

# Aero modeller

AUGUST 1982 60p  
(I.R. 91p, U.S.A. & Canada \$2.75)

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MODEL  
MAGAZINE

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# Aero modeller

AUGUST 1982

Editorial Director TONY DOWDESWELL  
EDITOR COLIN RATTRAY  
Graphics LORNA CULLEN

MAP MODEL DIVISION MAGAZINE

Advertisement Director M. GRAY  
Managing Director RON MOULTON

## Comment

SATURDAY June 19 was the start of the Aeromodeller All Scale Day and when I arrived the rain had stopped all action and the fear was that the whole weekend was destined for disaster. Nothing could be further from the truth as Sunday's weather was extremely good and the turn-out of

modellers fantastic. I don't think I have seen such a high standard of models at one meeting ever before. By mid afternoon the place was buzzing in all areas.

As a judge of the Free Flight I found it almost impossible to select a winner. Apart from so many of the models being of such a high standard, it was difficult not to miss a little gem through the sheer numbers. In the event one had to make a personal judgement based on the quality of construction and finish and the models' flying characteristics. With any form of judging

one is always slightly influenced or attracted by models that have a personal appeal so those of you that didn't get a mention should not ever be disheartened.

The Control Line enthusiasts had a good day, more details will be published next month. It was quite a shock to some of us, how large the R/C models are getting; one semi-scale Auster found its way over to the Free Flight area and at half-scale dwarfed everything in sight. The way they are going, they might as well build a full-size and throw away their radio gear! Editor.

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### On the Cover

This year's overall Free Flight Power British National Champion Stafford Screen, seen here at the end of a hectic fly-off with his Open and F1C models.

### Next Month

There will be two full size plans inserted in the magazine — an electric powered 6ft. span glider with a retracting power plant designed by the editor, and a super Sports C/L Stunter with the look of a vintage racer designed by John Stroud. A report of the vintage flying seen at this year's Nats, plus a pictorial report of the Aeromodeller Scale days. All this will be backed up by our regular features. On sale August 20, price 70p.



p.376



p.382

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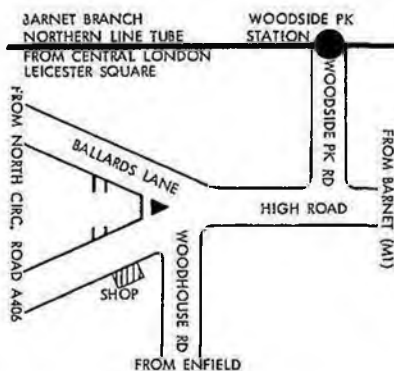
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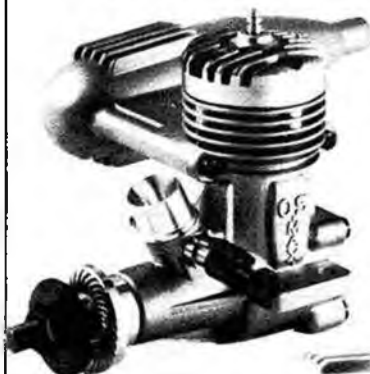
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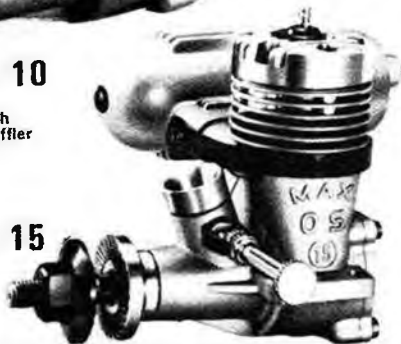
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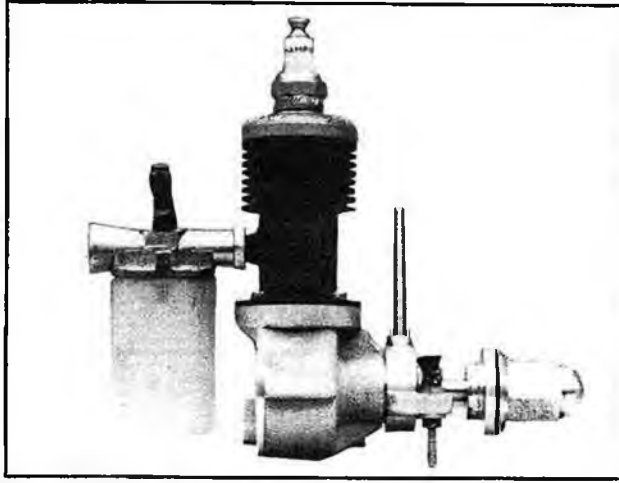
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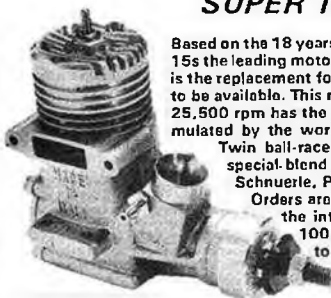
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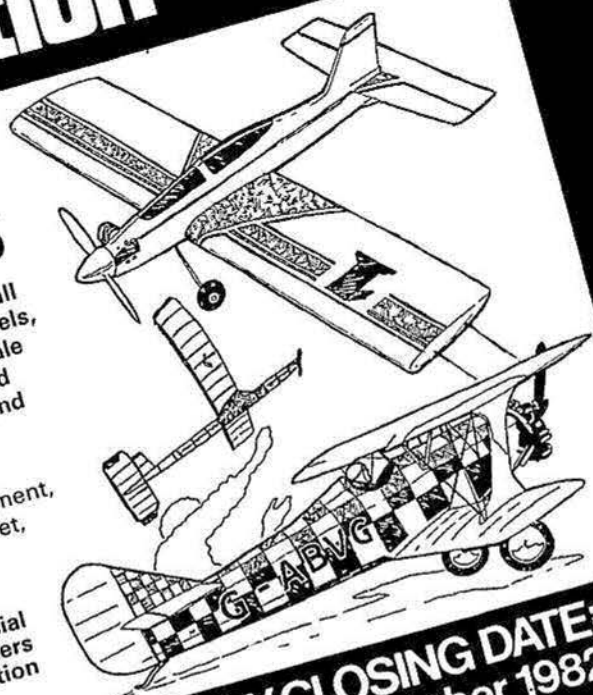
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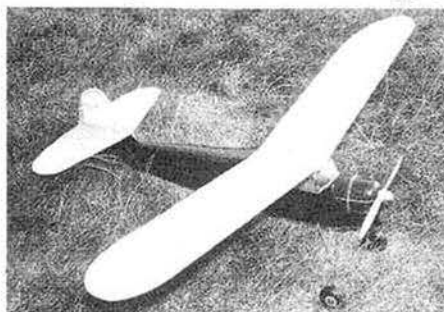
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## Hangar Doors

*This full size microlight canard called 'Goldwing' was designed by Craig Catto of America. Built of foam fibre glass construction, the design follows the lead set by Bert Rutan's 'Quickie' and 'Vari-oxe' aircraft. The 'Goldwing' is now being produced in kit form and ready built by Euro Wing Ltd., East Kilbride, Scotland.*

### NEW AMA RECORD

A new AMA record total of 28:59 in A1 Glider was set by none other than our own ex-editor Martyn Cowley at the US Free Flight Championships, Taft, where Martyn won the event. Eugene Verbitski was a star visitor at the same meeting, no doubt leaving many impressions on new found American friends.

### STONELEIGH Success Story

Over 25,000 people attended the Model Craft & Country Show held at Stoneleigh in Warwickshire on 22nd and 23rd May. This new venture for MAP was organised in conjunction with the Royal Agricultural Society of England. Although the sky was sometimes overcast and despite a few rain showers, it didn't dampen the enthusiasm of modellers, exhibitors and viewing public.

John Stroud's lecture and control line flying demonstration were very much appreciated as was the flying of other control line models by Ian Peacock and Robert Dufake.

There was also a packed programme of R/C flying, car racing, model boats and a live steam model railway which were also very popular.

Next year it is planned to hold the show over the Whitsun Bank Holiday weekend which we all hope will be just as successful.

### BRITISH WIN R/C WORLD SCALE CHAMPS

First and second place went to Great Britain in this year's World R/C Scale Championships. Terry Melini won with his Moth Minor followed by Mick Reeves' Spitfire, and in ninth place Terry Manley with a Blackburn Shark.

### SOCIALIST COUNTRIES TR CHAMPS

Held at Debrecen, Hungary, on June 2-7, 1982 this contest gives a good guide to the Soviet performance, remembering their high times of last year. F2C Results 1.

Shapovalov/Onufrienko (USSR) best heat 3:31, semi 3:37, final 7:21. 2. Kramarenko/Kuznyecov (USSR) best heat 3:41, semi 3:42, final 7:46. 3. Lorf/Zajak (Hungary) best heat 3:31, semi 3:40, final D.N.F. 4. Balogh/Dorant (Hungary) best heat 3:33, semi 3:43.

### MILITARY AIR PAGEANT

The Shuttleworth Collection's annual flying display of military aircraft takes place on Sunday July 25. The gates open at 10.30am with flying commencing at 2pm. Aircraft scheduled to fly range from 1910-1980.

Out of the range of aircraft to fly there is a Lancaster, Mosquito, Hurricane, Spitfire and a Messerschmitt Bf109. A range of World War II aircraft seldom seen flying at one air show.

Other aircraft of particular interest and not often seen flying are a Ryan PT-22 and an SE5a.

This promises to be a superb opportunity to see a rare selection of historic aircraft as well as the spectacular display of free fall parachute descents that will be carried out by the RAF Falcons team.

Entry will cost £8 per car including all occupants or £6 per car if the driver is the only occupant. Pedestrians, cyclists or bus/coach passengers will be charged £2 for an adult and £1 per child. The income from this and in fact all other events held at Shuttleworth, go towards keeping this unique collection of aircraft flying.

### OLD WARDEN ALL SCALE DAYS JUNE 19/20 1982 AWARDS

#### CARTER MEMORIAL TROPHY

Beechcraft D17 — W. Caldwell (most impressive biplane).

#### SHUTTLEWORTH TROPHY

DH 53 Humming Bird — (most impressive Shuttleworth Collection aircraft replica).

#### AWARD WINNERS RADIO CONTROL

HS Hawk — John Pace (for technical achievement plus impressive flight). Gee Bee Sportster — Roy Scott (for finish, plus flight performance). Junkers Ju 52/3M — Peter Neate (realism in flight). LVG CV — V.



*There was a strong contingent of SAM 35 Vintage enthusiasts flying at this year's Free Flight Nats. Richard Philips built this beautiful R/C assist Manx Monarch powered by a Fox 40. Richard enlarged the plan from the August 1950 Aeromodeller not knowing it was still available in the plans service!*

Knight (scale detail, accuracy, plus flight performance). VS Walrus — John Scrivener (technical achievement, detail plus performance).

#### CONTROL LINE

Hanriot HD1 — Geoff Burkett (detail plus flight performance), Arado 66 — Norman Ashford (originality and flight performance), Boeing F3B/Hawker Typhoon — Ron Truelove (originality plus performance).

#### FREE FLIGHT

Rumpler Taube — John Blagg (fine detail plus flight performance). TA 152 — Geoff Spencer (construction plus performance). Hannover CL 111 — Mike Hall (finish plus flight). Avro G — Meredith Evans (13) outstanding junior). DH 83 Fox Moth — David Hope Cross (furthest travelled (New Zealand), plus finish and flight performance — special award).

#### † PADDIANNE BUTLER

A prominent figure in the promotion of British model goods overseas died on Tuesday June 1, after a long and trying illness. Paddianne Butler's husband Guy started an export company called Butler Roberts in 1946. Soon after its formation, Paddianne took a special and personal interest in the export of model aircraft with which that company was engaged. They had close links with KeilKraft and Mercury Models, and when the Butler Roberts com-

pany failed in 1956, Paddianne formed a new company, Model Exports Ltd. of which the late Eddie Keil was Chairman. Unfortunately, Paddianne retired in ill health in 1978, but the business has been continued by her son Rupert. She will long be remembered by her many friends in the model aircraft trade as one whose great interest was not only in the business side but also in the hobby of aeromodelling as such. As a hostess she was supreme, making her town house open to FAI and SMAE officials in 1970 for a social evening that is continuously recalled as the event of the decade. The trade, and her many modelling contacts will join us in extending every sympathy to her daughter Stephanie and son Rupert.

#### † PETER BULLIVANT

Aviation lost a dear friend on May 14 when Peter Bullivant succumbed to a heart condition. Countless thousands of gliding launches had taken their toll after years of selfless dedication to teaching young people how to fly.

Peter was a keen ATC cadet before his National Service in the RAF. After demobilisation he became an ATC officer, first with 1344 Cardiff Sqn. then later with 171, 220 and 1166 Sqns. Among his brightest pupils at that time was a youngster named Neil Williams who will never forget how Peter sent him off on his

first solo for a brilliant if sadly abbreviated piloting career. While commanding 1166 Sqn. in 1958 he also became CO of 616 ATC Gliding School, having been one of the founding forces of both ATC gliding and the RAF GSA. During this time he was working as an illustrator for DeHavillands at Hatfield and it was through his planning that coordinated modelling/gliding activities could be safely operated at RAF Henlow.

In 1963 he rejoined the RAF Reserve of Officers as a full-time gliding instructor and served in this capacity until his retirement because of ill health in December '81. The highlight of his gliding career was undoubtedly when he was chosen in 1977 to instruct HRH the Prince Andrew, whom he duly sent solo in a Sedbergh.

Peter became best known in the aeromodelling world as co-author of the standard work on electric RTP and frequent demonstrator at the Model Engineer Exhibition. His enthusiasm and skill have won many recruits to the hobby both through the ATC and also as a valued member of RAFMAA, where his great knowledge of aircraft was put to good use in scale judging.

His warm and infectious enthusiasm made many friends. Peter leaves a wife Margaret, two daughters, Jane and Verity, and a son Richard who has followed in Peter's footsteps as an ATC gliding instructor.

## What's Happening?

**July 18**  
SCALE MEETING R/C, C/L AND F/F POWER AND RUBBER. Venue: RAF Abingdon, Nr. Oxford. Contact: Bill Dennis, 27 Wheble Drive, Woodley, Reading, Berks.

**July 18**  
WHARFEDALE OPEN DIESEL COMBAT COMPETITION. Engines .15 to .19 cu. No pressure. Venue: Dewsbury. Contact: Jeff Smith (Leeds) 0532 663432.

**July 18**  
SMAE SOUTHERN AREA F/F SPORT FLY IN AT BEAULIEU (LEE BEES), VINTAGE, UNCONVENTIONAL, CONCOURS ETC. NO R/C. Contact: Dennis Underwood, 15 Galemore Drive, Alverstoke, Gosport, Hants. Tel: Gosport 823330.

**July 18**  
SHUTTLEWORTH MODEL GROUP OPEN DAY F/F AND C/L PLUS STAND-OFF C/L SCALE. Venue: Shuttleworth, Old Warden, Beds. 9am to dusk. Contact: Mick Staples, 11 Whitehill Road, Cambridge CB5 8LT.

**July 25**  
SMAE NORTHERN AREA FLY FOR FUN DAY. Venue: Church Fenton. SMAE members only. Contact: D. Kerswell. Tel. 0653 2580.

**July 25**  
SMAE CLUB CHAMPS — O/P, O/R, O/G FOR CLUB CHAMPS CUP — also open to individuals. Venue: Everleigh. Contact: Pote Farrimond. Tel. 0942 34068.

**July 25**  
2 EZB COMPS EXPERT/NOVICE PAIRS PLUS OPEN EZB INDIVIDUAL PLUS FAI MICROFILM AND NOVICE FAI MICROFILM TO STANDARD F1D RULES, except min. weight 1.5gm and experts will be attached to novices to help. Venue: Cardington. Contact: L. Barr. Tel. 0628 25595.

**August 1**  
SMAE CENTRALISED F/F MINI EVENT — 1/2A POWER, C/DH, A1, HLG & CO<sub>2</sub>. Venue: Driffield. Contact: Peter Farrimond. Tel. 0942 34068.

**August 7/8**  
SUMMER HOT-AIR BALLOON EVENT. Venue: Holker Hall, Cark-in-Cartmel, Cumbria. For further information: The Manager. Tel. (044 853) 328.

**August 7/9**  
WOODVALE RALLY 82 R/C SUPER SCALE, STAND-OFF SCALE AND LARGE SCALE (35MHz ONLY), FREE FLIGHT SCALE. For full details SAE to: Tom Ditchfield, 77 Holme-field Road, Aigburth, Liverpool L19 3PF.

**August 8**  
WAKEFIELD MFC C/L EVENT NOVICE STUNT. Venue: Thorns House School Playing Fields, Thorns Park, Wakefield. Sponsored by Wakefield Sports Council and Wakefield MFC. Contact: Brian Temporal, 45 George Street, Horbury, West Yorkshire. SAE.

**August 8**  
THREE KINGS AEROMODELLER CARRIER FLY IN. Silencers required. Venue: Old Croydon Aerodrome. Contact: Wai Cordwell. Tel. 01 764 1681.

**August 8**  
2 EZB COMPS EXPERT/NOVICE PAIRS PLUS OPEN EZB INDIVIDUAL PLUS FAI MICROFILM. Venue: Cardington. Contact: L. Barr. Tel. 0628 25595.

**August 8**  
WOODBURY COMMON F/F RALLY — O/P, O/R, O/G, COMBINED MINI, VINTAGE AND HLG. Venue: Woodbury Common nr. Exmouth. Contact: Chris Chapman, 14 Philipps Avenue, Exmouth, Devon.

**August 15**  
SMAE NORTHERN AREA C/L GOODYEAR & 1/2A — 500 LAP MARATHONS. Venue: Dishforth or Church Fenton. SMAE members only. Contact: Haydon Sykes. Tel. 0924 377432.

**August 14/15**  
SCOTTISH NATIONALS R/C POWER (SCALE, CLUB 20 AND AEROBATICS) AND C/L (STUNT AND TEAM RACE). Venue: Kirknewton, 5 miles south west of Edinburgh Airport. Camping facilities will be available. Contact: Tom Gray, 6 Crookston Path, Glasgow G52 3LN.

**August 15**  
VINTAGE DAY. Venue: Old Warden.

**August 28**  
R/C and C/L Nationals.

**August 28/29**  
INDOOR NATIONAL, C/2, DURATION FINAL PLUS 35cm MICROFILM, EZB FINAL ROUND OF EXPERT/NOVICE PAIRS CONTEST, PLUS INDIVIDUAL CONTEST FOR HULBERG SILVER TROPHY, FAI F1D MICROFILM FOR AEROMODELLER TROPHY, OPEN MICROFILM (FLIGHTS FOR THIS AND ANY OTHER CONTEST ELIGIBLE FOR HUMBROL LONGEST FLIGHT SILVER PLATE). Venue: Cardington. Contact: L. Barr. Tel: 0628 25595.

**August 29**  
CLUB 20 NATS. Venue to be announced. Contact: K. Townend, Beechwood, Church Lane, Greystones, Co. Wicklow.

**September 5**  
SMAE NORTHERN AREA SCALE DAY SEMI COMPETITIVE ONLY. Venue: Church Fenton. SMAE members only. Contact: D. Kerswell, Tel: 0653 2580.

**September 5**  
PETERBOROUGH MFC COMPETITION 4TH ROUND CLASS A BRITISH DIESEL COMBAT CHAMPS. Venue: Peterborough Embankment. Contact: Brian Waterland. Tel. Market Deeping 343722.

**September 5**  
SMAE SOUTHERN AREA ROARING TWENTIES NOVELTY FLY IN AT BEAULIEU (FIREBUDS). Anything goes if they did it in the 1920s. Contact: Pete Willis, 72 Witt Road, Fair Oak, Eastleigh, Hants. Tel. Eastleigh 695111

**September 11**  
ULSTER C/L CHAMPS. Venue: Nutts Corner, Co. Antrim. Contact: J. Molloy, 57 Auburn Road, Dun Ladre, Co. Dublin.

**September 5**  
AUTUMN MODEL AIRCRAFT RALLY & FLY IN — Best All-round Model, Best Scale Model, Best Sports Model, Best Bi-plane, Best Helicopter, Best Multi-engined Model, 'Tree Tops' award. Venue: Holker Hall and Park, Cark-in-Cartmel, Grangeover Sands, Cumbria. Contact: Tel. (044-853) 328.

**September 5**  
SMAE 5TH AREA CENTRALISED. TEAM RUBBER-FARRON SHIELD + PLUGGE POINTS, F1A - SMAE CUP + 1/2A POWER — Area venues.

**September 11/12**  
IRISH RADIO CONTROL NATIONALS. Venue to be announced. Contact: K. Townend, Beechwood, Church Lane, Greystones, Co. Wicklow.

**September 12**  
SMAE SOUTHERN AREA OPEN R/C GLIDER TO BARCS RULES (BASINGSTOKE). Pre-entry required. Contact: C. Learwood, 19 Derwent Road, Basingstoke, Hants.

**September 12**  
SMAE NORTHERN GALA F/F, O/RPG, C/L 1/2A, FAI, CL, B, R/C AEROBATICS FOR SMAE TROPHIES. Plus other non SMAE events. Jointly organised by Northern and North Western Areas, SMAE members only. Venue: Church Fenton. Contact: D. Kerswell. Tel. 0653 2580

**September 12**  
INDOOR. Venue: Cardington. Contact: L. Barr. Tel. 0628 25595. Programme to be announced.

**September 12**  
SMAE NORTHERN GALA — OPEN GLIDER - CMA CUP, OPEN RUBBER - CATON TROPHY, OPEN POWER - HANLEY TROPHY PLUS FAI, CD'HAND VINTAGE. Venue: Church Fenton.

**October 17**  
INDOOR. Venue: Cardington. Contact: L. Barr. Tel. 0628 25595. Programme to be announced.

# FREE FLIGHT NATIONAL CHAMPIONSHIPS Diamond Jubilee



## Report by Mike Fantham

The 35th Free Flight Nationals was held at R.A.F. Barkston Heath near Grantham in Lincolnshire. This was the third successive use of this central venue and the contests followed the same broad format as in the previous two years. Mini classes on Saturday, Open on Sunday and F.A.I. on Monday.

The weather was generally kind with a great deal of sunshine and the only rain confined to a 'hold' during the F.A.I. contest on the Monday afternoon. The wind was never strong but the drift took some models out of the field during the afternoons when thermals were strong. At least each day started with only light drift, giving the opportunity of getting Open and Mini flights in before the breeze got too strong.

## Saturday 29th May, Mini Classes

Conditions were ideal right from the 10 am start with bright sunshine and very light drift from the south west. The wind increased through the day, barely reached 10-12 mph at the most, and fell to 5-7 mph by fly-off time.

A great deal of flying was seen — many people had time to fly their event and trim models for contests later in the weekend. The vast amounts of activity made for a pleasant spectacle but it was hard to tell contest flights from trimming flights and you had to be 'in the know' to follow progress. Hand launch glider was the exception to this rule. All flights had to be launched from a 'box' 20 metres square and this focal point made the contest by far the easiest to watch.

A launch line would help this situation as the F.A.I. contest set-up on the Monday demonstrated. This aspect of the events needs tidying up if paying spectators are to be given their money's worth — they might also make for a better 'contest' for the entrants. Some have even suggested that all contests should be in rounds, giving the possibility of varying the max to suit variations in our unpredictable weather during each day.

The contest ran smoothly overall although individual flyers had some hard lucky stories to tell. Martin Gregorie started well with three maxes in 1/2A from his older model. The fourth flight was launched with the auto rudder in the glide position, giving a spiral dive into the tarmac and proving once again that runway's are generally stronger than aeroplanes. The second attempt with his Model Engineer Exhibit model maxed. A fifth max gained Martin a place in the fly-off but it was not his day — he launched left and barely cleared a minute! Martin Dilly took time off from his helpful commentary on the P.A. system and tried to fly A/1 glider but had to retire hurt after a test flight. He was suffering from a pulled calf muscle, the result of a seventh round accident in the Holland International the previous weekend on his way to a third place in F1A. Coupe d'Hiver required less leg work but a 65 second score on flight two kept Martin out of the fly-off.

CO<sub>2</sub> winner, Steve Philpott, reached the fly-off by the narrowest margin when his first two flights only cleared the required two minutes with a second or two to spare — still they all look the same on the score

sheet! Steve used a special model for the fly-off, having maxed out with a more conventional machine. (Watch this magazine for an article by Steve giving details of his winning model and the techniques of contest CO<sub>2</sub> duration flying).

Mick Howick from East Grinstead, who took the overall rubber driven model championship at the '81 Nats, flew a very 'small' Coupe d'Hiver model having a wing of about 150 sq. inch area. Mick used a thermistor to detect the small changes in air temperature which indicated the thermals he used to max out. However, the model was no match for a 'floater' at fly-off time and Mick had to be content with 1:40 and sixth place.

There were fly-offs in all five events and these got underway soon after the contest closed at 7pm. To prevent proceedings from going on far into the night, it was proposed to hold all the fly-offs concurrently but this had to be re-thought when it was realised that John O'Donnell and Steve Philpott had qualified in both A/1 and CO<sub>2</sub> duration.

The first fly-off period involved four in hand launched glider, eight in CO<sub>2</sub> duration and seven in 1/2A power. In CO<sub>2</sub> flights ranged between John Ashmole's 1:57 for eight place up to John Pools 2:57 in second place with the notable exception of the Philpott flight which contacted light lift for 6:05 — an impressive win to add to last year's victory!

Another repeat win went to Trevor Payne in 1/2A with a 4:31 flight after a very nice power pattern which made full use of the seven second engine run. Second placed Stafford Screen could only manage 3:59 when his model went a bit flat at the top of the climb, wasting height, this gave him second place. Roger Baggott, Stafford's Birmingham clubmate, placed third with a smooth power pattern but no help from the air.

