal of the many glamorous scale models and the impressive Radio models it was Martin Scotts own design *Moby Dick A/2* Glider that led the field in the first, uncovered, stage. Big event in the early part of the season was the much heralded debut of Martin Reed's large *Delta Dagger*. Before a large crowd the impressive device was taxied around then given the gun, it hurtled down the runway and immediately went into a loop of about three feet diameter – miraculously landing back on its wheels, virtually undamaged! *Sec.: I. McKeggie, 12 Pochin Drive, Burnmill Pk., Mkt. Harborough.*

The **South Eastern Area's** newsletter, *Seadog*, sets out the Area Calendar for the first part of the season, mainly of Free Flight and Thermal Soaring events at the Ashdown Forest site with the added interest of the Odiham Gala and slope soaring at the Long Man, Wilmington. All that is now required, is the support that these events deserve. But are they all covered by insurance in any comprehensive sense? Reading through a long letter on the subject of insurance and meetings it does seem all very complicated, but something that should be clarified so that we can all fly without undue anxiety over the consequences of an accident.

Hot item in *Hot Air*, the newsletter of the **Grantham & DMAS**, is



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the possibility of getting a club hut or 'Porta Cabin' on the Barkston Heath field. Should prove useful in the running of all the comps for all classes to be held on this favourite site throughout the season. Sec.: John Ashmole, 8 Harrox Road, Moulton, Spalding.

All is not well on the Croydon patch, according to the **Three Kings Aeromodellers' Court Circular**. Seems the whole area becomes a motor cycling rodeo on a Sunday, with huge, souped up machines roaring along the tarmac and trail bikes cutting up the park generally. Meantime members are making use of the Mitcham site, and also limbering up for a hectic season ahead. And it's not just getting the models in trim, for Wal Cordwell is going to start Cross Country and weightlifting classes to keep them in the running, as it were. It takes quite a bit of toned up muscle to safely pilot the *Stearmans*, *T28s*, *Piaggios* and *Bristol Blenheims* that are coming off the home assembly lines. To add further colour to the line up, Ken Gardner is hard at work on an *Avro 504N* which will be in Oxford University Air Squadron Markings. Sec.: D. G. Woods, 133 Ravensbury Road., Southfields, London SW18 4RY.

The newsletter of the **Banbridge Aeromodelling Club** (Northern Ireland) spends much of its space on examining the nature of the stall. This loss of forward motion is usually not serious if it occurs at a fair altitude, but disastrous if the footage betwixt model and deck is on the sparse side. Mostly the stall is the bane of the Free Flighter for the Radio glider pilot has the saving grace of being able to administer a spot of down elevator. Even so, a study of the stall, and why it happens, gives a good insight into why and how aircraft fly. Other news, apart from the flying, is of members winning the pools and the club being approached by the Banbridge Festival Committee to parade the lady members on the field so to choose a candidate for the Festival Queen. No connection between the two items.

Your reports, newsletters and photographs of club activities as always are welcome.

Clubman

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More laughs from this month's runners up to our monthly Vintage photo caption challenge. "MUM SAYS, WHEN YOU'VE FINISHED, THE COWS NEED MILKING!" from Peter Bewes, Carnforth, Lancs. "LEAN HARD ON THE STOOL MATE, WE WANT THE PROP TO ROTATE THIS TIME" from Les Clarke, Sunderland. "BACKWARDS! I SAID, CAN'T YOU SEE I'M HAVING TO PUSH!" from Mike Russell, Bishops Cleeve. "THIS IS THE LAST TIME I AGREE TO BE YOUR STOOL PIGEON!" John Cuthbert, Scunthorpe. "I WISH YOU'D LEAVE THOSE ISOMETRIC EXERCISES UNTIL LATER, GEORGE" from R. A. Saunders, Cannock, and finally from D. J. Symonds, Alford, Lincs. "LOOKS LIKE A POWER DRIVEN HERNIA, BRIAN!"

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Closed Thurs

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CENTRE
2e HIGH STREET, EASTLEIGH
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MODEL SHOP ★
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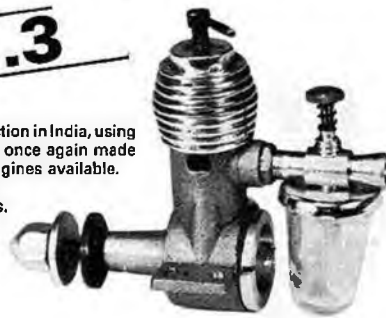


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