Mick Page elected to fly his 12 inch span indoor model in the fly-off and warmed up with it before the start of the 15 minute period. Mick launched into what looked like bouyant air after a very nice climb pattern. Phil Ball was tempted and made a smooth launch but his model was not very high. This may have been a slight illusion because Phil was using a 26 inch span 35 gram ex-indoor glider. However Phil's model made the best of the air to win by eleven seconds after Mick's smaller model went through some turbulence near the ground. Third placed Andy Crisp had reasonable air but lacked height and Bill Simms stalled off the top for fourth place.

The next fly-off was for Coupe d'Hiver with six participants and A/1 glider with eight flyers involved. Ian Dowsett took Coupe with a stretched version of his Swallow design published in A.P.S. (Details of this model will be published in a future issue). Second place went to John Brooks flying what looked like a copy of Jean-Claude Neglais' L'Oizoraz (see Aeromodeller May 1967!)

In A/1 John Foster towed first and circled for some time eventually launching only to stall down. Steve Philpott circled at the end of the runway and made a good zoom into helpful air but his model came down after one or two promising glide circles for third place. Local Grantham member John Cuthbert flew from the same place as the majority of the other flyers and

Phil Ball gets airborne with his chuck glider - he needed all nine flights to reach the fly-off.





Hand Launch Glider winners left to right: Mick Page second; Phil Ball first; and Andy Crisp third.



Coupe d'Hiver winner, Ian Dowsett, used a stretched version of his APS Swallow design.

made a very good zoom to give 2:04 for first place. Meanwhile John O'Donnell had been moving cross-wind behind each promising looking flight but was not tempted to launch under any of them. Eventually John flew on a ground impression of the air concentrating mainly on making a good launch. The straight up and off zoom was excellent but the flight not quite enough and he was four seconds short in second place. John's model has a fixed towhook with a slight offset ( $\frac{1}{4}$  inch approx.) and relies on pure trimming for the good launch. The model also features a balsa sheeted foam wing and mylar tail covering.

The day concluded with a prize-giving but this was not as well attended as it might have been because the hanger was not available. Previously, evening events have attracted a crowd to the hanger for the presentations.

## Sunday May 30

### Report by Dave Hipperson

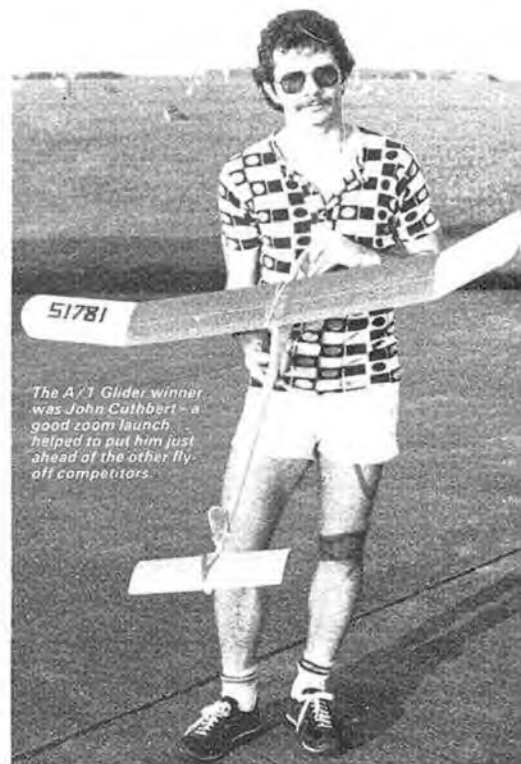
The fine weather of the first day continued for Open on Sunday and although there was a little more drift the lift remained as unpredictable and difficult as the day before. Surprisingly it still did not attract nearly as many to fly as had entered this being particularly noticeable in Open Power. The day was to be won and lost in the late evening fly-offs but there were some surprises in store for those that confidently waited all day for the late afternoon calm. It didn't come! In its place came a cool north-easterly wind which picked up at around 2.30 and necessitated a move of control. Many who had deliberately waited or were starting on a second class were in difficulty. Visibility was none too good, lift virtually impossible to spot and breeze was taking models a fair way and at times it

became quite turbulent. Ball, busy in the early part of the day putting together a total in O/R, chose a very late start for his charge in Vintage. His *Hi Ho* demonstrating a terrific climb to good effect and with the necessary leg work he just squeezed in a treble in time. Peers had been uncharacteristically hesitant in wrapping up Tailless during the afternoon and in so doing dropped his last flight. He turned confidently to his *Lanzo Stick* and dropped his first flight in Vintage. Undaunted he produced his *Woodpecker* and completed a hatricket by just dropping his first flight in Open Power as well. We were a little surprised not to see him trying rubber at this stage, although the breaks were certainly not going his way so perhaps he thought better of it — the day before his birthday too!

Events not requiring a fly-off included the Women's Cup — topped this year by Sue Coy with a very creditable 8:35 from her equally pretty A2 (Elton Drew's design). Freebird team mate Jo Curzon was less lucky breaking her model before she could complete her score. Last year's lady champion was pushed down to 2nd slot this year.

Veteran John Pool mislaid a model in the corn but found himself back on top of the stack in tailless after being pushed from this pedestal by Peers for the past couple of years. Close behind Ian Kaynes slightly less than a minute short. Ian too is no newcomer to tailless in fact many years ago tailless rubber models were his first free flight models.

CO<sub>2</sub> Scramble was run off between the end of the main events at 6.30 and the fly-offs later in the evening. This gave a chance for some team-work. Ian Davitt topped the total in a 10 mph drift with a model that required the fuselage sticking together and



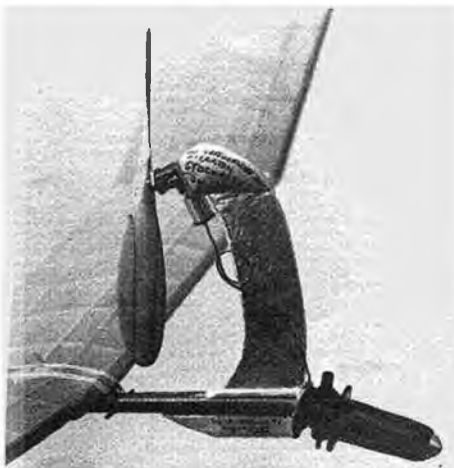
The A/1 Glider winner was John Cuthbert — a good zoom launch helped to put him just ahead of the other fly-off competitors.

a complete motor and tank assembly changing once each during the event. He flew a design of about 20in. span with power model configuration. It appeared to be good for about 75 secs — just about right for the conditions.

Over the same period a fund raising HLG Scramble was topped by Andy Crisp although the top places were close.

Left: Steve Philpott's winning CO<sub>2</sub> fly-off model features a pylon mounted Tolco with nose mounted Turbotank. The pylon is  $\frac{1}{4}$ in. balsa covered in Dural foil. Centre: Trevor Payne won  $\frac{1}{2}$ A Power with a *George*

French designed  $\frac{1}{2}$ A Train. Right: Open Rubber taken this time by Dave Hipperson with his familiar 300sq. incher.





Sue Coy, winner of the Women's Cup with a total score of 8.35.



Above: Gerry Ferrer won the Vintage Fly-off with his faithful Lanzo Stick. Below: Colin Shepherd topped the 18 man Open Glider fly-off with his 'Womble.'



### The Fly-offs

It was really getting quite chilly by the start signal for the first fly-offs a five way affair for the Jubilee Trophy in Vintage. Probably because of the sensible max during the day the qualifiers really had their models sorted and we were treated to fine flights. Vic Dubery away first with his 1936 Bert Judge Wakefield winner climbed very fast steep and in a slow spiral to a quite deservedly and spontaneous round of applause. Ray Moore was only just back in time from a long last flight with his Halifax Rapier power model but got away next for a beautiful 15 sec climb and fine glide in good air whilst Dubery's model was sinking fast further downwind. Past winner and pioneer of the revival of the Lanzo Stick, unlucky but last year with a pile in at this stage, Gerry Ferrer, had trouble cramming all the knots into the slim fuselage. Eventually it was away to a gentle but steady climb in good air — the big wing making the most of it. Last Ball produced another excellent climb from his highly powered *Hi Ho* but indifferent air and a slight undulation on the glide had the model down in little over 3. Gerry had it by over half a minute over Ray Moore's power flight and Balls model took third. Really there had been nothing in the way of lift and that is how the evening continued, that is apart from the winner of the next fly-off. Nearly 20 emerged for Open Glider and a number of quite early flights looked promising and could have accounted for the high places but it was Colin Shepherd now of Birmingham who took top honours flying about  $\frac{3}{4}$  the way through the period. His  $5\frac{1}{2}$  was the only really good patch. After a useful day in A1 the day before John Cooper consolidated with a time that kept him at least half way up the fly-off list — this was important for later the next day.

It was well past 8 pm now and the breeze had eased to perhaps 5 mph, still very cool and becoming decidedly murky downwind as the power flyers formed up. The number in this event shrinks annually but the standard on this occasion at least made up for it. Monks away first after everyone had waited well into the period. His model was high but a too vertical altitude at transition resulted in a huge stall. He was in good air, enough to tempt clubmate Screen to unleash his still rather experimental tuned pipe Rossi model. Apart from the disconcerting sound of a 'silenced' model the climb was typically Screen as far as height gain was concerned although not quite the perfect pattern, maybe a 'gnats' over elevated. The Smiths Tom and Tony went next Jeff also having qualified but with only one model which was now lost. Tony went fractionally first and seemed to drag a little left. Tom had the better pattern and glided off at great altitude but the air had deteriorated and it was sinking. Baggott and Cash flew and then almost last Julian Hopper with his very new large and light Superjacker and a perfect pattern to great height. However, the contest was won on that tiny bit of good air at the start that Monks must have wished he had pulled out smoothly into. Stafford Screens new model held on and insight for nearly  $6\frac{1}{2}$  and Julians late flight in lesser air took 2nd with a time still in excess of 6 mins. Tom Smith's Supernog was third some 10 seconds behind that. Drift at climb altitude was con-



Retrieved from the corn - John Paol's Tailless winner held here by Sue Hipperson long after John had given up the search and gone home!

siderable and models were retrieved some mile or so away over terrain that was mostly fields as this point we were caught with the short width of the drome over which to fly.

Tony Smith was unlucky when his time-keeper's watch zeroed when stopped at the end of the flight. He was granted a re-flight but rather late. However this over-ran and therefore affected nothing. It was interesting to see that once again in a field of somewhat brutal racing 40 power models a comparatively conventional sized but sophisticated Rossi model could take top honours — despite a far from ideal colour scheme.

Rubber was last away — it wasn't dark but it was very murky. Sixteen were going for this and those that flew early contacted poor air and were down in 5 mins. Mark Croome's 550 sq. inch 'Cabaret Star' got away latish and look comfortable but Ball and Hipperson were still winding. It wasn't planned but they must have launched very close together — Ball fractionally first and only a minute or two from the final hooter. Both models climbed reasonably and held well on the glide Ball going further and probably staying up longer but Hipperson had it on visibility by the few seconds necessary to take the Model Aircraft Trophy. Of Ball it must be said that he has, at the Nats level, over the last four years, demonstrated the highest and most consistent performance of any one-ever. The model he flew was his old favourite square 360 sq. incher perhaps just a little too faded now after numerous losses. Croome's big model took a close 3rd followed by John Carter with probably the largest model of all at some 600 sq. inches.

Winners of DPR Models' Superfighter Competition left to right: Paul Whincup third, Paul Woodruffe first and Lorna Whincup second.





Fourteen year old James McDonald, winner of the Junior Frog Trophy.

## FAI Day Monday May 31

Day three dawned a little less breezy than Sunday and a better direction — north-east. It was a very hot day again and this time it got hotter all the way to the finish. Interestingly more people flew in A2 than had in Open Glider the day before — perhaps this tells us something about the rather unsatisfactory state of large Open Glider fly-offs.

Despite the outwardly inviting looking day it was very deceptive — people were dropping flights all over the place. After two rounds the wind freshened and swung a little more easterly but it got hotter instead of the previous days cooling. Control was moved at a convenient time but the programme got only a few minutes late. Round 3 for Wake and Glider was run to the same 3 min max and distances involved, although not vast, were putting maxing flights in rather long green corn — so the 3rd FIC round was cut to 2.30 which helped. Round 4 saw a number of noticeable drops despite the reduced max and it was after this round that the fun and games began. It was obvious that with the fine weather few flyers, even those with imperfect totals were dropping out and therefore the assaults on the downwind fields looked to the farmers like a D-day landing — but every 30 mins! They were reasonably irate. But to be fair most retrievers were being very sensible and careful — there were just so many of them! The contest was stopped and the fate of the fifth and final round discussed while the CD went to placate the agitated landowners. It wasn't until a little later in the afternoon that

Left to right: Adrian Garbett, winner of the Junior kit rubber. CO<sub>2</sub>, Scramble went to Ian Davitt with this compact original design. Alan Brocklehurst came fourth in

Mike Fantham won F1A with his No. 11, successor to 'Robin.' Returning for yet another A2 fly-off.



proceedings resumed from a slightly different control point in the hope of at least minimising downwind damage. As the drome had to be cleared promptly to get things moving the CD took the rather unorthodox step of deciding upon 10 minute slots for the final rounds. This led to a considerable mass launch from the full glider line from which some 15 succeeded in making the perfect score. Wakefield had thinned a little more by this time and only 5 managed to protect their totals. Surprisingly the power standard was low and even Stafford Screen was in trouble when his final flight bunted due, it was thought, to something catching the tail on launch. With only a 10 minute round and precious little

Tailless, and temporary invalid Jonathan Walker flew in CO<sub>2</sub>, Open Rubber and Chuck Glider to try to retain his Junior Champ title. Aged 16, John is from Sutton



Ron Pollard, winner of F1B, the clouds didn't stop him this year!

of it left he was tight for time. Around him people rushed and sweated he remained remarkably calm — outwardly at least. The public address system which had been reasonably informative most of the weekend was handed at this precise moment to someone who obviously had little idea why we were there. With a 10 minute flight slot — hardly the contestants idea — we were treated to a detailed account of who had sold the most programmes and raffle tickets when it might have been more useful to hear a countdown to the end of the round both for the benefit of the hard pressed contestants and the sense of occasion and drama for the many that had waited to watch these final stages. They eventually condensed to let poor Stafford know he had 2 mins left — he got away and maxed with a reserve model without even bothering to recover the debris of the first one. Dick Johnson maxed too and pushed him to a fly-off. Pete Buskell showing fine form had dropped the flight before when he had to replace a worn timer and the reserve unit cut the engine far too short. Even with that 3 sec drop he was now sure of 3rd place.

## The Fly-offs

There were some discussions as to whether an unlimited max or a progressive system should be used on these rather vast fly-offs. Time for the aerodrome clearance was nearly up and the CD plumped for something between the two. In retrospect probably the wrong decision as at least a single flight would have got it over with. F1A contestants came out to attempt a five minute max and it seemed to start getting

Coldfield and no way was a leg in plaster going to keep him at home during the Nats!

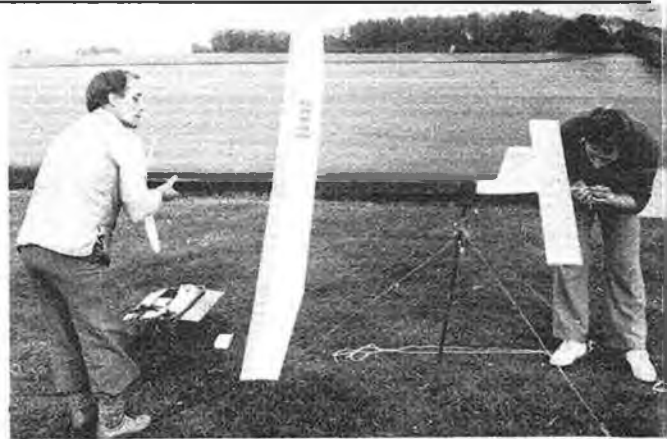




Vic Dubary with high climbing Bert Judge Wakefield design - fourth in Vintage fly-off.



Mrs. Edna Flynn decided she shouldn't be left out, so built this Wigan 70 and had a lot of fun.



Biggest Rubber model on the field - took two to wind - John Carter, man on the right, lights fuse for check flight. Finished fourth in fly-off.

warmer and this at past 5.00. There were many good flights infact only two that wouldn't have done 3 mins however, only 5 recorded 5 mins and travelled a distance just visible to the naked eye.

The first Wakefield fly-off round was treated similarly although in this there were only five and Miller was away first in what looked like a beautiful patch of air, Phil Ball broke a motor and both Pollard and Spooner launched into a very steady thermal to max comfortably. Dixon went late and missed it and was out. Then came the news that Miller's flight that looked safe had infact just dropped 8 secs and Ball who was braking motor after motor just ran out of time. Only Pollard and Spooner would go through to another flight.

During the Wakefield round the unlimited Wigan 70 fly-off took place and John Godden's blue and white model was away first with a tremendous climb into the same good air as Roy Miller's Wakefield. The rest of the field followed with both Peers, Wolstenholm and Beal climbing long and high. O'Donnell flew a few mins later in what afterwards he considered to be neutral air and as a consequence only just cleared 2 mins. The contest went to Godden whose model disappeared into the cloud base which seemed to please him and make amends for his not being able to attend the earlier days due to work commitments. His parting shot was — 'they only take a couple of evenings to make anyway'. This was an unofficial event but was well support and looked a lot of fun.

Returning to the main events of the day, the first glider fly-offs were back and the final five prepared for another shot this time 6 mins. It should have been cooling but

it wasn't. John Cooper was off early and obviously in good air after a little rocking stall had ironed out. Hambley towed vertically into the run-way wrecking his unusually low aspect ratio design and May missed the lift. This left Fantham still towing and Owens circling down to meet him. Both launched late in the period — Fantham some way off to the left had found himself a beautiful patch. Owens sank quickly over the runway for less than 2 mins. Coopers time was in and he had cleared the max — could Fantham equal it. One look at his altitude and the time already elapsed confirmed the air was good enough. They would need another flight — what they didn't know then was that they would actually need three! Pollard and Spooner's models were back without drama and they were winding for their next fly-off. Somehow they had talked the organisation into allowing them to fly again to a five minute max. Presumably because their timers didn't go any further. For the contestants to dictate their wishes to the CD seemed a strange reversal of roles. Anyway it made work for them as both maxed again although not before Spooner had the crowd on the edge of their seats with a double motor blow, during this short fly-off period. He handled this calmly particularly as before he had finished winding he must have been aware of Pollards model climbing high in good air. Sophisticated thermistor equipment was hardly necessary at this stage of the proceedings — one could feel quite enormous increases in air temperature every few minutes — it was nearly a standing thermal over the very warm runways. Anyway Spooner was away 2

secs. before the final hooter and received a deserved round of applause when the five minutes came up.

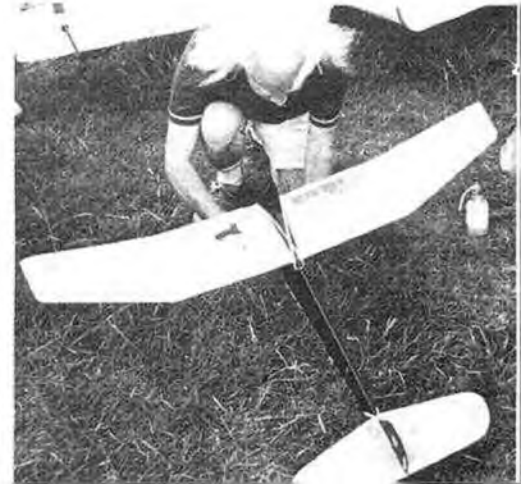
Screen and Johnson were out for the F1C final and really it was half over before they took the air as Dick admitted that his Monks timer would only run for 4 mins and that was what he intended to DT at. Has everyone forgotten DT fuse? As it turned out Dicks early flight contacted less helpful air than Screens which maxed to give him his second win of the Nats.

It has been a long job but the two flyers still in contention in A2 Cooper and Fantham were back with their models and were going for 7 mins in a very short time slot. It was here an extraordinary chain of events began. Fantham had released in good air and the period was ending with Cooper still under tow. The final hooter coming before he had time to unlatch and without any warning which although not mandatory would have been sensible considering the important of the event and the simplicity of communicating the information over the elaborate PA. We were at least grateful that the earlier endless spiel had been abated but it was a pity that perhaps one of the 'organisers' who seemed happy to show off their sophisticated hand radio communications sets couldn't have set down and 'directed' the contest at this hyper-critical stage. It was a tragedy and John was understandably angry and convinced that the hooter had been blown 15 secs early — an opinion born out by a number of his club mates. There was every chance that the CD had actually got it *right* but the way the situation was allowed to develop was unforgiveable. An official protest necessitated a jury which was con-

Second place in F1C - Dick Johnson; Martin Dilly gets his Coupe d'Hiver model away - made one mistake to

miss the fly-off; Martin Gregorie reached the 1/2 A Power fly-off with his Model Engineer Exhibit 1/2 A Train; Ray

Moore, second in Vintage fly-off after hurried return from last max.





vened and overturned the CD's decision and demanded a re-flight. This Fantham took surprisingly well and the two assembled again this time for a flight in a 3 min. slot! Cooper was away first and in stable air — it looked to be good for 3ish. Half a minute later Fantham launched. They both came down and it was obvious that the times were very close. Cooper had done 2.55 and then it was discovered, in the excitement, that there had been no official timekeeper allocated to Fantham! Miraculously someone was found with a watch that had been on Fantham and this was accepted. Incredibly it was the same time as Cooper — we knew it was close but this was to the second! They had to go again.

Wakefield was settled on the next flight the conditions now considerably less helpful as it was well past 8 pm. Ron Pollard's attractive new model, used for the fly-off only, topping Spooners by 3/4 min to slightly make amends for the unfortunate incident last year when one on Rons flights disappeared into low cloud before the max.

Fortunately the A2s were retrieved without trouble as the drift had eased down and swung around a little by now. The final flight and this time the decider had Fantham launching first in average air to just clear 3 mins and Coopers following flight not contacting so well to be beaten by 11 seconds. John had the compensation of being National Glider Champion — thanks to his consistency in the three glider chases

throughout the weekend. There were ways in which this Nationals could have been improved — but then no event will ever be perfect for everybody. The fine details are best discussed and dissected elsewhere but generally things might have been smoother if those organising could put have themselves in the place of the contestants every so often. In the main it was a well run affair and our thanks go to those that sacrificed their flying in our interests.

## Junior Kit Event

### Report by Barrie Wade

The breeze on Sunday was strong enough to put off a lot of potential entrants, in spite of my attempts to bribe them with predictions of a prize for everyone. Others had no D/T and were afraid of losing models in strong lift, or had already lost them. Even so, 17 returned scores and one maxed out — in fact at one point we were expecting a fly-off. Entries covered a wide age range and included two from Scotland, one from Germany, and two young ladies, so the event was in some ways more open than most. Most scores came in during the afternoon, presumably as hopes faded that the wind would drop, and no less than nine maxed their first flight, plus one near miss; these included Clive Miller, Toby Owens, Richard Anderson, Anthony Ball and Frances Beaumont — all familiar surnames and I wouldn't be surprised if those dads were suggesting a good moment to launch.

As the second flights came in they included more maxes and one near miss, and four had double maxes — Steve Finch of Chelmsford, Adrian Garbett of E.P.S., Anthony Ball of Grantham and Nigel Moore (Cambridge?). Frances Beaumont was only 5 seconds short but didn't manage a third flight; nor did Anthony Ball or Clive Miller, presumably lost or broken models, were the reason.

When flying ended, no less than five had more than five minutes out of a possible six and general opinion was that the prizes — totalling about £100 worth — had been well earned. The goodies were donated by Humbrol, Radioactive and Micro-Mold, plus particularly generous gifts from 'the media' (MAP and Free Flight News).

I didn't keep records of the models used but Steve Finch won glider with a St. Leonards Satellite, Jan Stener used a Graupner Uhu (both A/1 designs) and I saw several Mercury Mentors.

**Results:** Rubber: 1. Adrian Garbett (E.P.S.) 6:00, 2. Richard Anderson (NYFFG) 5:28, 3. Nigel Dixon (B'ham) 5:13, 4. Nigel Moore 5:11, 5. Anthony Ball (Grantham) 4:00, 6. Frances Beaumont (Croydon) 3:55, 7. Gavin Welch (St. Albans) 3:27, 8. Michael Brookes (Grantham) 3:15, 9. Jenny Groome (C/M) 3:07, 10. Toby Owens (Liverpool) 2:00, 11. Chris Brookes (Grantham) 1:21.

*Vintage sport flying at the Nats will be shown in Vintage Corner next month.*

## 1982 FREE FLIGHT NATIONALS RESULTS

### Open Glider — Thurston Cup

#### 81 flew - 18 flew off

1. C. Shepherd	Birmingham	9:00 + 5:30
2. J. Abbey	Leicester	3:33
3. P. Owens	Liverpool	3:25
4. C. Abbey	Leicester	2:59
5. M. Fantham	Richmond	2:41
6. B. Nicholson	Liverpool	2:28
7. M. Gilmore	Grantham	2:24
8. B. Baines	RAFMAA	2:39
9. W. Colledge	Birmingham	2:18
10. J. Cooper	Biggles	2:16

### Open Rubber — Model Aircraft Trophy

#### 54 flew - 16 flew off

1. D. Hipperson	Grantham	9:00 + 6:59
2. P. Ball	Grantham	6:54
3. M. Groome	C/M	6:24
4. J. Carter	Falcons	6:21
5. I. Kaynes	Croydon	6:12
6. B. Aslett	Swindon	5:56
7. G. Sharp	Croydon	5:36
8. G. Beal	C/M	5:26
9. J. Cooper	Biggles	5:25
10. J. O'Donnell	Whitefield	5:22

### Open Power — Sir John Shelley Cup

#### 28 flew - 8 flew off

1. S. Screen	Birmingham	9:00 + 6:21
2. J. Hopper	Freebird	6:08
3. T. Smith	BAC	5:58
4. R. Monks	Birmingham	5:46
5. R. Baggott	Birmingham	5:38

### Vintage — Jubilee Trophy

#### 24 flew - 5 flew off

1. G. Ferrer	Leicester	9:00 + 4:34
2. R. Moore	Biggles	3:56
3. P. Ball	Granthams	3:19

### Tailless — Lady Shelley Cup

#### 4 flew

1. J. Pool	NYFFG	9:00
2. I. Kaynes	Croydon	8:03
3. R. Peers	Falcons	7:54

### Womens Cup

#### 5 flew

1. S. Coy	Freebird	8:35
2. B. Tyson	Crookham	7:59
3. R. Hubbard	Watton	4:58

### Frog — Junior Trophy

#### 9 flew

1. J. McDonald	Biggles	9:00 + 3:01
2. S. Dixon	Birmingham	+ 2:57
3. R. Land	Paisley	0:28

### CO<sub>2</sub> Scramble

1. I. Davitt	Leeds	7:12
2. J. Abbey	Leicester	6:48
3. J. Tipper	Lee Bees	6:23

### HLG Scramble

1. A. Crisp	Biggles	8:20
2. C. Camden		7:59
3. M. Benns	Peterborough	7:51

### F1A — A2 Glider — Ponytube Trophy

#### 89 flew

1. M. Fantham	Richmond	14:00 + 5:00 + 6:00 + 2:55 + 3:01
2. J. Cooper	Biggles	14:00 + 5:00 + 6:00 + 2:55 + 2:50
3. D. May		14:00 + 5:00 + 2:11
4. P. Owens	Liverpool	14:00 + 5:00 + 1:37
5. D. Hambley		14:00 + 5:00 + 0:08
6. A. Crisp	Biggles	14:00 + 4:30
7. J. Williams	Freebird	14:00 + 4:12
8. E. Drew	B & W	14:00 + 3:50
9. A. Hacken		14:00 + 3:12
10. B. Baines	RAFMAA	14:00 + 3:10
11. J. Cuthbert	Grantham	14:00 + 3:06
12. D. Bartle	NYFFG	14:00 + 2:13
13. P. Lumsden	St. Albans	14:00

### F1B — Wakefield — Boxall Trophy

#### 44 flew

1. R. Pollard	Tynemouth	14:00 + 5:00 + 5:00 +
2. B. Spooner	Croydon	14:00 + 5:00 + 5:00 +
3. R. Miller	Croydon	14:00 + 4:52
4. M. Dixon	Birmingham	14:00 + 2:04
5. P. Ball	Grantham	14:00

### F1C — FA1 Power

#### 19 flew

1. S. Screen	Birmingham	13:30 + 5:00
2. R. Johnson	Freebird	13:30 + 3:20
3. P. Buskell	St Alban	13:27

### Wigan 70 (unofficial event)

#### 14 flew - 6 flew off

1. J. Godden	Leeds	4:30 + 5:44
2. G. Beal	C/M	5:25
3. R. Peers	Falcons	3:51

### A/1 Glider

#### 49 flew - 8 flew off

1. J. R. Cuthbert	Grantham	M + 2:04
2. J. O'Donnell	Whitefield	M + 2:05
3. S. Philpott	Biggles	M + 1:40

### Coupe d'Hiver

#### 57 flew - 6 flew off

1. I. Dewsett	Croydon	M + 2:42
2. J. Brookes	C.M.	M + 2:10
3. P. Carter	Croydon	M + 1:55

### 1/2 A Power

#### 31 flew - 7 flew off

1. T. F. Payne	Biggles	M + 4:31
2. S. Screen	Birmingham	M + 3:59
3. R. J. Baggott	Birmingham	M + 2:57

### CO<sub>2</sub> Duration

#### 21 flew - 8 flew off

1. S. Philpott	Biggles	M + 6:05
2. J. Pool	NYFFG	M + 2:59
3. A. Rose	Godalming	M + 2:48

### Hand Launch Glider

#### 27 flew - 4 flew off

1. P. Ball	Grantham	M + 6:7
2. M. Page	Peterbrough	M + 5:6
3. A. Crisp	Biggles	M + 5:1

# PROFILE 40 CARRIER



Norman Ashford describes the construction and how to fly his Corsair II design.

IN THE SOUTH EAST over the last three years, three clubs — Broadlands C/L Group, Three Kings Aeromodellers and Witham MAC, have between them developed a second class of Navy Carrier flying. With the help of other clubs it has been normal to fly at least six contests per year.

The event was also flown at the 1980 and 1981 British Nationals. The original idea was to provide a nursery class for Scale Carrier but the event has now become a serious competition class in its own right, for which the SMAE has adopted the following provisional rules:

1. Maximum motor size 0.40cu. in.
2. Profile fuselage.
3. Silencer pressure or suction fuel system, fuel pumps and crankcase pressure systems not eligible.
4. Navy colour scheme, any Naval Air Arm scheme to keep to the spirit of things.
5. Hook length, maximum  $\frac{1}{2}$  of model's overall length.
6. Line length 60ft. plus 6in. minus 0in., centre line of model to grip of handle.
7. Maximum speed to count for flight scoring from high speed run is 75mph (This is to try to prevent the class from becoming a horsepower race and to put more emphasis on the slow speed part of the flight).

There are no restrictions on airframe size and all other rules are as Class 1 and 2 SMAE Carrier.

## Corsair II

The choice of prototype was picked for two reasons (1) the Corsair II is, in my opinion, one of the best looking Carrier aircraft ever, (2) the prototype has, in its layout, many features that I thought would be of advantage in a profile model. Com-

petition success with this machine over the last three years has proved this to be true. The model has collected nine firsts, four seconds and one third in addition to first place at the 1980 Nationals. These features are:

(a) the high wing coupled with a low centre of gravity as on a sport free flight model improves stability in slow speed flight.

(b) the large vertical tail surfaces provide weathercock stability. This is most noticeable in slow flight when the model is up-wind of the pilot; wind on the fuselage side then turns the nose out of the circle.

(c) the low tailplane keeps the elevators in clean air, away from any turbulence created by the flaps.

(d) the deep fuselage provides a good anchorage for the landing gear, essential in deck landing.

## Building

With the exception of all the wirework, there is only one departure from most other profile C/L models. That is, instead of passing the completed wing through the fuselage, the fuselage is cut out to take the leading and trailing edges and the spars only. The top spar being fitted after the wing ribs are in position. This provides two advantages (1) the extra gluing area creates a stronger wing/fuselage joint, and (2) the Roberts bellcrank, throttle and elevator linkages can be installed and connected with the fuselage in position before sheeting the centre section.

It is important that control and throttle linkages are super free and smooth because they sometimes have to work under

*Corsair II overflies Broadlands carrier deck. Note: arrestor hook is lowered and rudder offset activated by up elevator. One arrestor line can be seen on the right of the deck.*

no line tension. Note: the reinforcing of the wing root, tailplane root and fin/fuselage joint with 1oz. fibreglass cloth applied with Tufkote.

Before covering and with the engine installed, add tip weight to bring the C.G. to the point shown on the outboard wing. With the piped Irvine 40 as used in the original and with the motor standing out by mounting it on  $\frac{1}{8}$ in. dural plates; no tip weight was in fact necessary. Finishing is by your favourite combination of dope, sanding sealer, enamels, etc. Reference to any of the fullsize aviation books will soon provide a scheme for the decoration. The basic colour is anything you like as long as its light grey with white undersides and control surfaces.

Fuel proof and before connecting the flaps, rudder and elevators, apply a little neat glow fuel to the hinges. Manipulate them beyond their normal working range to make them free enough to move under their own weight.

The hook shape is not very elegant but it does provide as big an entry as possible for the arrestor wire and the sharp bend minimises the chances of the hook straightening under tension. Do not forget the 24swg retainer that must be capable of moving back and sideways to allow the arrestor wire to pass through.

The hook should be capable of operating the flaps, aileron and rudder under its own weight but to hold everything down against the airstream, a single rubber band is used. This band must be weak enough to allow the model to sink onto its undercarriage if maximum landing points are to be achieved.

## Flying

Built as a sport model, there is not much to it; it just goes round and round. However I will try to describe it as a competitive Carrier model. Whilst a raised deck is a definite advantage in Carrier flying, it is by no means essential. Good flying, practice and competitions have been staged by

*Don Powell releases American design model for Peto O'Sullivan (both Witham MAC).*



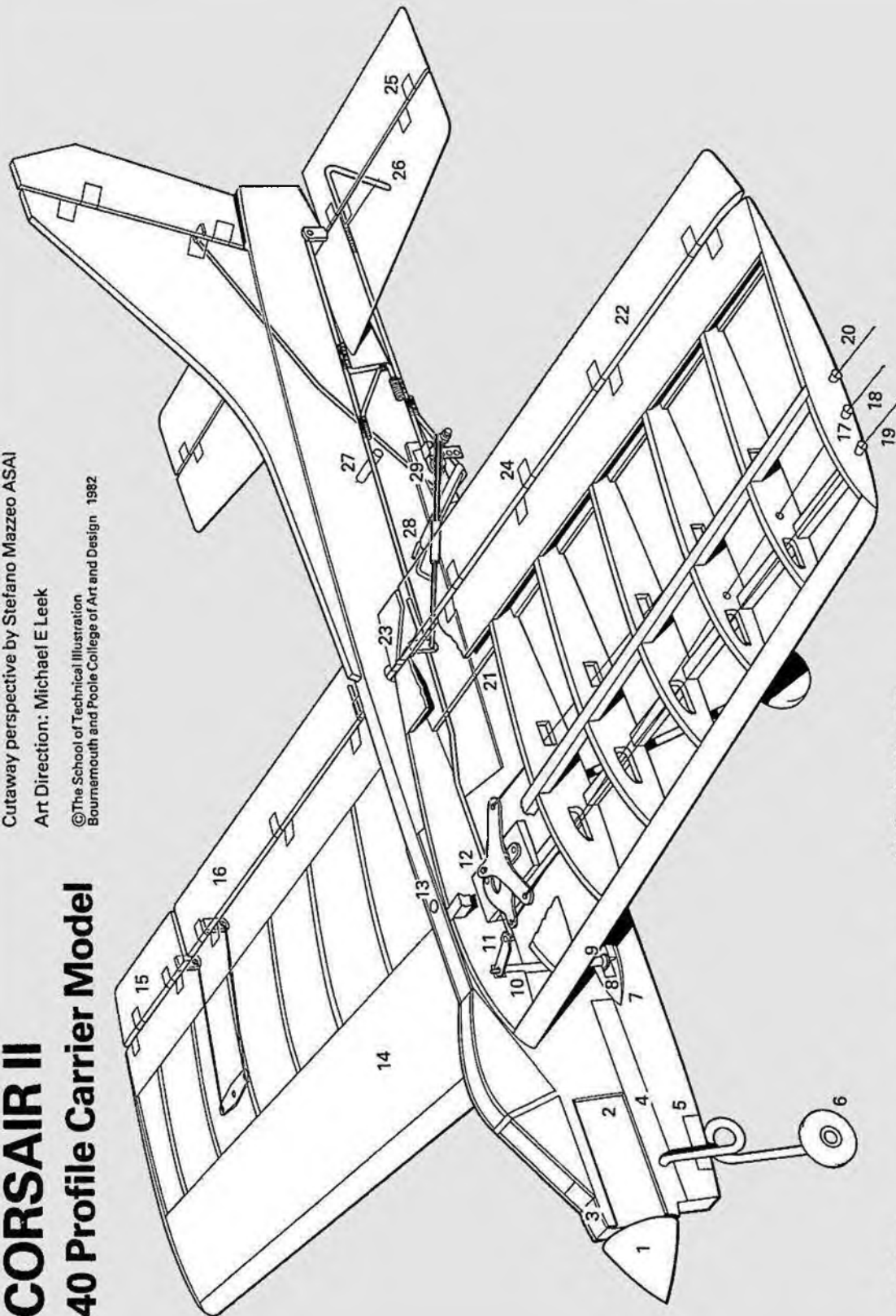
# CORSAIR II

## 40 Profile Carrier Model

Cutaway perspective by Stefano Mazzeo ASAI

Art Direction: Michael E Leek

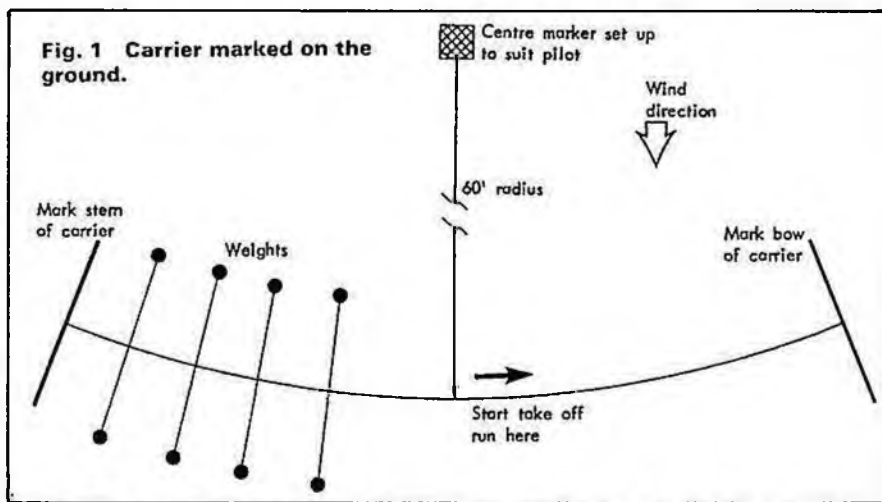
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Bournemouth and Poole College of Art and Design 1982



1. Spinner
2. Piece removed to clear engine (outboard only)
3. Top engine bearer
4. Bottom engine bearer
5. Bearer for front u/c fixing bracket
6. Front wheel
7. Streamline blister
8. Slot in fuselage
9. Bottom throttle
10. Tube with wire

11. Top throttle crank
12. Roberts 3 line bell crank
13. Dowel to secure bell crank to top engine bearer
14. Leading edge sheeting
15. Outer starboard aileron
16. Starboard flap
17. Brass leadouts
18. Throttle wire
19. Up flying wire
20. Down flying wire

21. Plywood doublers
22. Port flap
23. This piece glued to fuselage
24. Aileron hinge tape
25. Elevator hinge tape
26. Arrestor hook up
27. Dowel to support hook assy
28. Hook to take rubber band
29. Bearer to arrestor hook



**Fig. 1 Carrier marked on the ground.**

marking out a landing/take-off area as shown in Fig. 1. The wind direction at take-off/landing is debatable; some prefer with the wind, some into wind take-offs and landings. The illustration shows the 'Carrier' down wind of the pilot which the majority are happy with.

For a centre marker I prefer to use a heavily ribbed car mat that can be felt under my feet when wearing light shoes. This

way, after lining up for landing, there is no more need to look down.

### Take-Off and High Speed Run

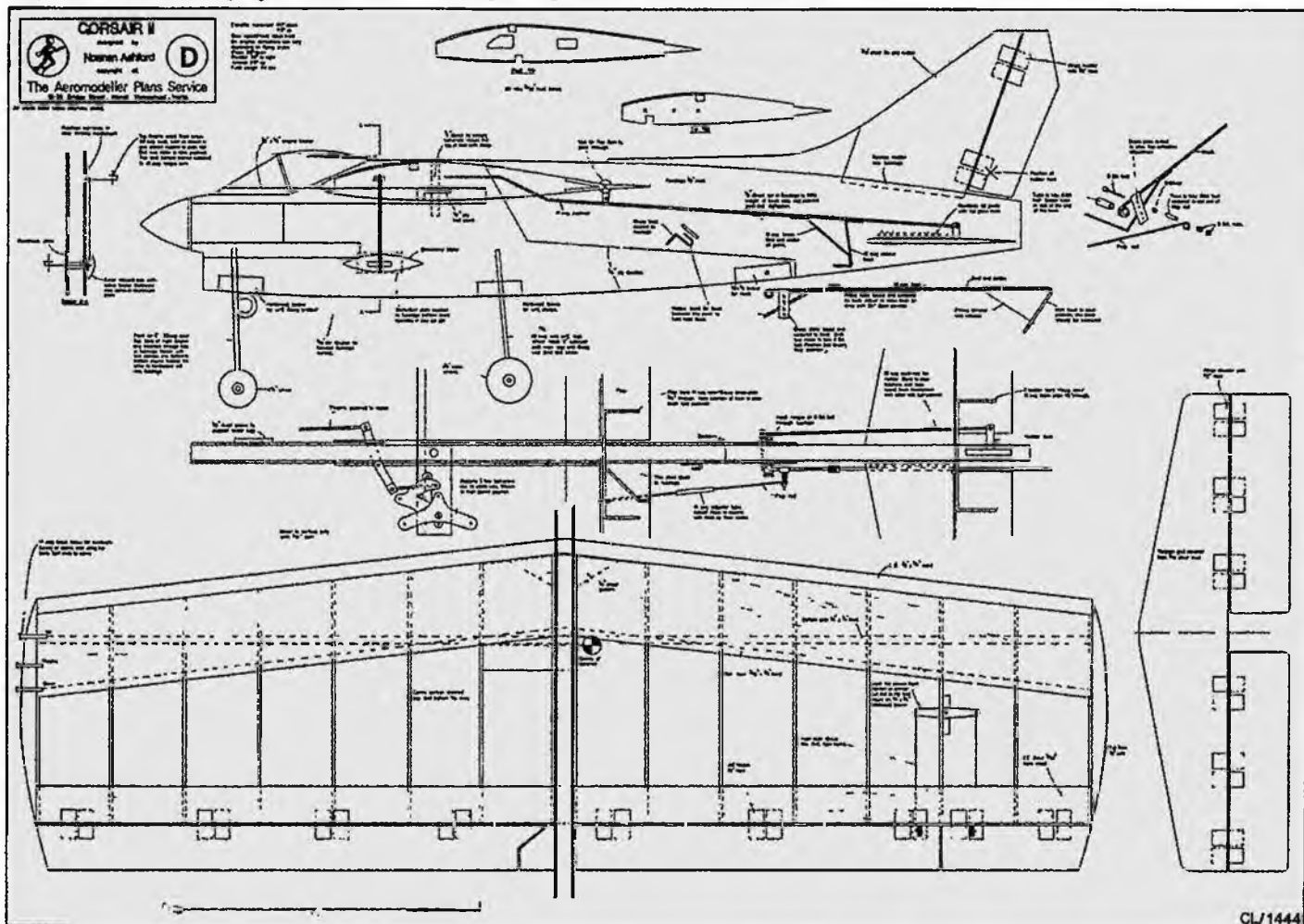
With a good 40 up front, the acceleration is quite startling, so be prepared. Climb out at a shallow angle and level off at about 15ft. zooming up vertically and levelling off at right angles kills acceleration and the

excessive control movement in controlling the model, might drop the hook and trim the model for slow flight. As soon as the model is airborne, bring the handle into the chest to legally shorten the radius and hang on for 7 laps. After 7 laps, the timekeeper will signal the completion of the high speed run. With a 9 x 7 wooden prop. this model generally averages 75mph on 5% fuel.

### Slow Speed

Climb the model to a 30° line angle, throttle back and when the model has slowed, snap down elevator to drop the hook. Wind strength has a direct bearing on the low speed that can be achieved. Whilst flapped profile carrier models are at their best in flat, calm conditions, this model has sufficient stability to cope with the worst of British contest weather. Contrary to a lot of opinion, the slowest flight speed is not achieved with the lowest engine revs. It is the fine balance of holding the model's nose up by using up elevator and keeping the model as close to the stall as you dare and then as the model starts to sink, taking some of the weight of the model on the propeller by increasing the engine revs. In

Full size copies of the plan reproduced here to 1/6th scale are available as Plan No. CL/1444, price £2.00 plus 45p postage and packing. Export orders obtainable from appointed agents or direct from Aeromodeller Plans Service, PO Box 35, Bridge Street, Hemel Hempstead, Hertfordshire, HP1 1EE.



calm weather it is possible to fly a complete circle with the model on the point of stalling. In windy conditions I find the slowest laps are recorded by using the flight pattern set out in Fig. 2 which considers wind direction over the whole lap. When you are sure you have the model flying as slow as possible, signal to the judges who will commence timing for 7 laps from the next time the model passes over the stern of the carrier. Do not try to count the slow laps, just concentrate on keeping the model out of the water, the judges will signal the completion of 7 laps. When the signal is received, increase engine revs and climb to about 20ft. Fly the model by feel and walk to the preset centre marker and rotate on the spot. At the moment under contest conditions, 20mph is a good slow but in flat calm it is possible to get down to about 17mph.

### Landing

Fly the model at the slowest speed at which it will maintain good control and line tension without the need to step back. Step off that mat and you lose your centre for landing. Murphy's Law says this will happen when half a lap from the touch-down. The last thing you want to have to do when half a lap from home is to look for a centre marker and a carrier. Keep the model at this slow steady speed and gradually reduce height to about 4ft.

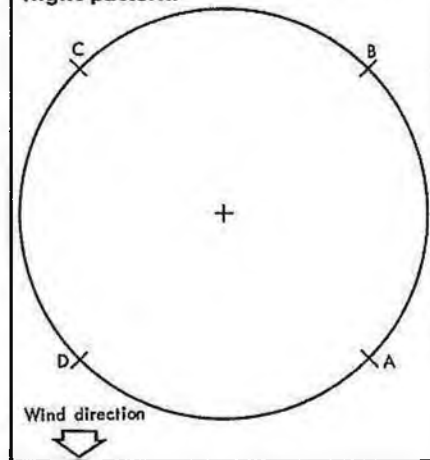
altitude. When you are sure everything is ready, signal and be prepared to land at the end of the next complete lap.

The most successful and satisfying landings are achieved by slowing the model down on the approach to the deck, to the point where all lift is lost and the model just flops among the arrester wires in a nose high attitude. Aim for the model to drop into the centre of the arrester section; this then gives two wires either side of centre and allows for the widest margin of error. The advantages of arriving on the deck as gently as possible are (1) should you overshoot the arrester wires, you stand the best chance of keeping the motor running and going round again for a second attempt forfeiting five landing points for each lap flown after signalling, and (2) should the undercarriage hit the wires before the hook engages, there is less chance of the model being pulled over onto its back.

Profile carrier can be as demanding as scale carrier. Instead of building a model with all the complex working parts inside the wings and fuselage, there is scope for experimenting in aerodynamics especially as aids to slow speed flight. Examples that spring to mind are flap areas and angle of deflection, drooping leading edges and thrust line angles. Furthermore a profile model can be more easily modified to incorporate additional features as part of its development.

Many times I have overheard aeromodeling spectators at competitions say "I'm not too keen on putting all that hard work into a scale carrier model only to crash it into the side of that huge table thing, but these profile models do seem more controllable and easier to fly". Well, how about having a go?

Fig. 2 Windy weather, slow speed flight pattern.

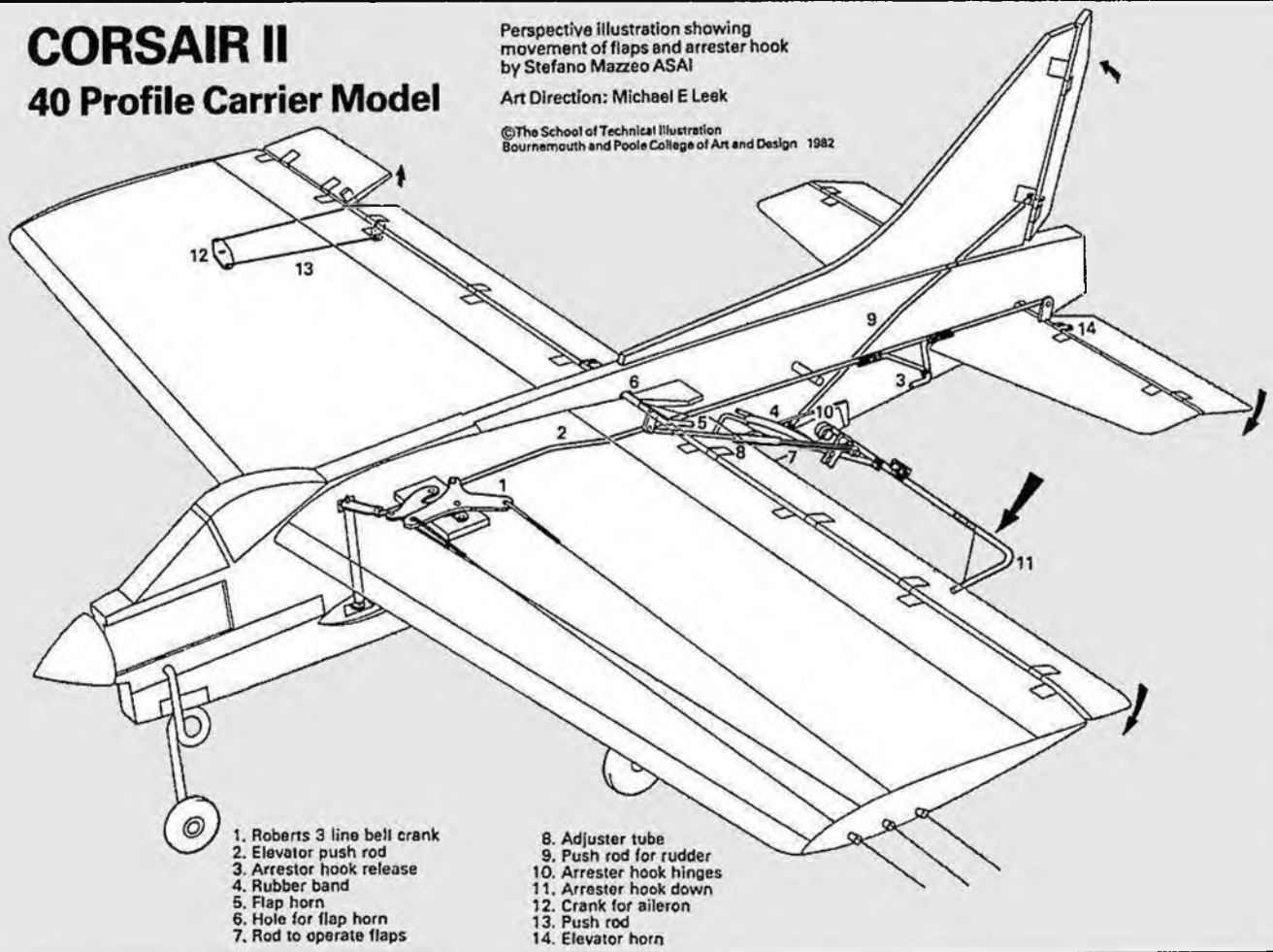


## CORSAIR II 40 Profile Carrier Model

Perspective illustration showing movement of flaps and arrester hook by Stefano Mazzeo ASAI

Art Direction: Michael E Leek

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Bournemouth and Poole College of Art and Design 1982



1. Roberts 3 line bell crank
2. Elevator push rod
3. Arrester hook release
4. Rubber band
5. Flap horn
6. Hole for flap horn
7. Rod to operate flaps

8. Adjuster tube
9. Push rod for rudder
10. Arrester hook hinges
11. Arrester hook down
12. Crank for aileron
13. Push rod
14. Elevator horn

# SCALE MATTERS

by Alan Callaghan

## F/F Scale RAF Odiham 23rd April

The annual F/F Scale contest held at the SMAE Southern Gala at RAF Odiham was at last blessed with some reasonably good flying weather. Having attended meetings three times previously this was the first occasion when I have seen weather good enough to allow models to be taken out of the car.

It was originally intended to run separate contests for both rubber and power models but with only two pre-entries recorded in Power it was only worthwhile to run one combined event to include the four power models, two CO<sub>2</sub>, and two rubber models that made it to the field entry board. From this response it was decided that in future no pre-entries will be required for this event in the hope that entry on the day will encourage more spontaneous flying when the weather looks good. What more needs to be done to encourage a bit of mild competition and a good day's flying in a friendly atmosphere?

Sharing the task of judging with Vic Willson, it occurred to us that if more of these combined rubber/power/CO<sub>2</sub> events are to be staged, then we will continue to encounter problems with rules and interpretation of them mainly on the flying schedules. The rules used on the day were the SMAE Class II F/F scale rules which on the flight section includes a category for 'transition to glide' which was obviously intended to cater for i/c engine powered models and formulated during their heyday. As we all know, CO<sub>2</sub> and rubber models are in much greater abundance these days and they usually have a barely perceptible transition to glide if any at all. So how does one mark them? Full marks for being so good, or no marks for not clearly exhibiting the manoeuvre? In fact these models' flight patterns are more realistic than power models in this respect so there is a strong argument for opting for the former. A transition to glide on a fullsize craft is usually a prelude to disaster unless the subject is a powered sailplane, and the item does not therefore, relate properly to fullsize flying practice. If it were simply deleted from the score sheet and the K factors of the other parts of the flight were re-arranged to compensate, then all types of power would be on a much more equal footing. When it is all simply combined into 'glide/landing approach' then the power model which demonstrates none of the usual stalling behaviour on transition should score just as well as the other types of model.

It certainly can be done as demonstrated by Michael Smith's Sopwith 1½ Strutter



Above: Bill Dennis makes an adjustment to the motor in his APS Blackburn Monoplane at the Southern Gala at Odiham. His second entry was also an APS plan, the DH Puss Moth by Fred Longban. Below: George Whitfield placed fourth at Odiham with this Wittman Tailwind which flew amazingly well outdoors in such uncertain wind conditions. (Photos: Alan Callaghan).



which performed a superb landing approach on its last flight with no obvious transition point showing up. Only the sound of the motor stopping gave the game away. The only models that will lose by such a rearrangement are those F/F power models that are underpowered and over-elevated which usually hang on the prop on climb and stall on glide. As they get poor marks already for transition they have nothing to lose by flying to a schedule revised in this way.

Although it was the smallest power model entered, the Sopwith made the best flight of the day with a long straight climb drifting slightly to the right as it held into

wind before turning to circle. The good transition was due mainly to the motor burbling gradually to a stop rather than having a sudden cut-off, with the model going across wind to a good level landing approach.

George Whitfield's Peanut Wittman Tailwind built from an Andrew Moorhouse kit flew in a spot of calm and greatly impressed with its stable flight pattern which was better in fact than some of the larger models. As all models were being hand launched, Eric Coates' DH9A could not pick up marks for its usually good take-off performance and did not get back on proper trim after a heavy downwind landing on its first flight. Charlie Newman's Southern Martlet was carrying two CO<sub>2</sub> tanks and being somewhat heavily built flew rather too fast and tightly turning for realism. His other entry, a geared motor Fieseler Storch, had a tired motor and could not manage the necessary 20 second qualifying flight in these conditions. Bill Dennis' APS Blackburn Monoplane, being a lightly loaded slow flyer, also did not like the unsettled air and could only manage a low flight score but did well in static due to some extent to its accurate colour scheme which was very carefully matched to a colour photo and not at all easy to do with a natural doped linen finish. The smaller CO<sub>2</sub> Blackburn Monoplane of D. Palmer actually outflew Bill's version but was let down by a dyed tissue finish and those final touches of detail needed for competition.

A couple of other points about the rules did arise from this enjoyable contest. When there is no possibility of performing take-offs and models are all to be hand launched, the entire take-off section is usually deleted from the score sheet. As there is clearly such a thing as a good or bad handlaunch, perhaps an alternative section could be introduced where the quality of launch can be marked to a reduced K factor. Good models can be written off from a wrongly executed hand launch. I have seen it happen more than once — and a good launch obviously dictates the quality of the rest of the flight. It would give more

### Results (8 entries)

		Static	Flying	Total
1. E. Coates	DH9A	525	326.55	851.55
2. M. Smith	Sopwith 1½ Strutter	410	351.75	761.75
3. W. Dennis	Blackburn 1912	495	266.5	761.5
4. G. Whitfield	Wittman Tailwind	365	335	700
5. C. Newman	Southern Martlet	365	291.63	656.62

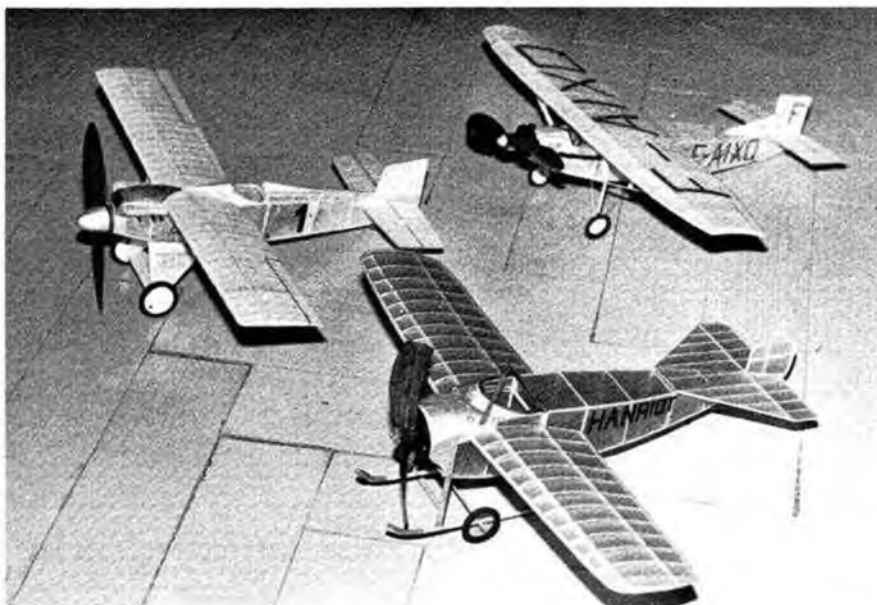


opportunity for higher flight scores under the circumstances and could do nothing but encourage higher standards of operation of the models. The second point is that of the qualifying time for CO<sub>2</sub> models, which is 30 seconds, the same as for power models. Although every drop of diesel fuel contains the same power capacity as the next, as most will know by now, CO<sub>2</sub> gas bulbs, as they are presently marketed, do not, and charges can be very inconsistent. In this respect its performance is much more like rubber, and it would be more sensible if the flight times were made the same i.e. 20 seconds. It does not sound much, but with a standard CO<sub>2</sub> motor and tank in a scale model on a windy day, it is surprising how many simply can't manage 30 seconds.

If you may be puzzled by some of the odd fractions in the scores — particularly the 2nd and 5th places, this is the result of using half marks — e.g. 7.5 out of 10, where it seemed appropriate. When such scores are multiplied by K factors of 13 or 23, to which a 5% bonus may be added in some cases, the results occasionally come out like this. Never go judging without a calculator!

During general discussions during breaks in the proceedings for sustenance,

*Below left: from France Roger Aime's Peanut Caudron is of mixed balsa/tissue/foam construction. It flies very well but very fast. (Photo: R. Aime). Below right: the Peanut Hawker Fury is one of a set of four built from Roger Aime's design by Emmanuel Fillon of early Wakefield fame. Weights vary from 12-18 grams and they are of mixed foam/balsa/tissue construction. (Photo: R. Aime).*



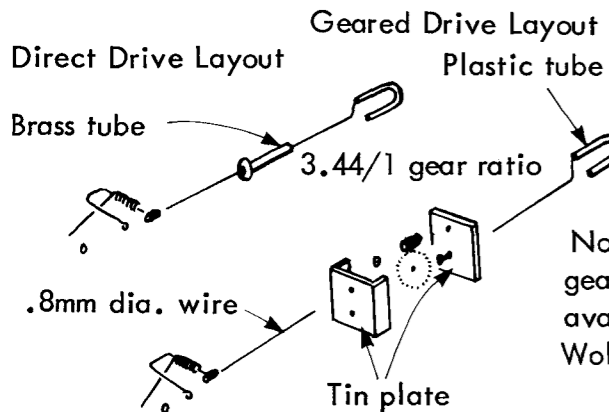
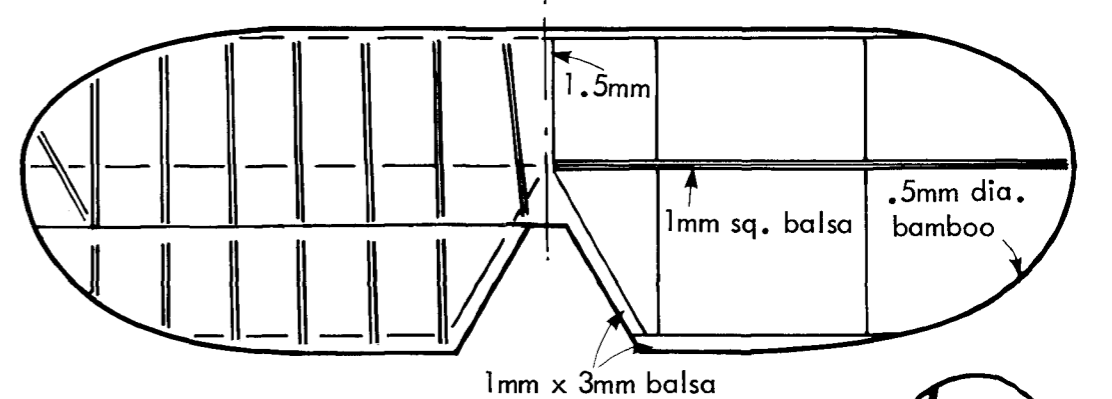
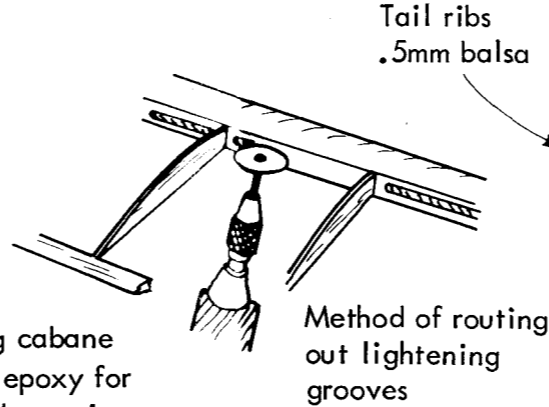
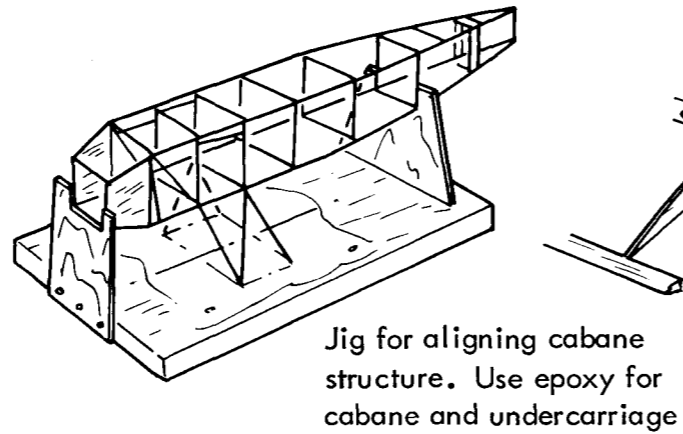
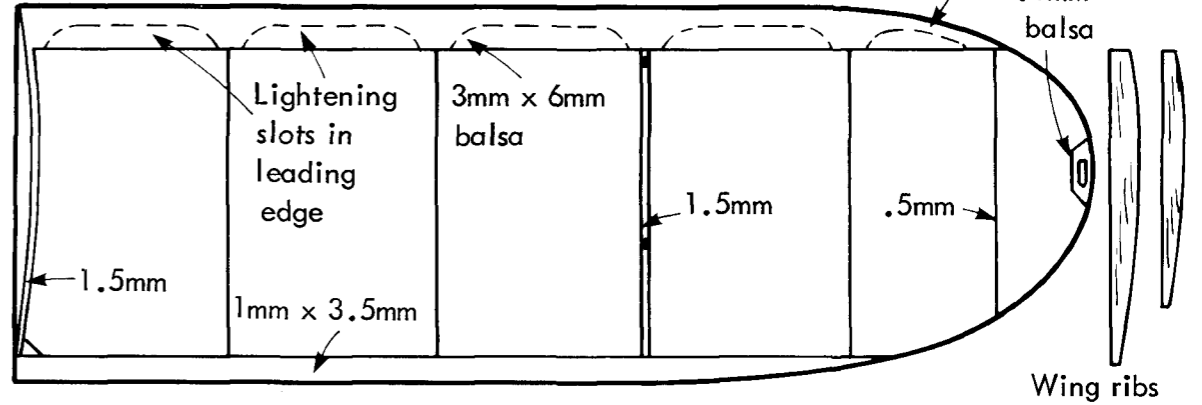
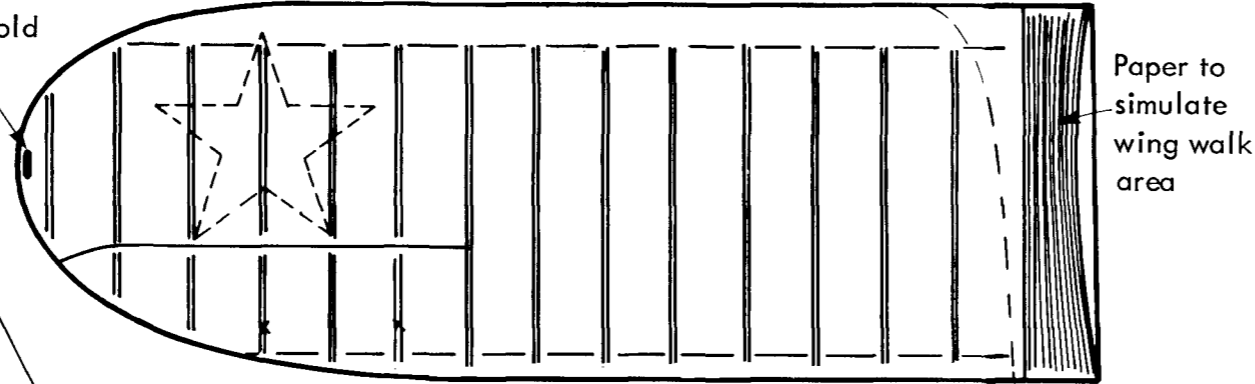
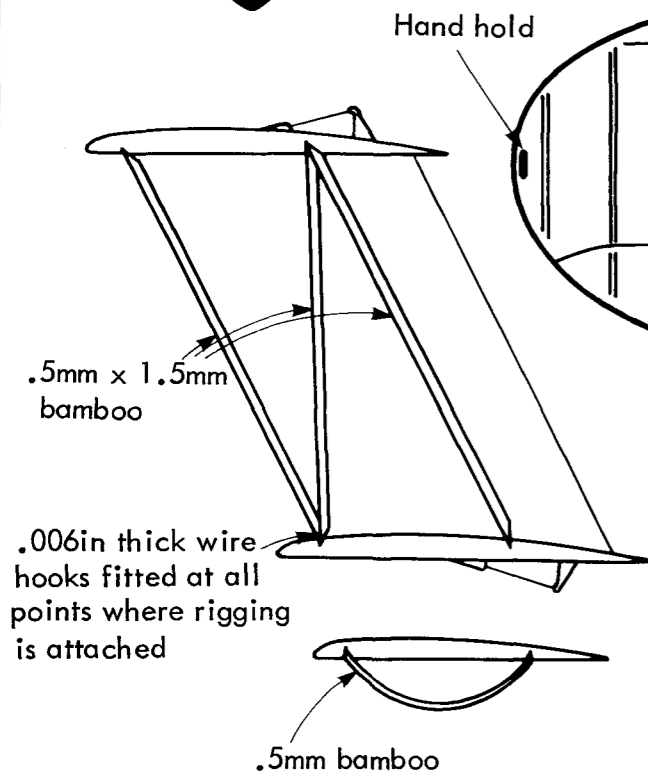
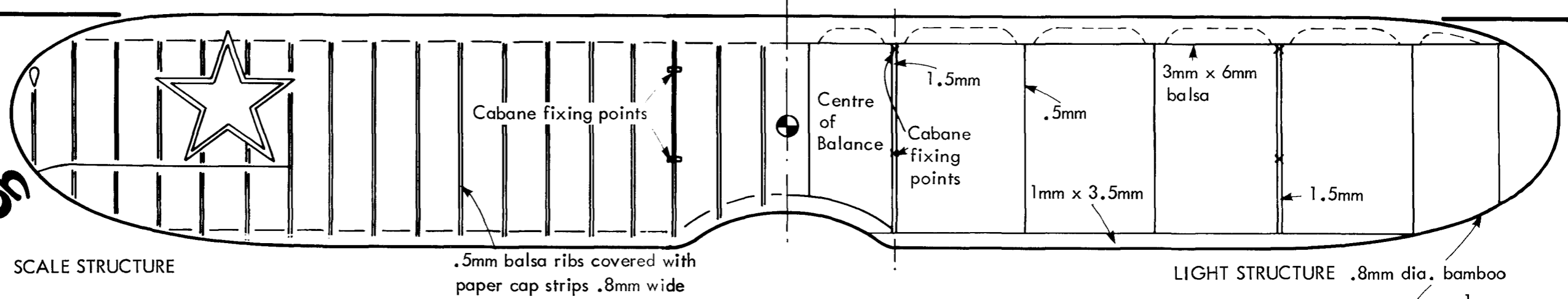
*Above left: the 'do-it-yourself' winding technique perfected by Robert Cooke in Czechoslovakia with his Peanut Sopwith Camel. This subject is about as challenging as one can find for Peanuts but flights of over 50 seconds are claimed. Above right: this very attractive group of Peanuts was built by Ladislav Kunert of Czechoslovakia and includes an Avia BH7A, Hanriot, and a Farman F190. All are excellent flyers, capable of one minute flights. Hanriot is condenser covered, the others natural tissue. (Photos: L. Koutny).*

there came up the old question of why so few fliers actually participate in events such as this when for example, the London area has a very healthy population of known F/F Scale fliers. Several years ago, when it was made known by the SMAE representative that due to lack of response there would be for a time no F/F Scale contests at all apart from the Superscale at the Nats, there was a measurable amount of protest at this terrible off-hand attitude! Upon the re-introduction of events, needless to say, we seem to be in the position where another such announcement may be justified. For those who have never been to a F/F Scale competition before, be assured that there is nothing to be frightened of. You do not need to have the most fabulous scale model ever built, just a reliable performer, neatly built by yourself and well finished, together with simple clear documentation from which a judge can easily check that there really was a fullsize subject just like your model. There are flyers who will compete more seriously

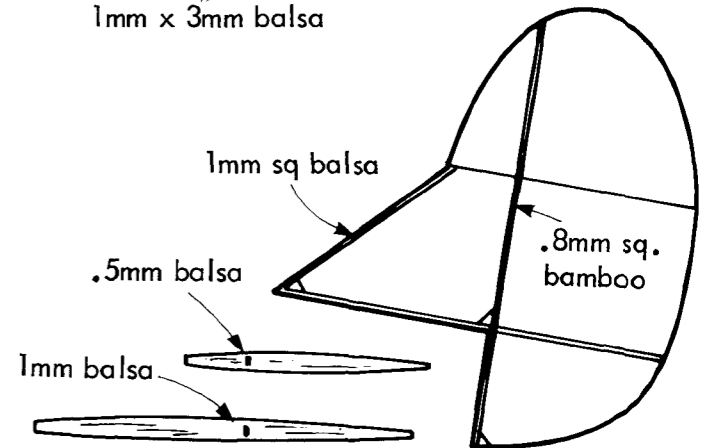
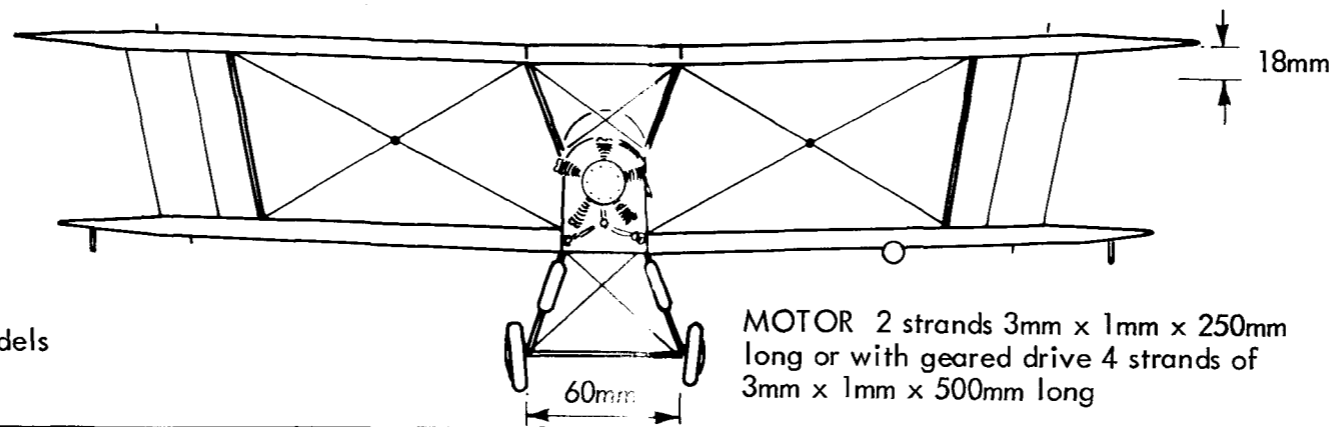
than others, even for amodest wooden plaque, but you will find these in any class of model flying that you care to name. To enter and take part in a competition is to contribute something towards other modellers' enjoyment of the hobby. As you will be told in any branch of modelling, you learn more in your first competition than in months of flying by yourself, provided that you don't know it all already that is, and you'll give your adrenalin a little exercise too. Attending a contest provides the chance to meet other modellers, share knowledge, stimulate your ideas, and incidentally join the grapevine of contacts who will be able to help when you want to research some particularly challenging or obscure subject.

Where to start? For an entry to F/F Scale you need look no further than the APS plans handbook where there are dozens of proven designs as difficult or as easy as you like. If really undecided for choice, use a blindfold and a pin, but whichever way you choose, why not make a start soon?

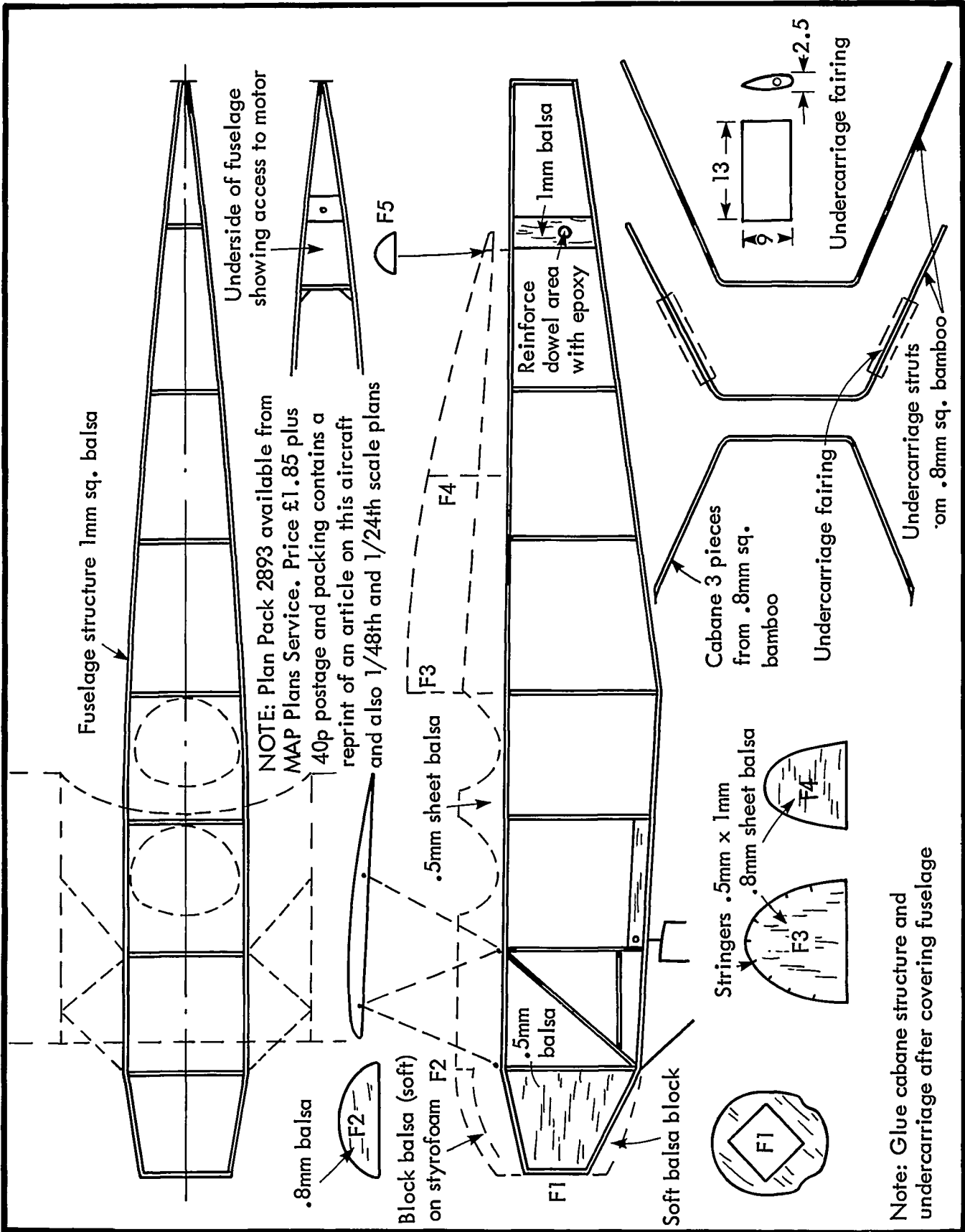
# Peanut Scale by Polikarpov E. by Filton



Note: Small Frog gearboxes are still available from Wolverhampton Models







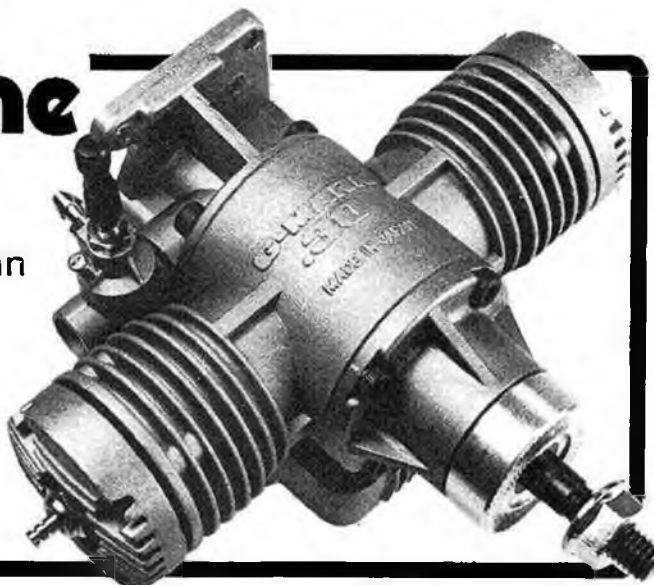
Note: Glue cabane structure and undercarriage after covering fuselage

# Engine Test

by Peter Chinn

## G Mark 30 Twin

*G-Mark's neat 5cc flat twin is just the thing for a medium-sized scale model or a light aircraft.*



'At last, a twin-cylinder motor you can afford . . . ' So runs Irvine Engines' advertisements in AEROMODELLER for the G-Mark .30 horizontally-opposed twin. To be fair, the same manufacturer's smaller model, the .12 flat twin, based on two G-Mark .061 cylinder and piston assemblies, is considerably cheaper but, at only 2cc capacity, and needing a prop no larger than 7x3 to deliver its best performance, the .12 is suitable only for fairly small models. In contrast, the 5cc G-Mark .30 easily copes with ten-inch props of 4, 5 or 6 in. pitch and will even, if necessary, pull an 11in. dia. quite happily.

So far as its general design and construction are concerned, the .30 has little in common with the .12, but it does continue one unique feature in its use of a two-throw overhung crankshaft. The conventional arrangement with a flat-twin engine is for the crankshaft to be supported

### SPECIFICATION

**Type:** Twin-cylinder, horizontally-opposed, simultaneous-firing, Schnuerle-scavenged two-stroke, with rear rotary valve. Crankshaft supported in two ball-bearings. Throttle type carburettor with adjustable automatic mixture control.

**Bore:** 15mm (0.5906in.).

**Stroke:** 14mm (0.5512in.).

**Swept Volume:** 4.948cc (0.3019cu. in.).

**Stroke/Bore Ratio:** 0.933:1

**Measured Compression Ratio (full stroke):** 8.7:1.

**Measured Compression Ratio (exhaust closed):** 6.5:1.

**Checked Weights:** 345gm (12.2oz.) including silencer.

### General Structural Data

Pressure diecast aluminium alloy crankcase barrel with integral full-length finned cylinder casings, each having a downward pointing 8mm i.d. exhaust stub. Cast steel cylinder with 2.5mm thick walls and cast-in ports and transfer channels. Lapped cast-iron flat-crowned pistons with fully-floating 4mm o.d. tubular gudgeonpins retained by wire clips. Pressure diecast aluminium alloy connecting-rods with bronze bushed big-end bearings and offset unbushed small ends. Pressure

diecast aluminium alloy cylinder heads with brass thread inserts for glowplugs. Each head fitted with 0.2mm soft aluminium gasket and secured with four 2.5mm Allen cap screws. Built-up two-throw overhung crankshaft with 10mm dia. journal and 6mm dia. crankpins. Crankshaft supported in 10x22 mm steel-caged ball journal bearing at rear and 10x19 mm shielded bearing at front; both bearings contained in pressure diecast aluminium alloy front housing secured to crankcase barrel with four 3mm Allen cap screws. 23mm dia. machined aluminium alloy prop driver keyed by means of two flats on shaft. Shaft end threaded M6x1.0 for prop nut. Pressure diecast aluminium alloy rear housing containing 10mm o.d. drum type hardened steel rotary-valve driven by 3mm dia. spigot on rear crankpin. Rear housing secured to crankcase with four 3mm Allen cap screws. Two-needle, automatic mixture control carburettor with pressure diecast aluminium alloy body and hardened steel vertical lifting type throttle barrel. Carburettor fitted into 10mm i.d. horizontal boss in side of rear housing, sealed with O-ring and secured with

grubscrew. Two-part pressure diecast aluminium alloy expansion chamber type silencer secured beneath crankcase with two 3mm Allen cap screws.

### Test Conditions

**Running time prior to test:** Approximately 2 hours.

**Fuel used:** 70 per cent methanol, 20 per cent castor-oil, 10 per cent nitro-methane.

**Glowplugs used:** Fox 1.5 volt short-reach.

**Silencer used:** G-Mark expansion chamber as fitted.

**Air temperature:** 19°C (66°F).

**Barometric pressure:** 769mm (30.28in.) Hg.

**Relative humidity:** 74 per cent.

### Test Results

**Power Output, net:** 0.36bhp at 12,500rpm.

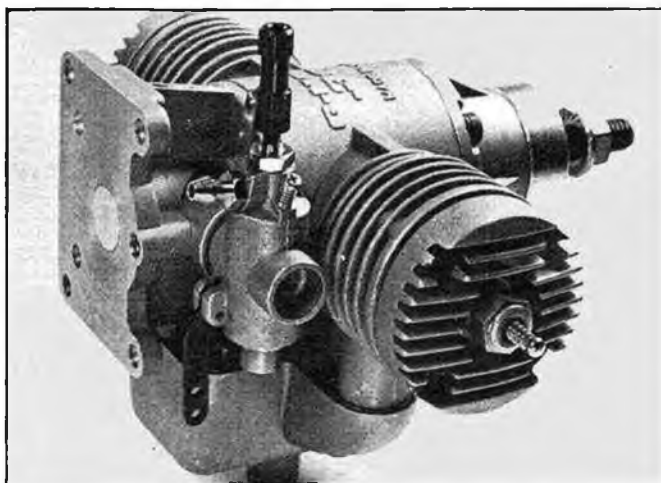
**Torque, net:** 39oz. in. at 7,000rpm.

**Equivalent b.m.e.p.:** 51lb./sq. in. at 7,000rpm.

**Specific output, net:** 73bhp/lit.

**Power/weight ratio, net:** 0.47bhp/lb.

(All figures net: i.e. with engine's integral expansion chamber silencer in place.)



*Left: compactness of G-Mark .30 Twin, with its rear mounted carburettor and integral silencer is evident in this photo. Right: underside view of G-Mark .30 Twin showing its unique and compact silencer.*

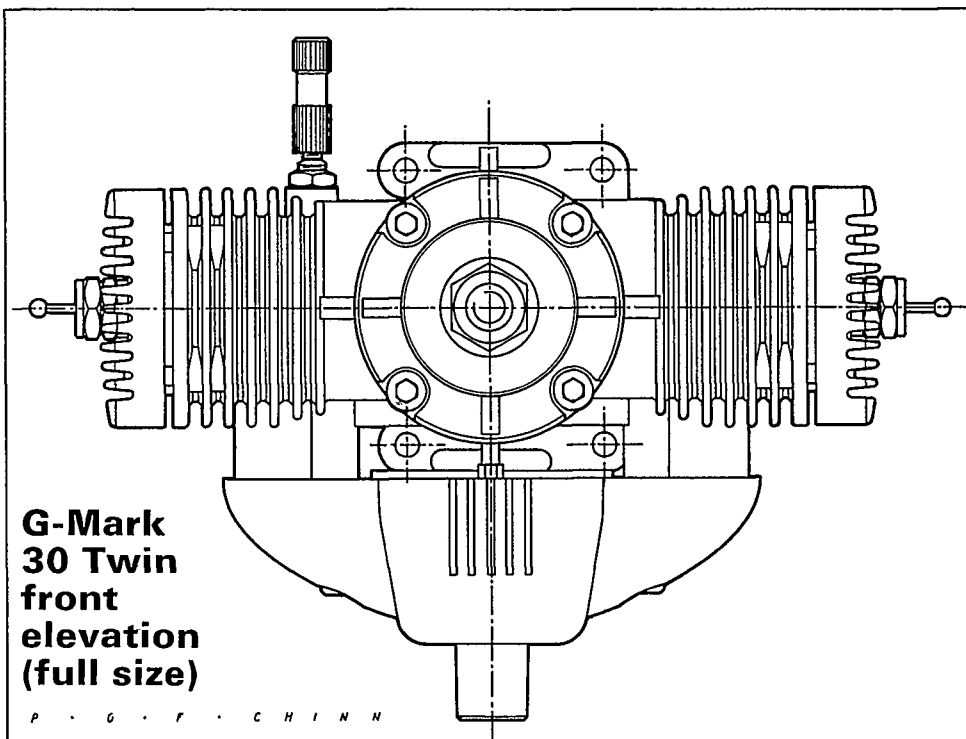


in main bearings fore and aft. The rare exception (and even rarer in two-strokes, since it rules out the use of the crankcase as a charging pump) is where both connecting-rods are coupled to the same crank so that both pistons always travel in the same direction, instead of in opposition. The latter, of course, is always preferable for its better balance but requires two cranks, one behind the other and 180 degrees apart. For this, an overhung crank arrangement (i.e. where the crankshaft is supported at the front end only) has seldom, if ever, been considered adequate. Nevertheless, G-Mark used just such a set-up in the original .12 Twin and have now, with a slightly modified method of assembly, successfully repeated the experiment in the .30 Twin.

The main part of the crankshaft consists of a 10mm dia. journal with a thick, integral front crankdisc into which the separate two-throw crank assembly is inserted. The latter consists of a 22mm o.d. x 2.8mm thick centre disc, on which are disposed, one each side and 180 degrees apart, two 6mm dia. crankpins. The crankpins, integral parts of the centre disc, are nominally 4mm long but the front one is extended a further 5.5mm and fits into a hole provided in the front crankdisc. Concentric with the crankshaft axis and overlapping the crankpin hole, the front crankdisc is bored to take a 9.6mm o.d. steel split collet. The collet has a tapered i.d. into which is fitted a special 4mm Allen screw. The screw head is machined to match the tapered i.d. of the split collet. It screws into the centre of the shaft and expands the collet as it is tightened. The front crankpin extension is crescent shaped so that it is securely keyed and locked by the collet.

The crankshaft parts are very accurately made, are case-hardened and fit together precisely. The front (left) connecting-rod is, of course, fitted to its crankpin before the shaft is assembled and the shaft, conrod and piston are then inserted through the front of the crankcase barrel and hooked up to the rear conrod before the cylinder liners are installed. The conrods have generous 6.2mm wide, small-end bearings that are offset on the conrod shanks so that the two cylinder axes are brought into line. The rods are fairly long at 27mm (1.93 x stroke) between centres.

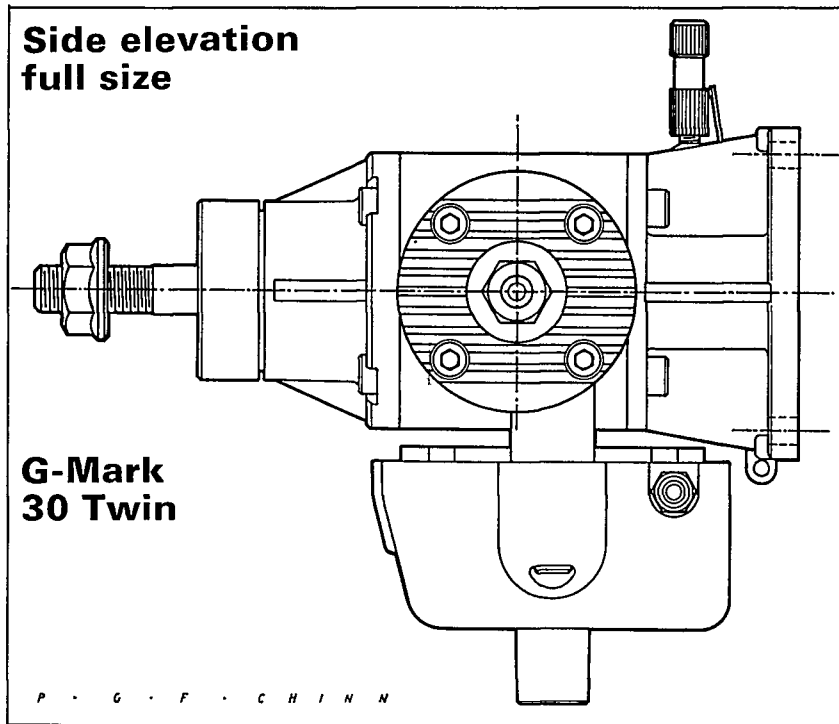
Unlike previous G-Mark engines, the .30 Twin incorporates Schnuerle type porting. However, instead of using cylinder liners machined from bar stock with the transfer channels formed in the surrounding casting, the .30 Twin has thick-walled cast steel liners with the three transfer channels, as well as the ports, formed in the liners themselves. Ports include a single unbridged exhaust, flanked by two large transfer ports angled to direct the incoming gas flow to the opposite side of the cylinder where it is joined by an upward flow from the third port. Measurement of the test engine (both cylinders) indicated

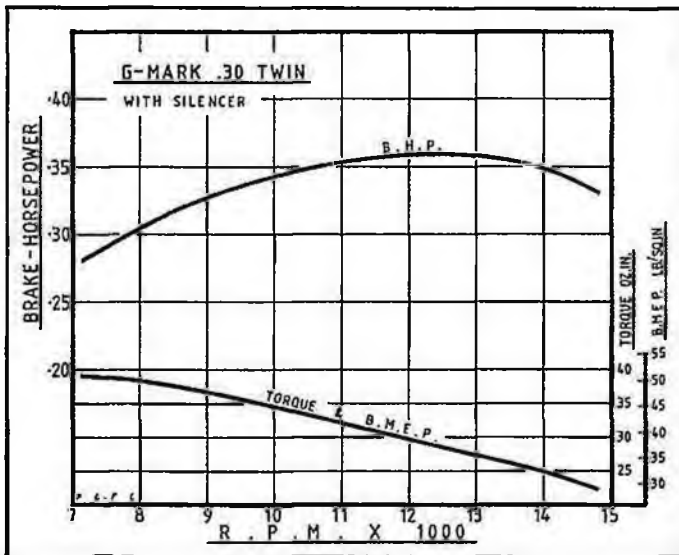


that the exhaust period is 144 degrees of crank angle, the main transfers 123 degrees and the third port 124 degrees.

Induction (which, with the .12 Twin, is by means of a reed-valve) is through a rear drum type rotary-valve. This has a rectangular valve port, 10mm long, that uncovers the intake port from 33 degrees ABDC to 44 degrees ATDC. The valve runs directly in the pressure cast aluminium

alloy rear housing and draws mixture from the carburettor mounted on its right hand side. The carb is of G-Mark's own design and manufacture. It uses a sliding (lifting) throttle barrel which carries with it an adjustable secondary (idle) needle to meter fuel flow at part-throttle operation. The carb has a 5mm choke and an effective choke area, after allowing for the needle, of 17.5sq. mm.





A very neat and practical feature of the G-Mark .30 Twin is its inconspicuous silencer which is built onto the bottom of the engine, below the crankcase. It consists of an open topped shell with ducts each side, into which spent gases exit from the cylinders, covered by an upper plate having lipped openings that engage the circular section exhaust stubs below the cylinders. The silencer has a volume of 25ml and an outlet area of 27sq. mm. There is a nickel-plated brass nipple for pressurising the fuel tank.

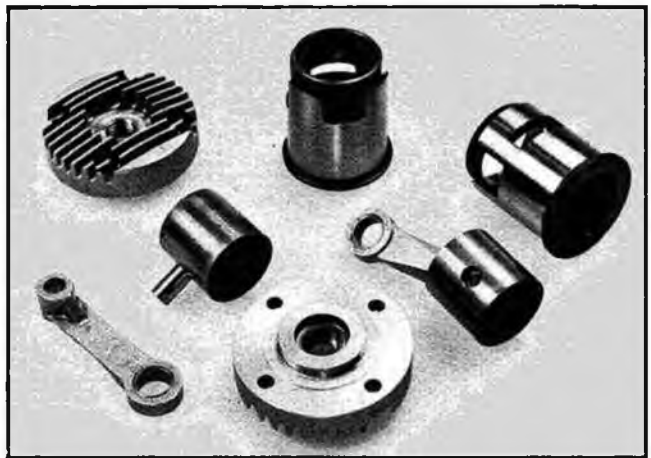
### Performance

An instruction leaflet, printed in English on one side and Japanese on the other, accompanies the G-Mark .30 This recommends the use of a fuel containing 10 per cent nitro-methane and a running-in period of 45 minutes. We gave our engine an extra hour of running-in as it had shown some tightness initially and, at the end of this period, it had picked up approximately 1,000rpm when propped for speeds of around 11,000rpm.

We used a straight 75/25 mixture of methanol and castor-oil initially (a special running-in blend such as Model Technics 'Long-Life' would have been equally

suitable — if not better) then switched temporarily to our regular 5 per cent nitro-methane mixture before carrying out the full tests on the recommended 10 per cent mixture. Actually, the engine ran perfectly satisfactorily on the less expensive 5 per cent mix and with only very slightly less power (equivalent to an rpm drop of only about one per cent) compared with the recommended 10 per cent nitro blend.

For our previous tests of G-Mark engines (namely the .12 Twin and the .305-cylinder radial) we had found that the American Glo-Bee Sport plugs gave by far the best performance, but the .30 Twin was equally good, if not better, on standard (1.2-1.5 volt) short-reach Fox plugs and these were therefore used for all the tests. The two plugs can be energised with separate cells or in series with a single heavy-duty cell. Make sure that they are wired as shown in the instructions. Also shown in the instructions is a diagram for wiring the two plugs in parallel using a 3 volt battery. This is O.K. so long as plug connections are firm and there is no risk of one of them shorting against the head — which would cause the full 3 volts to be applied through the other plug and burn it out.



Above: engine uses lapped cast-iron pistons in cast steel liners. Cylinders are on common axis; hence offset small ends.

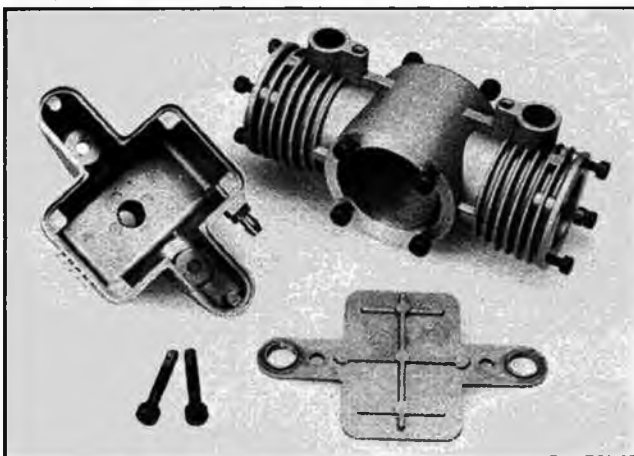
Starting and running qualities of the G-Mark were very good. Starting was quickest with an electric starter — especially when the engine was cold. — but warm restarts by hand were quite prompt. As one would expect, the simultaneous-firing opposed twin layout results in very much less vibration than one encounters with single cylinder engines of similar size.

On test, the .30 Twin developed its maximum torque at relatively low rpm, around 7,000, from which point the torque curve declined in an almost straight line. As a result of this, the bhp curve emerges as uncommonly 'flat', peaking at between 12,000 and 13,000 rpm and showing only a very slight loss of power over a wide range of speeds. While the peak power output of 0.36bhp at 12,500rpm is no more than average for a 'sport' type R/C engine of 5cc capacity equipped with a silencer, the flatness of the curve means that the engine can be operated on loads that pull its rpm down to relatively moderate levels without undue loss of power.

In other words, it is not necessary to confine prop sizes to within narrow limits. For example, while it may be necessary to use, say, a 9 x 5 in order to let the engine reach the peak of the power curve in flight, one could add an extra inch on prop diameter and lose less than 5 per cent of the engine's maximum power, or two inches extra for the loss of 10 per cent.

Thus, typical rpm reached in tests on maple wood props included 8,850rpm on an 11 x 4 Power-Prop, 9,300 on a 10 x 6 Top Flite, 9,800 on a 10 x 5 Zinger, 10,400 on a 9 x 6 Zinger, 10,600 on a 9 x 6 Power-Prop, 10,950 on a 10 x 4 Top Flite, 11,000 on a 9 x 5 Zinger, 11,250 on a 10 x 4 Zinger, 11,400 on a 9 x 5 Top Flite, 11,950 on a 9 x 4 Top Flite, 12,500 on a 9 x 4 Power-Prop, 13,100 on an 8 x 5 Zinger and 13,700 on an 8.5 x 4 Zinger.

Allowing for, say, a ten per cent rpm build-up in level flight, it will be seen that a 'fast' 9 x 5 is about the smallest practical



Effective, unobtrusive silencer, made in two parts, attaches to underside of cylinders, taking exhaust gases from both cylinders.

# Vintage Corner

## Odiham Spring Gala

Derek Ridley has been kind enough to report on this meet and his contribution is given below:

"The weather forecast for Sunday April 25th was good. This was proved by a splendid sunny early start on the Airfield at RAF Odiham, plus a first class attendance of all modellers by 9.30 a.m.

The SAM 35 boys were hard at it by this time dominating the scene (of course it's a biased view!!) It was a 'fly for fun' day plus vintage Wakefield event. Interesting fact was that although the official Wakefield competition attracted some fifteen entries, many other modellers flying old Wakefields were achieving better times, (weren't they, 'Gypsy' Alban?) Nice to see Bob Copland with a beautiful GB3 (Ah, nostalgia).

The noise of the FAI power models was only surpassed by the sound of breaking rubber motors, it was the heat you know! Well Dave Baker was sans shirt.

Vintage Wakefield was won by Pete Michel flying his impeccable 'Isis' with three 3 minute maxes. Alex Houlberg would have been proud of him. Second in line was Reg Parham. Poor Vic Dubery and Bert Judge both had rubber motor trouble.

There were more vintage models present than space here permits, including 'Red Zephyr, Club Scientific, Southerner, Slicker, Trenton Terror, and Junior 60s'. Lovely Bowden Drone seen posed on runway. Laurie Barr seen flying 1950 'Pinochio' lightweight rubber, also Derek Welch's fast climbing 'Answer'. Dave B., with a strange power model that had twin engines arranged push, pull on pylon over wing, made a lovely sound. Yours truly made first flights with fullsize free flight Taibi 'Powerhouse', it all went quite dark when launched! Flew the 'Banshee' later to show the current power boys how it used to be. Not many vintage gliders seen.

Odiham has a superb smooth surface runway, although not kind to landing rubber jobs, by late afternoon many vintage power models were making excellent take-offs.

If it hadn't got dark they would still be there, flying for fun; a magic day."

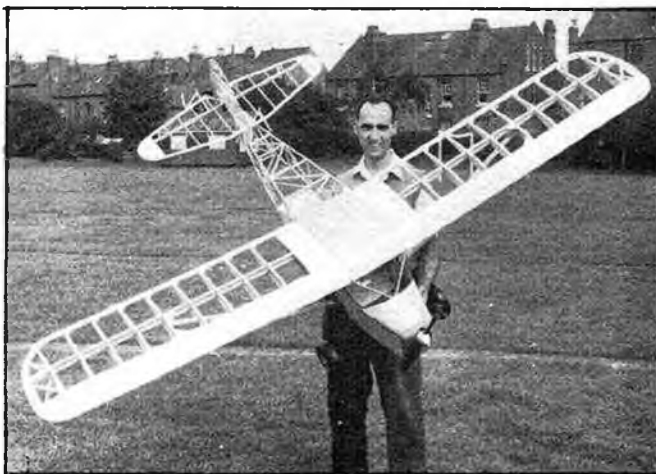
## Flights of a Phoenix

The photograph in the May issue of G. R. Woollett's Phoenix built by Keith Harris brought in an interesting letter from reader Derek B. Scales who built an Amco 3.5cc BB diesel version in 1959 when he was attached to the US Air Force and stationed in North Dakota, he writes:

"It had its maiden flight one calm winter afternoon when the temperature was 10 degrees below zero. It was a beautiful and

## By Alex Imrie

*Right: Arthur Fox likes them big! This one is the GWW Harris designed 9ft. span Goliath which is a semi-scale Taylorcraft Plus D or Auster I, the plan of which is still available from MAP Plans Service as RC/312X. Model was described in February 1949 Aeromodeller. Below: veteran modeller Howard Boys who has over 60 years of experience showing one of the younger elements his Mills 1.3 diesel powered radio controlled model from 1950.*



consistent flyer and gave me a lot of pleasure. As the weather got warmer the evenings were nearly always flat calm. There must have been some drift higher up because one of the most pleasing characteristics of the Phoenix was the way it used to fly nearly out of sight on a long engine run, and then glide back almost to our feet, to the amazement of my companions and myself.

On one sunny Sunday afternoon while

giving a demonstration flight to an American civilian and his wife who had invited me to their home for tea, it caught a thermal when it was just about to land near us after flight of 3 or 4 minutes, and flew up, up and away. I had my name and address in the cabin and a couple of months later received a letter from a farmer about 18 miles away who had found it while harvesting his corn (maize) crop. The wing was broken due to exposure to the weather so the farmer quite understood that I was not able to give his five year old son a demonstration flight, but asked if I could show how the engine went. The Amco started on the third flip, this coupled with the fact that the model's owner had turned out to be an Englishman seemed to make his family's day.

On getting back to camp (base) I decided to convert it to control line, goat was the term used for this type of model. I removed the dihedral from the tailplane, fitted a J. Roberts 3 line control system and a K&B 45 R/C engine, also half a pound of lead was added to the nose because I felt that a forward C of G was desirable for a control line model of this type.

It was my first experience of a throttled engine being operated by a third line. I was very impressed with both.

The Phoenix proved to be an amazing control-liner which not only looped but could fly whole circuits inverted despite its undercambered wing section. Later in the year as the evenings got darker I fitted an auto (car) streamlined chrome sidelight on top of the cabin and found that a square



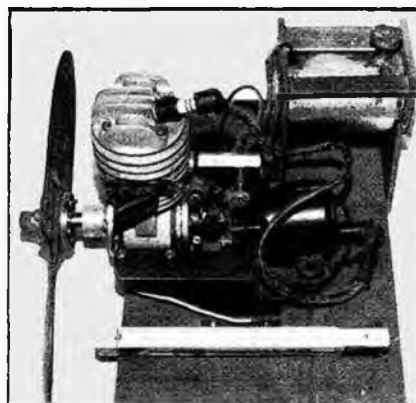
*Right: nicely finished Bill Englehardt designed 'So Long' by Ming Tay. This design won Class B Open at the 1940 US Nationals powered by Ohlsson 23. Described in Air Trails, January 1941.*



SAM 35 Competition Secretary Keith Harris with his Keilcraft Southerner 60 powered by ED Competition Special diesel engine. Model probably holds the record for the number of times it has been lost and found (six times in 18 months!).



Above right: it takes considerable effort to finish a model like the original but it is always well worth it. Full marks to John Kemp for this Ohlsson 23 powered Keilcraft Junior 60 decorated just like the magazine ads from 1946. Right: the 'Ogroz' two-stroke petrol engine made by Otto Grob Sr. and said to have been used in the first Swiss power model, record duration flight, when the model remained in the air for over two and one half hours!



section 6 volt dry battery which must have weighed well over a pound, just fitted inside. In this configuration I actually taught some American youngsters from the base, to fly control line for the first time when they had had no success at all trying to fly plastic powered ready-to-fly models. The only difficult part was that the landing speed with the extra weight of battery and chrome sidelight was high and I took over for the landings.

Keith Harris will find the Frog 500 gives more than enough power, I hope that he has a lot of fun with it.

## Gears

Ballard's RTP of Tunbridge Wells are currently advertising a packet of small gears for 75p plus 16p for postage and packing. While these are essentially for electric RTP use, with a little work they fill the bill nicely for our vintage rubber requirement. The pack contains one brass spur gear of 30 teeth  $\frac{1}{2}$ in. dia., and three pinions whose diameter varies from  $\frac{3}{32}$  to  $\frac{3}{16}$  in., having 15, 12 and 10 teeth respectively, thus giving ratios of from 2 to 3 to 1. The hubs are drilled  $\frac{3}{32}$ in. but can easily be bushed with thick walled brass tube having an inside diameter hole to take 16swg. The tube can be cleaned with a file then pressed into the gear in the vice.

The hubs can be filed off by retaining them on a headless nail driven into the bench. The  $\frac{1}{2}$ in. dia. brass gear has a thick hub best removed by soldering the gear wheel to a piece of 16swg steel wire and running it in the electric drill when the offending portion can readily be parted off with a junior hacksaw. Thus, for a small amount of work and cash outlay Jackdaw builders can obtain a suitable set of gears having the right ratio. The  $\frac{1}{2}$ in. dia. gear wheel will be of use in various other gear arrangements, it is slightly too small for Viper II and in that model readers might care to tackle the alternate gear box shown on the plan that utilises gears sliced from Meccano pinions, re-bushed and lightened.

In the July issue it was mentioned that Mr Simeon G. Bull of Canterbury was using gears from a Rico marine gearbox in his Jackdaw. He had silver soldered the large gear to the motor shaft, but soft soldered the small pinion to the propeller shaft and this, he now informs us, 'let-go' at about 100 turns. Should other readers be having trouble with soft soldered gears the following words of wisdom from Mr. C. Rupert Moore on the subject will be of interest.

Use bakers' fluid or any other good brand of flux. Tinman's solder is preferable to resin-cored solder. Parts to be joined must be well tinned, protect gear wheel teeth with plumbers' black or coloured dope. Now here is the *modus operandi* from 'Soldering Simplified' in Aeromodeller, July 1943.

"Where internal soldering is necessary, as in the spindle hole of a gear, the hole should be cleaned with a twist drill — not larger than the shaft — or a bit of shaft filed into a reamer, the shaft should be heavily tinned and not wiped and allowed to cool. The gear is then put on as far as it will go and after shaking the surplus solder from the iron the gear is heated by the iron until it melts its way into place. When cold, surplus solder should be scraped from the shaft with a knife, not a file. In 99 per cent of cases this is a perfect joint, but as it cannot be examined I always make a coil of fuse wire  $\frac{1}{8}$ in. along the shaft and  $\frac{1}{16}$ in. up the face of the gear and solder solid, forming a collar. This has proved 100 per cent efficient with very heavy motors."

## Reader's Comment

Hugh McQuiston from Kilmarnock asked in the April issue about the odd appearance of the engine in Henri Varache's HV 450, photographs of which appeared in Laidlaw-Dickson's book 'Model Diesels'. Well, it seems that he was right to doubt that the engine was a Micron 5 as the caption had it. According to long time vintage flier and engine collector John Mayes from Bristol who has recently added an Airplan 5

French diesel to his collection it is this engine that is fitted to the HV 450, so if Hugh is still trying to reproduce Henri Varache's model exactly, he might have some difficulty in getting the correct power plant, since the Airplan 5 has in the meantime become a pretty rare item.

Peter N. Scott writing from Switzerland tells of unearthing a Mr. Otto Grob Jr. whose father made small petrol engines around 1930, known as 'Ogroz' motors one of these was a 4-stroke of 28cc, while another was a 2-stroke of smaller capacity. Using the smaller engine Otto Grob Sr. built a high-wing monoplane of over 10ft. wingspan and established the first power-model flight in Switzerland. Although the exact date cannot be confirmed the model is said to have flown a triangular course over a period of 2 hour 32 minutes before coming to rest in a pear tree. We would like to hear more of this early flight, especially official corroboration of the date and flight time.

Paul Wiburg of 36 St. Denis Road, Selly Oak, Birmingham, was the only reader to write in with a possible identification for the model carried by the boy in the April issue. He suggests that the fuselage is that of a Black Magic with the tail position modified à la Vic Smeed Debutante. He also points out that the dimly visible transfer on the fin is one of the Model Aerodrome 'Club Model' golden eagle transfers. Readers who would like to obtain such original transfers, that make extremely attractive vintage decorations, are invited to send an SAE and 10p for each transfer wanted either to Paul Wiburg or to the writer at 66 Tuffnells Way, Harpenden, Herts AL5 3HG.

Simeon G. Bull of Canterbury tells how he has returned to square one after a 30 year lapse and is building again models like



Left: speaking of Wakefields, the late R. N. Bullock, one of the best designers of them all, with his model at Guyancourt, France, at the 1938 Wakefield Cup contest. Right: SAM 35 Chairman Ray Alban with his ED Bee diesel powered Cadet on a rain soaked Biggleswade Common.



## Help!

The following paragraph appeared in the first issue of Vintage Corner in the May 1981 Aeromodeller and I make no excuse for using it again. "The purpose of this column is to show the reader the amount of current activity in the field of vintage modelling. It can only survive and continue to be of interest if you contribute to it, so in common with other columnists I invite readers to send in details and photographs of models currently being built and flown."

Apart from writing in telling us about your models tell us what you would most like to see in Vintage Corner. We have had requests for DIY coils, plugs and airwheels from a number of readers, but is the DIY feeling so widespread that readers will make an item and then put up with a product possibly inferior to that commercially available? Not everyone will want to make their own components in any case, but unless you write and tell us we won't be able to deliver the goods that you want.

Thanks again to Derek Ridley for his report on the Odiham meet, we can use more material like this and ask readers who attend vintage meets to send us a short account with photographs. We will use this material, since due to the nature of my employment it is impossible for me to attend all these vintage occasions in person. Let Vintage Corner reflect the readers' input, so c'mon chaps, do your stuff!

lead to more vintage competition and it is hoped to an ever improving standard of authenticity. The whole question of just how authentic a model should be depends entirely on the builder and what he wants the model for, if this is fly for fun, then absolutely anything goes. However, vintage competition rules will have to be more carefully observed as the size of the movement grows and officials will have to become quite knowledgeable about the origins of particular designs, and processing of models will have to be done with an eye open for non-standardisation. Until something better is found the SMAE rules for vintage competition models should be used, and in the case of the John Haggart Memorial Trophy, rules for that event (which are more restrictive than SMAE rules) should be observed. Rules need not detract from the pleasure of the game, but the time is rapidly approaching when the rules will have to be observed otherwise there is no point in having a competition at all. Of course, the majority of vintage fliers will be in the fly for fun category, and this looks like becoming the main attraction, the flying of vintage designs in a sport approach without any hassle or worry if you happen to have modified the design a bit or used the 'wrong' sort of engine.

Achilles, Ajax, Competitor etc., He writes: "In each case I am building two versions, one as per and the other with CO<sub>2</sub> motor. In the second version I have found it necessary to mount the motor way back from the nose. This entailed fabricating an extension shaft (alloy tube with 'buttons' at each end drilled and tapped — fiddly but not difficult).

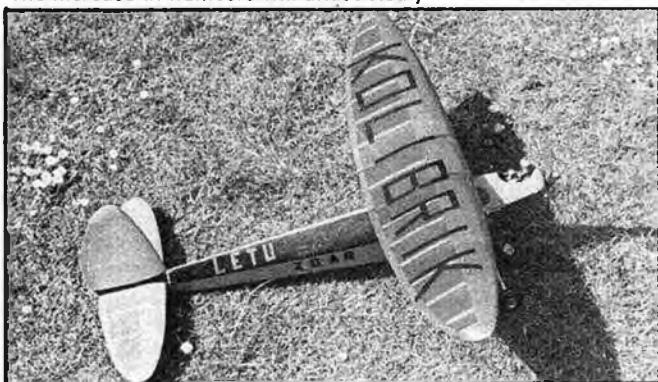
having done this and 'proved' that it worked I wrote to *Micro-Mold* with the 'idea'. This on the basis that (rubber being the price it is — and of limited life) the possibility of converting 'old favourites' might encourage more young people to start with a simple model (not the 'traditional' R/C Lancaster). If the 'Arden' rubber stick unit can be sold with a conversion drawing of an Eaglet why not CO<sub>2</sub>?

## Here to stay?

I do not think that it would be an exaggeration to say that vintage has really taken-off in this country over the last two years or so. When one looks in the model press one sees a growing number of advertisements for 'vintage' goods. No longer does the enthusiast have to fly a rare old engine, or laboriously enlarge his own drawings. Now he can buy a suitable replica engine and purchase a quality kit and in so doing get airborne all the sooner. The increase in numbers will undoubtedly



Above centre: Keith Harris with his Ohlsson Pacemaker powered by Mechanair 5.9cc petrol engine. Model is finished in the original Ohlsson colour scheme; good on you. Keith! Left: the writer's Kollbrik powered by Amco .87Mkl diesel. This design is still available from the MAP Plans Service as PET/245X. The 31 1/2 in. wingspan model is a real challenge and can be tricky to trim well. Below right: Mr. Simeon G. Bull of Canterbury sends this nice study of his Jackdaw II coming in 'dead-stick' over the proverbial long grass on its first day out.



# Free Flight Scene

## REPORT FROM DAVE HIPPERSON 3rd Area Centralised SMAE Free Flight Events, 9 May 1982

Reports were almost universal in describing fine sunny conditions for this 3rd Area meeting — apart that is — from Newcastle that had it rather awful. Elsewhere almost universally light westerly winds were accompanied by strong but sometimes difficult to detect and unpredictable lift. It is interesting to see this pattern repeated at venues as different and far apart as Everleigh and Barkston. Not surprisingly there was the largest turn-out so far this year and many used the opportunity for trimming although certainly in the Midlands the breeze in the mid-afternoon was hardly light enough for new models and the regular 'boomers' made flights that were not absolutely necessary rather risky.

The recent spate of dt-ing in fly-offs continued right across the country. One presumes those that dt are practising — but for what? Glider went to Dave Oldfield flying at a very thinly attended Watton and with the timer positively switched out for this thermal flight in very light drift. The model was still well high when lost. Usually a nine minute-plus fly-off flight in a Wakefield event of this kind would have it wrapped up but this wasn't to be for Tony Grantham flying at Ashdown holding only third. It was all cooking at Barkston with the first fly-off — Glider — illustrating the conditions when numerous models well capable of 10 minute plus flights were dt-d down at the full extent of the timer discs. Mike Stones was unlucky to have his model off early and away in gentle air find slightly more drift than the rest to go OOS too early to beat Oldfield. The highest Northern Area fly-off score of all time was returned at Driffield when Doug Scott produced an eye straining 16½ minutes in Open Power — he must have thought he had won it! The real action centred in more ways than one around the power fly-off flight by Russell Peers at Barkston. Power and Wake. were flown together at about 6.30 and Russell's model was away quickly and after a perfect climb was high but sinking slowly above the gathering Wakefield flyers when Thermistors, Seaweed and all other thermal sensing aids said 'go'. Those away first, Hipper-son and Taylor were treated to enormous climb heights — those that followed seconds behind had good air but had missed the best. Soon the two Wakefields were joined high up by Peers enormous power model and all three circled off into oblivion. Peers' model was watched from a vantage point well off the drome for three quarters of an hour and during that time one or other of the Wakefields could be seen occasionally close by. Taylor's timekeepers lost his model first because of its rather natural colour scheme leaving Hipper-son to take the Weston and Peers the White Cup both being quite happy to lose their models, Russell's sporting something in the region of £80 worth of hardware!

The Club Plugge list hops up too with Birmingham putting on a very solid display in Wakefield just when it was required. Both Walker and Dixon making the flyoff and Alan Gibbs bringing up a respectable 20th place. They are now within

striking distance of Biggles and may be out of reach of Grantham. Croydon took the largest leap however with two places in the fly-off and their third man only at 16th. Almost forgotten was Stafford Screen's very respectable 8 minute-plus fly-off at Everleigh to take 3rd in the White Cup. So far this has been a tremendous year for Stafford. He has flown in all the SMAE events for which he has models and a number of others between and he has placed in all and won most of them! At this moment he is in the lead in the SMAE Senior Championships with a score to this point that would be thought impossible. There are only a few people that could catch him even if he stopped now!

### Results

#### Open Glider — No Trophy (86 flew; 34 flew off)

1. D. Oldfield	Watton	9:00 + 16:33
2. M. Stones	Barkston	9:00 + 13:24
3. J. Cooper	Nth. Luffenham	9:00 + 9:59
4. R. Elliot	Everleigh	9:00 + 6:43
5. T. Tyson	Beaulieu	9:00 + 6:36
6. C. Pudney	Beaulieu	9:00 + 6:33
7. R. Cherry	Ashdown Forest	9:00 + 6:11

8. J. Carter	Barkston	9:00 + 6:02
9. R. Bailey	Barkston	9:00 + 5:55
B. Colledge	Barkston	9:00 + 5:55

#### Wakefield Weston Cup plus Plugge Points (56 flew — 13 flew off)

1. D. Hipper-son	Barkston	15:00 + 13:37
2. I. Taylor	Barkston	15:00 + 10:47
3. A. Grantham	Ashdown Forest	15:00 + 9:03
4. M. Dixon	Barkston	15:00 + 5:26
5. J. Barnes	Barkston	15:00 + 5:04
6. I. Kaynes	Everleigh	15:00 + 4:26
7. B. Spooner	Everleigh	15:00 + 3:57

#### Open Power White Cup (32 flew — 11 flew off)

1. R. Peers	Barkston	9:00 + 24:50
2. D. Scott	Driffield	9:00 + 16:31
3. S. Screen	Everleigh	9:00 + 8:32
4. P. Bond	Everleigh	9:00 + 4:29
5. R. Monks	Everleigh	9:00 + 4:18

#### Plugge Positions after 3 events

1. Biggles.....	666
2. Birmingham.....	500
3. Grantham.....	437
4. East Grinstead.....	428
5. Crookham.....	303

### Barkston Heath May 1st and 2nd

Not since the '63 Nats has Barkston felt such a wind. Much energy was spent just chasing the pieces of broken airframes and in one instance the entire contents of a model box, at this RAFMAA Free Flight meeting held over the first May Bank Holiday weekend. The firm breeze that greeted early arrivals soon developed 20mph gusts and a 25mph drift at altitude. Had those that entered FA1 at the start known what was to come entries would undoubtedly have been thinner. It wasn't until round three that things really worsened but nevertheless Stafford Screen maintained a good pattern in F1C and was on top again with a full score at this stage and already well ahead of club mate Harris who had one seriously wrong launch and a bad flight as a consequence.

In F1B nearly everyone but Ball had a poor flight by the halfway mark but in Glider Chris Parry was showing this rough weather form once again to drop only the third round and eventually finish the day with a handsome 11½ — almost a minute ahead of Edge and Cooper both also currently on form.

By the last round the wind was approaching 30mph if the distance models were travelling in the 2.30 max was anything to go by. Thankfully

however the advertised schedule had been adhered to apart from one heart-stopping moment when the CD actually suggested calling it a day after four rounds! On the fateful last flight and with many having simply given up after terrible flights of a minute or less Screen dropped a little time in bad air but Paul Bond now in contention unluckily had serious motor trouble and couldn't get a flight in at all. Moore — winner from the previous weekend and flying consistently all day, mysteriously bunted in the power and put paid to an almost certain 2nd place and the model that has been serving him so well recently leaving Screen the clear leader again.

Chasing the coverted Thurston Trophy Ball had dropped his fourth flight by 30 secs and therefore others could catch him if he pilled in — a distinct possibility in the conditions. O'Donnell opted to fly half way through this round his ancient but reliable feathering model finding perfect air to max comfortably in the worsening gale. This left Ball and Hipper-son the only people who could beat him on the line and wound at the very end of the round — Hipper-son not really wanting to risk a model for 2nd place unless Ball scored 30 secs or less when he could be beaten. However time ran out for both of them and just to confuse things a little more when the final hooter was due — it didn't come. This prompted Hipper-son to launch in case it got too late and chose a lull and a patch of lift at the right moment. Ball followed seconds later in the sink behind it but managed sufficient to win. There was a slight hiccup prompted by a comment — quite rightly made — that the organisers had been out of order blowing the hooter so late. The winning flight was in jeopardy of disqualification but after a short discussion the CD was persuaded out of this action and Ball took the Thurston Trophy after a day of very consistent flying in atrocious conditions. It was a disappointment to many that the 'substantial cash' prizes were hardly that apart of course from the two trophies for F1B and F1A. Six pounds divided by the top two and nothing for 3rd in an event where there were eight entries at £1 each left one wondering just where even the entry money was going.

Contests that rely solely on good weather attracting a large entry and offer nothing tangible as prizes come horribly unstuck when it's windy — particularly if the day before the organisation

### Results

F1A — A2 (21 flew) The Flight Review Cup		
1. C. Parry	Biggles	11:27
2. C. Edge	Welland Valley	10:39
3. J. Cooper	Biggles	10:11

F1B — Wakefield (8 flew) The Thurston Trophy		
1. P. Ball	Grantham	11:26
2. D. Hipper-son	Grantham	10:02
3. J. O'Donnell	Whitefield	9:44

F1C — FA1 Power		
1. S. Screen	Birmingham	12:04
2. P. Harris	Birmingham	9:32
3. P. Bond	Anglia	9:28

Open Rubber		
1. R. Peers	Falcons	4:54
2. M. Croome	C/M	2:33

Open Power		
1. R. Peers	Falcons	5:20

Open Glider		
1. T. Dilks	Falcons	2:36

### HLG

1. Bennis	Peterborough	4:06 + 37 secs
2. M. Page	Peterborough	4:06 + 35 secs



shows a minimum of enthusiasm. Hence the Open Day had the smallest attendance witnessed at any Free Flight meeting for years. It was extremely windy — 30mph at any altitude — but it shouldn't have been enough to virtually blow away the entry. Peers dominated the entire day at considerable cost in a totally wrecked rubber

### REPORT FROM BOB BAILEY Cardington, 1st May 1982

This was the first event of the 'Cardington Season' as opposed to the 'low ceiling season', the meetings being held in No. 2 shed this year. The reason is that No. 2 is much cheaper than No. 1 which at the current Treasury rates we simply cannot afford. We are very grateful for the co-operation of Tom Wade at PSA Cambridge in granting us a licence to use the shed and to the 'lads' at Fire Research for coming in at the weekend to look after us. Thanks to all of you.

The weather was *not* good. No. 1 shed would very likely have had very poor conditions due to a gap under the main doors which is almost big enough for a limbo dancer to get through. No. 2 shed has no such problems; the shed is commendably airtight and the drift was mercifully low despite changeable weather outside. We should with any luck, get some excellent flying days this year, so please come and take advantage!

To avoid a clash with the RAFMAA 2 day F/F contest, our meeting was held on the Saturday which may have contributed to a rather thin attendance. However approximately equal numbers of 'experts' and novices turned up for the EZB individual and 'pairs' contest as outlined in a previous article.

The conditions were pretty cold (about 12°C — almost as cold as Slanic was when we were there last year) so that getting the models to climb on high pitch props was not easy.

Dave Pymm successfully exploited the light motor technique (about 0.8g) which gives very good times from very modest altitude. The lack of rubber thickness makes altitude much more difficult to get but avoids hang-up danger. Laurie Barr was using a microfilm covered EZB which demands a rethink in structure to get the minimum weight. The model is extremely rigid and coped very well with the cold to produce the winning times.

Meanwhile with expert tuition the *protégées* were getting on very well with rapidly improving times — Geoff Jones doing the best individually. However his young son Robert borrowed one of Geoff's models which flew impeccably from the word go and with a small prop was looking very good. Bernard Aslett, although not flying EZB, took him under his wing and showed him how to wind motors to very good effect since he beat his father's best time with a 14.32. Unfortunately he couldn't enter since it wasn't his model but I bet he'll have one soon.

**Results** — Individual: 1. L. Barr, 16:16 + 16:36 = 32:52; 2. D. Pymm, 16:25 + 15:46 = 32:11; 3. G. Jones, 14:25 + 12:52 = 27:17. Pairs: 1. L. Barr/G. Jones 60:09; (Best 2 flights/person added) 2. D. Pymm/M. Molton, 53:41; 3. R. Parham/G. Neill, 41:50.

### Danish Indoor Nationals

I have just received the following from Jorgen Korsgaard who is the prime mover of indoor in Denmark and who as you will see, cleaned up. This is the first event of its kind there, to my knowledge and has certainly whetted the appetites. Enclosed is Jorgen's version of the 'Santa Ana stick', to the experimental set of new rules for F1D proposed by the current World Champion Erv Rodemsky. Basically the rules are

model another seriously damaged and a power model with its engine knocked out. He started smashing them early as his wont and only Mark Croome in Rubber looked like pushing him when he produced a fine max on his flight but then a double pile — in attempting the 2nd — he retired. HLG on the other hand had a high standard under

600mm span, 150mm chord, 600mm max fuselage length, 1g airframe minimum weight and 0.75g maximum rubber weight.

Over to Jorgen, to whom many thanks: Danish Indoor Nationals. Report by Jorgen Korsgaard.

These were held in the Danish Handball Hall in Flensburg on 17th April from 6pm to 4am in the morning (10 hours!) and they were held for the first time in 12 years.

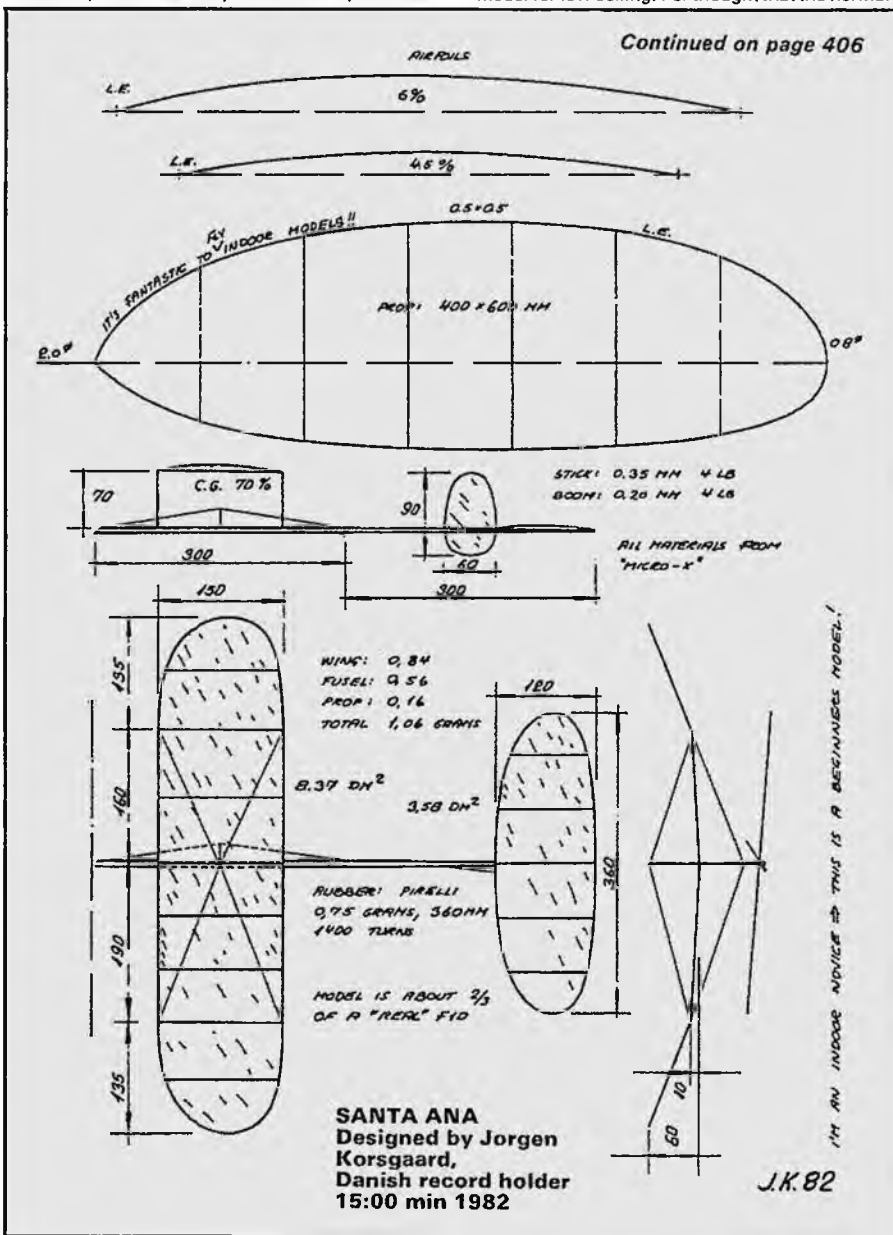
I had been trying to promote indoor interests in Denmark by making a special 24 page feature in the January issue of 'Modellflyvenyt' — the Danish all-round magazine. All in all 20 people attended, some as very interested spectators

the expert tutorship of Mike Page both he and Bennis trying at about a minute under a full score. Most of their flights were better than the Open Glider winners. It was a casually run contest and the wind had virtually blown everyone away by the finish time; certainly not the event it was two years ago.

enjoying this 'Flight Fantastique', and what a delightful evening and night we all had. We found out that it is not necessary to have a kind of 'Cardington shed' in the neighbourhood to have hours of very good indoor flying. I would sincerely recommend every outdoor F/F fan to try indoor in the nearest sports hall.

I would like to point out this. In the beginning it is somewhat nervebreaking to build a F1D microfilm ship, but once finished what a feeling! It is very fantastic to see it's maiden flight through your sitting room, watching your wife's face.

Per Grunnet and I (Per has some 'mike' experience) had talked a lot about the size of a F1D model for low ceiling. Per thought that the normal



# FROM THE HANDLE

## News from USA — by Paul Smith

### Reconditioning an Old Stunter

Many old models are now gathering dust in basements, garages, and hobby shops because they are no longer competitive. The three main reasons for this uncompetitiveness are over-weight, lack of silencers, and crude fuel tanks. Back when these models were built there were no plastic coverings, no light-weight accessories, and no uniflow tanks. Lightweight plain-bearing engines, such as the Fox stunt 35, proved to be inadequate when simply refitted with a stock silencer. In general, the old stunters were replaced by bigger, more modern models powered by Schnuerle-ported 40 and 46s with factory-supplied silencers. Although it would have been simple to build a new stunter from any one of the abundant kits and plans, I chose to renovate an old Midwest PT-19 built in 1964.

The airplane was originally covered with silk, doped with buyrate, and painted with Aerogloss. At first it could do the pattern rather well, but weight gain from repairs put it on a downhill path that ended with the final blow, a silencer. This cut the power and increased the weight to the point it could barely do a loop. At 55oz. it occupied garage space for several years before I did a two-week renovation that got the weight down to a very flyable 46oz.

The renovation was started by removing the engine and tank and stripping the finish down to bare wood. Lightening holes were cut in the flaps, elevators, stab, and fuselage sides. The balsa top blocks and canopy details were removed. The leading edge



'Al Rabe' rudder coupled to elevator layout. Self launch hook can be seen on tailwheel.

Paul Smith's renovated Midwest PT-19 built in 1964. Foam canopy and turtle deck replaces the original wood blocks and cockpit detail.



was changed to a more round shape than the original. A new top block was hot-wire cut from foam, glued in place, and sanded to final fit. The flap ratio was changed from 1-to-1 to about 2/3-to-1. All controls were lubricated with white lithium grease. The heavy pushrod had been replaced with a lighter gauge of wire with more guides. The excessive wingtip weight was decreased to just enough to balance about a half inch outside the thrust line.

In the engine department a lot of weight was saved. The motor was moved back enough to use the old rear holes for the front. The spinner and propshaft extension were eliminated. The thrust offset was also removed. Thrust offset tends to increase drag and reduce speed, thus partially cancelling the improved benefit, line tension. The active rudder described later provides plenty of line tension. A Tatone silencer was disassembled and ground out with a Dremel tool to decrease weight and back pressure. A muffler pressure tap was installed with high temperature epoxy. The I.D. is 1/16 in. The fuel tank is the pressurised uniflow type with four vents, feed, pressure, fill, and overflow. The feed and pressure vents are permanently attached to the engine, while the fill and overflow are routed outside with flexible tubing to avoid the chance of breaking the tank vents while filling.

The rudder is built according to the 'Al Rabe' principle. Basically his position is that the only time a model has a serious tendency to come in on the lines is during the application of DOWN elevator (assum-

ing the plane is rigged for anticlockwise flight and the engine is running clockwise, a true assumption almost all the time). The force that makes the model come in is gyroscopic precession. The propeller and crankshaft act as a strong gyroscope and produce a reaction force 90° off from the direction of control. In effect the nose wants to go out on UP, and in on DOWN. Airplanes with fixed rudder offset fly the whole flight with excessive line pull just to have enough extra to make it through a few DOWN manoeuvres.

The active rudder is rigged by attaching a pushrod to the control horn on an angle 45° from the hinge line on the lower outboard elevator. This will produce a 'dead centre' action on UP and LEVEL controls, but a large motion on DOWN. I've added this feature to two existing stunters and been very impressed with the results. Rather than backing away from the model during outside squares, you feel a good pull at each corner. The whole flight requires less power and speed because the model is not flying cocked out. (See Fig. 1).

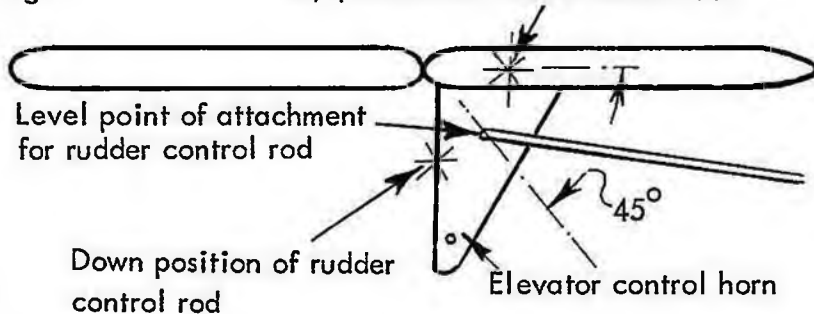
Old cast metal wheels were replaced with lighter plastic ones. A self-launching hook was added to the tailwheel.

The wings and tail were covered with yellow Solarfilm. The fuselage was covered with clear laminating film and painted with one coat of Hobbypoxy blue.

This renovation has made my eighteen-year-old stunter fly better than ever. I know it's not as good as a slick new stunter with a ball-bearing 46, but it has been an interesting and successful project.

Fig. 1

Up position of rudder control rod



## Team Trials 1982, Fulbeck, 25 April 1982

Report by John James

The cream of Britain's combat fliers came to Fulbeck to fight out the three places to represent England in this year's World Championships being held in Sweden later in the year.

There was plenty of evidence of hard work and preparation for this event. Vernon Hunt had purchased two Nelson F1 glows in an attempt to get an appreciable speed gain over a Super Tigre. He had also produced metal engine bearers to give the motor a solid base. This set up seemed to work quite well as his models were flying very quickly and the motors were very consistent and seemed easy to start and tune. Mike Whillance had produced some competitive looking models and was using glass/carbon fibre propellers. These certainly increased the speed of his models but do generally break in a crash, they seem quite an expensive and time consuming proposition at the moment. Dave Harrison's models were by far the most ingenious of those being flown. They featured removable built-up pushrods for stiffness and lightness. This coupled with very thin foam and lightweight tissue covering together with engines with all excess metal removed resulted in models with an all up weight of around 11oz. However Neil Gill's models looked the most impressive in practice and with his standard of flying he seemed to be the man to beat. With all the tensions involved in an event of this nature fliers tend to be a bit on edge which affects their flying. However, for a change, virtually every bout was exciting to watch and full of clean, attacking and defending combat. It was evident from early on who was in the running for a team place. Neil Gill was competing as well as he was practising and won every bout he flew. Vernon Hunt was using his Nelsons to good effect and again won every bout except the one against Neil. Third place went to Dave Wiseman who for once had everything go right for him. Pete Tribe was the biggest surprise of the event. Having won nearly every competition in England and Europe and already represented England on two occasions he seemed to have lost his usual flying aggression and only just scraped in as reserve. If the standard of flying shown at the trials is maintained at the World Championships, Britain should once again claim the combat crown.

## Second SMAE Centralised Stunt Meeting, May 9th

Report by Glen Alison

This year's competition was held at North Weald aerodrome which is approximately 20 miles north of London. It was an absolutely gorgeous day with very little wind, in fact the wind was so light and variable in direction that the fliers often had to change the position of the manoeuvres to suit. These days, with the points gained at centralised contests counting towards

## SMAE 2nd Centralised, North Weald, 9 May 1982

Reported by John James

Entries came from far afield again to fly in the second FAI combat competition of the season. After last year's monsoon rains for this event fliers stepped on to the grass with some trepidation in case it was still like a paddy field. However, all was well and in fact the weather was extremely kind to us for a change. There was nothing really new on the model side as all the innovations so far had been seen at the last centralised and at the team trials. The 'two life' system worked against the organisers for once as after two rounds only one flier

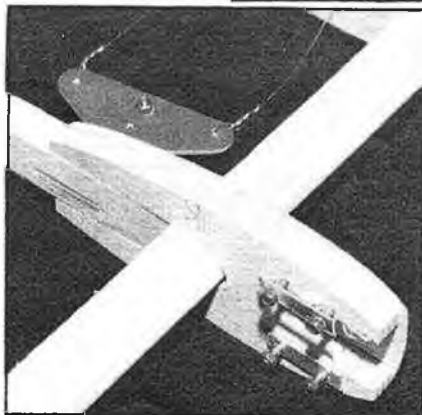
finals brought together Mike Whillance and Neil Gill who both flew an excellent bout. Mike spent the last half of the bout trying to get Neil's knot only to find that he had lost anyway. Ernie Burles beat Mark Jarrett on ground time once again in the second semi-final which only goes to show how important staying in the air, and having a fast pit crew, are in modern combat. So the final brought together Ernie Burles and Neil Gill which Ernie won by two cuts to one after a quite exciting final.

### Results

1. E. Burles
2. N. Gill
3. M. Jarrett
4. M. Whillance

Bath MAC.  
Peterborough MAC  
Peterborough MAC  
Urmston MAC

*Ready built components of the 1/2A Combat model. Hopefully this model should be available in limited supply at model shops in the near future. Below: engine pod made from ply and drilled to accept the PAW 19.*



had been eliminated. Neil Gill was continuing on his winning ways by beating John James 3 cuts to 2 in the third round. Ernie Burles was also flying very well and knocked out Mick Hember. Despite being a cut down he managed to stay in the air longer and won on ground time. The semi-

team trials selection, there was the usual high entry of 20 in open stunt, but no novices? This site is blessed with a marvellous wide area of concrete at one end of the runway which is sufficiently large for about ten circles so one could not complain about lack of practice space! (not like the Nationals). The contest eventually got under way under the eye of judges Steve Blake and Mrs. Dickenson. A few fliers were showing signs of nerves and lack of contest practice this year. Examples of this were bad engine runs either too rich

### New Kit

There are very few reasonably priced, fairly competitive 1/2A combat kits available at the present time. This gap has been recently remedied by a small kit concern in Sheffield. The model was originally produced as a beginner's model but its performance was better than originally expected, so with a few minor modifications a competition version was produced. The model is sold virtually ready built, as the photographs show, and consists of only three parts, and even these are sanded to shape. The pod is drilled to suit a PAW 1.49 and is cut out to fit the centre rib. The model is very stable to fly and would be suitable for learning to fly as well as for competitive combat, as it has proved to be virtually indestructible when covered in nylon. It is only in limited supply at present but should you come across one in your model shop or at a 1/2A competition it is worth investing in one, if only to save the effort of building one yourself.

or lean with the inevitable over-run of the 7 minute limit.

What of the models on show? The most remarkable must surely be the semi-scale stunt Gee Bee by Arthur Eves. A monster of a model at over 90oz. weight and powered by a Red shift 60S, driving a 12 x 6 4-blade prop. It made a very impressive sight in its red and white livery. I had a flight with it and although it's not yet fully trimmed I am sure it is a viable contest stunter — the line tension was tremendous! It was nice to see Mick Taylor back in England after his tour of



Left: Bill Draper winning once again with his Enya 45 powered Super Hawk, the same model he used to win the 1981 British Nats.

Right: up and coming flyer Barry Ensten with his ST 46 powered Nobler.

Below: Bob King came ninth with this semi-scale Akro.



duty in Germany with the RAF. Peter Iliffe from Nuneaton has recovered his ST46 'Genesis' and flew very well to place 4th overall. Also seen before but impressive nevertheless was Marco Beschizza's 'Polaris' design with a beautifully airbrushed finish powered by a rear exhaust Super Tigre X45, it enables him to use a very neat internal silencer exit beneath the cowling and thus keeps the model clean of exhaust residue.

Currently the top stunt talent comes from 'up North' and so it was to be a battle between Bill Draper (Enya 45 Super Hawk) from Nottingham, Neville Dickinson (OS 40 FSR Smoothie) from Newton Aycliffe, and Peter Coates (ST 46 Sonata) from Whitefield. That proved to be the finishing order with scores of 1858, 1817 and 1764 respectively.

1. C. Draper 1858	11. E. Sharp 1598
2. N. Dickinson 1817	12. B. Ensten 1587
3. P. Coates 1764	13. M. Taylor 1562
4. P. Iliffe 1730	14. T. Taylor 1560
5. D. Day 1710	15. B. Dyke 1539
6. P. Tindall 1690	16. P. Burgess 1516
7. G. Alison 1687	17. R. Quilter 1513
8. A. Tipper 1683	18. M. Beschizza 1448
9. R. King 1646	19. A. Eves 1357
10. J. Lynch 1640	20. M. Ellis 1281

## Bretons Pyramid Stunt Competition

This second Pyramid competition was held on May 16th and gets its title because unlike ordinary events this one is based on a knockout principle rather like a combat

contest. The entry is divided into pairs and each pair fly 'against' each other by flying consecutively and afterwards comparing the scores to decide a 'winner' and 'loser'. Further draws are held for each round and fliers are eliminated after they have 'lost' three times. The system has a great atmosphere as the rounds progress 'because of the excitement of each 'dual'.

The Bretons event was unfortunate in that there were only seven competitors so a system of byes had to be introduced. However, the weather was superb and plenty of flying was done at their excellent site.

After the fourth round the lead was equal between John Lynch and Glen Alison each with 3 wins and 1 loss. After a close fly-off John won by a margin of 8 points. Judge was Les Spink.

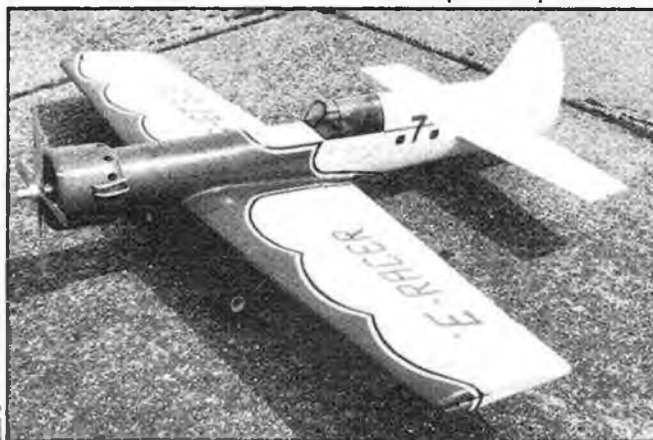
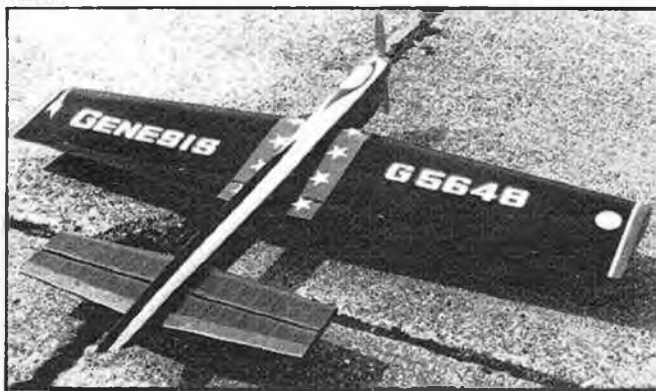
Results	Wins	Losses
1. J. Lynch (Eagle ST51)	4	1
2. G. Alison (Stilomag HP40)	3	2
3. P. Tindal (Retired after round 3)	3	1
4. K. King (Best score used)	2	2
5. B. Ensten (to break tie)	2	2
6. B. Dyke	1	3
7. P. Burgess	0	4

## 2nd Round of the British Diesel Combat Champs

### Results

1. N. Gill (Peterborough) MVVS motor
2. P. Tribe (Cosmos) Oliver
3. P. Vallins (Cosmos) Oliver
4. M. Jarrett (Peterborough) MVVS

Erratum: We would like to point out that the 1981 British Diesel Combat Champion was in fact Mark Jarrett of Peterborough MFC and not Neil Gill as previously stated.



## Wolves Fly-in 1982

The Wolves Fly-in was held on May 16th this year and attracted a total of 55 competitors. Sun and only moderate winds provided the best weather conditions for some years. Everyone seemed to enjoy themselves which made the organisational effort worthwhile. First, second and third finishers received plaques, while the top men also received a bottle of 'plonk' to help them celebrate. Our thanks to the competitors for their support, see you all in '83.

### Results

#### Scale Wolves Fly-in 1982

1. P. Stiles	S. Bristol
2. D. Kenny	Blackburn
3. F. Clifton	Wolves

### Slow Rat Race

1. Andrews/Horewood
2. Allcock/Chambers

### Mini Goodyear

- |                        |            |           |
|------------------------|------------|-----------|
| 1. Allcock/Bryant      | S. Bristol | 9m 38.0s  |
| 2. Taylor/Eiffelaender | Bilston    | 10m 19.8s |
| 3. Millar/Schofield    |            |           |
- (Best heats: Allcock/Bryant 4m 3.2s, Millar/Schofield 4m 7.0s)

### Novice Stunt

- |                |            |
|----------------|------------|
| 1. M. Williams | Swansea    |
| 2. A. Madeley  | Whitefield |
| 3. K. Reeves   | Nottingham |

### Rally Champion

- |            |         |
|------------|---------|
| J. Allcock | Bilston |
|------------|---------|

### Class A Combat

- |                |        |
|----------------|--------|
| 1. C. Moore    | Wolves |
| 2. D. Heaton   |        |
| 3. R. Shepherd |        |

### SMAE Stunt

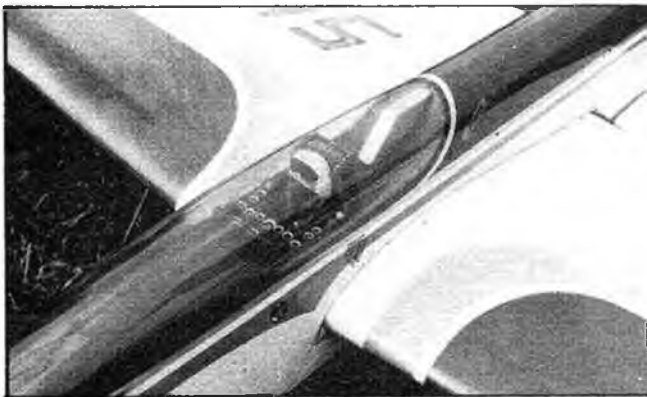
- |                |             |
|----------------|-------------|
| 1. C. Draper   | Nottingham  |
| 2. D. Copeland | Aberystwyth |
| 3. G. Sibley   | Wolves      |

### Stunt 'Fun' Fly-off

- |                 |                 |
|-----------------|-----------------|
| 1. C. Draper    | Nottingham      |
| 2. P. Iliffe    | Nuneaton        |
| 3. N. Dickinson | Newton Aycliffe |

- |                |
|----------------|
| Dewoitine D510 |
| Spitfire IX    |
| Fokker EV      |

John Lynch has put considerable effort into the cockpit detail of his O/D Eagle V stunter.



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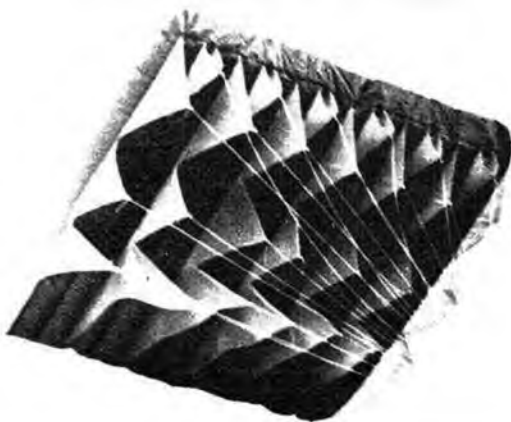
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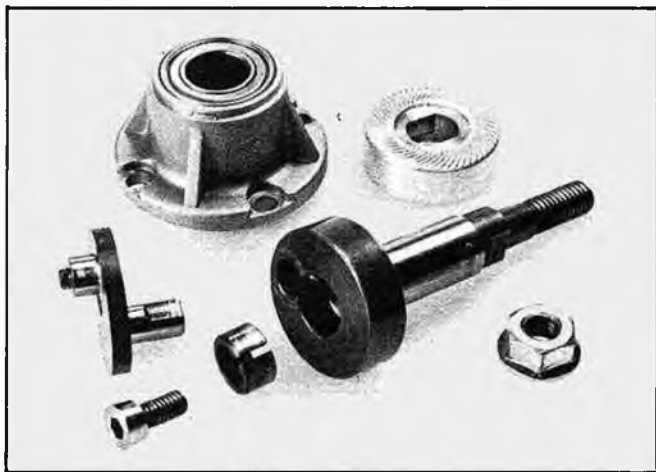
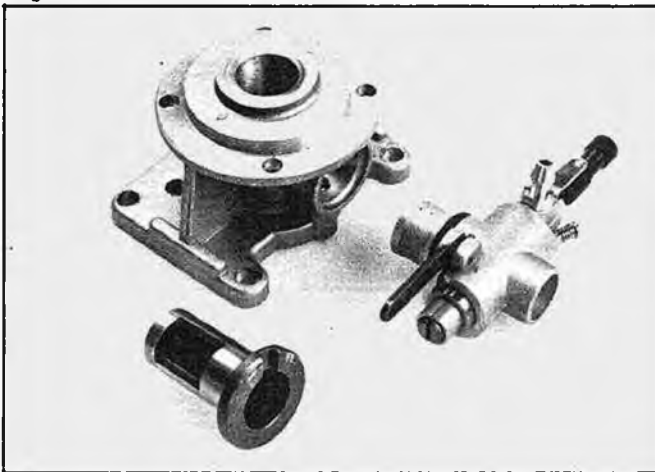
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Above left: crankcase backplate houses rotary-valve and incorporates intake boss and four-point engine mounting flange. Right: unique G-Mark feature is its built-up two-throw overhung crankshaft. See text for details.

size for use with the G-Mark. Such a prop may well suit a clean, fairly light model. On the other hand, a bigger scale model that might require the increased take-off thrust of a larger diameter prop, would be better with a 10 x 4, 10 x 5 or, perhaps, 11 x 4.

A problem frequently encountered with twin cylinder two-strokes where, as in the case of a flat-twin, a common crank chamber feeds both cylinders, is the tendency for mixture to be unevenly distributed between the two cylinders, as a result of which one cylinder will be prone to cut out when the engine is throttled down.

The G-Mark was very much better than average in this respect: in fact it kept firing on both cylinders irrespective of the throttle setting. For the record, we have to qualify this, however, by saying that the test engine would not throttle down to less than 3,800rpm. This was due to a fault in the original carburettor which allowed air to leak into the downstream side of the carburettor choke when the vertical sliding throttle barrel approached the idle position. This fault was communicated to the manufacturers who quickly produced a modified carburettor that has since been

fitted to all production engines, enabling the engine to be throttled down another 1,000rpm.

In all other respects, the G-Mark .30 Twin performed extremely well on test. The silencer is effective and unobtrusive and its bottom outlet helps to keep the engine clean. In all, a refreshingly different little motor.

**Manufacturer:** Kawaguchiko Seimitsu Co., Ltd., Kawaguchiko, Yamanashi, Japan.

**U.K. Distributor:** Irvine Engines, Ltd., Brunswick Industrial Park, New Southgate, London, N11 1JL.

# THULIN TYPE NA

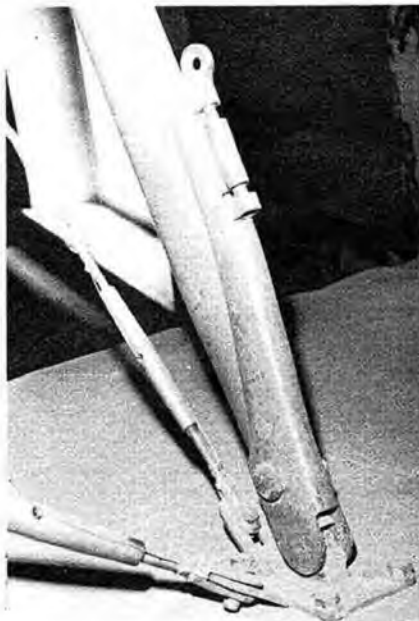


Conclusion of the article published in July 82 issue

## COLOUR NOTES AND HINTS FOR THE MODELLER

The colour scheme of the NA is almost as simple as it could be. All fabric covered surfaces, i.e. wings, fuselage rear portion, tail surfaces and wheel covers were clear doped. Humbrol HG7 with some white added to make it paler would be a good approximation of the fabric as it appears today. If one intends to portray the aircraft as it may have looked when fresh from the factory, Humbrol 'Clear doped linen' would probably be better, perhaps toned down slightly with 'German Pale Yellow'. The finish should in this case be gloss. All visible metal areas were painted a high-gloss dark olive, just a shade paler than Humbrol HB15 'R.F.C. Green'. This does not apply to the tailplane struts, which are black, and the exhaust shield which is left unpainted aluminium. The plywood fuselage panels were also clear varnished, which resulted in a warm, yellowish brown tone. The finish of these panels is by no means impressive, on the contrary the surface is very rough. This may of course have been caused during the years by storing in damp premises. The 'period' photographs are not very good and give no hints as to the finish of the woodwork.

On the NA the instrument panel was made of a very bright plywood. The stick and rudder bar were unpainted aluminium. This applies also to the A.S.I. case and backplate of the bank indicator. The fuel gauge rim and ignition switches are bright polished brass. Instrument faces are



Main strut locking device. Note also metal wire used to prevent turnbuckles from unscrewing.

white with black figures and hands. The handle of the control stick and sides of the map case are a dark reddish brown.

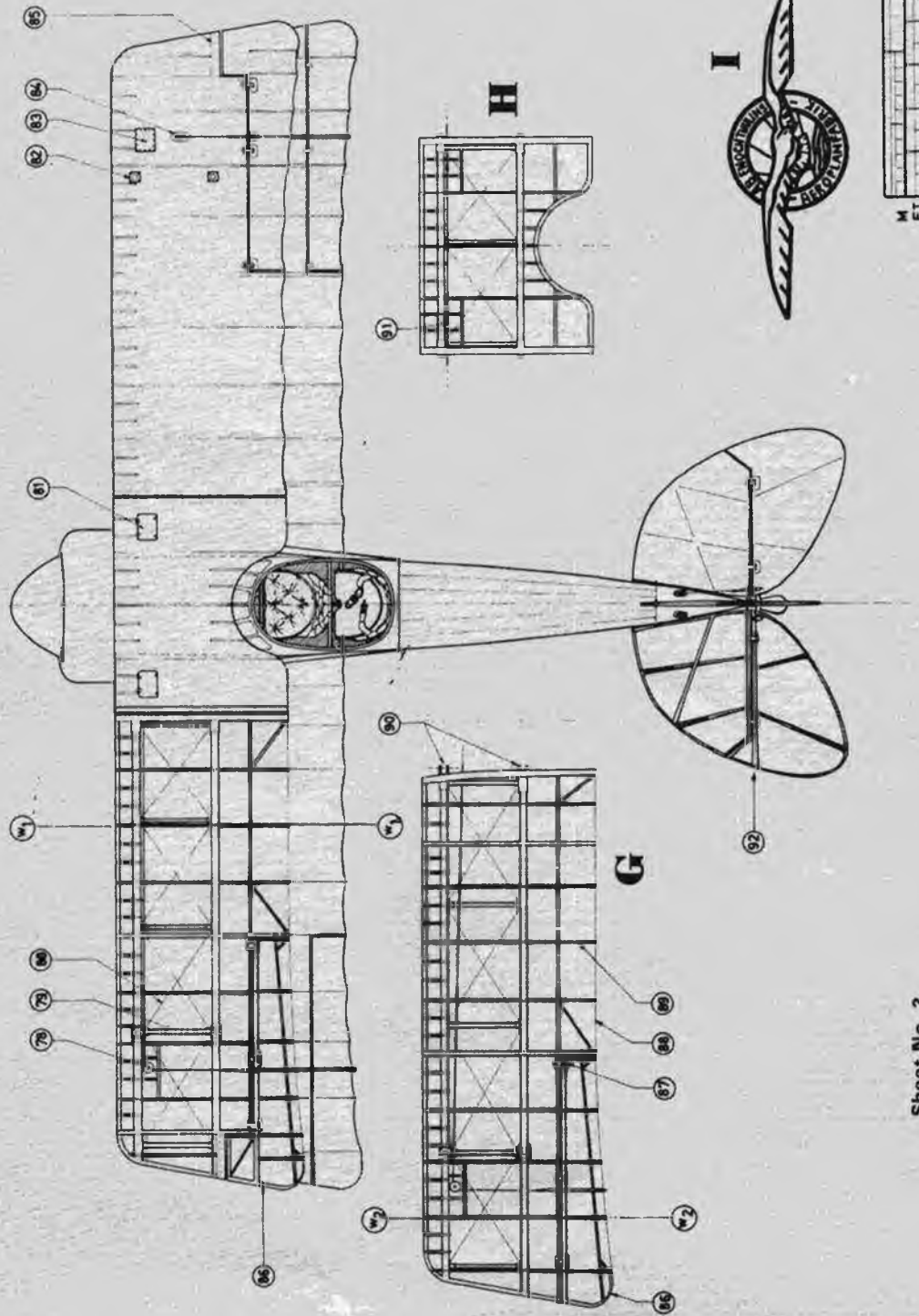
Viewing the fuselage structure from inside the cockpit, it appears to be painted the same green as the other metal areas of the aircraft.

Finally: Tyres of the NA — and indeed of many other WWI-period aircraft — were NOT black, but a pale yellowish colour of natural rubber. Again, Humbrol HG7 would be useful, slightly dulled by a drop of light grey. Most engines of the period, and Thulin engines are by no means an exception, were highly polished and the best approximation is to use silver with a tint of black.

### References:

The drawing and technical description are mainly based upon measures, photographs and studies of the preserved Thulin NA at Landskrona Museum. Original AETA drawings made available by the Technical Museum of Stockholm have also been used.

Facts and figures for AETA production and for the NA are taken from a manuscript written by Ivar Malmer, one-time Technical Manager of AETA.



**Sheet No. 3**

- 78. Aileron cable pulley.
- 79. Steel-tube compression member.
- 80. Internal bracing: piano wire.
- 81. Hinged metal panel over aileron cable connections.
- 82. Strut attachment points consisting of two square steel washers, clamped over spar by four vertical bolts.
- 83. Metal panel over cable pulley, held in place by woodscrews.
- 84. Leatherette reinforcement at cable leadout.
- 85. Sheet metal fairing, covered with fabric.
- 86. Steel-tube ailerons.

**G: Lower wing**

- 87. Aileron hinge with wooden fillet on both sides.
- 88. Wire trailing edge.
- 89. Fretted plywood ribs.
- 90. Attachment lugs.

**H: Centre section**

- 91. Aileron cable connection.
- 92. Tailplane and elevators: welded steel-tube construction.

**I: Aeta trademark.**

**Sheet No. 4**

**J: Ribs, twice given scale.**

- 93. Leatherette reinforcement patches at strut and wire attachment points.
- 94. Seam in fabric.
- 95. Control stick bolts.
- 96. Strip of sheet metal covering floorboard joint.
- 97. Aperture for tailskid.
- 98. Bracing wire attachment lug.
- 99. Carburettor air-intake.
- 100. ASI pipes clamped to rear c/s strut.

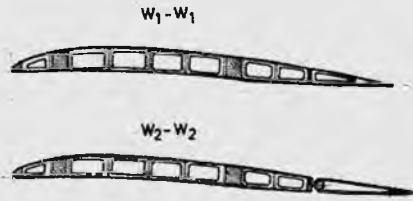
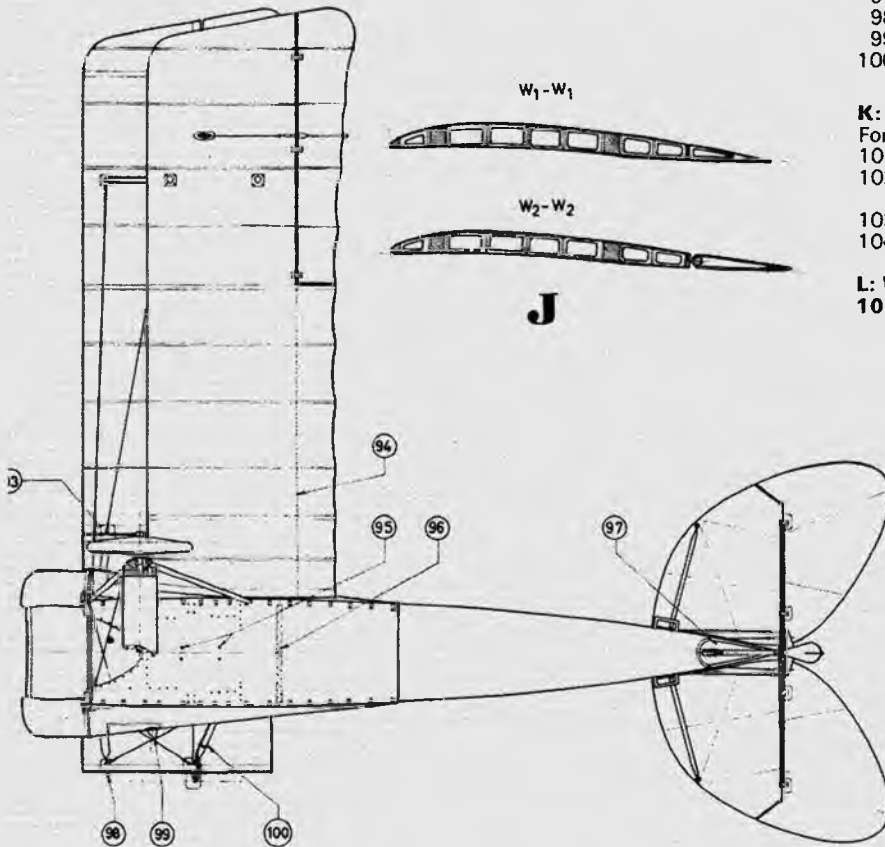
**K: Fuselage cross sections**

For reference, see sheet No. 1.

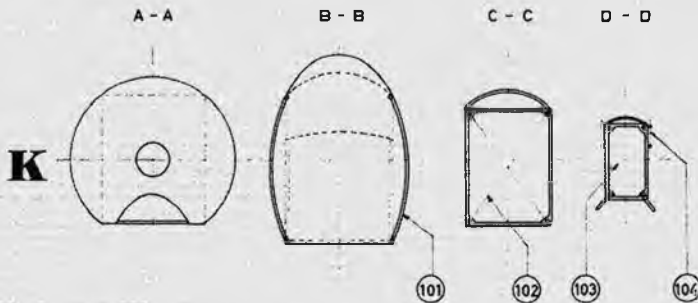
- 101. Wooden auxiliary former.
- 102. Bracing wire-loops run through eyelets welded inside the corners of the former.
- 103. No crossbracing in the rearmost former.
- 104. Tailplane incidence adjustment.

**L: Wire wheel with tyre, twice given scale.**

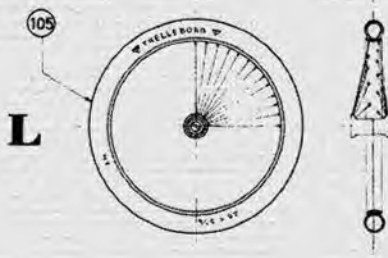
105: Trelleborg 28 x 3 1/2 natural rubber tyre.



**J**



**K**



**L**

*Plan Sheets 1 and 2 were published in the July 1982 issue of Aeromodeller. A set of dyeline prints to a scale of 1/24th of these 1/48th scale drawings are available as Plan No. 3048, price £1.50 inclusive of VAT plus 45p p&p from the Aeromodeller Plans Service, PO Box 35, Bridge Street, Hemel Hempstead, Herts., HP1 1EE.*

**THULIN 'NA'**





**FREE FLIGHT SCENE Continued from page 399**

FAI size model with 200mm chord and a big propeller was too big, and then I decided to build a F1D ship according to Erv Rodemsky's Santa Ana proposal. I made two at a time and proud was I when they came out at 1.06 and 1.02 grams! And they really flew. In course of the event I managed to improve the Danish indoor record from 9:17 minutes to exactly 15:00 minutes. Per flew some old ships (10 years!!) of smaller size and didn't catch me. We think it is possible to exceed 20 minutes with these 'Santa Ana' models in our hall. The rubber weight was 0.75gm. We now have started 'The quarter of an hour climb'.

In the small microfilm class — 35cm — we improved the previous record from 6:30 to 10:50 min. the latter flight was made by me with a low aspect ratio 0.57gm model.

We had seven competitors with EZB and the best time from last year was 7:15, and this record was improved to 8:59 by me. We fly to a 1gm minimum weight here in Denmark but actually nobody had models down to this weight. My model with the record weighed 1.1gm, all models are covered with condenser paper and I think

**Danish Indoor Nationals 17th April.** Site: The Danish Handball Hall in Flensburg with a relative clean ceiling at 9m.

F1D (2 flew). 1. Jorgen Korsgaard, 12:40 + 15:00 = 27:40; 2. Per Grunnet, 7:19 + 7:07 = 14:26, 35CM (4 flew). 1. Jorgen Korsgaard, 9:51 + 10:50 = 20:41; 2. Steffen Jensen, 6:47 + 7:55 = 14:42; 3. Bjarne Jorgensen, 1:29 + 1:49 = 3:18, EZB (7 flew). 1. Jorgen Korsgaard, 8:59 + 8:51 = 17:50; 2. Erik Knudsen, 7:35 + 7:25 + 15:00; 3. Jens B. Kristensen, 6:37 + 6:48 = 13:25. HLG Chuck (2 flew). 1. Jorgen Korsgaard, 20.00 + 21.00 = 41.00 secs. 2. Erik Knudsen, 18.00 + 12.00 = 30.00 secs.

we'll stay with that. When you talk about microfilm on EZBs I think many people will not build an EZB. Nevertheless we had trimming troubles with these models and we have a lot to learn yet.

We also tried HLG glider but I was the only one with a 'Coot' and an 'Upstart', and they came out with all too much camber so I couldn't get them up and the best (unofficial) time was 23 seconds. But in the competition I only managed 20 + 21 seconds.

**Port Meadow 16th May**

We were extremely lucky with the weather for this event. The day started misty and flat calm. A gentle drift developed later bringing with it some strong thermals. Port Meadow is a long narrow piece of common land and the drift was across the short way. One or two models went astray during the day but this was due more to the strength of the lift than the limitations of the terrain.

Three events were scheduled; Cd'H, A1 and HLG, the first two being held in rounds and flown from a line. Organisation included a PA system to give competitors information on round times and a good old school bell to signify start and finish of same! With the absence of power models the rally had a relaxed air, and as cars are not allowed on the Meadow, everyone encamped on the grass, setting out their wares in the manner of fondly remembered Northern Heights or All Britain Rallies. Entries were rather low, perhaps due to the close proximity of the Nationals, but the winners were generously rewarded with hand-made souvenir plates, modelling goods kindly supplied by the Oxford Model Centre and cash in proportion to their placing.

The A1 Glider event had a cliff-hanging finish when, after four rounds, Derek Wain of Bristol and West and Martin Dilly of Croydon both had 'full houses'. In the last round Derek ran on and on with his straight tow model, literally releasing on the bank of the River Thames. The model glided gently back to earth by the control tent to record 2 minutes and 1 second! Meanwhile,

Martin by circle towing, had got downwind of the line and found a somewhat turbulent bump which took the model off the field into an impenetrable copse. Not having a reserve, the fly-off was delayed as long as possible but Martin failed to locate the model. Thus Derek had only to make a token flight to ensure 1st place.

His model was based upon John Bailey's 'Skyjacker', drawings of which were published a while back in the Aeromodeller. Dilly's model featured elliptical tips, surface spars and a balsaboomed body as opposed to the more usual fibreglass. Ken Smith took 3rd place with his familiar squared-off functional design.

The Coupe d'Hiver event was won in a convincing manner by Dave Greaves, now of Bristol and West Club. He dropped 2 flights when initial lift petered out, but only by a small margin. Dave flew a conventional design of around 190sq. in. wing area, displaying immaculate decoration and careful attention to detail. Second and third places were taken by Birmingham clubsters Screen and Harris, who are now expanding their interests into the subtle delights of rubber power. Stafford only dropped time on one flight and found that the performance of his model was greatly enhanced by fitting a Greaves inspired tailplane — or should I say an inspired Greaves tailplane! The fuselage of the model was a pod and boom in the French style and an outrigger prop was fitted. Pete Harris' model was straightforward enough with its rectangular wing and rolled tube fuselage, but the fin had a segment cut away to arrest the d/t action, a feature not often seen these days.

HLG was won by Nick Pope all the way down from Wigan, flying an elliptical ship, which I suppose was influenced by the designs of Barry Kershaw out of Nat Antonioh's 'Dolphin' (Zaic Antoniolli's Year Book 1965). Results A1 Glider (12 entries) 1. D. Wain 10min. + 40sec F/O; 2. M. Dilly 10min; 3. K. Smith 9:50. Cd'H (12 entries) 1. D. Greaves 9:36; 2. S. Screen 9:19; 3. P. Harris 9:02. HLG (2 entries) 1. N. Pope 3:38; 2. E. Burge 1:12.

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## 25 YEARS AGO By DAVE DAY

The editorial for this issue recorded the awarding of an M.B.E. to SMAE Chairman Mr. A. F. Houlberg 'In recognition of his sterling work in the field of British and International Aeromodelling'. He had at that time been chairman of the SMAE for some 36 years and president of the FAI Models Commission for 10 years and was still to continue for some time in both posts.

This issue was largely taken up by reports of the British Nats and the Criterium of Europe, with a consequent reduction in other features. The Nats were held at RAF Waterbeach, near Cambridge, over the Whitsun weekend and encountered changeable, sometimes very unpleasant, weather. Those people who arrived on Saturday (they were two-day Nationals in those days) were greeted by 'hailstones as big as cobnuts!'

Class A teamrace (we didn't fly FAI at the Nats then) was won by Dick Edmonds this being his fifth win in six years! Wonder when he last picked up a handle? 10cc speed saw the first demonstration of monoline speed flying in this country by Maurice Mendham (good name for an aeromodeller!) with his winning McCoy 60 powered model at 137mph.

Ray Monks must have enjoyed himself in winning F/F Rubber and coming second in Payload (Whatever happened to that?),

while the dreaded O'Winnall had to be content with second in F/F power.

Before we finish with the name dropping, let's mention Messrs. Peter Russell, Tom Jolly and Dave Platt who were 1st, 3rd and 4th in the Gold Trophy. Anyone know whatever happened to Dave Chislett who was second?

There were a couple of R/C events too. One was won by a multi-channel model with single channel models in the next four places, while the other event was won by a single channel model with multi-models in the next three places. *Some things do change.*

A few days later in Brussels, the VIIIth Criterium of Europe drew a handful of British entrants including Dave Platt who eventually managed 12th place in the stunt event which was won by Henri Stouffs of Belgium with a Fox 35 powered 'Thunderbird', Henri was also seventh in speed and piloted the winning team race model. Fastest heat in team ace was 5:03 set by Messrs. Bassett & Gibbs. The report stated "we doubt if 10 kilometres could ever be covered at a faster speed in FAI Racing!" 'Gadget' Gibbs was also second in speed at 125:5mph.

Returning to regular features, there were two plans service introductions (it seemed

miserly then); 'June Bug' a 48in. span sports biplane for 2.5cc diesels by Norman W. Davis, and the Fieseler Storch by P. L. Whittaker. This was a 1/12th scale models (46½in. span) for .75-1.3cc diesels. Both of these models were F/F, although the 'June Bug' was also suitable for 'Rudder Only' R/C.

'Famous Biplanes' No. 10, by G. A. G. Cox featured the D.H. 89A 'Dragon Rapide' which also formed the subject for the cover photo. As was usual in the series, details were given for building a solid model of the aircraft (didn't fly too well though). Unusually, the plans were to 1/48th scale. 'Engine Analysis' No. 38 by R. H. Warring featured the Barbini B. 40 TN Glowplug motor from Spain. Despite the name this was 2.5cc capacity and featured a roller bearing at the rear of the crankshaft and a roller bearing big end! Power output was .189bhp at 14,000rpm. 'Know your Engine' part 12 attempted to explain the intricacies of propeller design and seemed to cover most of what we know today.

'Model News', 'World News' and 'Radio Control Notes' had their usual mixture while 'Club News' mentioned the High Wycombe C/L Rally where a certain Norman Butcher won the combat event. No more name dropping this month.

# CLASSIFIED advertisements

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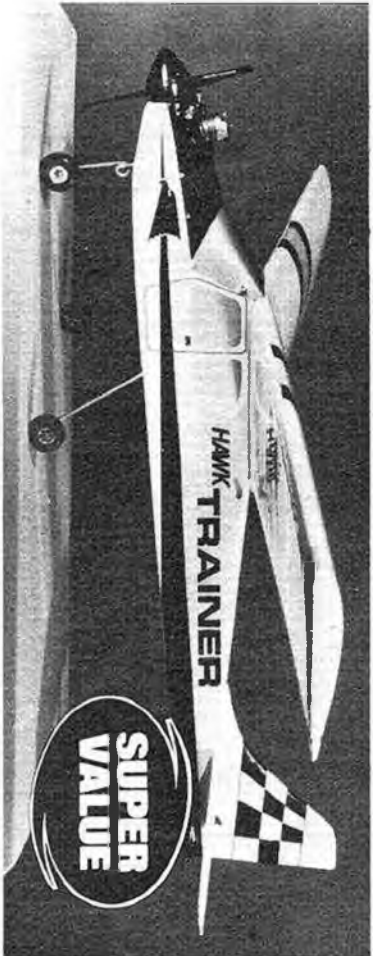
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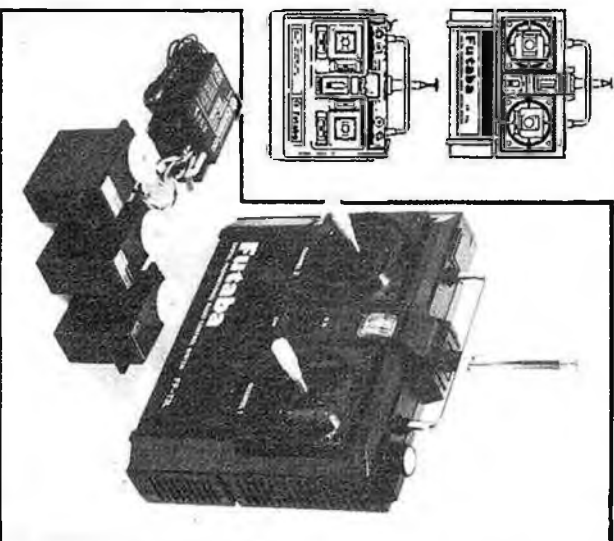
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